

# Vibration Analysis Report

Example Company, New Road, Newtown,  
UK: 21<sup>st</sup> January 2008.



Details of Engineer, Site Representative and Report Author

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**Date of Survey(s):**  
21<sup>st</sup> January 2008

**Our Reference Number:**  
HT08-01

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# Maintenance Checklist - 21/01/2008

## Example Company Limited, Production Plant

MISCELLANEOUS INSTALLATIONS					
Machine/Component	Fault Description	Priority Rating	Trend	Recommendations	✓
2.2H Plant Room Main Extract Fan K103	Outer race vibration	Unsatisfactory	Increasing	Maintain lubrication of BOTH motor bearings	
2.1 PLANT INSTALLATIONS					
Machine/Component	Fault Description	Priority Rating	Trend	Recommendations	✓
2.1b Conditioning Room Extract Fan K1303	Developing imbalance	Advisable	Increasing	Monitor for further deterioration	
2.1b Suction Setting Bed Fan K2001	Developing imbalance	Unsatisfactory	Increasing	Clean the impeller and check fan blade condition/clearances	
				Check BOTH fan bearings for correct fit/sleeve condition	
				Check pulley security and condition	
				Ensure belts are properly tensioned/not worn	
2.1b Suction Roller Bed Fan K2003	Inner race vibration	Advisable	Increasing	Check alignment of belts between pulleys	
				Tighten all mounting bolts to correct	
2.1b Tendency Drive Fan No. 1 Dryer K1115	Developing imbalance	Advisable	Increasing	Lubricate the fan non drive end bearing	
2.1b Intermediate Dryer Tendency Drive Fan K1116	Abnormal noise	Advisable	N/A	Monitor for further deterioration	
2.1a 82 °C Calorifier Pump P1023A	Misalignment	Urgent	Increasing	Examine/secure or replace first top section of fan ducting	
				Check motor and pump shaft alignment	
				Check coupling security and condition	
2.1a Main Fan No. 2 Conditioner K1220	Imbalance and bearing vibration	Advisable	Increasing	If possible, inspect internal rotor condition of motor (skewed)	
				Secure by tightening all mounting bolts to correct torque	
				Lubricate BOTH motor bearings	
				Secure the motor by tightening all mounting bolts	
				Check motor pulley security/condition	
				Check motor shaft key insert/ tapered key way condition	
2.1a Water Degasser Extraction Pump P1087/2	Improved imbalance	Advisable	Decreasing	Ensure drive belts are not over/under tensioned	
2.1a Corona Supply Fan M3071/1	Loose fit bearing and misalignment	Unsatisfactory	Increasing	Check alignment of belts between pulleys	
				Check fan non drive end bearing fit/sleeve condition	
				Check fan shaft supporting frame for cracks/looseness etc.	
2.1a No. 2 Refrigeration Plant Compressor G2001	Slight imbalance	Advisable	Increasing	Check fan shaft alignment and secure all mounting bolts	
2.1a No. 1 Refrigeration Plant Compressor G2004	Misalignment and inner race vibration	Advisable	Increasing	Monitor for further deterioration	
				Lubricate the motor drive end bearing	
				Check motor/compressor shaft alignment	
				Check motor/compressor shaft key insert/key way condition	
				Check coupling security and condition	
<b>SILVER RECOVERY INSTALLATIONS</b>					
Machine/Component	Fault Description	Priority Rating	Trend	Recommendations	✓
2.6 Lime Silo Re-agent Stirrer Agitator Motor SM21	Deteriorating imbalance	Advisable	Increasing	Monitor for further deterioration	
Tighten all mounting bolts to correct torque					

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## Report Section

### Introduction; Machine Listings; Site Details and Relevant Data

#### Introduction

##### Preface

Example Company Limited, situated in Newtown, UK, requested a *vibration survey* to be conducted on their Sensitising Plant machinery during November 1999, as part of a *free trial* and *demonstration* of our services.

The purpose of this survey was to highlight any potential or fully developed problems during the site visit on the machines selected for monitoring. Additionally, the effectiveness of *spectral frequency analysis* and *enveloping* techniques used to detect any impending faults was also demonstrated during the survey.

Following our initial survey, Example Company now employ regular *vibration surveys* on a six-weekly basis on their Production Plants. The continuation of *preventative maintenance* will optimise the full working life of the machines and downtime may be scheduled.

