



MIDAS User Manual

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1. General Description

1.1 Scientific Objectives

The proposed MIDAS experiment is dedicated to the microtextural and statistical analysis of cometary dust particles. The instrument is based on the technique of atomic force microscopy. This technique, under the conditions prevailing at the Rosetta Orbiter permits textural and other analysis of dust particles to be performed down to a spatial resolution of 4 nm.

During the rendezvous with the comet MIDAS provides the following information:

- images of single particles with a spatial resolution of 4 nm,
- statistical evaluation of the particles according to size, volume, and shape,
- size distribution of particles ranging from about 4 nm to a few μm ,
- shape, volume and topographic structure of individual particles,
- temporal variation of particle fluxes,
- spatial variation of particle fluxes, and
- measurements on local elastic properties if further studies show that they do not affect the tip lifetime

During the cruise phase to the comet MIDAS provides:

- characterization of the dust environment in the vicinity of the asteroids for which a fly-by is planned
- imaging of impact craters caused by fast interplanetary dust particles, and
- statistical analysis of craters on the exposed surface in terms of particle size and volume

MIDAS delivers global images, i.e. complete images of the entire scan field, and images of individual dust particles. The latter are contained in the former, since selected particles are identified from the global image. These particles are then re-scanned with a much higher resolution.

1.2 Experiment overview

1.2.1 Working principle

MIDAS is designed to analyse microdust particles collected in the interplanetary - and cometary environment, irrespective of their electrical conductivity and shape by means of atomic force microscopy. The sizes of the particles range from about 4 nm to a few μm . The dust collector includes a mechanism which controls the particle flux onto a wheel most likely made of polished silicon. After analysis, another facet of the wheel is exposed to the ambient dust flux. 64 facets are available for dust collection, 3 faces are for in-flight calibration. The MIDAS microscope consists of five functional parts: a one shot cover and a funnel to protect the aperture on the ground and during launch, the shutter to define the exposure time to the dust flux, the robotics system for manipulation of the dust particles, the scanner head, and the supporting electronics.

The heart of the atomic force microscope (AFM) is a very small tip which maps the surface of the particle. An AFM is capable, in principle, of imaging details down to atomic resolution. In the simplest case, the tip remains in permanent contact with the surface and follows its height variations with a control mechanism which keeps a constant force on the tip (contact mode). In a technically more complex mode, the tip scans the surface while its supporting cantilever vibrates at one of its natural resonance frequencies. Depending on the amplitude of the oscillation in dynamic mode, (a) the tip does not come closer to the surface than a few tenths of a nanometer (non-contact operation) or (b) the tip hits the surface during its sinusoidal oscillation (tapping). In all modes it is essential either to keep the force constant or to measure it accurately in order to derive an image of the surface.

The tip must move over the surface in a reproducible manner, which can be relatively easily achieved by piezo electric scanners in three independent directions. The combination of the tip, supporting cantilever, and piezo-electric actuators is called scanner head. Due to lifetime requirements, several tips are employed.



1.2.2. Hardware configuration

The MIDAS instrument consists of one mechanical unit. The top part of the main box houses the elements of the atomic force microscope and the system to collect and transport the dust samples to the head of the microscope. The dust intake system is firmly connected to the box and protrudes through the outer spacecraft wall. The control electronics which must be near the sensor and the actuators is also accommodated in the top part. The lower part of the box contains the remaining digital and analogue electronics and the interfaces to the spacecraft.

The dust intake system consists of a dust cover at the outside and a funnel. The cover is opened after launch by a pyro actuator. The path of the dust particles leads through a funnel through the spacecraft skin. The inner edge of the funnel points towards the entrance slit of the main instrument box, with some minimum clearance towards the box. The particles can enter the AFM via a slit. Beneath the slit there is a shutter which can be opened and closed in order to control the optimum exposure time of the facets on the dust collector; 64 facets, with an area of about 3.5 mm² each, are located on the circumference of the collector wheel. This surface area is defined with a diaphragm located between the slit and the facet. After exposure, the facet rotates from the position behind the slit to the analysis position.

1.2.3. Main functional blocks

1.2.3.1. Instrument box

The main instrument box consists of an electronics compartment (the bottom part) and the AFM part. Most of the printed circuit boards for the electronics are located in the bottom part, and several other boards reside in the AFM area. Each printed circuit board interfaces via a motherboard to other boards and/or to the harness connectors. The connector panel carries connectors for the two redundant spacecraft interfaces for data and power, cover status and a checkout connector. The box carries eight lugs for mounting on the spacecraft payload platform.

1.2.3.2. AFM part

The AFM part on top of the electronics compartment accommodates the robotics system and the scanner head mounted on a mechanically decoupled rigid base plate, which is held in position by four studs of silicon damping material. During ground operations and launch the AFM platform is locked in zero position by means of a clamping device, fixed on a rigid base plate. The AFM part of the box is equipped with eight lugs for connecting it with the electronics part below. The walls are made of aluminium plates which are reinforced with ribs. One side wall carries the funnel through which dust particles can enter.

1.2.3.3. Robotics system

The task of the robotics system is to ensure that dust particles are collected on a predetermined surface area and transported in a controlled manner to the scanner head of the AFM. It requires three motions:

- a rotation to bring the exposed area of the dust collector wheel in front of the scanner head,
- a translation of up to 35 mm to select another tip from the scanner head,
- a translation of about 1.5 mm, perpendicular to the previous translation, to move the tip of the scanner to the scanning area on the dust collector wheel.

1.2.3.4. Collector wheel

Dust Particles are collected on one of the facets on the circumference of the dust collector wheel. In order to measure the topography of those particles the area of interest has to be positioned under the tip of the scanner head. This is achieved by rotating the collector wheel with a piezo-motor. An attached shaft encoder allows an accurate determination of the position of the wheel. The motor turns the exposed facet on the wheel with a pre-defined angle to the scanner head.

Three calibration gratings are located on the circumference of the wheel. These gratings can be used to check the condition of the tips on the scanner head and to calibrate the displacement of the scanner head. The position of the gratings can be found through rotations with defined angles using again the shaft encoder. The rotation unit,



composed of the encoder, collector wheel, support structure and the motor, is fixed on the linear drive system which performs the longitudinal movement.

1.2.3.5. Long- and short linear translation

The need for a translational movement up to 35 mm ensues from the need to select one of the available tips. The same unit is also used to select another scan area. The longitudinal movement is performed by a linear stage which is controlled by another piezo-motor and a displacement transducer in a closed loop.

After a rotation of the dust collector wheel, the scanner must make a carefully controlled approach to the surface until a contact is made between the surface and the tip of the needle. The scanner head is fixed on one side of the sample approach system. The approach is achieved by widening a wedge system with a shaft with bearings. The linear translation of this shaft is done by a fine threaded shaft which is coupled to a DC motor with a gearbox. This motor/gearbox/treaded shaft system is contained in a pressurized (1 bar) and hermetically sealed container. The expansion is enabled by a very flexible bellow. The translation is limited by an upper and lower microswitch. A translation of 5 mm gives an approach at the center of the XYZ stage of 1 mm. After a successful approach the surface scan can be started. For a scan of another particle or another area the scanner head must be withdrawn from the surface before the moving to a new area in order to avoid any damage to the tip.

1.2.3.6. Scanner head

The scanner head is fixed by an intermediate plate to the top plate of the sample approach. The scanner head contains a piezoelectric scanner to move the tip of a cantilever in three dimensions. The nominal scanning ranges are 100 μm in the X and Y directions, and 8 μm in the Z direction. An array of 16 tips is mounted on top of the scanner.

The maximum height of a particle that can be fully characterized depends on the shape and dimensions of the tip. The presence of too large particles causes image artefacts, i.e. the cantilever instead of the tip can touch the particle and distort the image. The current tip/cantilever design puts this limit to 5 μm . Current dust models of comet Wirtanen predict that the abundance of large particles decreases with particle radius. Thus, larger particles are rare and interference with the cantilevers is unlikely.

1.2.3.7. Shutter

The shutter is a movable system to control the exposure of the collector to the ambient dust flux. The second purpose of the shutter is to preserve the internal cleanliness of the microscope during all phases following the integration of the microscope. The construction of the shutter is based on a piezo motor rotating a cylinder which contains two opposite slits. A micro switch senses whether the opening for the dust inlet is open or closed. The same type of piezo motor driving the rotation of the dust-collector wheel is used for this application.

1.2.3.8. Dust Intake System

The dust intake system consists of a dust cover at the outside and a funnel underneath. The path of the dust particles leads through a funnel through the spacecraft skin. The inner edge of the funnel points towards the entrance opening of the main instrument box, and is firmly attached to the side wall of the instrument box. The cover is opened in space with a pyrotechnic system. The main purpose of the cover is the protection of the inner surface of the funnel and the outer surface of the shutter from contamination, mainly in launch configuration, when cooling air is blown directly onto the instrument for several days. However, the cover is not hermetically sealing.

The funnel provides a defined aperture, and has an inner structure and surfaces being suitable to prevent incoming dust particles reflected from the wall from reaching the dust collector wheel. The task of the cover is to support the shutter in preserving the internal cleanliness of the microscope during all phases following the integration of the microscope.

1.2.3.9. Clamp Mechanism of AFM Base Plate for Launch Conditions

The AFM base plate is damped by four flimsy silicon rubber elements. They are fixed with four clamps against the cover panels during launch. The clamps are released in two pairs by one paraffin actuator each.



1.2.3.10. Clamp Mechanism of XYZ Stage for Launch Conditions

During the launch the XYZ piezoelectric scanning stage is locked by two clamps which secure the movable inner part of the XYZ stage that is actually moved during image acquisition. The locking mechanism is based on two Shape Memory Alloy (SMA) actuators by TiNi Aerospace, which breaks two Titanium fasteners under heating, thereby unlocking the stage moving frame. The actuators are energised sequentially. Latch sensors for each axis indicate the SMA actuator has worked.



1.2.3.11. Electronics Block Diagram

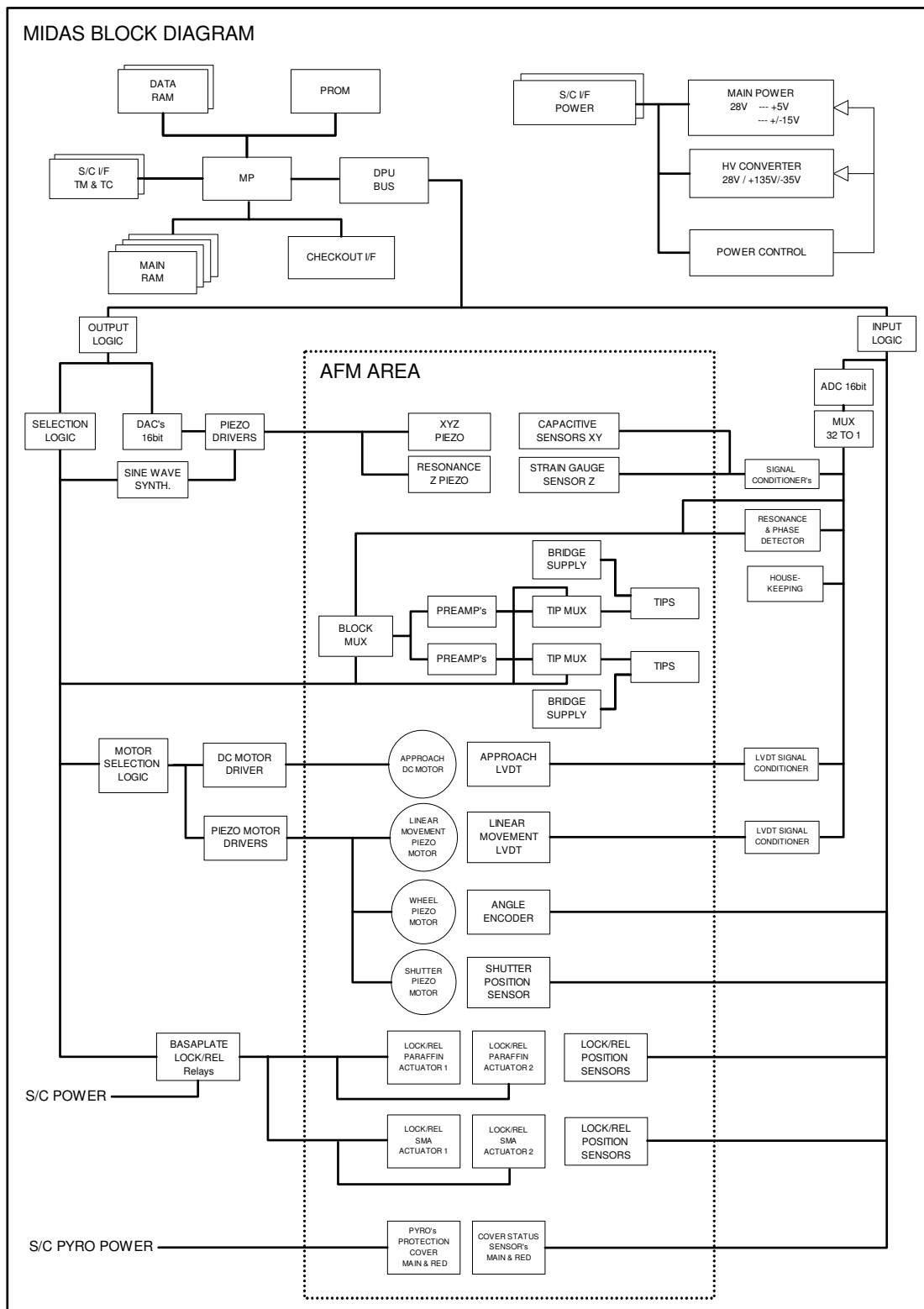


Fig. 1.1 MIDAS Electronics Block Diagram (EID-B Fig. 1.2-1)

2.2 Electrical

2.2.1. Power interface

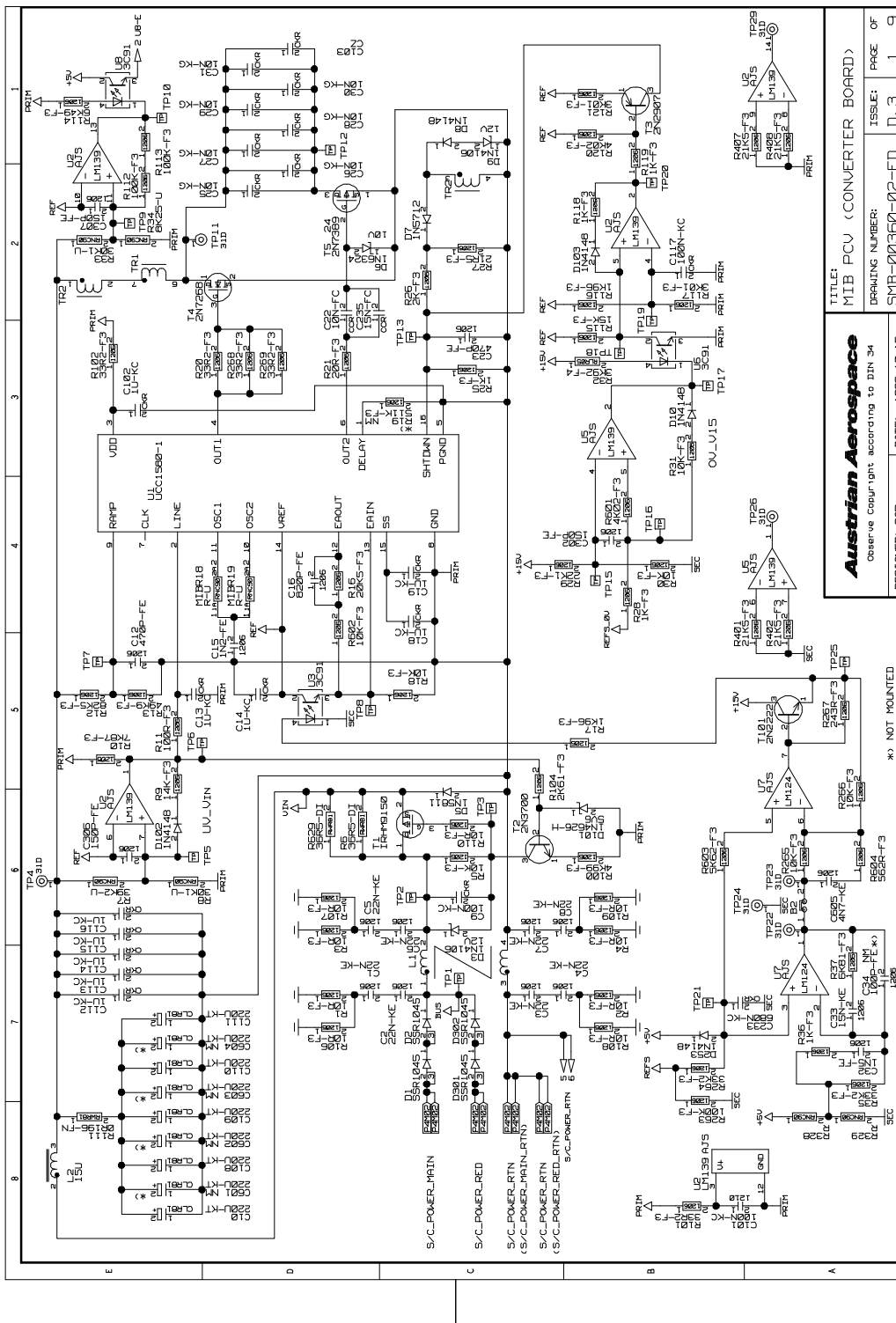


Fig. 2.2 Circuit drawing of power interface (EID-B Fig. 2.4-2)



Maximum input current	1000 mA (XY stage release) 750 mA (other)
Switch-on inrush current	1.1 A
Switch-on input voltage	>25 V
Switch-on input current after 8 ms	0.96 A
Bus isolation; 28 V lines	>100 MOhm
Bus isolation; return line	>100 MOhm
Bus isolation; signal ground	>100 MOhm
Switch on/off	TBD
Noise emission / susceptibility	TBD
Impedance	TBD

Table 2.1 Electrical parameters of the power interface

Some subsystems of MIDAS can be switched on selectively, as shown in Figure 2.3.

The PROM is active during instrument processor boot activity only.

Tips and preamplifier power is required during scanning, including approach and frequency scan (i.e., resonance frequency search for the selected tip).

The angle encoder serves as a position monitor of the sampling wheel.

Piezo and DC motor drivers are evidently required for operating any motor-driven mechanism (wheel rotation, linear translation stage, shutter, approach).

Variable gain amplifiers and rectifiers are required during scanning.

LVDTs (Linear Variable Differential Transducers) serve as position sensors for the linear translation stage and the approach mechanism, and can be turned off when not needed.

The signal conditioners for the capacitive sensors are required during scanning. The capacitive sensors provide the position data for the pixels of an image in the base plane (X and Y direction).

Paraffin actuators are used to release the clamping of the baseplate after launch.

SMAs (Shape Memory Alloys) are used to release the clamping of the scanner unit after launch.

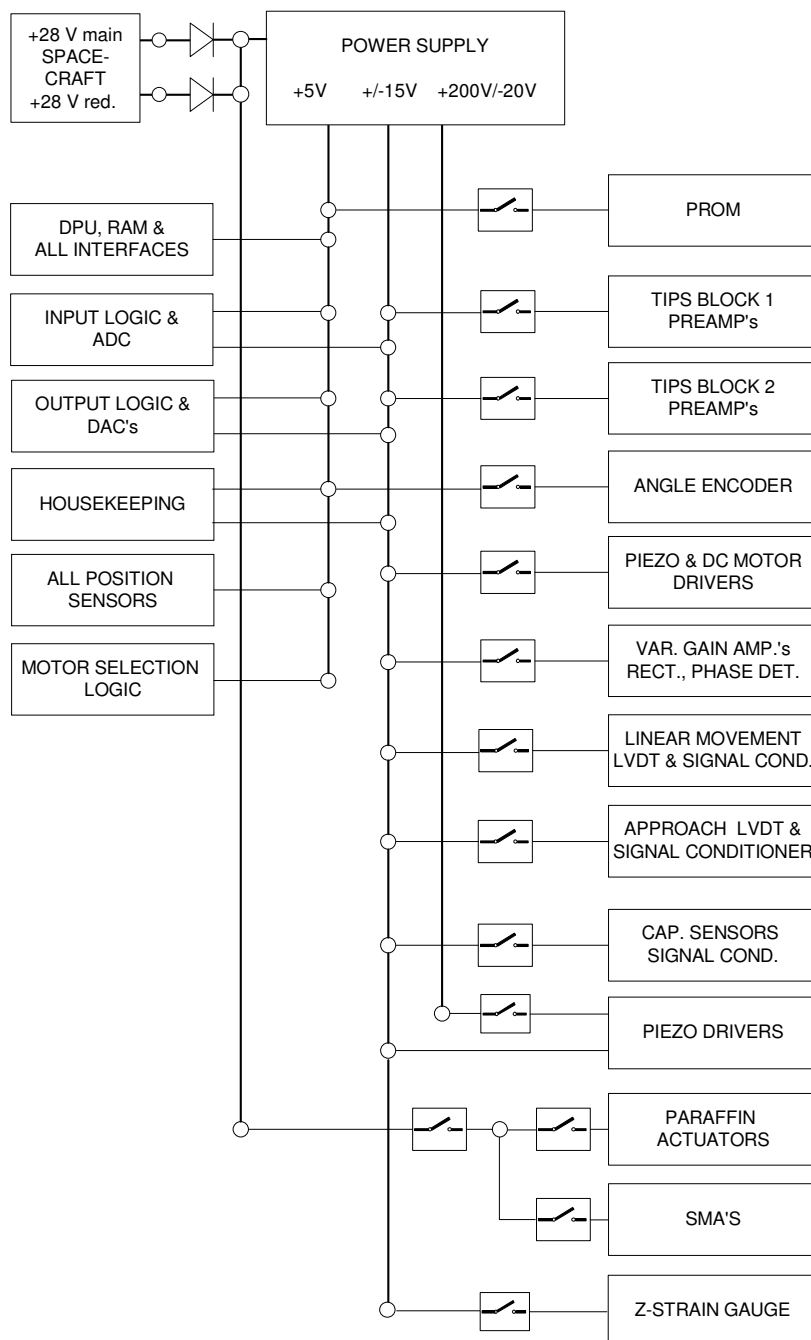


Fig. 2.3 Power switching (EID-B Fig. 2.4-1)



2.2.2. Pyrotechnic interface

Pyrotechnic Initiator - PEU Load Interface Specification and Mechanical Characteristics	
<u>Pyro Type:</u>	1 MT 34 Piston Actuator
Manufacturer:	Eagle Picher
Procurement Specification:	MIL-I-23659, CLASS A
<u>Electrical Characteristics:</u>	
Bridge Resistance:	1.0 ± 0.1 Ohm
All Fire Condition: (Current and Pulse Duration)	5.0 A at 10 msec at -54 °C 4.0 A at 20 msec at -54 °C
No Fire Current: (Current and Pulse Duration)	1 A, 1 Ohm, 5 min. at 107 °C
Insulation Resistance between filaments and EED case before and after firing:	TBD
Electrostatic Discharge Strength (incl. conditions, e.g. 500pF + 5 kOhm)	25 kV at 500 pF + 5 kOhm
Operating Temperature Range: Storage Temperature Range:	-54 °C ... 71 °C -62 °C ... 107 °C (lim. time hot)
<u>Mechanical Characteristics:</u>	
Mass:	2 g
Maximum mass of Explosives:	18 mg
Dimensions:	18 mm length, 5 mm dia.
<u>Storage Lifetime:</u>	Sufficient, according to experience from the instrument ASPOC

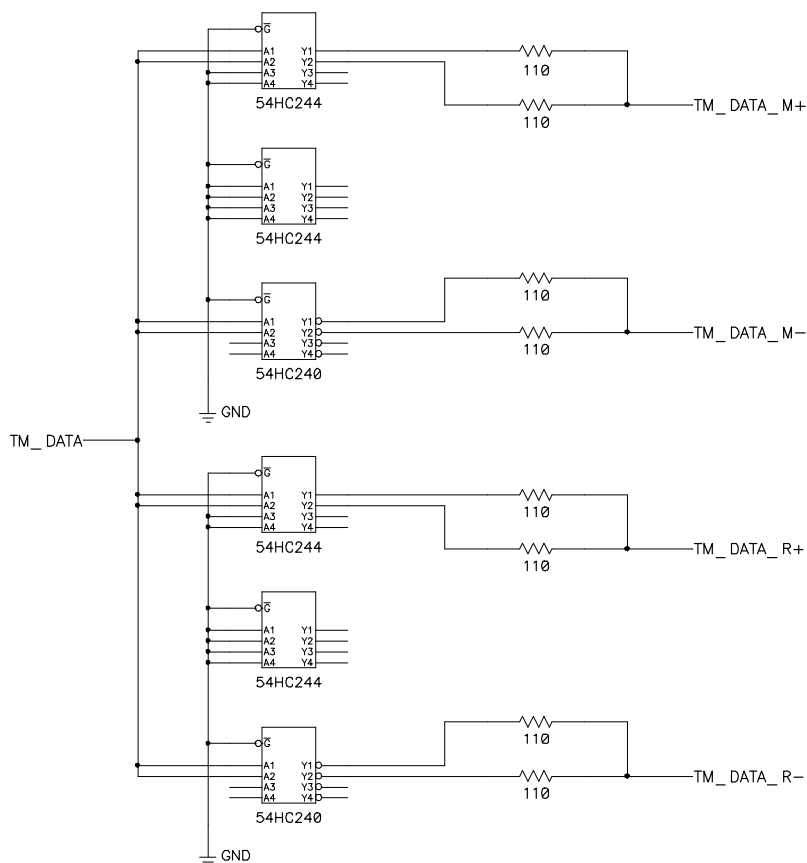
Table 2.2 Pyrotechnic Device Interface Characteristics



<u>Specification and Mechanical Characteristics</u>	
<u>Pyro Type:</u>	Enhanced actuator IH-5075 High Output Paraffin Actuator", an electrically powered resettable device with redundant internal heaters melting a paraffin charge inside the actuator.
Manufacturer:	Starsys Research
Procurement Specification:	
Typical Actuation Time:	200 seconds from 0°C
<u>Electrical Characteristics:</u>	
Power	10 W at 28V
Operating Temperature Range:	TBD
Storage Temperature Range:	TBD
<u>Mechanical Characteristics:</u>	
Mass:	55 g
Dimensions:	70 mm length, 22 mm dia.
<u>Storage Lifetime:</u>	TBD

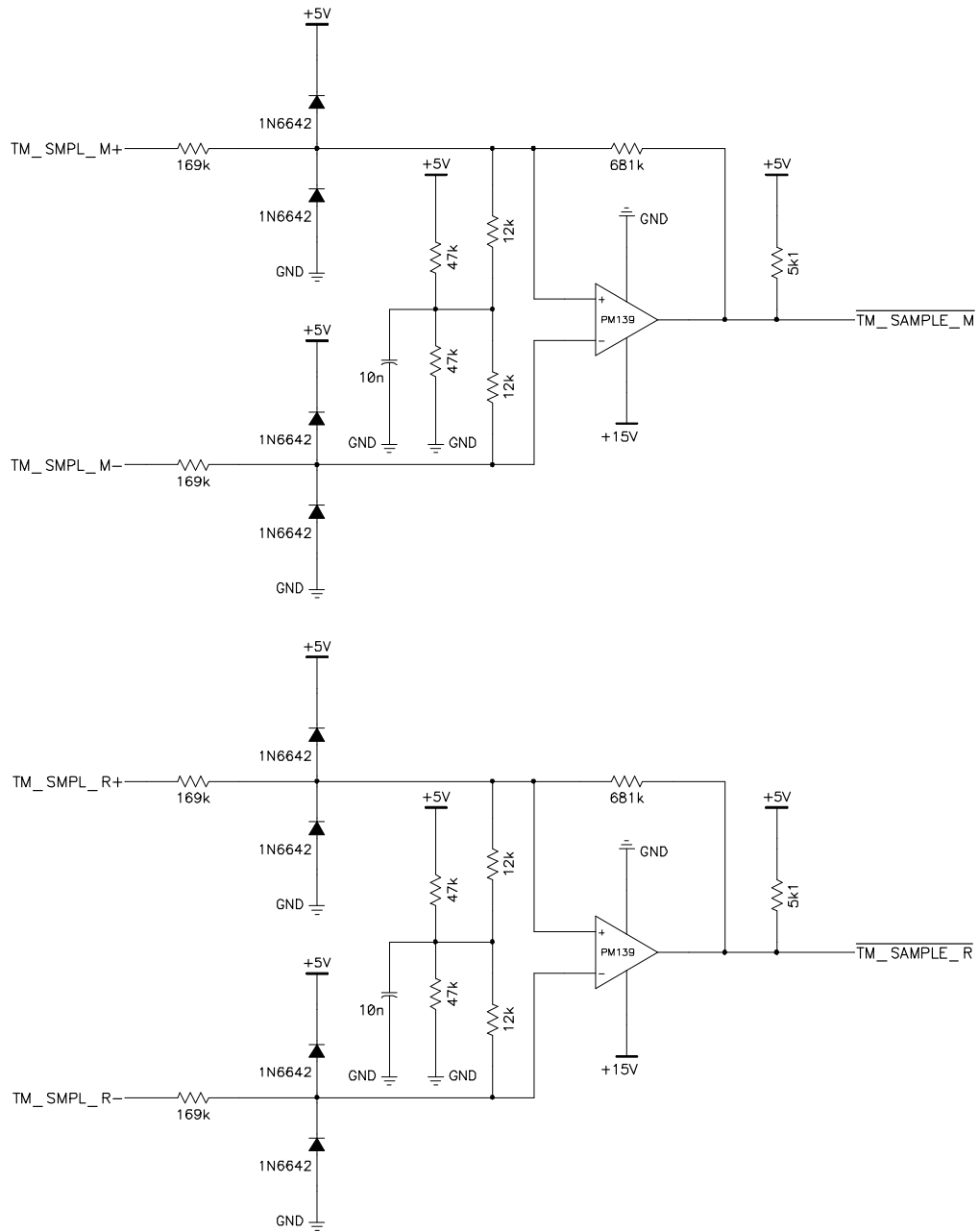
Table 2.3 Paraffin Actuator Interface Characteristics

2.2.3. OBDH interface



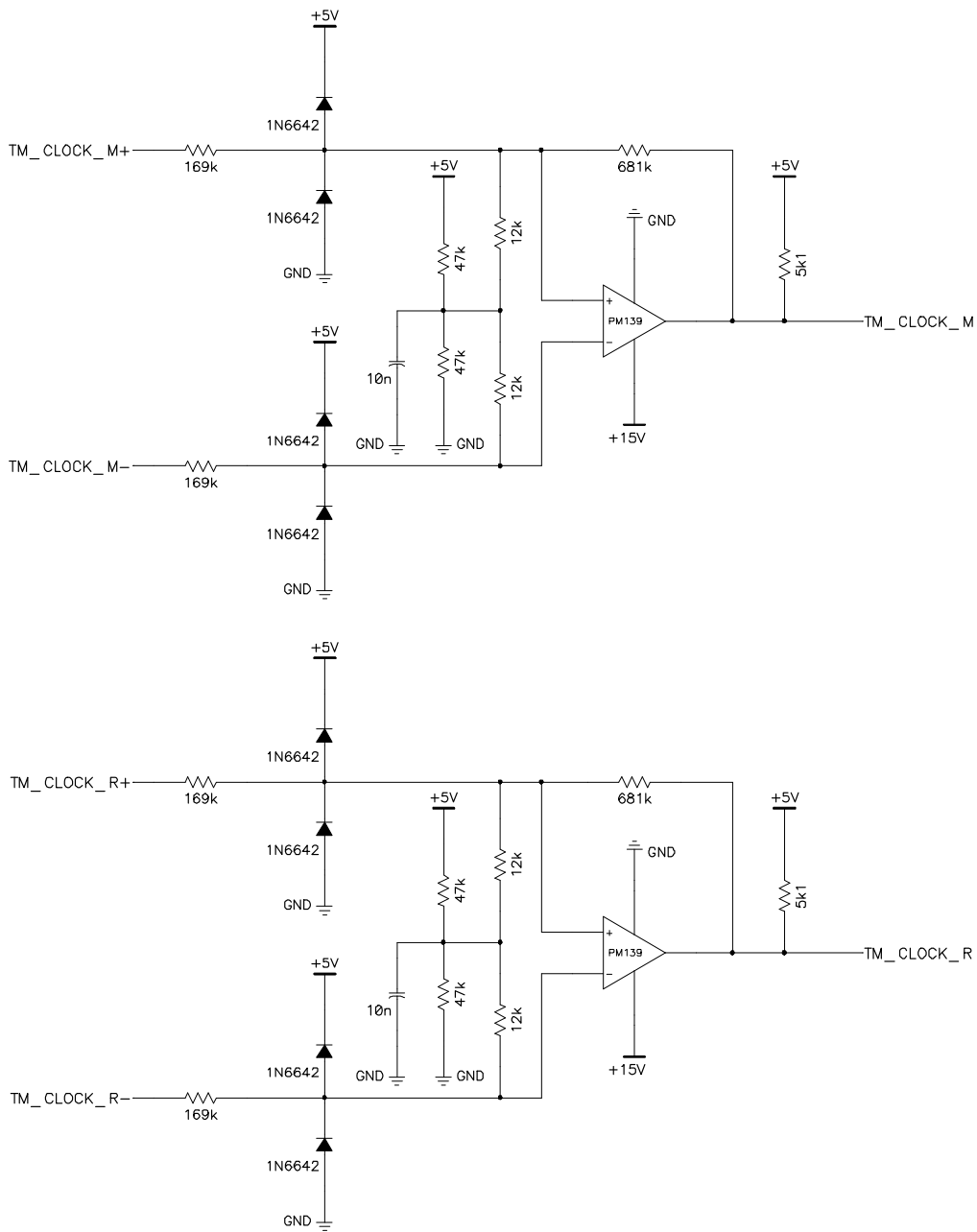
SPACE RESEARCH INSTITUTE AUSTRIA		
TITLE		
TM-DATA-INTERFACE		
DOCUMENT NUMBER – DOCUMENT NAME		REV.
tm-data-if.sch		01
DATE: Thu Oct 15 1998	SHEET 1 OF 1	

Fig. 2.3 Circuit drawing of telemetry interface (EID-B Fig. 2.7-2)



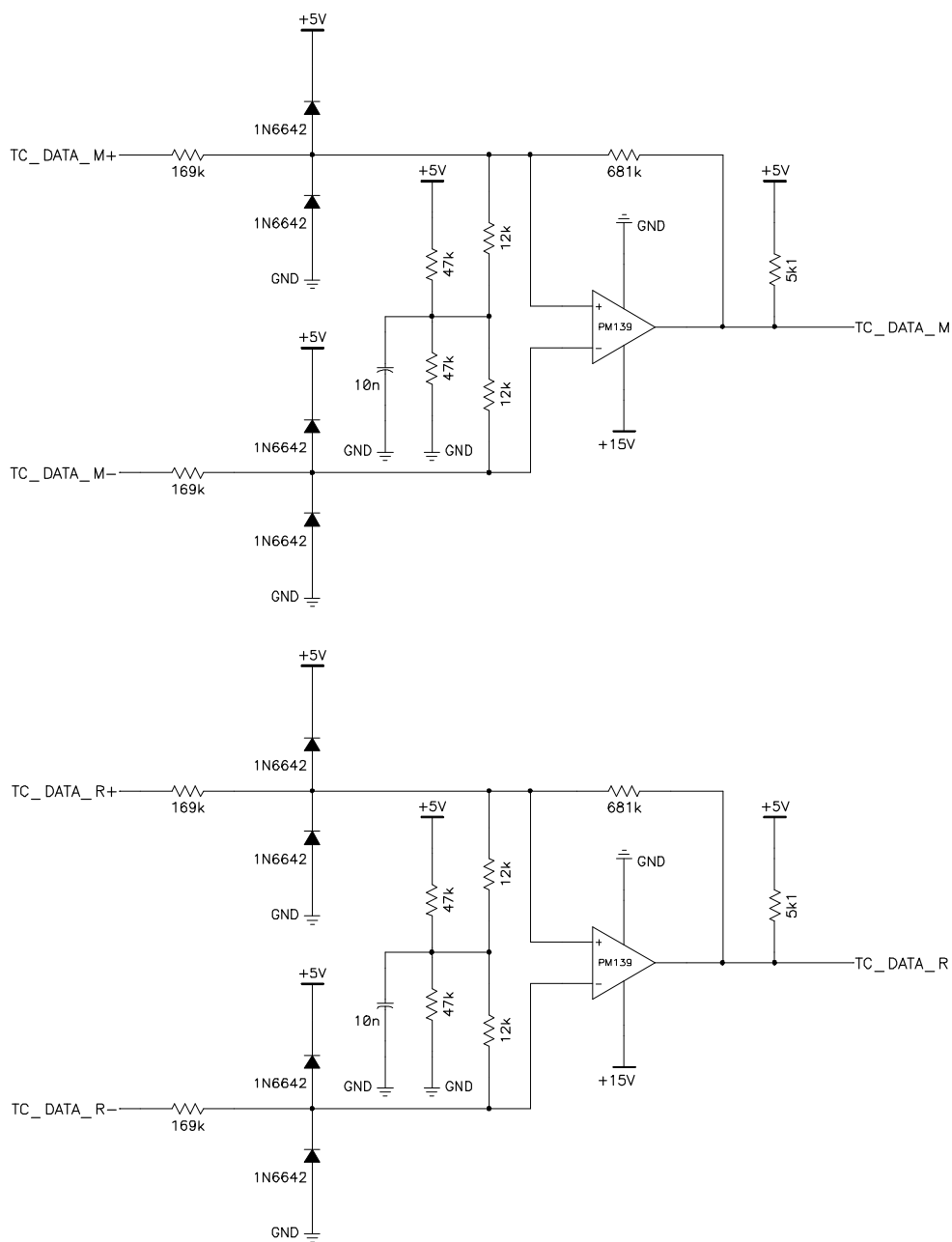
SPACE RESEARCH INSTITUTE AUSTRIA	
TITLE	
TM-SAMPLE-INTERFACE	
DOCUMENT NUMBER - DOCUMENT NAME	
tm-sample-if.sch	
DATE: Thu Oct 15 1998	REV. 01
SHEET 1 OF 1	

Fig. 2.4 Circuit drawing of telemetry sample I/F (EID-B Fig. 2.7-3)



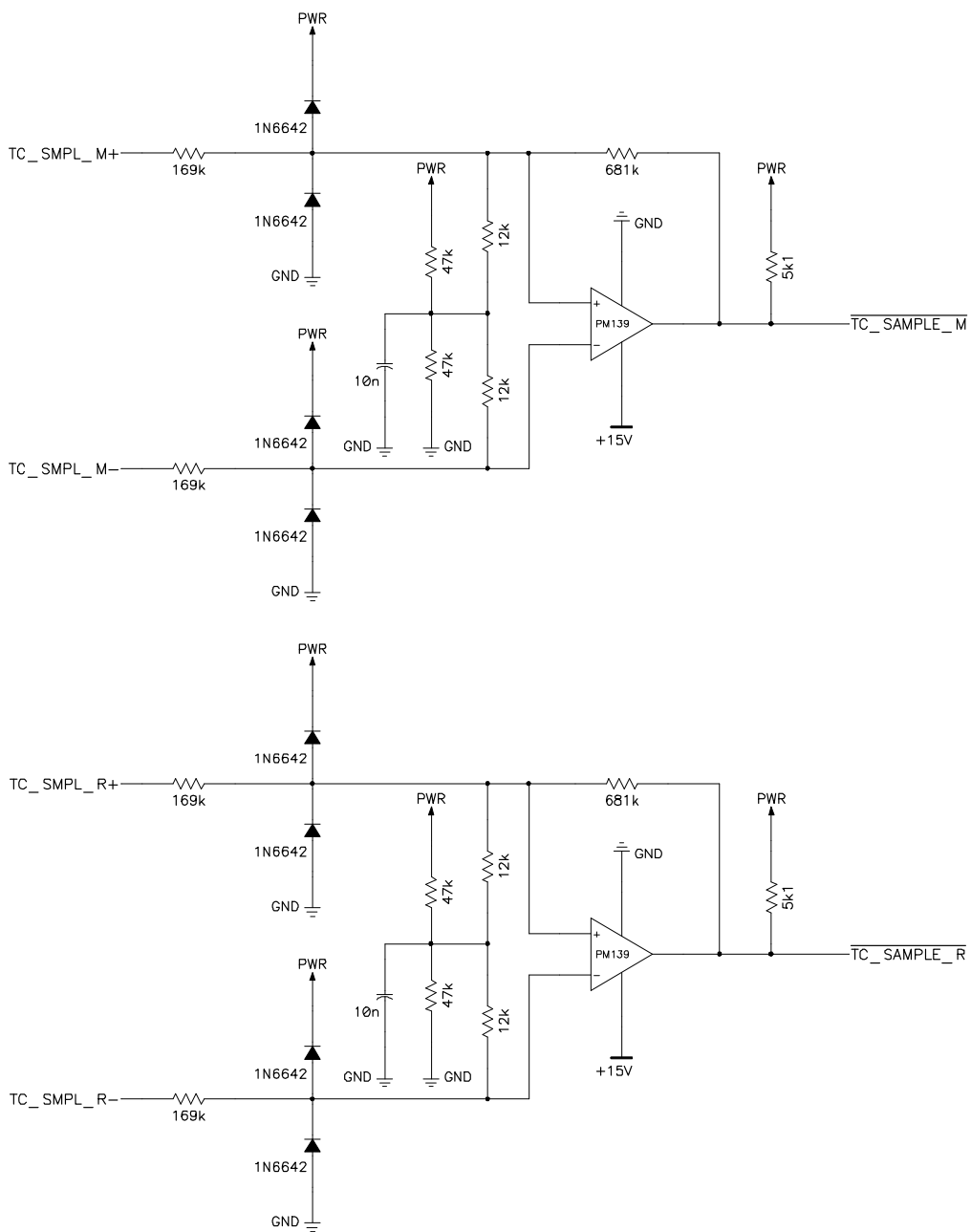
SPACE RESEARCH INSTITUTE AUSTRIA	
TITLE	
TM-CLOCK-INTERFACE	
DOCUMENT NUMBER – DOCUMENT NAME	REV.
tm-clock-if.sch	01
DATE: Thu Oct 15 1998	SHEET 1 OF 1

Fig. 2.5 Circuit drawing of telemetry clock interface (EID-B Fig. 2.7-4)



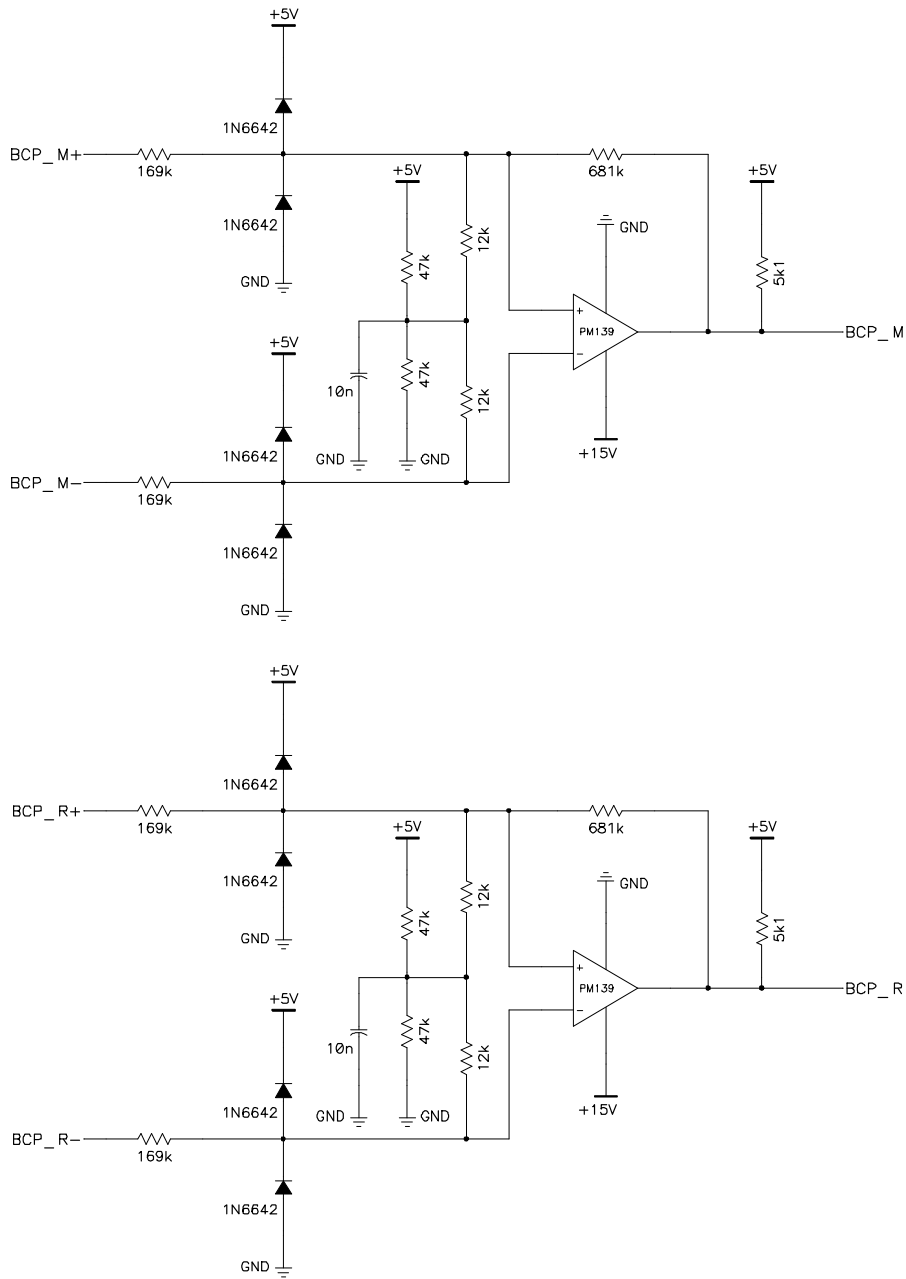
SPACE RESEARCH INSTITUTE AUSTRIA		
TITLE		
TC-DATA-INTERFACE		
DOCUMENT NUMBER – DOCUMENT NAME		REV.
tc-data-if.sch		01
DATE: Thu Oct 15 1998	SHEET 1 OF 1	

Fig. 2.6 Circuit drawing of memory load data interface (EID-B Fig. 2.7-5)



SPACE RESEARCH INSTITUTE AUSTRIA	
TITLE	
TC-SAMPLE-INTERFACE	
DOCUMENT NUMBER - DOCUMENT NAME	REV.
tc-sample-if.sch	01
DATE: Thu Oct 15 1998	SHEET 1 OF 1

Fig. 2.7 Circuit drawing of memory load sample interface (EID-B Fig. 2.7-6)



SPACE RESEARCH INSTITUTE AUSTRIA	
TITLE	
BCP-INTERFACE	
DOCUMENT NUMBER - DOCUMENT NAME	REV.
bcp-if.sch	01
DATE: Thu Oct 15 1998	SHEET 1 OF 1

Fig. 2.8 Circuit drawing of broadcast pulse interface (EID-B Fig. 2.7-7)

2.2.4. Release of Mechanisms

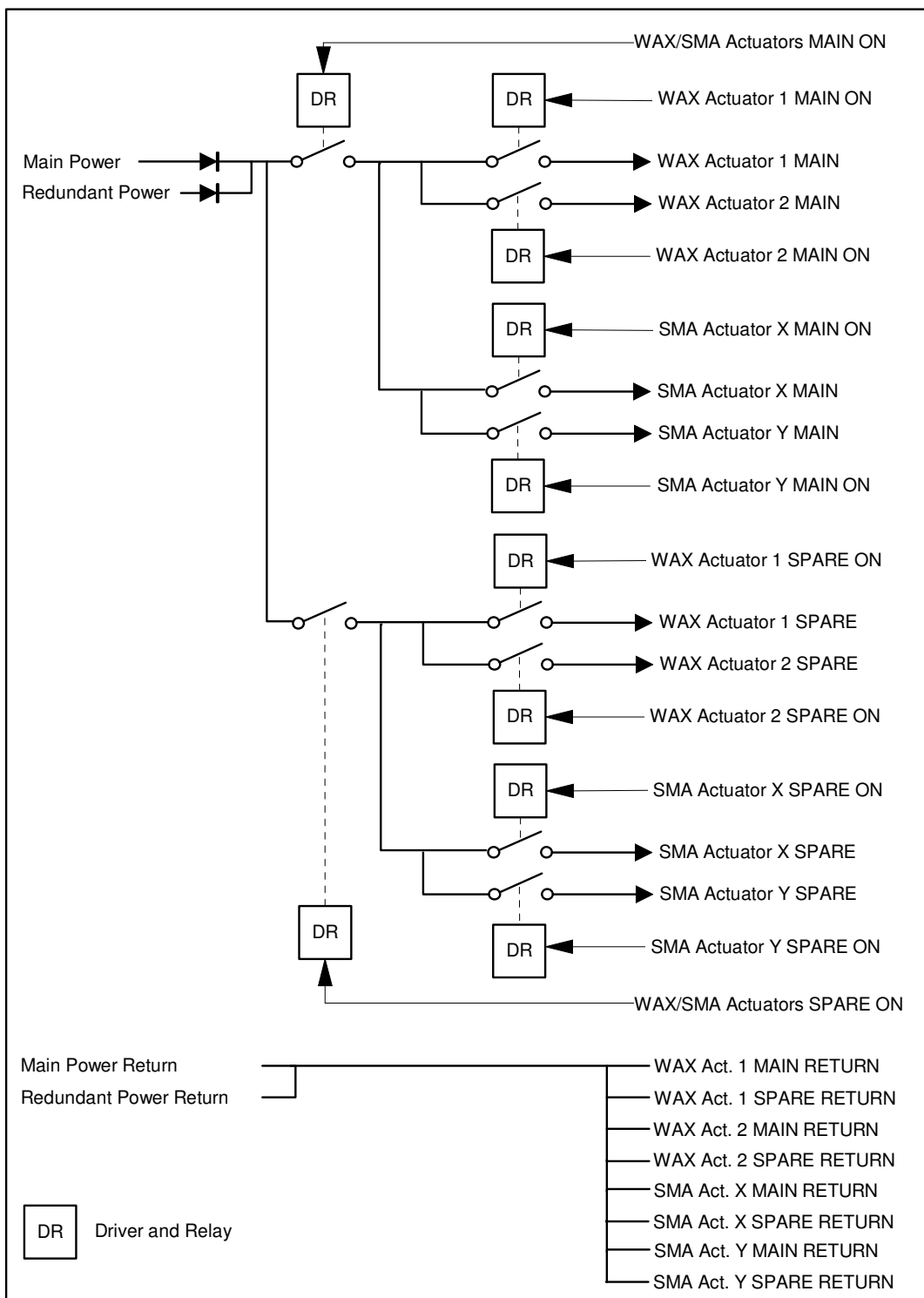


Fig. 2.9 Circuit drawing for release operations of mechanisms. (EID-B Fig. 2.5-1)

The power for launch-lock release operations (baseplate and scanner unit) is derived directly from the main 28V power bus. The relay circuits are shown in Fig. 2.9.



2.3 Software

2.3.1. Overview

The MIDAS instrument software is structured into a low level software kernel and a high level main program. Every time the instrument is switched on, the kernel program is loaded into RAM and executed. Afterwards the content of the EEPROM containing the main program is checked. In case of an error a program upload request is generated and the program (except the kernel) can be reloaded from ground. After verifying and starting the main program the instrument switches to standby mode. This concept results in a very high reliability and security level. Tasks of the software kernel are:

- Interface between MIDAS hardware and main program
- Basic TC/TM processing
- Standard housekeeping data generation
- Software maintenance/upload
- Instrument timing
- Analogue/Digital hardware control

Tasks of the main program are:

- High level instrument control
- Extended TC/TM processing
- Scientific/Extended housekeeping data generation
- Image processing
- Statistical data analysis
- Data compression (optional)

The current S/W releases are:

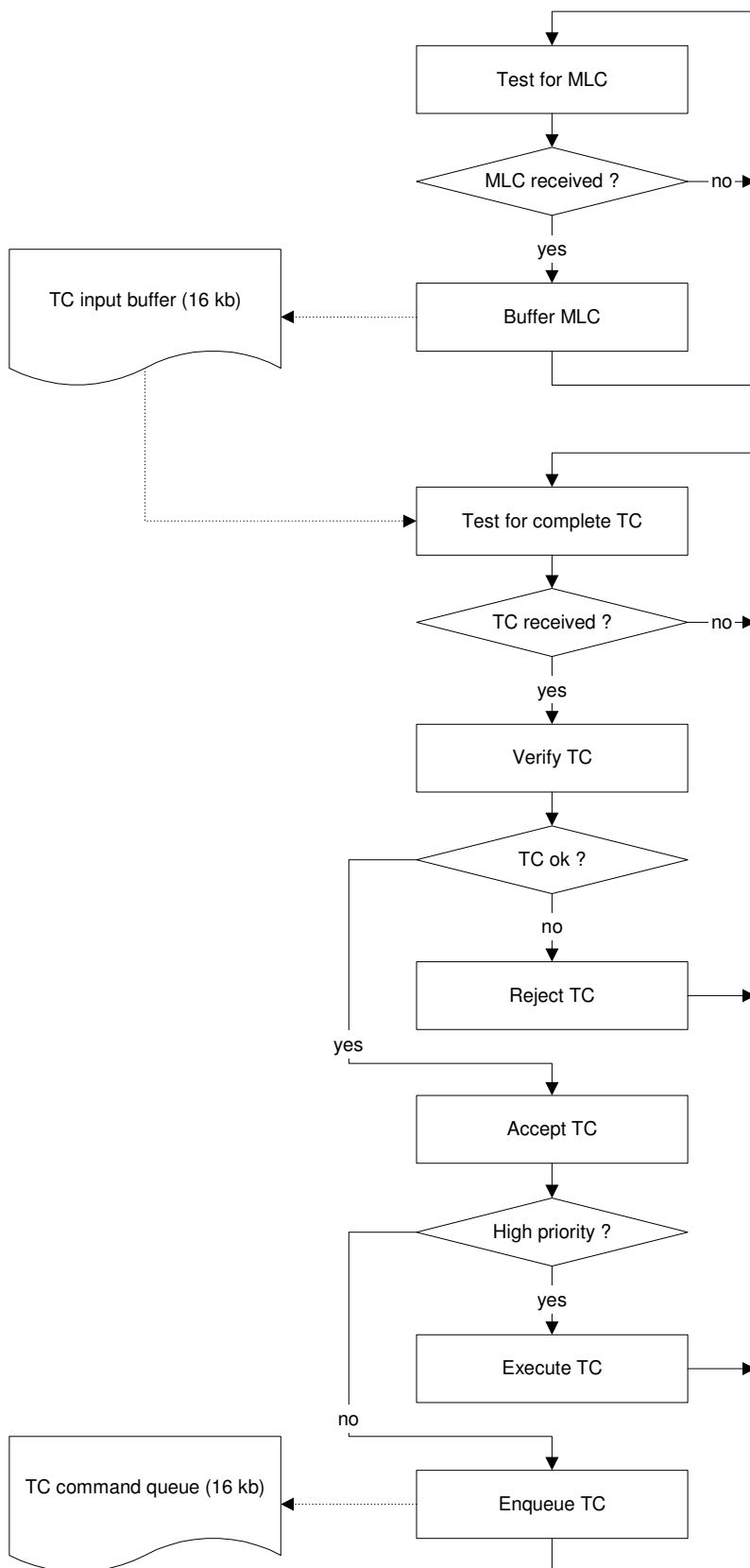
- Kernel Version 6.0.0, 2001-04-20 (frozen)
- Main Program Version 6.4.0, 2003-07-08

2.3.1.1. Basic Data Structures

- Telecommand input buffer
Large data array where the memory load commands (telecommand words) are buffered.
- Command queue
Structure used for processing of telecommands and checkout commands (in main program mode):
 - high priority part: urgent commands (e.g. program abort); immediate execution
 - standard priority part: normal commands (e.g. start frequency scan); queued execution
- Telemetry packet queue
Priority driven queue used for buffering the generated telemetry packets. Guarantees fast processing of telecommand verification reports, test service reports and system error events.
- Telemetry output buffer
Consists of two buffers where every buffer can hold a complete TM packet block. The first buffer holds the data for the current TM polling cycle, whereas the second buffer is used for block building of the TM packets (which are extracted from the TM packet queue) for the next polling interval. After reading the last word of the current TM data block the buffers are exchanged.
- Data RAM Manager
Manages the image acquisition data for an efficient employment of the available data RAM by means of a RAM allocation table.

