

ANNEXURE A KPI TREES

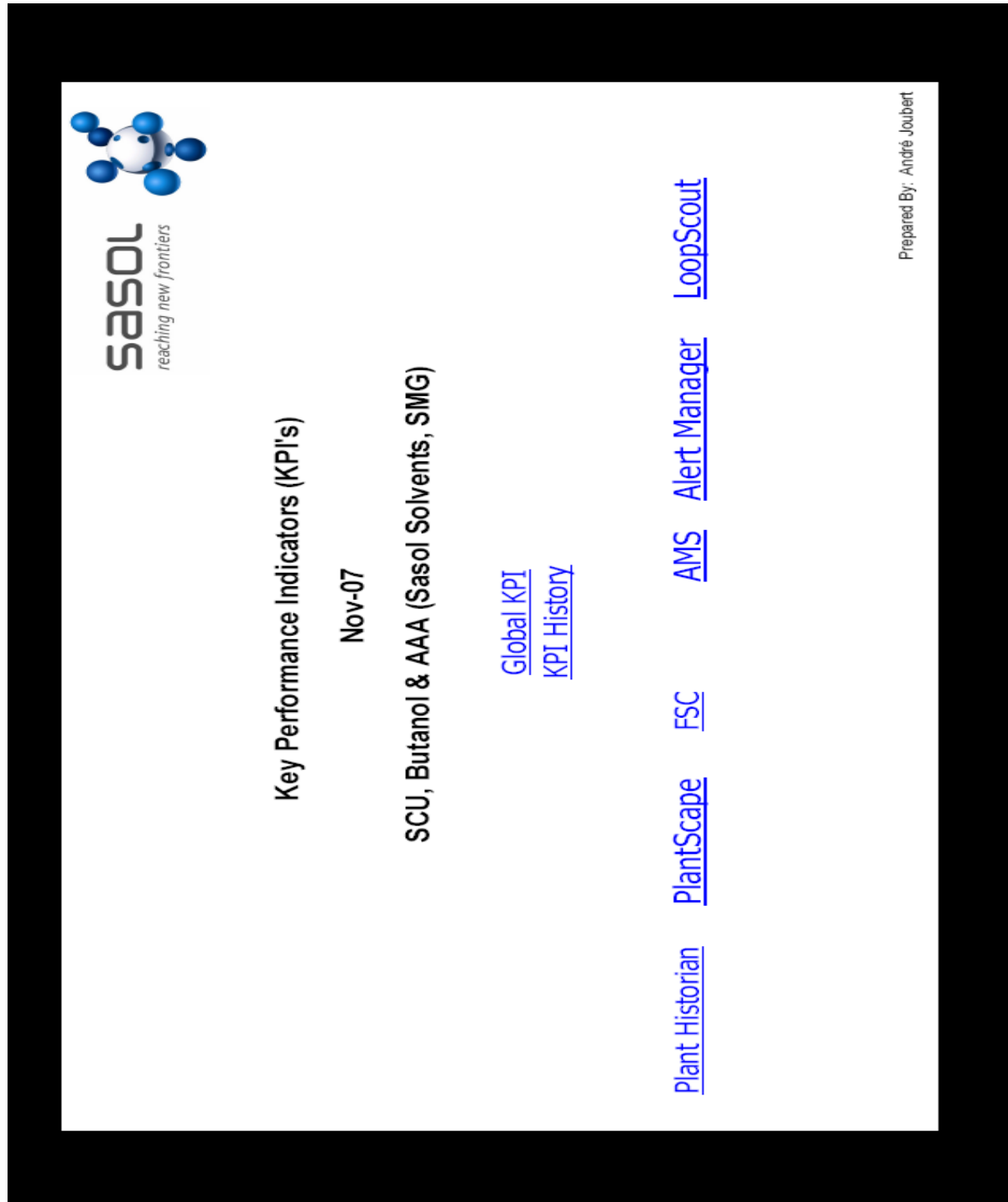


Figure A1: KPI Tree index

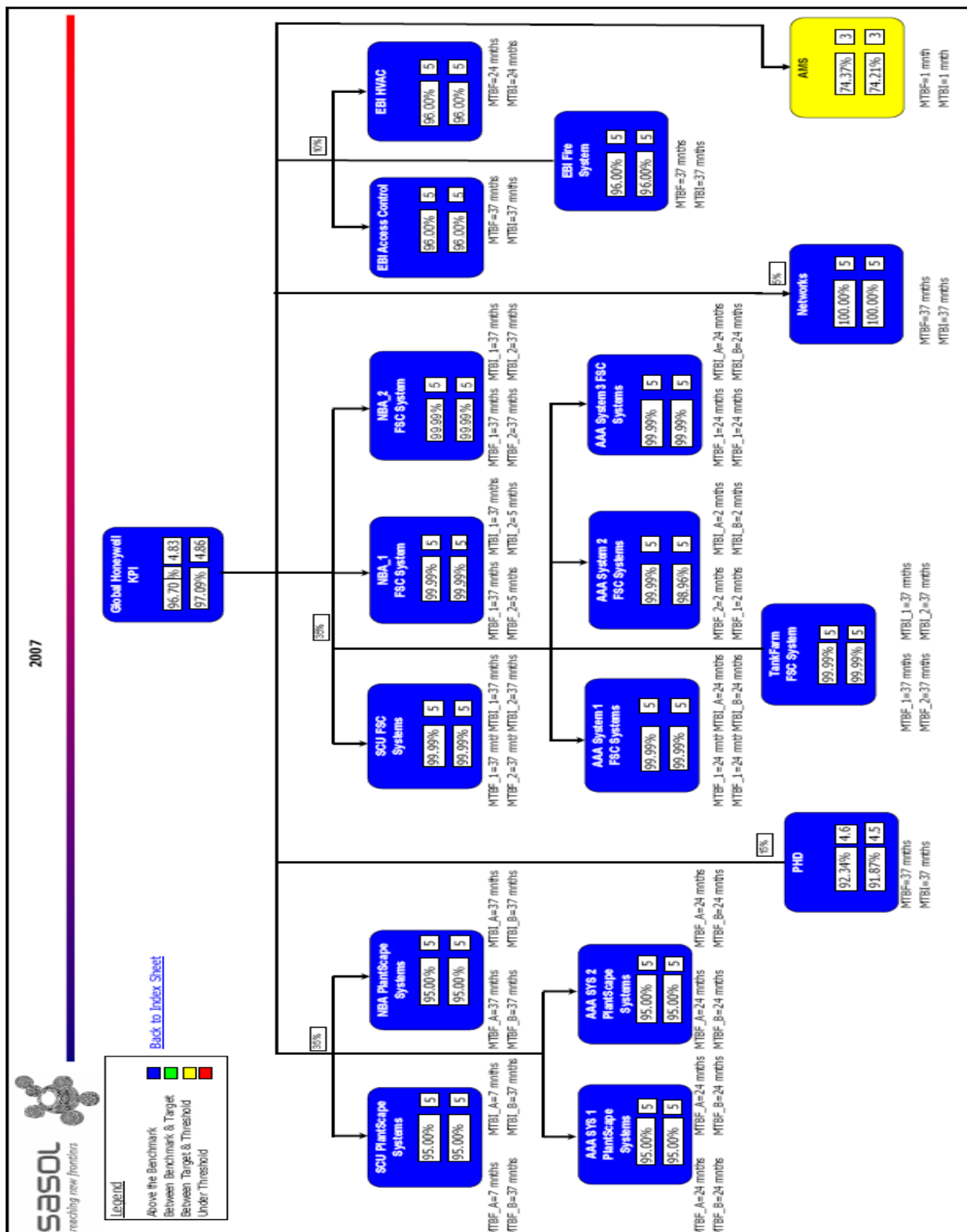


Figure A2: Global KPI tree

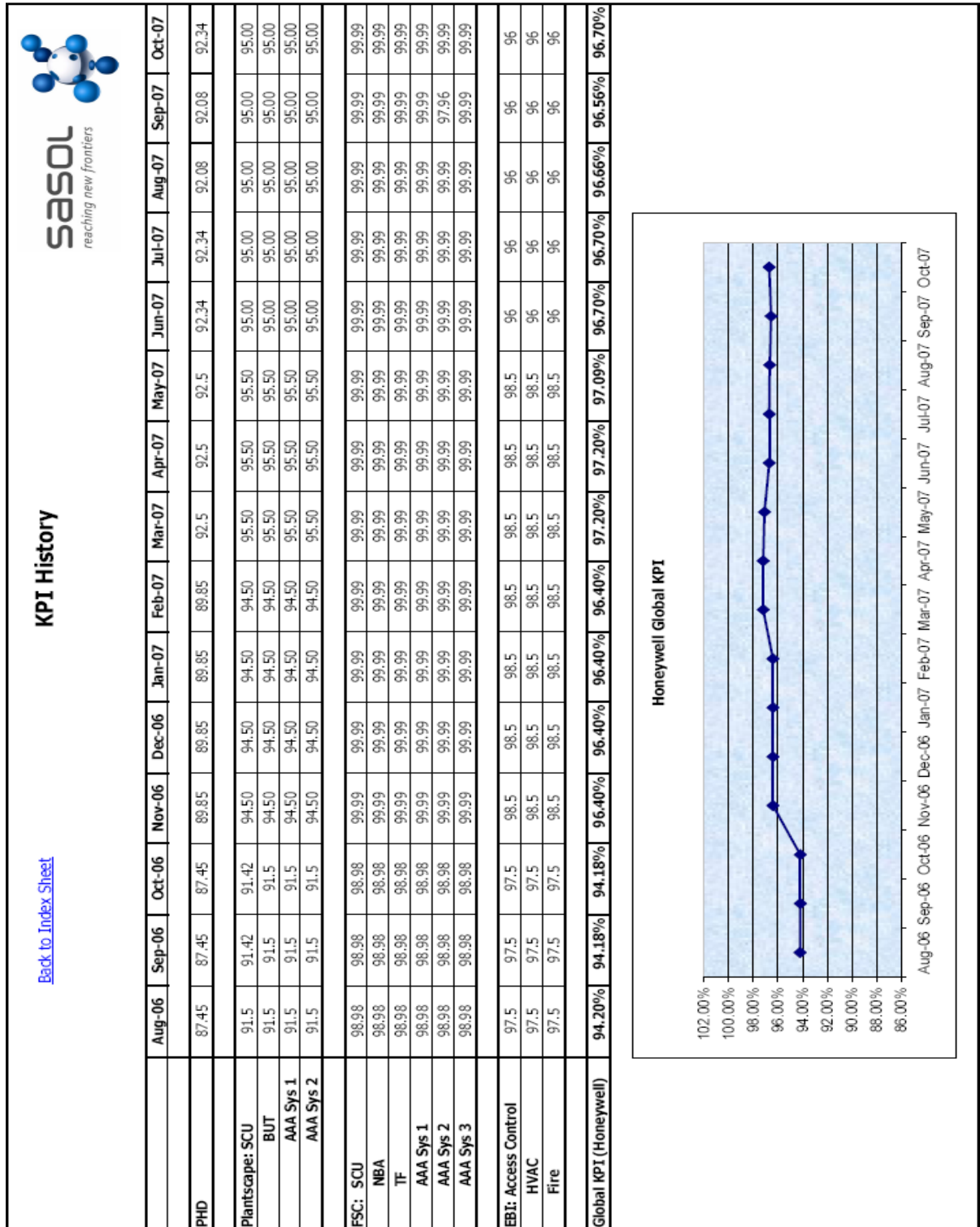


Figure A3: KPI history

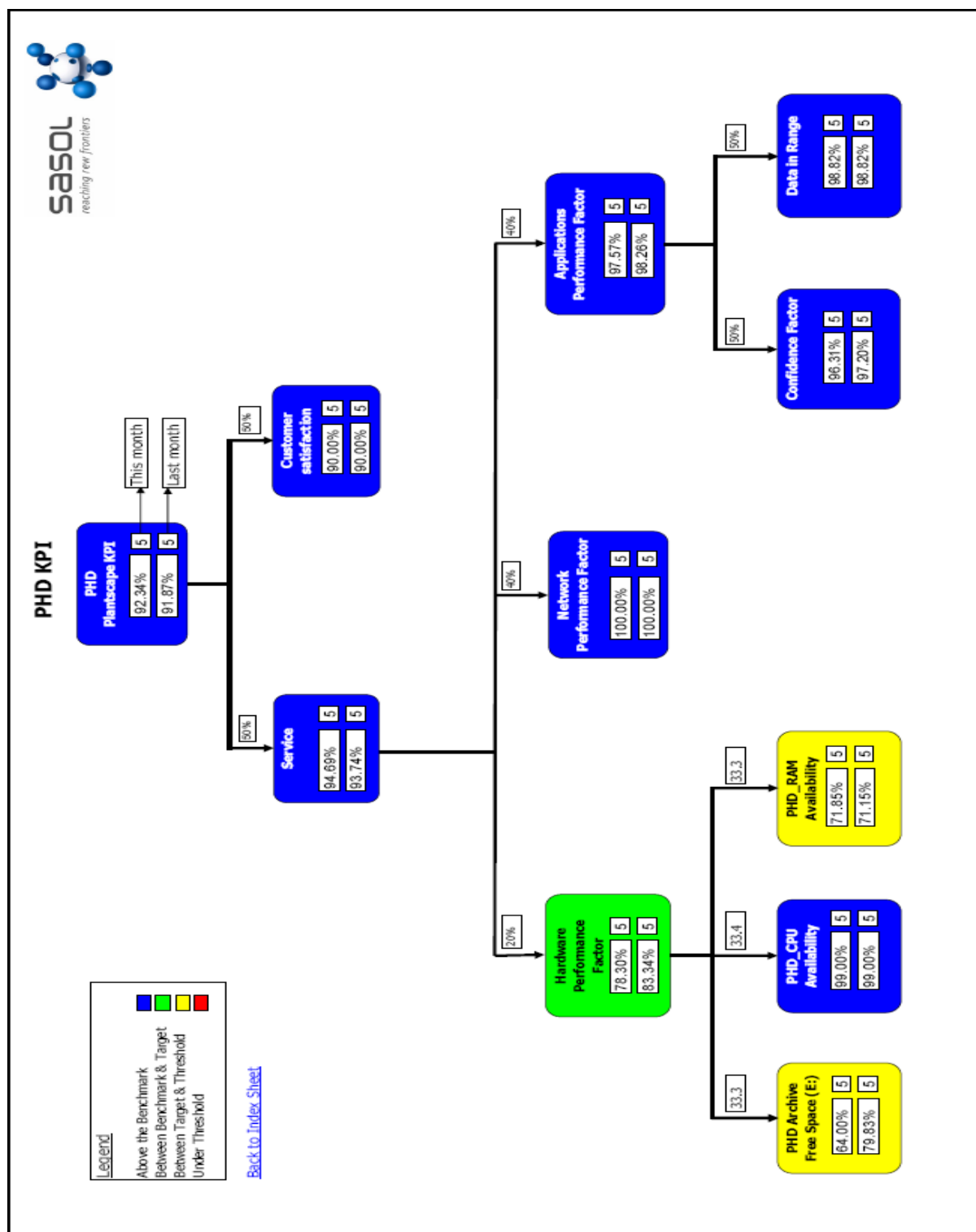


Figure A4: PHD KPI tree

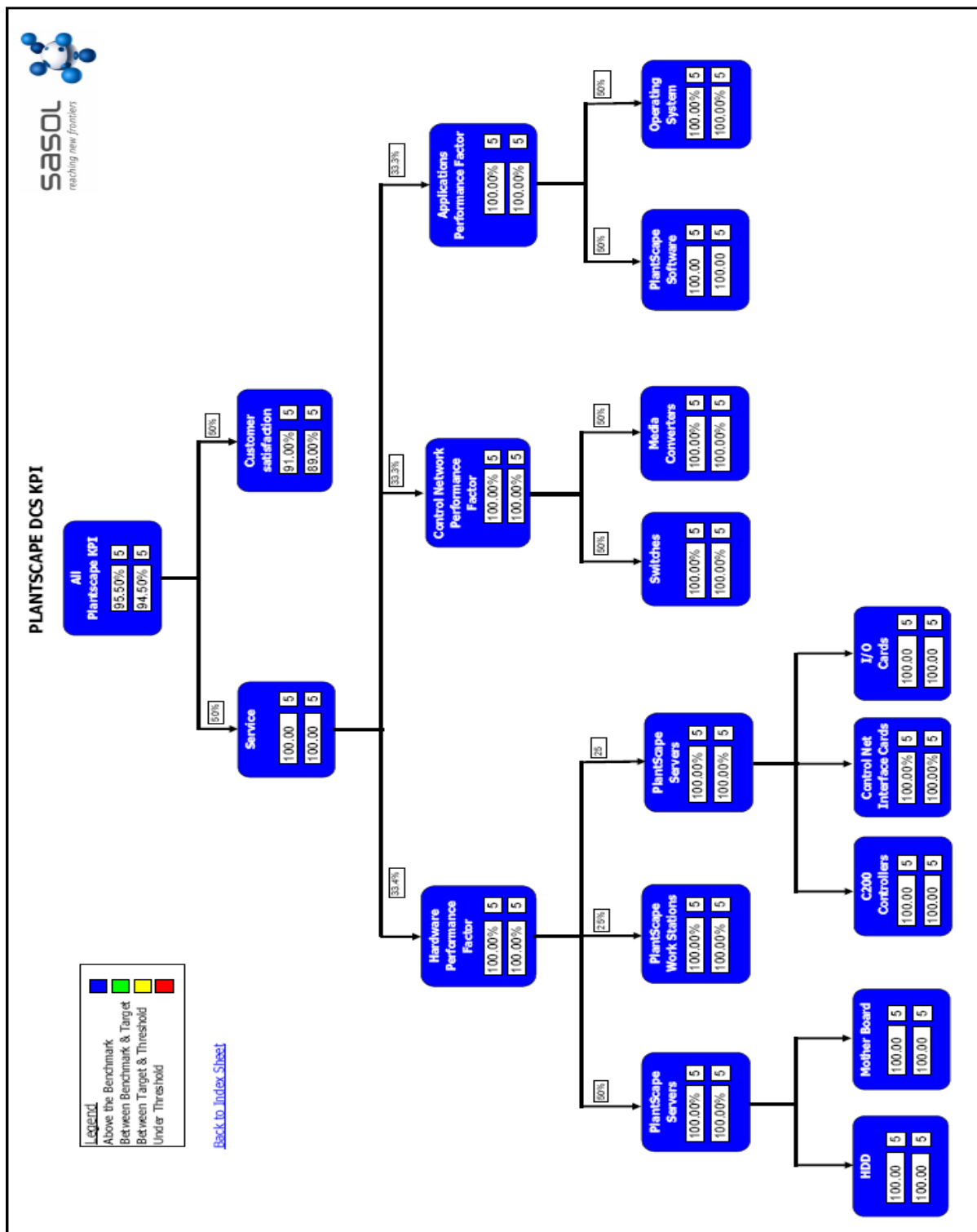


Figure A5: PlantScape KPI tree