##### Details of Equipment Used On and Off Site

Diagnostic Instruments Di460 Data Collector (Serial No. 060287) - Calibrated: 27/02/2007

Diagnostic Instruments Di-225-D-IS Data Collector (Serial No. 0603117) - Declaration of Conformity: 13/12/2004 (Sira 01ATEX2030)

MTN/1100I Accelerometer (Serial No. 274669) 107.20 mV/g @ 80 Hz - Calibrated: 16/03/2006 (EEx ia IIC T6)

MTN/1120IF-50 Accelerometer (Serial No. 250039) 49.80 mV/G Sensitivity @ 80 Hz - Calibrated: 01/03/2007

SKF-DEI Polymanager Software (latest version v2.93)

SKF-DEI Polymate Analytical Software (latest version)

##### Details of Analytical Techniques Conducted On Site

FFT Spectral Analysis (High frequency acceleration, HF/LF enveloping and velocity - up to 12800 Lines)

FFT Time Waveform (acceleration - transient analysis)

Real-time run-up and coast down analysis (selected machinery)

Phase (Vector and Orbit) Signatures (2 channel analysis/selected machinery)

Resonance 'Bump' Tests (selected machinery)

## Evaluation of Rotating Machine Condition using ISO10816-3 Vibration Severity Standard

The ISO Committee have completely revised the old ISO2372 Vibration Severity Standard for evaluating in-situ performance of rotating machines. The new standard: **ISO10816-3** accommodates the many changes that have taken place in the design and operating frequencies of modern process machinery.

The vibration criteria in this standard applies to the machine sets, with for example steam turbine or electric drives, having a capacity above 15 kW and operating between speeds of 120 RPM and 15000 RPM. Machine sets covered by this standard include: (i) Steam Turbines with a capacity up to 50 MW; (ii) Steam turbine sets with a capacity greater than 50 MW and speeds below 1500 RPM; (iii) Rotary Compressors; (iv) Industrial gas turbines up to 3.0 MW capacity; (v) Pumps of centrifugal, mixed or axial flow type; (vi) Electrical motors of any type and (vii) Blowers or fans, not of lightweight sheet metal construction.

### Classification according to Machine Type and Application

Significant differences in the design; type or bearings and support structures requires a separation into different groups. Machines in these groups may have horizontal, vertical or inclined shafts and can be mounted on rigid or flexible supports.

- ❑ **Group 1:** Large machines rated above 300 kW; electrical machines with a shaft height  $H \geq 315$  mm.
- ❑ **Group 2:** Medium machines with a rated power above 15 kW up to and including 300 kW: electric machines with a shaft height  $160 \text{ mm} \leq H \leq 315$  mm.
- ❑ **Group 3:** Pumps with multi vane impeller and separate driver, rated above 15 kW capacity.
- ❑ **Group 4:** Pumps with multi vane impeller and integrated driver, rated above 15 kW capacity.

## ISO10816-3 Vibration Severity Standard

								RMS	RMS	Velocity 10 - 1000 Hz $r > 600$ rpm 2 - 1000 Hz $r > 120$ rpm
								11	0.44	
								7.1	0.28	
								4.5	0.18	
								3.5	0.11	
								2.8	0.07	
								2.3	0.04	
								1.4	0.03	
								0.71	0.02	
								mm/sec.	inch/s	
rigid	flexible	rigid	flexible	rigid	flexible	rigid	flexible	FOUNDATION		
Pumps > 15 kW radial, axial, mixed flow				Medium sized machines 15 kW < P ≤ 300 kW		Large machines 300 kW < P < 50 MW		MACHINE TYPE		
Integrated driver		External driver		Motors 160 mm ≤ H < 315 mm		Motors 315 mm ≤ H				
<b>Group 4</b>		<b>Group 3</b>		<b>Group 2</b>		<b>Group 1</b>		GROUP CLASSIFICATION		

**Figure 2:** Table identifying ISO10816-3 Vibration Severity Standard.

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## Discussion

### Advice and Recommendations

#### 1 Recommendations for 2.1 Plant installations

##### 1.1 Upper Plant Room 2.1b Conditioning Room Extract Fan K1303 - developing imbalance

Monitor the developing *imbalance* occurring on the *fan non drive end* bearing of the Upper Plant Room 2.1b Conditioning Room Extract Fan K1303 for any further significant deterioration at this stage (currently attaining an acceptable *velocity* amplitude of 4.53 mm/sec. at 11.875 Hz *rotational* frequency).