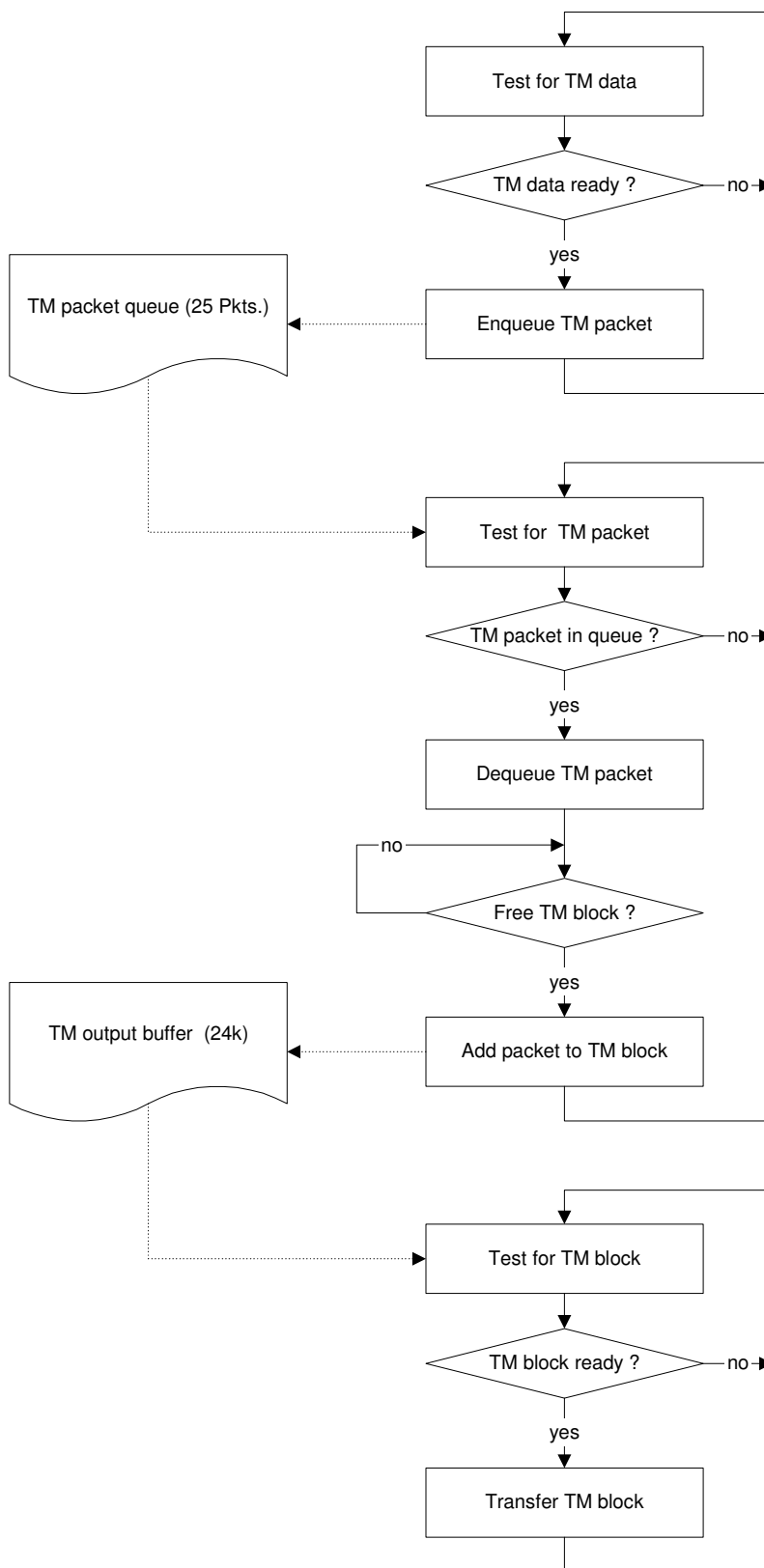


2.3.1.2. TC data processing workflow





2.3.1.3. TM data processing workflow





2.3.2. TC packets

2.3.2.1. TC data packet overview

The following table shows the list of telecommands which are currently supported by the MIDAS instrument. In kernel mode there is only a restricted subset of commands available. Unlike the main program mode, where most of the telecommands are queued, all commands which are accepted in kernel mode are executed immediately. The columns 'Kernel' and 'Main Program' are reflecting the instrument behaviour when the related telecommand have been received:

- executed: telecommand accepted and executed immediately
- queueud: telecommand accepted and buffered in command queue
- ignored : telecommand accepted but not executed
- rejected : telecommand not accepted (and not executed)

Name	Long Name	Type	Subtype	Kernel	Main Program
ZMD00305	EnableHKReport	3	5	executed ¹⁾	executed
ZMD00306	DisableHKReport	3	6	executed	executed
ZMD00602	LoadMemoryAbsolute	6	2	executed	executed
ZMD00605	DumpMemoryAbsolute	6	5	executed	executed
ZMD00609	CheckMemoryAbsolute	6	9	executed	executed
ZMD00901	AcceptTimeUpdate	9	1	executed	executed
ZMD01701	ConnectionTestRequest	17	1	executed	executed
ZMD01801	ReportContextRequest	18	1	rejected	executed
ZMD01803	AcceptContextRequest	18	3	rejected	executed
ZMD01912	GiadaDustFluxDist	19	12	rejected	executed
ZMD02001	EnableScience	20	1	executed ¹⁾	executed
ZMD02002	DisableScience	20	2	executed	executed
ZMD19204	SET_HK1_PERIOD	192	4	ignored	queued
ZMD19205	SET_HK2_PERIOD	192	5	ignored	queued
ZMD19448	SELECT_DATA_SET	194	48	ignored	queued
ZMD19449	CLEAR_DATA_SET	194	49	ignored	queued
ZMD19450	TRANSFER_DATA_SET	194	50	ignored	queued
ZMD19803	EXECUTE_MIDAS	198	3	executed	ignored
ZMD19804	EXIT_CMD	198	4	ignored	executed
ZMD19806	PGM2EEPROM	198	6	executed ²⁾	ignored
ZMD19807	EEPROM2RAM	198	7	executed	ignored
ZMD19808	EEPROM_ENABLE	198	8	executed	queued
ZMD19809	EEPROM_DISABLE	198	9	executed	queued
ZMD20603	RESET_TC	206	3	executed	queued
ZMD20604	RESET_CMD	206	4	ignored	executed
ZMD20605	RESET_TM	206	5	executed	executed
ZMD20606	RESET_RAM	206	6	ignored	executed
ZMD20607	CO_INFO_ENABLE	206	7	executed	queued
ZMD20608	CO_INFO_DISABLE	206	8	executed	queued
ZMD20609	TC_ECHO_ENABLE	206	9	executed	queued
ZMD20610	TC_ECHO_DISABLE	206	10	executed	queued
ZMD20701	WAIT_SECONDS	207	1	ignored	queued
ZMD20735	EXTENDED_CMD	207	35	ignored	queued
ZMD20753	TEST_CMD	207	53	executed	queued
ZMD207S5	ABORT_FUNCTION	207	255	ignored	executed
ZMD20801	AutoFScan	208	1	ignored	queued



ZMD20802	SingleFScan	208	2	ignored	queued
ZMD20901	MoveToSegment	209	1	ignored	queued
ZMD21001	PlateOpenRel2Red	210	1	ignored ³⁾	queued ³⁾
ZMD21002	PlateOpenRel2Main	210	2	ignored ³⁾	queued ³⁾
ZMD21003	PlateOpenRel1Red	210	3	ignored ³⁾	queued ³⁾
ZMD21004	PlateOpenRel1Main	210	4	ignored ³⁾	queued ³⁾
ZMD21101	LinToTipPos	211	1	ignored	queued
ZMD211S5	LinToAbsPos	211	255	ignored	queued
ZMD21201	ShutterOpen	212	1	ignored	queued
ZMD212S5	ShutterClose	212	255	ignored	queued
ZMD21301	DoApproach	213	1	ignored	queued
ZMD21304	AppToAbsPos	213	4	ignored	queued
ZMD213S5	ApproachBck	213	255	ignored	queued
ZMD21401	Linescan	214	1	ignored	queued
ZMD21402	SinglePoint	214	2	ignored	queued
ZMD21403	HiResScan	214	3	ignored	queued
ZMD21404	RetractTip	214	4	ignored	queued
ZMD214S5	FullScan	214	255	ignored	queued
ZMD21501	CalXSensor	215	1	ignored	queued
ZMD215S5	CalYSensor	215	255	ignored	queued
ZMD21701	PowerOff	217	1	ignored	queued
ZMD21702	PowerSwitch	217	2	ignored	queued
ZMD217S5	PowerOn	217	255	ignored	queued
ZMD21801	XyOpenRel2Red	218	1	ignored ³⁾	queued ³⁾
ZMD21802	XyOpenRel2Main	218	2	ignored ³⁾	queued ³⁾
ZMD21803	XyOpenRel1Main	218	3	ignored ³⁾	queued ³⁾
ZMD218S5	XyOpenRel1Red	218	255	ignored ³⁾	queued ³⁾
ZMD22001	DataProcessing	220	1	ignored	queued
ZMD23001	InstrumentSetup	230	1	ignored	queued
ZMD23002	PrepareForScan	230	2	ignored	queued
ZMD230S5	DummyScan	230	255	ignored	queued
ZMD24001	AppToMaxPos	240	1	ignored	queued
ZMD24002	LinToMaxPos	240	2	ignored	queued
ZMD24003	LinToMinPos	240	3	ignored	queued
ZMD240S5	AppToMinPos	240	255	ignored	queued
ZMD25401	TechModeCmd	254	1	ignored	queued
ZMD25402	SetSwParameter	254	2	ignored	executed
ZMD25501	ResetTelemetryBuffer	255	1	executed	executed

¹⁾ Extended HK data packets (SID=2) and science data packets (PID=67) are generated in main program mode only.

²⁾ In case the EEPROM is not write-enabled this command is rejected.

³⁾ Commands were used to release the launch-lock mechanisms and are not used in nominal flight operations.



2.3.2.2. TC data packet details

Telecommand Packet Information

Packet Name **ZMD00305** Instrument **MIDAS**
 Packet Function **EnableHKReport**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **3** Service Subtype **5**
 Structure ID **N/A** Packet Length Min / Max **14 / 14**

Data Field Information

Data Field	Field Structure	Remarks
PMDGSSID	OTHR16	StructureId

Notes: Enables standard (SID=1) or extended (SID=2) housekeeping reporting.

Telecommand Packet Information

Packet Name **ZMD00306** Instrument **MIDAS**
 Packet Function **DisableHKReport**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **3** Service Subtype **6**
 Structure ID **N/A** Packet Length Min / Max **14 / 14**

Data Field Information

Data Field	Field Structure	Remarks
PMDGSSID	OTHR16	StructureId

Notes: Disables standard (SID=1) or extended (SID=2) housekeeping reporting.

Telecommand Packet Information

Packet Name **ZMD00602** Instrument **MIDAS**
 Packet Function **LoadMemoryAbsolute**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **6** Service Subtype **2**
 Structure ID **N/A** Packet Length Min / Max **22 / 248**

Data Field Information

Data Field	Field Structure	Remarks
PMDGSMEM	UINT_8	MemoryID
PMDGSMEN	UINT_8	MemoryBlocks
PMDGSMEA	UINT32	MemoryStartAddr
PMDGSMEL	UINT16	MemoryBlockLen
PMDGSMED	UINT16	MemoryData

Notes: Addressable areas are 0x10000-0x17FFFE in kernel mode and 0x30000-0x17FFFE in main program mode.

Telecommand Packet Information

Packet Name **ZMD00605** Instrument **MIDAS**
 Packet Function **DumpMemoryAbsolute**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **6** Service Subtype **5**
 Structure ID **N/A** Packet Length Min / Max **20 / 20**

Data Field Information

Data Field	Field Structure	Remarks
PMDGSMEM	UINT_8	MemoryID
PMDGSMEN	UINT_8	MemoryBlocks
PMDGSMEA	UINT32	MemoryStartAddr
PMDGSMEL	UINT16	MemoryBlockLen

Notes: Addressable area is 0x00000-0x17FFFE. Each block is transferred in a separate packet. Blocks larger than 1024 words are splitted into several



dump packets.

Telecommand Packet Information

Packet Name **ZMD00609** Instrument **MIDAS**
 Packet Function **CheckMemoryAbsolute**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **6** Service Subtype **9**
 Structure ID **N/A** Packet Length Min / Max **20 / 20**

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDGSMEM	UINT_8	MemoryID
PMDGSMEN	UINT_8	MemoryBlocks
PMDGSMEA	UINT32	MemoryStartAddr
PMDGSMEL	UINT16	MemoryBlockLen

Notes: Addressable area is 0x00000-0x17FFFE. A separate checksum is calculated for each block.

Telecommand Packet Information

Packet Name **ZMD00901** Instrument **MIDAS**
 Packet Function **AcceptTimeUpdate**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **9** Service Subtype **1**
 Structure ID **N/A** Packet Length Min / Max **18 / 18**

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDGSCET	TIME#2	SpacecraftElapsedTime

Notes: MIDAS requires a time update every 30 minutes.

Telecommand Packet Information

Packet Name **ZMD01701** Instrument **MIDAS**
 Packet Function **ConnectionTestRequest**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **17** Service Subtype **1**
 Structure ID **N/A** Packet Length Min / Max **12 / 12**

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>

Notes: Check whether MIDAS is alive.

Telecommand Packet Information

Packet Name **ZMD01801** Instrument **MIDAS**
 Packet Function **ReportContextRequest**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **18** Service Subtype **1**
 Structure ID **N/A** Packet Length Min / Max **12 / 12**

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>

Notes: In the current version only the HK data rates are stored in the context.

Telecommand Packet Information

Packet Name **ZMD01803** Instrument **MIDAS**
 Packet Function **AcceptContextRequest**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **18** Service Subtype **3**



Structure ID **N/A** Packet Length Min / Max **14 / 248**

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDGSSEG	OTHR16	SegmentNumber

Notes: Upload previously requested context to MIDAS. A successful upload is indicated by the EV_CTX_ACCEPTED event.

Telecommand Packet Information

Packet Name	ZMD01912	Instrument	MIDAS
Packet Function	GiadaDustFluxDist		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	19	Service Subtype	12
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDGSGDF	UINT16	GiadaDustFlux

Notes: Limits are hardcoded but can be changed by using the technical mode command. Exposure control via OBCP recommended.

Telecommand Packet Information

Packet Name	ZMD02001	Instrument	MIDAS
Packet Function	EnableScience		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	20	Service Subtype	1
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDGSPID	OTHR16	ProcessId

Notes: Enable science (image) data reporting.

Telecommand Packet Information

Packet Name	ZMD02002	Instrument	MIDAS
Packet Function	DisableScience		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	20	Service Subtype	2
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDGSPID	OTHR16	ProcessId

Notes: Disable science (image) data reporting.

Telecommand Packet Information

Packet Name	ZMD19204	Instrument	MIDAS
Packet Function	SET_HK1_PERIOD		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	192	Service Subtype	4
Structure ID	N/A	Packet Length Min / Max	16 / 16

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG0004	OTHR32	SetHk1Period

Notes: Set standard HK data rate (default = 120 secs).

Telecommand Packet Information

Packet Name	ZMD19205	Instrument	MIDAS
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Packet Function **SET_HK2_PERIOD**
Generation Rules

Header

Process ID	67	Packet Category	12 'Private'
Service Type	192	Service Subtype	5
Structure ID	N/A	Packet Length Min / Max	16 / 16

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG0005	OTHR32	SetHk2Period

Notes: Set extended HK data rate (default = 120 secs).

Telecommand Packet Information

Packet Name	ZMD19448	Instrument	MIDAS
Packet Function	SELECT_DATA_SET		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	194	Service Subtype	48
Structure ID	N/A	Packet Length Min / Max	16 / 16

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG0230	OTHR32	SelectDataSet

Notes: Select a data set for transfer or deletion (data set ID = 0..63; 0x4000 = newest; 0x8000 = oldest).

Telecommand Packet Information

Packet Name	ZMD19449	Instrument	MIDAS
Packet Function	CLEAR_DATA_SET		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	194	Service Subtype	49
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG8231	UINT16	ClearDataSet

Notes: Delete a previously selected data set.

Telecommand Packet Information

Packet Name	ZMD19450	Instrument	MIDAS
Packet Function	TRANSFER_DATA_SET		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	194	Service Subtype	50
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG8232	UINT16	TransferDataSet

Notes: Transfer a previously selected data set.

Telecommand Packet Information

Packet Name	ZMD19803	Instrument	MIDAS
Packet Function	EXECUTE_MIDAS		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	198	Service Subtype	3
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG8603	UINT16	ExecuteMidas



Notes: Switch from the kernel to the main program.

Telecommand Packet Information

Packet Name	ZMD19804	Instrument	MIDAS
Packet Function	EXIT_CMD		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	198	Service Subtype	4
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG8604	UINT16	ExitCmd

Notes: Switch from the main program to the kernel.

Telecommand Packet Information

Packet Name	ZMD19806	Instrument	MIDAS
Packet Function	PGM2EEPROM		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	198	Service Subtype	6
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG8606	UINT16	Pgm2eeprom

Notes: Copy RAM pages 1 to 3 to the EEPROM (only allowed in kernel mode).

Telecommand Packet Information

Packet Name	ZMD19807	Instrument	MIDAS
Packet Function	EEPROM2RAM		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	198	Service Subtype	7
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG8607	UINT16	Eeprom2ram

Notes: Restore RAM pages 1 to 3 from EEPROM (only allowed in kernel mode).

Telecommand Packet Information

Packet Name	ZMD19808	Instrument	MIDAS
Packet Function	EEPROM_ENABLE		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	198	Service Subtype	8
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG8608	UINT16	EepromEnable

Notes: Write enable EEPROM (only allowed in kernel mode).

Telecommand Packet Information

Packet Name	ZMD19809	Instrument	MIDAS
Packet Function	EEPROM_DISABLE		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	198	Service Subtype	9
Structure ID	N/A	Packet Length Min / Max	14 / 14



Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG8609	UINT16	EepromDisable

Notes: Write protect EEPROM (only allowed in kernel mode).

Telecommand Packet Information

Packet Name	ZMD20603	Instrument	MIDAS
Packet Function	RESET_TC		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	206	Service Subtype	3
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG8E03	UINT16	ResetTc

Notes: Reset telecommand input buffer.

Telecommand Packet Information

Packet Name	ZMD20604	Instrument	MIDAS
Packet Function	RESET_CMD		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	206	Service Subtype	4
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG8E04	UINT16	ResetCmd

Notes: Reset private telecommand buffer.

Telecommand Packet Information

Packet Name	ZMD20605	Instrument	MIDAS
Packet Function	RESET_TM		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	206	Service Subtype	5
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG8E05	UINT16	ResetTm

Notes: Reset telemetry output buffer (same effect as ZMD25501).

Telecommand Packet Information

Packet Name	ZMD20606	Instrument	MIDAS
Packet Function	RESET_RAM		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	206	Service Subtype	6
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG8E06	UINT16	ResetRam

Notes: Reset image RAM manager structure. WARNING: All images taken so far are getting lost.

Telecommand Packet Information

Packet Name	ZMD20607	Instrument	MIDAS
Packet Function	CO_INFO_ENABLE		
Generation Rules			



Header

Process ID	67	Packet Category	12 'Private'
Service Type	206	Service Subtype	7
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

Data Field	Field Structure	Remarks
PMDG8E07	UINT16	ColInfoEnable

Notes: Enable C/O interface messages (used for ground testing; slows down program execution).

Telecommand Packet Information

Packet Name	ZMD20608	Instrument	MIDAS
Packet Function	CO_INFO_DISABLE		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	206	Service Subtype	8
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

Data Field	Field Structure	Remarks
PMDG8E08	UINT16	ColInfoDisable

Notes: Disable C/O interface messages (used for ground testing; speeds up program execution).

Telecommand Packet Information

Packet Name	ZMD20609	Instrument	MIDAS
Packet Function	TC_ECHO_ENABLE		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	206	Service Subtype	9
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

Data Field	Field Structure	Remarks
PMDG8E09	UINT16	TcEchoEnable

Notes: Enables TC echo feature (used for ground testing).

Telecommand Packet Information

Packet Name	ZMD20610	Instrument	MIDAS
Packet Function	TC_ECHO_DISABLE		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	206	Service Subtype	10
Structure ID	N/A	Packet Length Min / Max	14 / 14

Data Field Information

Data Field	Field Structure	Remarks
PMDG8E0A	UINT16	TcEchoDisable

Notes: Disables TC echo feature (required for program upload).

Telecommand Packet Information

Packet Name	ZMD20701	Instrument	MIDAS
Packet Function	WAIT_SECONDS		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	207	Service Subtype	1
Structure ID	N/A	Packet Length Min / Max	16 / 16

Data Field Information

Data Field	Field Structure	Remarks
PMDG0F01	OTHR32	WaitSeconds

Notes: Initiates wait cycle of n seconds (can be used for internal time tagging).



Telecommand Packet Information

Packet Name **ZMD20735** Instrument **MIDAS**
 Packet Function **EXTENDED_CMD**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **207** Service Subtype **35**
 Structure ID **N/A** Packet Length Min / Max **14 / 14**

Data Field Information

Data Field	Field Structure	Remarks
PMDG8F23	UINT16	ExtendedCmd

Notes: Execute extended program code stored in RAM page 3.

Telecommand Packet Information

Packet Name **ZMD20753** Instrument **MIDAS**
 Packet Function **TEST_CMD**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **207** Service Subtype **53**
 Structure ID **N/A** Packet Length Min / Max **14 / 14**

Data Field Information

Data Field	Field Structure	Remarks
PMDG8F35	UINT16	TestCmd

Notes: Command used for testing; no internal effect.

Telecommand Packet Information

Packet Name **ZMD207S5** Instrument **MIDAS**
 Packet Function **ABORT_FUNCTION**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **207** Service Subtype **255**
 Structure ID **N/A** Packet Length Min / Max **14 / 14**

Data Field Information

Data Field	Field Structure	Remarks
PMDG8F00	UINT16	AbortFunction

Notes: Abort current task (if any).

Telecommand Packet Information

Packet Name **ZMD20801** Instrument **MIDAS**
 Packet Function **AutoFScan**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **208** Service Subtype **1**
 Structure ID **N/A** Packet Length Min / Max **72 / 72**

Data Field Information

Data Field	Field Structure	Remarks
PMDG8706	UINT16	PreAmpPowerOn
PMDG0C00	UINT16	SetCantBlockX
PMDG0C10	UINT16	SetCantX
PMDG0708	UINT16	CantBlock1Power
PMDG070A	UINT16	CantBlock2Power
PMDG020C	OTHR32	SetAcgain
PMDG020E	OTHR32	SetExclev
PMDG030B	OTHR32	SetFrequencyHi
PMDG030C	OTHR32	SetFrequencyLo
PMDG0302	OTHR32	SetFStep
PMDG0308	OTHR32	SetFStepHi
PMDG0307	OTHR32	SetNoOfFscans
PMDG030A	OTHR32	SetPercentOpAmpl
PMDG0208	OTHR32	SetOpPointPerc
PMDG020F	OTHR32	SetDeltaOpPerc



PMDG0309	OTHR32	SetSearchAlgor
PMDG030E	UINT16	ThresDetectOnOff
PMDG8304	UINT16	FsynthOn
PMDG8306	UINT16	DoFScanAuto

Notes: Start automatic cantilever frequency scan (up to 8 cycles; sets operating point).

Telecommand Packet Information

Packet Name	ZMD20802	Instrument	MIDAS
Packet Function	SingleFScan		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	208	Service Subtype	2
Structure ID	N/A	Packet Length Min / Max	46 / 46

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG0C00	UINT16	SelCantBlockX
PMDG0C10	UINT16	SelCantX
PMDG8706	UINT16	PreAmpPowerOn
PMDG0708	UINT16	CantBlock1Power
PMDG070A	UINT16	CantBlock2Power
PMDG020C	OTHR32	SetAcgain
PMDG020E	OTHR32	SetExclev
PMDG0302	OTHR32	SetFStep
PMDG030B	OTHR32	SetFrequencyHi
PMDG030C	OTHR32	SetFrequencyLo
PMDG8304	UINT16	FsynthOn
PMDG8303	UINT16	DoFScan

Notes: Start single cantilever frequency scan (only one cycle; operating point is not set).

Telecommand Packet Information

Packet Name	ZMD20901	Instrument	MIDAS
Packet Function	MoveToSegment		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	209	Service Subtype	1
Structure ID	N/A	Packet Length Min / Max	26 / 26

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG0400	OTHR32	SetPulsewidth
PMDG0108	OTHR32	SetPulseDelay
PMDG0403	OTHR32	SetSegmentNumber
PMDG840A	UINT16	MoveWheel

Notes: Move selected segment in front of the cantilever array. For exposure position a value of 512 has to be added (MOD 1024). This command is locked unless the approach is in the minimum position.

Telecommand Packet Information

Packet Name	ZMD21001	Instrument	MIDAS
Packet Function	PlateOpenRel2Red		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	210	Service Subtype	1
Structure ID	N/A	Packet Length Min / Max	20 / 20

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG8512	UINT16	SelWaxact2
PMDG0510	OTHR32	SetWaxactTimo
PMDG8503	UINT16	OpenRwaxact

Notes: Release baseplate WAX actuator #2, redundant I/F.



Telecommand Packet Information

Packet Name **ZMD21002** Instrument **MIDAS**
 Packet Function **PlateOpenRel2Main**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **210** Service Subtype **2**
 Structure ID **N/A** Packet Length Min / Max **20 / 20**

Data Field Information

Data Field	Field Structure	Remarks
PMDG8512	UINT16	SetWaxact2
PMDG0510	OTHR32	SetWaxactTimo
PMDG8502	UINT16	OpenMwaxact

Notes: Release baseplate WAX actuator #2, main I/F.

Telecommand Packet Information

Packet Name **ZMD21003** Instrument **MIDAS**
 Packet Function **PlateOpenRel1Red**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **210** Service Subtype **3**
 Structure ID **N/A** Packet Length Min / Max **20 / 20**

Data Field Information

Data Field	Field Structure	Remarks
PMDG8505	UINT16	SetWaxact1
PMDG0510	OTHR32	SetWaxactTimo
PMDG8503	UINT16	OpenRwaxact

Notes: Release baseplate WAX actuator #1, redundant I/F.

Telecommand Packet Information

Packet Name **ZMD21004** Instrument **MIDAS**
 Packet Function **PlateOpenRel1Main**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **210** Service Subtype **4**
 Structure ID **N/A** Packet Length Min / Max **20 / 20**

Data Field Information

Data Field	Field Structure	Remarks
PMDG8505	UINT16	SetWaxact1
PMDG0510	OTHR32	SetWaxactTimo
PMDG8502	UINT16	OpenMwaxact

Notes: Release baseplate WAX actuator #1, main I/F.

Telecommand Packet Information

Packet Name **ZMD21101** Instrument **MIDAS**
 Packet Function **LinToTipPos**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **211** Service Subtype **1**
 Structure ID **N/A** Packet Length Min / Max **32 / 32**

Data Field Information

Data Field	Field Structure	Remarks
PMDG0400	OTHR32	SetPulsewidth
PMDG010D	OTHR32	SetLinmovTimo
PMDG0C2A	OTHR32	SetTipNo
PMDG0905	OTHR32	RestoreTableFromEepro
PMDG8908	UINT16	LoadTipPosTable
PMDG8103	UINT16	DoLinMovementTip

Notes: Move linear stage to given cantilever (0..15). The LVDT positions are not yet stored in the EEPROM (this is just a backup command).



Telecommand Packet Information

Packet Name **ZMD211S5** Instrument **MIDAS**
 Packet Function **LinToAbsPos**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **211** Service Subtype **255**
 Structure ID **N/A** Packet Length Min / Max **26 / 26**

Data Field Information

Data Field	Field Structure	Remarks
PMDG0400	OTHR32	SetPulsewidth
PMDG010D	OTHR32	SetLinmovTimo
PMDG0107	OTHR32	SetLinPosAbs
PMDG8102	UINT16	DoLinMovementAbs

Notes: Move linear stage to the cantilever identified by the given LVDT position.

Telecommand Packet Information

Packet Name **ZMD21201** Instrument **MIDAS**
 Packet Function **ShutterOpen**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **212** Service Subtype **1**
 Structure ID **N/A** Packet Length Min / Max **18 / 18**

Data Field Information

Data Field	Field Structure	Remarks
PMDG0400	OTHR32	SetPulsewidth
PMDG8500	UINT16	OpenShut

Notes: Open shutter for exposure.

Telecommand Packet Information

Packet Name **ZMD212S5** Instrument **MIDAS**
 Packet Function **ShutterClose**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **212** Service Subtype **255**
 Structure ID **N/A** Packet Length Min / Max **18 / 18**

Data Field Information

Data Field	Field Structure	Remarks
PMDG0400	OTHR32	SetPulsewidth
PMDG8501	UINT16	CloseShut

Notes: Close shutter after exposure.

Telecommand Packet Information

Packet Name **ZMD21301** Instrument **MIDAS**
 Packet Function **DoApproach**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **213** Service Subtype **1**
 Structure ID **N/A** Packet Length Min / Max **82 / 82**

Data Field Information

Data Field	Field Structure	Remarks
PMDG0106	OTHR32	SetDcPulsewidth
PMDG0113	OTHR32	SetApprTestCount
PMDG0116	OTHR32	SetDeltaApprLvdT
PMDG0117	OTHR32	SetApprNumPulses
PMDG0118	OTHR32	SetApprStuckCnt
PMDG0115	OTHR32	SetApprPosMin
PMDG0114	OTHR32	SetApprPosMax
PMDG0700	UINT16	CsscPower
PMDG8710	UINT16	PiezoHvampOn
PMDG0712	UINT16	ZStraingPower



PMDG0800	UINT16	SetXctrlLoop
PMDG0802	UINT16	SetYctrlLoop
PMDG0804	UINT16	SetZctrlLoop
PMDG080F	OTHR32	SetZgain
PMDG0207	OTHR32	SetAverage
PMDG0234	OTHR32	SetScanAlgor
PMDG8304	UINT16	FsynthOn
PMDG8239	UINT16	NoDispContrData
PMDG0119	OTHR32	SetDeltaDcContact
PMDG0110	UINT16	CheckDcOnOff
PMDG0112	OTHR32	SetDeltaApprPos
PMDG880A	UINT16	DeactZselZero
PMDG8100	UINT16	DoApproach

Notes: Coarse approach towards surface using single point measurements.

Telecommand Packet Information

Packet Name	ZMD21304	Instrument	MIDAS
Packet Function	AppToAbsPos		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	213	Service Subtype	4
Structure ID	N/A	Packet Length Min / Max	46 / 46

Data Field Information

Data Field	Field Structure	Remarks
PMDG0106	OTHR32	SetDcPulsewidth
PMDG0113	OTHR32	SetApprTestCount
PMDG0116	OTHR32	SetDeltaApprLvd
PMDG0117	OTHR32	SetApprNumPulses
PMDG0118	OTHR32	SetApprStuckCnt
PMDG0115	OTHR32	SetApprPosMin
PMDG0114	OTHR32	SetApprPosMax
PMDG010E	OTHR32	SetApprAbsPos
PMDG810F	UINT16	DoApproachAbs

Notes: Move approach to given absolute LVDT position (use with caution - no surface detection is used).

Telecommand Packet Information

Packet Name	ZMD213S5	Instrument	MIDAS
Packet Function	ApproachBck		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	213	Service Subtype	255
Structure ID	N/A	Packet Length Min / Max	42 / 42

Data Field Information

Data Field	Field Structure	Remarks
PMDG0106	OTHR32	SetDcPulsewidth
PMDG0113	OTHR32	SetApprTestCount
PMDG0116	OTHR32	SetDeltaApprLvd
PMDG0117	OTHR32	SetApprNumPulses
PMDG0118	OTHR32	SetApprStuckCnt
PMDG0115	OTHR32	SetApprPosMin
PMDG0114	OTHR32	SetApprPosMax
PMDG8101	UINT16	DoApproachBackw

Notes: Retract approach from surface.

Telecommand Packet Information

Packet Name	ZMD21401	Instrument	MIDAS
Packet Function	Linescan		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	214	Service Subtype	1
Structure ID	N/A	Packet Length Min / Max	50 / 50

Data Field Information



<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG0700	UINT16	CsscPower
PMDG0712	UINT16	ZStraingPower
PMDG0304	UINT16	FsynthOnOff
PMDG0800	UINT16	SetXctrlLoop
PMDG0802	UINT16	SetYctrlLoop
PMDG0804	UINT16	SetZctrlLoop
PMDG0214	UINT16	SetMainScanDir
PMDG021A	UINT16	SetScanDirX
PMDG021C	UINT16	SetScanDirY
PMDG0216	OTHR32	SetScanMode
PMDG0234	OTHR32	SetScanAlgor
PMDG021F	OTHR32	SetDataType
PMDG0233	OTHR32	SetTransferMode
PMDG880A	UINT16	DeactZselZero
PMDG8209	UINT16	DoLineScan

Notes: Starts a single line scan. Scan parameters can be changed by using the PrepareForScan (ZMD23002) command.

Telecommand Packet Information

Packet Name	ZMD21402	Instrument	MIDAS
Packet Function	SinglePoint		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	214	Service Subtype	2
Structure ID	N/A	Packet Length Min / Max	34 / 34

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG0700	UINT16	CsscPower
PMDG0712	UINT16	ZStraingPower
PMDG0304	UINT16	FsynthOnOff
PMDG0800	UINT16	SetXctrlLoop
PMDG0802	UINT16	SetYctrlLoop
PMDG0804	UINT16	SetZctrlLoop
PMDG0210	OTHR32	SetMsubCycles
PMDG0216	OTHR32	SetScanMode
PMDG8200	UINT16	DoSinglePoint

Notes: Starts a single point scan. Scan parameters can be changed by using the PrepareForScan (ZMD23002) command.

Telecommand Packet Information

Packet Name	ZMD21403	Instrument	MIDAS
Packet Function	HiResScan		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	214	Service Subtype	3
Structure ID	N/A	Packet Length Min / Max	22 / 22

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG0240	OTHR32	SetCantHiresTime
PMDG0241	OTHR32	SetCantHiresPkts
PMDG8242	UINT16	DoCantHiresScan

Notes: Starts a high resolution cantilever scan. DAQ rate up to 700 Hz (45 kBit/s).

Telecommand Packet Information

Packet Name	ZMD21404	Instrument	MIDAS
Packet Function	RetractTip		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	214	Service Subtype	4
Structure ID	N/A	Packet Length Min / Max	36 / 36

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
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PMDG080C	OTHR32	SetDacX
PMDG080D	OTHR32	SetDacY
PMDG080E	OTHR32	SetDacZ
PMDG0210	OTHR32	SetMsubCycles
PMDG0216	OTHR32	SetScanMode
PMDG0304	UINT16	FsynthOnOff
PMDG080A	UINT16	EnableZoutput

Notes: Retract cantilever from surface.

Telecommand Packet Information

Packet Name	ZMD214S5	Instrument	MIDAS
Packet Function	FullScan		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	214	Service Subtype	255
Structure ID	N/A	Packet Length Min / Max	50 / 50

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG0700	UINT16	CsscPower
PMDG0712	UINT16	ZStraingPower
PMDG0304	UINT16	FsynthOnOff
PMDG0800	UINT16	SetXctrlLoop
PMDG0802	UINT16	SetYctrlLoop
PMDG0804	UINT16	SetZctrlLoop
PMDG0214	UINT16	SelMainScanDir
PMDG021A	UINT16	SelScanDirX
PMDG021C	UINT16	SelScanDirY
PMDG0216	OTHR32	SetScanMode
PMDG0234	OTHR32	SetScanAlgor
PMDG021F	OTHR32	SetDataType
PMDG0233	OTHR32	SetTransferMode
PMDG880A	UINT16	DeactZselZero
PMDG820A	UINT16	DoFullScan

Notes: Starts a real image scan. Scan parameters can be changed by using the PrepareForScan (ZMD23002) command.

Telecommand Packet Information

Packet Name	ZMD21501	Instrument	MIDAS
Packet Function	CalXSensor		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	215	Service Subtype	1
Structure ID	N/A	Packet Length Min / Max	38 / 38

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG0A08	OTHR32	SetVrefAcc
PMDG0A09	OTHR32	SetVxref1
PMDG0A0A	OTHR32	SetVxref2
PMDG0A0D	OTHR32	SetGainStep
PMDG0A0E	OTHR32	SetOffsStep
PMDG0A0F	OTHR32	SetMaxCalCycles
PMDG8A00	UINT16	DoCapXSensorCal

Notes: Starts CSSC X-sensor calibration cycle. The acquired parameters can be set by using the InstrumentSetup command (ZMD23001).

Telecommand Packet Information

Packet Name	ZMD215S5	Instrument	MIDAS
Packet Function	CalYSensor		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	215	Service Subtype	255
Structure ID	N/A	Packet Length Min / Max	38 / 38

Data Field Information



Data Field	Field Structure	Remarks
PMDG0A08	OTHR32	SetVrefAcc
PMDG0A0B	OTHR32	SetVyref1
PMDG0A0C	OTHR32	SetVyref2
PMDG0A0D	OTHR32	SetGainStep
PMDG0A0E	OTHR32	SetOffsStep
PMDG0A0F	OTHR32	SetMaxCalCycles
PMDG8A01	UINT16	DoCapYSensorCal

Notes: Starts CSSC Y-sensor calibration cycle. The acquired parameters can be set by using the InstrumentSetup command (ZMD23001).

Telecommand Packet Information

Packet Name	ZMD21701	Instrument	MIDAS
Packet Function	PowerOff		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	217	Service Subtype	1
Structure ID	N/A	Packet Length Min / Max	32 / 32

Data Field Information

Data Field	Field Structure	Remarks
PMDG8701	UINT16	CsscPowerOff
PMDG8703	UINT16	AppLvdTPowerOff
PMDG8705	UINT16	LinLvdTPowerOff
PMDG8707	UINT16	PreAmpPowerOff
PMDG8709	UINT16	CantBlock1PowerOff
PMDG8711	UINT16	PiezoHvampOff
PMDG870B	UINT16	CantBlock2PowerOff
PMDG870F	UINT16	WheelEncPowerOff
PMDG8713	UINT16	ZStraingPowerOff
PMDG870D	UINT16	MotDrvPowerOff

Notes: Used to switch off the power relays off all sub-systems.

Telecommand Packet Information

Packet Name	ZMD21702	Instrument	MIDAS
Packet Function	PowerSwitch		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	217	Service Subtype	2
Structure ID	N/A	Packet Length Min / Max	32 / 32

Data Field Information

Data Field	Field Structure	Remarks
PMDG0700	UINT16	CsscPower
PMDG0702	UINT16	AppLvdTPower
PMDG0704	UINT16	LinLvdTPower
PMDG0706	UINT16	PreAmpPower
PMDG0708	UINT16	CantBlock1Power
PMDG070A	UINT16	CantBlock2Power
PMDG070C	UINT16	MotDrvPower
PMDG070E	UINT16	WheelEncPower
PMDG0710	UINT16	PiezoHvamp
PMDG0712	UINT16	ZStraingPower

Notes: Switches ON/OFF the power relays of selected sub-systems.

Telecommand Packet Information

Packet Name	ZMD217S5	Instrument	MIDAS
Packet Function	PowerOn		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	217	Service Subtype	255
Structure ID	N/A	Packet Length Min / Max	32 / 32

Data Field Information

Data Field	Field Structure	Remarks
PMDG8700	UINT16	CsscPowerOn



PMDG8702	UINT16	AppLvdtpowerOn
PMDG8704	UINT16	LinLvdtpowerOn
PMDG8706	UINT16	PreAmpPowerOn
PMDG8708	UINT16	CantBlock1PowerOn
PMDG8710	UINT16	PiezoHvampOn
PMDG8712	UINT16	ZStraingPowerOn
PMDG870E	UINT16	WheelEncPowerOn
PMDG870A	UINT16	CantBlock2PowerOn
PMDG870C	UINT16	MotDrvPowerOn

Notes: Switches ON the power relays of all sub-systems at the same time.

Telecommand Packet Information

Packet Name **ZMD21801** Instrument **MIDAS**
 Packet Function **XyOpenRel2Red**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **218** Service Subtype **1**
 Structure ID **N/A** Packet Length Min / Max **20 / 20**

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG8513	UINT16	SelYact
PMDG0511	OTHR32	SetXyactTimo
PMDG850F	UINT16	OpenRxyact

Notes: Release XY stage actuator #2, redundant I/F.

Telecommand Packet Information

Packet Name **ZMD21802** Instrument **MIDAS**
 Packet Function **XyOpenRel2Main**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **218** Service Subtype **2**
 Structure ID **N/A** Packet Length Min / Max **20 / 20**

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG8513	UINT16	SelYact
PMDG0511	OTHR32	SetXyactTimo
PMDG850E	UINT16	OpenMxyact

Notes: Release XY stage actuator #2, main I/F.

Telecommand Packet Information

Packet Name **ZMD21803** Instrument **MIDAS**
 Packet Function **XyOpenRel1Main**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **218** Service Subtype **3**
 Structure ID **N/A** Packet Length Min / Max **20 / 20**

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG850B	UINT16	SelXact
PMDG0511	OTHR32	SetXyactTimo
PMDG850E	UINT16	OpenMxyact

Notes: Release XY stage actuator #1, main I/F.

Telecommand Packet Information

Packet Name **ZMD218S5** Instrument **MIDAS**
 Packet Function **XyOpenRel1Red**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **218** Service Subtype **255**
 Structure ID **N/A** Packet Length Min / Max **20 / 20**



Data Field Information

Data Field	Field Structure	Remarks
PMDG850B	UINT16	SetXact
PMDG0511	OTHR32	SetXyactTimo
PMDG850F	UINT16	OpenRxyact

Notes: Release XY stage actuator #1, redundant I/F.

Telecommand Packet Information

Packet Name	ZMD22001	Instrument	MIDAS
Packet Function	DataProcessing		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	220	Service Subtype	1
Structure ID	N/A	Packet Length Min / Max	46 / 46

Data Field Information

Data Field	Field Structure	Remarks
PMDG0E15	OTHR32	SetFvectMode
PMDG0E16	OTHR32	SetFvectLperc
PMDG0E17	OTHR32	SetFvectXmargin
PMDG0E18	OTHR32	SetFvectYmargin
PMDG0E1A	OTHR32	SetFvectNumPts
PMDG0E1B	OTHR32	SetFvectAvgZ
PMDG0E1C	OTHR32	SetFvectRatio
PMDG0E1D	OTHR32	SetFvectZfactor
PMDG8E19	UINT16	FeatureVector

Notes: Starts feature detection. Scan origin and step size are automatically adjusted if a suitable feature has been found.

Telecommand Packet Information

Packet Name	ZMD23001	Instrument	MIDAS
Packet Function	InstrumentSetup		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	230	Service Subtype	1
Structure ID	N/A	Packet Length Min / Max	58 / 58

Data Field Information

Data Field	Field Structure	Remarks
PMDG020D	OTHR32	SetDcgain
PMDG0210	OTHR32	SetMsubCycles
PMDG0211	OTHR32	SetMaxCycles
PMDG0806	OTHR32	SetGainContrX
PMDG0807	OTHR32	SetGainContrY
PMDG0808	OTHR32	SetOffsContrX
PMDG0809	OTHR32	SetOffsContrY
PMDG0212	UINT16	SetCsscPosCtrl
PMDG0E11	OTHR32	SetHkParam1
PMDG0E12	OTHR32	SetHkParam2
PMDG0E13	OTHR32	SetHkParam3
PMDG0E14	OTHR32	SetHkParam4

Notes: Used to set some general parameters once the instrument has been switched-on.

Telecommand Packet Information

Packet Name	ZMD23002	Instrument	MIDAS
Packet Function	PrepareForScan		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	230	Service Subtype	2
Structure ID	N/A	Packet Length Min / Max	76 / 76

Data Field Information

Data Field	Field Structure	Remarks
PMDG0201	OTHR32	SetXOrigin



PMDG0202	OTHR32	SetYOrigin
PMDG0203	OTHR32	SetXNumSteps
PMDG0204	OTHR32	SetYNumSteps
PMDG0205	OTHR32	SetXStepSize
PMDG0206	OTHR32	SetYStepSize
PMDG0235	OTHR32	SetOpPointPcontPerc
PMDG0236	OTHR32	SetPcontKc
PMDG0238	UINT16	DispCtrlDataOnOff
PMDG023C	OTHR32	SetDcThreshold
PMDG023D	OTHR32	SetDeltaOpPercDc
PMDG023E	UINT16	FreqAdjustOnOff
PMDG0217	OTHR32	SetZRetract
PMDG0218	OTHR32	SetZRetractMagn
PMDG023A	OTHR32	SetZSettlTime
PMDG023B	OTHR32	SetXySettlTime
PMDG0219	OTHR32	SetZStepSize

Notes: Set scan scan parameters for Single-Point-, Line- and Full-Scan.

Telecommand Packet Information

Packet Name	ZMD230S5	Instrument	MIDAS
Packet Function	DummyScan		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	230	Service Subtype	255
Structure ID	N/A	Packet Length Min / Max	68 / 68

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG0201	OTHR32	SetXOrigin
PMDG0202	OTHR32	SetYOrigin
PMDG0203	OTHR32	SetXNumSteps
PMDG0204	OTHR32	SetYNumSteps
PMDG0205	OTHR32	SetXStepSize
PMDG0206	OTHR32	SetYStepSize
PMDG0214	UINT16	SetMainScanDir
PMDG021A	UINT16	SetScanDirX
PMDG021C	UINT16	SetScanDirY
PMDG0250	OTHR32	SetDscRandAmpl
PMDG0251	OTHR32	SetDscSineAmpl
PMDG0252	OTHR32	SetDscZeroOffs
PMDG0253	OTHR32	SetDscGradSine
PMDG021F	OTHR32	SetDataType
PMDG0233	OTHR32	SetTransferMode
PMDG821E	UINT16	DoDummyFullScan

Notes: Used for telemetry testing. Includes noise and trend.

Telecommand Packet Information

Packet Name	ZMD24001	Instrument	MIDAS
Packet Function	AppToMaxPos		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	240	Service Subtype	1
Structure ID	N/A	Packet Length Min / Max	44 / 44

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG0106	OTHR32	SetDcPulsewidth
PMDG0113	OTHR32	SetApprTestCount
PMDG0116	OTHR32	SetDeltaApprLvd
PMDG0117	OTHR32	SetApprNumPulses
PMDG0118	OTHR32	SetApprStuckCnt
PMDG0115	OTHR32	SetApprPosMin
PMDG0114	OTHR32	SetApprPosMax
PMDG8111	UINT16	NoCheckDcSignal
PMDG8100	UINT16	DoApproach

Notes: Move approach to the maximum position. This command shall only be used if the linear stage is in the minimum position.



Telecommand Packet Information

Packet Name **ZMD24002** Instrument **MIDAS**
 Packet Function **LinToMaxPos**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **240** Service Subtype **2**
 Structure ID **N/A** Packet Length Min / Max **22 / 22**

Data Field Information

Data Field	Field Structure	Remarks
PMDG0400	OTHR32	SetPulsewidth
PMDG010D	OTHR32	SetLinmovTimo
PMDG810C	UINT16	DoLinToMaxpos

Notes: Move linear stage to the maximum position. This command is locked unless the approach is in the minimum position.

Telecommand Packet Information

Packet Name **ZMD24003** Instrument **MIDAS**
 Packet Function **LinToMinPos**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **240** Service Subtype **3**
 Structure ID **N/A** Packet Length Min / Max **22 / 22**

Data Field Information

Data Field	Field Structure	Remarks
PMDG0400	OTHR32	SetPulsewidth
PMDG010D	OTHR32	SetLinmovTimo
PMDG810B	UINT16	DoLinToMinpos

Notes: Move linear stage to the minium (launch lock) position. This command is locked unless the approach is in the minimum position.

Telecommand Packet Information

Packet Name **ZMD240S5** Instrument **MIDAS**
 Packet Function **AppToMinPos**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **240** Service Subtype **255**
 Structure ID **N/A** Packet Length Min / Max **42 / 42**

Data Field Information

Data Field	Field Structure	Remarks
PMDG0106	OTHR32	SetDcPulsewidth
PMDG0113	OTHR32	SetApprTestCount
PMDG0116	OTHR32	SetDeltaApprLvd
PMDG0117	OTHR32	SetApprNumPulses
PMDG0118	OTHR32	SetApprStuckCnt
PMDG0115	OTHR32	SetApprPosMin
PMDG0114	OTHR32	SetApprPosMax
PMDG8101	UINT16	DoApproachBackw

Notes: Move approach to the minium position..

Telecommand Packet Information

Packet Name **ZMD25401** Instrument **MIDAS**
 Packet Function **TechModeCmd**
 Generation Rules

Header

Process ID **67** Packet Category **12 'Private'**
 Service Type **254** Service Subtype **1**
 Structure ID **N/A** Packet Length Min / Max **52 / 52**

Data Field Information

Data Field	Field Structure	Remarks
PMDGTM01	UINT16	TechModePar1
PMDGTM02	UINT16	TechModePar2



PMDGTM03	UINT16	TechModePar3
PMDGTM04	UINT16	TechModePar4
PMDGTM05	UINT16	TechModePar5
PMDGTM06	UINT16	TechModePar6
PMDGTM07	UINT16	TechModePar7
PMDGTM08	UINT16	TechModePar8
PMDGTM09	UINT16	TechModePar9
PMDGTM10	UINT16	TechModePar10
PMDGTM11	UINT16	TechModePar11
PMDGTM12	UINT16	TechModePar12
PMDGTM13	UINT16	TechModePar13
PMDGTM14	UINT16	TechModePar14
PMDGTM15	UINT16	TechModePar15
PMDGTM16	UINT16	TechModePar16
PMDGTM17	UINT16	TechModePar17
PMDGTM18	UINT16	TechModePar18
PMDGTM19	UINT16	TechModePar19
PMDGTM20	UINT16	TechModePar20

Notes: Used to set TC parameters not covered by any other command or for special tasks.

Telecommand Packet Information

Packet Name	ZMD25402	Instrument	MIDAS
Packet Function	SetSwParameter		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	254	Service Subtype	2
Structure ID	N/A	Packet Length Min / Max	20 / 20

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
PMDG0E0F	OTHR32	SelectSwParam
PMDG0E10	OTHR32	SetParamValue

Notes: This command is used to set the value of a single S/W parameter on page #5. The command is not queued and will be executed immediately.

Telecommand Packet Information

Packet Name	ZMD25501	Instrument	MIDAS
Packet Function	ResetTelemetryBuffer		
Generation Rules			

Header

Process ID	67	Packet Category	12 'Private'
Service Type	255	Service Subtype	1
Structure ID	N/A	Packet Length Min / Max	12 / 12

Data Field Information

<i>Data Field</i>	<i>Field Structure</i>	<i>Remarks</i>
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Notes: Resets the telemetry output buffer.