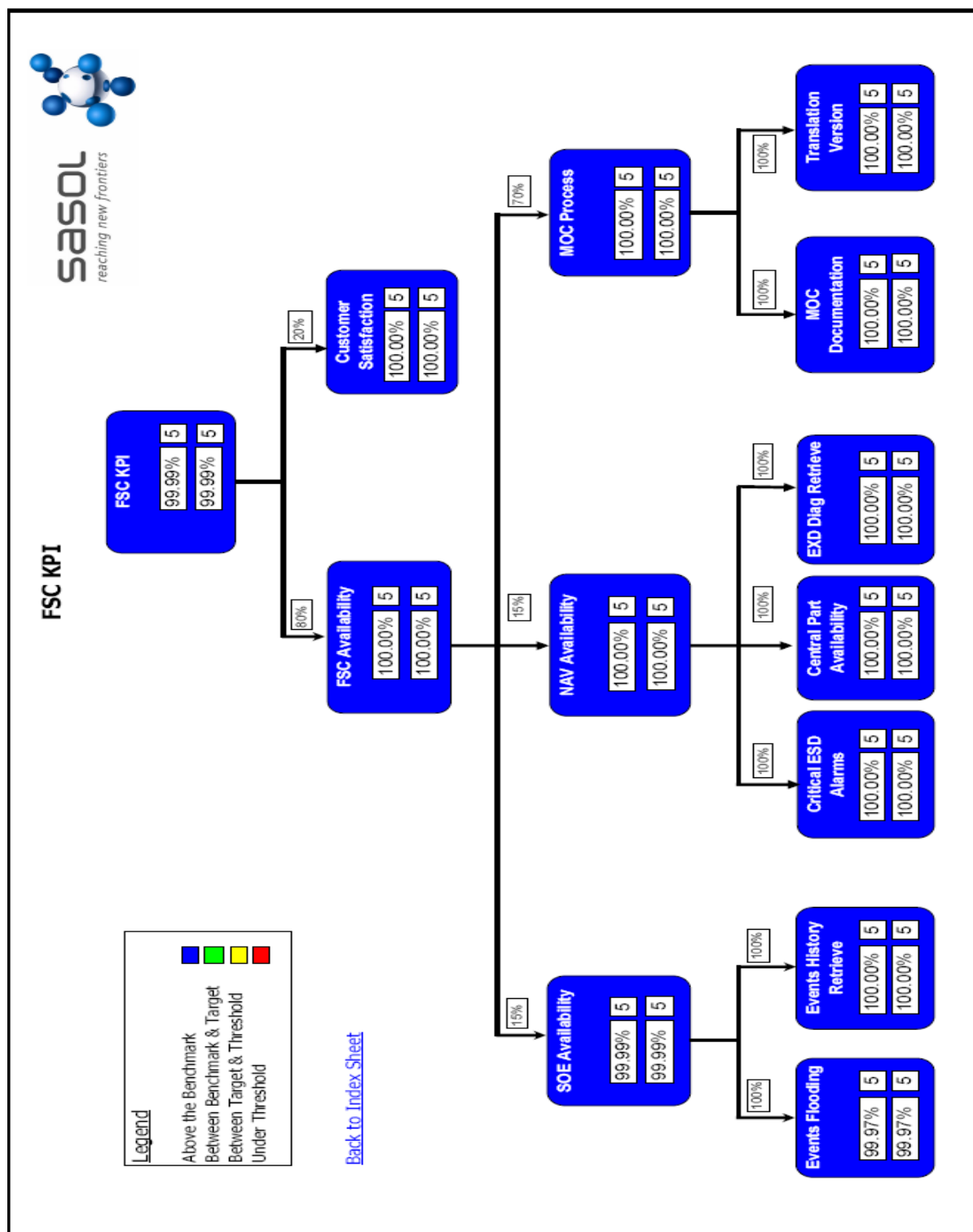


Figure A6: FSC KPI tree

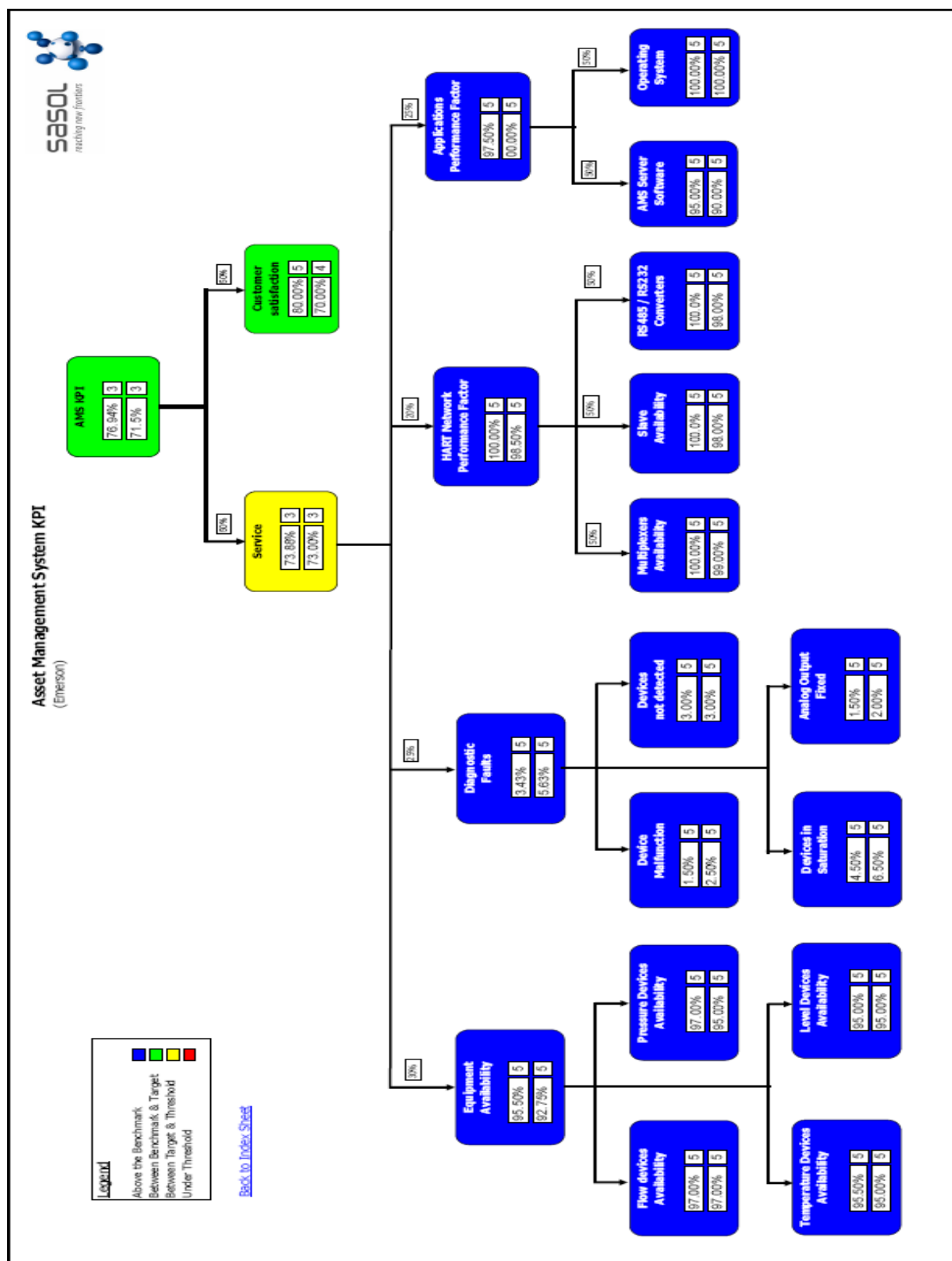


Figure A7: AMS KPI tree

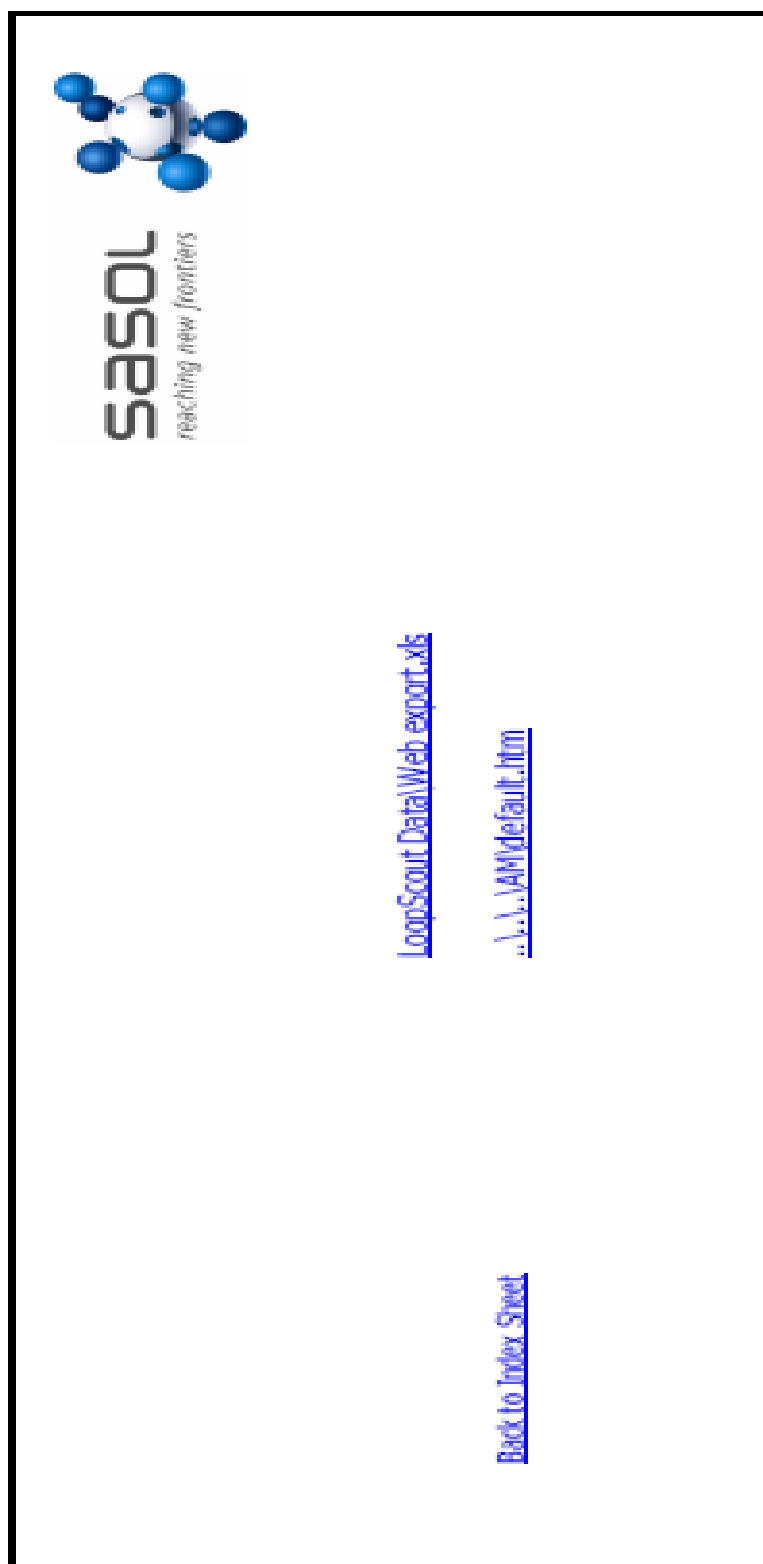


Figure A9: LoopScout KPI tree

ANNEXURE B DVC6000 VALVE SIGNATURE



ValveLink QuickReport

June 14, 2005
14:36:37

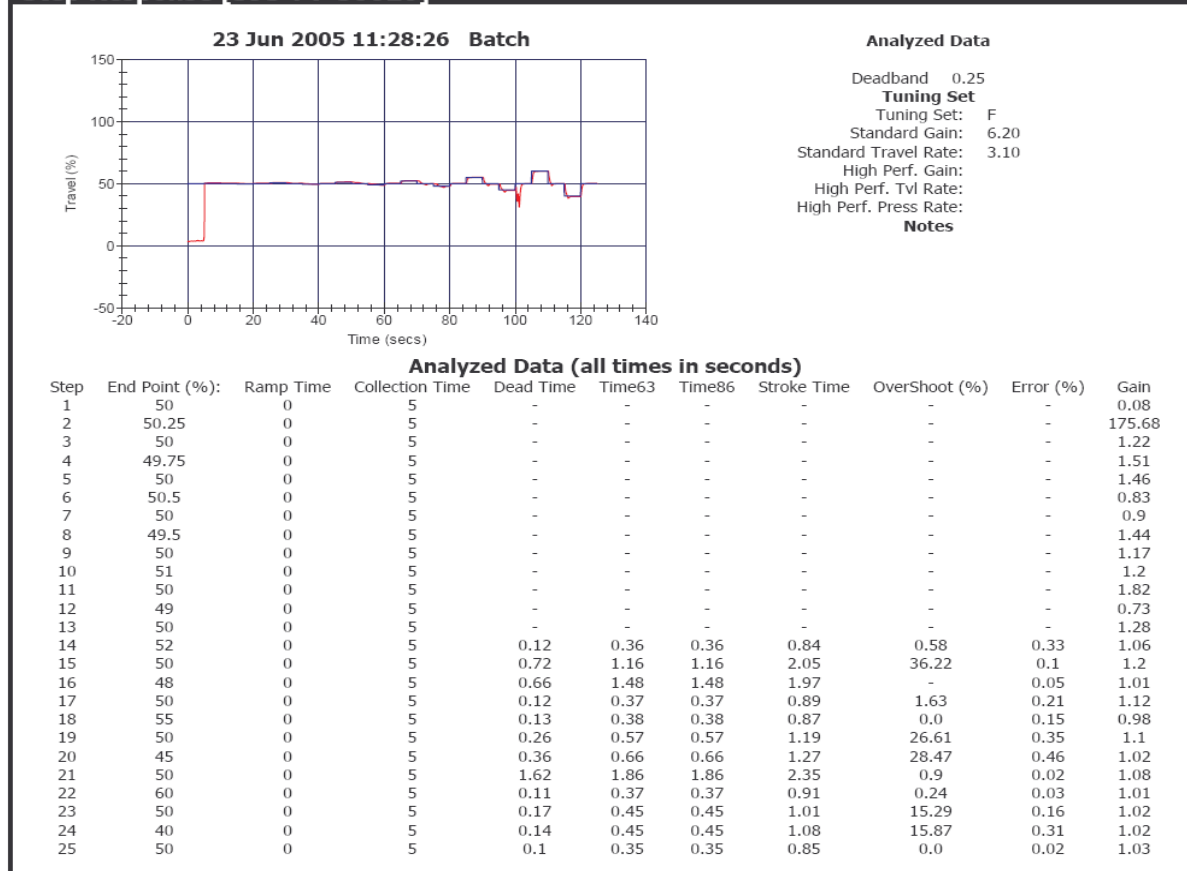
admin
ValveLink SNAP-ON
ValveLink SNAP-ON
ValveLink SNAP-ON