##### 1.2 Upper Plant Room 2.1b Suction Setting Bed Fan K2001 - PRIORITY (imbalance)

The developing *imbalance* detected on the *fan drive end* bearing of the Upper Plant Room 2.1b Suction Setting Bed Fan K2001 attained a *velocity* amplitude of 6.17 mm/sec. at 29.375 Hz *belt passing* frequency (previously 2.10 mm/sec.). Further *enveloping* analysis identified some increasing level of *shaft loading* and *outer race* vibration occurring on both fan bearings, attaining a comparatively high *enveloped acceleration* amplitude of 0.49 gENV at 29.375 Hz *rotational* frequency on the *fan drive end* bearing. It is therefore recommended that the following work should be undertaken:

- (i) Clean the impeller and check fan blade condition.
- (ii) Check both fan shaft bearings for proper fit and sleeve condition.
- (iii) Check pulley security and condition.
- (iv) Ensure the belts are properly tensioned and not worn.
- (v) Check the alignment of the belts between both pulleys.
- (vi) Secure the installation by tightening all mounting bolts to 565 Nm torque.

##### 1.3 Upper Plant Room 2.1b Suction Roller Bed Fan K2003 - lubrication issue

Lubricate the *fan non drive end* bearing of the Upper Plant Room 2.1b Suction Roller Bed Fan K2003 in order to reduce the comparatively high levels of *inner race* vibration observed during the survey (currently attaining an *enveloped acceleration* amplitude 0.75 gENV at 466.25 Hz; 2x *inner race* defect frequency).

##### 1.4 Upper Plant Room 2.1b Tendency Drive Fan No. 1 Dryer K1115 - developing imbalance

Monitor the developing *imbalance* occurring on the *motor non drive end* bearing of the Upper Plant Room 2.1b Tendency Drive Fan No. 1 Dryer K1115 for any further significant deterioration at this stage (currently attaining an acceptable *velocity* amplitude of 4.27 mm/sec. at 46.875 Hz *rotational* frequency).

1.5 Upper Plant Room 2.1b Intermediate Dryer Tendency Drive Fan K1116 - noise/resonance

Suggest examining, securing and/or replacing the first top section of the impeller casing (stainless steel duct), of the Upper Plant Room 2.1b Intermediate Dryer Tendency Drive Fan K1116 where noise levels are extremely high.

1.6 Lower Plant Room 2.1a 82 °C Calorifier Pump P1023A - URGENT PRIORITY (misalignment)

The developing *misalignment* detected on the *motor non drive end* bearing of the Lower Plant Room 2.1a 82 °C Calorifier Pump P1023A attained a *velocity* amplitude of 5.20 mm/sec. at 81.875 Hz (*2x rotational* frequency). In addition to the *misalignment*, there is mounting evidence to suggest there is an off-centre internal rotor on the *non drive end* position of the motor, attaining an *enveloped acceleration* amplitude of 2.70 gENV at 81.875 Hz (*2x rotational* frequency). It is therefore recommended that the following work should be undertaken:

- (i) Check motor and pump shaft alignment.
- (ii) Check coupling security and condition.
- (iii) Inspect the internal rotor condition and alignment of the motor.
- (iv) Secure the installation by tightening all mounting bolts to 565 Nm torque.

1.7 Lower Plant Room 2.1a Main Fan No. 2 Conditioner K1220 - PRIORITY (motor imbalance and bearing vibration)

The deteriorating *imbalance* detected on the *motor non drive end* bearing of the Lower Plant Room 2.1a Main Fan No. 2 Conditioner attained a *velocity* amplitude of 4.42 mm/sec. at 24.688 Hz *rotational* frequency). Likewise, further *enveloping* analysis identified some prominent levels of *cage and shaft loading* vibration occurring on the *motor drive end* bearing which should be eliminated by the following work:

- (i) Lubricate BOTH motor bearings.
- (ii) Secure the motor by tightening all mounting bolts to 565 Nm torque.
- (iii) Check motor pulley security and condition.
- (iv) Check motor shaft key insert/key-way condition and security.
- (v) Ensure drive belts are not over/under tensioned.
- (vi) Check the alignment of the belts between both pulleys.