2.3.3. TM packets

2.3.3.1. TM data packet overview

The following table shows the list of telemetry packets which are currently generated by the MIDAS instrument:

Name	Long Name	Type	Subtype	SID	Note
YMDCTX01	ContextReport	18	2		Context Report; contains HK data rates only
YMDEV001	EvTcPktAccepted	5	1	42501	Normal Progress Event: telecommand accepted by S/W
YMDEV011	EvScanStarted	5	1	42511	Normal Progress Event: scan successfully started
YMDEV012	EvScanProgress	5	1	42512	Normal Progress Event: 1024 words block ready
YMDEV013	EvScanFinished	5	1	42513	Normal Progress Event: scan successfully finished
YMDEV020	EvExtendedCode	5	1	42520	Normal Progress Event: extended code area entered
YMDEV030	EvCtxAccepted	5	1	42530	Normal Progress Event: context upload accepted
YMDEV040	EvDustFluxUpperLim	5	1	42540	Normal Progress Event: dust flux exceeds upper limit
YMDEV041	EvDustFluxLowerLim	5	1	42541	Normal Progress Event: dust flux exceeds lower limit
YMDEV051	EvShutOpenStarted	5	1	42551	Normal Progress Event: starting shutter opening
YMDEV052	EvShutClosStarted	5	1	42552	Normal Progress Event: starting shutter closing
YMDEV053	EvShutOpened	5	1	42553	Normal Progress Event: shutter opened
YMDEV054	EvShutClosed	5	1	42554	Normal Progress Event: shutter closed
YMDEV061	EvMWaxHeatStarted	5	1	42561	Normal Progress Event: starting main wax act heating
YMDEV062	EvRWaxHeatStarted	5	1	42562	Normal Progress Event: starting red wax act heating
YMDEV063	EvMXyaHeatStarted	5	1	42563	Normal Progress Event: starting main xy act heating
YMDEV064	EvRXyaHeatStarted	5	1	42564	Normal Progress Event: starting red xy act heating
YMDEV065	EvWax1Opened	5	1	42565	Normal Progress Event: wax actuator 1 opened
YMDEV066	EvWax2Opened	5	1	42566	Normal Progress Event: wax actuator 2 opened
YMDEV067	EvXActOpened	5	1	42567	Normal Progress Event: x actuator opened
YMDEV068	EvYActOpened	5	1	42568	Normal Progress Event: y actuator opened
YMDEV071	EvCalibrationStarted	5	1	42571	Normal Progress Event: starting calibration
YMDEV072	EvXPiezoCalibrated	5	1	42572	Normal Progress Event: X piezo calibrated
YMDEV073	EvYPiezoCalibrated	5	1	42573	Normal Progress Event: Y piezo calibrated
YMDEV081	EvHystTblLoaded	5	1	42581	Normal Progress Event: hysteresis table loaded
YMDEV082	EvXCorrTblLoaded	5	1	42582	Normal Progress Event: x-correction table loaded
YMDEV083	EvYCorrTblLoaded	5	1	42583	Normal Progress Event: y-correction table loaded
YMDEV084	EvLinLvdtTblLoaded	5	1	42584	Normal Progress Event: linear lvdt table loaded
YMDEV085	EvAppLvdtTblLoaded	5	1	42585	Normal Progress Event: approach lvdt table loaded
YMDEV086	EvTipPosTblLoaded	5	1	42586	Normal Progress Event: tip position table loaded
YMDEV087	EvSavingTable	5	1	42587	Normal Progress Event: storing table into eeprom
YMDEV088	EvRestoringTable	5	1	42588	Normal Progress Event: restoring table from eeprom
YMDEV089	EvInitialisingTable	5	1	42589	Normal Progress Event: initialising tables
YMDEV091	EvSearchForRefPulse	5	1	42591	Normal Progress Event: searching for ref pulse
YMDEV092	EvSegmentFound	5	1	42592	Normal Progress Event: segment found
YMDEV101	EvRamTestStarted	5	1	42601	Normal Progress Event: RAM test started
YMDEV102	EvRamTestFinished	5	1	42602	Normal Progress Event: RAM test finished
YMDEV103	EvRamTestOk	5	1	42603	Normal Progress Event: RAM test OK
YMDEV111	EvLineScanFinished	5	1	42611	Normal Progress Event: line scan finished
YMDEV113	EvFullScanFinished	5	1	42613	Normal Progress Event: full scan finished
YMDEV121	EvAppOnMinPos	5	1	42621	Normal Progress Event: approach on min pos
YMDEV122	EvAppOnMaxPos	5	1	42622	Normal Progress Event: approach on max pos
YMDEV123	EvSurfaceFound	5	1	42623	Normal Progress Event: segment surface found
YMDEV124	EvAbsAppPosReached	5	1	42624	Normal Progress Event: abs approach pos reached
YMDEV131	EvLinPosReached	5	1	42631	Normal Progress Event: lin position reached
YMDEV132	EvLinOnMinPos	5	1	42632	Normal Progress Event: lin movement on min pos



YMDEV133	EvLinOnMaxPos	5	1	42633	Normal Progress Event: lin movement on max pos
YMDEV141	EvFScanStarted	5	1	42641	Normal Progress Event: starting f-scan
YMDEV142	EvFScanCycleStarted	5	1	42642	Normal Progress Event: starting f-scan cycle
YMDEV143	EvFScanCycleFinished	5	1	42643	Normal Progress Event: f-scan cycle finished
YMDEV144	EvFScanFinished	5	1	42644	Normal Progress Event: f-scan finished
YMDEV145	EvAutoFScanFinished	5	1	42645	Normal Progress Event: auto f-scan finished
YMDEV146	EvThresholdAmpFound	5	1	42646	Normal Progress Event: threshold ampl found
YMDEV151	EvLinToTipStarted	5	1	42651	Normal Progress Event: starting linear movement to tip pos
YMDEV152	EvLinToAbsStarted	5	1	42652	Normal Progress Event: starting linear movement to abs pos
YMDEV153	EvLinToMinStarted	5	1	42653	Normal Progress Event: starting linear movement to min pos
YMDEV154	EvLinToMaxStarted	5	1	42654	Normal Progress Event: starting linear movement to max pos
YMDEV155	EvLineScanStarted	5	1	42655	Normal Progress Event: starting line scan
YMDEV156	EvFullScanStarted	5	1	42656	Normal Progress Event: starting full scan
YMDEV161	EvBackAppStarted	5	1	42661	Normal Progress Event: starting approach backwards
YMDEV162	EvApproachStarted	5	1	42662	Normal Progress Event: starting approach
YMDEV163	EvWaiting	5	1	42663	Normal Progress Event: waiting
YMDEV164	EvApproachFinished	5	1	42664	Normal Progress Event: approach operation has finished
YMDEV165	EvZpiezoFineAdj	5	1	42665	Normal Progress Event: starting z piezo fine adjustment
YMDEV170	EvSwTaskStarted	5	1	42670	Normal Progress Event: S/W compression task started
YMDEV171	EvSwTaskFinished	5	1	42671	Normal Progress Event: S/W compression task finished
YMDEV172	EvFeatureStarted	5	1	42672	Normal Progress Event: feature vector detection started
YMDEV173	EvFeatureFinished	5	1	42673	Normal Progress Event: feature vector detection finished
YMDEV174	EvAbsApprStarted	5	1	42674	Normal Progress Event: absolute approach movement started
YMDEV198	EvMainPgmHello	5	1	42698	Normal Progress Event: MIDAS main program entered
YMDEV199	EvKernelHello	5	1	42699	Normal Progress Event: indicates kernel mode
YMDEV200	EvTimer	5	1	42700	Normal Progress Event: timer event
YMDEV201	EvTcPktRejected	5	2	42701	Warning Anomalous Event: telecommand not accepted
YMDEV211	EvScanNoSet	5	2	42711	Warning Anomalous Event: couldn't create dataset
YMDEV212	EvNoValidSet	5	2	42712	Warning Anomalous Event: no valid dataset selected
YMDEV213	EvScanAborted	5	2	42713	Warning Anomalous Event: scan aborted by user
YMDEV220	EvNoExtendedCode	5	2	42720	Warning Anomalous Event: no extended code present
YMDEV230	EvCtxRejected	5	2	42730	Warning Anomalous Event: context upload rejected
YMDEV231	EvCtxTimeout	5	2	42731	Warning Anomalous Event: context upload timeout
YMDEV241	EvShtMoveAborted	5	2	42741	Warning Anomalous Event: shutter movement aborted
YMDEV242	EvWaxHeatAborted	5	2	42742	Warning Anomalous Event: wax actuator heating aborted
YMDEV243	EvXyaHeatAborted	5	2	42743	Warning Anomalous Event: xy actuator heating aborted
YMDEV246	EvXCalAborted	5	2	42746	Warning Anomalous Event: x-calibration aborted
YMDEV247	EvYCalAborted	5	2	42747	Warning Anomalous Event: y-calibration aborted
YMDEV251	EvAlreadyOnRefPulse	5	2	42751	Warning Anomalous Event: already on ref pulse
YMDEV252	EvWheelMoveAborted	5	2	42752	Warning Anomalous Event: wheel movement aborted
YMDEV256	EvFullScanAborted	5	2	42756	Warning Anomalous Event: full scan aborted
YMDEV257	EvLineScanAborted	5	2	42757	Warning Anomalous Event: line scan aborted
YMDEV261	EvBackwApprAborted	5	2	42761	Warning Anomalous Event: backward approach aborted
YMDEV262	EvApproachAborted	5	2	42762	Warning Anomalous Event: approach aborted
YMDEV263	EvAbsAppPosAborted	5	2	42763	Warning Anomalous Event: abs approach positioning aborted
YMDEV264	EvAppContact	5	1	42764	Warning Anomalous Event: contact during approach has occurred
YMDEV265	EvAppError	5	1	42765	Warning Anomalous Event: approach error due to lost surface detection
YMDEV266	EvApproachStuck	5	3	42766	Warning Anomalous Event: approach motor stuck
YMDEV267	EvAppLvdTOnMaxPos	5	1	42767	Warning Anomalous Event: approach LVDT on max position
YMDEV268	EvAppLvdTOnMinPos	5	1	42768	Warning Anomalous Event: approach LVDT on min position



YMDEV271	EvLinMoveAborted	5	2	42771	Warning Anomalous Event: lin movement aborted
YMDEV276	EvAutoFScanAborted	5	2	42776	Warning Anomalous Event: auto f-scan aborted
YMDEV277	EvCalcOperatVars	5	1	42777	Warning Anomalous Event: operating parameters calculated
YMDEV278	EvSwTaskAborted	5	2	42778	Warning Anomalous Event: S/W compression task aborted
YMDEV279	EvFeatureAborted	5	2	42779	Warning Anomalous Event: feature vector detection aborted
YMDEV301	EvSidNotHandled	5	2	42801	Warning Anomalous Event: structure ID not handled
YMDEV302	EvTypeNotHandled	5	2	42802	Warning Anomalous Event: service type/subtype not handled
YMDEV401	EvShutterTimeout	5	3	42901	Ground Action Anomalous Event: shutter movement timeout
YMDEV402	EvWaxActTimeout	5	3	42902	Ground Action Anomalous Event: wax actuator timeout
YMDEV403	EvXyActTimeout	5	3	42903	Ground Action Anomalous Event: xy actuator timeout
YMDEV404	EvSegSearchTimeout	5	3	42904	Ground Action Anomalous Event: segment search timeout
YMDEV405	EvLinMoveTimeout	5	3	42905	Ground Action Anomalous Event: lin movement timeout
YMDEV406	EvApproachTimeout	5	3	42906	Ground Action Anomalous Event: approach timeout
YMDEV407	EvCalCycleTimeout	5	3	42907	Ground Action Anomalous Event: calibration cycle timeout
YMDEV408	EvMaxCalCycles	5	3	42908	Ground Action Anomalous Event: max cal cycles reached - cal aborted
YMDEV409	EvInvalidTblNo	5	3	42909	Ground Action Anomalous Event: invalid table No
YMDEV411	EvRamTestNotOk	5	3	42911	Ground Action Anomalous Event: RAM test not OK
YMDEV416	EvMoveAbortedApp	5	3	42916	Ground Action Anomalous Event: lin movement aborted - approach not on min pos
YMDEV421	EvThresholdNotFound	5	3	42921	Ground Action Anomalous Event: threshold ampl not found
YMDEV431	EvXGainMinCalAbort	5	3	42931	Ground Action Anomalous Event: x gain control on min - cal aborted
YMDEV432	EvXGainMaxCalAbort	5	3	42932	Ground Action Anomalous Event: x gain control on max - cal aborted
YMDEV433	EvXOffsMinCalAbort	5	3	42933	Ground Action Anomalous Event: x offset control on min - cal aborted
YMDEV434	EvXOffsMaxCalAbort	5	3	42934	Ground Action Anomalous Event: x offset control on max - cal aborted
YMDEV435	EvYGainMinCalAbort	5	3	42935	Ground Action Anomalous Event: y gain control on min - cal aborted
YMDEV436	EvYGainMaxCalAbort	5	3	42936	Ground Action Anomalous Event: y gain control on max - cal aborted
YMDEV437	EvYOffsMinCalAbort	5	3	42937	Ground Action Anomalous Event: y offset control on min - cal aborted
YMDEV438	EvYOffsMaxCalAbort	5	3	42938	Ground Action Anomalous Event: y offset control on max - cal aborted
YMDEV440	EvSwTaskFailed	5	3	42940	Ground Action Anomalous Event: S/W compression task failed
YMDEV451	EvTmQueueFull	5	4	42951	On-board Action Anomalous Event: tm packet queue overflow
YMDHK001	StandardHkReport	3	25	1	Housekeeping Data Report: Structure ID 1 (standard)
YMDHK002	ExtendedHkReport	3	25	2	Housekeeping Data Report: Structure ID 2 (extended); not generated in kernel mode
YMDMEM01	MemDumpReport	6	6	90	Memory Dump Report; one dump per block; large blocks in chunks of 1024 words
YMDMEM02	MemCheckReport	6	10	90	Memory Check Report; one checksum per block
YMDSC001	ScienceData	20	3		Science Data Report: covers image header/data, frequency scan, line scan, ...
YMDST001	AcceptSuccess	1	1		Acceptance Success Report
YMDST002	IncompletePacket	1	2	1	Acceptance Failure Report: Failure Code 1. Incomplete Packet within time-out
YMDST003	IncorrectChecksum	1	2	2	Acceptance Failure Report: Failure Code 2. Incorrect Checksum
YMDST004	IncorrectAPID	1	2	3	Acceptance Failure Report: Failure Code 3. Incorrect APID
YMDST005	InvalidCmdCode	1	2	4	Acceptance Failure Report: Failure Code 4. Invalid Command Code
YMDST006	PbExecTime	1	2	5	Acceptance Failure Report: Failure Code 5. Command can not be executed at this time
YMDST007	DataFieldInconsistent	1	2	6	Acceptance Failure Report: Failure Code 6. Data Field Inconsistent
YMDST011	ExecutionSuccess	1	7		Execution Success Report



YMDST012	ExecutionFailure	1	8	1	Execution Failure Report: Failure Code 1. Correct commanded status was not achieved.
YMDTST01	ConnTestReport	17	2		Connection Test Report

2.3.3.2. TM data packet details

Telemetry Packet Information

Packet Name **YMDCTX01** Instrument **MIDAS**
 Packet Function **ContextReport**
 Generation Rules

Header

Process ID **67** Packet Category **11**
 Service Type **18** Service Subtype **2**
 Structure ID Packet Length **318 / 318**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH1B1	1	UINT16	16		MIDAS 67/11 Packet sequence counter
NMDAH1B2	1	ENUM16	16		MIDAS 67/11 Packet length
NMDAH1B3	1	TIME#2	48		MIDAS 67/11 Data field header time field
NMDAH1B4	1	UINT32	32		MIDAS 67/11 Data field header PUS

Notes: Context Report; contains HK data rates only

Telemetry Packet Information

Packet Name **YMDEV001** Instrument **MIDAS**
 Packet Function **EvTcPktAccepted**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42501** Packet Length **30 / 30**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion
NMDAST0	1	UINT16	16		Global PID
NMDAST0	1	UINT16	16		Sequence Control
NMDAST1	1	UINT16	16		Length in TC hea
NMDAST3	1	UINT16	16		TcDataFldHdr1
NMDAST3	1	UINT16	16		TcDataFldHdr2

Notes: Normal Progress Event: telecommand accepted by S/W

Telemetry Packet Information

Packet Name **YMDEV011** Instrument **MIDAS**
 Packet Function **EvScanStarted**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42511** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId



NMDA000 1 UINT16 16 SwProgVersion

Notes: Normal Progress Event: scan successfully started

Telemetry Packet Information

Packet Name **YMDEV012** Instrument **MIDAS**
 Packet Function **EvScanProgress**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42512** Packet Length **20 / 20**

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: 1024 words block ready

Telemetry Packet Information

Packet Name **YMDEV013** Instrument **MIDAS**
 Packet Function **EvScanFinished**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42513** Packet Length **20 / 20**

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: scan successfully finished

Telemetry Packet Information

Packet Name **YMDEV020** Instrument **MIDAS**
 Packet Function **EvExtendedCode**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42520** Packet Length **20 / 20**

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: extended code area entered

Telemetry Packet Information

Packet Name **YMDEV030** Instrument **MIDAS**
 Packet Function **EvCtxAccepted**
 Generation Rules



Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42530	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: context upload accepted

Telemetry Packet Information

Packet Name	YMDEV040	Instrument	MIDAS
Packet Function	EvDustFluxUpperLim		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42540	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: dust flux exceeds upper limit

Telemetry Packet Information

Packet Name	YMDEV041	Instrument	MIDAS
Packet Function	EvDustFluxLowerLim		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42541	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: dust flux exceeds lower limit

Telemetry Packet Information

Packet Name	YMDEV051	Instrument	MIDAS
Packet Function	EvShutOpenStarted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42551	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter



NMDAH17	1	ENUM16	16	MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48	MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32	MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16	EventId
NMDA000	1	UINT16	16	SwProgVersion

Notes: Normal Progress Event: starting shutter opening

Telemetry Packet Information

Packet Name	YMDEV052	Instrument	MIDAS
Packet Function	EvShutClosStarted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42552	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: starting shutter closing

Telemetry Packet Information

Packet Name	YMDEV053	Instrument	MIDAS
Packet Function	EvShutOpened		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42553	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: shutter opened

Telemetry Packet Information

Packet Name	YMDEV054	Instrument	MIDAS
Packet Function	EvShutClosed		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42554	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: shutter closed

Telemetry Packet Information



Packet Name **YMDEV061** Instrument **MIDAS**
 Packet Function **EvMWaxHeatStarted**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42561** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: starting main wax act heating

Telemetry Packet Information

Packet Name **YMDEV062** Instrument **MIDAS**
 Packet Function **EvRWaxHeatStarted**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42562** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: starting red wax act heating

Telemetry Packet Information

Packet Name **YMDEV063** Instrument **MIDAS**
 Packet Function **EvMXyaHeatStarted**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42563** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: starting main xy act heating

Telemetry Packet Information

Packet Name **YMDEV064** Instrument **MIDAS**
 Packet Function **EvRXyaHeatStarted**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42564** Packet Length **20 / 20**

Data Field Information



Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: starting red xy act heating

Telemetry Packet Information

Packet Name	YMDEV065	Instrument	MIDAS
Packet Function	EvWax1Opened		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42565	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: wax actuator 1 opened

Telemetry Packet Information

Packet Name	YMDEV066	Instrument	MIDAS
Packet Function	EvWax2Opened		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42566	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: wax actuator 2 opened

Telemetry Packet Information

Packet Name	YMDEV067	Instrument	MIDAS
Packet Function	EvXActOpened		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42567	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion



Notes: Normal Progress Event: x actuator opened

Telemetry Packet Information

Packet Name **YMDEV068** Instrument **MIDAS**
 Packet Function **EvYActOpened**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42568** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: y actuator opened

Telemetry Packet Information

Packet Name **YMDEV071** Instrument **MIDAS**
 Packet Function **EvCalibrationStarted**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42571** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: starting calibration

Telemetry Packet Information

Packet Name **YMDEV072** Instrument **MIDAS**
 Packet Function **EvXPiezoCalibrated**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42572** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: X piezo calibrated

Telemetry Packet Information

Packet Name **YMDEV073** Instrument **MIDAS**
 Packet Function **EvYPiezoCalibrated**
 Generation Rules

Header



Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42573** Packet Length **20 / 20**

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: Y piezo calibrated

Telemetry Packet Information

Packet Name **YMDEV081** Instrument **MIDAS**
 Packet Function **EvHystTblLoaded**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42581** Packet Length **20 / 20**

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: hysteresis table loaded

Telemetry Packet Information

Packet Name **YMDEV082** Instrument **MIDAS**
 Packet Function **EvXCorrTblLoaded**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42582** Packet Length **20 / 20**

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: x-correction table loaded

Telemetry Packet Information

Packet Name **YMDEV083** Instrument **MIDAS**
 Packet Function **EvYCorrTblLoaded**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42583** Packet Length **20 / 20**

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length



NMDAH17	1	TIME#2	48	MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32	MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16	EventId
NMDA000	1	UINT16	16	SwProgVersion

Notes: Normal Progress Event: y-correction table loaded

Telemetry Packet Information

Packet Name	YMDEV084	Instrument	MIDAS
Packet Function	EvLinLvdtTblLoaded		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42584	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: linear lvdt table loaded

Telemetry Packet Information

Packet Name	YMDEV085	Instrument	MIDAS
Packet Function	EvAppLvdtTblLoaded		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42585	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: approach lvdt table loaded

Telemetry Packet Information

Packet Name	YMDEV086	Instrument	MIDAS
Packet Function	EvTipPosTblLoaded		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42586	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: tip position table loaded

Telemetry Packet Information

Packet Name	YMDEV087	Instrument	MIDAS
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Packet Function **EvSavingTable**
 Generation Rules

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42587	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: storing table into eeprom

Telemetry Packet Information

Packet Name	YMDEV088	Instrument	MIDAS
Packet Function	EvRestoringTable		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42588	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: restoring table from eeprom

Telemetry Packet Information

Packet Name	YMDEV089	Instrument	MIDAS
Packet Function	EvInitialisingTable		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42589	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: initialising tables

Telemetry Packet Information

Packet Name	YMDEV091	Instrument	MIDAS
Packet Function	EvSearchForRefPulse		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42591	Packet Length	20 / 20

Data Field Information



Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: searching for ref pulse

Telemetry Packet Information

Packet Name	YMDEV092	Instrument	MIDAS
Packet Function	EvSegmentFound		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42592	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: segment found

Telemetry Packet Information

Packet Name	YMDEV101	Instrument	MIDAS
Packet Function	EvRamTestStarted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42601	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: RAM test started

Telemetry Packet Information

Packet Name	YMDEV102	Instrument	MIDAS
Packet Function	EvRamTestFinished		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42602	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion



Notes: Normal Progress Event: RAM test finished

Telemetry Packet Information

Packet Name **YMDEV103** Instrument **MIDAS**
 Packet Function **EvRamTestOk**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42603** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: RAM test OK

Telemetry Packet Information

Packet Name **YMDEV111** Instrument **MIDAS**
 Packet Function **EvLineScanFinished**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42611** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: line scan finished

Telemetry Packet Information

Packet Name **YMDEV113** Instrument **MIDAS**
 Packet Function **EvFullScanFinished**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42613** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: full scan finished

Telemetry Packet Information

Packet Name **YMDEV121** Instrument **MIDAS**
 Packet Function **EvAppOnMinPos**
 Generation Rules

Header



Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42621** Packet Length **20 / 20**

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: approach on min pos

Telemetry Packet Information

Packet Name **YMDEV122** Instrument **MIDAS**
 Packet Function **EvAppOnMaxPos**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42622** Packet Length **20 / 20**

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: approach on max pos

Telemetry Packet Information

Packet Name **YMDEV123** Instrument **MIDAS**
 Packet Function **EvSurfaceFound**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42623** Packet Length **20 / 20**

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: segment surface found

Telemetry Packet Information

Packet Name **YMDEV124** Instrument **MIDAS**
 Packet Function **EvAbsAppPosReached**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42624** Packet Length **20 / 20**

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length



NMDAH17	1	TIME#2	48	MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32	MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16	EventId
NMDA000	1	UINT16	16	SwProgVersion

Notes: Normal Progress Event: abs approach pos reached

Telemetry Packet Information

Packet Name	YMDEV131	Instrument	MIDAS
Packet Function	EvLinPosReached		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42631	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: lin position reached

Telemetry Packet Information

Packet Name	YMDEV132	Instrument	MIDAS
Packet Function	EvLinOnMinPos		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42632	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: lin movement on min pos

Telemetry Packet Information

Packet Name	YMDEV133	Instrument	MIDAS
Packet Function	EvLinOnMaxPos		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42633	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: lin movement on max pos

Telemetry Packet Information

Packet Name	YMDEV141	Instrument	MIDAS
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Packet Function **EvFScanStarted**
 Generation Rules

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42641	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: starting f-scan

Telemetry Packet Information

Packet Name	YMDEV142	Instrument	MIDAS
Packet Function	EvFScanCycleStarted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42642	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: starting f-scan cycle

Telemetry Packet Information

Packet Name	YMDEV143	Instrument	MIDAS
Packet Function	EvFScanCycleFinished		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42643	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: f-scan cycle finished

Telemetry Packet Information

Packet Name	YMDEV144	Instrument	MIDAS
Packet Function	EvFScanFinished		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42644	Packet Length	20 / 20

Data Field Information



Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: f-scan finished

Telemetry Packet Information

Packet Name	YMDEV145	Instrument	MIDAS
Packet Function	EvAutoFScanFinished		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42645	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: auto f-scan finished

Telemetry Packet Information

Packet Name	YMDEV146	Instrument	MIDAS
Packet Function	EvThresholdAmpFound		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42646	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: threshold ampl found

Telemetry Packet Information

Packet Name	YMDEV151	Instrument	MIDAS
Packet Function	EvLinToTipStarted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42651	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion



Notes: Normal Progress Event: starting linear movement to tip pos

Telemetry Packet Information

Packet Name **YMDEV152** Instrument **MIDAS**
 Packet Function **EvLinToAbsStarted**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42652** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: starting linear movement to abs pos

Telemetry Packet Information

Packet Name **YMDEV153** Instrument **MIDAS**
 Packet Function **EvLinToMinStarted**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42653** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: starting linear movement to min pos

Telemetry Packet Information

Packet Name **YMDEV154** Instrument **MIDAS**
 Packet Function **EvLinToMaxStarted**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42654** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: starting linear movement to max pos

Telemetry Packet Information

Packet Name **YMDEV155** Instrument **MIDAS**
 Packet Function **EvLineScanStarted**
 Generation Rules

Header



Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42655** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: starting line scan

Telemetry Packet Information

Packet Name **YMDEV156** Instrument **MIDAS**
 Packet Function **EvFullScanStarted**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42656** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: starting full scan

Telemetry Packet Information

Packet Name **YMDEV161** Instrument **MIDAS**
 Packet Function **EvBackAppStarted**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42661** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: starting approach backwards

Telemetry Packet Information

Packet Name **YMDEV162** Instrument **MIDAS**
 Packet Function **EvApproachStarted**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **1**
 Structure ID **42662** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length



NMDAH17	1	TIME#2	48	MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32	MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16	EventId
NMDA000	1	UINT16	16	SwProgVersion

Notes: Normal Progress Event: starting approach

Telemetry Packet Information

Packet Name	YMDEV163	Instrument	MIDAS
Packet Function	EvWaiting		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42663	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: waiting

Telemetry Packet Information

Packet Name	YMDEV164	Instrument	MIDAS
Packet Function	EvApproachFinished		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42664	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: approach operation has finished

Telemetry Packet Information

Packet Name	YMDEV165	Instrument	MIDAS
Packet Function	EvZpiezoFineAdj		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42665	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: starting z piezo fine adjustment

Telemetry Packet Information

Packet Name	YMDEV170	Instrument	MIDAS
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Packet Function **EvSwTaskStarted**
 Generation Rules

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42670	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: S/W compression task started

Telemetry Packet Information

Packet Name	YMDEV171	Instrument	MIDAS
Packet Function	EvSwTaskFinished		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42671	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: S/W compression task finished

Telemetry Packet Information

Packet Name	YMDEV172	Instrument	MIDAS
Packet Function	EvFeatureStarted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42672	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: feature vector detection started

Telemetry Packet Information

Packet Name	YMDEV173	Instrument	MIDAS
Packet Function	EvFeatureFinished		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42673	Packet Length	20 / 20

Data Field Information



Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: feature vector detection finished

Telemetry Packet Information

Packet Name	YMDEV174	Instrument	MIDAS
Packet Function	EvAbsApprStarted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42674	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: absolute approach movement started

Telemetry Packet Information

Packet Name	YMDEV198	Instrument	MIDAS
Packet Function	EvMainPgmHello		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42698	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Normal Progress Event: MIDAS main program entered

Telemetry Packet Information

Packet Name	YMDEV199	Instrument	MIDAS
Packet Function	EvKernelHello		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42699	Packet Length	32 / 32

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion
NMDA0EC	1	UINT16	16		EepromPage1Crc



NMDA0EC	1	UINT16	16	EepromPage2Crc
NMDA0EC	1	UINT16	16	EepromPage3Crc
NMDA0RC1	1	UINT16	16	RamPage1Crc
NMDA0RC2	1	UINT16	16	RamPage2Crc
NMDA0RC3	1	UINT16	16	RamPage3Crc

Notes: Normal Progress Event: indicates kernel mode

Telemetry Packet Information

Packet Name	YMDEV200	Instrument	MIDAS
Packet Function	EvTimer		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42700	Packet Length	32 / 32

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion
NMDASCET	1	UINT32	32		ScElapsedTime
NMDASCET	1	UINT32	32		ScElapsedTime

Notes: Normal Progress Event: timer event

Telemetry Packet Information

Packet Name	YMDEV201	Instrument	MIDAS
Packet Function	EvTcPktRejected		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42701	Packet Length	32 / 32

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion
NMDAST0	1	UINT16	16		Global PID
NMDAST0	1	UINT16	16		Sequence Control
NMDAST1	1	UINT16	16		Length in TC hea
NMDAST3	1	UINT16	16		TcDataFldHdr1
NMDAST3	1	UINT16	16		TcDataFldHdr2
NMDAST0	1	UINT16	16		FailureCode

Notes: Warning Anomalous Event: telecommand not accepted

Telemetry Packet Information

Packet Name	YMDEV211	Instrument	MIDAS
Packet Function	EvScanNoSet		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42711	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length



NMDAH17	1	TIME#2	48	MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32	MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16	EventId
NMDA000	1	UINT16	16	SwProgVersion

Notes: Warning Anomalous Event: couldn't create dataset

Telemetry Packet Information

Packet Name	YMDEV212	Instrument	MIDAS
Packet Function	EvNoValidSet		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42712	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: no valid dataset selected

Telemetry Packet Information

Packet Name	YMDEV213	Instrument	MIDAS
Packet Function	EvScanAborted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42713	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: scan aborted by user

Telemetry Packet Information

Packet Name	YMDEV220	Instrument	MIDAS
Packet Function	EvNoExtendedCode		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42720	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: no extended code present

Telemetry Packet Information

Packet Name	YMDEV230	Instrument	MIDAS
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Packet Function **EvCtxRejected**
 Generation Rules

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42730	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: context upload rejected

Telemetry Packet Information

Packet Name	YMDEV231	Instrument	MIDAS
Packet Function	EvCtxTimeout		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42731	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: context upload timeout

Telemetry Packet Information

Packet Name	YMDEV241	Instrument	MIDAS
Packet Function	EvShtMoveAborted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42741	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: shutter movement aborted

Telemetry Packet Information

Packet Name	YMDEV242	Instrument	MIDAS
Packet Function	EvWaxHeatAborted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42742	Packet Length	20 / 20

Data Field Information



Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: wax actuator heating aborted

Telemetry Packet Information

Packet Name	YMDEV243	Instrument	MIDAS
Packet Function	EvXyaHeatAborted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42743	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: xy actuator heating aborted

Telemetry Packet Information

Packet Name	YMDEV246	Instrument	MIDAS
Packet Function	EvXCalAborted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42746	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: x-calibration aborted

Telemetry Packet Information

Packet Name	YMDEV247	Instrument	MIDAS
Packet Function	EvYCalAborted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42747	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion



Notes: Warning Anomalous Event: y-calibration aborted

Telemetry Packet Information

Packet Name **YMDEV251** Instrument **MIDAS**
 Packet Function **EvAlreadyOnRefPulse**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **2**
 Structure ID **42751** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: already on ref pulse

Telemetry Packet Information

Packet Name **YMDEV252** Instrument **MIDAS**
 Packet Function **EvWheelMoveAborted**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **2**
 Structure ID **42752** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: wheel movement aborted

Telemetry Packet Information

Packet Name **YMDEV256** Instrument **MIDAS**
 Packet Function **EvFullScanAborted**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **2**
 Structure ID **42756** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: full scan aborted

Telemetry Packet Information

Packet Name **YMDEV257** Instrument **MIDAS**
 Packet Function **EvLineScanAborted**
 Generation Rules

Header



Process ID 67 Packet Category 7
 Service Type 5 Service Subtype 2
 Structure ID 42757 Packet Length 20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: line scan aborted

Telemetry Packet Information

Packet Name YMDEV261 Instrument MIDAS
 Packet Function EvBackwApprAborted
 Generation Rules

Header

Process ID 67 Packet Category 7
 Service Type 5 Service Subtype 2
 Structure ID 42761 Packet Length 20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: backward approach aborted

Telemetry Packet Information

Packet Name YMDEV262 Instrument MIDAS
 Packet Function EvApproachAborted
 Generation Rules

Header

Process ID 67 Packet Category 7
 Service Type 5 Service Subtype 2
 Structure ID 42762 Packet Length 20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: approach aborted

Telemetry Packet Information

Packet Name YMDEV263 Instrument MIDAS
 Packet Function EvAbsAppPosAborted
 Generation Rules

Header

Process ID 67 Packet Category 7
 Service Type 5 Service Subtype 2
 Structure ID 42763 Packet Length 20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length



NMDAH17	1	TIME#2	48	MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32	MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16	EventId
NMDA000	1	UINT16	16	SwProgVersion

Notes: Warning Anomalous Event: abs approach positioning aborted

Telemetry Packet Information

Packet Name	YMDEV264	Instrument	MIDAS
Packet Function	EvAppContact		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42764	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: contact during approach has occurred

Telemetry Packet Information

Packet Name	YMDEV265	Instrument	MIDAS
Packet Function	EvAppError		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42765	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: approach error due to lost surface detection

Telemetry Packet Information

Packet Name	YMDEV266	Instrument	MIDAS
Packet Function	EvApproachStuck		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	3
Structure ID	42766	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: approach motor sticks

Telemetry Packet Information

Packet Name	YMDEV267	Instrument	MIDAS
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Packet Function **EvAppLvdtOnMaxPos**
 Generation Rules

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42767	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: approach LVDT on max position

Telemetry Packet Information

Packet Name	YMDEV268	Instrument	MIDAS
Packet Function	EvAppLvdtOnMinPos		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42768	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: approach LVDT on min position

Telemetry Packet Information

Packet Name	YMDEV271	Instrument	MIDAS
Packet Function	EvLinMoveAborted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42771	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: lin movement aborted

Telemetry Packet Information

Packet Name	YMDEV276	Instrument	MIDAS
Packet Function	EvAutoFScanAborted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42776	Packet Length	20 / 20

Data Field Information



Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: auto f-scan aborted

Telemetry Packet Information

Packet Name	YMDEV277	Instrument	MIDAS
Packet Function	EvCalcOperatVars		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	1
Structure ID	42777	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: operating parameters calculated

Telemetry Packet Information

Packet Name	YMDEV278	Instrument	MIDAS
Packet Function	EvSwTaskAborted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42778	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Warning Anomalous Event: S/W compression task aborted

Telemetry Packet Information

Packet Name	YMDEV279	Instrument	MIDAS
Packet Function	EvFeatureAborted		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	2
Structure ID	42779	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion



Notes: Warning Anomalous Event: feature vector detection aborted

Telemetry Packet Information

Packet Name **YMDEV301** Instrument **MIDAS**
 Packet Function **EvSidNotHandled**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **2**
 Structure ID **42801** Packet Length **24 / 24**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion
NMDAST0	1	UINT16	16		PktServiceType
NMDA0SID	1	UINT16	16		StructureID

Notes: Warning Anomalous Event: structure ID not handled

Telemetry Packet Information

Packet Name **YMDEV302** Instrument **MIDAS**
 Packet Function **EvTypeNotHandled**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **2**
 Structure ID **42802** Packet Length **24 / 24**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0SID	1	UINT16	16		StructureID
NMDA000	1	UINT16	16		SwProgVersion
NMDAST0	1	UINT16	16		PktServiceType
NMDA0EID	1	UINT16	16		EventId

Notes: Warning Anomalous Event: service type/subtype not handled

Telemetry Packet Information

Packet Name **YMDEV401** Instrument **MIDAS**
 Packet Function **EvShutterTimeout**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **3**
 Structure ID **42901** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: shutter movement timeout

Telemetry Packet Information

Packet Name **YMDEV402** Instrument **MIDAS**



Packet Function **EvWaxActTimeout**
 Generation Rules

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	3
Structure ID	42902	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: wax actuator timeout

Telemetry Packet Information

Packet Name	YMDEV403	Instrument	MIDAS
Packet Function	EvXyActTimeout		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	3
Structure ID	42903	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: xy actuator timeout

Telemetry Packet Information

Packet Name	YMDEV404	Instrument	MIDAS
Packet Function	EvSegSearchTimeout		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	3
Structure ID	42904	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: segment search timeout

Telemetry Packet Information

Packet Name	YMDEV405	Instrument	MIDAS
Packet Function	EvLinMoveTimeout		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	3
Structure ID	42905	Packet Length	20 / 20

Data Field Information



Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: lin movement timeout

Telemetry Packet Information

Packet Name	YMDEV406	Instrument	MIDAS
Packet Function	EvApproachTimeout		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	3
Structure ID	42906	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: approach timeout

Telemetry Packet Information

Packet Name	YMDEV407	Instrument	MIDAS
Packet Function	EvCalCycleTimeout		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	3
Structure ID	42907	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: calibration cycle timeout

Telemetry Packet Information

Packet Name	YMDEV408	Instrument	MIDAS
Packet Function	EvMaxCalCycles		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	3
Structure ID	42908	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion



Notes: Ground Action Anomalous Event: max cal cycles reached - cal aborted

Telemetry Packet Information

Packet Name **YMDEV409** Instrument **MIDAS**
 Packet Function **EvInvalidTbIno**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **3**
 Structure ID **42909** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: invalid table No

Telemetry Packet Information

Packet Name **YMDEV411** Instrument **MIDAS**
 Packet Function **EvRamTestNotOk**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **3**
 Structure ID **42911** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: RAM test not OK

Telemetry Packet Information

Packet Name **YMDEV416** Instrument **MIDAS**
 Packet Function **EvMoveAbortedApp**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **5** Service Subtype **3**
 Structure ID **42916** Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: lin movement aborted - approach not on min pos

Telemetry Packet Information

Packet Name **YMDEV421** Instrument **MIDAS**
 Packet Function **EvThresholdNotFound**
 Generation Rules

Header



Process ID 67 Packet Category 7
 Service Type 5 Service Subtype 3
 Structure ID 42921 Packet Length 20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: threshold ampl not found

Telemetry Packet Information

Packet Name YMDEV431 Instrument MIDAS
 Packet Function EvXGainMinCalAbort
 Generation Rules

Header

Process ID 67 Packet Category 7
 Service Type 5 Service Subtype 3
 Structure ID 42931 Packet Length 20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: x gain control on min - cal aborted

Telemetry Packet Information

Packet Name YMDEV432 Instrument MIDAS
 Packet Function EvXGainMaxCalAbort
 Generation Rules

Header

Process ID 67 Packet Category 7
 Service Type 5 Service Subtype 3
 Structure ID 42932 Packet Length 20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: x gain control on max - cal aborted

Telemetry Packet Information

Packet Name YMDEV433 Instrument MIDAS
 Packet Function EvXOffsMinCalAbort
 Generation Rules

Header

Process ID 67 Packet Category 7
 Service Type 5 Service Subtype 3
 Structure ID 42933 Packet Length 20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length



NMDAH17	1	TIME#2	48	MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32	MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16	EventId
NMDA000	1	UINT16	16	SwProgVersion

Notes: Ground Action Anomalous Event: x offset control on min - cal aborted

Telemetry Packet Information

Packet Name	YMDEV434	Instrument	MIDAS
Packet Function	EvXOffsMaxCalAbort		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	3
Structure ID	42934	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: x offset control on max - cal aborted

Telemetry Packet Information

Packet Name	YMDEV435	Instrument	MIDAS
Packet Function	EvYGainMinCalAbort		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	3
Structure ID	42935	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: y gain control on min - cal aborted

Telemetry Packet Information

Packet Name	YMDEV436	Instrument	MIDAS
Packet Function	EvYGainMaxCalAbort		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	3
Structure ID	42936	Packet Length	20 / 20

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: y gain control on max - cal aborted

Telemetry Packet Information

Packet Name	YMDEV437	Instrument	MIDAS
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Packet Function **EvYOffsMinCalAbort**
 Generation Rules

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	3
Structure ID	42937	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: y offset control on min - cal aborted

Telemetry Packet Information

Packet Name	YMDEV438	Instrument	MIDAS
Packet Function	EvYOffsMaxCalAbort		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	3
Structure ID	42938	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: y offset control on max - cal aborted

Telemetry Packet Information

Packet Name	YMDEV440	Instrument	MIDAS
Packet Function	EvSwTaskFailed		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	3
Structure ID	42940	Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: Ground Action Anomalous Event: S/W compression task failed

Telemetry Packet Information

Packet Name	YMDEV451	Instrument	MIDAS
Packet Function	EvTmQueueFull		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	5	Service Subtype	4
Structure ID	42951	Packet Length	20 / 20

Data Field Information



Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0EID	1	UINT16	16		EventId
NMDA000	1	UINT16	16		SwProgVersion

Notes: On-board Action Anomalous Event: tm packet queue overflow

Telemetry Packet Information

Packet Name	YMDHK001	Instrument	MIDAS
Packet Function	StandardHkReport		
Generation Rules			

Header

Process ID	67	Packet Category	4
Service Type	3	Service Subtype	25
Structure ID	1	Packet Length	56 / 56

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH14	1	UINT16	16		MIDAS 67/4 Packet sequence counter
NMDAH14	1	ENUM16	16		MIDAS 67/4 Packet length
NMDAH14	1	TIME#2	48		MIDAS 67/4 Data field header time field
NMDAH14	1	UINT32	32		MIDAS 67/4 Data field header PUS
NMDA0SID	1	UINT16	16		StructureID
NMDA000	1	UINT16	16		SwProgVersion
NMDA000	1	UINT16	16		InstrumentMode
NMDA000	1	SINT16	16	degC	baseplate temp
NMDA000	1	SINT16	16	degC	preamplifier temp
NMDA000	1	SINT16	16	degC	converter temp
NMDA000	1	SINT16	16	degC	CSSC X ref temp
NMDA000	1	SINT16	16	degC	CSSC Y ref temp
NMDA000	1	SINT16	16	degC	dust inlet temp
NMDA000	1	SINT16	16	V	+5V voltage mon
NMDA001	1	SINT16	16	V	+15V voltage mon
NMDA001	1	SINT16	16	V	-15V voltage mon
NMDA001	1	UINT16	16		digital status 1
NMDA001	1	UINT16	16		digital status 2
NMDA001	1	UINT16	16		digital status 3
NMDA001	1	UINT16	16		digital status 4
NMDA001	1	UINT16	16		digital status 5
NMDA001	1	UINT32	32		ADC overflow
NMDA001	1	UINT16	16		frame checksum

Notes: Housekeeping Data Report: Structure ID 1 (standard)

Telemetry Packet Information

Packet Name	YMDHK002	Instrument	MIDAS
Packet Function	ExtendedHKReport		
Generation Rules			

Header

Process ID	67	Packet Category	4
Service Type	3	Service Subtype	25
Structure ID	2	Packet Length	524 / 524

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH14	1	UINT16	16		MIDAS 67/4 Packet sequence counter
NMDAH14	1	ENUM16	16		MIDAS 67/4 Packet length
NMDAH14	1	TIME#2	48		MIDAS 67/4 Data field header time field
NMDAH14	1	UINT32	32		MIDAS 67/4 Data field header PUS
NMDA0SID	1	UINT16	16		StructureID
NMDA000	1	UINT16	16		SwProgVersion
NMDA010	1	SINT16	16	V	can AC signal
NMDA010	1	SINT16	16	V	can DC signal
NMDA010	1	SINT16	16	deg	can phase signal
NMDA010	1	SINT16	16	V	app LVDT signal
NMDA010	1	SINT16	16	V	lin LVDT signal



NMDA010	1	SINT16	16	V	X piezo offs err
NMDA010	1	SINT16	16	V	Y piezo offs err
NMDA010	1	SINT16	16	V	Z piezo offs err
NMDA011	1	SINT16	16	V	X piezo HV mon
NMDA011	1	SINT16	16	V	Y piezo HV mon
NMDA011	1	SINT16	16	V	X piezo position
NMDA011	1	SINT16	16	V	Y piezo position
NMDA011	1	SINT16	16	V	Z piezo position
NMDA011	1	SINT16	16	V	Z piezo HV mon
NMDA011	1	UINT16	16		fullscan aborted
NMDA011	1	UINT16	16		function aborted
NMDA030	1	UINT16	16		AbortLine
NMDA030	1	UINT16	16		AbortPoint
NMDA011	1	UINT16	16		CanAcGainLevel
NMDA011	1	UINT16	16		AppBackStarted
NMDA012	1	UINT16	16		AppFinished
NMDA030	1	UINT16	16		ApprFineStep
NMDA012	1	UINT16	16		AppOnMaxPos
NMDA012	1	UINT16	16		AppOnMinPos
NMDA012	1	SINT16	16	V	AppPosition
NMDA023	1	SINT16	16	V	AppPosSet
NMDA012	1	UINT16	16		AppStarted
NMDA023	1	SINT16	16	V	AppPosAbs
NMDA023	1	UINT16	16		AppDir
NMDA023	1	UINT16	16		ApprAbsStarted
NMDA012	1	UINT16	16		AppTimeout
NMDA012	1	UINT16	16		ZsgAverageFact
NMDA012	1	UINT16	16		CanSelect
NMDA012	1	UINT16	16		CanBlockSelect
NMDA012	1	SINT16	16	V	CanSignal
NMDA013	1	UINT16	16		CssXcalStarted
NMDA013	1	UINT16	16		CssXcalFinished
NMDA013	1	UINT16	16		CssYcalStarted
NMDA013	1	UINT16	16		CssYcalFinished
NMDA013	1	UINT16	16		CssEnabled
NMDA013	1	UINT16	16		CssCalCycles
NMDA013	1	UINT16	16		CssCalTimeout
NMDA013	1	UINT16	16		CorrectionTable
NMDA013	1	UINT16	16		CheckoutCmd
NMDA013	1	SINT16	16	V	LlvPosition
NMDA014	1	UINT16	16		PointScanCycles
NMDA014	1	UINT16	16		ImgDataType
NMDA014	1	UINT16	16		CanDcGainLevel
NMDA014	1	UINT16	16	usec	DcmPulsewidth
NMDA023	1	UINT16	16		DecrApprPos
NMDA014	1	UINT16	16		DscanRandAmpl
NMDA024	1	SINT16	16	V	DeltaApprPos
NMDA024	1	UINT16	16	%	DeltaOpPerc
NMDA024	1	SINT16	16	V	DeltaOpAmpl
NMDA014	1	UINT16	16		ScnDummy
NMDA014	1	UINT16	16		ExcLevel
NMDA014	1	UINT16	16		DscanSineAmpl
NMDA014	1	UINT16	16		DscanZeroOffs
NMDA015	1	UINT16	16		DscanGradSine
NMDA015	1	UINT16	16		FscNoThres
NMDA015	1	UINT16	16		FscScanCycle
NMDA015	1	UINT16	16		ApprStuckCnt
NMDA015	1	UINT16	16		FscScanStarted
NMDA015	1	UINT16	16		FscScanFinished
NMDA015	1	UINT16	16	Hz	FscFstep
NMDA015	1	UINT16	16	Hz	FscFstepHi
NMDA015	1	UINT16	16		ScnStarted
NMDA015	1	UINT16	16		CssCalGainStep
NMDA016	1	UINT16	16		SwHkDataPeriod2
NMDA016	1	UINT16	16		SwLastCommand
NMDA016	1	UINT16	16		LinMoveStarted
NMDA016	1	UINT16	16		LinMoveFinished
NMDA016	1	UINT16	16		LinMoveTestLvdt
NMDA016	1	UINT16	16		ScnLineCount
NMDA016	1	UINT16	16		ScnNumLines
NMDA016	1	UINT16	16		ScnLineDone
NMDA016	1	UINT16	16		ScnLineStarted
NMDA016	1	UINT16	16		LinMoveTimeout



NMDA024	1	UINT16	16		LinmoveTimo
NMDA017	1	UINT16	16		ScnMainCount
NMDA017	1	UINT16	16		ScnMainDirection
NMDA017	1	UINT16	16		ScnMainSteps
NMDA017	1	UINT16	16		ScnMagRetrDist
NMDA017	1	UINT16	16		ScnMaxSubCycles
NMDA017	1	UINT16	16		ScnMaxCycles
NMDA017	1	UINT16	16		CssCalMaxCycles
NMDA017	1	UINT16	16		LastApprDir
NMDA017	1	UINT16	16		FscNumScans
NMDA017	1	UINT16	16		CssCalOffsStep
NMDA024	1	UINT16	16	%	OpPointPerc
NMDA024	1	SINT16	16	V	OpPointAmpl
NMDA024	1	SINT16	16	V	OpUp
NMDA024	1	SINT16	16	V	OpLo
NMDA018	1	SINT16	16	%	OpPntPercentAmpl
NMDA018	1	UINT16	16		SwCmdParameter
NMDA018	1	UINT16	16		SwCmdCode
NMDA018	1	UINT16	16		WhePulseDelay
NMDA018	1	UINT16	16	usec	PzmPulseWidth
NMDA018	1	UINT16	16		WheRefStarted
NMDA018	1	UINT16	16		DigRelayStatus
NMDA030	1	SINT16	16	V	ResonanceAmpl
NMDA018	1	UINT16	16		ScnRetractDist
NMDA018	1	UINT16	16		ScnMode
NMDA019	1	UINT16	16		ScnErrorCount
NMDA019	1	UINT16	16		FscSearchAlgor
NMDA019	1	UINT16	16		SwSendCoFrame
NMDA030	1	UINT16	16		DstSelect
NMDA019	1	UINT16	16		WheSegmentPulses
NMDA019	1	UINT16	16		WheSearchStarted
NMDA019	1	UINT16	16		WheSegmentFound
NMDA019	1	UINT16	16		WheSegmentNum
NMDA019	1	SINT16	16	V	LinLvdTSetPos
NMDA024	1	SINT16	16	V	SetLinPosAbs
NMDA019	1	UINT16	16		RegularExtCode
NMDA019	1	UINT16	16		ShtCloseStarted
NMDA020	1	UINT16	16		ShtOpenStarted
NMDA020	1	UINT16	16		ShtTimeoutCnt
NMDA024	1	UINT16	16		SingleFScan
NMDA030	1	UINT16	16		SurfDetected
NMDA025	1	UINT16	16		TechMode
NMDA020	1	UINT16	16		SwTimeouts
NMDA020	1	UINT16	16		ScnTipNumber
NMDA020	1	SINT16	16	V	FscMaxCanSignal
NMDA020	1	SINT16	16	V	CssCalAccuracy
NMDA020	1	SINT16	16	V	CssXrefVoltage1
NMDA020	1	SINT16	16	V	CssXrefVoltage2
NMDA020	1	SINT16	16	V	CssYrefVoltage1
NMDA020	1	SINT16	16	V	CssYrefVoltage2
NMDA021	1	UINT16	16		SwWaitCycle
NMDA021	1	UINT16	16		SwWaitSeconds
NMDA021	1	UINT16	16		WaxSelect
NMDA021	1	UINT16	16		WaxTimeoutCnt
NMDA021	1	UINT16	16		WaxStatus
NMDA021	1	UINT16	16		WaxExtCnt
NMDA021	1	UINT16	16		WaxTimeout
NMDA021	1	UINT16	16		WheTimeoutCnt
NMDA021	1	UINT16	16		ScnXorigin
NMDA021	1	UINT16	16		ScnXnumSteps
NMDA022	1	UINT16	16		ScnXscanDir
NMDA022	1	UINT16	16		ScnXstepSize
NMDA022	1	UINT16	16		WaxXYselect
NMDA022	1	UINT16	16		WaxXYmainStarted
NMDA022	1	UINT16	16		WaxXYredStarted
NMDA022	1	UINT16	16		WaxXYtimeout
NMDA022	1	UINT16	16		WaxXYtimeoutCnt
NMDA022	1	UINT16	16		ScnYstepSize
NMDA022	1	UINT16	16		ScnYorigin
NMDA022	1	UINT16	16		ScnYscanDir
NMDA023	1	UINT16	16		ScnYnumSteps
NMDA023	1	UINT16	16		ScnZstepSize
NMDA023	1	UINT32	32		DigAdcOvlFlags



NMDA023	1	SINT16	16	V	DeltaDcContact
NMDA025	1	SINT16	16	V	CantSignalRetr
NMDA025	1	UINT16	16		DstInfo
NMDA025	1	UINT16	16		LongZ
NMDA025	1	UINT16	16		Zgain
NMDA025	1	UINT16	16		GainControlX
NMDA025	1	UINT16	16		GainControlY
NMDA025	1	UINT16	16		OffsControlX
NMDA025	1	UINT16	16		OffsControlY
NMDA025	1	UINT16	16		ScanAlgor
NMDA026	1	UINT16	16		FirstThresDet
NMDA026	1	UINT16	16		DustFlux
NMDA026	1	SINT16	16	V	OpPointPcont
NMDA026	1	UINT16	16	%	OpPointPcontPerc
NMDA026	1	UINT16	16		PcontrolKC
NMDA026	1	UINT16	16		PcontrolActive
NMDA026	1	UINT16	16		LastEvent
NMDA026	1	UINT16	16		DacValueX
NMDA026	1	UINT16	16		DacValueY
NMDA026	1	UINT16	16		DacValueZ
NMDA027	1	UINT16	16		SettleTimeZ
NMDA027	1	UINT16	16		SettleTimeXY
NMDA027	1	UINT16	16		DustFluxMin
NMDA034	1	UINT16	16		DustFluxMax
NMDA027	1	UINT16	16		FscanMode
NMDA027	1	UINT16	16	Hz	FscanThresHi
NMDA027	1	UINT16	16	Hz	FscanThresLo
NMDA027	1	UINT32	32	Hz	FscanSynth
NMDA027	1	UINT16	16		Hk1Period
NMDA027	1	UINT16	16	Hz	FscanHi
NMDA027	1	UINT16	16	Hz	FscanLo
NMDA028	1	UINT16	16	Hz	FscanResHi
NMDA028	1	UINT16	16	Hz	FscanResLo
NMDA028	1	UINT16	16		ReadAnalog
NMDA028	1	UINT32	32	Hz	FscanSglStart
NMDA028	1	UINT32	32	Hz	FscanInc
NMDA028	1	SINT16	16	V	DcAmplSet
NMDA028	1	UINT16	16		CheckDcSignal
NMDA028	1	SINT16	16	V	UcantDcStart
NMDA028	1	UINT16	16		IsContact
NMDA028	1	UINT16	16		AufoFadjust
NMDA029	1	UINT16	16		WheelCounts
NMDA029	1	UINT16	16		PulseApplied
NMDA029	1	SINT16	16	V	LastApprPosition
NMDA029	1	UINT16	16		MovementChecked
NMDA029	1	SINT16	16	V	CurrentAppPos
NMDA029	1	UINT16	16		TestCount
NMDA029	1	UINT16	16		ApprTestCount
NMDA029	1	SINT16	16	V	DeltaOpAmplDc
NMDA029	1	UINT16	16	%	DeltaOpPercDc
NMDA030	1	SINT16	16	V	OpUpDc
NMDA030	1	SINT16	16	V	OpLoDc
NMDA029	1	SINT16	16	V	DeltaApprLvdT
NMDA030	1	SINT16	16	V	ApprPosMax
NMDA031	1	SINT16	16	V	ApprPosMin
NMDA031	1	UINT16	16		FineAdjustmentStarted
NMDA031	1	UINT16	16		TaskActive
NMDA031	1	UINT16	16		ApprNumPulses
NMDA031	1	UINT16	16		CantHiresStarted
NMDA031	1	UINT16	16		CantHiresTime
NMDA031	1	UINT16	16		CantHiresPkts
NMDA031	1	UINT16	16		CantHiresTimeCnt
NMDA031	1	UINT16	16		CantHiresPktsCnt
NMDA031	1	UINT16	16		CalState
NMDA032	1	UINT16	16		SwDataPage
NMDA032	1	UINT16	16		SwStatus
NMDA032	1	UINT16	16		SwParSetAddr
NMDA032	1	UINT16	16		SwParSetVal
NMDA032	1	UINT16	16		SwParHk1Addr
NMDA032	1	UINT16	16		SwParHk2Addr
NMDA032	1	UINT16	16		SwParHk3Addr
NMDA032	1	UINT16	16		SwParHk4Addr
NMDA032	1	UINT16	16		SwParHk1Val



NMDA032	1	UINT16	16	SwParHk2Val
NMDA033	1	UINT16	16	SwParHk3Val
NMDA033	1	UINT16	16	SwParHk4Val
NMDA033	1	UINT16	16	FvectMode
NMDA033	1	UINT16	16	% FvectLperc
NMDA033	1	UINT16	16	FvectLevel
NMDA033	1	UINT16	16	FvectXmargin
NMDA033	1	UINT16	16	FvectYmargin
NMDA033	1	UINT16	16	FvectStatus
NMDA033	1	UINT16	16	FvectNumpts
NMDA033	1	UINT16	16	FvectAvgZ
NMDA034	1	UINT16	16	% FvectRatio
NMDA034	1	SINT16	16	% FvectZfactor
NMDA034	1	UINT16	16	ScEnabled
NMDA034	1	UINT16	16	PointReady
NMDA030	8	UINT16	16	Hk2Spare
NMDA023	1	UINT16	16	SwHkChecksum2

Notes: Housekeeping Data Report: Structure ID 2 (extended); not generated in kernel mode

Telemetry Packet Information

Packet Name	YMDMEM01	Instrument	MIDAS
Packet Function	MemDumpReport		
Generation Rules			

Header

Process ID	67	Packet Category	9
Service Type	6	Service Subtype	6
Structure ID	90	Packet Length	26 / 2072

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH19	1	UINT16	16		MIDAS 67/9 Packet sequence counter
NMDAH19	1	ENUM16	16		MIDAS 67/9 Packet length
NMDAH19	1	TIME#2	48		MIDAS 67/9 Data field header time field
NMDAH19	1	UINT32	32		MIDAS 67/9 Data field header PUS
NMDA0MI	1	UINT16	16		MemIdAndBlocks
NMDA0MEA	1	UINT32	32		Memory Start Address
NMDA0MEL	1	UINT16	16		Memory Block Length
NMDA0MED	1024	UINT16	16		Memory Data

Notes: Memory Dump Report; one dump per block; large blocks in chunks of 1024 words

Telemetry Packet Information

Packet Name	YMDMEM02	Instrument	MIDAS
Packet Function	MemCheckReport		
Generation Rules			

Header

Process ID	67	Packet Category	7
Service Type	6	Service Subtype	10
Structure ID	90	Packet Length	26 / 330

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS
NMDA0MI	1	UINT16	16		MemIdAndBlocks
NMDA0MEA	1	UINT32	32		Memory Start Address
NMDA0MEL	1	UINT16	16		Memory Block Length
NMDA0MCK	153	UINT16	16		Memory Checksum

Notes: Memory Check Report; one checksum per block

Telemetry Packet Information

Packet Name	YMDSC001	Instrument	MIDAS
Packet Function	ScienceData		
Generation Rules			



Header

Process ID	67	Packet Category	12
Service Type	20	Service Subtype	3
Structure ID		Packet Length	80 / 2096

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH1C1	1	UINT16	16		MIDAS 67/12 Packet sequence counter
NMDAH1C2	1	ENUM16	16		MIDAS 67/12 Packet length
NMDAH1C3	1	TIME#2	48		MIDAS 67/12 Data field header time field
NMDAH1C4	1	UINT32	32		MIDAS 67/12 Data field header PUS
NMDA0DID	1	UINT16	16		ScienceId
NMDA000	1	UINT16	16		SwProgVersion
NMDA0D0	1	UINT16	16		ScienceData01
NMDA0D0	1	UINT16	16		ScienceData02
NMDA0D0	1	UINT16	16		ScienceData03
NMDA0D0	1	UINT16	16		ScienceData04
NMDA0D0	1	UINT16	16		ScienceData05
NMDA0D0	1	UINT16	16		ScienceData06
NMDA0D0	1	UINT16	16		ScienceData07
NMDA0D0	1	UINT16	16		ScienceData08
NMDA0D0	1	UINT16	16		ScienceData09
NMDA0D1	1	UINT16	16		ScienceData10
NMDA0D1	1	UINT16	16		ScienceData11
NMDA0D1	1	UINT16	16		ScienceData12
NMDA0D1	1	UINT16	16		ScienceData13
NMDA0D1	1	UINT16	16		ScienceData14
NMDA0D1	1	UINT16	16		ScienceData15
NMDA0D1	1	UINT16	16		ScienceData16
NMDA0D1	1	UINT16	16		ScienceData17
NMDA0D1	1	UINT16	16		ScienceData18
NMDA0D1	1	UINT16	16		ScienceData19
NMDA0D2	1	UINT16	16		ScienceData20
NMDA0D2	1	UINT16	16		ScienceData21
NMDA0D2	1	UINT16	16		ScienceData22
NMDA0D2	1	UINT16	16		ScienceData23
NMDA0D2	1	UINT16	16		ScienceData24
NMDA0D2	1	UINT16	16		ScienceData25
NMDA0D2	1	UINT16	16		ScienceData26
NMDA0D2	1	UINT16	16		ScienceData27
NMDA0D2	1	UINT16	16		ScienceData28
NMDA0D2	1	UINT16	16		ScienceData29
NMDA0D3	1	UINT16	16		ScienceData30

Notes: Science Data Report: covers image header/data, frequency scan, line scan,
 ...