593-FV-30026	HART Tag Name	FV.30026
DVC6000 PD	Valve Style	SLIDING STEM
	Actuator Style	Spring and Diaphragm
	Instrument S/N	0016407145
	Valve S/N	IA.17500.
	Firmware Revision	-
	Hardware Revision	-

Master Spec Sheet [593-FV-30026]

Valve	Trim	Actuator
Manufacturer: Fisher	Seat Type: Metal	Manufacturer: Fisher
Type: EZ	Leakage Class: IV	Type: 667
Size: 1 in	Port Diameter:	Size: 34
Class: 300	Port Type: Unbalanced	Effective Area: 69.0 in2
Rated Travel: 75.0 in	Flow Direction: Up	Air: Opens
Actual Travel: 0.75 in	Push Down To: Close	Lower Bench Set: 117.0 kPa
Stem Diameter: 0.375 in	Flow Tends To: Open	Upper Bench Set: 207.0 kPa
Packing Type: TFE / Single	Unbalanced Area:	Nominal Supply Pressure: 215.0 kPa
Inlet Pressure:		Spring Rate:
Outlet Pressure:		

Step Response [593-FV-30026]





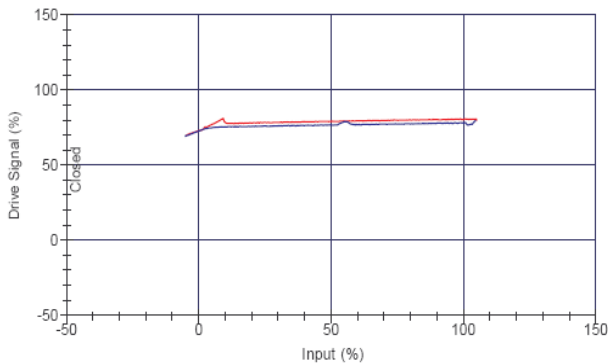
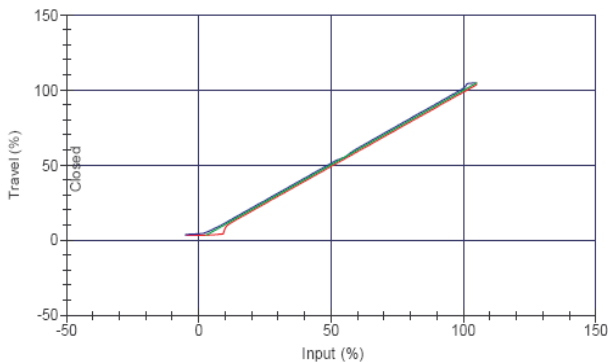
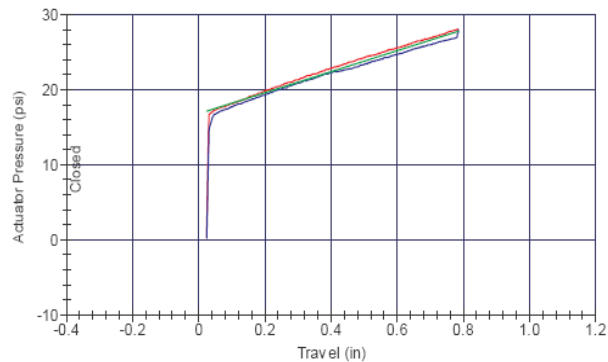
ValveLink QuickReport

June 14, 2005
14:36:37

admin
ValveLink SNAP-ON
ValveLink SNAP-ON
ValveLink SNAP-ON

Total Scan [593-FV-30026]

23 Jun 2005 17:15:56 Batch



Inputs

Input Start: -5.0 %
Input End: 105.0 %
Scan Time: 50.0 sec
Collection Interval: 150.0 msec.