1.8 Lower Plant Room 2.1a Water Degasser Extraction Pump P1087/2 - improved imbalance

The improving *imbalance* occurring on the *motor non drive end* bearing of the Lower Plant Room 2.1a Water Degasser Extraction Pump P1087/1 attained an acceptable *velocity* amplitude of 5.08 mm/sec. at 46.25 Hz *rotational* frequency (previously 5.18 mm/sec. at 46.125 Hz *rotational* frequency) and should be monitored for any continued reduction in amplitude.

### 1.9 Lower Plant Room 2.1a Corona Supply Fan M3071/1 - fan bearing looseness/misalignment

The deteriorating *misalignment* detected on the *fan non drive end* bearing of the Lower Plant Room 2.1a Corona Supply Fan M3071/1 attained a *velocity* amplitude of 5.28 mm/sec. at 194.063 Hz (*4x rotational frequency*) which should be eliminated by the following work:

- (i) Check the *fan non drive end* bearing sleeve condition and security.
- (ii) Check the *fan non drive end* bearing for looseness or cracks/flexing on the supporting frame.
- (iii) Ensure the bearing is seated correctly (i.e., not *cocked* on the shaft).
- (iv) Check fan shaft alignment.
- (v) Secure the bearing by tightening all pedestal mounting bolts to 565 Nm torque.

### 1.10 Lower Plant Room 2.1a No. 2 Refrigeration Plant Compressor G2001 - slight imbalance

Monitor the deteriorating *imbalance* occurring on the *motor drive end* bearing of the Lower Plant Room 2.1a No. 2 Refrigeration Plant Compressor G2001 for any further significant deterioration at this stage (currently attaining an acceptable *velocity* amplitude of 4.42 mm/sec. at 24.688 Hz *rotational frequency*).

### 1.11 Lower Plant Room 2.1a No. 1 Refrigeration Plant Compressor G2004 - misalignment

The developing *misalignment* occurring on the Lower Plant Room 2.1a No. 1 Refrigeration Plant Compressor G2004 attained a *velocity* amplitude of 4.68 mm/sec. at 49.688 Hz (*2x rotational frequency*) on the *compressor input shaft drive end* bearing. Further analysis utilising the *enveloping* technique revealed some comparatively high levels of *inner race* vibration occurring on the *motor drive end* bearing, attaining an *enveloped acceleration* amplitude of 0.65 gENV at 171.875 Hz frequency which should be eliminated as follows:

- (i) Lubricate the *motor drive end* bearing.
- (ii) Check motor/compressor shaft alignment and shaft key insert/key-way condition.
- (iii) Check coupling condition and security.
- (iv) Secure the installation by tightening all mounting bolts to appropriate torque.

## 2 Recommendations for 2.6 Silver Recovery Plant installations

### 2.1 2.6 Silver Recovery Room Lime Silo Re-agent Stirrer Agitator Motor SM21 - imbalance

The deteriorating *imbalance* occurring on the *motor non drive end* bearing of the Silver Recovery Room Lime Silo Re-agent Agitator Motor SM21 attained a *velocity* amplitude of 4.60 mm/sec. at 24.063 Hz *rotational frequency* (previously 4.10 mm/sec.) and should be monitored for any further significant deterioration.