Telemetry Packet Information

Packet Name	YMDST001	Instrument	MIDAS
Packet Function	AcceptSuccess		
Generation Rules			

Header

Process ID	67	Packet Category	1
Service Type	1	Service Subtype	1
Structure ID		Packet Length	20 / 20

Data Field Information

<i>Data Field</i>	<i>Rpt</i>	<i>Structure</i>	<i>Size</i>	<i>Unit</i>	<i>Remarks</i>
NSBAH00	1	UINT16	16		Application Process ID
NMDAH11	1	UINT16	16		MIDAS 67/1 Packet sequence counter
NMDAH11	1	ENUM16	16		MIDAS 67/1 Packet length
NMDAH11	1	TIME#2	48		MIDAS 67/1 Data field header time field
NMDAH11	1	UINT32	32		MIDAS 67/1 Data field header PUS
NMDAST0	1	UINT16	16		Global PID
NMDAST0	1	UINT16	16		Sequence Control

Notes: Acceptance Success Report

Telemetry Packet Information

Packet Name	YMDST002	Instrument	MIDAS
Packet Function	IncompletePacket		



Generation Rules

Header

Process ID	67	Packet Category	1
Service Type	1	Service Subtype	2
Structure ID	1	Packet Length	28 / 28

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH11	1	UINT16	16		MIDAS 67/1 Packet sequence counter
NMDAH11	1	ENUM16	16		MIDAS 67/1 Packet length
NMDAH11	1	TIME#2	48		MIDAS 67/1 Data field header time field
NMDAH11	1	UINT32	32		MIDAS 67/1 Data field header PUS
NMDAST0	1	UINT16	16		Global PID
NMDAST0	1	UINT16	16		Sequence Control
NMDAST0	1	UINT16	16		FailureCode
NMDAST0	1	UINT16	16		PktServiceType
NMDAST1	1	UINT16	16		Length in TC hea
NMDAST1	1	UINT16	16		Nb of received b

Notes: Acceptance Failure Report: Failure Code 1. Incomplete Packet within time-out

Telemetry Packet Information

Packet Name	YMDST003	Instrument	MIDAS
Packet Function	IncorrectChecksum		
Generation Rules			

Header

Process ID	67	Packet Category	1
Service Type	1	Service Subtype	2
Structure ID	2	Packet Length	28 / 28

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH11	1	UINT16	16		MIDAS 67/1 Packet sequence counter
NMDAH11	1	ENUM16	16		MIDAS 67/1 Packet length
NMDAH11	1	TIME#2	48		MIDAS 67/1 Data field header time field
NMDAH11	1	UINT32	32		MIDAS 67/1 Data field header PUS
NMDAST0	1	UINT16	16		Global PID
NMDAST0	1	UINT16	16		Sequence Control
NMDAST0	1	UINT16	16		FailureCode
NMDAST0	1	UINT16	16		PktServiceType
NMDAST1	1	UINT16	16		ReceivedChecksum
NMDAST1	1	UINT16	16		ComputedChecksum

Notes: Acceptance Failure Report: Failure Code 2. Incorrect Checksum

Telemetry Packet Information

Packet Name	YMDST004	Instrument	MIDAS
Packet Function	IncorrectAPID		
Generation Rules			

Header

Process ID	67	Packet Category	1
Service Type	1	Service Subtype	2
Structure ID	3	Packet Length	24 / 24

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH11	1	UINT16	16		MIDAS 67/1 Packet sequence counter
NMDAH11	1	ENUM16	16		MIDAS 67/1 Packet length
NMDAH11	1	TIME#2	48		MIDAS 67/1 Data field header time field
NMDAH11	1	UINT32	32		MIDAS 67/1 Data field header PUS
NMDAST0	1	UINT16	16		Global PID
NMDAST0	1	UINT16	16		Sequence Control
NMDAST0	1	UINT16	16		FailureCode
NMDAST0	1	UINT16	16		PktServiceType

Notes: Acceptance Failure Report: Failure Code 3. Incorrect APID

Telemetry Packet Information



Packet Name **YMDST005** Instrument **MIDAS**
 Packet Function **InvalidCmdCode**
 Generation Rules

Header

Process ID **67** Packet Category **1**
 Service Type **1** Service Subtype **2**
 Structure ID **4** Packet Length **28 / 28**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH11	1	UINT16	16		MIDAS 67/1 Packet sequence counter
NMDAH11	1	ENUM16	16		MIDAS 67/1 Packet length
NMDAH11	1	TIME#2	48		MIDAS 67/1 Data field header time field
NMDAH11	1	UINT32	32		MIDAS 67/1 Data field header PUS
NMDAST0	1	UINT16	16		Global PID
NMDAST0	1	UINT16	16		Sequence Control
NMDAST0	1	UINT16	16		FailureCode
NMDAST0	1	UINT16	16		PktServiceType
NMDAST1	1	UINT16	16		FC4_Par3
NMDAST1	1	UINT16	16		FC4_Par4

Notes: Acceptance Failure Report: Failure Code 4. Invalid Command Code

Telemetry Packet Information

Packet Name **YMDST006** Instrument **MIDAS**
 Packet Function **PbExecTime**
 Generation Rules

Header

Process ID **67** Packet Category **1**
 Service Type **1** Service Subtype **2**
 Structure ID **5** Packet Length **24 / 24**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH11	1	UINT16	16		MIDAS 67/1 Packet sequence counter
NMDAH11	1	ENUM16	16		MIDAS 67/1 Packet length
NMDAH11	1	TIME#2	48		MIDAS 67/1 Data field header time field
NMDAH11	1	UINT32	32		MIDAS 67/1 Data field header PUS
NMDAST0	1	UINT16	16		Global PID
NMDAST0	1	UINT16	16		Sequence Control
NMDAST0	1	UINT16	16		FailureCode
NMDAST0	1	UINT16	16		PktServiceType

Notes: Acceptance Failure Report: Failure Code 5. Command can not be executed at this time

Telemetry Packet Information

Packet Name **YMDST007** Instrument **MIDAS**
 Packet Function **DataFieldInconsistent**
 Generation Rules

Header

Process ID **67** Packet Category **1**
 Service Type **1** Service Subtype **2**
 Structure ID **6** Packet Length **26 / 26**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH11	1	UINT16	16		MIDAS 67/1 Packet sequence counter
NMDAH11	1	ENUM16	16		MIDAS 67/1 Packet length
NMDAH11	1	TIME#2	48		MIDAS 67/1 Data field header time field
NMDAH11	1	UINT32	32		MIDAS 67/1 Data field header PUS
NMDAST0	1	UINT16	16		Global PID
NMDAST0	1	UINT16	16		Sequence Control
NMDAST0	1	UINT16	16		FailureCode
NMDAST0	1	UINT16	16		PktServiceType
NMDAST2	1	UINT16	16		InconsistentPar

Notes: Acceptance Failure Report: Failure Code 6. Data Field Inconsistent



Telemetry Packet Information

Packet Name **YMDST011** Instrument **MIDAS**
 Packet Function **ExecutionSuccess**
 Generation Rules

Header

Process ID **67** Packet Category **1**
 Service Type **1** Service Subtype **7**
 Structure ID Packet Length **20 / 20**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH11	1	UINT16	16		MIDAS 67/1 Packet sequence counter
NMDAH11	1	ENUM16	16		MIDAS 67/1 Packet length
NMDAH11	1	TIME#2	48		MIDAS 67/1 Data field header time field
NMDAH11	1	UINT32	32		MIDAS 67/1 Data field header PUS
NMDAST0	1	UINT16	16		Global PID
NMDAST0	1	UINT16	16		Sequence Control

Notes: Execution Success Report

Telemetry Packet Information

Packet Name **YMDST012** Instrument **MIDAS**
 Packet Function **ExecutionFailure**
 Generation Rules

Header

Process ID **67** Packet Category **1**
 Service Type **1** Service Subtype **8**
 Structure ID **1** Packet Length **24 / 24**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH11	1	UINT16	16		MIDAS 67/1 Packet sequence counter
NMDAH11	1	ENUM16	16		MIDAS 67/1 Packet length
NMDAH11	1	TIME#2	48		MIDAS 67/1 Data field header time field
NMDAH11	1	UINT32	32		MIDAS 67/1 Data field header PUS
NMDAST0	1	UINT16	16		Global PID
NMDAST0	1	UINT16	16		Sequence Control
NMDAST0	1	UINT16	16		FailureCode
NMDAST0	1	UINT16	16		PktServiceType

Notes: Execution Failure Report: Failure Code 1. Correct commanded status was not achieved.

Telemetry Packet Information

Packet Name **YMDTST01** Instrument **MIDAS**
 Packet Function **ConnTestReport**
 Generation Rules

Header

Process ID **67** Packet Category **7**
 Service Type **17** Service Subtype **2**
 Structure ID Packet Length **16 / 16**

Data Field Information

Data Field	Rpt	Structure	Size	Unit	Remarks
NSBAH00	1	UINT16	16		Application Process ID
NMDAH17	1	UINT16	16		MIDAS 67/7 Packet sequence counter
NMDAH17	1	ENUM16	16		MIDAS 67/7 Packet length
NMDAH17	1	TIME#2	48		MIDAS 67/7 Data field header time field
NMDAH17	1	UINT32	32		MIDAS 67/7 Data field header PUS

Notes: Connection Test Report



2.3.4. On-board monitoring

On-Board Monitoring Requirements		MIDAS
RSDB Parameter Name	Description	Limits
NMDA0005	Power Converter Temperature	Value < 80 °C
NMDA0009	+5 V Voltage Monitor	4.75 V < Value < 5.25 V
NMDA0010	+15 V Voltage Monitor	13.0 V < Value < 15.7 V
NMDA0011	-15 V Voltage Monitor	-15.8 V < Value < -13.5 V
NPWDA548/ NPWDA868	LCL Current	< 800 mA

Table 2.4 On-Board Monitoring Requirements

Further requirements for on-board monitoring may arise.

2.3.5. On-board control procedures

On-Board Control Procedures (OBCP) Summary		MIDAS
OBCP Name	Function	Usage (Nominal/Contingency)
PL_OBCP_5_MD.1 MIDAS Power On	Switch ON the MIDAS instrument and to configure it into a stable operational mode.	N
PL_OBCP_5_MD.2 MIDAS Power Off	Turn OFF the MIDAS instrument.	N
PL_OBCP_5_MD.3 MIDAS Power On Alternative	Switch ON the MIDAS instrument into a mode which allows a software upload.	C

Table 2.5 On-Board Control Procedures

Further requirements for on-board control procedures in contingency cases may arise during the test and verification activities, when the nature of possible contingencies will be understood better.

2.3.6. DMS packetisation

No requirements

2.3.7. Other services (time, context, information, ...)

The list of information which is requested by MIDAS from other instruments and subsystems may be extended at a later stage. At present, GIADA dust flux information is required, as listed in Table 2.6:



INFORMATION REQUIRED		
Entity	Requirements	Remarks
Parameters		
dust flux	as measured by the dust flux analyser, in the smallest available size range frequency of transfer: shorter than the typical exposure times of MIDAS at a given dust flux, as a rough estimate 5-10 minute intervals for 1 hour exposure time	the purpose is to modify the exposure time according to the actual dust flux, to ensure optimum coverage of the collection surfaces

Table 2.6 Information Distribution Requirements

2.3.8. SSMM utilisation

SSMM Utilisation		Mission Phase: Escort & Test	Instrument MIDAS
Data Type	Description	Volume MByte	Operational Usage
Non-science Telemetry		0	
Science Telemetry		0	
Context	standard context file	0.002	not used at present
S/W patches		< 0.12	not used at present
Other		0	

Table 2.7 SSMM Utilisation



2.4 Budgets

2.4.1. Mass

Allocation	8.00 kg
Actual	8.18 kg

2.4.2. Operating power

Experiment Interface	Average Power (BOL) [W]		Average Power (EOL) [W]		Long Peak Power [W]	Short Peak Power [W]
	Standby	Other Modes	Stand by	Other Modes		
+28 V Power Interface	8.2	17.2	8.5	17.5	28.0	28.0

Table 2.8 Experiment Main Bus Power Consumption

2.4.3. Data rates (HK and science)

2.4.3.1. Science

Among the routinely used modes only the scan mode produces raw science data which are temporarily stored in instrument memory. The size of a typical single image is 128 kByte. Normally the raw data are transmitted in "image processing and science transfer mode" when some image processing takes place. Raw data of a single scan may also be processed in different ways and transmitted more than once.

The most common mode of telemetry usage implies the collection of raw data during a scan of several tens of minutes up to 5 hours duration, followed by a short period of image processing. During and/or immediately after processing the data are copied into a telemetry buffer to be downloaded at one of several possible data rates. The most likely operational cycle starts with the accumulation of 128 kByte data in the instrument memory during scanning (up to several hours), which are afterwards fed into telemetry at a rate of 1024 words every 8 seconds, i.e. 2 kBit per second during 512 seconds. The average data rate in this scenario is 136 bit per second. As the scanning mode must be used in alternation with exposure, when no data are generated, an average data rate of 100 bit per second including housekeeping data and overhead can be achieved.



2.4.3.2. HK

Housekeeping telemetry is divided into standard (HK1) and extended (HK2) packets. The rate of each packet can be set by command. HK2 is used at high data rate during commissioning only. During nominal operations HK2 are sent at much lower rate than the default rate.

HK Packet	Default Packet Rate [s]	Packet Length [byte]	Bitrate [bits/s]
HK1	120	56	3.73
HK2	8	524	524

Table 2.9 Housekeeping data packets

2.4.4. Non operating heaters

Heaters are installed; for the location see the Mechanical Interface Drawing.

2.4.5. S/C powered thermistors

One pair of S/C powered thermistors (main and redundant) is installed close to the cover, for scientific monitoring purposes when the instrument is not powered.
Temperature range: -150 .. +200 °C

2.4.6. Pyro lines

One pair of pyros (main and redundant) serves to open the cover after launch.
The interface connector is J08.

2.4.7. OBDH channels

The instrument MIDAS communicates with the OBDH telecommand and telemetry systems via two redundant signal interfaces (for details see EID-A and MIDAS EID-B, Section 2.7).



3. Experiment Operations

3.1 Operating Principles

3.1.1. Overview of Operating Principles

The science operations concept foresees that a certain facet of the dust collector wheel is exposed to the ambient dust flux. Exposure times range from fractions of an hour during high cometary activity at close distance from the nucleus (few cometary radii) to several days during moderate activity and/or larger distances. After the exposure the shutter is closed and the wheel turns by a certain angle to transport the facet underneath the scanning head.

Data are acquired when a part of a facet is scanned to produce an image. The area of a facet is large enough to allow for many (30 or more, depending on the image size) images. Typically, a single exposure period will be followed by several scanning operations on the previously exposed facet. On the other hand it is also possible to scan or re-scan facets that had been exposed before, so that scanning of an exposed facet can be postponed, if this is operationally required. The time needed to scan a single area on a facet depends on operational settings. Estimated typical values range from one to five hours.

Processing and transmission of the acquired data will be performed typically after completion of a scan (image acquisition). Typically, processing is short compared to the image acquisition time. The baseline MIDAS operations involves exposure, scanning, and processing in alternation, but data collection simultaneously with the processing, compression and transmission of collected images is possible. Some images may be reduced to simple statistical parameters for transmission (for example the number and sizes of the dust grains) while others are studied at full resolution.

The standard modes as described above are complemented by modes for commissioning (e.g. to unlock some mechanisms after launch), check-out (e.g. to occasionally exercise the piezo-electric devices during the cruise phase) and in-flight calibration.

In summary, the following types of operations are available:

- Cover opening
- Functional tests
- Launch lock release operations
- In-flight calibration
- Exposure modes
- Science data acquisition (scanning including sample transport and positioning)
- Image processing

3.1.2. Cover opening

During the initial turn-on and check-out or MIDAS in the commissioning phase the cover of the instrument has to be opened. Cover opening is achieved by firing a pair of pyro actuators by the spacecraft. During the cover opening MIDAS shall be operating in standby mode, in order to monitor the status of the microswitch mounted at the cover.

3.1.3. Functional tests

Functional tests are subdivided into tests for each mechanism. The mechanisms can be grouped into those which are locked or are in a special position during launch, and others. Functional tests after launch start with electrical and software tests, followed by tests of mechanisms without launch lock:

- TM and TC verification
- Science data transfer test
- Shutter
- Wheel
- Cantilevers (frequency scan)

After the launch lock release operations the remaining functional tests can be performed:

- Linear stage movement



- Approach
- Verification of static position of XYZ stage
- High resolution cantilever scan
- Line scan
- Full scan

Functional tests are performed during commissioning, but also during regular check-outs during the cruise phase. They are also required after longer periods of hibernation (more than a few weeks) for two purposes:

- a) to verify the functions before scanning operations
- b) to exercise all mechanisms including piezo materials to re-establish the nominal polarisation of the piezo material.

3.1.4. Characterisation of the thermal environment

A major part of the functional tests shall be dedicated to the characterisation of thermal effects on the scanning. The scanner unit is sensitive to temperature changes, which should be kept to a minimum. Temperature changes are the result of changing power consumption of the MIDAS instrument itself, or units in the vicinity; and they may result from manoeuvres.

For best correlation between MIDAS data and temperatures, temperature data shall be collected as far as possible during all phases of the commissioning.

Since maneuvers may affect temperature, any thermal constraints on MIDAS operations may be associated with pointing constraints.

3.1.5. Verification of microvibration environment

The instrument MIDAS is sensitive to microvibrations during scanning operations, when a sensor resolution of the order of nanometers is required (see also section 3.2.4.2). All known possible mechanical noise sources are located in spacecraft subsystems or other payload elements. Their effect on the measurements cannot reliably be modeled or measured on the ground. Some analysis predicts possible interference by reaction wheels (RWA) when these wheels are operated faster than 1500 rpm. If an interference between scanning and reaction wheels is confirmed as a result of commissioning, it is considered to limit the speed of the wheels during scanning operations of MIDAS.

Other possible sources of microvibrations among the spacecraft subsystems are the high gain antenna (HGA) and the solar array drive mechanism (SADM).

Possible sources of microvibrations from other payload elements are the Stirling cooler of the instrument VIRTIS and - probably to a minor extent, but still worth a check during commissioning - some shutters and filter wheels of remote sensing instruments (e.g., filter wheel of OSIRIS, shutter of VIRTIS) and other mechanisms (e.g., the Target Manipulator Unit of COSIMA).

The commissioning phase of MIDAS shall contain a test sequence to establish the actual level of disturbances. This will provide a better basis for planning the operational phase near the comet. The test sequence shall consist of several scan operations under varying inputs from the reaction wheels and other sources of mechanical noise. The following conditions apply to these scan operations:

- Sufficiently stable temperature before the start of each scan. Since thermal effects can easily be distinguished from microvibration effects in the image data, an extremely stable temperature (within one or two degrees C during several hours at the location of the scanner) is not required. It may be sufficient to power on MIDAS one hour (TBC) before the first scan.
- Ideally, the characterisation of the thermal behaviour of MIDAS should occur before the microvibration test campaign.
- The duration of each scan is one hour as a minimum. During this time interval the noise generating systems shall perform typical operation cycles.
- Several scans shall be performed for each microvibration noise generator, if the noise amplitude can be varied (e.g., speed of reaction wheel, power of Stirling cooler).



- Movements of the HGA and the SADM, but possibly also any special operations of the RWA, have an effect on the attitude of the spacecraft. HGA and SADM cannot be operated independently. Therefore the microvibration tests with these systems shall be part of the pointing campaign within commissioning.

3.1.6. Launch lock release

Launch lock release operations are required for the following mechanisms:

- SMA activation (release of XYZ stage in scanner)
- Release of approach mechanism
- Release of AFM baseplate (paraffin actuators)

3.1.7. In-flight calibration

In-flight calibration is performed as follows:

- Verification of the static position of the XYZ stage
This is performed in regular intervals, and for all three axes of the stage. The goal is twofold: Mechanical offsets (drifts with temperature, ageing) , and the efficiency of the piezo-materials involved have to be measured.
- Verification of mechanical displacement sensors (LVDTs for linear stage and approach mechanism).
This is performed in regular intervals, and serve to identify changes of the calibration of the LVDT sensors.
- Full scan
One or more full scans of calibration facets on the target wheel serve to identify any change of calibration of the XYZ scanner stage, and changes of sensor parameters (resonance frequency of the cantilevers, etc.) deviations offsets or rotational deviations in the sample transport system (wheel, linear stage), in the approach mechanism, and in the XYZ scanner stage.

3.1.8. Exposure

There are two exposure modes:

- In nominal exposure mode the instrument is turned off while the shutter is open and the wheel is in the proper position to accumulate dust on a selected facet.
- In "standby with exposure" the instrument is in standby mode and listens to the dust flux data by GIADA. This information is used to operate (close) the shutter earlier or later than the commanded time, but still within a given time window.

In both cases, exposure starts and ends with operating the wheel, linear stage, and shutter.

3.1.9. Science data acquisition

3.1.9.1. Sequence of operations

Science data acquisition may be preceded and followed by the operation of mechanisms to locate a certain position within a certain facet on the target wheel under the scanner. After positioning the approach mechanism is activated and a frequency scan is performed to identify the resonance frequency of the selected cantilever. Finally, the XYZ scanner performs the scan. After the scan the approach mechanism is moved backwards. This is the normal operational sequence if scanning alternates with exposure.

Since a typical scan area ($5 \times 5 \mu\text{m}$ or $10 \times 10 \mu\text{m}$) is smaller than the maximum scan capability of the XY stage ($100 \times 100 \mu\text{m}$), and since several data types can be acquired in a scan, it is not necessary to move the wheel or the linear translation stage between each scan. Several subsequent scans can be performed at the same position of the wheel and the linear translation stage. Only the scan field of the XY stage or the data type is changed. Without any movement of the wheel, only the approach mechanism, the frequency scan and the XYZ scanner are activated in order to obtain the new data set.



3.1.9.2. Data types and data sets

Science data are acquired during scanning. For each pixel, up to 14 different data types can be acquired:

- Z piezo set value
- RMS value of cantilever bridge at surface
- RMS value of cantilever bridge at retracted position
- phase signal of cantilever (frequency generator)
- DC value of cantilever bridge
- X HV monitor
- Y HV monitor
- Z HV monitor
- X piezo position (capacitive sensor)
- Y piezo position (capacitive sensor)
- Z piezo position (strain gauge)
- X piezo offset error (capacitive sensor)
- Y piezo offset error (capacitive sensor)
- Z piezo offset error (strain gauge)

Each value is stored in one word (16 bit).

- All data acquired during one scan constitute a data set, i.e., a data set may contain up to 8 individual images.
- The minimum size of an image is 32x32 pixels, filling 1024 words which corresponds to one image data packet.
- The maximum size of an image is 512x512 pixels, filling 262144 words which corresponds to 256 image data packets.

3.1.9.3. Memory Management for image data

- The smallest memory unit that can be allocated to image data is one block of 1024 words.
- The memory area allocated to image data is 512 blocks, organised into 16 pages with 32768 words each.
- The data set of a single image of maximum size (512x512 pixels) with two data types therefore fills the memory. Typical image sizes are 256x256 or 128x128 pixels, of which several data sets can be kept in RAM.
- The data sets are managed by means of a table. A maximum of 64 data set can be handled.
- The allocation of a memory area, the transfer the most recent or any previous data set, and the deletion of obsolete data sets can be arranged by telecommand. Automatically (without further telecommand) the most recently acquired image is selected as the active data set.

3.1.9.4. Other science data packets

MIDAS science data packets may contain other data than raw image data:

- Image Data
Contents as described above.
- Image Header
Contains header information associated with an image.
- Frequency Scan



256 words with frequency scan data and a header in addition.

Frequency scan packets contain the resonance curve of a cantilever (amplitude over frequency)

- **Line Scan**
 Size: 256 words with line scan data and a header in addition.
 Line scan packets contain data of a line scan (data from a single row of pixels). The length must be a multiple of 32 pixels. Line scans are useful to obtain quick information about the scanner performance.
- **Pixel Approach**
 Size: 1024 words with scan data and a header in addition.
 Pixel approach data monitor the approach of the active tip to the working point at each individual pixel. These data are useful to assess the performance of the control algorithm. Each packet corresponds to 256 individual data points of AC gain and Z-positions. The data are stored in a ring buffer, only the last 256 data of each pixel are kept.
 Pixel approach data can be commanded to be generated in parallel to line scan data.
 Within one line scan 32 approach data packets are generated, which are evenly distributed over the dimension of the line scan.
- **Feature Vector**
 Size: 1024 words (64 feature vectors) with scan data and a header in addition.
 Feature vectors are lists of parameters deduced from raw image data by image processing algorithms.

3.1.9.5. Transmission of image data

Image data are either stored in the instrument RAM until the scan is completed and the data have been processed, or data can be transmitted to telemetry in smaller pieces (single image data telemetry packets), starting already during a scan.

3.1.10. Image processing

Science data (mainly images) can be sent to ground without image processing (packaging into telemetry only). However, image processing capabilities are available. They serve to extract feature vectors from the raw data. Feature vectors contain summary information (e.g. centre position, size, volume) of "features" (potentially, dust particles) identified in the image. Feature vectors are useful for two purposes:

- Reduction of science data volume
- Derivation of parameters (position, size) of the follow-on scan (e.g. "zooming")

3.1.11. Nominal Operational Plans

The following timeline gives an overview of the expected utilisation of modes during the mission. Note that the mode "Mechanisms" listed therein is not a self-standing mode and therefore does not appear in the list of modes above. "Mechanism operation" stands for the short activation (few minutes) of mechanisms at the beginning and the end of low-power modes (e.g. standby with exposure) and has been introduced in the timeline only for the purpose of estimating the power consumption.

Name	Abbrev.	Time from launch	Start date	Durat.	Instrument Mode (% time in each)					Ave Power	Ave Data Rate	Data Vol.	Accum Data	
					E	S	P	M	SS					
		days	d/m/y	days						(W)	Kbit/sec	Mbyte	Mbyte	
Launch phase	LEOP	0	20.Jän.03	2	0	0	0	0		0	0	0	0	no operation
Commissioning	CVP	2	22.Jän.03	90	0	2.6	0.6	0.6	0.01	15.8	25	24	24	commissioning
Cruise phase 1	CR1	92	22.Apr.03	767	0	0.1	0.02	0.02		16.0	0.4	2.9	27.3	regular check-out
Mars flyby	MARS	859	28.Mai.05	121	0	0	0	0		0	0	0	27.3	no operation
Cruise phase 2	CR2	980	26.Sep.05	30	0	0.6	0.14	0.14		15.8	2.1	0.7	28	regular check-out
Earth flyby 1	EAR1	1010	26.Okt.05	61	0	0	0	0		0	0	0	28	no operation
Cruise phase 3	CR3	1071	26.Dez.05	105	0	0.3	0.08	0.08		15.5	1.1	1.2	29.2	regular check-out



Asteroid 1 approach	AST1A	1176	10.Apr.06	92	0	0	0	0	0	0	0	0	29.2	no operation
Asteroid 1 post flyby	AST1P	1268	11.Jul.06	61	41	0.7	0.05	0.05	2E-4	17.4	2.8	1.8	31	impact craters TBD
Cruise phase 4	CR4	1329	10.Sep.06	412	0	0.1	0.02	0.02		16.0	0.4	1.6	32.6	regular check-out
Earth flyby 2	EAR2	1741	27.Okt.07	61	0	0	0	0		0	0	0	32.6	no operation
Cruise phase 5	CR5	1802	27.Dez.07	118	0	0.1	0.04	0.04		14.7	0.4	0.4	33	regular check-out
Asteroid 2 approach	AST2A	1920	23.Apr.08	92	0	0	0	0		0	0	0	33	no operation
Asteroid 2 post flyby	AST2P	2012	24.Jul.08	61	41	0.7	0.05	0.05	2E-4	17.4	2.8	1.8	35	impact craters TBD
Cruise phase 6	CR6	2073	23.Sep.08	1160	0	0.1	0.02	0.02		16.0	0.4	4.4	39	regular check-out every 6 months
Comet drift phase	DRIF	3233	27.Nov.11	98	0.7	0.17	0.17	0.11		13.0	0.6	0.6	40	regular check-out every 6 months
Far approach	FAT	3331	04.Mär.12	77	0	1.5	0.38	0.38		15.6	5.3	4.4	44	regular check-out every 6 months
Close approach	CAT	3408	20.Mai.12	8	0	0	0	0		0	0	0	44	no operation
Transition to global mapping	TGM	3416	28.Mai.12	8	0	0	0	0		0	0	0	44	no operation
Nucleus map./close enc.	NMCO	3424	05.Jun.12	32	0	0	0	0		0	0	0	44	no operation
Comet low activity phase	LOW	3456	07.Jul.12	150	50	1.4	0.14	0.14	2E-4	17.0	5.2	8.5	53	7 days commiss., then long intervals
Comet activity: moderate increase	MINC	3606	04.Dez.12	87	50	20.8	2.08	2.08	1E-4	17.0	73	69	121	long/nominal intervals
Comet activity: sharp increase	SINC	3693	01.Mär.13	35	50	41.7	4.17	4.17		17.0	100	38	159	nominal intervals
Comet activity: high activity	HIGH	3728	05.Apr.13	52	50	41.7	4.17	4.17		17.0	100	56	215	nominal intervals
Near perihel phase	PERI	3780	27.Mai.13	43	50	41.7	4.17	4.17		17.0	100	46	262	nominal intervals
Extended mission	EXT	3823	09.Jul.13	175	50	41.7	4.17	4.17		17.0	100	189	451	nominal intervals

Table 3.1 Operations Overview

3.2 Nominal Operational Plans

3.2.1. Definition of operating modes

The concept of operating modes for MIDAS is complex.

In terms of telemetry and telecommand capabilities there are only two modes:

- Kernel mode with limited telecommand and telemetry capabilities
- Main program mode, which equivalent to standby mode, with full capabilities.

In terms of power consumption there are:

- Standby mode: all mechanisms are inactive, all switchable power subsystems are OFF.
- Various states with more or less of the power subsystems for motor drivers, pre-amplifiers, etc. being ON. These states are summarised in global modes such as "prepare scan", "line scan", or "full scan". Even within these states the power consumption can change from a maximum when the motors involved are active to some intermediate value when the mechanisms have arrived at a rest position, but the power subsystems are still on.

In terms of thermal effects, the heat input to the system goes in parallel with the electrical power consumption.



3.2.2. Power versus mode matrix

Subsystem Status	Current [mA]	Power [W]	Instrument Modes										
			Kernel	Standby	Commissioning		Prepare/end exposure	Prepare scan			Line scan or full scan	Scanning	
					Release XY stage	Release Baseplate		Move linear stage	Move wheel	Frequency scan			Approach
Instrument On	296	8.29	X	X	X	X	X	X	X	X	X	X	X
CSSC Power On	177	4.96										X	X
Approach LVDT Power On	22	0.62										X	
Linear LVDT Power On	14	0.39					X						
Preamplifier Power On	46	1.29								X	X	X	
Cantilever Block #1 Power On	23	0.64								X	X	X	
Cantilever Block #2 Power On	19	0.53											
Motor Driver Power On	17	0.48					X	X	X				
Wheel Encoder Power On	5	0.14							X				
Piezo HV Amplifier On	92	2.58								X	X	X	
Z Strain Gauge Power On	20	0.56									X	X	
Frequency Synthesizer On	4	0.11								X	X	X	
Wheel Motor	45	1.26							X				
Shutter Motor	21	0.59					X						
Stage Release 1	638	17.86											
Stage Release 2	688	19.26			X								
Plate Release 1	388	10.86											
Plate Release 2	388	10.86				X							
Approach Motor	13	0.36									X		
Linear Stage Motor	81	2.27						X					
Total primary power [W] (measurements from FM)			8.3	8.3	25.3	18.5	9.4	11.4	10.2	12.9	19.4	18.4	
Total primary current [mA]			0.296	0.296	0.904	0.661	0.334	0.408	0.363	0.461	0.693	0.658	

Table 3.2 Power versus mode matrix.

Table 3.2 gives a breakdown of power consumption of various subsystems. Note that the power measurements are from the qualification model and are for illustration only. There may be minor deviations for the FM.



3.2.3. Operations vs. Mode Matrix

	Operation												
	Cover opening	Baseplate release	Shutter	Wheel	Linear stage	Lin. stage release	Approach	Approach release	XYZ stage activation	XYZ stage release	Frequency scan	Image processing	Program upload
Modes													
Kernel													P
Standby/main	P	P						P		P			
Prepare exposure			A	P	P		P						
Exposure													
Exposure in standby													
Terminate exposure			A	P	P								
Prepare scan				P	P		A				A		
Line scan				P	P		A		A		A		
Full scan				P	P		A		A		A	P	
Image processing												A	
Calibration					A		A		A		A		
Exercise piezos			A		A				A		A		
Hardware self-test			A	A	A		A		A		A		

A ... Operation always performed in mode
 P ... Operation may occur in mode

Table 3.3 Operations versus mode matrix.

3.2.4. Operational Constraints

3.2.4.1. Thermal

Mode-dependent constraints are listed in the table below. In addition, thermal constraints at solar distances < 1.4 AU are expected. Thermal models predict that the upper operational temperature limit defined for MIDAS (+55°C) cannot be maintained by the spacecraft at solar distances < 1.4 AU, when all payload elements are turned on.

Unfortunately all operating modes of MIDAS except standby and exposure consume approximately 18 W. There is no useful scientific mode with less power consumption. In order to maintain the specified operating temperature, it may be necessary from the spacecraft side to operate the payload elements in the compartment containing MIDAS in time-sharing mode. These payload elements are RPC and RTOF.

The difficulty of a time-sharing operation for MIDAS lies in the very long thermal time constant of the instrument (about 10 hours after a hot case, until stable inside temperature is reached), in combination with the susceptibility to very small mechanical deformations induced by thermal inequilibrium (the sensor resolution is in the nanometer range!).

That is, if time-sharing operations lead to significant (more than about 1°C) temperature variations inside MIDAS, then several hours per thermal cycle are needed to wait for temperature stabilisation.



Even with constant temperature at the thermal reference point, the heat internally produced by MIDAS requires to power on all internal converters of MIDAS well before (30 minutes, TBC) a scan operation can start.

3.2.4.2. Microvibrations

Microvibrations generated by mechanical noise sources in spacecraft subsystems (reaction wheels, high gain antenna ,solar array drive mechanism) or other payload elements may disturb the measurements during scanning.

It is expected that the typical operating cycle of the reaction wheels will leave them at rotation rates below 1500 rpm during at least five hours. At these lower frequencies it is expected that disturbances for MIDAS are acceptable, and MIDAS can perform scanning operations.

At higher speeds of the reaction wheels the data obtained by scanning may be disturbed.

Other possible sources of microvibrations among the spacecraft subsystems are the high gain antenna (HGA) and the solar array drive mechanism (SADM).

Possible sources of microvibrations from other payload elements are the Stirling cooler of the instrument VIRTIS and - probably to a minor extent, but still worth a check during commissioning - some shutters and filter wheels of remote sensing instruments (e.g., filter wheel of OSIRIS, shutter of VIRTIS).

The disturbances due to quasi-continuous microvibration noise (e.g., wheels) result in a "noisy" image. At some higher noise level the images become scientifically useless. With increasing noise amplitude also the lifetime of the tips may be shortened.

The disturbances due to bursty microvibration noise (e.g., shutters) result in a local artefact in the image, most likely one or more disturbed lines in the image. At some higher repetition frequency of the noise events, and high noise level the images become scientifically useless. With very high noise amplitudes also the integrity of the used tip may be endangered.



3.2.4.3. Mode-dependent constraints overview

Mode	General Constraints
Cover opening (activation by s/c powered pyros; MIDAS shall be in standby mode for monitoring)	Not on ground (except SPT of EM) One-shot
Kernel	"Alternative" power-on mode Limited functionality No modification of kernel by upload is possible For program uploads including refreshing of onboard EEPROM during cruise
Standby	Default power-on mode Safe mode; interim mode between mode transitions
Prepare exposure	By going from scanning to exposure the fine positioning of the scanner versus the target is lost
Exposure	Instrument is OFF Requires pointing into the dust flux Time to be co-ordinated with other "dusty instruments" Duration strongly dependent on dust flux (cometary activity, altitude, pointing)
Exposure in standby	Instrument is in standby mode (TM, power) Requires GIADA dust flux data triggers autonomous "terminate exposure" within some time window Pointing requirements same as "exposure"
Terminate exposure	None
Prepare scan	Not possible while approach is in locked position
Line scan	Not possible while approach, linear stage, or scanner are in locked position Requires low level of microvibrations: fast movements of High Gain Antenna should be avoided Sensitivity to microvibrations (from reaction wheels, high gain antenna, and other sources)
Scanning	Not possible while approach, linear stage, or scanner are in locked position Sensitivity to microvibrations (from reaction wheels, high gain antenna, and other sources) Some image processing is part of this mode. Science data are generated in small blocks throughout this mode, or as one block at the end. Duration depends strongly on settings (image size, data acquisition algorithm, etc.) Requires constant temperature of the scanning subsystem, i.e. needs TBD time of constant power consumption and constant TRP temperature before scanning
Image processing	Science data generation Requires raw image data in instrument RAM as input
Calibration	Not possible for approach, linear stage, or XY scanner are while locked position
Exercise piezos	Not possible for linear stage, or XY scanner are while locked position
Hardware self-test	Not possible for approach, linear stage, or XY scanner are while locked position
Telemetry test	Generates dummy science data
Technical	Mode for various check-out operations; constraints depend on actual operation performed.

Table 3.4 Mode-dependent operational constraints overview



3.2.5. Interferences

3.2.5.1. Possible interference sources

By the nature of its methodology Atomic Force Microscopy is extremely sensitive to mechanical noise or any other displacement between sample and sensor. This sensor is able to measure subtle height differences of less than a nanometer while being in very close proximity to the sample surface. Any artificial relative movement will be detected. The design of the instrument includes a passive suspension system that mechanically decouples the scanning stage from the instrument box and spacecraft structure.

Two main sources of mechanical noise can be distinguished on the Rosetta spacecraft. One relates to all spacecraft subsystems which may contain mobile elements either permanently in use or only on random occasions. The other source comprises payload units with either movable parts or permanently spinning elements.

Among the spacecraft subsystems three units of potential concern were identified. These are:

- a) Gyroscope
- b) Reaction wheels
- c) Flip-over mechanism of high gain antenna
- d) Rotation joints of solar panels

The suite of scientific payloads shows three instruments with potential impact on the MIDAS performance. These are:

- a) the cryogenic (sterling) cooler of VIRTIS
- b) the filter wheel of OSIRIS
- c) the sample collection mechanism of COSIMA

The MIDAS instruments exploit a number of different working modes for different tasks. For example the image acquisition mode differs physically from the mode which is commonly used to observe the background mechanical noise. In this specific mode, often referred to as “single point scan”, the sensor is brought in contact with the sample surface. Any deflection of the sensor due to mechanical displacement can be monitored with a sub-nanometer resolution. Frequencies up to 350 Hz can be observed.

3.2.5.2. Description of background noise during image acquisition

Apart from the specifically designed working mode to measure the mechanical noise background a descriptive figure can be deduced from images taken during the initial commissioning phase.

An unambiguous result can be obtained by analysis of the first few test images. The noise environment as seen during this part of the mission is much more benign than expected. The detected noise level is in the order of or possibly below the detection limit of the instrument.

3.2.5.3. Description of background noise during interference campaign I, II and pointing campaign

Midas participated fully the interference campaign part 1 and part 2. In addition MIDAS also took part of the pointing campaign. In this campaign the goal was to observe possible changes of mechanical noise coupled into the spacecraft structure by the reaction wheels while changing velocities.

Overall it can be concluded that apart from one exceptional observation the noise level on board the Rosetta spacecraft is very low. Resonances can be detected at 165 Hz, a band between 200 Hz and 240 Hz, and at 330 Hz. The analysis shows that there are occasional spikes with a height of a few nanometer while on average again the noise level is in the order of or below the detection limit of the instrument. The sporadic higher amplitudes may not be detected in the imaging mode due to a much lower sampling rate. A displacement with the height of such an amplitude between sample and sensor is not considered as destructive for the sensor. It can be concluded that at the time of data acquisition the noise level on board the spacecraft is well within the requires limits and the instrument internal suspension system is working fine.

During interference campaign part 2 one exceptional observation could be made over a period of three subsequent



taken measurements. The duration of each acquisition period is 118 seconds. A signal with a periodicity of 10 seconds could be measured at a frequency of 203 Hz. This signal has the strongest signature during the first interval of data collection and is slowly fading out over the following two data sets. The origin of this interference is clearly external to the instrument, however could not be identified yet.

No other sources of interferences or disturbances like for example electro-magnetic coupling from internal or external sources were detected.

3.2.6. Ground Test Plan

The following tests are defined:

- **Bench Test**
This test verifies the basic functionality of the unit including all standard services, and all mechanisms which are not locked. This test is equivalent to the Limited Functional Test in air.
- **Limited Functional Test**
This test comes in two versions for ambient and vacuum conditions, respectively (different parameter settings are necessary).
- **Unit Functional Test**
This test is performed after electrical and mechanical integration on the spacecraft, and is very similar to the Limited Functional Test and the Bench Test.
- **Integrated System Test**
This test is performed after integration on the spacecraft and checks all functionality of the instrument except the locked mechanisms. It is similar to the Bench Test.
- **Special Performance Test**
This test primarily exercises the opening of the covers by pyro actuators activated by the spacecraft (for EM only).
- **Full Functional Test**
This test performs a comprehensive check of all functionality of the instrument, including scanning. It is performed at instrument level, with all mechanisms being in the unlocked state, for functional tests including qualification testing.
- **Mechanism Release Test**
This test activates all one-shot mechanisms in the instrument to release several launch locks. It is performed at instrument level for functional tests including qualification testing.

3.2.7. Cruise Check-out/Maintenance Plan

All initial commissioning steps except the "full scan tests" as outlined in the plan below are expected to consume less than 10% of the overall duration. The full scan tests constitute the major part of the MIDAS commissioning. It is planned to perform several scans on each of the four calibration facets. The objectives of these tests are manifold:

- Verify the calibration of the scanner in all three axes
- Characterise the performance (shape, dynamic behaviour) one or more tips
- Characterise thermal effects on the scanner. This test requires collecting thermal data throughout the MIDAS commissioning. Also, RPC should be turned on before MIDAS in order to have a characteristic thermal environment (i.e., elevated temperature) during the MIDAS commissioning.

For characterising thermal effects it will be necessary to perform scans at different temperatures, and during time intervals when the temperature changes. Such changes shall be produced by powering on and off other nearby spacecraft systems (if possible) or payload elements, and by performing attitude manoeuvres. The thermal characterisation of MIDAS is therefore related to the pointing campaign.



Scan operations are necessary during all phases of the interference campaign, since the susceptibility of MIDAS is related to scanning operations. The main interference to MIDAS is expected to result from microvibration noise generated in other payload elements or in spacecraft subsystems: reaction wheels, high gain antenna, solar array drive mechanism, Stirling coolers (VIRTIS), shutters (VIRTIS, COSIMA), sample manipulators (COSIMA), and filter wheels (OSIRIS). All potential noise sources shall be turned on and off in a co-ordinated way.

After the verification of the basic performance of the scanner part of the commissioning can be carried out offline. For example, between realtime operations one scan operation shall be scheduled by means of time-tagged commands. The result of this offline operation will then be checked at the following realtime operations session.



Procedure	Name	Duration	Night of	Sequence	Execution	# of TC's
MD-FCP-001	Power ON Midas	0.25	Sat 03/04/04	AMDF001A	MTL	5
MD-FCP-002	Switch to Main Program Mode	0.25	Sat 03/04/04	AMDF002A	MTL	4
PW-FCP-320	Pyro Firing for MIDAS Cover Pyros	1.00	Sat 03/04/04	AMDF002B	MTL	1
				APWF320A	MTL	19
				APWF320B	MTL	19
MD-FCP-010	MIDAS Shutter test	0.25	Sat 03/04/04	AMDF010A	Ground	2
MD-FCP-020	MIDAS Wheel movement	0.50	Sat 03/04/04	AMDF020A	Ground	1
MD-FCP-026	MIDAS Frequency Scan	2.00	Sat 03/04/04	AMDF026A	Ground	1
MD-FCP-006	MIDAS Switch ON/OFF Subsystems	0.25	Sat 03/04/04	AMDF006C	Ground	1
<i>Total of day in hours:</i>		4.50				
CV-FCP-082	MIDAS Unlock XY Stage	1.00	Sun 04/04/04	ACVF082A	Ground	2
				ACVF082B	Ground	2
CV-FCP-083	MIDAS Unlock Baseplate	1.00	Sun 04/04/04	ACVF083A	Ground	2
				ACVF083B	Ground	2
CV-FCP-084	MIDAS Release Approach	0.50	Sun 04/04/04	ACVF084A	Ground	1
MD-FCP-021	MIDAS Approach to maximum position	0.50	Sun 04/04/04	AMDF021A	Ground	1
MD-FCP-022	MIDAS Approach to minimum position	0.50	Sun 04/04/04	AMDF022A	Ground	1
MD-FCP-012	MIDAS linear stage test	0.50	Sun 04/04/04	AMDF012A	Ground	2
MD-FCP-013	MIDAS verification of XYZ Stage	0.50	Sun 04/04/04	AMDF013A	MTL	7
				AMDF013B	Ground	1
<i>Total of day in hours:</i>		4.50				
MD-FCP-020	MIDAS Wheel movement	0.25	Mon 05/04/04	AMDF020A	Ground	1
MD-FCP-025	MIDAS linear stage to absolute position	0.25	Mon 05/04/04	AMDF025A	Ground	1
MD-FCP-026	MIDAS Frequency Scan	0.25	Mon 05/04/04	AMDF026A	Ground	1
MD-FCP-024	MIDAS fine approach	0.75	Mon 05/04/04	AMDF024A	Ground	1
MD-FCP-023	MIDAS Approach to absolute position		Mon 05/04/04	AMDF023A	Ground	1
MD-FCP-026	MIDAS Frequency Scan		Mon 05/04/04	AMDF026A	Ground	1
MD-FCP-024	MIDAS fine approach		Mon 05/04/04	AMDF024A	Ground	1
MD-FCP-035	MIDAS Scan set-up and retract		Mon 05/04/04	AMDF035A	Ground	1
MD-FCP-029	MIDAS Line Scan	2.50	Mon 05/04/04	AMDF029A	Ground	1
MD-FCP-022	MIDAS Approach to minimum position	0.25	Mon 05/04/04	AMDF022A	Ground	1
MD-FCP-006	MIDAS Switch ON/OFF Subsystems	0.25	Mon 05/04/04	AMDF006C	Ground	1
<i>Total of day in hours:</i>		4.50				
MD-FCP-026	MIDAS Frequency Scan	0.25	Tue 06/04/04	AMDF026A	Ground	1
MD-FCP-023	MIDAS Approach to absolute position	0.25	Tue 06/04/04	AMDF023A	Ground	1
MD-FCP-024	MIDAS fine approach	0.50	Tue 06/04/04	AMDF024A	Ground	1
MD-FCP-023	MIDAS Approach to absolute position		Tue 06/04/04	AMDF023A	Ground	1
MD-FCP-026	MIDAS Frequency Scan		Tue 06/04/04	AMDF026A	Ground	1
MD-FCP-024	MIDAS fine approach		Tue 06/04/04	AMDF024A	Ground	1
MD-FCP-035	MIDAS Scan set-up and retract		Tue 06/04/04	AMDF035A	Ground	1
MD-FCP-029	MIDAS Line Scan	1.25	Tue 06/04/04	AMDF029A	Ground	1
MD-FCP-035	MIDAS Scan set-up and retract		Tue 06/04/04	AMDF035A	Ground	1
MD-FCP-028	MIDAS Full Scan	1.75	Tue 06/04/04	AMDF028A	Ground	1
MD-FCP-022	MIDAS Approach to minimum position	0.25	Tue 06/04/04	AMDF022A	Ground	1
MD-FCP-006	MIDAS Switch ON/OFF Subsystems	0.25	Tue 06/04/04	AMDF006C	Ground	1
<i>Total of day in hours:</i>		4.50				
MD-FCP-026	MIDAS Frequency Scan	0.25	Wed 07/04/04	AMDF026A	Ground	1
MD-FCP-023	MIDAS Approach to absolute position	0.25	Wed 07/04/04	AMDF023A	Ground	1
MD-FCP-024	MIDAS fine approach	0.50	Wed 07/04/04	AMDF024A	Ground	1
MD-FCP-035	MIDAS Scan set-up and retract	0.25	Wed 07/04/04	AMDF035A	Ground	1
MD-FCP-030	MIDAS Cantilever high-resolution scan	2.50	Wed 07/04/04	AMDF030A	Ground	1
				AMDF030B	Ground	1
MD-FCP-035	MIDAS Scan set-up and retract		Wed 07/04/04	AMDF035B	Ground	1
MD-FCP-022	MIDAS Approach to minimum position	0.25	Wed 07/04/04	AMDF022A	Ground	1
MD-FCP-025	MIDAS linear stage to absolute position	0.25	Wed 07/04/04	AMDF025A	Ground	1
MD-FCP-003	MIDAS Switch OFF	0.25	Wed 07/04/04	AMDF003A	MTL	8
<i>Total of day in hours:</i>		4.50				
Commissioning total in hours:		22.50				

Overall duration is given in the colored blocks. Single procedures of one block may be repeated.

Most of the sequences have only one telecommand. This sequences can be send via MTL or from ground, whatever is faster.

3.2.8. Flight Operations Plan for Cruise Phases

In the cruise phases the piezo-electric elements shall be exercised at least 2 times per year.



MIDAS Plan for Cruise Phases			
Step No.	Time (relative to event)	Activity	Procedure Number
10	TBD	Power-On test	MD_FCP_001
20	TBD	Switch to main prog. mode	MD_FCP_002
30	TBD	Shutter test	MD_FCP_010
40	TBD	Wheel movement	MD_FCP_020
50	TBD	Frequency scan	MD_FCP_026
60	TBD	Linear stage test	MD_FCP_012
70	TBD	Approach test	MD_FCP_021 MD_FCP_022
80	TBD	Activation of XYZ stage	MD_FCP_013
90	TBD	Program upload	MD_FCP_005
100	TBD	TBD	TBD

3.2.9. Flight Operations Plan for Mars and Earth Flybys

Mars and Earth Flybys shall be used for a check-out of the instrument including test scans (with near-realtime ground contact), to exercise the piezo-electric elements, and for program uploads.

MIDAS Plan for Mars and Earth Flybys			
Step No.	Time (relative to event)	Activity	Procedure Number
10	TBD	Power-On test	MD_FCP_001
20	TBD	Switch to main prog. mode	MD_FCP_002
30	TBD	Shutter test	MD_FCP_010
40	TBD	Wheel movement	MD_FCP_020
50	TBD	Frequency scan	MD_FCP_026
60	TBD	Linear stage test	MD_FCP_012
70	TBD	Approach test	MD_FCP_021 MD_FCP_022
80	TBD	Activation of XYZ stage	MD_FCP_013
90	TBD	Line scan	MD_FCP_029
100	TBD	Full scan	MD_FCP_028
110	TBD	Program upload	MD_FCP_005
120	TBD	TBD	TBD

3.2.10. Flight Operations Plan for Asteroid Flybys

Asteroid Flybys shall be used for a check-out of the instrument including test scans, and to exercise the piezo-electric elements, and possibly for more program uploads. During the flyby phase the shutter shall be open. The probability that a dust particle hits the target surface is very low, but if this happens the huge impact speed would create a sizable crater which could easily be detected by the instrument. Therefore, after the flyby, a small number of test scans of the exposed surface shall be performed. With a typical scan duration of several hours the overall duration of the scanning activity is a few days. The difference to operations in the cometary orbit phase lies in the expected signatures of dust particles on the target caused by the high impact velocity. Also the difference in particle flux and distribution will be taken into account, particularly for the exposure times.



MIDAS Plan for Asteroid Flybys			
Step No.	Time (relative to event)	Activity	Procedure Number
10	TBD	Power-On test	MD_FCP_001
20	TBD	Switch to main prog. mode	MD_FCP_002
30	TBD	Shutter test	MD_FCP_010
40	TBD	Wheel movement	MD_FCP_020
50	TBD	Frequency scan	MD_FCP_026
60	TBD	Linear stage test	MD_FCP_012
70	TBD	Approach test	MD_FCP_021 MD_FCP_022
80	TBD	Activation of XYZ stage	MD_FCP_013
90	TBD	Line scan	MD_FCP_029
100	TBD	Full scan	MD_FCP_028
110	TBD	Start exposure	MD_FCP_031
120	TBD	Stop exposure	MD_FCP_032
130	TBD	TBD	TBD

3.2.11. Flight Operations Plan in Cometary Orbit

Exposure, scanning, image processing and calibration is performed in a complex pattern throughout this mission phase. The actual operational profile depends on the time relationship between exposure times, scan times and image processing times. All of these parameters are related to the dust flux. It is expected that the probably rather low dust flux values at the beginning of this mission phase will lead to long exposure times. Thereby the scan and processing times will be large as well. With increasing activity of the comet the exposure times will become shorter on average, but still depending very much on the orbit (distance to the comet).