Analyzed Data

Ave. Dynamic Error: 2.05%
Min. Dynamic Error: 0.79%
Max. Dynamic Error: 2.47%
Dyn. Linearity (Ind.): 0.64%
Zero Ranged Travel at: 3.94 mA
Full Ranged Travel at: 20.06 mA

Average Friction: 23 lbf
Minimum Friction: 10 lbf
Maximum Friction: 34.66 lbf
Spring Rate: 965.46 lbf/in
Bench Set: -1022.14 - 27.28 psi
Seat Load As Tested: 1080.26 lbf
Service Seat Load: NA
Required Seat Load: NA
Expected Packing: 38 lbf
Friction:
Expected Total Friction: 38 lbf

Tuning Set

Tuning Set: F
Gains
Proportional: 6.20
Velocity: 3.10
MLF: 35.00
Integral Control: Disabled
Integral Gain: 9.4

Notes

Valve

Manufacturer: Fisher
Type: EZ
Size: 1 in
Class: 300
Rated Travel: 75.0 in
Actual Travel: 0.75 in
Stem Diameter: 0.375 in
Packing Type: TFE / Single
Inlet Pressure:
Outlet Pressure:

Trim

Seat Type: Metal
Leakage Class: IV
Port Diameter:
Port Type: Unbalanced
Flow Direction: Up
Push Down To: Close
Flow Tends To: Open
Unbalanced Area:

Actuator

Manufacturer: Fisher
Type: 667
Size: 34
Effective Area: 69.0 in²
Air: Opens
Lower Bench Set: 117.0 kPa
Upper Bench Set: 207.0 kPa
Nominal Supply Pressure:
Spring Rate:

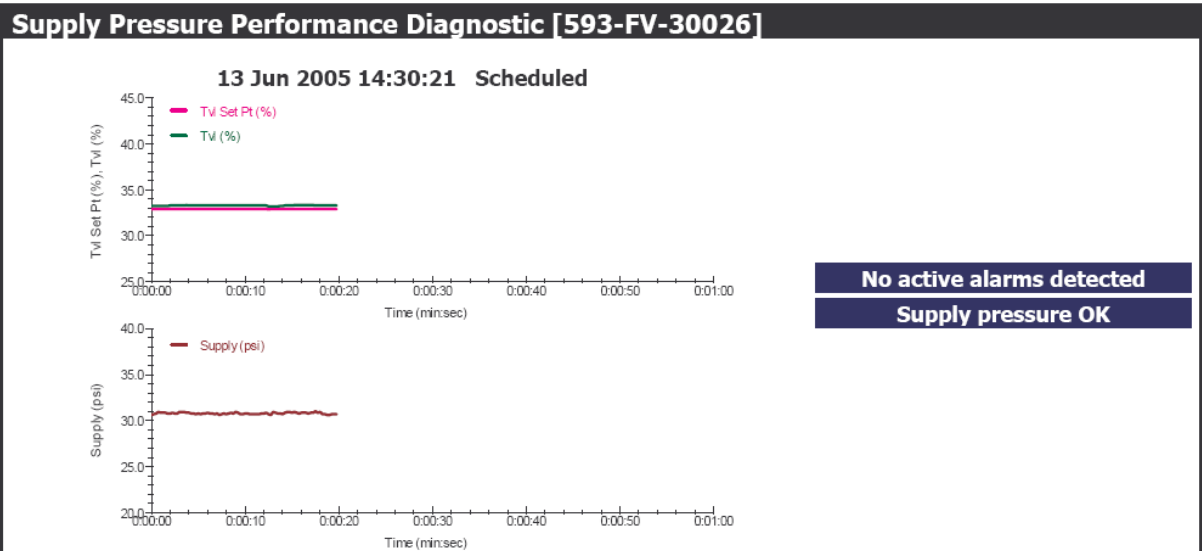


Figure B1: DVC6000 valve signature

ANNEXURE C ASSET MAINTENANCE BLUEPRINT

[illegible]

Figure C1: Asset maintenance blueprint

ANNEXURE D MAINTENANCE PROCEDURE

PHD Maintenance Procedure

Introduction

This document provides the system administrator with a standard work procedure to determine whether PHD is functioning correctly on the local machine where PHD is installed.

Purpose

This document is to be used as a quick reference. It defines the various maintenance tasks that need to be performed on a Historian PHD system. This procedure will set a standard on the tasks to be executed for preventative maintenance on all Historian PHD systems.

Scope

This document is intended for the use of the Honeywell support personnel, both locally at the SASOL site as well as where offsite work is to be performed, it can also be distributed to offsite customers where Honeywell support personnel delivered services as part of ongoing support.

System maintenance Procedure

PHDMAN command window

- Log on to the PHD server locally or with a remote access tool.
- Open a command window and type “**phdman**” to open the PHD Management console.
- To change from the current window back to the phdman prompt you need to press ‘**ctrl c**’ on the keyboard or open a new window and type in “**phdman**”.
- Type in “**mon sys**”. A window will open with all the RDI’s that are configured on PHD for that specified server.
- The RDI’s must be in an active, active state for the *state* and *interface* heading. The rdistate must change between scan and idle mode, an indication that the interface is working correctly. In the same window in the top left corner the system state must be active. In the top right hand corner is the store process. Process state must be active and data store must be enabled if history needs to be stored in the archives.

PHDManager - localhost/3100

System state: ACTIVE

Current time: 02-FEB-2005 14:14:53

STORE PROCESS

Process state: ACTIVE

Data storage: ENABLED

Priority [Lo/Hil]: 9 [7/9]

Interval/off [rem]: 300/0 [7]

Interval used: 1 (0%)

Tagno [instoinerr]: 0 [3384!0]

Store rate [avg]: 3384.0/s [2268.4/]