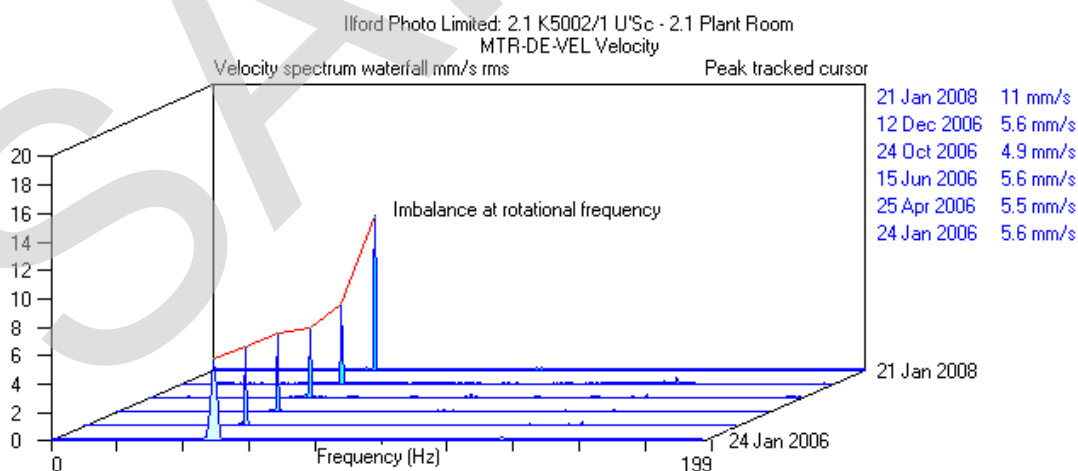
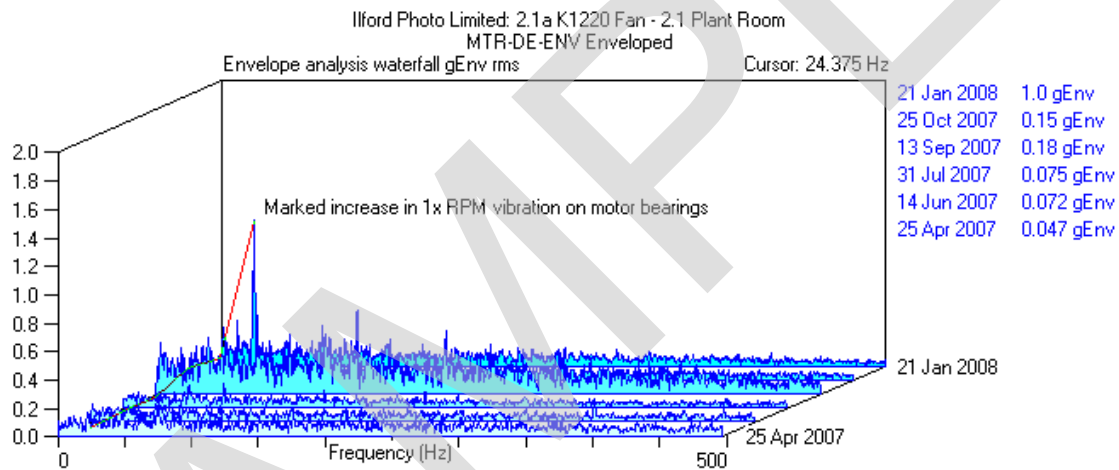
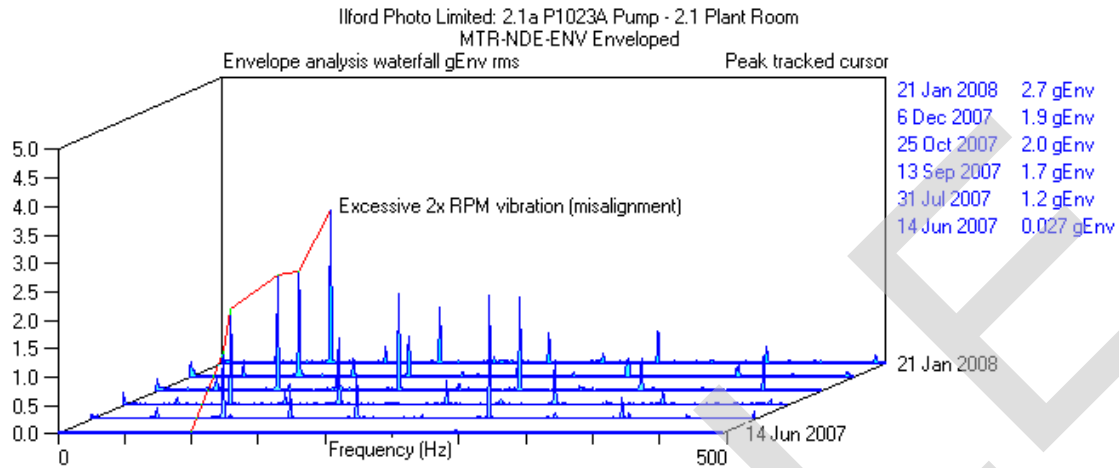
### 3 Recommendations for Miscellaneous Plant

#### 3.1 2.2H Plant Room Main Extract Fan K103 - PRIORITY (lubrication / suspect motor bearings)

Lubricate both motor bearings of the 2.2H Plant Room Main Extract Fan K103 in order to reduce the prominent levels of *outer race* vibration observed during the survey (currently attaining an *enveloped acceleration* amplitude of 1.50 gENV at 160 Hz frequency on the *motor non drive end* bearing).

However, as lubrication has had little effect in recent months, it is advised that the motor bearings should be considered for investigation/replacement in due course.

If there is any aspect of this report you wish to discuss in greater detail, or any further points you would like to raise yourself, then please do not hesitate to contact **Anthony Riseley** on Tel. 01352 710600 or Email [sales@dynaseq.co.uk](mailto:sales@dynaseq.co.uk).