3.3 Failure Detection and Recovery Strategy

3.3.1. Experiment Interface Failure Analysis

TBD

4. Mode descriptions

4.1 Mode transition table

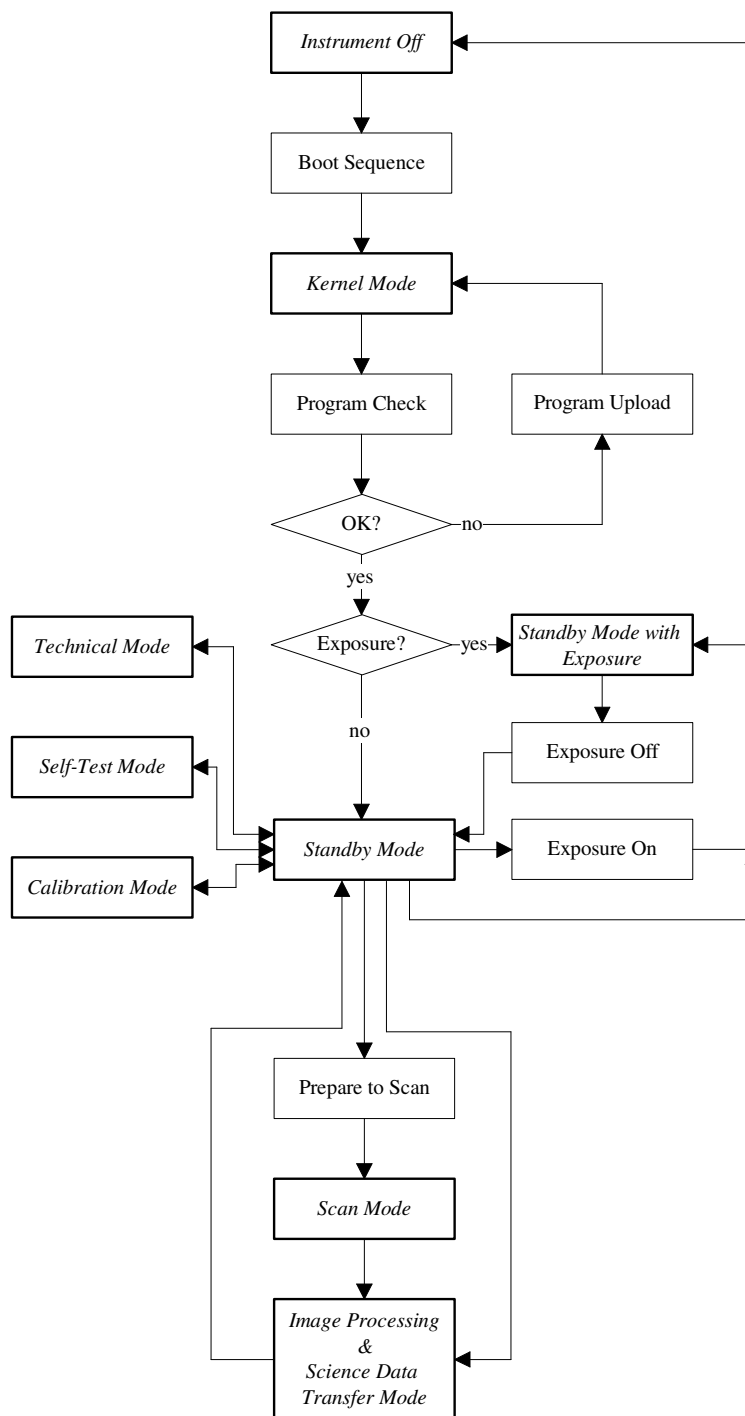


Fig. 4.1 Mode Transition Diagram



4.2 Detailed Mode descriptions

4.2.1. Mode Definitions

Operating modes are grouped into two levels:

- Level 1 (high level mode commands; examples: scan one area, process one image)
- Level 2 (single mechanism activation or single S/W task; example: facet selection, background subtraction)

The further characterisation of the instrument state is made by parameters describing the modes. In technical mode (=level 1 mode) the level 2 modes are controlled by commands which activate the instrument on detailed level.

Level 1 Modes

- Kernel
- Standby
- Scan
- Processing and science data transfer
- Prepare passive exposure
- Terminate passive exposure
- Standby with exposure (prepare exposure, then standby + open shutter + listening to broadcast packets, then terminate)
- Self-test (predefined sequences, parameters define which mechanisms are included in the test)
- Technical

Examples for Level 2 Modes

- Baseplate unlock
- Wheel rotation
- Linear movement
- Shutter operation
- Prepare scan
- Line scan
- Full scan
- Image processing
- Software patch
- Full upload



Experiment Mode	Power Usage (W)	Data Rate (kbit/s)	Functional Use
Kernel	8.3	0.005	
Standby	8.3	0.005	
Scan	18.4	0.01	
Processing and Science Data Transfer	8.3	0.2	
Prepare Passive Exposure	10.2	0.01	
Terminate Passive Exposure	10.2	0.01	
Standby With Exposure	8.3 (- 12.0)	0.005	
Self-test	18.4	0.2	
CSSC Calibration	18.4	0.2	
Technical	8.3 - 18.4	0.005 - 0.2	Ground use and contingencies only
Baseplate Unlock	18.5	0.01	
Other Level 2 Modes with Mechanisms	12.0 - 18.4	0.01	

Table 4.1 Mode Definitions



5. Operational Procedures

5.1 Ground Test Sequences

MIDAS I&T Procedure:

"MIDAS I&T – UFT PROCEDURE FOR EM/EQM", RO-ALS-PR-4047, Issue 2, 31.08.2000.

MIDAS UFT Procedure:

"MIDAS I&T – UFT PROCEDURE FOR EM/EQM", RO-ALS-PR-4047, Issue 2, 31.08.2000.

5.2 On-Board Control Procedures

On-Board Control Procedures (OBCP) Summary		MIDAS	
OBCP Name	Function	Usage (Nominal/Contingency)	
PL_OBCP_5_MD.1 MIDAS Power On	Switch ON the MIDAS instrument and to configure it into a stable operational mode.	N	
PL_OBCP_5_MD.2 MIDAS Power Off	Turn OFF the MIDAS instrument.	N	
PL_OBCP_5_MD.3 MIDAS Power On Alternative	Deleted. This is now an option to the procedure PL_OBCP_5_MD.1	C	

Table 5.1 On-Board Control Procedures

5.3 Flight Control Procedures

MD_FCP_001		Power-On Midas		
Procedure Objective: This procedure is used to start up Midas and set the instrument into kernel mode.				
Procedure Execution pre-conditions/constraints: Midas switched off				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Power on Midas LCL	ZPWMA019	
2		Verify LCL status		NPWDA112 = On NPWDA548 = 0.1-0.5 A
2		Verify kernel hello event received	YMDEV199	NMDA0EID = 42699
3		Send time update	ZDM01400	FDM30014 = 225 sec FDM30015 = 67
4		Verify receipt of standard HK report (5 packets every 16 seconds, then 1 packet every 120 seconds)	YMDHK001	NMDA0SID = 1



MD_FCP_002		Switch Midas to main program mode		
Procedure Objective: This procedure switches Midas to the main program mode with increased housekeeping generation periods.				
Procedure Execution pre-conditions/constraints: Midas in kernel mode				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Switch Midas to main program mode	ZMD19803	
2		Verify receipt of main prog. hello event	YMDEV198	NMDA0EID = 42698
3		Verify main program active flag ^{*)}	YMDHK001	NMDD0019 = 1
4		Enable telecommand echo	ZMD20609	
5		Verify TC echo enabled flag ^{*)}	YMDHK001	NMDD0016 = 1
6		Enable extended HK report	ZMD00305	PMDGSSID = 2
7		Verify receipt of extended HK report (8 seconds data rate)	YMDHK002	NMDA0SID = 2
8		Enable science	ZMD02001	PMDDPID1 = 67
9		Verify command execution	YMDHK002	NMDA0342 = 1
10		Modify standard HK report cycle	ZMD19204	PMDD0042 = hk1 (default = 4 secs)
11		Verify command execution	YMDHK002	NMDA0138 = hk1
12		Modify extended HK report cycle	ZMD19205	PMDD0052 = hk2 (default = 8 secs)
13		Verify command execution	YMDHK002	NMDA0138 = hk2

*) this might take up to 2 minutes which is the standard HK data rate after startup

MD_FCP_003		Power-Off Midas		
Procedure Objective: This procedure is used to switch off Midas.				
Procedure Execution pre-conditions/constraints: Midas in main program mode				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Switch off power relays	ZMD21701	
2		Verify command execution	YMDHK002	NMDA0138 = 0x870D NMDA0187 = 0
3		Disable telecommand echo	ZMD20610	
4		Verify command execution	YMDHK001	NMDD0016 = 0
5		Switch off MIDAS LCL	ZPWMA020	
6		Verify LCL status		NPWDA112 = Off



MD_FCP_004		Technical mode operations		
Procedure Objective: This procedure is used to perform low level operations.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Execute technical mode command	ZMD25401	PMDGTM01 = ... PMDGTM02 = ... PMDGTM03 = ... PMDGTM04 = ... PMDGTM05 = ... PMDGTM06 = ... PMDGTM07 = ... PMDGTM08 = ... PMDGTM09 = ... PMDGTM10 = ... PMDGTM11 = ... PMDGTM12 = ... PMDGTM13 = ... PMDGTM14 = ... PMDGTM15 = ... PMDGTM16 = ... PMDGTM17 = ... PMDGTM18 = ... PMDGTM19 = ... PMDGTM20 = ...
4		Verify command execution	YMDHK002	NMDA0250 = 1
5		Verify command has finished	YMDHK002	NMDA0250 = 0



MD_FCP_005		Software patching		
Procedure Objective: This procedure is used for instrument software uploads.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Midas in main program mode ? Yes -> Step 3, No -> Step 8	YMDHK001	NMDD0019 = 1
3		Disable telecommand echo	ZMD20610	
4		Verify command execution	YMDHK001	NMDD0016 = 0
5		Switch to kernel mode	ZMD19804	
6		Verify receipt of kernel hello event	YMDEV199	NMDA0EID=42699
7		Verify command execution	YMDHK001	NMDD0019 = 0
8		Upload software to RAM		
9		Software upload correct ? Yes -> Step 12, No -> Step 10		
10		Debug program upload (MD-CRP-003)		
11		Goto End		
12		Write enable EEPROM	ZMD19808	
13		Copy Ram content to EEPROM	ZMD19806	
14		Write disable EEPROM	ZMD19809	
15		Switch to main program (MD-FCP-002)		



MD_FCP_006		Switch on/off individual subsystems		
Procedure Objective: This procedure is used to				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Send power switch command	ZMD21702	PMDD7002 = par1* PMDD7022 = par2* PMDD7042 = par3* PMDD7062 = par4* PMDD7082 = par5* PMDD70A2 = par6* PMDD70C2 = par7* PMDD70E2 = par8* PMDD7102 = par9* PMDD7122 = par10*
4		Verify command execution	YMDHK002	NMDD1870 = par1 NMDD1871 = par2 NMDD1872 = par3 NMDD1873 = par4 NMDD1874 = par5 NMDD1875 = par6 NMDD1876 = par7 NMDD1877 = par8 NMDD1878 = par10 NMDD1879 = par9



MD_FCP_007		Science data management		
Procedure Objective: This procedure is used to transfer or clear science data sets.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Select dataset	ZMD19448	PMDD2302 = set
4		Verify command execution	YMDHK002	NMDA0138 = 0x0230 NMDA0183 = set NMDAxxxx = set
5		Transfer or clear dataset ? Transfer -> Step 6, Clear -> Step 11		
6		Request science data	ZMD19450	
7		Verify command execution	YMDHK002	NMDA0138 = 0x8232
8		Verify receipt of image header packet	YMDSC001	NMDA0SID = 129
9		Verify receipt of image data packet(s)	YMDSC001	NMDA0SID = 130
10		Goto End		
11		Clear data set	ZMD19449	
12		Verify command execution	YMDHK002	NMDA0138 = 0x8231



MD_FCP_008		Image data processing		
Procedure Objective: This procedure is used to post-process images taken by the instrument (e.g. plane correction, feature vector calculation, ...)				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Get feature vectors	ZMD22001	PMDDE152 = mode PMDDE162 = level PMDDE172 = x-margin PMDDE182 = y-margin PMDDE1A2 = n-points PMDDE1B2 = avg-z PMDDE1C2 = ratio PMDDE1D2 = z-factor
4		Verify command execution	YMDHK002	NMDA0138 = 0x8E19 NMDA0332 = mode NMDA0333 = level NMDA0335 = x-margin NMDA0336 = y-margin NMDA0338 = n-points NMDA0339 = avg-z NMDA0340 = ratio NMDA0341 = z-factor
5		Verify receipt of EvFeatureStarted event	YMDEV172	NMDA0EID = 42672
6		Verify feature vector status	YMDHK002	NMDA0337
7		Verify receipt of EvFeatureFinished event	YMDEV173	NMDA0EID = 42673
8		Verify receipt of feature vector packets	YMDSC001	NMDA0DID = 134



MD_FCP_010		Execute shutter test		
Procedure Objective: This procedure is used to test the shutter movement as well as the shutter position switches.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Open shutter	ZMD21201	PMDD4002 = 147 us
4		Verify command execution	YMDHK002	NMDA0138 = 0x8500
5		Verify shutter open started event receipt	YMDEV051	NMDA0EID = 42551
6		Verify shutter open event receipt	YMDEV053	NMDA0EID = 42553
7		Verify shutter open position switch	YMDHK001	NMDD013B = 1
8		Close shutter	ZMD212S5	PMDD4002 = 147 us
9		Verify command execution	YMDHK002	NMDA0138 = 0x8501
10		Verify shutter close started event receipt	YMDEV052	NMDA0EID = 42552
11		Verify shutter closed event receipt	YMDEV054	NMDA0EID = 42554
12		Verify shutter closed position switch	YMDHK001	NMDD013C = 1

MD_FCP_011		Telemetry test		
Procedure Objective: This procedure is used to execute a dummy scan and verify the science data transfer.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Perform dummy scan	ZMD230S5	PMDD2032 = 256 PMDD2042 = 256 PMDD21F2 = 1 PMDD2332 = 1
4		Verify receipt of scan started event	YMDEV011	NMDA0EID = 42511
5		Verify receipt of 64 scan progress events	YMDEV012	NMDA0EID = 42512
6		Verify receipt of scan finished event	YMDEV013	NMDA0EID = 42513
7		Verify receipt of image header packet	YMDSC001	NMDA0DID = 129
8		Verify receipt of 64 image data packets	YMDSC001	NMDA0DID = 130



MD_FCP_012		Linear stage test		
Procedure Objective: Verifies the linear stage mechanism and the linear stage position switches.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Move linear stage to maximum position	ZMD24002	PMDD4002 = 189 us
4		Verify command execution	YMDHK002	NMDA0138 = 0x810C
5		Verify receipt of LinToMaxStart event	YMDEV154	NMDA0EID = 42654
6		Verify receipt of LinOnMaxPos event	YMDEV133	NMDA0EID = 42633
7		Verify linear stage on max. pos. switch	YMDHK001	NMDD0136 = 1
8		Move linear stage to minimum position	ZMD24003	PMDD4002 = 189 us
9		Verify command execution	YMDHK002	NMDA0138 = 0x810B
10		Verify receipt of LinToMinStart event	YMDEV153	NMDA0EID = 42653
11		Verify receipt of LinOnMin event	YMDEV132	NMDA0EID = 42632
12		Verify linear stage on min. pos. switch	YMDHK001	NMDD0135 = 1



MD_FCP_013		Verification of XYZ stage		
Procedure Objective: This procedure is used to operate the XY stage piezo to compensate for aging effects.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		X/Y/Z verification setup	ZMD25401	see RO-ESC-PL-5000
4		Verify command execution	YMDHK002	NMDA0138 = 0x8710
5		Increment X control	ZMD25401	see RO-ESC-PL-5000
6		Verify command execution	YMDHK002	NMDA0138 = 0x0F01
7		Decrement X control	ZMD25401	see RO-ESC-PL-5000
8		Verify command execution	YMDHK002	NMDA0138 = 0x0F01
9		Increment Y control	ZMD25401	see RO-ESC-PL-5000
10		Verify command execution	YMDHK002	NMDA0138 = 0x0F01
11		Decrement Y control	ZMD25401	see RO-ESC-PL-5000
12		Verify command execution	YMDHK002	NMDA0138 = 0x0F01
13		Increment Z control	ZMD25401	see RO-ESC-PL-5000
14		Verify command execution	YMDHK002	NMDA0138 = 0x0F01
15		Decrement Z control	ZMD25401	see RO-ESC-PL-5000
16		Verify command execution	YMDHK002	NMDA0138 = 0x0F01
17		End of verification	ZMD25401	see RO-ESC-PL-5000
18		Verify command execution	YMDHK002	NMDA0138 = 0x880B

MD_FCP_018		Linear stage to maximum position		
Procedure Objective: This procedure is used to move the linear stage to the maximum position.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Move linear stage to maximum position	ZMD24002	PMDD4002 = 189 us PMDD10D2 = 240 s
4		Verify command execution	YMDHK002	NMDA0138 = 0x810C
5		Verify receipt of LinToMaxStart event	YMDEV154	NMDA0EID = 42654
6		Verify receipt of LinOnMaxPos event	YMDEV133	NMDA0EID = 42633
7		Verify linear stage on max. pos. switch	YMDHK001	NMDD0136 = 1



MD_FCP_019		Linear stage to minimum position		
Procedure Objective: This procedure is used to move the linear stage to the minimum position.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Move linear stage to minimum position	ZMD24003	PMDD4002 = 189 us PMDD10D2 = 240 s
4		Verify command execution	YMDHK002	NMDA0138 = 0x810B
5		Verify receipt of LinToMinStart event	YMDEV153	NMDA0EID = 42653
6		Verify receipt of LinOnMin event	YMDEV132	NMDA0EID = 42632
7		Verify linear stage on min. pos. switch	YMDHK001	NMDD0135 = 1

MD_FCP_020		Wheel movement		
Procedure Objective: This procedure is used to move the wheel.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Move wheel to segment	ZMD20901	PMDD4002 = pwidth PMDD1082 = delay PMDD4032 = segment
4		Verify command execution	YMDHK002	NMDA0186 = 1
5		Verify receipt of SrchForRefPulse event	YMDEV091	NMDA0EID = 42591
4		Verify segment found event receipt	YMDEV092	NMDA0EID = 42592
5		Verify segment found HK parameter	YMDHK002	NMDA0195 = 1



MD_FCP_021		Move approach to maximum position		
Procedure Objective: This procedure is used to move the approach to the maximum position.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Move approach to maximum position	ZMD24001	PMDD1062 = 4000 us PMDD1132 = 40 ms PMDD1162 = 0.03 V PMDD1172 = 25 PMDD1182 = 3 PMDD1142 = -6.0 V
4		Verify receipt of approach movement started event	YMDEV162	NMDA0EID = 42662
5		Verify receipt of approach on maximum position event	YMDEV122	NMDA0EID = 42622
6		Verify approach on maximum position HK parameter	YMDHK001	NMDD0133 = 1

MD_FCP_022		Move approach to minimum position		
Procedure Objective: This procedure is used to move the approach to the minimum position.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Move approach to minimum position	ZMD240S5	PMDD1062 = 4000 us PMDD1132 = 40 ms PMDD1162 = 0.03 V PMDD1172 = 25 PMDD1182 = 3 PMDD1142 = 6.0 V
4		Verify receipt of approach movement started event	YMDEV161	NMDA0EID = 42661
5		Verify receipt of approach on minimum position event	YMDEV121	NMDA0EID = 42621
6		Verify approach on minimum position HK parameter	YMDHK001	NMDD0134 = 1



MD_FCP_023		Move approach to absolute position		
Procedure Objective: This procedure is used to				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Move approach to absolute position	ZMD21304	PMDD1062 = 4000 us PMDD1132 = 40 ms PMDD1162 = 0.03 V PMDD1172 = 25 PMDD1182 = 3 PMDD1152 = 6.0 V PMDD1142 = -6.0 V PMDD10E2 = pos
4		Verify receipt of AbsApprStarted event	YMDEV174	NMDA0EID = 42674
5		Verify telemetry parameters	YMDHK002	NMDA0238 = 1 NMDA0120 = 0
6		Wait for event AbsAppPosReached	YMDEV124	NMDA0EID = 42624
7		Verify telemetry	YMDHK002	NMDA0238 = 0 NMDA0120 = 1 NMDA0295 = pos



MD_FCP_024		Perform fine approach		
Procedure Objective: This procedure is used to				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Start approach to surface	ZMD21301	PMDD1062 = 4000 us PMDD1132 = 40 ms PMDD1162 = 0.03 V PMDD1172 = 25 PMDD1182 = 3 PMDD1152 = 6.0 V PMDD1142 = -6.0 V PMDD80F2 = 1040 PMDD2072 = 1 PMDD2342 = 0 PMDD1192 = 0.1 V PMDD1102 = ON* PMDD1122 = 0.04 V
4		Verify receipt of ApproachStarted event	YMDEV162	NMDA0EID = 42662
5		Verify telemetry	YMDHK002	NMDA0124 = 1
6		Verify receipt of SurfaceFound event	YMDEV123	NMDA0EID = 42623
7		Verify telemetry	YMDHK002	NMDA0308 = 1
8		Verify receipt of ApproachFinished event	YMDEV164	NMDA0EID = 42664
9		Verify telelmetry	YMDHK002	NMDA0120 = 1



MD_FCP_025		Move linear stage to absolute position		
Procedure Objective: This procedure is used to				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Move linear stage to absolute	ZMD211S5	PMDD4002 = 189 us PMDD10D2 = 240 s PMDD1072 = pos
4		Verify command execution	YMDHK002	NMDA0138 = 0x8102
5		Verify receipt of LinToAbsStarted event	YMDEV152	NMDA0EID = 42652
6		Verify telemetry	YMDHK002	NMDA0162 = 1 NMDA0163 = 0
7		Verify receipt of LinPosReached event	YMDEV131	NMDA0EID = 42631
8		Verify telemetry	YMDHK002	NMDA0162 = 0 NMDA0163 = 1



MD_FCP_026		Perform automatic frequency scan		
Procedure Objective: Frequency generator and cantilever test.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Start frequency scan	ZMD20801	PMDDC002 = block PMDDC102 = cantilever PMDD7082 = power_1 PMDD70A2 = power_2 PMDD20C2 = ac_gain PMDD20E2 = exc_lev PMDD30B2 = f_high PMDD30C2 = f_low PMDD3022 = f_step PMDD3082 = f_step_hi PMDD3072 = n_scans PMDD30A2 = op_ampl PMDD2082 = op_perc PMDD20F2 = delta_op PMDD3092 = search_alg PMDD30E2 = thres_det
4		Verify receipt of frequency scan finished event	YMDEV145	NMDA0EID = 42645
5		Verify frequency scan started HK parameter	YMDHK002	NMDA0154 = 1
6		Verify receipt of frequency scan progress events (PMDD3072 times)	YMDEV143	NMDA0EID = 42643
7		Verify receipt of frequency scan science data packets (PMDD3072 times)	YMDSC001	NMDA0DID = 131
8		Verify receipt of frequency scan finished event	YMDEV145	NMDA0EID = 42645
9		Verify frequency scan finished HK parameter	YMDHK002	NMDA0155 = 1



MD_FCP_027		Perform single frequency scan		
Procedure Objective: Performs a single frequency sweep.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Start single frequency scan	ZMD20802	PMDDC002 = block PMDDC102 = cantilever PMDD7082 = power_1 PMDD70A2 = power_2 PMDD20C2 = ac_gain PMDD20E2 = exc_lev PMDD3022 = f_step PMDD30B2 = f_high PMDD30C2 = f_low
4		Verify receipt of event FscanStarted	YMDEV141	NMDA0EID = 42641
5		Verify telemetry	YMDHK002	NMDA0154 = 1 NMDA0155 = 0
6		Verify receipt of event FscanFinished	YMDEV144	NMDA0EID = 42644
7		Verify telemetry	YMDHK002	NMDA0154 = 0 NMDA0155 = 1



MD_FCP_028		Perform full image scan		
Procedure Objective: This procedure is used to make an image scan.				
Procedure Execution pre-conditions/constraints: Fine approach (MD-FCP-024) has been executed successfully				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Start real image scan	ZMD214S5	PMDD7002 = cssc_pwr PMDD7122 = zstr_pwr PMDD3042 = f_synth PMDD8002 = x_loop PMDD8022 = y_loop PMDD8042 = z_loop PMDD2142 = main_dir PMDD21A2 = x_scn_dir PMDD21C2 = y_scn_dir PMDD2162 = scn_mode PMDD2342 = scn_algor PMDD21F2 = data_type PMDD2332 = tx_mode
4		Verify command execution	YMDHK002	NMDA0138 = 0x820A
5		Verify receipt of event FullScnStarted	YMDEV156	NMDA0EID = 42656
6		Verify telemetry	YMDHK002	NMDA0158 = 1 NMDA0312 = 1
7		Verify receipt of event ScnFinished	YMDEV013	NMDA0EID = 42513
8		Verify telemetry	YMDHK002	NMDA0158 = 0 NMDA0312 = 0
9		Verify image data (tx_mode = 1)	YMDSC001	NMDA0DID = 129,130



MD_FCP_029		Perform line scan		
Procedure Objective: This procedure is used to make a line scan.				
Procedure Execution pre-conditions/constraints: Fine approach (MD-FCP-024) has been executed successfully				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Start line scan	ZMD21401	PMDD7002 = cssc_pwr PMDD7122 = zstr_pwr PMDD3042 = f_synth PMDD8002 = x_loop PMDD8022 = y_loop PMDD8042 = z_loop PMDD2142 = main_dir PMDD21A2 = x_scn_dir PMDD21C2 = y_scn_dir PMDD2162 = scn_mode PMDD2342 = scn_algor PMDD21F2 = data_type PMDD2332 = tx_mode
4		Verify command execution	YMDHK002	NMDA0138 = 0x8209
5		Verify receipt of event LineScnStarted	YMDEV155	NMDA0EID = 42655
6		Verify telemetry	YMDHK002	NMDA0168 = 1 NMDA0312 = 1
7		Verify receipt of event ScnFinished	YMDEV111	NMDA0EID = 42611
8		Verify telemetry	YMDHK002	NMDA0167 = 1 NMDA0312 = 0



MD_FCP_030		High resolution cantilever scan		
Procedure Objective: This procedure is used to measure the cantilever signals with a data rate of up to 700 Hz.				
Procedure Execution pre-conditions/constraints: Fine approach (MD-FCP-024) has been executed successfully				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Start single point DAQ	ZMD21402	PMDD7002 = cssc_pwr PMDD7122 = zstr_pwr PMDD3042 = f_synth PMDD8002 = x_loop PMDD8022 = y_loop PMDD8042 = z_loop PMDD2102 = cycles PMDD2162 = scn_mode
4		Verify command execution	YMDHK002	NMDA0138 = 0x8200
5		Verify telemetry	YMDHK002	
6		Start high-resolution DAQ	ZMD21403	PMDD2402 = time PMDD2412 = n_pkts
7		Verify command execution	YMDHK002	NMDA0138 = 0x8242
8		Verify telemetry	YMDHK002	NMDA0312 = 1 NMDA0314 = 1
9		Verify receipt of PMDD2412 science packets	YMDSC001	NMDA0DID = 133
10		Verify telemetry		NMDA0312 = 0 NMDA0314 = 0



MD_FCP_031		Open shutter		
Procedure Objective: This procedure is used to open the shutter for exposure.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Verify shutter closed position switch	YMDHK002	NMDD013C = 1
4		Verify shutter open position switch	YMDHK002	NMDD013B = 0
5		Send open shutter command	ZMD21201	PMDD4002 = 147 us
6		Verify command execution	YMDHK002	NMDA0138 = 0x8500
7		Verify ShtOpenStarted parameter	YMDHK002	NMDA0200 = 1
8		Verify receipt of ShutOpenStarted event	YMDEV051	NMDA0EID = 42551
9		Verify receipt of ShutOpened event	YMDEV053	NMDA0EID = 42553
10		Verify shutter closed position switch	YMDHK002	NMDD013C = 0
11		Verify shutter open position switch	YMDHK002	NMDD013B = 1
12		Verify ShtOpenStarted parameter	YMDHK002	NMDA0200 = 0

MD_FCP_032		Close shutter		
Procedure Objective: This procedure is used to close the shutter after exposure.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Verify shutter closed position switch	YMDHK002	NMDD013C = 0
4		Verify shutter open position switch	YMDHK002	NMDD013B = 1
5		Send close shutter command	ZMD212S5	PMDD4002 = 147 us
6		Verify command execution	YMDHK002	NMDA0138 = 0x8501
7		Verify ShtCloseStarted parameter	YMDHK002	NMDA0199 = 1
8		Verify receipt of ShutCloseStarted event	YMDEV052	NMDA0EID = 42552
9		Verify receipt of ShutClosed event	YMDEV054	NMDA0EID = 42554
10		Verify shutter closed position switch	YMDHK002	NMDD013C = 1
11		Verify shutter open position switch	YMDHK002	NMDD013B = 0
12		Verify ShtCloseStarted parameter	YMDHK002	NMDA0199 = 0



MD_FCP_033		CSSC calibration		
Procedure Objective: This procedure is used to calibrate the CSSC X and Y sensor.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Sensor to calibrate? X sensor -> Step 4, Y sensor -> Step		
4		Send calibrate X sensor command	ZMD21501	PMDDA082 = 0.0005 V PMDDA092 = -0.2647 V PMDDA0A2 = -5.2897 V PMDDA0D2 = 1 PMDDA0E2 = 1 PMDDA0F2 = 100
5		Verify command execution	YMDHK002	NMDA0138 = 0x8A00
6		Verify successful X sensor calibration	YMDHK002	NMDA0131 = 1
7		Verify X sensor control set values	YMDHK002	0 <= NMDA0255 <= 4095 0 <= NMDA0257 <= 4095
8		Goto End		
9		Send calibrate Y sensor command	ZMD215S5	PMDDA082 = 0.0005 V PMDDA0B2 = -0.5137 V PMDDA0C2 = -5.3190 V PMDDA0D2 = 1 PMDDA0E2 = 1 PMDDA0F2 = 100
10		Verify command execution	YMDHK002	NMDA0138 = 0x8A01
11		Verify successful Y sensor calibration	YMDHK002	NMDA0133 = 1
12		Verify Y sensor control set values	YMDHK002	0 <= NMDA0256 <= 4095 0 <= NMDA0258 <= 4095



MD_FCP_034		Instrument setup		
Procedure Objective: This procedure is used to set general instrument parameters.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Set instrument parameters	ZMD23001	PMDD20D2 = dc_gain PMDD2102 = ns_cycles PMDD2112 = n_cycles PMDD8062 = x_gain PMDD8072 = y_gain PMDD8082 = x_offset PMDD2092 = y_offset PMDD2122 = cssc_ena PMDDE112 = hk_par_1 PMDDE122 = hk_par_2 PMDDE132 = hk_par_3 PMDDE142 = hk_par_4
4		Verify telemetry		NMDA0142 = dc_gain NMDA0174 = ns_cycles NMDA0175 = n_cycles NMDA0255 = x_gain NMDA0256 = y_gain NMDA0257 = x_offset NMDA0258 = y_offset NMDA0134 = cssc_ena NMDA0324 = hk_par_1 NMDA0325 = hk_par_2 NMDA0326 = hk_par_3 NMDA0327 = hk_par_4



MD_FCP_035		Scan setup and retract		
Procedure Objective: This procedure is used to set general instrument parameters.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
AMDF035A		Scan setup		
3		Set scan parameters	ZMD23002	PMDD2012 = x_origin PMDD2022 = y_origin PMDD2032 = x_pixel PMDD2042 = y_pixel PMDD2052 = x_step PMDD2062 = y_step PMDD2352 = pctrl_perc PMDD2362 = pctrl_kc PMDD2382 = ctrl_ena PMDD23C2 = dc_thres PMDD23D2 = delta_dc PMDD23E2 = f_adjust PMDD2172 = z_retract PMDD2182 = zm_retract PMDD23A2 = z_settle PMDD23B2 = xy_settle PMDD2192 = z_step
4		Verify telemetry		NMDA0218 = x_origin NMDA0228 = y_origin NMDA0219 = x_pixel NMDA0230 = y_pixel NMDA0221 = x_step NMDA0227 = y_step NMDA0263 = pctrl_perc NMDA0264 = pctrl_kc NMDA0285 = dc_thres NMDA0299 = delta_dc NMDA0289 = f_adjust NMDA0188 = z_retract NMDA0173 = zm_retract NMDA0270 = z_settle NMDA0271 = xy_settle NMDA0231 = z_step



AMDF035B		Scan retract		
5		Retract from surface	ZMD21404	PMDD80C2 = dac_x PMDD80D2 = dac_y PMDD80E2 = dac_z PMDD2102 = ns_cycles PMDD2162 = scn_mode PMDD3042 = f_synth PMDD80A2 = zout_ena
6		Verify telemetry		NMDA0267 = dac_x NMDA0268 = dac_y NMDA0269 = dac_z NMDA0174 = ns_cycles NMDA0189 = scn_mode NMDD0169 = f_synth NMDD0140 = zout_ena

MD_FCP_040		Switch ON via OBCP		
Procedure Objective: This procedure is used to switch on Midas by using an OBCP.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify Midas OFF status		NPWDA112 = Off NPWDA232 = Off
2		Start Midas Power-On OBCP	ZSKA8061	
3		Verify LCL status		NPWDA112 = On or NPWDA232 = On
4		Verify receipt of kernel hello event (only if NPWDA112 = On)	YMDEV199	NMDA0EID = 42699
5		Verify receipt of main prog. hello event	YMDEV198	NMDA0EID = 42698
6		Verify context upload		

MD_FCP_041		Switch OFF via OBCP (TBC)		
Procedure Objective: This procedure is used to switch off Midas by using an OBCP.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify Midas ON status		NPWDA112 = On or NPWDA232 = On
2		Start Midas Power-Off OBCP	ZSKA8062	
3		Verify context download		
4		Verify LCL status		NPWDA112 = Off NPWDA232 = Off



CV_FCP_081		Open protection cap		
Procedure Objective: This procedure is used to open the cover.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Fire main protection cap pyro	external	
2		Verify protection cap status Open (1) -> End, Closed (0) -> Step 3	YMDHK001	NMDD0131 = 0 or 1
3		Fire redundant protection cap pyro	external	
4		Verify protection cap status	YMDHK001	NMDD0131 = 0 or 1

CV_FCP_082		Unlock XY stage		
Procedure Objective: Firing of SMAs to unlock the XY stage.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Open main X actuator	ZMD21803	
2		Verify X lock position switch	YMDHK001	NMDD0139 = status
if X direction is still locked (status = 1)				
3		Open redundant X actuator	ZMD218S5	
4		Verify X lock position switch	YMDHK001	NMDD0139 = status
5		Open main Y actuator	ZMD21802	
6		Verify Y lock position switch	YMDHK001	NMDD013A = status
if Y direction is still locked (status = 1)				
7		Open redundant Y actuator	ZMD21801	
8		Verify Y lock position switch	YMDHK001	NMDD013A = status



CV_FCP_083		Unlock base plate		
Procedure Objective: Activates the paraffin actuators to release the AFM base plate.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Open main paraffin actuator 1	ZMD21004	
2		Verify main actuator 1 position switch	YMDHK001	NMDD0137 = status
if actuator 1 is still locked (status = 0)				
3		Open redundant paraffin actuator 1	ZMD21003	
4		Verify redundant actuator 1 position switch	YMDHK001	NMDD0137 = status
5		Open main paraffin actuator 2	ZMD21002	
6		Verify main actuator 2 position switch	YMDHK001	NMDD0138 = status
if actuator 2 is still locked (status = 0)				
7		Open redundant paraffin actuator 2	ZMD21001	
8		Verify redundant actuator 2 position switch	YMDHK001	NMDD0138 = status

CV_FCP_084		Release approach		
Procedure Objective: This test is used to release the approach from the launch lock position.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Move approach to minimum position	ZMD240S5	PMDD1062 = 4000 us PMDD1132 = 40 ms PMDD1162 = 0.0 V PMDD1172 = 25 PMDD1152 = -9.0 V
4		Verify receipt of approach movement started event	YMDEV161	NMDA0EID = 42661
5		Verify receipt of approach LVDT on minimum position event	YMDEV268	NMDA0EID = 42768
6		Verify approach LVDT on minimum position HK parameter	YMDHK002	NMDD0310 = -9.0 V



5.4 Contingency Recovery Procedures

MD_CRP_001		Emergency switch OFF		
Procedure Objective: This procedure is used to bring Midas into a save state before switching off the intrument.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Abort current task (if any)	ZMD207S5	
4		Verify command execution	YMDHK002	NMDA0138 = 0x8F00
5		Move approach to minimum	ZMD240S5	PMDD1062 = 4000 us PMDD1132 = 40 ms PMDD1162 = 0.03 V PMDD1172 = 25 PMDD1182 = 3 PMDD1152 = 6.0 V
6		Verify command execution	YMDHK002	NMDA0119 = 1
7		Verify receipt of AppToMinStart event	YMDEV161	NMDA0EID = 42661
8		Verify receipt of AppLvdtOnMinPos event	YMDEV268	NMDA0EID = 42768
9		Verify approach LVDT on minimum	YMDHK002	NMDD0310 = 6.0 V
10		Switch off all subsystems	ZMD21701	
11		Verify command execution	YMDHK002	NMDA0187 = 0
12		Switch OFF LCL	ZPWMA020	
13		Verify LCL status		NPWDA112 = Off



MD_CRP_002		Reset software buffers		
Procedure Objective: This procedure is used to reset the internal software buffers.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Reset telecommand buffer	ZMD20603	
4		Verify command execution	YMDHK002	NMDA0138 = 0x8E03
5		Reset private TC S/W buffer	ZMD20604	
6		Verify command execution	YMDHK002	NMDA0138 = 0x8E04
7		Reset telemetry buffer	ZMD20605	
8		Verify command execution	YMDHK002	NMDA0138 = 0x8E05
9		Reset image data RAM	ZMD20606	
10		Verify command execution	YMDHK002	NMDA0138 = 0x8E06

MD_CRP_003		Upload program debugging		
Procedure Objective: This procedure is used to restore the on-board S/W after a program upload has failed.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify kernel mode	YMDHK001	NMDD0019 = 0
3		Copy EEPROM contents to RAM	ZMD19807	
4		Verify command execution		

MD_CRP_004		Abort current task		
Procedure Objective: This procedure is used to abort an active task.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Verify task active flag	YMDHK002	NMDA0312 = 0 or 1
3		Abort current task (if any)	ZMD207S5	
4		Verify command execution	YMDHK002	NMDA0138 = 0x8F00
5		Verify task active flag	YMDHK002	NMDA0312 = 0



MD_CRP_005		Disable science data reporting		
Procedure Objective: This procedure is used to switch off science data reporting.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Switch off science data reporting	ZMD02002	PMDDPID1 = 67
4		Verify command execution	YMDHK002	NMDA0342 = 0

MD_CRP_006		Set Software Parameter Value		
Procedure Objective: This command is used to set the value of a single S/W parameter on page #5. The command is not queued and will be executed immediately.				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify LCL status		NPWDA112 = On NPWDA548 = 0.2-0.8 A
2		Verify main program mode	YMDHK001	NMDD0019 = 1
3		Set S/W parameter value	ZMD25402	PMDDE0F2 = addr PMDDE102 = value
4		Verify command execution	YMDHK002	NMDA0322 = addr NMDA0323 = value

MD_CRP_010		Switch ON via redundant LCL interface		
Procedure Objective: This procedure is used to switch on Midas via the redundant interface.				
Procedure Execution pre-conditions/constraints: No kernel hello event is generated				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Power on redundant LCL	ZPWMA276	
2		Verify LCL status		NPWDA868 = 0.1-0.5 A NPWDA232 = On
3		Send time update	ZDM01400	FDM30014 = 225 sec FDM30015 = 67
4		Verify receipt of standard HK report (5 packets every 16 seconds, then 1 packet every 120 seconds)	YMDHK001	NMDA0SID = 1



MD_CRP_011		Switch OFF via redundant LCL interface		
Procedure Objective: This procedure is used to				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Switch off power relays	ZMD21701	
2		Verify command execution	YMDHK002	NMDA0138 = 0x870D NMDA0187 = 0
3		Disable telecommand echo	ZMD20610	
4		Verify command execution	YMDHK001	NMDD0016 = 0
5		Switch off MIDAS LCL	ZPWMA277	
6		Verify LCL status		NPWDA232 = Off

MD_CRP_012		Switch ON via OBCP (alternative)		
Procedure Objective: This procedure is used to				
Procedure Execution pre-conditions/constraints:				
Step No.	Time (hh:mm:ss)	Activity	TM/TC Packet	TM/TC Parameters
1		Verify Midas OFF status		NPWDA112 = Off NPWDA232 = Off
2		Start Midas Power-On OBCP		
3		Verify LCL status		NPWDA112 = On or NPWDA232 = On
4		Verify receipt of kernel hello event (only if NPWDA112 = On)	YMDEV199	NMDA0EID = 42699
5		Verify receipt of standard HK report (5 packets every 16 seconds, then 1 packet every 120 seconds)	YMDHK001	NMDA0SID = 1



6. Data Operations Handbook

6.1 Calibration Curve Definitions

NAME	LNAME	CALTYPE	REVERSIBLE	XVALUE	XVALUE_HIGH	YVALUE	YDIGTEXT
CMDP0000	raw data value	CPOI	Y	0		0	
CMDP0000	raw data value	CPOI	Y	65535		65535	
CMDP0001	raw data value	CPOI	Y	0		0	
CMDP0001	raw data value	CPOI	Y	65535		65535	
CMDP0002	12 bit DAC set value	CPOI	Y	0		-10	
CMDP0002	12 bit DAC set value	CPOI	Y	4095		10	
CMDP0003	16 bit ADC data	CPOI	Y	-32768		-10	
CMDP0003	16 bit ADC data	CPOI	Y	32767		10	
CMDP0004	16 bit DAC set value	CPOI	Y	0		-10	
CMDP0004	16 bit DAC set value	CPOI	Y	65535		10	
CMDP0005	Temperature	CPOI	Y	0		-273	
CMDP0005	Temperature	CPOI	Y	32767		101,5261202	
CMDP0006	+15 V-Monitor	CPOI	Y	-32768		-30	
CMDP0006	+15 V-Monitor	CPOI	Y	32767		30	
CMDP0007	-15 V-Monitor	CPOI	Y	-32768		-30	
CMDP0007	-15 V-Monitor	CPOI	Y	32767		30	
CMDP0008	HV-Monitor	CPOI	Y	-32768		-40	
CMDP0008	HV-Monitor	CPOI	Y	32767		240	
CMDP0009	linear position set value	CPOI	Y	0		0	
CMDP0009	linear position set value	CPOI	Y	65535		65535	
CMDP0010	x,y,z position & correction	CPOI	Y	0		0	
CMDP0010	x,y,z position & correction	CPOI	Y	65535		6553,5	
CMDP0011	z-strain gauge, x,y-cap. Sensor	CPOI	Y	0		0	
CMDP0011	z-strain gauge, x,y-cap. Sensor	CPOI	Y	65535		14000	
CMDP0012	pulse generator pulse width	CPOI	Y	0		21	
CMDP0012	pulse generator pulse width	CPOI	Y	65535		2752491	
CMDP0013	cantilever phase signal	CPOI	Y	-32768		-180	
CMDP0013	cantilever phase signal	CPOI	Y	32767		180	
CMDP0014	operating point in percent	CPOI	Y	0		0	
CMDP0014	operating point in percent	CPOI	Y	65535		100	
CMDP0015	frequency high value	CPOI	Y	0		0	
CMDP0015	frequency high value	CPOI	Y	65535		2999559,389	
CMDP0016	frequency step/low value	CPOI	Y	0		0	
CMDP0016	frequency step/low value	CPOI	Y	65535		45,769644	
CMDP0017	time in seconds	CPOI	Y	0		0	
CMDP0017	time in seconds	CPOI	Y	65535		65535	
CMDP0033	operating point [% of free amplitude]	CPOI	Y	-32768		-100	
CMDP0033	operating point [% of free amplitude]	CPOI	Y	32767		100	
CMDVADIR	approach direction	SVVAL	Y	0	0		BACKWARD
CMDVADIR	approach direction	SVVAL	Y	1	1		FORWARD
CMDVCTRL	X/Y/Z loop control	SVVAL	Y	0	0		CLOSED
CMDVCTRL	X/Y/Z loop control	SVVAL	Y	1	1		OPEN
CMDVFINV	status flags (inverted)	SVVAL	Y	0	0		ON*
CMDVFINV	status flags (inverted)	SVVAL	Y	1	1		OFF*
CMDVFLAG	status flags	SVVAL	Y	0	0		OFF



CMDVFLAG	status flags	SVAL	Y	1	1	ON
CMDVMDIR	main scan direction	SVAL	Y	0	0	X
CMDVMDIR	main scan direction	SVAL	Y	1	1	Y
CMDVPREL	power relay switching	SVAL	Y	0	0	REL_ON
CMDVPREL	power relay switching	SVAL	Y	1	1	REL_OFF
CMDVRELN	relay number	SVAL	Y	0	0	N/A
CMDVRELN	relay number	SVAL	Y	1	1	CSSC
CMDVRELN	relay number	SVAL	Y	2	2	motor
CMDVRELN	relay number	SVAL	Y	3	3	approac LVDT
CMDVRELN	relay number	SVAL	Y	4	4	lin sta LVDT
CMDVRELN	relay number	SVAL	Y	5	5	cant preamps
CMDVRELN	relay number	SVAL	Y	6	6	cant block 1
CMDVRELN	relay number	SVAL	Y	7	7	cant block 2
CMDVRELN	relay number	SVAL	Y	8	8	encoder
CMDVSDIR	X/Y scan direction	SVAL	Y	0	0	L_H
CMDVSDIR	X/Y scan direction	SVAL	Y	1	1	H_L



6.2 Packet Block Definitions

NAME	LNNAME	CATEGORY	CALCSIZE	PBLE_ORDER	ELTTYPE	ITEMOFFSET	PBLE_SIZE	REPEAT	TMPA_NAME	TCPA_NAME
WMD06701	MIDAS Header Block 67/1	PKBM	128	0	PARAM	16	16	1	NSBAH001	
WMD06701	MIDAS Header Block 67/1	PKBM	128	1	PARAM	48	16	1	NMDAH111	
WMD06701	MIDAS Header Block 67/1	PKBM	128	2	PARAM	80	16	1	NMDAH112	
WMD06701	MIDAS Header Block 67/1	PKBM	128	3	PARAM	144	48	1	NMDAH113	
WMD06701	MIDAS Header Block 67/1	PKBM	128	4	PARAM	224	32	1	NMDAH114	
WMD06704	MIDAS Header Block 67/4	PKBM	128	0	PARAM	16	16	1	NSBAH001	
WMD06704	MIDAS Header Block 67/4	PKBM	128	1	PARAM	48	16	1	NMDAH141	
WMD06704	MIDAS Header Block 67/4	PKBM	128	2	PARAM	80	16	1	NMDAH142	
WMD06704	MIDAS Header Block 67/4	PKBM	128	3	PARAM	144	48	1	NMDAH143	
WMD06704	MIDAS Header Block 67/4	PKBM	128	4	PARAM	224	32	1	NMDAH144	
WMD06707	MIDAS Header Block 67/7	PKBM	128	0	PARAM	16	16	1	NSBAH001	
WMD06707	MIDAS Header Block 67/7	PKBM	128	1	PARAM	48	16	1	NMDAH171	
WMD06707	MIDAS Header Block 67/7	PKBM	128	2	PARAM	80	16	1	NMDAH172	
WMD06707	MIDAS Header Block 67/7	PKBM	128	3	PARAM	144	48	1	NMDAH173	
WMD06707	MIDAS Header Block 67/7	PKBM	128	4	PARAM	224	32	1	NMDAH174	
WMD06709	MIDAS Header Block 67/9	PKBM	128	0	PARAM	16	16	1	NSBAH001	
WMD06709	MIDAS Header Block 67/9	PKBM	128	1	PARAM	48	16	1	NMDAH191	
WMD06709	MIDAS Header Block 67/9	PKBM	128	2	PARAM	80	16	1	NMDAH192	
WMD06709	MIDAS Header Block 67/9	PKBM	128	3	PARAM	144	48	1	NMDAH193	
WMD06709	MIDAS Header Block 67/9	PKBM	128	4	PARAM	224	32	1	NMDAH194	
WMD06711	MIDAS Header Block 67/11	PKBM	128	0	PARAM	16	16	1	NSBAH001	
WMD06711	MIDAS Header Block 67/11	PKBM	128	1	PARAM	48	16	1	NMDAH1B1	
WMD06711	MIDAS Header Block 67/11	PKBM	128	2	PARAM	80	16	1	NMDAH1B2	
WMD06711	MIDAS Header Block 67/11	PKBM	128	3	PARAM	144	48	1	NMDAH1B3	
WMD06711	MIDAS Header Block 67/11	PKBM	128	4	PARAM	224	32	1	NMDAH1B4	
WMD06712	MIDAS Header Block 67/12	PKBM	128	0	PARAM	16	16	1	NSBAH001	
WMD06712	MIDAS Header Block 67/12	PKBM	128	1	PARAM	48	16	1	NMDAH1C1	
WMD06712	MIDAS Header Block 67/12	PKBM	128	2	PARAM	80	16	1	NMDAH1C2	
WMD06712	MIDAS Header Block 67/12	PKBM	128	3	PARAM	144	48	1	NMDAH1C3	
WMD06712	MIDAS Header Block 67/12	PKBM	128	4	PARAM	224	32	1	NMDAH1C4	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	0	PARAM	16	16	1	NMDA0SID	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	1	PARAM	48	16	1	NMDA0002	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	2	PARAM	80	16	1	NMDA0102	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	3	PARAM	112	16	1	NMDA0103	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	4	PARAM	144	16	1	NMDA0104	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	5	PARAM	176	16	1	NMDA0105	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	6	PARAM	208	16	1	NMDA0106	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	7	PARAM	240	16	1	NMDA0107	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	8	PARAM	272	16	1	NMDA0108	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	9	PARAM	304	16	1	NMDA0109	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	10	PARAM	336	16	1	NMDA0110	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	11	PARAM	368	16	1	NMDA0111	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	12	PARAM	400	16	1	NMDA0112	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	13	PARAM	432	16	1	NMDA0113	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	14	PARAM	464	16	1	NMDA0114	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	15	PARAM	496	16	1	NMDA0115	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	16	PARAM	528	16	1	NMDA0116	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	17	PARAM	560	16	1	NMDA0117	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	18	PARAM	592	16	1	NMDA0303	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	19	PARAM	624	16	1	NMDA0304	



WMD10HK2	MIDAS HK02 Block 1	PKBM	848	20	PARAM	656	16	1	NMDA0118	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	21	PARAM	688	16	1	NMDA0119	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	22	PARAM	720	16	1	NMDA0120	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	23	PARAM	752	16	1	NMDA0305	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	24	PARAM	784	16	1	NMDA0121	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	25	PARAM	816	16	1	NMDA0122	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	26	PARAM	848	16	1	NMDA0123	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	27	PARAM	880	16	1	NMDA0235	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	28	PARAM	912	16	1	NMDA0124	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	29	PARAM	944	16	1	NMDA0236	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	30	PARAM	976	16	1	NMDA0237	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	31	PARAM	1008	16	1	NMDA0238	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	32	PARAM	1040	16	1	NMDA0125	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	33	PARAM	1072	16	1	NMDA0126	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	34	PARAM	1104	16	1	NMDA0127	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	35	PARAM	1136	16	1	NMDA0128	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	36	PARAM	1168	16	1	NMDA0129	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	37	PARAM	1200	16	1	NMDA0130	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	38	PARAM	1232	16	1	NMDA0131	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	39	PARAM	1264	16	1	NMDA0132	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	40	PARAM	1296	16	1	NMDA0133	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	41	PARAM	1328	16	1	NMDA0134	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	42	PARAM	1360	16	1	NMDA0135	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	43	PARAM	1392	16	1	NMDA0136	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	44	PARAM	1424	16	1	NMDA0137	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	45	PARAM	1456	16	1	NMDA0138	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	46	PARAM	1488	16	1	NMDA0139	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	47	PARAM	1520	16	1	NMDA0140	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	48	PARAM	1552	16	1	NMDA0141	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	49	PARAM	1584	16	1	NMDA0142	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	50	PARAM	1616	16	1	NMDA0143	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	51	PARAM	1648	16	1	NMDA0239	
WMD10HK2	MIDAS HK02 Block 1	PKBM	848	52	PARAM	1680	16	1	NMDA0144	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	0	PARAM	16	16	1	NMDA0240	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	1	PARAM	48	16	1	NMDA0241	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	2	PARAM	80	16	1	NMDA0242	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	3	PARAM	112	16	1	NMDA0146	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	4	PARAM	144	16	1	NMDA0147	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	5	PARAM	176	16	1	NMDA0148	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	6	PARAM	208	16	1	NMDA0149	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	7	PARAM	240	16	1	NMDA0150	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	8	PARAM	272	16	1	NMDA0151	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	9	PARAM	304	16	1	NMDA0152	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	10	PARAM	336	16	1	NMDA0153	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	11	PARAM	368	16	1	NMDA0154	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	12	PARAM	400	16	1	NMDA0155	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	13	PARAM	432	16	1	NMDA0156	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	14	PARAM	464	16	1	NMDA0157	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	15	PARAM	496	16	1	NMDA0158	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	16	PARAM	528	16	1	NMDA0159	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	17	PARAM	560	16	1	NMDA0160	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	18	PARAM	592	16	1	NMDA0161	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	19	PARAM	624	16	1	NMDA0162	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	20	PARAM	656	16	1	NMDA0163	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	21	PARAM	688	16	1	NMDA0164	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	22	PARAM	720	16	1	NMDA0165	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	23	PARAM	752	16	1	NMDA0166	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	24	PARAM	784	16	1	NMDA0167	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	25	PARAM	816	16	1	NMDA0168	



WMD20HK2	MIDAS HK02 Block 2	PKBM	816	26	PARAM	848	16	1	NMDA0169	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	27	PARAM	880	16	1	NMDA0243	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	28	PARAM	912	16	1	NMDA0170	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	29	PARAM	944	16	1	NMDA0171	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	30	PARAM	976	16	1	NMDA0172	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	31	PARAM	1008	16	1	NMDA0173	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	32	PARAM	1040	16	1	NMDA0174	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	33	PARAM	1072	16	1	NMDA0175	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	34	PARAM	1104	16	1	NMDA0176	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	35	PARAM	1136	16	1	NMDA0177	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	36	PARAM	1168	16	1	NMDA0178	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	37	PARAM	1200	16	1	NMDA0179	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	38	PARAM	1232	16	1	NMDA0244	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	39	PARAM	1264	16	1	NMDA0245	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	40	PARAM	1296	16	1	NMDA0246	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	41	PARAM	1328	16	1	NMDA0247	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	42	PARAM	1360	16	1	NMDA0181	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	43	PARAM	1392	16	1	NMDA0182	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	44	PARAM	1424	16	1	NMDA0183	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	45	PARAM	1456	16	1	NMDA0184	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	46	PARAM	1488	16	1	NMDA0185	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	47	PARAM	1520	16	1	NMDA0186	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	48	PARAM	1552	16	1	NMDA0187	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	49	PARAM	1584	16	1	NMDA0306	
WMD20HK2	MIDAS HK02 Block 2	PKBM	816	50	PARAM	1616	16	1	NMDA0188	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	0	PARAM	16	16	1	NMDA0189	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	1	PARAM	48	16	1	NMDA0190	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	2	PARAM	80	16	1	NMDA0191	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	3	PARAM	112	16	1	NMDA0192	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	4	PARAM	144	16	1	NMDA0307	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	5	PARAM	176	16	1	NMDA0193	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	6	PARAM	208	16	1	NMDA0194	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	7	PARAM	240	16	1	NMDA0195	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	8	PARAM	272	16	1	NMDA0196	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	9	PARAM	304	16	1	NMDA0197	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	10	PARAM	336	16	1	NMDA0248	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	11	PARAM	368	16	1	NMDA0198	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	12	PARAM	400	16	1	NMDA0199	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	13	PARAM	432	16	1	NMDA0200	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	14	PARAM	464	16	1	NMDA0201	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	15	PARAM	496	16	1	NMDA0249	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	16	PARAM	528	16	1	NMDA0308	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	17	PARAM	560	16	1	NMDA0250	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	18	PARAM	592	16	1	NMDA0202	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	19	PARAM	624	16	1	NMDA0203	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	20	PARAM	656	16	1	NMDA0204	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	21	PARAM	688	16	1	NMDA0205	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	22	PARAM	720	16	1	NMDA0206	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	23	PARAM	752	16	1	NMDA0207	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	24	PARAM	784	16	1	NMDA0208	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	25	PARAM	816	16	1	NMDA0209	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	26	PARAM	848	16	1	NMDA0210	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	27	PARAM	880	16	1	NMDA0211	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	28	PARAM	912	16	1	NMDA0212	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	29	PARAM	944	16	1	NMDA0213	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	30	PARAM	976	16	1	NMDA0214	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	31	PARAM	1008	16	1	NMDA0215	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	32	PARAM	1040	16	1	NMDA0216	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	33	PARAM	1072	16	1	NMDA0217	