REALTIME DATA INTERFACES

RDI Name	STATE	INTERFACE	RDISTATE	SH	TU	RC	RS	OFS	HRM	NSCAN	NTAGS
OTOKON	ACTIVE	ACTIVE	IDLE				X	X	5	0	121
SC_AB_U01	ACTIVE	ACTIVE	SCAN				X	X	10	5	621
SC_AB_U201	ACTIVE	ACTIVE	SCAN				X	X	15	5	576
SC_AD_FFS	INACTIVE	INACTIVE					X	X	20	5	0
SC_AD_FIRE	INACTIVE	INACTIVE					X	X	25	5	0
SC_AD_GASN	ACTIVE	ACTIVE	IDLE				X	X	30	5	1
SC_CT_COAL	ACTIVE	INACTIVE	IDLE				X	X	35	5	0
SC_CT_U52	ACTIVE	ACTIVE	SCAN				X	X	40	5	245
SC_ENVIRO	INACTIVE	INACTIVE					X	X	45	5	0
SC_IP_TCE	INACTIVE	INACTIVE					X	X	50	5	0
SC_MO_U18	ACTIVE	ACTIVE	SCAN				X	X	55	5	1071
SC_MO_U212	ACTIVE	ACTIVE	SCAN				X	X	45	5	1774
SC_MO_U218	ACTIVE	ACTIVE	IDLE				X	X	10	5	0
SC_MO_U219	ACTIVE	ACTIVE	IDLE				X	X	15	5	0
SC_PS_U256	ACTIVE	ACTIVE	IDLE				X	X	20	5	1
SC_PS_U265	ACTIVE	ACTIVE	IDLE				X	X	25	5	1
SC_PS_U67	ACTIVE	ACTIVE	IDLE				X	X	30	5	0
SC_PS_U81	INACTIVE	INACTIVE					X	X	35	5	0
SC_PS_U86	ACTIVE	ACTIVE	IDLE				X	X	5	5	1
SC_SM_UA0	ACTIVE	ACTIVE	SCAN				X	X	45	5	792
SC_WW_U03	INACTIVE	INACTIVE					X	X	50	5	0
XFR34_FFS	INACTIVE	INACTIVE					X	X	55	5	0
SC_AD_PPS	ACTIVE	ACTIVE	IDLE				X	X	30	5	0
SC_FX_U244	INACTIVE	INACTIVE					X	X	35	5	0
SC_PS_U245	ACTIVE	ACTIVE	IDLE				X	X	40	5	0
SC_PS_U45	ACTIVE	ACTIVE	IDLE				X	X	45	5	0
XFR34_PROD	ACTIVE	ACTIVE	IDLE				X	X	20	0	8

Figure 1 Real-time Data Interface

In a PHD Management console window type in “**mon sec**” you can find information in this window:

- When PHD was last restarted.
- Tags currently defined in the system.
- Pool used.
- If the pool used is 100%, the tag no is all used and PHD will not work correctly
No new tags will be built into the PHD.

```

PHDManager - localhost/3100
+-----CUR-----+
| Section size: 50864128 |
| Creation time: 02-FEB-05 13:49:10 |
| Max tagno: 150000 |
| Tag capacity: 100000 |
| Tags defined: 8272 |
| Max routing: 2 |
| Pool size: 38252493 |
| Pool used: 2861480 <7.5%> |
+-----TDEF-----+
| Section size: 86577152 |
| Creation time: 02-FEB-05 13:48:42 |
| Max tagno: 150000 |
| Tag capacity: 100010 |
| Tags defined: 8272 |
| Hash slots: 12503 |
+-----SCON-----+
| Section size: 1544192 |
| Creation time: 02-FEB-05 13:48:37 |
+-----PRC-----+
| Section size: 2297856 |
| Creation time: 02-FEB-05 13:49:10 |
| Max modules: 10000 |
| Max functions: 1000 |
| Modules: 3 |
| Functions: 3 |
| Hash slots: 2753 |
| Pool size: 2048000 |
| Pool used: 254 <0.0%> |
+-----+
Press CONTROL/C to exit monitor

```

Figure 2 Sections

Reports

In a PHD Management console window type in: ***“rep sum”***. A system summary will be given of the system state.

- Number of collecting tags.
- Total range errors.
- Data confidence.


```

PHDManager - localhost/3100
Uniformance PHD Manager. Version 201.1.5.1
(C)Copyright 1991-2003 Honeywell International Inc.

Connecting To Uniformance PHD Server: localhost/3100
PHDManager> rep sum
                PHD TAG STATISTICS REPORT
    Collected from 02-FEB-05 13:49:10.676 to 02-FEB-05 14:17:20

                SYSTEM SUMMARY

    Number of tags sampled:      7151
    Total queue overwrite tags:    4
    Total range error tags:      14

                                AVERAGE      MIN      MAX
                                -----
    Analog data compression:    2.908      1.000      205.875
    Discrete data compression:  3.934      1.000      9.667
    Data confidence:            89.180      0.000      100.000
    Percentage gross errors:    0.000%      0.000%      0.000%

PHDManager> _

```

Figure 3 System Summary

In a PHD Management console window type in: “*rep con xxx c:\Logs.txt*”

- A window will open with the tags with the lowest confidence.
- The xxx specify the number of worst confidence tags to return.
- Export the data to text file using the optional last parameter to specify the path.

```

PHDManager - localhost/3100
Uniformance PHD Manager. Version 201.1.5.1
(C)Copyright 1991-2003 Honeywell International Inc.

Connecting To Uniformance PHD Server: localhost/3100
PHDManager> rep con
                PHD TAG STATISTICS REPORT
    Collected from 02-FEB-05 13:49:10.676 to 02-FEB-05 14:27:29

                WORST 10 DATA CONFIDENCE TAGS

    TAGNO  TAGNAME                                AVERAGE CONFIDENCE
    -----
    1) 40970 B2HS2A065.DG                        0.000
    2) 40969 B2HS2A004.DG                        0.000
    3) 3418 69FI3172.PU                          0.000
    4) 42928 18XU2701-OP-VER.DG                  0.000
    5) 42922 18HU2709-OP-VER.DG                  0.000
    6) 976 01LMDA.PU                              0.000
    7) 3443 69FIC3121.PU                          0.000
    8) 1163 B8FIC2028UL.PU                       0.000
    9) 1184 B8II1403.PU                          0.000
    10) 146005 01FMDTIT.PU                      0.000

PHDManager>

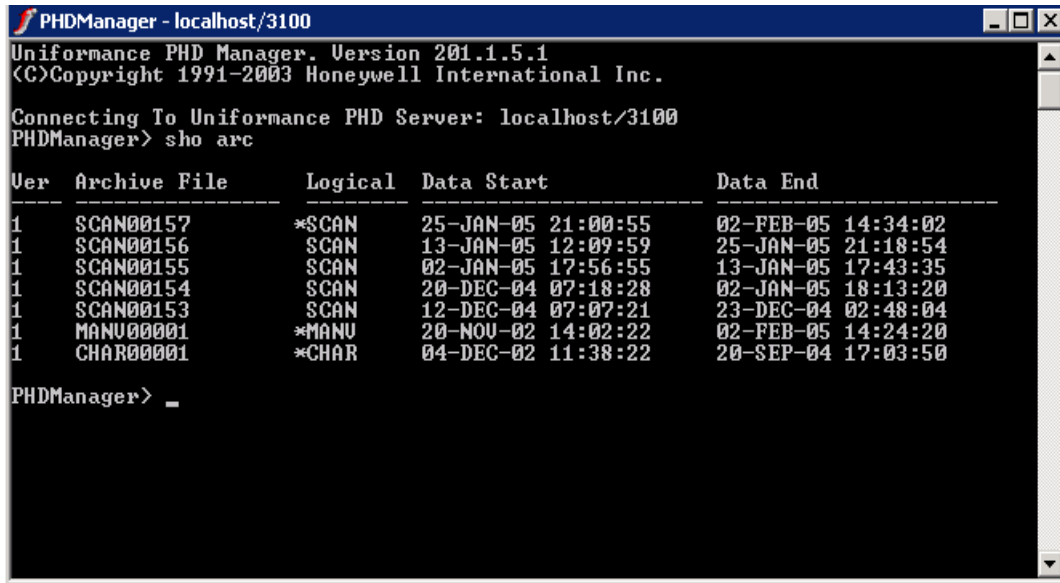
```

Figure 4 Statistical Report

Archives

In a PHD Management console window type in: “**sho a**”

- A list of the archives including the current archive will be listed.