# MISSED POINTS REPORT

Generated by Polymanager Route Manager Version 2.93

TOUR NAME: Example Company - Production Plant  
 PLANT: Example Company Limited  
 DATA COLLECTOR: Di460 Dual Channel  
 TOUR STATUS: Tour completed with missed points  
 LOADED: Tour has been loaded once.

B51 Sump P51/S B51 Sump B51 Sump P51 B51 Sump	Machine is now 232 days overdue Machine is now 688 days overdue
2.2G Pump P103 2.2G Plant Room 2.2G Pump P102 2.2G Plant Room 2.2G Pump P171 2.2G Plant Room 2.2G Pump P172 2.2G Plant Room 2.2G Pump P106 2.2G Plant Room 2.2G Pump P108 2.2G Plant Room	Machine is now 92 days overdue Machine is now 92 days overdue Machine is now 372 days overdue Machine is now 688 days overdue Machine is now 50 days overdue Machine is now 688 days overdue
2.2H Chiller 1 2.2H Plant Room 2.2H P101/V1 2.2H Plant Room	Machine is now 8 days overdue Machine is now 688 days overdue
Retest P108A 2.1 Retest	Machine is now 688 days overdue
2.1b K3053 Fan 2.1 Plant Room 2.1 Glyc. P2008A Evaporator Pump 2.1 Glyc. P2008B Evaporator Pump 2.1 Glyc. P2005A Tank to Air Coil 2.1b K1092 CCS 2.1 Plant Room 2.1b K2002 Fan 2.1 Plant Room 2.1b Atlantic 1 2.1 Plant Room 2.1b Cascade 1 2.1 Plant Room 2.1 Joiner Spare 2.1 Plant Room	Machine has not been monitored Machine is now 688 days overdue Machine is now 8 days overdue Machine is now 638 days overdue Machine is now 50 days overdue Machine is now 50 days overdue Machine is now 183 days overdue Machine is now 92 days overdue Machine is now 1436 days overdue
2.6 T93A Agitatr Silver Recovery 2.6 T93A Pump Silver Recovery 2.6 B92A Pump Silver Recovery 2.6 P92B Pump Silver Recovery 2.6 P91 Pump Silver Recovery 2.6 P91/S Pump Silver Recovery 2.6 P51B Pump Silver Recovery 2.6 P23D Pump Silver Recovery 2.6 SM23 Scraper Silver Recovery 2.6 T83A Agitatr Silver Recovery 2.6 T83B Agitatr Silver Recovery 2.6 T84 Agitatr Silver Recovery 2.6 T21 Lime Pmp Silver Recovery 2.6 P21 Slurry Silver Recovery	Machine is now 317 days overdue Machine is now 317 days overdue Machine is now 1073 days overdue Machine is now 8 days overdue Machine is now 8 days overdue Machine is now 317 days overdue Machine is now 8 days overdue Machine is now 1751 days overdue Machine is now 1541 days overdue Machine is now 1436 days overdue Machine is now 1436 days overdue Machine is now 688 days overdue Machine is now 416 days overdue Machine is now 8 days overdue
East B52 Pump East Side Plant East B52S Pump East Side Plant	Machine is now 416 days overdue Machine is now 1525 days overdue
2.1a Anti Curl 2.1 Plant Room 2.1a M5000/6/B 2.1 Plant Room 2.1a K1701/2 Fan 2.1 Plant Room 2.1a K1651 Fan 2.1 Plant Room 2.1a K1925 Fan 2.1 Plant Room 2.1a P1023B Pump 2.1 Plant Room	Machine is now 367 days overdue Machine is now 1892 days overdue Machine is now 136 days overdue Machine is now 598 days overdue Machine is now 50 days overdue Machine is now 317 days overdue