WMD30HK2	MIDAS HK02 Block 3	PKBM	864	34	PARAM	1104	16	1	NMDA0218	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	35	PARAM	1136	16	1	NMDA0219	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	36	PARAM	1168	16	1	NMDA0220	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	37	PARAM	1200	16	1	NMDA0221	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	38	PARAM	1232	16	1	NMDA0222	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	39	PARAM	1264	16	1	NMDA0223	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	40	PARAM	1296	16	1	NMDA0224	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	41	PARAM	1328	16	1	NMDA0225	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	42	PARAM	1360	16	1	NMDA0226	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	43	PARAM	1392	16	1	NMDA0227	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	44	PARAM	1424	16	1	NMDA0228	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	45	PARAM	1456	16	1	NMDA0229	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	46	PARAM	1488	16	1	NMDA0230	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	47	PARAM	1520	16	1	NMDA0231	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	48	PARAM	1568	32	1	NMDA0232	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	49	PARAM	1616	16	1	NMDA0233	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	50	PARAM	1648	16	1	NMDA0251	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	51	PARAM	1680	16	1	NMDA0252	
WMD30HK2	MIDAS HK02 Block 3	PKBM	864	52	PARAM	1712	16	1	NMDA0253	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	0	PARAM	16	16	1	NMDA0254	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	1	PARAM	48	16	1	NMDA0255	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	2	PARAM	80	16	1	NMDA0256	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	3	PARAM	112	16	1	NMDA0257	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	4	PARAM	144	16	1	NMDA0258	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	5	PARAM	176	16	1	NMDA0259	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	6	PARAM	208	16	1	NMDA0260	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	7	PARAM	240	16	1	NMDA0261	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	8	PARAM	272	16	1	NMDA0262	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	9	PARAM	304	16	1	NMDA0263	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	10	PARAM	336	16	1	NMDA0264	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	11	PARAM	368	16	1	NMDA0265	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	12	PARAM	400	16	1	NMDA0266	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	13	PARAM	432	16	1	NMDA0267	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	14	PARAM	464	16	1	NMDA0268	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	15	PARAM	496	16	1	NMDA0269	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	16	PARAM	528	16	1	NMDA0270	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	17	PARAM	560	16	1	NMDA0271	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	18	PARAM	592	16	1	NMDA0272	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	19	PARAM	624	16	1	NMDA0344	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	20	PARAM	656	16	1	NMDA0273	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	21	PARAM	688	16	1	NMDA0274	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	22	PARAM	720	16	1	NMDA0275	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	23	PARAM	768	32	1	NMDA0276	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	24	PARAM	816	16	1	NMDA0277	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	25	PARAM	848	16	1	NMDA0278	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	26	PARAM	880	16	1	NMDA0279	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	27	PARAM	912	16	1	NMDA0280	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	28	PARAM	944	16	1	NMDA0281	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	29	PARAM	976	16	1	NMDA0282	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	30	PARAM	1024	32	1	NMDA0283	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	31	PARAM	1088	32	1	NMDA0284	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	32	PARAM	1136	16	1	NMDA0285	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	33	PARAM	1168	16	1	NMDA0286	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	34	PARAM	1200	16	1	NMDA0287	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	35	PARAM	1232	16	1	NMDA0288	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	36	PARAM	1264	16	1	NMDA0289	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	37	PARAM	1296	16	1	NMDA0290	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	38	PARAM	1328	16	1	NMDA0291	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	39	PARAM	1360	16	1	NMDA0293	



WMD40HK2	MIDAS HK02 Block 4	PKBM	832	40	PARAM	1392	16	1	NMDA0294	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	41	PARAM	1424	16	1	NMDA0295	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	42	PARAM	1456	16	1	NMDA0296	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	43	PARAM	1488	16	1	NMDA0297	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	44	PARAM	1520	16	1	NMDA0298	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	45	PARAM	1552	16	1	NMDA0299	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	46	PARAM	1584	16	1	NMDA0300	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	47	PARAM	1616	16	1	NMDA0301	
WMD40HK2	MIDAS HK02 Block 4	PKBM	832	48	PARAM	1648	16	1	NMDA0292	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	0	PARAM	16	16	1	NMDA0309	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	1	PARAM	48	16	1	NMDA0310	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	2	PARAM	80	16	1	NMDA0311	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	3	PARAM	112	16	1	NMDA0312	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	4	PARAM	144	16	1	NMDA0313	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	5	PARAM	176	16	1	NMDA0314	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	6	PARAM	208	16	1	NMDA0315	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	7	PARAM	240	16	1	NMDA0316	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	8	PARAM	272	16	1	NMDA0317	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	9	PARAM	304	16	1	NMDA0318	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	10	PARAM	336	16	1	NMDA0319	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	11	PARAM	368	16	1	NMDA0320	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	12	PARAM	400	16	1	NMDA0321	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	13	PARAM	432	16	1	NMDA0322	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	14	PARAM	464	16	1	NMDA0323	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	15	PARAM	496	16	1	NMDA0324	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	16	PARAM	528	16	1	NMDA0325	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	17	PARAM	560	16	1	NMDA0326	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	18	PARAM	592	16	1	NMDA0327	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	19	PARAM	624	16	1	NMDA0328	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	20	PARAM	656	16	1	NMDA0329	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	21	PARAM	688	16	1	NMDA0330	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	22	PARAM	720	16	1	NMDA0331	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	23	PARAM	752	16	1	NMDA0332	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	24	PARAM	784	16	1	NMDA0333	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	25	PARAM	816	16	1	NMDA0334	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	26	PARAM	848	16	1	NMDA0335	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	27	PARAM	880	16	1	NMDA0336	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	28	PARAM	912	16	1	NMDA0337	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	29	PARAM	944	16	1	NMDA0338	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	30	PARAM	976	16	1	NMDA0339	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	31	PARAM	1008	16	1	NMDA0340	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	32	PARAM	1040	16	1	NMDA0341	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	33	PARAM	1072	16	1	NMDA0342	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	34	PARAM	1104	16	1	NMDA0343	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	35	PARAM	1248	16	8	NMDA0302	
WMD50HK2	MIDAS HK02 Block 5	PKBM	704	36	PARAM	1392	16	1	NMDA0234	



6.3 Telecommand Function Definitions

NAME	LNAME	PID	PCKC ATEG	SERV ICE	SUBS SERVI CE	USAG E	MINL ENGT H	MAXL ENGT H	TCPE _ORD ER	ELTTYP E	REPE AT	VALUE
ZMD00305	EnableHKReport	67	12	3	5	7	14	14	0	PARAM	1	PMDGSSID
ZMD00306	DisableHKReport	67	12	3	6	7	14	14	0	PARAM	1	PMDGSSID
ZMD00602	LoadMemoryAbsolute	67	12	6	2	7	22	248	0	PARAM	1	PMDGSMEM
ZMD00602	LoadMemoryAbsolute	67	12	6	2	7	22	248	1	PARAM	1	PMDGSMEN
ZMD00602	LoadMemoryAbsolute	67	12	6	2	7	22	248	2	PARAM	1	PMDGSMEA
ZMD00602	LoadMemoryAbsolute	67	12	6	2	7	22	248	3	PARAM	1	PMDGSMEL
ZMD00602	LoadMemoryAbsolute	67	12	6	2	7	22	248	4	PARAM	1	PMDGSMED
ZMD00605	DumpMemoryAbsolute	67	12	6	5	7	20	20	0	PARAM	1	PMDGSMEM
ZMD00605	DumpMemoryAbsolute	67	12	6	5	7	20	20	1	PARAM	1	PMDGSMEN
ZMD00605	DumpMemoryAbsolute	67	12	6	5	7	20	20	2	PARAM	1	PMDGSMEA
ZMD00605	DumpMemoryAbsolute	67	12	6	5	7	20	20	3	PARAM	1	PMDGSMEL
ZMD00609	CheckMemoryAbsolute	67	12	6	9	7	20	20	0	PARAM	1	PMDGSMEM
ZMD00609	CheckMemoryAbsolute	67	12	6	9	7	20	20	1	PARAM	1	PMDGSMEN
ZMD00609	CheckMemoryAbsolute	67	12	6	9	7	20	20	2	PARAM	1	PMDGSMEA
ZMD00609	CheckMemoryAbsolute	67	12	6	9	7	20	20	3	PARAM	1	PMDGSMEL
ZMD00901	AcceptTimeUpdate	67	12	9	1	7	18	18	0	PARAM	1	PMDGSCET
ZMD01701	ConnectionTestRequest	67	12	17	1	7	12	12				
ZMD01801	ReportContextRequest	67	12	18	1	7	12	12				
ZMD01803	AcceptContextRequest	67	12	18	3	7	14	248	0	PARAM	1	PMDGSSEG
ZMD01912	GiadaDustFluxDist	67	12	19	12	7	14	14	0	PARAM	1	PMDGSGDF
ZMD02001	EnableScience	67	12	20	1	7	14	14	0	PARAM	1	PMDGSPID
ZMD02002	DisableScience	67	12	20	2	7	14	14	0	PARAM	1	PMDGSPID
ZMD19204	SET_HK1_PERIOD	67	12	192	4	7	16	16	0	PARAM	1	PMDG0004
ZMD19205	SET_HK2_PERIOD	67	12	192	5	7	16	16	0	PARAM	1	PMDG0005
ZMD19448	SELECT_DATA_SET	67	12	194	48	7	16	16	0	PARAM	1	PMDG0230
ZMD19449	CLEAR_DATA_SET	67	12	194	49	7	14	14	0	PARAM	1	PMDG8231
ZMD19450	TRANSFER_DATA_SET	67	12	194	50	7	14	14	0	PARAM	1	PMDG8232
ZMD19803	EXECUTE_MIDAS	67	12	198	3	7	14	14	0	PARAM	1	PMDG8603
ZMD19804	EXIT_CMD	67	12	198	4	7	14	14	0	PARAM	1	PMDG8604
ZMD19806	PGM2EEPROM	67	12	198	6	7	14	14	0	PARAM	1	PMDG8606
ZMD19807	EEPROM2RAM	67	12	198	7	7	14	14	0	PARAM	1	PMDG8607
ZMD19808	EEPROM_ENABLE	67	12	198	8	7	14	14	0	PARAM	1	PMDG8608
ZMD19809	EEPROM_DISABLE	67	12	198	9	7	14	14	0	PARAM	1	PMDG8609
ZMD20603	RESET_TC	67	12	206	3	7	14	14	0	PARAM	1	PMDG8E03
ZMD20604	RESET_CMD	67	12	206	4	7	14	14	0	PARAM	1	PMDG8E04
ZMD20605	RESET_TM	67	12	206	5	7	14	14	0	PARAM	1	PMDG8E05
ZMD20606	RESET_RAM	67	12	206	6	7	14	14	0	PARAM	1	PMDG8E06
ZMD20607	CO_INFO_ENABLE	67	12	206	7	7	14	14	0	PARAM	1	PMDG8E07
ZMD20608	CO_INFO_DISABLE	67	12	206	8	7	14	14	0	PARAM	1	PMDG8E08
ZMD20609	TC_ECHO_ENABLE	67	12	206	9	7	14	14	0	PARAM	1	PMDG8E09
ZMD20610	TC_ECHO_DISABLE	67	12	206	10	7	14	14	0	PARAM	1	PMDG8E0A
ZMD20701	WAIT_SECONDS	67	12	207	1	7	16	16	0	PARAM	1	PMDG0F01
ZMD20735	EXTENDED_CMD	67	12	207	35	7	14	14	0	PARAM	1	PMDG8F23
ZMD20753	TEST_CMD	67	12	207	53	7	14	14	0	PARAM	1	PMDG8F35
ZMD20755	ABORT_FUNCTION	67	12	207	255	7	14	14	0	PARAM	1	PMDG8F00
ZMD20801	AutoFScan	67	12	208	1	7	72	72	0	PARAM	1	PMDG8706
ZMD20801	AutoFScan	67	12	208	1	7	72	72	1	PARAM	1	PMDG0C00
ZMD20801	AutoFScan	67	12	208	1	7	72	72	2	PARAM	1	PMDG0C10
ZMD20801	AutoFScan	67	12	208	1	7	72	72	3	PARAM	1	PMDG0708
ZMD20801	AutoFScan	67	12	208	1	7	72	72	4	PARAM	1	PMDG070A
ZMD20801	AutoFScan	67	12	208	1	7	72	72	5	PARAM	1	PMDG020C
ZMD20801	AutoFScan	67	12	208	1	7	72	72	6	PARAM	1	PMDG020E
ZMD20801	AutoFScan	67	12	208	1	7	72	72	7	PARAM	1	PMDG030B



ZMD20801	AutoFScan	67	12	208	1	7	72	72	8	PARAM	1	PMDG030C
ZMD20801	AutoFScan	67	12	208	1	7	72	72	9	PARAM	1	PMDG0302
ZMD20801	AutoFScan	67	12	208	1	7	72	72	10	PARAM	1	PMDG0308
ZMD20801	AutoFScan	67	12	208	1	7	72	72	11	PARAM	1	PMDG0307
ZMD20801	AutoFScan	67	12	208	1	7	72	72	12	PARAM	1	PMDG030A
ZMD20801	AutoFScan	67	12	208	1	7	72	72	13	PARAM	1	PMDG0208
ZMD20801	AutoFScan	67	12	208	1	7	72	72	14	PARAM	1	PMDG020F
ZMD20801	AutoFScan	67	12	208	1	7	72	72	15	PARAM	1	PMDG0309
ZMD20801	AutoFScan	67	12	208	1	7	72	72	16	PARAM	1	PMDG030E
ZMD20801	AutoFScan	67	12	208	1	7	72	72	17	PARAM	1	PMDG8304
ZMD20801	AutoFScan	67	12	208	1	7	72	72	18	PARAM	1	PMDG8306
ZMD20802	SingleFScan	67	12	208	2	7	46	46	0	PARAM	1	PMDG0C00
ZMD20802	SingleFScan	67	12	208	2	7	46	46	1	PARAM	1	PMDG0C10
ZMD20802	SingleFScan	67	12	208	2	7	46	46	2	PARAM	1	PMDG8706
ZMD20802	SingleFScan	67	12	208	2	7	46	46	3	PARAM	1	PMDG0708
ZMD20802	SingleFScan	67	12	208	2	7	46	46	4	PARAM	1	PMDG070A
ZMD20802	SingleFScan	67	12	208	2	7	46	46	5	PARAM	1	PMDG020C
ZMD20802	SingleFScan	67	12	208	2	7	46	46	6	PARAM	1	PMDG020E
ZMD20802	SingleFScan	67	12	208	2	7	46	46	7	PARAM	1	PMDG0302
ZMD20802	SingleFScan	67	12	208	2	7	46	46	8	PARAM	1	PMDG030B
ZMD20802	SingleFScan	67	12	208	2	7	46	46	9	PARAM	1	PMDG030C
ZMD20802	SingleFScan	67	12	208	2	7	46	46	10	PARAM	1	PMDG8304
ZMD20802	SingleFScan	67	12	208	2	7	46	46	11	PARAM	1	PMDG8303
ZMD20901	MoveToSegment	67	12	209	1	7	26	26	0	PARAM	1	PMDG0400
ZMD20901	MoveToSegment	67	12	209	1	7	26	26	1	PARAM	1	PMDG0108
ZMD20901	MoveToSegment	67	12	209	1	7	26	26	2	PARAM	1	PMDG0403
ZMD20901	MoveToSegment	67	12	209	1	7	26	26	3	PARAM	1	PMDG840A
ZMD21001	PlateOpenRel2Red	67	12	210	1	7	20	20	0	PARAM	1	PMDG8512
ZMD21001	PlateOpenRel2Red	67	12	210	1	7	20	20	1	PARAM	1	PMDG0510
ZMD21001	PlateOpenRel2Red	67	12	210	1	7	20	20	2	PARAM	1	PMDG8503
ZMD21002	PlateOpenRel2Main	67	12	210	2	7	20	20	0	PARAM	1	PMDG8512
ZMD21002	PlateOpenRel2Main	67	12	210	2	7	20	20	1	PARAM	1	PMDG0510
ZMD21002	PlateOpenRel2Main	67	12	210	2	7	20	20	2	PARAM	1	PMDG8502
ZMD21003	PlateOpenRel1Red	67	12	210	3	7	20	20	0	PARAM	1	PMDG8505
ZMD21003	PlateOpenRel1Red	67	12	210	3	7	20	20	1	PARAM	1	PMDG0510
ZMD21003	PlateOpenRel1Red	67	12	210	3	7	20	20	2	PARAM	1	PMDG8503
ZMD21004	PlateOpenRel1Main	67	12	210	4	7	20	20	0	PARAM	1	PMDG8505
ZMD21004	PlateOpenRel1Main	67	12	210	4	7	20	20	1	PARAM	1	PMDG0510
ZMD21004	PlateOpenRel1Main	67	12	210	4	7	20	20	2	PARAM	1	PMDG8502
ZMD21101	LinToTipPos	67	12	211	1	7	32	32	0	PARAM	1	PMDG0400
ZMD21101	LinToTipPos	67	12	211	1	7	32	32	1	PARAM	1	PMDG010D
ZMD21101	LinToTipPos	67	12	211	1	7	32	32	2	PARAM	1	PMDG0C2A
ZMD21101	LinToTipPos	67	12	211	1	7	32	32	3	PARAM	1	PMDG0905
ZMD21101	LinToTipPos	67	12	211	1	7	32	32	4	PARAM	1	PMDG8908
ZMD21101	LinToTipPos	67	12	211	1	7	32	32	5	PARAM	1	PMDG8103
ZMD211S5	LinToAbsPos	67	12	211	255	7	26	26	0	PARAM	1	PMDG0400
ZMD211S5	LinToAbsPos	67	12	211	255	7	26	26	1	PARAM	1	PMDG010D
ZMD211S5	LinToAbsPos	67	12	211	255	7	26	26	2	PARAM	1	PMDG0107
ZMD211S5	LinToAbsPos	67	12	211	255	7	26	26	3	PARAM	1	PMDG8102
ZMD21201	ShutterOpen	67	12	212	1	7	18	18	0	PARAM	1	PMDG0400
ZMD21201	ShutterOpen	67	12	212	1	7	18	18	1	PARAM	1	PMDG8500
ZMD212S5	ShutterClose	67	12	212	255	7	18	18	0	PARAM	1	PMDG0400
ZMD212S5	ShutterClose	67	12	212	255	7	18	18	1	PARAM	1	PMDG8501
ZMD21301	DoApproach	67	12	213	1	7	82	82	0	PARAM	1	PMDG0106
ZMD21301	DoApproach	67	12	213	1	7	82	82	1	PARAM	1	PMDG0113
ZMD21301	DoApproach	67	12	213	1	7	82	82	2	PARAM	1	PMDG0116
ZMD21301	DoApproach	67	12	213	1	7	82	82	3	PARAM	1	PMDG0117
ZMD21301	DoApproach	67	12	213	1	7	82	82	4	PARAM	1	PMDG0118
ZMD21301	DoApproach	67	12	213	1	7	82	82	5	PARAM	1	PMDG0115



ZMD21301	DoApproach	67	12	213	1	7	82	82	6	PARAM	1	PMDG0114
ZMD21301	DoApproach	67	12	213	1	7	82	82	7	PARAM	1	PMDG8700
ZMD21301	DoApproach	67	12	213	1	7	82	82	8	PARAM	1	PMDG8710
ZMD21301	DoApproach	67	12	213	1	7	82	82	9	PARAM	1	PMDG8712
ZMD21301	DoApproach	67	12	213	1	7	82	82	10	PARAM	1	PMDG8800
ZMD21301	DoApproach	67	12	213	1	7	82	82	11	PARAM	1	PMDG8802
ZMD21301	DoApproach	67	12	213	1	7	82	82	12	PARAM	1	PMDG8804
ZMD21301	DoApproach	67	12	213	1	7	82	82	13	PARAM	1	PMDG080F
ZMD21301	DoApproach	67	12	213	1	7	82	82	14	PARAM	1	PMDG0207
ZMD21301	DoApproach	67	12	213	1	7	82	82	15	PARAM	1	PMDG0234
ZMD21301	DoApproach	67	12	213	1	7	82	82	16	PARAM	1	PMDG8304
ZMD21301	DoApproach	67	12	213	1	7	82	82	17	PARAM	1	PMDG8239
ZMD21301	DoApproach	67	12	213	1	7	82	82	18	PARAM	1	PMDG0119
ZMD21301	DoApproach	67	12	213	1	7	82	82	19	PARAM	1	PMDG0110
ZMD21301	DoApproach	67	12	213	1	7	82	82	20	PARAM	1	PMDG0112
ZMD21301	DoApproach	67	12	213	1	7	82	82	21	PARAM	1	PMDG880A
ZMD21301	DoApproach	67	12	213	1	7	82	82	22	PARAM	1	PMDG8100
ZMD21304	AppToAbsPos	67	12	213	4	7	46	46	0	PARAM	1	PMDG0106
ZMD21304	AppToAbsPos	67	12	213	4	7	46	46	1	PARAM	1	PMDG0113
ZMD21304	AppToAbsPos	67	12	213	4	7	46	46	2	PARAM	1	PMDG0116
ZMD21304	AppToAbsPos	67	12	213	4	7	46	46	3	PARAM	1	PMDG0117
ZMD21304	AppToAbsPos	67	12	213	4	7	46	46	4	PARAM	1	PMDG0118
ZMD21304	AppToAbsPos	67	12	213	4	7	46	46	5	PARAM	1	PMDG0115
ZMD21304	AppToAbsPos	67	12	213	4	7	46	46	6	PARAM	1	PMDG0114
ZMD21304	AppToAbsPos	67	12	213	4	7	46	46	7	PARAM	1	PMDG010E
ZMD21304	AppToAbsPos	67	12	213	4	7	46	46	8	PARAM	1	PMDG810F
ZMD21355	ApproachBck	67	12	213	255	7	42	42	0	PARAM	1	PMDG0106
ZMD21355	ApproachBck	67	12	213	255	7	42	42	1	PARAM	1	PMDG0113
ZMD21355	ApproachBck	67	12	213	255	7	42	42	2	PARAM	1	PMDG0116
ZMD21355	ApproachBck	67	12	213	255	7	42	42	3	PARAM	1	PMDG0117
ZMD21355	ApproachBck	67	12	213	255	7	42	42	4	PARAM	1	PMDG0118
ZMD21355	ApproachBck	67	12	213	255	7	42	42	5	PARAM	1	PMDG0115
ZMD21355	ApproachBck	67	12	213	255	7	42	42	6	PARAM	1	PMDG0114
ZMD21355	ApproachBck	67	12	213	255	7	42	42	7	PARAM	1	PMDG8101
ZMD21401	Linescan	67	12	214	1	7	50	50	0	PARAM	1	PMDG0700
ZMD21401	Linescan	67	12	214	1	7	50	50	1	PARAM	1	PMDG0712
ZMD21401	Linescan	67	12	214	1	7	50	50	2	PARAM	1	PMDG0304
ZMD21401	Linescan	67	12	214	1	7	50	50	3	PARAM	1	PMDG0800
ZMD21401	Linescan	67	12	214	1	7	50	50	4	PARAM	1	PMDG0802
ZMD21401	Linescan	67	12	214	1	7	50	50	5	PARAM	1	PMDG0804
ZMD21401	Linescan	67	12	214	1	7	50	50	6	PARAM	1	PMDG0214
ZMD21401	Linescan	67	12	214	1	7	50	50	7	PARAM	1	PMDG021A
ZMD21401	Linescan	67	12	214	1	7	50	50	8	PARAM	1	PMDG021C
ZMD21401	Linescan	67	12	214	1	7	50	50	9	PARAM	1	PMDG0216
ZMD21401	Linescan	67	12	214	1	7	50	50	10	PARAM	1	PMDG0234
ZMD21401	Linescan	67	12	214	1	7	50	50	11	PARAM	1	PMDG021F
ZMD21401	Linescan	67	12	214	1	7	50	50	12	PARAM	1	PMDG0233
ZMD21401	Linescan	67	12	214	1	7	50	50	13	PARAM	1	PMDG880A
ZMD21401	Linescan	67	12	214	1	7	50	50	14	PARAM	1	PMDG8209
ZMD21402	SinglePoint	67	12	214	2	7	34	34	0	PARAM	1	PMDG0700
ZMD21402	SinglePoint	67	12	214	2	7	34	34	1	PARAM	1	PMDG0712
ZMD21402	SinglePoint	67	12	214	2	7	34	34	2	PARAM	1	PMDG0304
ZMD21402	SinglePoint	67	12	214	2	7	34	34	3	PARAM	1	PMDG0800
ZMD21402	SinglePoint	67	12	214	2	7	34	34	4	PARAM	1	PMDG0802
ZMD21402	SinglePoint	67	12	214	2	7	34	34	5	PARAM	1	PMDG0804
ZMD21402	SinglePoint	67	12	214	2	7	34	34	6	PARAM	1	PMDG0210
ZMD21402	SinglePoint	67	12	214	2	7	34	34	7	PARAM	1	PMDG0216
ZMD21402	SinglePoint	67	12	214	2	7	34	34	8	PARAM	1	PMDG8200
ZMD21403	HiResScan	67	12	214	3	7	22	22	0	PARAM	1	PMDG0240



ZMD21403	HiResScan	67	12	214	3	7	22	22	1	PARAM	1	PMDG0241
ZMD21403	HiResScan	67	12	214	3	7	22	22	2	PARAM	1	PMDG8242
ZMD21404	RetractTip	67	12	214	4	7	36	36	0	PARAM	1	PMDG080C
ZMD21404	RetractTip	67	12	214	4	7	36	36	1	PARAM	1	PMDG080D
ZMD21404	RetractTip	67	12	214	4	7	36	36	2	PARAM	1	PMDG080E
ZMD21404	RetractTip	67	12	214	4	7	36	36	3	PARAM	1	PMDG0210
ZMD21404	RetractTip	67	12	214	4	7	36	36	4	PARAM	1	PMDG0216
ZMD21404	RetractTip	67	12	214	4	7	36	36	5	PARAM	1	PMDG0304
ZMD21404	RetractTip	67	12	214	4	7	36	36	6	PARAM	1	PMDG080A
ZMD214S5	FullScan	67	12	214	255	7	50	50	0	PARAM	1	PMDG0700
ZMD214S5	FullScan	67	12	214	255	7	50	50	1	PARAM	1	PMDG0712
ZMD214S5	FullScan	67	12	214	255	7	50	50	2	PARAM	1	PMDG0304
ZMD214S5	FullScan	67	12	214	255	7	50	50	3	PARAM	1	PMDG0800
ZMD214S5	FullScan	67	12	214	255	7	50	50	4	PARAM	1	PMDG0802
ZMD214S5	FullScan	67	12	214	255	7	50	50	5	PARAM	1	PMDG0804
ZMD214S5	FullScan	67	12	214	255	7	50	50	6	PARAM	1	PMDG0214
ZMD214S5	FullScan	67	12	214	255	7	50	50	7	PARAM	1	PMDG021A
ZMD214S5	FullScan	67	12	214	255	7	50	50	8	PARAM	1	PMDG021C
ZMD214S5	FullScan	67	12	214	255	7	50	50	9	PARAM	1	PMDG0216
ZMD214S5	FullScan	67	12	214	255	7	50	50	10	PARAM	1	PMDG0234
ZMD214S5	FullScan	67	12	214	255	7	50	50	11	PARAM	1	PMDG021F
ZMD214S5	FullScan	67	12	214	255	7	50	50	12	PARAM	1	PMDG0233
ZMD214S5	FullScan	67	12	214	255	7	50	50	13	PARAM	1	PMDG880A
ZMD214S5	FullScan	67	12	214	255	7	50	50	14	PARAM	1	PMDG820A
ZMD21501	CalXSensor	67	12	215	1	7	38	38	0	PARAM	1	PMDG0A08
ZMD21501	CalXSensor	67	12	215	1	7	38	38	1	PARAM	1	PMDG0A09
ZMD21501	CalXSensor	67	12	215	1	7	38	38	2	PARAM	1	PMDG0A0A
ZMD21501	CalXSensor	67	12	215	1	7	38	38	3	PARAM	1	PMDG0A0D
ZMD21501	CalXSensor	67	12	215	1	7	38	38	4	PARAM	1	PMDG0A0E
ZMD21501	CalXSensor	67	12	215	1	7	38	38	5	PARAM	1	PMDG0A0F
ZMD21501	CalXSensor	67	12	215	1	7	38	38	6	PARAM	1	PMDG8A00
ZMD215S5	CalYSensor	67	12	215	255	7	38	38	0	PARAM	1	PMDG0A08
ZMD215S5	CalYSensor	67	12	215	255	7	38	38	1	PARAM	1	PMDG0A0B
ZMD215S5	CalYSensor	67	12	215	255	7	38	38	2	PARAM	1	PMDG0A0C
ZMD215S5	CalYSensor	67	12	215	255	7	38	38	3	PARAM	1	PMDG0A0D
ZMD215S5	CalYSensor	67	12	215	255	7	38	38	4	PARAM	1	PMDG0A0E
ZMD215S5	CalYSensor	67	12	215	255	7	38	38	5	PARAM	1	PMDG0A0F
ZMD215S5	CalYSensor	67	12	215	255	7	38	38	6	PARAM	1	PMDG8A01
ZMD21701	PowerOff	67	12	217	1	7	32	32	0	PARAM	1	PMDG8701
ZMD21701	PowerOff	67	12	217	1	7	32	32	1	PARAM	1	PMDG8703
ZMD21701	PowerOff	67	12	217	1	7	32	32	2	PARAM	1	PMDG8705
ZMD21701	PowerOff	67	12	217	1	7	32	32	3	PARAM	1	PMDG8707
ZMD21701	PowerOff	67	12	217	1	7	32	32	4	PARAM	1	PMDG8709
ZMD21701	PowerOff	67	12	217	1	7	32	32	5	PARAM	1	PMDG8711
ZMD21701	PowerOff	67	12	217	1	7	32	32	6	PARAM	1	PMDG870B
ZMD21701	PowerOff	67	12	217	1	7	32	32	7	PARAM	1	PMDG870F
ZMD21701	PowerOff	67	12	217	1	7	32	32	8	PARAM	1	PMDG8713
ZMD21701	PowerOff	67	12	217	1	7	32	32	9	PARAM	1	PMDG870D
ZMD21702	PowerSwitch	67	12	217	2	7	32	32	0	PARAM	1	PMDG0700
ZMD21702	PowerSwitch	67	12	217	2	7	32	32	1	PARAM	1	PMDG0702
ZMD21702	PowerSwitch	67	12	217	2	7	32	32	2	PARAM	1	PMDG0704
ZMD21702	PowerSwitch	67	12	217	2	7	32	32	3	PARAM	1	PMDG0706
ZMD21702	PowerSwitch	67	12	217	2	7	32	32	4	PARAM	1	PMDG0708
ZMD21702	PowerSwitch	67	12	217	2	7	32	32	5	PARAM	1	PMDG070A
ZMD21702	PowerSwitch	67	12	217	2	7	32	32	6	PARAM	1	PMDG070C
ZMD21702	PowerSwitch	67	12	217	2	7	32	32	7	PARAM	1	PMDG070E
ZMD21702	PowerSwitch	67	12	217	2	7	32	32	8	PARAM	1	PMDG0710
ZMD21702	PowerSwitch	67	12	217	2	7	32	32	9	PARAM	1	PMDG0712
ZMD217S5	PowerOn	67	12	217	255	7	32	32	0	PARAM	1	PMDG8700



ZMD217S5	PowerOn	67	12	217	255	7	32	32	1	PARAM	1	PMDG8702
ZMD217S5	PowerOn	67	12	217	255	7	32	32	2	PARAM	1	PMDG8704
ZMD217S5	PowerOn	67	12	217	255	7	32	32	3	PARAM	1	PMDG8706
ZMD217S5	PowerOn	67	12	217	255	7	32	32	4	PARAM	1	PMDG8708
ZMD217S5	PowerOn	67	12	217	255	7	32	32	5	PARAM	1	PMDG8710
ZMD217S5	PowerOn	67	12	217	255	7	32	32	6	PARAM	1	PMDG8712
ZMD217S5	PowerOn	67	12	217	255	7	32	32	7	PARAM	1	PMDG870E
ZMD217S5	PowerOn	67	12	217	255	7	32	32	8	PARAM	1	PMDG870A
ZMD217S5	PowerOn	67	12	217	255	7	32	32	9	PARAM	1	PMDG870C
ZMD21801	XyOpenRel2Red	67	12	218	1	7	20	20	0	PARAM	1	PMDG8513
ZMD21801	XyOpenRel2Red	67	12	218	1	7	20	20	1	PARAM	1	PMDG0511
ZMD21801	XyOpenRel2Red	67	12	218	1	7	20	20	2	PARAM	1	PMDG850F
ZMD21802	XyOpenRel2Main	67	12	218	2	7	20	20	0	PARAM	1	PMDG8513
ZMD21802	XyOpenRel2Main	67	12	218	2	7	20	20	1	PARAM	1	PMDG0511
ZMD21802	XyOpenRel2Main	67	12	218	2	7	20	20	2	PARAM	1	PMDG850E
ZMD21803	XyOpenRel1Main	67	12	218	3	7	20	20	0	PARAM	1	PMDG850B
ZMD21803	XyOpenRel1Main	67	12	218	3	7	20	20	1	PARAM	1	PMDG0511
ZMD21803	XyOpenRel1Main	67	12	218	3	7	20	20	2	PARAM	1	PMDG850E
ZMD218S5	XyOpenRel1Red	67	12	218	255	7	20	20	0	PARAM	1	PMDG850B
ZMD218S5	XyOpenRel1Red	67	12	218	255	7	20	20	1	PARAM	1	PMDG0511
ZMD218S5	XyOpenRel1Red	67	12	218	255	7	20	20	2	PARAM	1	PMDG850F
ZMD22001	DataProcessing	67	12	220	1	7	46	46	0	PARAM	1	PMDG0E15
ZMD22001	DataProcessing	67	12	220	1	7	46	46	1	PARAM	1	PMDG0E16
ZMD22001	DataProcessing	67	12	220	1	7	46	46	2	PARAM	1	PMDG0E17
ZMD22001	DataProcessing	67	12	220	1	7	46	46	3	PARAM	1	PMDG0E18
ZMD22001	DataProcessing	67	12	220	1	7	46	46	4	PARAM	1	PMDG0E1A
ZMD22001	DataProcessing	67	12	220	1	7	46	46	5	PARAM	1	PMDG0E1B
ZMD22001	DataProcessing	67	12	220	1	7	46	46	6	PARAM	1	PMDG0E1C
ZMD22001	DataProcessing	67	12	220	1	7	46	46	7	PARAM	1	PMDG0E1D
ZMD22001	DataProcessing	67	12	220	1	7	46	46	8	PARAM	1	PMDG8E19
ZMD23001	InstrumentSetup	67	12	230	1	7	58	58	0	PARAM	1	PMDG020D
ZMD23001	InstrumentSetup	67	12	230	1	7	58	58	1	PARAM	1	PMDG0210
ZMD23001	InstrumentSetup	67	12	230	1	7	58	58	2	PARAM	1	PMDG0211
ZMD23001	InstrumentSetup	67	12	230	1	7	58	58	3	PARAM	1	PMDG0806
ZMD23001	InstrumentSetup	67	12	230	1	7	58	58	4	PARAM	1	PMDG0807
ZMD23001	InstrumentSetup	67	12	230	1	7	58	58	5	PARAM	1	PMDG0808
ZMD23001	InstrumentSetup	67	12	230	1	7	58	58	6	PARAM	1	PMDG0809
ZMD23001	InstrumentSetup	67	12	230	1	7	58	58	7	PARAM	1	PMDG0212
ZMD23001	InstrumentSetup	67	12	230	1	7	58	58	8	PARAM	1	PMDG0E11
ZMD23001	InstrumentSetup	67	12	230	1	7	58	58	9	PARAM	1	PMDG0E12
ZMD23001	InstrumentSetup	67	12	230	1	7	58	58	10	PARAM	1	PMDG0E13
ZMD23001	InstrumentSetup	67	12	230	1	7	58	58	11	PARAM	1	PMDG0E14
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	0	PARAM	1	PMDG0201
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	1	PARAM	1	PMDG0202
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	2	PARAM	1	PMDG0203
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	3	PARAM	1	PMDG0204
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	4	PARAM	1	PMDG0205
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	5	PARAM	1	PMDG0206
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	6	PARAM	1	PMDG0235
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	7	PARAM	1	PMDG0236
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	8	PARAM	1	PMDG0238
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	9	PARAM	1	PMDG023C
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	10	PARAM	1	PMDG023D
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	11	PARAM	1	PMDG023E
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	12	PARAM	1	PMDG0217
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	13	PARAM	1	PMDG0218
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	14	PARAM	1	PMDG023A
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	15	PARAM	1	PMDG023B
ZMD23002	PrepareForScan	67	12	230	2	7	76	76	16	PARAM	1	PMDG0219



ZMD230S5	DummyScan	67	12	230	255	7	68	68	0	PARAM	1	PMDG0201
ZMD230S5	DummyScan	67	12	230	255	7	68	68	1	PARAM	1	PMDG0202
ZMD230S5	DummyScan	67	12	230	255	7	68	68	2	PARAM	1	PMDG0203
ZMD230S5	DummyScan	67	12	230	255	7	68	68	3	PARAM	1	PMDG0204
ZMD230S5	DummyScan	67	12	230	255	7	68	68	4	PARAM	1	PMDG0205
ZMD230S5	DummyScan	67	12	230	255	7	68	68	5	PARAM	1	PMDG0206
ZMD230S5	DummyScan	67	12	230	255	7	68	68	6	PARAM	1	PMDG0214
ZMD230S5	DummyScan	67	12	230	255	7	68	68	7	PARAM	1	PMDG021A
ZMD230S5	DummyScan	67	12	230	255	7	68	68	8	PARAM	1	PMDG021C
ZMD230S5	DummyScan	67	12	230	255	7	68	68	9	PARAM	1	PMDG0250
ZMD230S5	DummyScan	67	12	230	255	7	68	68	10	PARAM	1	PMDG0251
ZMD230S5	DummyScan	67	12	230	255	7	68	68	11	PARAM	1	PMDG0252
ZMD230S5	DummyScan	67	12	230	255	7	68	68	12	PARAM	1	PMDG0253
ZMD230S5	DummyScan	67	12	230	255	7	68	68	13	PARAM	1	PMDG021F
ZMD230S5	DummyScan	67	12	230	255	7	68	68	14	PARAM	1	PMDG0233
ZMD230S5	DummyScan	67	12	230	255	7	68	68	15	PARAM	1	PMDG821E
ZMD24001	AppToMaxPos	67	12	240	1	7	44	44	0	PARAM	1	PMDG0106
ZMD24001	AppToMaxPos	67	12	240	1	7	44	44	1	PARAM	1	PMDG0113
ZMD24001	AppToMaxPos	67	12	240	1	7	44	44	2	PARAM	1	PMDG0116
ZMD24001	AppToMaxPos	67	12	240	1	7	44	44	3	PARAM	1	PMDG0117
ZMD24001	AppToMaxPos	67	12	240	1	7	44	44	4	PARAM	1	PMDG0118
ZMD24001	AppToMaxPos	67	12	240	1	7	44	44	5	PARAM	1	PMDG0115
ZMD24001	AppToMaxPos	67	12	240	1	7	44	44	6	PARAM	1	PMDG0114
ZMD24001	AppToMaxPos	67	12	240	1	7	44	44	7	PARAM	1	PMDG8111
ZMD24001	AppToMaxPos	67	12	240	1	7	44	44	8	PARAM	1	PMDG8100
ZMD24002	LinToMaxPos	67	12	240	2	7	22	22	0	PARAM	1	PMDG0400
ZMD24002	LinToMaxPos	67	12	240	2	7	22	22	1	PARAM	1	PMDG010D
ZMD24002	LinToMaxPos	67	12	240	2	7	22	22	2	PARAM	1	PMDG810C
ZMD24003	LinToMinPos	67	12	240	3	7	22	22	0	PARAM	1	PMDG0400
ZMD24003	LinToMinPos	67	12	240	3	7	22	22	1	PARAM	1	PMDG010D
ZMD24003	LinToMinPos	67	12	240	3	7	22	22	2	PARAM	1	PMDG810B
ZMD240S5	AppToMinPos	67	12	240	255	7	42	42	0	PARAM	1	PMDG0106
ZMD240S5	AppToMinPos	67	12	240	255	7	42	42	1	PARAM	1	PMDG0113
ZMD240S5	AppToMinPos	67	12	240	255	7	42	42	2	PARAM	1	PMDG0116
ZMD240S5	AppToMinPos	67	12	240	255	7	42	42	3	PARAM	1	PMDG0117
ZMD240S5	AppToMinPos	67	12	240	255	7	42	42	4	PARAM	1	PMDG0118
ZMD240S5	AppToMinPos	67	12	240	255	7	42	42	5	PARAM	1	PMDG0115
ZMD240S5	AppToMinPos	67	12	240	255	7	42	42	6	PARAM	1	PMDG0114
ZMD240S5	AppToMinPos	67	12	240	255	7	42	42	7	PARAM	1	PMDG8101
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	0	PARAM	1	PMDGTM01
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	1	PARAM	1	PMDGTM02
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	2	PARAM	1	PMDGTM03
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	3	PARAM	1	PMDGTM04
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	4	PARAM	1	PMDGTM05
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	5	PARAM	1	PMDGTM06
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	6	PARAM	1	PMDGTM07
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	7	PARAM	1	PMDGTM08
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	8	PARAM	1	PMDGTM09
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	9	PARAM	1	PMDGTM10
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	10	PARAM	1	PMDGTM11
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	11	PARAM	1	PMDGTM12
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	12	PARAM	1	PMDGTM13
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	13	PARAM	1	PMDGTM14
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	14	PARAM	1	PMDGTM15
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	15	PARAM	1	PMDGTM16
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	16	PARAM	1	PMDGTM17
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	17	PARAM	1	PMDGTM18
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	18	PARAM	1	PMDGTM19
ZMD25401	TechModeCmd	67	12	254	1	7	52	52	19	PARAM	1	PMDGTM20



ZMD25402	SetSwParameter	67	12	254	2	7	20	20	0	PARAM	1	PMDG0E0F
ZMD25402	SetSwParameter	67	12	254	2	7	20	20	1	PARAM	1	PMDG0E10
ZMD25501	ResetTelemetryBuffer	67	12	255	1	7	12	12				



6.4 Telecommand Parameter Definitions

NAME	CATEGORY	INAME	USAGE	PTC	PFC	TCPA_SIZE	CALIB_TYPE	CALC_NAME_1	ENGLABEL	DEF_VALUE	IS_MODIFIABLE	LIMS_NAME	TCDP_TCGP_NAME	TCDP_START_BIT
PMDD0041	TCDP	SetHk1PeriodCmd	7	3	12	16	NONE			h0004	N		PMDG0004	0
PMDD0042	TCDP	SetHk1PeriodPar	7	3	12	16	ANA	CMDDP0000	s	4	Y		PMDG0004	16
PMDD0051	TCDP	SetHk2PeriodCmd	7	3	12	16	NONE			h0005	N		PMDG0005	0
PMDD0052	TCDP	SetHk2PeriodPar	7	3	12	16	ANA	CMDDP0000	s	8	Y		PMDG0005	16
PMDD1061	TCDP	SetDcPulsewidthCmd	7	3	12	16	NONE			h0106	N		PMDG0106	0
PMDD1062	TCDP	SetDcPulsewidthPar	7	3	12	16	ANA	CMDDP0012	us	105	Y		PMDG0106	16
PMDD1071	TCDP	SetLinPosAbsCmd	7	3	12	16	NONE			h0107	N		PMDG0107	0
PMDD1072	TCDP	SetLinPosAbsPar	7	4	12	16	ANA	CMDDP0003	V	0	Y		PMDG0107	16
PMDD1081	TCDP	SetPulseDelayCmd	7	3	12	16	NONE			h0108	N		PMDG0108	0
PMDD1082	TCDP	SetPulseDelayPar	7	3	12	16	NONE			0	Y		PMDG0108	16
PMDD10D1	TCDP	SetLinmovTimoCmd	7	3	12	16	NONE			h010D	N		PMDG010D	0
PMDD10D2	TCDP	SetLinmovTimoPar	7	3	12	16	ANA	CMDDP0000	s	0	Y		PMDG010D	16
PMDD10E1	TCDP	SetApprAbsPosCmd	7	3	12	16	NONE			h010E	N		PMDG010E	0
PMDD10E2	TCDP	SetApprAbsPosPar	7	4	12	16	ANA	CMDDP0003	V	6	Y		PMDG010E	16
PMDD1101	TCDP	CheckDcOnOffCmd	7	3	11	15	NONE			h4088	N		PMDG0110	0
PMDD1102	TCDP	CheckDcOnOffPar	7	2	1	1	DIG	CMDDVFINV		ON*	Y		PMDG0110	15
PMDD1121	TCDP	SetDeltaApprPosCmd	7	3	12	16	NONE			h0112	N		PMDG0112	0
PMDD1122	TCDP	SetDeltaApprPosPar	7	4	12	16	ANA	CMDDP0003	V	0.04	Y		PMDG0112	16
PMDD1131	TCDP	SetApprTestCountCmd	7	3	12	16	NONE			h0113	N		PMDG0113	0
PMDD1132	TCDP	SetApprTestCountPar	7	3	12	16	ANA	CMDDP0000	ms	130.0	Y		PMDG0113	16
PMDD1141	TCDP	SetApprPosMaxCmd	7	3	12	16	NONE			h0114	N		PMDG0114	0
PMDD1142	TCDP	SetApprPosMaxPar	7	4	12	16	ANA	CMDDP0003	V	-6.0	Y		PMDG0114	16
PMDD1151	TCDP	SetApprPosMinCmd	7	3	12	16	NONE			h0115	N		PMDG0115	0
PMDD1152	TCDP	SetApprPosMinPar	7	4	12	16	ANA	CMDDP0003	V	6.0	Y		PMDG0115	16
PMDD1161	TCDP	SetDeltaApprLvdtCmd	7	3	12	16	NONE			h0116	N		PMDG0116	0
PMDD1162	TCDP	SetDeltaApprLvdtPar	7	4	12	16	ANA	CMDDP0003	V	0.03	Y		PMDG0116	16
PMDD1171	TCDP	SetApprNumPulsesCmd	7	3	12	16	NONE			h0117	N		PMDG0117	0
PMDD1172	TCDP	SetApprNumPulsesPar	7	3	12	16	NONE			25	Y		PMDG0117	16
PMDD1181	TCDP	SetApprStuckCntCmd	7	3	12	16	NONE			h0118	N		PMDG0118	0
PMDD1182	TCDP	SetApprStuckCntPar	7	3	12	16	NONE			0	Y		PMDG0118	16
PMDD1191	TCDP	SetDeltaDcContactCmd	7	3	12	16	NONE			h0119	N		PMDG0119	0
PMDD1192	TCDP	SetDeltaDcContactPar	7	4	12	16	ANA	CMDDP0003	V	0.1	Y		PMDG0119	16
PMDD2011	TCDP	SetXOriginCmd	7	3	12	16	NONE			h0201	N		PMDG0201	0
PMDD2012	TCDP	SetXOriginPar	7	3	12	16	NONE			0	Y		PMDG0201	16
PMDD2021	TCDP	SetYOriginCmd	7	3	12	16	NONE			h0202	N		PMDG0202	0
PMDD2022	TCDP	SetYOriginPar	7	3	12	16	NONE			0	Y		PMDG0202	16
PMDD2031	TCDP	SetXNumStepsCmd	7	3	12	16	NONE			h0203	N		PMDG0203	0
PMDD2032	TCDP	SetXNumStepsPar	7	3	12	16	NONE			256	Y		PMDG0203	16
PMDD2041	TCDP	SetYNumStepsCmd	7	3	12	16	NONE			h0204	N		PMDG0204	0
PMDD2042	TCDP	SetYNumStepsPar	7	3	12	16	NONE			256	Y		PMDG0204	16
PMDD2051	TCDP	SetXStepSizeCmd	7	3	12	16	NONE			h0205	N		PMDG0205	0
PMDD2052	TCDP	SetXStepSizePar	7	3	12	16	NONE			24	Y		PMDG0205	16
PMDD2061	TCDP	SetYStepSizeCmd	7	3	12	16	NONE			h0206	N		PMDG0206	0
PMDD2062	TCDP	SetYStepSizePar	7	3	12	16	NONE			24	Y		PMDG0206	16
PMDD2071	TCDP	SetAverageCmd	7	3	12	16	NONE			h0207	N		PMDG0207	0
PMDD2072	TCDP	SetAveragePar	7	3	12	16	NONE			1	Y		PMDG0207	16
PMDD2081	TCDP	SetOpPointPercCmd	7	3	12	16	NONE			h0208	N		PMDG0208	0
PMDD2082	TCDP	SetOpPointPercPar	7	3	12	16	ANA	CMDDP0014	%	20	Y		PMDG0208	16
PMDD20C1	TCDP	SetAcgainCmd	7	3	12	16	NONE			h020C	N		PMDG020C	0



PMDD20C2	TCDP	SetAcgainPar	7	3	12	16	NONE			3	Y		PMDG020C	16
PMDD20D1	TCDP	SetDcgainCmd	7	3	12	16	NONE			h020D	N		PMDG020D	0
PMDD20D2	TCDP	SetDcgainPar	7	3	12	16	NONE			0	Y		PMDG020D	16
PMDD20E1	TCDP	SetExclevCmd	7	3	12	16	NONE			h020E	N		PMDG020E	0
PMDD20E2	TCDP	SetExclevPar	7	3	12	16	NONE			3	Y		PMDG020E	16
PMDD20F1	TCDP	SetDeltaOpPercCmd	7	3	12	16	NONE			h020F	N		PMDG020F	0
PMDD20F2	TCDP	SetDeltaOpPercPar	7	3	12	16	ANA	CMDP0014	%	1	Y		PMDG020F	16
PMDD2101	TCDP	SetMsubCyclesCmd	7	3	12	16	NONE			h0210	N		PMDG0210	0
PMDD2102	TCDP	SetMsubCyclesPar	7	3	12	16	NONE			100	Y		PMDG0210	16
PMDD2111	TCDP	SetMaxCyclesCmd	7	3	12	16	NONE			h0211	N		PMDG0211	0
PMDD2112	TCDP	SetMaxCyclesPar	7	3	12	16	NONE			20000	Y		PMDG0211	16
PMDD2121	TCDP	SetCsscPosCtrlCmd	7	3	11	15	NONE			h4109	N		PMDG0212	0
PMDD2122	TCDP	SetCsscPosCtrlPar	7	2	1	1	DIG	CMDVFINV		ON*	Y		PMDG0212	15
PMDD2141	TCDP	SelMainScanDirCmd	7	3	11	15	NONE			h410A	N		PMDG0214	0
PMDD2142	TCDP	SelMainScanDirPar	7	2	1	1	DIG	CMDVMDIR		X	Y		PMDG0214	15
PMDD2161	TCDP	SetScanModeCmd	7	3	12	16	NONE			h0216	N		PMDG0216	0
PMDD2162	TCDP	SetScanModePar	7	3	12	16	NONE			0	Y		PMDG0216	16
PMDD2171	TCDP	SetZRetractCmd	7	3	12	16	NONE			h0217	N		PMDG0217	0
PMDD2172	TCDP	SetZRetractPar	7	3	12	16	NONE			500	Y		PMDG0217	16
PMDD2181	TCDP	SetZRetractMagnCmd	7	3	12	16	NONE			h0218	N		PMDG0218	0
PMDD2182	TCDP	SetZRetractMagnPar	7	3	12	16	NONE			50	Y		PMDG0218	16
PMDD2191	TCDP	SetZStepSizeCmd	7	3	12	16	NONE			h0219	N		PMDG0219	0
PMDD2192	TCDP	SetZStepSizePar	7	3	12	16	NONE			4	Y		PMDG0219	16
PMDD21A1	TCDP	SelScanDirXCmd	7	3	11	15	NONE			h410D	N		PMDG021A	0
PMDD21A2	TCDP	SelScanDirXPar	7	2	1	1	DIG	CMDVSDIR		L_H	Y		PMDG021A	15
PMDD21C1	TCDP	SelScanDirYCmd	7	3	11	15	NONE			h410E	N		PMDG021C	0
PMDD21C2	TCDP	SelScanDirYPar	7	2	1	1	DIG	CMDVSDIR		L_H	Y		PMDG021C	15
PMDD21F1	TCDP	SetDataTypeCmd	7	3	12	16	NONE			h021F	N		PMDG021F	0
PMDD21F2	TCDP	SetDataTypePar	7	3	12	16	NONE			1	Y		PMDG021F	16
PMDD2301	TCDP	SelectDataSetCmd	7	3	12	16	NONE			h0230	N		PMDG0230	0
PMDD2302	TCDP	SelectDataSetPar	7	3	12	16	NONE			h4000	Y		PMDG0230	16
PMDD2331	TCDP	SetTransferModeCmd	7	3	12	16	NONE			h0233	N		PMDG0233	0
PMDD2332	TCDP	SetTransferModePar	7	3	12	16	NONE			1	Y	LMDD2332	PMDG0233	16
PMDD2341	TCDP	SetScanAlgorCmd	7	3	12	16	NONE			h0234	N		PMDG0234	0
PMDD2342	TCDP	SetScanAlgorPar	7	3	12	16	NONE			0	Y		PMDG0234	16
PMDD2351	TCDP	SetOpPointPcontPercCmd	7	3	12	16	NONE			h0235	N		PMDG0235	0
PMDD2352	TCDP	SetOpPointPcontPercPar	7	3	12	16	ANA	CMDP0014	%	0	Y		PMDG0235	16
PMDD2361	TCDP	SetPcontKcCmd	7	3	12	16	NONE			h0236	N		PMDG0236	0
PMDD2362	TCDP	SetPcontKcPar	7	3	12	16	NONE			1	Y		PMDG0236	16
PMDD2381	TCDP	DispCtrlDataOnOffCmd	7	3	11	15	NONE			h411C	N		PMDG0238	0
PMDD2382	TCDP	DispCtrlDataOnOffPar	7	2	1	1	DIG	CMDVFINV		OFF*	Y		PMDG0238	15
PMDD23A1	TCDP	SetZSettlTimeCmd	7	3	12	16	NONE			h023A	N		PMDG023A	0
PMDD23A2	TCDP	SetZSettlTimePar	7	3	12	16	NONE			50	Y		PMDG023A	16
PMDD23B1	TCDP	SetXySettlTimeCmd	7	3	12	16	NONE			h023B	N		PMDG023B	0
PMDD23B2	TCDP	SetXySettlTimePar	7	3	12	16	NONE			50	Y		PMDG023B	16
PMDD23C1	TCDP	SetDcThresholdCmd	7	3	12	16	NONE			h023C	N		PMDG023C	0
PMDD23C2	TCDP	SetDcThresholdPar	7	4	12	16	ANA	CMDP0003	V	0	Y		PMDG023C	16
PMDD23D1	TCDP	SetDeltaOpPercDcCmd	7	3	12	16	NONE			h023D	N		PMDG023D	0
PMDD23D2	TCDP	SetDeltaOpPercDcPar	7	3	12	16	ANA	CMDP0014	%	0	Y		PMDG023D	16
PMDD23E1	TCDP	FreqAdjustOnOffCmd	7	3	11	15	NONE			h411F	N		PMDG023E	0
PMDD23E2	TCDP	FreqAdjustOnOffPar	7	2	1	1	DIG	CMDVFINV		OFF*	Y		PMDG023E	15
PMDD2401	TCDP	SetCantHiresTimeCmd	7	3	12	16	NONE			h0240	N		PMDG0240	0
PMDD2402	TCDP	SetCantHiresTimePar	7	3	12	16	NONE			10	Y		PMDG0240	16
PMDD2411	TCDP	SetCantHiresPktsCmd	7	3	12	16	NONE			h0241	N		PMDG0241	0
PMDD2412	TCDP	SetCantHiresPktsPar	7	3	12	16	NONE			24	Y		PMDG0241	16
PMDD2501	TCDP	SetDscRandAmplCmd	7	3	12	16	NONE			h0250	N		PMDG0250	0
PMDD2502	TCDP	SetDscRandAmplPar	7	3	12	16	NONE			10	Y		PMDG0250	16
PMDD2511	TCDP	SetDscSineAmplCmd	7	3	12	16	NONE			h0251	N		PMDG0251	0
PMDD2512	TCDP	SetDscSineAmplPar	7	3	12	16	NONE			200	Y		PMDG0251	16