Ver	Archive File	Logical	Data Start	Data End
1	SCAN00157	*SCAN	25-JAN-05 21:00:55	02-FEB-05 14:34:02
1	SCAN00156	SCAN	13-JAN-05 12:09:59	25-JAN-05 21:18:54
1	SCAN00155	SCAN	02-JAN-05 17:56:55	13-JAN-05 17:43:35
1	SCAN00154	SCAN	20-DEC-04 07:18:28	02-JAN-05 18:13:20
1	SCAN00153	SCAN	12-DEC-04 07:07:21	23-DEC-04 02:48:04
1	MANU00001	*MANU	20-NOV-02 14:02:22	02-FEB-05 14:24:20
1	CHAR00001	*CHAR	04-DEC-02 11:38:22	20-SEP-04 17:03:50

PHDManager> _

Figure 5 Archive Report

More Help

If more information is needed, the “**help**” command can be typed in the PHD window and a list of topics will be given.

Server maintenance procedure

PHD is installed under the following tree:

<Install path> uniformance \ phdserver.

The log files and archive files may be on the same drive but most of the time it is on a separate drive.

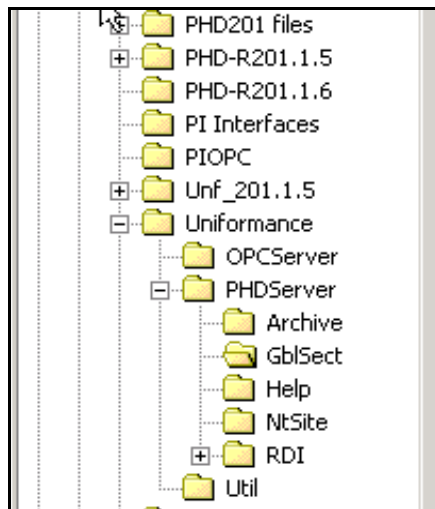


Figure 6 Uniformance Dir

Hard Drive

The hard drive must be checked for space availability. If the drive is full, PHD will not save the tags information and data can be corrupted.

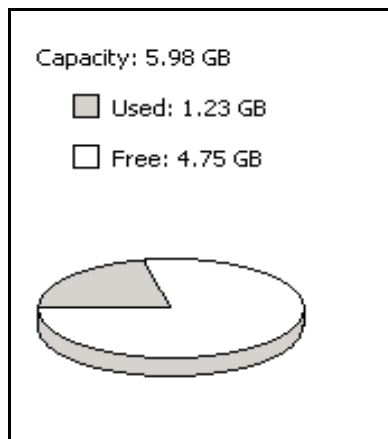


Figure 7 Hard Drive Availability

Log Files

The log files must be checked for size. A good indication can be obtained from them e.g. what is wrong with a RDI that is not collecting data and tags that are not working. A new event log file can be created by typing in “**create logfile**” in the phdman window. If a log file of a RDI needs to be deleted, the RDI should be stopped before the log will be deleted.


Log Files		Name	Size	Type	Modified
 <p>Select an item to view its description.</p> <p>See also:</p> <p>My Documents</p> <p>My Network Places</p> <p>My Computer</p>		APIServer.LOG	1 KB	Text Document	2005/02/02 01:48
		LegacyAPI.LOG	1 KB	Text Document	2005/02/02 01:49
		PHD_EVENT.LOG	93 KB	Text Document	2005/02/02 02:32
		PHD_EVENT.OLD	293 KB	OLD File	2005/02/02 01:48
		PHD_EVENT.OLD1	4 KB	OLD1 File	2005/02/02 08:53
		PHDServer.LOG	62 KB	Text Document	2005/02/02 01:49
		PHDSRVC.LOG	24 KB	Text Document	2005/02/02 01:49
		PHDSRVC2.LOG	1 KB	Text Document	2005/02/02 01:49
		RDITOKON.OUT	1 KB	n	2005/02/02 01:49
		RDISC_AB_U01.OUT	1 KB	n	2005/02/02 01:49
		RDISC_AB_U201.OUT	1 KB	n	2005/02/02 01:49
		RDISC_AD_GASN.OUT	1 KB	n	2005/02/02 01:49
		RDISC_AD_PPS.OUT	1 KB	n	2005/02/02 01:49
		RDISC_CT_COAL.OUT	85 KB	n	2005/02/02 01:49
		RDISC_CT_U52.OUT	2 KB	n	2005/02/02 01:49
		RDISC_MQ_U18.OUT	2 KB	n	2005/02/02 01:49
		RDISC_MO_U212.OUT	3 KB	n	2005/02/02 01:49
		RDISC_MO_U218.OUT	2 KB	n	2005/02/02 01:49
		RDISC_MO_U219.OUT	2 KB	n	2005/02/02 01:49
		RDISC_PS_U245.OUT	1 KB	n	2005/02/02 01:49
		RDISC_PS_U256.OUT	2 KB	n	2005/02/02 01:49
		RDISC_PS_U265.OUT	1 KB	n	2005/02/02 01:49
		RDISC_PS_U45.OUT	1 KB	n	2005/02/02 01:49
		RDISC_PS_U67.OUT	1 KB	n	2005/02/02 01:49
		RDISC_PS_U86.OUT	2 KB	n	2005/02/02 01:49
		RDISC_SM_UAO.OUT	5 KB	n	2005/02/02 01:49
		RDIServer.LOG	2 KB	Text Document	2005/02/02 01:48

Figure 8 Log Files

Archives

The archives also need to be checked. They are set to a specific size and if there are problems with them, they will grow in size.

Steps to create a new archive

- In a PHD Management console window type “**sho arc**” (this will show the archive that is currently active and the other archives available).
- Set store: enable 0.
- Disconnect scanxxx.
- Create arc scanxx.
- Connect scanxxx scan active.
- Set store: enable 1.

Name	Size	Type	Modified
CHAR00001	35 KB	DAT File	2005/02/02 01:49
CHAR00001.idx	3 KB	IDX File	2005/02/02 01:49
CHAR00001.lck	1 KB	LCK File	2005/02/02 01:50
MANV00001	15,544 KB	DAT File	2005/02/02 02:20
MANV00001.idx	216 KB	IDX File	2005/02/02 01:50
MANV00001.lck	1 KB	LCK File	2005/02/02 01:50
SCAN00153	257,652 KB	DAT File	2005/01/07 10:50
SCAN00153.idx	3,459 KB	IDX File	2005/01/07 10:50
SCAN00153.lck	1 KB	LCK File	2005/02/02 01:49
SCAN00154	257,662 KB	DAT File	2005/01/07 09:11
SCAN00154.idx	3,459 KB	IDX File	2005/01/07 09:11
SCAN00154.lck	1 KB	LCK File	2005/02/02 01:49
SCAN00155	257,528 KB	DAT File	2005/01/13 05:35
SCAN00155.idx	3,490 KB	IDX File	2005/01/13 05:35
SCAN00155.lck	1 KB	LCK File	2005/02/02 01:49
SCAN00156	257,568 KB	DAT File	2005/01/26 08:58
SCAN00156.idx	3,534 KB	IDX File	2005/01/26 08:58
SCAN00156.lck	1 KB	LCK File	2005/02/02 01:49
SCAN00157	154,628 KB	DAT File	2005/02/02 01:50
SCAN00157.idx	2,189 KB	IDX File	2005/02/02 02:35
SCAN00157.lck	1 KB	LCK File	2005/02/02 01:50

Figure 9 Archives

This maintenance must be done on a weekly basis using the procedure and if problems are detected that can not be resolved, please contact the Honeywell support group at the contact numbers that you have been given.