2.1 G1008/1 Pump 2.1 Plant Room	Machine is now 688 days overdue
2.1a K1114 Fan 2.1 Plant Room	Machine has not been monitored
2.1a M1901 Fan 2.1 Plant Room	Machine is now 416 days overdue
2.1 P1087/1 Pump 2.1 Plant Room	Machine is now 8 days overdue
2.1 P1087/2A Pmp 2.1 Plant Room	Machine is now 367 days overdue
2.1a De-Gasser A 2.1 Plant Room	Machine is now 1323 days overdue
2.1a K1701/1 Fan 2.1 Plant Room	Machine is now 598 days overdue
50C P2001 Pump 2.1 Plant Room	Machine is now 8 days overdue
82C P1014M1 Pump 2.1 Plant Room	Machine is now 183 days overdue
MR3 P1014 Pump 2.1 Plant Room	Machine is now 547 days overdue
MR3 M1046 Stir 2.1 Plant Room	Machine is now 183 days overdue
MR3 M1054/1 Stir 2.1 Plant Room	Machine is now 547 days overdue
MR3 P1001A Pump 2.1 Plant Room	Machine is now 1158 days overdue
MR3 M1045/2 Stir 2.1 Plant Room	Machine is now 136 days overdue
MR3 P1016M1 Pump 2.1 Plant Room	Machine is now 136 days overdue
MR2 M1054/3 Stir 2.1 Plant Room	Machine is now 233 days overdue
MR2 P1013 Pump 2.1 Plant Room	Machine is now 233 days overdue
MR2 P1004B Pump 2.1 Plant Room	Machine is now 1583 days overdue
MR2 M1045/1 Stir 2.1 Plant Room	Machine is now 688 days overdue
MR2 P1015 Pump 2.1 Plant Room	Machine is now 688 days overdue
MR1 M2005 Stir 2.1 Plant Room	Machine is now 233 days overdue
MR1 P2003A Pump 2.1 Plant Room	Machine is now 232 days overdue
MR1 M2004A Stir 2.1 Plant Room	Machine is now 8 days overdue
MR1 P2003B Pump 2.1 Plant Room	Machine is now 8 days overdue
MR3 P1018 Pump 2.1 Plant Room	Machine is now 232 days overdue
MR3 M1055 Stir 2.1 Plant Room	Machine is now 232 days overdue
MR3 M1045/3 Stir 2.1 Plant Room	Machine is now 688 days overdue
MR3 M1054/2 Stir 2.1 Plant Room	Machine is now 232 days overdue
MR3 P1012 Pump 2.1 Plant Room	Machine is now 232 days overdue
MV25 Pump P64 2.2 New Melting	Machine is now 50 days overdue
2.2 MV25 Agitatr 2.2 New Melting	Machine is now 50 days overdue
MV22 Pump P61 2.2 New Melting	Machine is now 50 days overdue
2.2 MV22 Agitatr 2.2 New Melting	Machine is now 50 days overdue
MV19 Pump P58 2.2 New Melting	Machine is now 50 days overdue
2.2 MV19 Agitatr 2.2 New Melting	Machine is now 50 days overdue
2.2 CV20 Agitatr 2.2 New Melting	Machine is now 505 days overdue
2.2 CV21 Agitatr 2.2 New Melting	Machine is now 50 days overdue
2.2 CV23 Agitatr 2.2 New Melting	Machine is now 505 days overdue
2.2 CV24 Agitatr 2.2 New Melting	Machine is now 50 days overdue
2.2 CV26 Agitatr 2.2 New Melting	Machine is now 505 days overdue
2.2 CV27 Agitatr 2.2 New Melting	Machine is now 50 days overdue
2.5C Hyd. G302 2.5C Flammables	Machine is now 1751 days overdue
2.5C Pump G301 2.5C Flammables	Machine is now 2346 days overdue
2.5C Pump P322 2.5C Flammables	Machine is now 8 days overdue
2.5C Pump V320 2.5C Flammables	Machine is now 1625 days overdue
2.2E Pump G102/1 2.2E Plant Room	Machine is now 1282 days overdue
2.2E Pump G102/2 2.2E Plant Room	Machine is now 50 days overdue
2.2F P126A Pump 2.2F Plant Room	Machine is now 8 days overdue
2.2F P126B Pump 2.2F Plant Room	Machine is now 2143 days overdue
2.2F AHU LHS-1 2.2F Plant Room	Machine is now 1073 days overdue
2.2F AHU LHS-2 2.2F Plant Room	Machine is now 1073 days overdue
2.2F AHU RHS-1 2.2F Plant Room	Machine is now 50 days overdue
2.2F AHU RHS-2 2.2F Plant Room	Machine is now 416 days overdue
2.2F AHU Top Fan 2.2F Plant Room	Machine is now 50 days overdue
2.2F P128 Pump 2.2F Plant Room	Machine is now 8 days overdue
2.2F P129 Pump 2.2F Plant Room	Machine is now 638 days overdue