PMDD2521	TCDP	SetDscZeroOffsCmd	7	3	12	16	NONE			h0252	N		PMDG0252	0
PMDD2522	TCDP	SetDscZeroOffsPar	7	3	12	16	NONE			33024	Y		PMDG0252	16
PMDD2531	TCDP	SetDscGradSineCmd	7	3	12	16	NONE			h0253	N		PMDG0253	0
PMDD2532	TCDP	SetDscGradSinePar	7	3	12	16	NONE			h3C87	Y		PMDG0253	16
PMDD3021	TCDP	SetFStepCmd	7	3	12	16	NONE			h0302	N		PMDG0302	0
PMDD3022	TCDP	SetFStepPar	7	3	12	16	ANA	CMDP0016	Hz	30	Y		PMDG0302	16
PMDD3041	TCDP	FsynthOnOffCmd	7	3	11	15	NONE			h4182	N		PMDG0304	0
PMDD3042	TCDP	FsynthOnOffPar	7	2	1	1	DIG	CMDVFINV		OFF*	Y		PMDG0304	15
PMDD3071	TCDP	SetNoOfFscansCmd	7	3	12	16	NONE			h0307	N		PMDG0307	0
PMDD3072	TCDP	SetNoOfFscansPar	7	3	12	16	NONE			8	Y		PMDG0307	16
PMDD3081	TCDP	SetFStepHiCmd	7	3	12	16	NONE			h0308	N		PMDG0308	0
PMDD3082	TCDP	SetFStepHiPar	7	3	12	16	ANA	CMDP0016	Hz	1	Y		PMDG0308	16
PMDD3091	TCDP	SetSearchAlgorCmd	7	3	12	16	NONE			h0309	N		PMDG0309	0
PMDD3092	TCDP	SetSearchAlgorPar	7	3	12	16	NONE			0	Y		PMDG0309	16
PMDD30A1	TCDP	SetPercentOpAmplCmd	7	3	12	16	NONE			h030A	N		PMDG030A	0
PMDD30A2	TCDP	SetPercentOpAmplPar	7	4	12	16	ANA	CMDP0033	%	90	Y		PMDG030A	16
PMDD30B1	TCDP	SetFrequencyHiCmd	7	3	12	16	NONE			h030B	N		PMDG030B	0
PMDD30B2	TCDP	SetFrequencyHiPar	7	3	12	16	ANA	CMDP0015	Hz	60000	Y		PMDG030B	16
PMDD30C1	TCDP	SetFrequencyLoCmd	7	3	12	16	NONE			h030C	N		PMDG030C	0
PMDD30C2	TCDP	SetFrequencyLoPar	7	3	12	16	ANA	CMDP0016	Hz	0	Y		PMDG030C	16
PMDD30E1	TCDP	ThresDetectOnOffCmd	7	3	11	15	NONE			h4187	N		PMDG030E	0
PMDD30E2	TCDP	ThresDetectOnOffPar	7	2	1	1	DIG	CMDVFINV		ON*	Y		PMDG030E	15
PMDD4001	TCDP	SetPulsewidthCmd	7	3	12	16	NONE			h0400	N		PMDG0400	0
PMDD4002	TCDP	SetPulsewidthPar	7	3	12	16	ANA	CMDP0012	us	190	Y		PMDG0400	16
PMDD4031	TCDP	SetSegmentNumberCmd	7	3	12	16	NONE			h0403	N		PMDG0403	0
PMDD4032	TCDP	SetSegmentNumberPar	7	3	12	16	NONE			0	Y		PMDG0403	16
PMDD5101	TCDP	SetWaxactTimoCmd	7	3	12	16	NONE			h0510	N		PMDG0510	0
PMDD5102	TCDP	SetWaxactTimoPar	7	3	12	16	ANA	CMDP0000	s	300	Y		PMDG0510	16
PMDD5111	TCDP	SetXyactTimoCmd	7	3	12	16	NONE			h0511	N		PMDG0511	0
PMDD5112	TCDP	SetXyactTimoPar	7	3	12	16	ANA	CMDP0000	s	300	Y		PMDG0511	16
PMDD7001	TCDP	CsscPowerCmd	7	3	11	15	NONE			h4380	N		PMDG0700	0
PMDD7002	TCDP	CsscPowerPar	7	2	1	1	DIG	CMDVPREL		REL_OF F	Y		PMDG0700	15
PMDD7021	TCDP	AppLvdtPowerCmd	7	3	11	15	NONE			h4381	N		PMDG0702	0
PMDD7022	TCDP	AppLvdtPowerPar	7	2	1	1	DIG	CMDVPREL		REL_OF F	Y		PMDG0702	15
PMDD7041	TCDP	LinLvdtPowerCmd	7	3	11	15	NONE			h4382	N		PMDG0704	0
PMDD7042	TCDP	LinLvdtPowerPar	7	2	1	1	DIG	CMDVPREL		REL_OF F	Y		PMDG0704	15
PMDD7061	TCDP	PreAmpPowerCmd	7	3	11	15	NONE			h4383	N		PMDG0706	0
PMDD7062	TCDP	PreAmpPowerPar	7	2	1	1	DIG	CMDVPREL		REL_OF F	Y		PMDG0706	15
PMDD7081	TCDP	CantBlock1PowerCmd	7	3	11	15	NONE			h4384	N		PMDG0708	0
PMDD7082	TCDP	CantBlock1PowerPar	7	2	1	1	DIG	CMDVPREL		REL_OF F	Y		PMDG0708	15
PMDD70A1	TCDP	CantBlock2PowerCmd	7	3	11	15	NONE			h4385	N		PMDG070A	0
PMDD70A2	TCDP	CantBlock2PowerPar	7	2	1	1	DIG	CMDVPREL		REL_OF F	Y		PMDG070A	15
PMDD70C1	TCDP	MotDrvPowerCmd	7	3	11	15	NONE			h4386	N		PMDG070C	0
PMDD70C2	TCDP	MotDrvPowerPar	7	2	1	1	DIG	CMDVPREL		REL_OF F	Y		PMDG070C	15
PMDD70E1	TCDP	WheelEncPowerCmd	7	3	11	15	NONE			h4387	N		PMDG070E	0
PMDD70E2	TCDP	WheelEncPowerPar	7	2	1	1	DIG	CMDVPREL		REL_OF F	Y		PMDG070E	15
PMDD7101	TCDP	PiezoHvampCmd	7	3	11	15	NONE			h4388	N		PMDG0710	0
PMDD7102	TCDP	PiezoHvampPar	7	2	1	1	DIG	CMDVPREL		REL_OF F	Y		PMDG0710	15
PMDD7121	TCDP	ZStraingPowerCmd	7	3	11	15	NONE			h4389	N		PMDG0712	0
PMDD7122	TCDP	ZStraingPowerPar	7	2	1	1	DIG	CMDVPREL		REL_OF F	Y		PMDG0712	15
PMDD8001	TCDP	SetXctrlLoopCmd	7	3	11	15	NONE			h4400	N		PMDG0800	0
PMDD8002	TCDP	SetXctrlLoopPar	7	2	1	1	DIG	CMDVCTRL		OPEN	Y		PMDG0800	15
PMDD8021	TCDP	SetYctrlLoopCmd	7	3	11	15	NONE			h4401	N		PMDG0802	0
PMDD8022	TCDP	SetYctrlLoopPar	7	2	1	1	DIG	CMDVCTRL		OPEN	Y		PMDG0802	15



PMDD8041	TCDP	SetZctrlLoopCmd	7	3	11	15	NONE			h4402	N		PMDG0804	0
PMDD8042	TCDP	SetZctrlLoopPar	7	2	1	1	DIG	CMDVCTRL		OPEN	Y		PMDG0804	15
PMDD8061	TCDP	SetGainContrXCcmd	7	3	12	16	NONE			h0806	N		PMDG0806	0
PMDD8062	TCDP	SetGainContrXPar	7	3	12	16	NONE			0	Y		PMDG0806	16
PMDD8071	TCDP	SetGainContrYCmd	7	3	12	16	NONE			h0807	N		PMDG0807	0
PMDD8072	TCDP	SetGainContrYPar	7	3	12	16	NONE			0	Y		PMDG0807	16
PMDD8081	TCDP	SetOffsContrXCcmd	7	3	12	16	NONE			h0808	N		PMDG0808	0
PMDD8082	TCDP	SetOffsContrXPar	7	3	12	16	NONE			0	Y		PMDG0808	16
PMDD8091	TCDP	SetOffsContrYCmd	7	3	12	16	NONE			h0809	N		PMDG0809	0
PMDD8092	TCDP	SetOffsContrYPar	7	3	12	16	NONE			0	Y		PMDG0809	16
PMDD80A1	TCDP	EnableZoutputCmd	7	3	11	15	NONE			h4405	N		PMDG080A	0
PMDD80A2	TCDP	EnableZoutputPar	7	2	1	1	DIG	CMDVFINV		OFF*	Y		PMDG080A	15
PMDD80C1	TCDP	SetDacXCcmd	7	3	12	16	NONE			h080C	N		PMDG080C	0
PMDD80C2	TCDP	SetDacXPar	7	3	12	16	NONE			0	Y		PMDG080C	16
PMDD80D1	TCDP	SetDacYCmd	7	3	12	16	NONE			h080D	N		PMDG080D	0
PMDD80D2	TCDP	SetDacYPar	7	3	12	16	NONE			0	Y		PMDG080D	16
PMDD80E1	TCDP	SetDacZCmd	7	3	12	16	NONE			h080E	N		PMDG080E	0
PMDD80E2	TCDP	SetDacZPar	7	3	12	16	NONE			0	Y		PMDG080E	16
PMDD80F1	TCDP	SetZgainCmd	7	3	12	16	NONE			h080F	N		PMDG080F	0
PMDD80F2	TCDP	SetZgainPar	7	3	12	16	NONE			1040	Y		PMDG080F	16
PMDD9001	TCDP	SelCorTabCmd	7	3	12	16	NONE			h0900	N		PMDG0900	0
PMDD9002	TCDP	SelCorTabPar	7	3	12	16	NONE			0	Y		PMDG0900	16
PMDD9041	TCDP	StoreTableToEepromCmd	7	3	12	16	NONE			h0904	N		PMDG0904	0
PMDD9042	TCDP	StoreTableToEepromPar	7	3	12	16	NONE			0	Y		PMDG0904	16
PMDD9051	TCDP	RestoreTableFromEepromCmd	7	3	12	16	NONE			h0905	N		PMDG0905	0
PMDD9052	TCDP	RestoreTableFromEepromPar	7	3	12	16	NONE			0	Y		PMDG0905	16
PMDDA081	TCDP	SetVrefAccCmd	7	3	12	16	NONE			h0A08	N		PMDG0A08	0
PMDDA082	TCDP	SetVrefAccPar	7	3	12	16	ANA	CMDP0003	V	0	Y		PMDG0A08	16
PMDDA091	TCDP	SetVxref1Cmd	7	3	12	16	ANA			h0A09	N		PMDG0A09	0
PMDDA092	TCDP	SetVxref1Par	7	3	12	16	ANA	CMDP0003	V	0	Y		PMDG0A09	16
PMDDA0A1	TCDP	SetVxref2Cmd	7	3	12	16	NONE			h0A0A	N		PMDG0A0A	0
PMDDA0A2	TCDP	SetVxref2Par	7	3	12	16	ANA	CMDP0003	V	0	Y		PMDG0A0A	16
PMDDA0B1	TCDP	SetVyref1Cmd	7	3	12	16	NONE			h0A0B	N		PMDG0A0B	0
PMDDA0B2	TCDP	SetVyref1Par	7	3	12	16	ANA	CMDP0003	V	0	Y		PMDG0A0B	16
PMDDA0C1	TCDP	SetVyref2Cmd	7	3	12	16	NONE			h0A0C	N		PMDG0A0C	0
PMDDA0C2	TCDP	SetVyref2Par	7	3	12	16	ANA	CMDP0003	V	0	Y		PMDG0A0C	16
PMDDA0D1	TCDP	SetGainStepCmd	7	3	12	16	NONE			h0A0D	N		PMDG0A0D	0
PMDDA0D2	TCDP	SetGainStepPar	7	3	12	16	NONE			1	Y		PMDG0A0D	16
PMDDA0E1	TCDP	SetOffsStepCmd	7	3	12	16	NONE			h0A0E	N		PMDG0A0E	0
PMDDA0E2	TCDP	SetOffsStepPar	7	3	12	16	NONE			1	Y		PMDG0A0E	16
PMDDA0F1	TCDP	SetMaxCalCyclesCmd	7	3	12	16	NONE			h0A0F	N		PMDG0A0F	0
PMDDA0F2	TCDP	SetMaxCalCyclesPar	7	3	12	16	NONE			100	Y		PMDG0A0F	16
PMDDC001	TCDP	SelCantBlockXCcmd	7	3	11	15	NONE			h4600	N		PMDG0C00	0
PMDDC002	TCDP	SelCantBlockXPar	7	2	1	1	NONE			0	Y		PMDG0C00	15
PMDDC101	TCDP	SelCantXCcmd	7	3	9	13	NONE			h1182	N		PMDG0C10	0
PMDDC102	TCDP	SelCantXPar	7	2	3	3	NONE			0	Y		PMDG0C10	13
PMDDC2A1	TCDP	SelTipNoCmd	7	3	12	16	NONE			h0C2A	N		PMDG0C2A	0
PMDDC2A2	TCDP	SelTipNoPar	7	3	12	16	NONE			0	Y		PMDG0C2A	16
PMDDD001	TCDP	SelDatatypesCmd	7	3	12	16	NONE			h0D00	N		PMDG0D00	0
PMDDD002	TCDP	SelDatatypesPar	7	3	12	16	NONE			0	Y		PMDG0D00	16
PMDDD011	TCDP	SelDatasetPagesCmd	7	3	12	16	NONE			h0D01	N		PMDG0D01	0
PMDDD012	TCDP	SelDatasetPagesPar	7	3	12	16	NONE			0	Y		PMDG0D01	16
PMDDD021	TCDP	SelWprotPagesCmd	7	3	12	16	NONE			h0D02	N		PMDG0D02	0
PMDDD022	TCDP	SelWprotPagesPar	7	3	12	16	NONE			0	Y		PMDG0D02	16
PMDDD031	TCDP	RelWprotPagesCmd	7	3	12	16	NONE			h0D03	N		PMDG0D03	0
PMDDD032	TCDP	RelWprotPagesPar	7	3	12	16	NONE			0	Y		PMDG0D03	16
PMDEE001	TCDP	DummyCmd1Cmd	7	3	12	16	NONE			h0E00	N		PMDG0E00	0
PMDEE002	TCDP	DummyCmd1Par	7	3	12	16	NONE			0	Y		PMDG0E00	16



PMDE011	TCDP	DummyCmd2Cmd	7	3	12	16	NONE			h0E01	N		PMDG0E01	0
PMDE012	TCDP	DummyCmd2Par	7	3	12	16	NONE			0	Y		PMDG0E01	16
PMDE0D1	TCDP	BackupSwCmd	7	3	12	16	NONE			h0E0D	N		PMDG0E0D	0
PMDE0D2	TCDP	BackupSwPar	7	3	12	16	NONE			3	Y		PMDG0E0D	16
PMDE0E1	TCDP	RestoreSwCmd	7	3	12	16	NONE			h0E0E	N		PMDG0E0E	0
PMDE0E2	TCDP	RestoreSwPar	7	3	12	16	NONE			3	Y		PMDG0E0E	16
PMDE0F1	TCDP	SelectSwParamCmd	7	3	12	16	NONE			h0E0F	N		PMDG0E0F	0
PMDE0F2	TCDP	SelectSwParamPar	7	3	12	16	NONE			h2052	Y		PMDG0E0F	16
PMDE101	TCDP	SetParamValueCmd	7	3	12	16	NONE			h0E10	N		PMDG0E10	0
PMDE102	TCDP	SetParamValuePar	7	3	12	16	NONE			0	Y		PMDG0E10	16
PMDE111	TCDP	SetHkParam1Cmd	7	3	12	16	NONE			h0E11	N		PMDG0E11	0
PMDE112	TCDP	SetHkParam1Par	7	3	12	16	NONE			0	Y		PMDG0E11	16
PMDE121	TCDP	SetHkParam2Cmd	7	3	12	16	NONE			h0E12	N		PMDG0E12	0
PMDE122	TCDP	SetHkParam2Par	7	3	12	16	NONE			0	Y		PMDG0E12	16
PMDE131	TCDP	SetHkParam3Cmd	7	3	12	16	NONE			h0E13	N		PMDG0E13	0
PMDE132	TCDP	SetHkParam3Par	7	3	12	16	NONE			0	Y		PMDG0E13	16
PMDE141	TCDP	SetHkParam4Cmd	7	3	12	16	NONE			h0E14	N		PMDG0E14	0
PMDE142	TCDP	SetHkParam4Par	7	3	12	16	NONE			0	Y		PMDG0E14	16
PMDE151	TCDP	SetFvectModeCmd	7	3	12	16	NONE			h0E15	N		PMDG0E15	0
PMDE152	TCDP	SetFvectModePar	7	3	12	16	NONE			h0001	Y		PMDG0E15	16
PMDE161	TCDP	SetFvectLpercCmd	7	3	12	16	NONE			h0E16	N		PMDG0E16	0
PMDE162	TCDP	SetFvectLpercPar	7	3	12	16	ANA	CMDP0014	%	50	Y		PMDG0E16	16
PMDE171	TCDP	SetFvectXmarginCmd	7	3	12	16	NONE			h0E17	N		PMDG0E17	0
PMDE172	TCDP	SetFvectXmarginPar	7	3	12	16	NONE			h0000	Y		PMDG0E17	16
PMDE181	TCDP	SetFvectYmarginCmd	7	3	12	16	NONE			h0E18	N		PMDG0E18	0
PMDE182	TCDP	SetFvectYmarginPar	7	3	12	16	NONE			h0000	Y		PMDG0E18	16
PMDE1A1	TCDP	SetFvectNumPtsCmd	7	3	12	16	NONE			h0E1A	N		PMDG0E1A	0
PMDE1A2	TCDP	SetFvectNumPtsPar	7	3	12	16	NONE			20	Y		PMDG0E1A	16
PMDE1B1	TCDP	SetFvectAvgZCmd	7	3	12	16	NONE			h0E1B	N		PMDG0E1B	0
PMDE1B2	TCDP	SetFvectAvgZPar	7	3	12	16	NONE			40	Y		PMDG0E1B	16
PMDE1C1	TCDP	SetFvectRatioCmd	7	3	12	16	NONE			h0E1C	N		PMDG0E1C	0
PMDE1C2	TCDP	SetFvectRatioPar	7	3	12	16	ANA	CMDP0014	%	50	Y		PMDG0E1C	16
PMDE1D1	TCDP	SetFvectZfactorCmd	7	3	12	16	NONE			h0E1D	N		PMDG0E1D	0
PMDE1D2	TCDP	SetFvectZfactorPar	7	4	12	16	ANA	CMDP0033	%	50	Y		PMDG0E1D	16
PMDE211	TCDP	SetSwParam1Cmd	7	3	12	16	NONE			h0E21	N		PMDG0E21	0
PMDE212	TCDP	SetSwParam1Par	7	3	12	16	NONE			0	Y		PMDG0E21	16
PMDE221	TCDP	SetSwParam2Cmd	7	3	12	16	NONE			h0E22	N		PMDG0E22	0
PMDE222	TCDP	SetSwParam2Par	7	3	12	16	NONE			0	Y		PMDG0E22	16
PMDE231	TCDP	SetSwParam3Cmd	7	3	12	16	NONE			h0E23	N		PMDG0E23	0
PMDE232	TCDP	SetSwParam3Par	7	3	12	16	NONE			0	Y		PMDG0E23	16
PMDE241	TCDP	SetSwParam4Cmd	7	3	12	16	NONE			h0E24	N		PMDG0E24	0
PMDE242	TCDP	SetSwParam4Par	7	3	12	16	NONE			0	Y		PMDG0E24	16
PMDE251	TCDP	SetSwParam5Cmd	7	3	12	16	NONE			h0E25	N		PMDG0E25	0
PMDE252	TCDP	SetSwParam5Par	7	3	12	16	NONE			0	Y		PMDG0E25	16
PMDDF011	TCDP	WaitSecondsCmd	7	3	12	16	NONE			h0F01	N		PMDG0F01	0
PMDDF012	TCDP	WaitSecondsPar	7	3	12	16	ANA	CMDP0001	s	60	Y		PMDG0F01	16
PMDDF111	TCDP	SendPictureDataCmd	7	3	12	16	NONE			h0F11	N		PMDG0F11	0
PMDDF112	TCDP	SendPictureDataPar	7	3	12	16	NONE			0	Y		PMDG0F11	16
PMDDF201	TCDP	DumpMemoryCmd	7	3	12	16	NONE			h0F20	N		PMDG0F20	0
PMDDF202	TCDP	DumpMemoryPar	7	3	12	16	NONE			0	Y		PMDG0F20	16
PMDDF261	TCDP	RegularExtCodeCmd	7	3	11	15	NONE			h4793	N		PMDG0F26	0
PMDDF262	TCDP	RegularExtCodePar	7	2	1	1	DIG	CMDVFLAG		OFF	Y		PMDG0F26	15
PMDDPID0	TCDP	PidPadField	7	3	5	9	NONE			0	N		PMDGSPID	0
PMDDPID1	TCDP	PidValueField	7	2	7	7	NONE			67	Y		PMDGSPID	9
PMDDSEG0	TCDP	SegNumPadField	7	3	4	8	NONE			0	N		PMDGSSSEG	0
PMDDSEG1	TCDP	SegNumValueField	7	3	4	8	NONE				Y		PMDGSSSEG	8
PMDDSID0	TCDP	SidPadField	7	3	4	8	NONE			0	N		PMDGSSID	0
PMDDSID1	TCDP	SidValueField	7	2	8	8	NONE				Y		PMDGSSID	8
PMDG0004	TCGP	SetHk1Period	7	0	32	32	NONE				Y			



PMDG0E15	TCGP	SetFvectMode	7	0	32	32	NONE					Y				
PMDG0E16	TCGP	SetFvectLperc	7	0	32	32	NONE					Y				
PMDG0E17	TCGP	SetFvectXmargin	7	0	32	32	NONE					Y				
PMDG0E18	TCGP	SetFvectYmargin	7	0	32	32	NONE					Y				
PMDG0E1A	TCGP	SetFvectNumPts	7	0	32	32	NONE					Y				
PMDG0E1B	TCGP	SetFvectAvgZ	7	0	32	32	NONE					Y				
PMDG0E1C	TCGP	SetFvectRatio	7	0	32	32	NONE					Y				
PMDG0E1D	TCGP	SetFvectZfactor	7	0	32	32	NONE					Y				
PMDG0E21	TCGP	SetSwParam1	7	0	32	32	NONE					Y				
PMDG0E22	TCGP	SetSwParam2	7	0	32	32	NONE					Y				
PMDG0E23	TCGP	SetSwParam3	7	0	32	32	NONE					Y				
PMDG0E24	TCGP	SetSwParam4	7	0	32	32	NONE					Y				
PMDG0E25	TCGP	SetSwParam5	7	0	32	32	NONE					Y				
PMDG0F01	TCGP	WaitSeconds	7	0	32	32	NONE					Y				
PMDG0F11	TCGP	SendPictureData	7	0	32	32	NONE					Y				
PMDG0F20	TCGP	DumpMemory	7	0	32	32	NONE					Y				
PMDG0F26	TCGP	RegularExtCode	7	3	12	16	NONE					Y				
PMDG8006	TCGP	TmReadback	7	3	12	16	NONE				h8006	N				
PMDG8007	TCGP	MainTmSel	7	3	12	16	NONE				h8007	N				
PMDG8008	TCGP	RedTmSel	7	3	12	16	NONE				h8008	N				
PMDG8009	TCGP	ManTmSel	7	3	12	16	NONE				h8009	N				
PMDG800A	TCGP	AutoTmSel	7	3	12	16	NONE				h800A	N				
PMDG800B	TCGP	ReadMlc	7	3	12	16	NONE				h800B	N				
PMDG8100	TCGP	DoApproach	7	3	12	16	NONE				h8100	N				
PMDG8101	TCGP	DoApproachBackw	7	3	12	16	NONE				h8101	N				
PMDG8102	TCGP	DoLinMovementAbs	7	3	12	16	NONE				h8102	N				
PMDG8103	TCGP	DoLinMovementTip	7	3	12	16	NONE				h8103	N				
PMDG8104	TCGP	DoLinSingleFwd	7	3	12	16	NONE				h8104	N				
PMDG8105	TCGP	DoLinSingleBwd	7	3	12	16	NONE				h8105	N				
PMDG8109	TCGP	DoApprSingleFwd	7	3	12	16	NONE				h8109	N				
PMDG810A	TCGP	DoApprSingleBwd	7	3	12	16	NONE				h810A	N				
PMDG810B	TCGP	DoLinToMinpos	7	3	12	16	NONE				h810B	N				
PMDG810C	TCGP	DoLinToMaxpos	7	3	12	16	NONE				h810C	N				
PMDG810F	TCGP	DoApproachAbs	7	3	12	16	NONE				h810F	N				
PMDG8110	TCGP	CheckDcSignal	7	3	12	16	NONE				h8110	N				
PMDG8111	TCGP	NoCheckDcSignal	7	3	12	16	NONE				h8111	N				
PMDG8200	TCGP	DoSinglePoint	7	3	12	16	NONE				h8200	N				
PMDG8209	TCGP	DoLineScan	7	3	12	16	NONE				h8209	N				
PMDG820A	TCGP	DoFullScan	7	3	12	16	NONE				h820A	N				
PMDG8212	TCGP	EnablCapSensor	7	3	12	16	NONE				h8212	N				
PMDG8213	TCGP	DisablCapSensor	7	3	12	16	NONE				h8213	N				
PMDG8214	TCGP	SelScanDirx	7	3	12	16	NONE				h8214	N				
PMDG8215	TCGP	SelScanDiry	7	3	12	16	NONE				h8215	N				
PMDG821A	TCGP	SelXScanDirLh	7	3	12	16	NONE				h821A	N				
PMDG821B	TCGP	SelXScanDirHl	7	3	12	16	NONE				h821B	N				
PMDG821C	TCGP	SelYScanDirLh	7	3	12	16	NONE				h821C	N				
PMDG821D	TCGP	SelYScanDirHl	7	3	12	16	NONE				h821D	N				
PMDG821E	TCGP	DoDummyFullScan	7	3	12	16	NONE				h821E	N				
PMDG8231	TCGP	ClearDataSet	7	3	12	16	NONE				h8231	N				
PMDG8232	TCGP	TransferDataSet	7	3	12	16	NONE				h8232	N				
PMDG8237	TCGP	CalcOperatVars	7	3	12	16	NONE				h8237	N				
PMDG8238	TCGP	DispContrData	7	3	12	16	NONE				h8238	N				
PMDG8239	TCGP	NodispContrData	7	3	12	16	NONE				h8239	N				
PMDG823E	TCGP	AutoFAdjust	7	3	12	16	NONE				h823E	N				
PMDG823F	TCGP	NoautoFAdjust	7	3	12	16	NONE				h823F	N				
PMDG8242	TCGP	DoCantHiresScan	7	3	12	16	NONE				h8242	N				
PMDG8300	TCGP	SetSingleFrequency	7	3	12	16	NONE				h8300	N				
PMDG8303	TCGP	DoFScan	7	3	12	16	NONE				h8303	N				
PMDG8304	TCGP	FsynthOn	7	3	12	16	NONE				h8304	N				



PMDG8710	TCGP	PiezoHvampOn	7	3	12	16	NONE			h8710	N			
PMDG8711	TCGP	PiezoHvampOff	7	3	12	16	NONE			h8711	N			
PMDG8712	TCGP	ZStraingPowerOn	7	3	12	16	NONE			h8712	N			
PMDG8713	TCGP	ZStraingPowerOff	7	3	12	16	NONE			h8713	N			
PMDG8800	TCGP	ClosedloopX	7	3	12	16	NONE			h8800	N			
PMDG8801	TCGP	OpenloopX	7	3	12	16	NONE			h8801	N			
PMDG8802	TCGP	ClosedloopY	7	3	12	16	NONE			h8802	N			
PMDG8803	TCGP	OpenloopY	7	3	12	16	NONE			h8803	N			
PMDG8804	TCGP	ClosedloopZ	7	3	12	16	NONE			h8804	N			
PMDG8805	TCGP	OpenloopZ	7	3	12	16	NONE			h8805	N			
PMDG880A	TCGP	DeactZselZero	7	3	12	16	NONE			h880A	N			
PMDG880B	TCGP	ActZselZero	7	3	12	16	NONE			h880B	N			
PMDG8901	TCGP	LoadXTable	7	3	12	16	NONE			h8901	N			
PMDG8902	TCGP	LoadYTable	7	3	12	16	NONE			h8902	N			
PMDG8903	TCGP	LoadHysTable	7	3	12	16	NONE			h8903	N			
PMDG8906	TCGP	LoadLinLvdtTable	7	3	12	16	NONE			h8906	N			
PMDG8907	TCGP	LoadApprLvdtTable	7	3	12	16	NONE			h8907	N			
PMDG8908	TCGP	LoadTipPosTable	7	3	12	16	NONE			h8908	N			
PMDG8A00	TCGP	DoCapXSensorCal	7	3	12	16	NONE			h8A00	N			
PMDG8A01	TCGP	DoCapYSensorCal	7	3	12	16	NONE			h8A01	N			
PMDG8A02	TCGP	SelCr1x	7	3	12	16	NONE			h8A02	N			
PMDG8A03	TCGP	SelCr2x	7	3	12	16	NONE			h8A03	N			
PMDG8A04	TCGP	SelCr1y	7	3	12	16	NONE			h8A04	N			
PMDG8A05	TCGP	SelCr2y	7	3	12	16	NONE			h8A05	N			
PMDG8A06	TCGP	SelCx	7	3	12	16	NONE			h8A06	N			
PMDG8A07	TCGP	SelCy	7	3	12	16	NONE			h8A07	N			
PMDG8B00	TCGP	UCanRms	7	3	12	16	NONE			h8B00	N			
PMDG8B01	TCGP	UCanAmpDc	7	3	12	16	NONE			h8B01	N			
PMDG8B02	TCGP	UCanPhase	7	3	12	16	NONE			h8B02	N			
PMDG8B03	TCGP	AppPosMon	7	3	12	16	NONE			h8B03	N			
PMDG8B04	TCGP	LinPosMon	7	3	12	16	NONE			h8B04	N			
PMDG8B05	TCGP	XPrOut	7	3	12	16	NONE			h8B05	N			
PMDG8B06	TCGP	YPrOut	7	3	12	16	NONE			h8B06	N			
PMDG8B07	TCGP	ZPrOut	7	3	12	16	NONE			h8B07	N			
PMDG8B08	TCGP	XpiezoVsensOut	7	3	12	16	NONE			h8B08	N			
PMDG8B09	TCGP	YpiezoVsensOut	7	3	12	16	NONE			h8B09	N			
PMDG8B0A	TCGP	PlateTmp	7	3	12	16	NONE			h8B0A	N			
PMDG8B0B	TCGP	PreTmp	7	3	12	16	NONE			h8B0B	N			
PMDG8B0C	TCGP	PcvTmp	7	3	12	16	NONE			h8B0C	N			
PMDG8B0D	TCGP	CrefTmpx	7	3	12	16	NONE			h8B0D	N			
PMDG8B0E	TCGP	CrefTmpy	7	3	12	16	NONE			h8B0E	N			
PMDG8B0F	TCGP	InletTmp	7	3	12	16	NONE			h8B0F	N			
PMDG8B10	TCGP	V5p	7	3	12	16	NONE			h8B10	N			
PMDG8B11	TCGP	V15pMon	7	3	12	16	NONE			h8B11	N			
PMDG8B12	TCGP	V15nMon	7	3	12	16	NONE			h8B12	N			
PMDG8B13	TCGP	XpiezoPos	7	3	12	16	NONE			h8B13	N			
PMDG8B14	TCGP	YpiezoPos	7	3	12	16	NONE			h8B14	N			
PMDG8B15	TCGP	ZpiezoPos	7	3	12	16	NONE			h8B15	N			
PMDG8B16	TCGP	ZpiezoVsensOut	7	3	12	16	NONE			h8B16	N			
PMDG8B17	TCGP	ClearOvfl	7	3	12	16	NONE			h8B17	N			
PMDG8B18	TCGP	ReadAdcChanS1	7	3	12	16	NONE			h8B18	N			
PMDG8B19	TCGP	AdcCalib	7	3	12	16	NONE			h8B19	N			
PMDG8C00	TCGP	SelCantBlock1	7	3	12	16	NONE			h8C00	N			
PMDG8C01	TCGP	SelCantBlock2	7	3	12	16	NONE			h8C01	N			
PMDG8C10	TCGP	SelCant1	7	3	12	16	NONE			h8C10	N			
PMDG8C11	TCGP	SelCant2	7	3	12	16	NONE			h8C11	N			
PMDG8C12	TCGP	SelCant3	7	3	12	16	NONE			h8C12	N			
PMDG8C13	TCGP	SelCant4	7	3	12	16	NONE			h8C13	N			
PMDG8C14	TCGP	SelCant5	7	3	12	16	NONE			h8C14	N			



PMDG8C15	TCGP	SelCant6	7	3	12	16	NONE			h8C15	N			
PMDG8C16	TCGP	SelCant7	7	3	12	16	NONE			h8C16	N			
PMDG8C17	TCGP	SelCant8	7	3	12	16	NONE			h8C17	N			
PMDG8D04	TCGP	SetAutodetFreePag	7	3	12	16	NONE			h8D04	N			
PMDG8D05	TCGP	SetOvwrtoIdest	7	3	12	16	NONE			h8D05	N			
PMDG8E03	TCGP	ResetTc	7	3	12	16	NONE			h8E03	N			
PMDG8E04	TCGP	ResetCmd	7	3	12	16	NONE			h8E04	N			
PMDG8E05	TCGP	ResetIm	7	3	12	16	NONE			h8E05	N			
PMDG8E06	TCGP	ResetRam	7	3	12	16	NONE			h8E06	N			
PMDG8E07	TCGP	CoInfoEnable	7	3	12	16	NONE			h8E07	N			
PMDG8E08	TCGP	CoInfoDisable	7	3	12	16	NONE			h8E08	N			
PMDG8E09	TCGP	TcEchoEnable	7	3	12	16	NONE			h8E09	N			
PMDG8E0A	TCGP	TcEchoDisable	7	3	12	16	NONE			h8E0A	N			
PMDG8E0B	TCGP	ReadAnalogOn	7	3	12	16	NONE			h8E0B	N			
PMDG8E0C	TCGP	ReadAnalogOff	7	3	12	16	NONE			h8E0C	N			
PMDG8E19	TCGP	FeatureVector	7	3	12	16	NONE			h8E19	N			
PMDG8E31	TCGP	CallRoutine1	7	3	12	16	NONE			h8E31	N			
PMDG8E32	TCGP	CallRoutine2	7	3	12	16	NONE			h8E32	N			
PMDG8E33	TCGP	CallRoutine3	7	3	12	16	NONE			h8E33	N			
PMDG8E34	TCGP	CallRoutine4	7	3	12	16	NONE			h8E34	N			
PMDG8E35	TCGP	CallRoutine5	7	3	12	16	NONE			h8E35	N			
PMDG8F00	TCGP	AbortFunction	7	3	12	16	NONE			h8F00	N			
PMDG8F04	TCGP	SoftNmi	7	3	12	16	NONE			h8F04	N			
PMDG8F05	TCGP	RelayTest	7	3	12	16	NONE			h8F05	N			
PMDG8F08	TCGP	GetRegs	7	3	12	16	NONE			h8F08	N			
PMDG8F0C	TCGP	CheckEepromProt	7	3	12	16	NONE			h8F0C	N			
PMDG8F0D	TCGP	RamTest	7	3	12	16	NONE			h8F0D	N			
PMDG8F0E	TCGP	PgmCs	7	3	12	16	NONE			h8F0E	N			
PMDG8F0F	TCGP	EepromCs	7	3	12	16	NONE			h8F0F	N			
PMDG8F10	TCGP	GetImageHeader	7	3	12	16	NONE			h8F10	N			
PMDG8F12	TCGP	RunDebugger	7	3	12	16	NONE			h8F12	N			
PMDG8F13	TCGP	PatchDebug	7	3	12	16	NONE			h8F13	N			
PMDG8F14	TCGP	PromPwroff	7	3	12	16	NONE			h8F14	N			
PMDG8F15	TCGP	PromPwron	7	3	12	16	NONE			h8F15	N			
PMDG8F16	TCGP	WriteTest	7	3	12	16	NONE			h8F16	N			
PMDG8F17	TCGP	EepromPwrOn	7	3	12	16	NONE			h8F17	N			
PMDG8F18	TCGP	EepromPwrOff	7	3	12	16	NONE			h8F18	N			
PMDG8F19	TCGP	TestEeprom	7	3	12	16	NONE			h8F19	N			
PMDG8F1A	TCGP	SendCoframe	7	3	12	16	NONE			h8F1A	N			
PMDG8F21	TCGP	SelRam1	7	3	12	16	NONE			h8F21	N			
PMDG8F22	TCGP	SelRam2	7	3	12	16	NONE			h8F22	N			
PMDG8F23	TCGP	ExtendedCmd	7	3	12	16	NONE			h8F23	N			
PMDG8F24	TCGP	StoreExpCodeArea	7	3	12	16	NONE			h8F24	N			
PMDG8F25	TCGP	RestoreExpCodeArea	7	3	12	16	NONE			h8F25	N			
PMDG8F26	TCGP	RegularExtCodeOff	7	3	12	16	NONE			h8F26	N			
PMDG8F27	TCGP	RegularExtCodeOn	7	3	12	16	NONE			h8F27	N			
PMDG8F35	TCGP	TestCmd	7	3	12	16	NONE			h8F35	N			
PMDGSCET	TCGP	SpacecraftElapsedTime	7	9	17	48	NONE				Y			
PMDGSCRC	TCGP	Checksum	7	3	12	16	NONE				N			
PMDGSGDF	TCGP	GiadaDustFlux	7	3	12	16	NONE				Y			
PMDGSMEA	TCGP	Memory Start Address	7	3	14	32	NONE				Y			
PMDGSMED	TCGP	Memory Data	7	3	12	16	NONE				Y			
PMDGSMEL	TCGP	Memory Block Length	7	3	12	16	NONE				Y			
PMDGSMEM	TCGP	Memory ID	7	3	4	8	NONE		90		Y			
PMDGSMEN	TCGP	Memory Blocks	7	3	4	8	NONE		1		Y			
PMDGSPID	TCGP	ProcessId	7	0	16	16	NONE		67		Y			
PMDGSSEG	TCGP	SegmentNumber	7	0	16	16	NONE				Y			
PMDGSSID	TCGP	StructureId	7	0	16	16	NONE				Y			
PMDGTM01	TCGP	TechModePar1	7	3	12	16	NONE			h8F35	Y			



PMDGTM02	TCGP	TechModePar2	7	3	12	16	NONE			h8F35	Y			
PMDGTM03	TCGP	TechModePar3	7	3	12	16	NONE			h8F35	Y			
PMDGTM04	TCGP	TechModePar4	7	3	12	16	NONE			h8F35	Y			
PMDGTM05	TCGP	TechModePar5	7	3	12	16	NONE			h8F35	Y			
PMDGTM06	TCGP	TechModePar6	7	3	12	16	NONE			h8F35	Y			
PMDGTM07	TCGP	TechModePar7	7	3	12	16	NONE			h8F35	Y			
PMDGTM08	TCGP	TechModePar8	7	3	12	16	NONE			h8F35	Y			
PMDGTM09	TCGP	TechModePar9	7	3	12	16	NONE			h8F35	Y			
PMDGTM10	TCGP	TechModePar10	7	3	12	16	NONE			h8F35	Y			
PMDGTM11	TCGP	TechModePar11	7	3	12	16	NONE			h8F35	Y			
PMDGTM12	TCGP	TechModePar12	7	3	12	16	NONE			h8F35	Y			
PMDGTM13	TCGP	TechModePar13	7	3	12	16	NONE			h8F35	Y			
PMDGTM14	TCGP	TechModePar14	7	3	12	16	NONE			h8F35	Y			
PMDGTM15	TCGP	TechModePar15	7	3	12	16	NONE			h8F35	Y			
PMDGTM16	TCGP	TechModePar16	7	3	12	16	NONE			h8F35	Y			
PMDGTM17	TCGP	TechModePar17	7	3	12	16	NONE			h8F35	Y			
PMDGTM18	TCGP	TechModePar18	7	3	12	16	NONE			h8F35	Y			
PMDGTM19	TCGP	TechModePar19	7	3	12	16	NONE			h8F35	Y			
PMDGTM20	TCGP	TechModePar20	7	3	12	16	NONE			h8F35	Y			



6.5 Telemetry Packet Definitions

NAME	LNAME	PID	PCKC ATEG	SERV ICE	SUBS SERVI CE	USAG E	MINL ENGT H	MAXL ENGT H	SDFVA LUE	STAR TDAT A	TMPE _ORD ER	ELTTY PE	REPE AT	VALUE
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	0	BLOCK	1	WMD06704
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	1	PARAM	1	NMDA0SID
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	2	PARAM	1	NMDA0002
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	3	PARAM	1	NMDA0001
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	4	PARAM	1	NMDA0003
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	5	PARAM	1	NMDA0004
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	6	PARAM	1	NMDA0005
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	7	PARAM	1	NMDA0006
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	8	PARAM	1	NMDA0007
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	9	PARAM	1	NMDA0008
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	10	PARAM	1	NMDA0009
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	11	PARAM	1	NMDA0010
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	12	PARAM	1	NMDA0011
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	13	PARAM	1	NMDA0012
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	14	PARAM	1	NMDA0013
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	15	PARAM	1	NMDA0014
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	16	PARAM	1	NMDA0015
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	17	PARAM	1	NMDA0016
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	18	PARAM	1	NMDA0017
YMDHK001	StandardHkReport	67	4	3	25	7	56	56	1	ALL	19	PARAM	1	NMDA0018
YMDHK002	ExtendedHkReport	67	4	3	25	7	524	524	2	ALL	0	BLOCK	1	WMD06704
YMDHK002	ExtendedHkReport	67	4	3	25	7	524	524	2	ALL	1	BLOCK	1	WMD10HK2
YMDHK002	ExtendedHkReport	67	4	3	25	7	524	524	2	ALL	2	BLOCK	1	WMD20HK2
YMDHK002	ExtendedHkReport	67	4	3	25	7	524	524	2	ALL	3	BLOCK	1	WMD30HK2
YMDHK002	ExtendedHkReport	67	4	3	25	7	524	524	2	ALL	4	BLOCK	1	WMD40HK2
YMDHK002	ExtendedHkReport	67	4	3	25	7	524	524	2	ALL	5	BLOCK	1	WMD50HK2
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	0	BLOCK	1	WMD06712
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	1	PARAM	1	NMDA0DID
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	2	PARAM	1	NMDA0002
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	3	PARAM	1	NMDA0D01
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	4	PARAM	1	NMDA0D02
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	5	PARAM	1	NMDA0D03
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	6	PARAM	1	NMDA0D04
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	7	PARAM	1	NMDA0D05
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	8	PARAM	1	NMDA0D06
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	9	PARAM	1	NMDA0D07
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	10	PARAM	1	NMDA0D08
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	11	PARAM	1	NMDA0D09
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	12	PARAM	1	NMDA0D10
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	13	PARAM	1	NMDA0D11
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	14	PARAM	1	NMDA0D12
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	15	PARAM	1	NMDA0D13
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	16	PARAM	1	NMDA0D14
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	17	PARAM	1	NMDA0D15
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	18	PARAM	1	NMDA0D16
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	19	PARAM	1	NMDA0D17
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	20	PARAM	1	NMDA0D18
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	21	PARAM	1	NMDA0D19
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	22	PARAM	1	NMDA0D20
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	23	PARAM	1	NMDA0D21
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	24	PARAM	1	NMDA0D22
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	25	PARAM	1	NMDA0D23
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	26	PARAM	1	NMDA0D24



YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	27	PARAM	1	NMDA0D25
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	28	PARAM	1	NMDA0D26
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	29	PARAM	1	NMDA0D27
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	30	PARAM	1	NMDA0D28
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	31	PARAM	1	NMDA0D29
YMDSC001	ScienceData	67	12	20	3	7	80	2096		ALL	32	PARAM	1	NMDA0D30
YMDST001	AcceptSuccess	67	1	1	1	7	20	20		ALL	0	BLOCK	1	WMD06701
YMDST001	AcceptSuccess	67	1	1	1	7	20	20		ALL	1	PARAM	1	NMDAST01
YMDST001	AcceptSuccess	67	1	1	1	7	20	20		ALL	2	PARAM	1	NMDAST02
YMDST002	IncompletePacket	67	1	1	2	7	28	28	1	ALL	0	BLOCK	1	WMD06701
YMDST002	IncompletePacket	67	1	1	2	7	28	28	1	ALL	1	PARAM	1	NMDAST01
YMDST002	IncompletePacket	67	1	1	2	7	28	28	1	ALL	2	PARAM	1	NMDAST02
YMDST002	IncompletePacket	67	1	1	2	7	28	28	1	ALL	3	PARAM	1	NMDAST03
YMDST002	IncompletePacket	67	1	1	2	7	28	28	1	ALL	4	PARAM	1	NMDAST04
YMDST002	IncompletePacket	67	1	1	2	7	28	28	1	ALL	5	PARAM	1	NMDAST10
YMDST002	IncompletePacket	67	1	1	2	7	28	28	1	ALL	6	PARAM	1	NMDAST11
YMDST003	IncorrectChecksum	67	1	1	2	7	28	28	2	ALL	0	BLOCK	1	WMD06701
YMDST003	IncorrectChecksum	67	1	1	2	7	28	28	2	ALL	1	PARAM	1	NMDAST01
YMDST003	IncorrectChecksum	67	1	1	2	7	28	28	2	ALL	2	PARAM	1	NMDAST02
YMDST003	IncorrectChecksum	67	1	1	2	7	28	28	2	ALL	3	PARAM	1	NMDAST03
YMDST003	IncorrectChecksum	67	1	1	2	7	28	28	2	ALL	4	PARAM	1	NMDAST04
YMDST003	IncorrectChecksum	67	1	1	2	7	28	28	2	ALL	5	PARAM	1	NMDAST12
YMDST003	IncorrectChecksum	67	1	1	2	7	28	28	2	ALL	6	PARAM	1	NMDAST13
YMDST004	IncorrectAPID	67	1	1	2	7	24	24	3	ALL	0	BLOCK	1	WMD06701
YMDST004	IncorrectAPID	67	1	1	2	7	24	24	3	ALL	1	PARAM	1	NMDAST01
YMDST004	IncorrectAPID	67	1	1	2	7	24	24	3	ALL	2	PARAM	1	NMDAST02
YMDST004	IncorrectAPID	67	1	1	2	7	24	24	3	ALL	3	PARAM	1	NMDAST03
YMDST004	IncorrectAPID	67	1	1	2	7	24	24	3	ALL	4	PARAM	1	NMDAST04
YMDST005	InvalidCmdCode	67	1	1	2	7	28	28	4	ALL	0	BLOCK	1	WMD06701
YMDST005	InvalidCmdCode	67	1	1	2	7	28	28	4	ALL	1	PARAM	1	NMDAST01
YMDST005	InvalidCmdCode	67	1	1	2	7	28	28	4	ALL	2	PARAM	1	NMDAST02
YMDST005	InvalidCmdCode	67	1	1	2	7	28	28	4	ALL	3	PARAM	1	NMDAST03
YMDST005	InvalidCmdCode	67	1	1	2	7	28	28	4	ALL	4	PARAM	1	NMDAST04
YMDST005	InvalidCmdCode	67	1	1	2	7	28	28	4	ALL	5	PARAM	1	NMDAST14
YMDST005	InvalidCmdCode	67	1	1	2	7	28	28	4	ALL	6	PARAM	1	NMDAST15
YMDST006	PbExecTime	67	1	1	2	7	24	24	5	ALL	0	BLOCK	1	WMD06701
YMDST006	PbExecTime	67	1	1	2	7	24	24	5	ALL	1	PARAM	1	NMDAST01
YMDST006	PbExecTime	67	1	1	2	7	24	24	5	ALL	2	PARAM	1	NMDAST02
YMDST006	PbExecTime	67	1	1	2	7	24	24	5	ALL	3	PARAM	1	NMDAST03
YMDST006	PbExecTime	67	1	1	2	7	24	24	5	ALL	4	PARAM	1	NMDAST04
YMDST007	DataFieldInconsistent	67	1	1	2	7	26	26	6	ALL	0	BLOCK	1	WMD06701
YMDST007	DataFieldInconsistent	67	1	1	2	7	26	26	6	ALL	1	PARAM	1	NMDAST01
YMDST007	DataFieldInconsistent	67	1	1	2	7	26	26	6	ALL	2	PARAM	1	NMDAST02
YMDST007	DataFieldInconsistent	67	1	1	2	7	26	26	6	ALL	3	PARAM	1	NMDAST03
YMDST007	DataFieldInconsistent	67	1	1	2	7	26	26	6	ALL	4	PARAM	1	NMDAST04
YMDST007	DataFieldInconsistent	67	1	1	2	7	26	26	6	ALL	5	PARAM	1	NMDAST20
YMDST011	ExecutionSuccess	67	1	1	7	7	20	20		ALL	0	BLOCK	1	WMD06701
YMDST011	ExecutionSuccess	67	1	1	7	7	20	20		ALL	1	PARAM	1	NMDAST01
YMDST011	ExecutionSuccess	67	1	1	7	7	20	20		ALL	2	PARAM	1	NMDAST02
YMDST012	ExecutionFailure	67	1	1	8	7	24	24	1	ALL	0	BLOCK	1	WMD06701
YMDST012	ExecutionFailure	67	1	1	8	7	24	24	1	ALL	1	PARAM	1	NMDAST01
YMDST012	ExecutionFailure	67	1	1	8	7	24	24	1	ALL	2	PARAM	1	NMDAST02
YMDST012	ExecutionFailure	67	1	1	8	7	24	24	1	ALL	3	PARAM	1	NMDAST03
YMDST012	ExecutionFailure	67	1	1	8	7	24	24	1	ALL	4	PARAM	1	NMDAST04
YMDTST01	ConnTestReport	67	7	17	2	7	16	16		ALL	0	BLOCK	1	WMD06707



6.6 Telemetry Parameter Definitions

NAME	CATEGORY	INAME	USAGE	PTC	PFC	TMPS_SIZE	CALIB_TYPE	CALC_NAME_1	ENG_LABEL	LIMS_NAME	START_BIT
NMDA0001	TMGS	InstrumentMode	7	3	12	16	NONE				
NMDA0002	TMGS	SwProgVersion	7	3	12	16	NONE				
NMDA0003	TMGS	baseplate temp	7	4	12	16	ANA	CMDP0005	degC		
NMDA0004	TMGS	preamplifier temp	7	4	12	16	ANA	CMDP0005	degC		
NMDA0005	TMGS	converter temp	7	4	12	16	ANA	CMDP0005	degC		
NMDA0006	TMGS	CSSC X ref temp	7	4	12	16	ANA	CMDP0005	degC		
NMDA0007	TMGS	CSSC Y ref temp	7	4	12	16	ANA	CMDP0005	degC		
NMDA0008	TMGS	dust inlet temp	7	4	12	16	ANA	CMDP0005	degC		
NMDA0009	TMGS	+5V voltage mon	7	4	12	16	ANA	CMDP0003	V	LMDA0009	
NMDA0010	TMGS	+15V voltage mon	7	4	12	16	ANA	CMDP0006	V	LMDA0010	
NMDA0011	TMGS	-15V voltage mon	7	4	12	16	ANA	CMDP0006	V	LMDA0011	
NMDA0012	TMGS	digital status 1	7	3	12	16	NONE				
NMDA0013	TMGS	digital status 2	7	3	12	16	NONE				
NMDA0014	TMGS	digital status 3	7	3	12	16	NONE				
NMDA0015	TMGS	digital status 4	7	3	12	16	NONE				
NMDA0016	TMGS	digital status 5	7	3	12	16	NONE				
NMDA0017	TMGS	ADC overflow	7	3	14	32	NONE				
NMDA0018	TMGS	frame checksum	7	3	12	16	NONE				
NMDA0102	TMGS	can AC signal	7	4	12	16	ANA	CMDP0003	V		
NMDA0103	TMGS	can DC signal	7	4	12	16	ANA	CMDP0003	V		
NMDA0104	TMGS	can phase signal	7	4	12	16	ANA	CMDP0013	deg		
NMDA0105	TMGS	app LVDT signal	7	4	12	16	ANA	CMDP0003	V		
NMDA0106	TMGS	lin LVDT signal	7	4	12	16	ANA	CMDP0003	V		
NMDA0107	TMGS	X piezo offs err	7	4	12	16	ANA	CMDP0003	V		
NMDA0108	TMGS	Y piezo offs err	7	4	12	16	ANA	CMDP0003	V		
NMDA0109	TMGS	Z piezo offs err	7	4	12	16	ANA	CMDP0003	V		
NMDA0110	TMGS	X piezo HV mon	7	4	12	16	ANA	CMDP0008	V		
NMDA0111	TMGS	Y piezo HV mon	7	4	12	16	ANA	CMDP0008	V		
NMDA0112	TMGS	X piezo position	7	4	12	16	ANA	CMDP0003	V		
NMDA0113	TMGS	Y piezo position	7	4	12	16	ANA	CMDP0003	V		
NMDA0114	TMGS	Z piezo position	7	4	12	16	ANA	CMDP0003	V		
NMDA0115	TMGS	Z piezo HV mon	7	4	12	16	ANA	CMDP0008	V		
NMDA0116	TMGS	fullscan aborted	7	3	12	16	NONE				
NMDA0117	TMGS	function aborted	7	3	12	16	NONE				
NMDA0118	TMGS	CanAcGainLevel	7	3	12	16	NONE				
NMDA0119	TMGS	AppBackStarted	7	3	12	16	NONE				
NMDA0120	TMGS	AppFinished	7	3	12	16	NONE				
NMDA0121	TMGS	AppOnMaxPos	7	3	12	16	NONE				
NMDA0122	TMGS	AppOnMinPos	7	3	12	16	NONE				
NMDA0123	TMGS	AppPosition	7	4	12	16	ANA	CMDP0003	V		
NMDA0124	TMGS	AppStarted	7	3	12	16	NONE				
NMDA0125	TMGS	AppTimeout	7	3	12	16	NONE				
NMDA0126	TMGS	ZsgAverageFact	7	3	12	16	NONE				
NMDA0127	TMGS	CanSelect	7	3	12	16	NONE				
NMDA0128	TMGS	CanBlockSelect	7	3	12	16	NONE				
NMDA0129	TMGS	CanSignal	7	4	12	16	ANA	CMDP0003	V		
NMDA0130	TMGS	CssXcalStarted	7	3	12	16	NONE				
NMDA0131	TMGS	CssXcalFinished	7	3	12	16	NONE				
NMDA0132	TMGS	CssYcalStarted	7	3	12	16	NONE				



NMDA0133	TMGS	CssYcalFinished	7	3	12	16	NONE				
NMDA0134	TMGS	CssEnabled	7	3	12	16	NONE				
NMDA0135	TMGS	CssCalCycles	7	3	12	16	NONE				
NMDA0136	TMGS	CssCalTimeout	7	3	12	16	NONE				
NMDA0137	TMGS	CorrectionTable	7	3	12	16	NONE				
NMDA0138	TMGS	CheckoutCmd	7	3	12	16	NONE				
NMDA0139	TMGS	LlvPosition	7	4	12	16	ANA	CMDP0003	V		
NMDA0140	TMGS	PointScanCycles	7	3	12	16	NONE				
NMDA0141	TMGS	ImgDataType	7	3	12	16	NONE				
NMDA0142	TMGS	CanDcGainLevel	7	3	12	16	NONE				
NMDA0143	TMGS	DcmPulsewidth	7	3	12	16	ANA	CMDP0012	us		
NMDA0144	TMGS	DscanRandAmpl	7	3	12	16	NONE				
NMDA0145	TMGS	CanDeltaSignal	7	4	12	16	ANA	CMDP0003	V		
NMDA0146	TMGS	ScnDummy	7	3	12	16	NONE				
NMDA0147	TMGS	ExcLevel	7	3	12	16	NONE				
NMDA0148	TMGS	DscanSineAmpl	7	3	12	16	NONE				
NMDA0149	TMGS	DscanZeroOffs	7	3	12	16	NONE				
NMDA0150	TMGS	DscanGradSine	7	3	12	16	NONE				
NMDA0151	TMGS	FscNoThres	7	3	12	16	NONE				
NMDA0152	TMGS	FscScanCycle	7	3	12	16	NONE				
NMDA0153	TMGS	ApprStuckCnt	7	3	12	16	NONE				
NMDA0154	TMGS	FscScanStarted	7	3	12	16	NONE				
NMDA0155	TMGS	FscScanFinished	7	3	12	16	NONE				
NMDA0156	TMGS	FscFstep	7	3	12	16	ANA	CMDP0016	Hz		
NMDA0157	TMGS	FscFstepHi	7	3	12	16	ANA	CMDP0016	Hz		
NMDA0158	TMGS	ScnStarted	7	3	12	16	NONE				
NMDA0159	TMGS	CssCalGainStep	7	3	12	16	NONE				
NMDA0160	TMGS	SwHkDataPeriod2	7	3	12	16	NONE				
NMDA0161	TMGS	SwLastCommand	7	3	12	16	NONE				
NMDA0162	TMGS	LinMoveStarted	7	3	12	16	NONE				
NMDA0163	TMGS	LinMoveFinished	7	3	12	16	NONE				
NMDA0164	TMGS	LinMoveTestLvdT	7	3	12	16	NONE				
NMDA0165	TMGS	ScnLineCount	7	3	12	16	NONE				
NMDA0166	TMGS	ScnNumLines	7	3	12	16	NONE				
NMDA0167	TMGS	ScnLineDone	7	3	12	16	NONE				
NMDA0168	TMGS	ScnLineStarted	7	3	12	16	NONE				
NMDA0169	TMGS	LinMoveTimeout	7	3	12	16	NONE				
NMDA0170	TMGS	ScnMainCount	7	3	12	16	NONE				
NMDA0171	TMGS	ScnMainDirection	7	3	12	16	DIG	CMDVMDIR			
NMDA0172	TMGS	ScnMainSteps	7	3	12	16	NONE				
NMDA0173	TMGS	ScnMagRetrDist	7	3	12	16	NONE				
NMDA0174	TMGS	ScnMaxSubCycles	7	3	12	16	NONE				
NMDA0175	TMGS	ScnMaxCycles	7	3	12	16	NONE				
NMDA0176	TMGS	CssCalMaxCycles	7	3	12	16	NONE				
NMDA0177	TMGS	LastApprDir	7	3	12	16	DIG	CMDVADIR			
NMDA0178	TMGS	FscNumScans	7	3	12	16	NONE				
NMDA0179	TMGS	CssCalOffsStep	7	3	12	16	NONE				
NMDA0180	TMGS	OperatingPoint	7	4	12	16	ANA	CMDP0003	V		
NMDA0181	TMGS	OpPntPercentAmpl	7	4	12	16	ANA	CMDP0033	%		
NMDA0182	TMGS	SwCmdParameter	7	3	12	16	NONE				
NMDA0183	TMGS	SwCmdCode	7	3	12	16	NONE				
NMDA0184	TMGS	WhePulseDelay	7	3	12	16	NONE				
NMDA0185	TMGS	PzmPulseWidth	7	3	12	16	ANA	CMDP0012	us		
NMDA0186	TMGS	WheRefStarted	7	3	12	16	NONE				
NMDA0187	TMGS	DigRelayStatus	7	3	12	16	NONE				
NMDA0188	TMGS	ScnRetractDist	7	3	12	16	NONE				
NMDA0189	TMGS	ScnMode	7	3	12	16	NONE				
NMDA0190	TMGS	ScnErrorCount	7	3	12	16	NONE				
NMDA0191	TMGS	FscSearchAlgor	7	3	12	16	NONE				



NMDA0192	TMGS	SwSendCoFrame	7	3	12	16	NONE				
NMDA0193	TMGS	WheSegmentPulses	7	3	12	16	NONE				
NMDA0194	TMGS	WheSearchStarted	7	3	12	16	NONE				
NMDA0195	TMGS	WheSegmentFound	7	3	12	16	NONE				
NMDA0196	TMGS	WheSegmentNum	7	3	12	16	NONE				
NMDA0197	TMGS	LinLvdTSetPos	7	4	12	16	ANA	CMDP0003	V		
NMDA0198	TMGS	RegularExtCode	7	3	12	16	NONE				
NMDA0199	TMGS	ShtCloseStarted	7	3	12	16	NONE				
NMDA0200	TMGS	ShtOpenStarted	7	3	12	16	NONE				
NMDA0201	TMGS	ShtTimeoutCnt	7	3	12	16	NONE				
NMDA0202	TMGS	SwTimeouts	7	3	12	16	NONE				
NMDA0203	TMGS	ScnTipNumber	7	3	12	16	NONE				
NMDA0204	TMGS	FscMaxCanSignal	7	4	12	16	ANA	CMDP0003	V		
NMDA0205	TMGS	CssCalAccuracy	7	4	12	16	ANA	CMDP0003	V		
NMDA0206	TMGS	CssXrefVoltage1	7	4	12	16	ANA	CMDP0003	V		
NMDA0207	TMGS	CssXrefVoltage2	7	4	12	16	ANA	CMDP0003	V		
NMDA0208	TMGS	CssYrefVoltage1	7	4	12	16	ANA	CMDP0003	V		
NMDA0209	TMGS	CssYrefVoltage2	7	4	12	16	ANA	CMDP0003	V		
NMDA0210	TMGS	SwWaitCycle	7	3	12	16	NONE				
NMDA0211	TMGS	SwWaitSeconds	7	3	12	16	NONE				
NMDA0212	TMGS	WaxSelect	7	3	12	16	NONE				
NMDA0213	TMGS	WaxTimeoutCnt	7	3	12	16	NONE				
NMDA0214	TMGS	WaxStatus	7	3	12	16	NONE				
NMDA0215	TMGS	WaxExtCnt	7	3	12	16	NONE				
NMDA0216	TMGS	WaxTimeout	7	3	12	16	NONE				
NMDA0217	TMGS	WheTimeoutCnt	7	3	12	16	NONE				
NMDA0218	TMGS	ScnXorigin	7	3	12	16	NONE				
NMDA0219	TMGS	ScnXnumSteps	7	3	12	16	NONE				
NMDA0220	TMGS	ScnXscanDir	7	3	12	16	DIG	CMDVSDIR			
NMDA0221	TMGS	ScnXstepSize	7	3	12	16	NONE				
NMDA0222	TMGS	WaxXYselect	7	3	12	16	NONE				
NMDA0223	TMGS	WaxXYmainStarted	7	3	12	16	NONE				
NMDA0224	TMGS	WaxXYredStarted	7	3	12	16	NONE				
NMDA0225	TMGS	WaxXYtimeout	7	3	12	16	NONE				
NMDA0226	TMGS	WaxXYtimeoutCnt	7	3	12	16	NONE				
NMDA0227	TMGS	ScnYstepSize	7	3	12	16	NONE				
NMDA0228	TMGS	ScnYorigin	7	3	12	16	NONE				
NMDA0229	TMGS	ScnYscanDir	7	3	12	16	DIG	CMDVSDIR			
NMDA0230	TMGS	ScnYnumSteps	7	3	12	16	NONE				
NMDA0231	TMGS	ScnZstepSize	7	3	12	16	NONE				
NMDA0232	TMGS	DigAdcOvlFlags	7	3	14	32	NONE				
NMDA0233	TMGS	DeltaDcContact	7	4	12	16	ANA	CMDP0003	V		
NMDA0234	TMGS	SwHkChecksum2	7	3	12	16	NONE				
NMDA0235	TMGS	AppPosSet	7	4	12	16	ANA	CMDP0003	V		
NMDA0236	TMGS	AppPosAbs	7	4	12	16	ANA	CMDP0003	V		
NMDA0237	TMGS	AppDir	7	3	12	16	DIG	CMDVADIR			
NMDA0238	TMGS	ApprAbsStarted	7	3	12	16	NONE				
NMDA0239	TMGS	DecrApprPos	7	3	12	16	NONE				
NMDA0240	TMGS	DeltaApprPos	7	4	12	16	ANA	CMDP0003	V		
NMDA0241	TMGS	DeltaOpPerc	7	3	12	16	ANA	CMDP0014	%		
NMDA0242	TMGS	DeltaOpAmpl	7	4	12	16	ANA	CMDP0003	V		
NMDA0243	TMGS	LinmoveTimo	7	3	12	16	NONE				
NMDA0244	TMGS	OpPointPerc	7	3	12	16	ANA	CMDP0014	%		
NMDA0245	TMGS	OpPointAmpl	7	4	12	16	ANA	CMDP0003	V		
NMDA0246	TMGS	OpUp	7	4	12	16	ANA	CMDP0003	V		
NMDA0247	TMGS	OpLo	7	4	12	16	ANA	CMDP0003	V		
NMDA0248	TMGS	SetLinPosAbs	7	4	12	16	ANA	CMDP0003	V		
NMDA0249	TMGS	SingleFScan	7	3	12	16	NONE				
NMDA0250	TMGS	TechMode	7	3	12	16	NONE				



NMDA0251	TMGS	CantSignalRetr	7	4	12	16	ANA	CMDP0003	V		
NMDA0252	TMGS	DstInfo	7	3	12	16	NONE				
NMDA0253	TMGS	LongZ	7	3	12	16	NONE				
NMDA0254	TMGS	Zgain	7	3	12	16	NONE				
NMDA0255	TMGS	GainControlX	7	3	12	16	NONE				
NMDA0256	TMGS	GainControlY	7	3	12	16	NONE				
NMDA0257	TMGS	OffsControlX	7	3	12	16	NONE				
NMDA0258	TMGS	OffsControlY	7	3	12	16	NONE				
NMDA0259	TMGS	ScanAlgor	7	3	12	16	NONE				
NMDA0260	TMGS	FirstThresDet	7	3	12	16	NONE				
NMDA0261	TMGS	DustFlux	7	3	12	16	NONE				
NMDA0262	TMGS	OpPointPcont	7	4	12	16	ANA	CMDP0003	V		
NMDA0263	TMGS	OpPointPcontPerc	7	3	12	16	ANA	CMDP0014	%		
NMDA0264	TMGS	PcontrolKC	7	3	12	16	NONE				
NMDA0265	TMGS	PcontrolActive	7	3	12	16	NONE				
NMDA0266	TMGS	LastEvent	7	3	12	16	NONE				
NMDA0267	TMGS	DacValueX	7	3	12	16	NONE				
NMDA0268	TMGS	DacValueY	7	3	12	16	NONE				
NMDA0269	TMGS	DacValueZ	7	3	12	16	NONE				
NMDA0270	TMGS	SettleTimeZ	7	3	12	16	NONE				
NMDA0271	TMGS	SettleTimeXY	7	3	12	16	NONE				
NMDA0272	TMGS	DustFluxMin	7	3	12	16	NONE				
NMDA0273	TMGS	FscanMode	7	3	12	16	NONE				
NMDA0274	TMGS	FscanThresHi	7	3	12	16	ANA	CMDP0015	Hz		
NMDA0275	TMGS	FscanThresLo	7	3	12	16	ANA	CMDP0016	Hz		
NMDA0276	TMGS	FscanSynth	7	3	14	32	ANA	CMDP0016	Hz		
NMDA0277	TMGS	Hk1Period	7	3	12	16	NONE				
NMDA0278	TMGS	FscanHi	7	3	12	16	ANA	CMDP0015	Hz		
NMDA0279	TMGS	FscanLo	7	3	12	16	ANA	CMDP0016	Hz		
NMDA0280	TMGS	FscanResHi	7	3	12	16	ANA	CMDP0015	Hz		
NMDA0281	TMGS	FscanResLo	7	3	12	16	ANA	CMDP0016	Hz		
NMDA0282	TMGS	ReadAnalog	7	3	12	16	NONE				
NMDA0283	TMGS	FscanSglStart	7	3	14	32	ANA	CMDP0016	Hz		
NMDA0284	TMGS	FscanInc	7	3	14	32	ANA	CMDP0016	Hz		
NMDA0285	TMGS	DcAmplSet	7	4	12	16	ANA	CMDP0003	V		
NMDA0286	TMGS	CheckDcSignal	7	3	12	16	NONE				
NMDA0287	TMGS	UcantDcStart	7	4	12	16	ANA	CMDP0003	V		
NMDA0288	TMGS	IsContact	7	3	12	16	NONE				
NMDA0289	TMGS	AufoFadjust	7	3	12	16	NONE				
NMDA0290	TMGS	WheelCounts	7	3	12	16	NONE				
NMDA0291	TMGS	PulseApplied	7	3	12	16	NONE				
NMDA0292	TMGS	DeltaApprLvdt	7	4	12	16	ANA	CMDP0003	V		
NMDA0293	TMGS	LastApprPosition	7	4	12	16	ANA	CMDP0003	V		
NMDA0294	TMGS	MovementChecked	7	3	12	16	NONE				
NMDA0295	TMGS	CurrentAppPos	7	4	12	16	ANA	CMDP0003	V		
NMDA0296	TMGS	TestCount	7	3	12	16	NONE				
NMDA0297	TMGS	ApprTestCount	7	3	12	16	NONE				
NMDA0298	TMGS	DeltaOpAmplDc	7	4	12	16	ANA	CMDP0003	V		
NMDA0299	TMGS	DeltaOpPercDc	7	3	12	16	ANA	CMDP0014	%		
NMDA0300	TMGS	OpUpDc	7	4	12	16	ANA	CMDP0003	V		
NMDA0301	TMGS	OpLoDc	7	4	12	16	ANA	CMDP0003	V		
NMDA0302	TMGS	Hk2Spare	7	3	12	16	NONE				
NMDA0303	TMGS	AbortLine	7	3	12	16	NONE				
NMDA0304	TMGS	AbortPoint	7	3	12	16	NONE				
NMDA0305	TMGS	ApprFineStep	7	3	12	16	NONE				
NMDA0306	TMGS	ResonanceAmpl	7	4	12	16	ANA	CMDP0003	V		
NMDA0307	TMGS	DstSelect	7	3	12	16	NONE				
NMDA0308	TMGS	SurfDetected	7	3	12	16	NONE				
NMDA0309	TMGS	ApprPosMax	7	4	12	16	ANA	CMDP0003	V		



NMDA0310	TMGS	ApprPosMin	7	4	12	16	ANA	CMDP0003	V		
NMDA0311	TMGS	FineAdjustmentStarted	7	3	12	16	NONE				
NMDA0312	TMGS	TaskActive	7	3	12	16	NONE				
NMDA0313	TMGS	ApprNumPulses	7	3	12	16	NONE				
NMDA0314	TMGS	CantHiresStarted	7	3	12	16	NONE				
NMDA0315	TMGS	CantHiresTime	7	3	12	16	NONE				
NMDA0316	TMGS	CantHiresPkts	7	3	12	16	NONE				
NMDA0317	TMGS	CantHiresTimeCnt	7	3	12	16	NONE				
NMDA0318	TMGS	CantHiresPktsCnt	7	3	12	16	NONE				
NMDA0319	TMGS	CalState	7	3	12	16	NONE				
NMDA0320	TMGS	SwDataPage	7	3	12	16	NONE				
NMDA0321	TMGS	SwStatus	7	3	12	16	NONE				
NMDA0322	TMGS	SwParSetAddr	7	3	12	16	NONE				
NMDA0323	TMGS	SwParSetVal	7	3	12	16	NONE				
NMDA0324	TMGS	SwParHk1Addr	7	3	12	16	NONE				
NMDA0325	TMGS	SwParHk2Addr	7	3	12	16	NONE				
NMDA0326	TMGS	SwParHk3Addr	7	3	12	16	NONE				
NMDA0327	TMGS	SwParHk4Addr	7	3	12	16	NONE				
NMDA0328	TMGS	SwParHk1Val	7	3	12	16	NONE				
NMDA0329	TMGS	SwParHk2Val	7	3	12	16	NONE				
NMDA0330	TMGS	SwParHk3Val	7	3	12	16	NONE				
NMDA0331	TMGS	SwParHk4Val	7	3	12	16	NONE				
NMDA0332	TMGS	FvectMode	7	3	12	16	NONE				
NMDA0333	TMGS	FvectLperc	7	3	12	16	ANA	CMDP0014	%		
NMDA0334	TMGS	FvectLevel	7	3	12	16	NONE				
NMDA0335	TMGS	FvectXmargin	7	3	12	16	NONE				
NMDA0336	TMGS	FvectYmargin	7	3	12	16	NONE				
NMDA0337	TMGS	FvectStatus	7	3	12	16	NONE				
NMDA0338	TMGS	FvectNumpts	7	3	12	16	NONE				
NMDA0339	TMGS	FvectAvgZ	7	3	12	16	NONE				
NMDA0340	TMGS	FvectRatio	7	3	12	16	ANA	CMDP0014	%		
NMDA0341	TMGS	FvectZfactor	7	4	12	16	ANA	CMDP0033	%		
NMDA0342	TMGS	ScEnabled	7	3	12	16	NONE				
NMDA0343	TMGS	PointReady	7	3	12	16	NONE				
NMDA0344	TMGS	DustFluxMax	7	3	12	16	NONE				
NMDA0CRC	TMGS	EepromAndRamCrc	7	3	12	16	NONE				
NMDA0D01	TMGS	ScienceData01	7	3	12	16	NONE				
NMDA0D02	TMGS	ScienceData02	7	3	12	16	NONE				
NMDA0D03	TMGS	ScienceData03	7	3	12	16	NONE				
NMDA0D04	TMGS	ScienceData04	7	3	12	16	NONE				
NMDA0D05	TMGS	ScienceData05	7	3	12	16	NONE				
NMDA0D06	TMGS	ScienceData06	7	3	12	16	NONE				
NMDA0D07	TMGS	ScienceData07	7	3	12	16	NONE				
NMDA0D08	TMGS	ScienceData08	7	3	12	16	NONE				
NMDA0D09	TMGS	ScienceData09	7	3	12	16	NONE				
NMDA0D10	TMGS	ScienceData10	7	3	12	16	NONE				
NMDA0D11	TMGS	ScienceData11	7	3	12	16	NONE				
NMDA0D12	TMGS	ScienceData12	7	3	12	16	NONE				
NMDA0D13	TMGS	ScienceData13	7	3	12	16	NONE				
NMDA0D14	TMGS	ScienceData14	7	3	12	16	NONE				
NMDA0D15	TMGS	ScienceData15	7	3	12	16	NONE				
NMDA0D16	TMGS	ScienceData16	7	3	12	16	NONE				
NMDA0D17	TMGS	ScienceData17	7	3	12	16	NONE				
NMDA0D18	TMGS	ScienceData18	7	3	12	16	NONE				
NMDA0D19	TMGS	ScienceData19	7	3	12	16	NONE				
NMDA0D20	TMGS	ScienceData20	7	3	12	16	NONE				
NMDA0D21	TMGS	ScienceData21	7	3	12	16	NONE				
NMDA0D22	TMGS	ScienceData22	7	3	12	16	NONE				
NMDA0D23	TMGS	ScienceData23	7	3	12	16	NONE				



NMDA0D24	TMGS	ScienceData24	7	3	12	16	NONE				
NMDA0D25	TMGS	ScienceData25	7	3	12	16	NONE				
NMDA0D26	TMGS	ScienceData26	7	3	12	16	NONE				
NMDA0D27	TMGS	ScienceData27	7	3	12	16	NONE				
NMDA0D28	TMGS	ScienceData28	7	3	12	16	NONE				
NMDA0D29	TMGS	ScienceData29	7	3	12	16	NONE				
NMDA0D30	TMGS	ScienceData30	7	3	12	16	NONE				
NMDA0DID	TMGS	ScienceId	7	3	12	16	NONE				
NMDA0EC1	TMGS	EepromPage1Crc	7	3	12	16	NONE				
NMDA0EC2	TMGS	EepromPage2Crc	7	3	12	16	NONE				
NMDA0EC3	TMGS	EepromPage3Crc	7	3	12	16	NONE				
NMDA0EID	TMGS	EventId	7	3	12	16	NONE				
NMDA0MCK	TMGS	Memory Checksum	7	3	12	16	NONE				
NMDA0MEA	TMGS	Memory Start Address	7	3	14	32	NONE				
NMDA0MED	TMGS	Memory Data	7	3	12	16	NONE				
NMDA0MEL	TMGS	Memory Block Length	7	3	12	16	NONE				
NMDA0MID	TMGS	MemIdAndBlocks	7	3	12	16	NONE				
NMDA0RC1	TMGS	RamPage1Crc	7	3	12	16	NONE				
NMDA0RC2	TMGS	RamPage2Crc	7	3	12	16	NONE				
NMDA0RC3	TMGS	RamPage3Crc	7	3	12	16	NONE				
NMDA0SID	TMGS	StructureID	7	3	12	16	NONE				
NMDAH111	TMGS	MIDAS 67/1 Packet sequence counter	7	3	12	16	NONE				
NMDAH112	TMGS	MIDAS 67/1 Packet length	7	2	16	16	NONE				
NMDAH113	TMGS	MIDAS 67/1 Data field header time field	7	9	17	48	NONE				
NMDAH114	TMGS	MIDAS 67/1 Data field header PUS	7	3	14	32	NONE				
NMDAH141	TMGS	MIDAS 67/4 Packet sequence counter	7	3	12	16	NONE				
NMDAH142	TMGS	MIDAS 67/4 Packet length	7	2	16	16	NONE				
NMDAH143	TMGS	MIDAS 67/4 Data field header time field	7	9	17	48	NONE				
NMDAH144	TMGS	MIDAS 67/4 Data field header PUS	7	3	14	32	NONE				
NMDAH171	TMGS	MIDAS 67/7 Packet sequence counter	7	3	12	16	NONE				
NMDAH172	TMGS	MIDAS 67/7 Packet length	7	2	16	16	NONE				
NMDAH173	TMGS	MIDAS 67/7 Data field header time field	7	9	17	48	NONE				
NMDAH174	TMGS	MIDAS 67/7 Data field header PUS	7	3	14	32	NONE				
NMDAH191	TMGS	MIDAS 67/9 Packet sequence counter	7	3	12	16	NONE				
NMDAH192	TMGS	MIDAS 67/9 Packet length	7	2	16	16	NONE				
NMDAH193	TMGS	MIDAS 67/9 Data field header time field	7	9	17	48	NONE				
NMDAH194	TMGS	MIDAS 67/9 Data field header PUS	7	3	14	32	NONE				
NMDAH1B1	TMGS	MIDAS 67/11 Packet sequence counter	7	3	12	16	NONE				
NMDAH1B2	TMGS	MIDAS 67/11 Packet length	7	2	16	16	NONE				
NMDAH1B3	TMGS	MIDAS 67/11 Data field header time field	7	9	17	48	NONE				
NMDAH1B4	TMGS	MIDAS 67/11 Data field header PUS	7	3	14	32	NONE				
NMDAH1C1	TMGS	MIDAS 67/12 Packet sequence counter	7	3	12	16	NONE				
NMDAH1C2	TMGS	MIDAS 67/12 Packet length	7	2	16	16	NONE				
NMDAH1C3	TMGS	MIDAS 67/12 Data field header time field	7	9	17	48	NONE				
NMDAH1C4	TMGS	MIDAS 67/12 Data field header PUS	7	3	14	32	NONE				
NMDASCET	TMGS	ScElapsedTime	7	3	14	32	NONE				



NMDASDTA	TMGA	MIDAS SDT SAMP A	7	3	12	16	NONE		SDT		
NMDASDTB	TMGA	MIDAS SDT SAMP B	7	3	12	16	NONE		SDT		
NMDAST01	TMGS	Global PID	7	3	12	16	NONE				
NMDAST02	TMGS	Sequence Control	7	3	12	16	NONE				
NMDAST03	TMGS	FailureCode	7	3	12	16	NONE				
NMDAST04	TMGS	PktServiceType	7	3	12	16	NONE				
NMDAST10	TMGS	Length in TC hea	7	3	12	16	NONE				
NMDAST11	TMGS	Nb of received b	7	3	12	16	NONE				
NMDAST12	TMGS	ReceivedChecksum	7	3	12	16	NONE				
NMDAST13	TMGS	ComputedChecksum	7	3	12	16	NONE				
NMDAST14	TMGS	FC4_Par3	7	3	12	16	NONE				
NMDAST15	TMGS	FC4_Par4	7	3	12	16	NONE				
NMDAST20	TMGS	InconsistentPar	7	3	12	16	NONE				
NMDAST30	TMGS	TcDataFldHdr1	7	3	12	16	NONE				
NMDAST31	TMGS	TcDataFldHdr2	7	3	12	16	NONE				
NMDAT001	TMGA	MIDAS TEMP A	7	3	12	16	ANA	CMDY0900	degC		
NMDAT101	TMGA	MIDAS TEMP B	7	3	12	16	ANA	CMDY0900	degC		
NMDD0010	TMDP	ShutterMotorSelected	7	2	1	1	DIG	CMDVFLAG			6
NMDD0011	TMDP	LinearMotorSelected	7	2	1	1	DIG	CMDVFLAG			7
NMDD0012	TMDP	WheelMotorSelected	7	2	1	1	DIG	CMDVFLAG			8
NMDD0013	TMDP	ZClosedLoop	7	2	1	1	DIG	CMDVFLAG			9
NMDD0014	TMDP	YClosedLoop	7	2	1	1	DIG	CMDVFLAG			10
NMDD0015	TMDP	XClosedLoop	7	2	1	1	DIG	CMDVFLAG			11
NMDD0016	TMDP	TcEchoEnabled	7	2	1	1	NONE				12
NMDD0017	TMDP	CoInfoEnabled	7	2	1	1	NONE				13
NMDD0018	TMDP	ExtendedCode	7	2	1	1	NONE				14
NMDD0019	TMDP	MainProgram	7	2	1	1	NONE				15
NMDD0020	TMDP	SwMajorVersion	7	2	4	4	NONE				12
NMDD0024	TMDP	SwKernelVersion	7	2	4	4	NONE				8
NMDD0028	TMDP	SwMinorVersion	7	2	8	8	NONE				0
NMDD0120	TMDP	EepromPower	7	2	1	1	DIG	CMDVFLAG			15
NMDD0121	TMDP	RamBlock2Sel	7	2	1	1	DIG	CMDVFLAG			14
NMDD0122	TMDP	RedTmSelect	7	2	1	1	DIG	CMDVFLAG			13
NMDD0123	TMDP	RamWaitCycle	7	2	1	1	DIG	CMDVFLAG			12
NMDD0124	TMDP	PromPower	7	2	1	1	DIG	CMDVFLAG			11
NMDD0125	TMDP	ShiftRegEmpty	7	2	1	1	DIG	CMDVFLAG			10
NMDD0126	TMDP	ManTmSelect	7	2	1	1	DIG	CMDVFLAG			9
NMDD0127	TMDP	RedTmActive	7	2	1	1	DIG	CMDVFLAG			8
NMDD0130	TMDP	WheEncRightPulse	7	2	1	1	DIG	CMDVFLAG			15
NMDD0131	TMDP	ProtCapOpenSwitch	7	2	1	1	DIG	CMDVFLAG			14
NMDD0132	TMDP	WheEncRefPulse	7	2	1	1	DIG	CMDVFLAG			13
NMDD0133	TMDP	AppMaxPosSwitch	7	2	1	1	DIG	CMDVFLAG			12
NMDD0134	TMDP	AppMinPosSwitch	7	2	1	1	DIG	CMDVFLAG			11
NMDD0135	TMDP	LinMinPosSwitch	7	2	1	1	DIG	CMDVFLAG			10
NMDD0136	TMDP	LinMaxPosSwitch	7	2	1	1	DIG	CMDVFLAG			9
NMDD0137	TMDP	PlateUnlockedSwitch1	7	2	1	1	DIG	CMDVFLAG			8
NMDD0138	TMDP	PlateUnlockedSwitch2	7	2	1	1	DIG	CMDVFLAG			7
NMDD0139	TMDP	XyIsLockedSwitch1	7	2	1	1	DIG	CMDVFLAG			6
NMDD013A	TMDP	XyIsLockedSwitch2	7	2	1	1	DIG	CMDVFLAG			5
NMDD013B	TMDP	ShtOpenSwitch	7	2	1	1	DIG	CMDVFLAG			4
NMDD013C	TMDP	ShtClosedSwitch	7	2	1	1	DIG	CMDVFLAG			3
NMDD013F	TMDP	AdcOverflow1	7	2	1	1	DIG	CMDVFLAG			0
NMDD0140	TMDP	ZoutEnabled	7	2	1	1	DIG	CMDVFLAG			15
NMDD0141	TMDP	CanBlock1Sel	7	2	1	1	DIG	CMDVFLAG			14
NMDD0142	TMDP	ZStraingPowerHw	7	2	1	1	DIG	CMDVINV			13
NMDD0143	TMDP	AppMotorSelected	7	2	1	1	DIG	CMDVINV			12
NMDD0144	TMDP	MotorDirLeft	7	2	1	1	DIG	CMDVFLAG			11
NMDD0148	TMDP	CsscYoffsMeas	7	2	1	1	DIG	CMDVFLAG			7
NMDD0149	TMDP	CsscSelectCY	7	2	1	1	DIG	CMDVINV			6



NMDD014A	TMDP	CsscSelectCR1Y	7	2	1	1	DIG	CMDVFINV			5
NMDD014B	TMDP	CsscSelectCR2Y	7	2	1	1	DIG	CMDVFINV			4
NMDD014C	TMDP	CsscXoffsMeas	7	2	1	1	DIG	CMDVFLAG			3
NMDD014D	TMDP	CsscSelectCX	7	2	1	1	DIG	CMDVFINV			2
NMDD014E	TMDP	CsscSelectCR1X	7	2	1	1	DIG	CMDVFINV			1
NMDD014F	TMDP	CsscSelectCR2X	7	2	1	1	DIG	CMDVFINV			0
NMDD0150	TMDP	CsscPowerHw	7	2	1	1	DIG	CMDVFLAG			15
NMDD015C	TMDP	MotDrvPowerHw	7	2	1	1	DIG	CMDVFLAG			3
NMDD0160	TMDP	WheEncFinish	7	2	1	1	DIG	CMDVFLAG			15
NMDD0161	TMDP	AdcOverflow2	7	2	1	1	DIG	CMDVFLAG			14
NMDD0168	TMDP	FsynthWriteEna	7	2	1	1	DIG	CMDVFLAG			7
NMDD0169	TMDP	FsynthActive	7	2	1	1	DIG	CMDVFLAG			6
NMDD016A	TMDP	PiezoMotorSelected	7	2	1	1	DIG	CMDVFLAG			5
NMDD016B	TMDP	AdcIsBusy	7	2	1	1	DIG	CMDVFLAG			4
NMDD016C	TMDP	WheEncSelRight	7	2	1	1	DIG	CMDVFLAG			3
NMDD016D	TMDP	SinglePulseMode	7	2	1	1	DIG	CMDVFLAG			2
NMDD017A	TMDP	PlateTmpOvfl	7	2	1	1	DIG	CMDVFLAG			21
NMDD017B	TMDP	PreTmpOvfl	7	2	1	1	DIG	CMDVFLAG			20
NMDD017C	TMDP	PcvTmpOvfl	7	2	1	1	DIG	CMDVFLAG			19
NMDD017D	TMDP	CrefTmpxOvfl	7	2	1	1	DIG	CMDVFLAG			18
NMDD017E	TMDP	CrefTmptyOvfl	7	2	1	1	DIG	CMDVFLAG			17
NMDD017F	TMDP	InletTmpOvfl	7	2	1	1	DIG	CMDVFLAG			16
NMDD017G	TMDP	V5pMonOvfl	7	2	1	1	DIG	CMDVFLAG			15
NMDD017H	TMDP	V15pMonOvfl	7	2	1	1	DIG	CMDVFLAG			14
NMDD017I	TMDP	V15nMonOvfl	7	2	1	1	DIG	CMDVFLAG			13
NMDD017S	TMDP	EepromPage10k	7	2	1	1	DIG	CMDVFLAG			3
NMDD017T	TMDP	EepromPage20k	7	2	1	1	DIG	CMDVFLAG			2
NMDD017U	TMDP	EepromPage30k	7	2	1	1	DIG	CMDVFLAG			1
NMDD1870	TMDP	CsscPower	7	2	1	1	DIG	CMDVFLAG			15
NMDD1871	TMDP	AppLvdTPower	7	2	1	1	DIG	CMDVFLAG			14
NMDD1872	TMDP	LinLvdTPower	7	2	1	1	DIG	CMDVFLAG			13
NMDD1873	TMDP	PreAmpPower	7	2	1	1	DIG	CMDVFLAG			12
NMDD1874	TMDP	CantBlock1Power	7	2	1	1	DIG	CMDVFLAG			11
NMDD1875	TMDP	CantBlock2Power	7	2	1	1	DIG	CMDVFLAG			10
NMDD1876	TMDP	MotDrvPower	7	2	1	1	DIG	CMDVFLAG			9
NMDD1877	TMDP	WheelEncPower	7	2	1	1	DIG	CMDVFLAG			8
NMDD1878	TMDP	ZStraingPower	7	2	1	1	DIG	CMDVFLAG			7
NMDD1879	TMDP	PiezoHvPower	7	2	1	1	DIG	CMDVFLAG			6
NMDD2020	TMDP	ShtMoveTimeout	7	2	1	1	DIG	CMDVFLAG			15
NMDD2021	TMDP	WheelMoveTimeout	7	2	1	1	DIG	CMDVFLAG			14
NMDD2022	TMDP	LinMoveTimeout	7	2	1	1	DIG	CMDVFLAG			13
NMDD2023	TMDP	AppMoveTimeout	7	2	1	1	DIG	CMDVFLAG			12
NMDD2024	TMDP	PlateUnlockTimeout	7	2	1	1	DIG	CMDVFLAG			11
NMDD2025	TMDP	CsscCalTimeout	7	2	1	1	DIG	CMDVFLAG			10
NMDD2026	TMDP	XyUnlockTimeout	7	2	1	1	DIG	CMDVFLAG			9
NMDD2140	TMDP	WaxMainHeatStarted	7	2	1	1	DIG	CMDVFLAG			15
NMDD2141	TMDP	WaxRedHeatStarted	7	2	1	1	DIG	CMDVFLAG			14
NMDD2142	TMDP	WaxExtHeatStarted	7	2	1	1	DIG	CMDVFLAG			13
NMDD2320	TMDP	UcanRmsOvfl	7	2	1	1	DIG	CMDVFLAG			31
NMDD2321	TMDP	UcanAmpDcOvfl	7	2	1	1	DIG	CMDVFLAG			30
NMDD2322	TMDP	UcanPhaseOvfl	7	2	1	1	DIG	CMDVFLAG			29
NMDD2323	TMDP	AppPosMonOvfl	7	2	1	1	DIG	CMDVFLAG			28
NMDD2324	TMDP	LinPosMonOvfl	7	2	1	1	DIG	CMDVFLAG			27
NMDD2325	TMDP	XpiezoOffErrOvfl	7	2	1	1	DIG	CMDVFLAG			26
NMDD2326	TMDP	YpiezoOffErrOvfl	7	2	1	1	DIG	CMDVFLAG			25
NMDD2327	TMDP	ZpiezoOffErrOvfl	7	2	1	1	DIG	CMDVFLAG			24
NMDD2328	TMDP	XpiezoHvMonOvfl	7	2	1	1	DIG	CMDVFLAG			23
NMDD2329	TMDP	YpiezoHvMonOvfl	7	2	1	1	DIG	CMDVFLAG			22
NMDD232J	TMDP	XpiezoPosOvfl	7	2	1	1	DIG	CMDVFLAG			12



NMDD232K	TMDP	YpiezoPosOvfl	7	2	1	1	DIG	CMDVFLAG			11
NMDD232L	TMDP	ZpiezoPosOvfl	7	2	1	1	DIG	CMDVFLAG			10
NMDD232M	TMDP	ZpiezoHvMonOvfl	7	2	1	1	DIG	CMDVFLAG			9
NMDD3193	TMDP	CscStatus	7	2	4	4	NONE				3
NMDD3194	TMDP	CscYusrAbortFlag	7	2	1	1	DIG	CMDVFLAG			4
NMDD3195	TMDP	CscXusrAbortFlag	7	2	1	1	DIG	CMDVFLAG			5
NMDD3196	TMDP	CscYmaxCycleFlag	7	2	1	1	DIG	CMDVFLAG			6
NMDD3197	TMDP	CscXmaxCycleFlag	7	2	1	1	DIG	CMDVFLAG			7
NMDD3198	TMDP	CscYoffsMaxFlag	7	2	1	1	DIG	CMDVFLAG			8
NMDD3199	TMDP	CscYoffsMinFlag	7	2	1	1	DIG	CMDVFLAG			9
NMDD319A	TMDP	CscYgainMaxFlag	7	2	1	1	DIG	CMDVFLAG			10
NMDD319B	TMDP	CscYgainMinFlag	7	2	1	1	DIG	CMDVFLAG			11
NMDD319C	TMDP	CscXoffsMaxFlag	7	2	1	1	DIG	CMDVFLAG			12
NMDD319D	TMDP	CscXoffsMinFlag	7	2	1	1	DIG	CMDVFLAG			13
NMDD319E	TMDP	CscXgainMaxFlag	7	2	1	1	DIG	CMDVFLAG			14
NMDD319F	TMDP	CscXgainMinFlag	7	2	1	1	DIG	CMDVFLAG			15
NMDDH110	TMDP	Data field header pad	7	2	8	8	NONE				24
NMDDH111	TMDP	Segmentation Flag	7	2	2	2	NONE				0
NMDDH112	TMDP	MIDAS 67/1 Source sequence counter	7	3	10	14	NONE				2
NMDDH113	TMDP	MIDAS 67/1 Coarse time	7	3	14	32	NONE				0
NMDDH114	TMDP	MIDAS 67/1Fine time	7	3	12	16	NONE				32
NMDDH115	TMDP	PUS version number	7	2	3	3	NONE				0
NMDDH116	TMDP	Checksum flag	7	2	1	1	NONE				3
NMDDH117	TMDP	Data field header spare parameter	7	2	4	4	NONE				4
NMDDH118	TMDP	MIDAS 67/1 Packet Type	7	2	8	8	NONE				8
NMDDH119	TMDP	MIDAS 67/1 Packet Subtype	7	2	8	8	NONE				16
NMDDH140	TMDP	Data field header pad	7	2	8	8	NONE				24
NMDDH141	TMDP	Segmentation Flag	7	2	2	2	NONE				0
NMDDH142	TMDP	MIDAS 67/4 Source sequence counter	7	3	10	14	NONE				2
NMDDH143	TMDP	MIDAS 67/4 Coarse time	7	3	14	32	NONE				0
NMDDH144	TMDP	MIDAS 67/4Fine time	7	3	12	16	NONE				32
NMDDH145	TMDP	PUS version number	7	2	3	3	NONE				0
NMDDH146	TMDP	Checksum flag	7	2	1	1	NONE				3
NMDDH147	TMDP	Data field header spare parameter	7	2	4	4	NONE				4
NMDDH148	TMDP	MIDAS 67/4 Packet Type	7	2	8	8	NONE				8
NMDDH149	TMDP	MIDAS 67/4 Packet Subtype	7	2	8	8	NONE				16
NMDDH170	TMDP	Data field header pad	7	2	8	8	NONE				24
NMDDH171	TMDP	Segmentation Flag	7	2	2	2	NONE				0
NMDDH172	TMDP	MIDAS 67/7 Source sequence counter	7	3	10	14	NONE				2
NMDDH173	TMDP	MIDAS 67/7 Coarse time	7	3	14	32	NONE				0
NMDDH174	TMDP	MIDAS 67/7Fine time	7	3	12	16	NONE				32
NMDDH175	TMDP	PUS version number	7	2	3	3	NONE				0
NMDDH176	TMDP	Checksum flag	7	2	1	1	NONE				3
NMDDH177	TMDP	Data field header spare parameter	7	2	4	4	NONE				4
NMDDH178	TMDP	MIDAS 67/7 Packet Type	7	2	8	8	NONE				8
NMDDH179	TMDP	MIDAS 67/7 Packet Subtype	7	2	8	8	NONE				16
NMDDH190	TMDP	Data field header pad	7	2	8	8	NONE				24
NMDDH191	TMDP	Segmentation Flag	7	2	2	2	NONE				0
NMDDH192	TMDP	MIDAS 67/9 Source sequence counter	7	3	10	14	NONE				2
NMDDH193	TMDP	MIDAS 67/9 Coarse time	7	3	14	32	NONE				0
NMDDH194	TMDP	MIDAS 67/9Fine time	7	3	12	16	NONE				32



NMDDH195	TMDP	PUS version number	7	2	3	3	NONE				0
NMDDH196	TMDP	Checksum flag	7	2	1	1	NONE				3
NMDDH197	TMDP	Data field header spare parameter	7	2	4	4	NONE				4
NMDDH198	TMDP	MIDAS 67/9 Packet Type	7	2	8	8	NONE				8
NMDDH199	TMDP	MIDAS 67/9 Packet Subtype	7	2	8	8	NONE				16
NMDDH1B0	TMDP	Data field header pad	7	2	8	8	NONE				24
NMDDH1B1	TMDP	Segmentation Flag	7	2	2	2	NONE				0
NMDDH1B2	TMDP	MIDAS 67/11 Source sequence counter	7	3	10	14	NONE				2
NMDDH1B3	TMDP	MIDAS 67/11 Coarse time	7	3	14	32	NONE				0
NMDDH1B4	TMDP	MIDAS 67/11Fine time	7	3	12	16	NONE				32
NMDDH1B5	TMDP	PUS version number	7	2	3	3	NONE				0
NMDDH1B6	TMDP	Checksum flag	7	2	1	1	NONE				3
NMDDH1B7	TMDP	Data field header spare parameter	7	2	4	4	NONE				4
NMDDH1B8	TMDP	MIDAS 67/11 Packet Type	7	2	8	8	NONE				8
NMDDH1B9	TMDP	MIDAS 67/11 Packet Subtype	7	2	8	8	NONE				16
NMDDH1C0	TMDP	Data field header pad	7	2	8	8	NONE				24
NMDDH1C1	TMDP	Segmentation Flag	7	2	2	2	NONE				0
NMDDH1C2	TMDP	MIDAS 67/12 Source sequence counter	7	3	10	14	NONE				2
NMDDH1C3	TMDP	MIDAS 67/12 Coarse time	7	3	14	32	NONE				0
NMDDH1C4	TMDP	MIDAS 67/12Fine time	7	3	12	16	NONE				32
NMDDH1C5	TMDP	PUS version number	7	2	3	3	NONE				0
NMDDH1C6	TMDP	Checksum flag	7	2	1	1	NONE				3
NMDDH1C7	TMDP	Data field header spare parameter	7	2	4	4	NONE				4
NMDDH1C8	TMDP	MIDAS 67/12 Packet Type	7	2	8	8	NONE				8
NMDDH1C9	TMDP	MIDAS 67/12 Packet Subtype	7	2	8	8	NONE				16
NMDDMID0	TMDP	MemoryId	7	2	8	8	NONE				0
NMDDMID1	TMDP	NumBlocks	7	3	4	8	NONE				8
NMDDSID0	TMDP	SidPadField	7	3	4	8	NONE				0
NMDDSID1	TMDP	SidValueField	7	2	8	8	NONE				8
NMDDST01	TMDP	PID	7	3	3	7	NONE				5
NMDDST02	TMDP	PktCategory	7	3	0	4	NONE				12
NMDDST03	TMDP	Source	7	2	3	3	NONE				2
NMDDST04	TMDP	Counter	7	3	7	11	NONE				5
NMDDST05	TMDP	TC Type	7	3	4	8	NONE				0
NMDDST06	TMDP	TC Sub-type	7	3	4	8	NONE				8
NMDDST10	TMDP	Position	7	3	4	8	NONE				0
NMDDST11	TMDP	Value	7	3	4	8	NONE				8
NSBAH001	TMGA	Application Process ID	7	3	12	16	NONE				



6.7 Event Packet Definitions

NAME	INAME	PID	PKCATEG	SERVICE	SUBSERVICE	USAGE	MINLENGTH	MAXLENGTH	SDFVALUE	STARTDATA	TMPE_ORDER	ELTTYPE	REPEAT	VALUE
YMDEV001	EvTcPktAccepted	67	7	5	1	7	30	30	42501	ALL	0	BLOCK	1	WMD06707
YMDEV001	EvTcPktAccepted	67	7	5	1	7	30	30	42501	ALL	1	PARAM	1	NMDA0EID
YMDEV001	EvTcPktAccepted	67	7	5	1	7	30	30	42501	ALL	2	PARAM	1	NMDA0002
YMDEV001	EvTcPktAccepted	67	7	5	1	7	30	30	42501	ALL	3	PARAM	1	NMDAST01
YMDEV001	EvTcPktAccepted	67	7	5	1	7	30	30	42501	ALL	4	PARAM	1	NMDAST02
YMDEV001	EvTcPktAccepted	67	7	5	1	7	30	30	42501	ALL	5	PARAM	1	NMDAST10
YMDEV001	EvTcPktAccepted	67	7	5	1	7	30	30	42501	ALL	6	PARAM	1	NMDAST30
YMDEV001	EvTcPktAccepted	67	7	5	1	7	30	30	42501	ALL	7	PARAM	1	NMDAST31
YMDEV011	EvScanStarted	67	7	5	1	7	20	20	42511	ALL	0	BLOCK	1	WMD06707
YMDEV011	EvScanStarted	67	7	5	1	7	20	20	42511	ALL	1	PARAM	1	NMDA0EID
YMDEV011	EvScanStarted	67	7	5	1	7	20	20	42511	ALL	2	PARAM	1	NMDA0002
YMDEV012	EvScanProgress	67	7	5	1	7	20	20	42512	ALL	0	BLOCK	1	WMD06707
YMDEV012	EvScanProgress	67	7	5	1	7	20	20	42512	ALL	1	PARAM	1	NMDA0EID
YMDEV012	EvScanProgress	67	7	5	1	7	20	20	42512	ALL	2	PARAM	1	NMDA0002
YMDEV013	EvScanFinished	67	7	5	1	7	20	20	42513	ALL	0	BLOCK	1	WMD06707
YMDEV013	EvScanFinished	67	7	5	1	7	20	20	42513	ALL	1	PARAM	1	NMDA0EID
YMDEV013	EvScanFinished	67	7	5	1	7	20	20	42513	ALL	2	PARAM	1	NMDA0002
YMDEV020	EvExtendedCode	67	7	5	1	7	20	20	42520	ALL	0	BLOCK	1	WMD06707
YMDEV020	EvExtendedCode	67	7	5	1	7	20	20	42520	ALL	1	PARAM	1	NMDA0EID
YMDEV020	EvExtendedCode	67	7	5	1	7	20	20	42520	ALL	2	PARAM	1	NMDA0002
YMDEV030	EvCtxAccepted	67	7	5	1	7	20	20	42530	ALL	0	BLOCK	1	WMD06707
YMDEV030	EvCtxAccepted	67	7	5	1	7	20	20	42530	ALL	1	PARAM	1	NMDA0EID
YMDEV030	EvCtxAccepted	67	7	5	1	7	20	20	42530	ALL	2	PARAM	1	NMDA0002
YMDEV040	EvDustFluxUpperLim	67	7	5	1	7	20	20	42540	ALL	0	BLOCK	1	WMD06707
YMDEV040	EvDustFluxUpperLim	67	7	5	1	7	20	20	42540	ALL	1	PARAM	1	NMDA0EID
YMDEV040	EvDustFluxUpperLim	67	7	5	1	7	20	20	42540	ALL	2	PARAM	1	NMDA0002
YMDEV041	EvDustFluxLowerLim	67	7	5	1	7	20	20	42541	ALL	0	BLOCK	1	WMD06707
YMDEV041	EvDustFluxLowerLim	67	7	5	1	7	20	20	42541	ALL	1	PARAM	1	NMDA0EID
YMDEV041	EvDustFluxLowerLim	67	7	5	1	7	20	20	42541	ALL	2	PARAM	1	NMDA0002
YMDEV051	EvShutOpenStarted	67	7	5	1	7	20	20	42551	ALL	0	BLOCK	1	WMD06707
YMDEV051	EvShutOpenStarted	67	7	5	1	7	20	20	42551	ALL	1	PARAM	1	NMDA0EID
YMDEV051	EvShutOpenStarted	67	7	5	1	7	20	20	42551	ALL	2	PARAM	1	NMDA0002
YMDEV052	EvShutClosStarted	67	7	5	1	7	20	20	42552	ALL	0	BLOCK	1	WMD06707
YMDEV052	EvShutClosStarted	67	7	5	1	7	20	20	42552	ALL	1	PARAM	1	NMDA0EID
YMDEV052	EvShutClosStarted	67	7	5	1	7	20	20	42552	ALL	2	PARAM	1	NMDA0002
YMDEV053	EvShutOpened	67	7	5	1	7	20	20	42553	ALL	0	BLOCK	1	WMD06707
YMDEV053	EvShutOpened	67	7	5	1	7	20	20	42553	ALL	1	PARAM	1	NMDA0EID
YMDEV053	EvShutOpened	67	7	5	1	7	20	20	42553	ALL	2	PARAM	1	NMDA0002
YMDEV054	EvShutClosed	67	7	5	1	7	20	20	42554	ALL	0	BLOCK	1	WMD06707
YMDEV054	EvShutClosed	67	7	5	1	7	20	20	42554	ALL	1	PARAM	1	NMDA0EID
YMDEV054	EvShutClosed	67	7	5	1	7	20	20	42554	ALL	2	PARAM	1	NMDA0002
YMDEV061	EvMWaxHeatStarted	67	7	5	1	7	20	20	42561	ALL	0	BLOCK	1	WMD06707
YMDEV061	EvMWaxHeatStarted	67	7	5	1	7	20	20	42561	ALL	1	PARAM	1	NMDA0EID
YMDEV061	EvMWaxHeatStarted	67	7	5	1	7	20	20	42561	ALL	2	PARAM	1	NMDA0002
YMDEV062	EvRWaxHeatStarted	67	7	5	1	7	20	20	42562	ALL	0	BLOCK	1	WMD06707
YMDEV062	EvRWaxHeatStarted	67	7	5	1	7	20	20	42562	ALL	1	PARAM	1	NMDA0EID
YMDEV062	EvRWaxHeatStarted	67	7	5	1	7	20	20	42562	ALL	2	PARAM	1	NMDA0002
YMDEV063	EvMXyaHeatStarted	67	7	5	1	7	20	20	42563	ALL	0	BLOCK	1	WMD06707
YMDEV063	EvMXyaHeatStarted	67	7	5	1	7	20	20	42563	ALL	1	PARAM	1	NMDA0EID
YMDEV063	EvMXyaHeatStarted	67	7	5	1	7	20	20	42563	ALL	2	PARAM	1	NMDA0002



YMDEV064	EvRXyaHeatStarted	67	7	5	1	7	20	20	42564	ALL	0	BLOCK	1	WMD06707
YMDEV064	EvRXyaHeatStarted	67	7	5	1	7	20	20	42564	ALL	1	PARAM	1	NMDA0EID
YMDEV064	EvRXyaHeatStarted	67	7	5	1	7	20	20	42564	ALL	2	PARAM	1	NMDA0002
YMDEV065	EvWax1Opened	67	7	5	1	7	20	20	42565	ALL	0	BLOCK	1	WMD06707
YMDEV065	EvWax1Opened	67	7	5	1	7	20	20	42565	ALL	1	PARAM	1	NMDA0EID
YMDEV065	EvWax1Opened	67	7	5	1	7	20	20	42565	ALL	2	PARAM	1	NMDA0002
YMDEV066	EvWax2Opened	67	7	5	1	7	20	20	42566	ALL	0	BLOCK	1	WMD06707
YMDEV066	EvWax2Opened	67	7	5	1	7	20	20	42566	ALL	1	PARAM	1	NMDA0EID
YMDEV066	EvWax2Opened	67	7	5	1	7	20	20	42566	ALL	2	PARAM	1	NMDA0002
YMDEV067	EvXActOpened	67	7	5	1	7	20	20	42567	ALL	0	BLOCK	1	WMD06707
YMDEV067	EvXActOpened	67	7	5	1	7	20	20	42567	ALL	1	PARAM	1	NMDA0EID
YMDEV067	EvXActOpened	67	7	5	1	7	20	20	42567	ALL	2	PARAM	1	NMDA0002
YMDEV068	EvYActOpened	67	7	5	1	7	20	20	42568	ALL	0	BLOCK	1	WMD06707
YMDEV068	EvYActOpened	67	7	5	1	7	20	20	42568	ALL	1	PARAM	1	NMDA0EID
YMDEV068	EvYActOpened	67	7	5	1	7	20	20	42568	ALL	2	PARAM	1	NMDA0002
YMDEV071	EvCalibrationStarted	67	7	5	1	7	20	20	42571	ALL	0	BLOCK	1	WMD06707
YMDEV071	EvCalibrationStarted	67	7	5	1	7	20	20	42571	ALL	1	PARAM	1	NMDA0EID
YMDEV071	EvCalibrationStarted	67	7	5	1	7	20	20	42571	ALL	2	PARAM	1	NMDA0002
YMDEV072	EvXPiezoCalibrated	67	7	5	1	7	20	20	42572	ALL	0	BLOCK	1	WMD06707
YMDEV072	EvXPiezoCalibrated	67	7	5	1	7	20	20	42572	ALL	1	PARAM	1	NMDA0EID
YMDEV072	EvXPiezoCalibrated	67	7	5	1	7	20	20	42572	ALL	2	PARAM	1	NMDA0002
YMDEV073	EvYPiezoCalibrated	67	7	5	1	7	20	20	42573	ALL	0	BLOCK	1	WMD06707
YMDEV073	EvYPiezoCalibrated	67	7	5	1	7	20	20	42573	ALL	1	PARAM	1	NMDA0EID
YMDEV073	EvYPiezoCalibrated	67	7	5	1	7	20	20	42573	ALL	2	PARAM	1	NMDA0002
YMDEV081	EvHystTblLoaded	67	7	5	1	7	20	20	42581	ALL	0	BLOCK	1	WMD06707
YMDEV081	EvHystTblLoaded	67	7	5	1	7	20	20	42581	ALL	1	PARAM	1	NMDA0EID
YMDEV081	EvHystTblLoaded	67	7	5	1	7	20	20	42581	ALL	2	PARAM	1	NMDA0002
YMDEV082	EvXCorrTblLoaded	67	7	5	1	7	20	20	42582	ALL	0	BLOCK	1	WMD06707
YMDEV082	EvXCorrTblLoaded	67	7	5	1	7	20	20	42582	ALL	1	PARAM	1	NMDA0EID
YMDEV082	EvXCorrTblLoaded	67	7	5	1	7	20	20	42582	ALL	2	PARAM	1	NMDA0002
YMDEV083	EvYCorrTblLoaded	67	7	5	1	7	20	20	42583	ALL	0	BLOCK	1	WMD06707
YMDEV083	EvYCorrTblLoaded	67	7	5	1	7	20	20	42583	ALL	1	PARAM	1	NMDA0EID
YMDEV083	EvYCorrTblLoaded	67	7	5	1	7	20	20	42583	ALL	2	PARAM	1	NMDA0002
YMDEV084	EvLinLvdtTblLoaded	67	7	5	1	7	20	20	42584	ALL	0	BLOCK	1	WMD06707
YMDEV084	EvLinLvdtTblLoaded	67	7	5	1	7	20	20	42584	ALL	1	PARAM	1	NMDA0EID
YMDEV084	EvLinLvdtTblLoaded	67	7	5	1	7	20	20	42584	ALL	2	PARAM	1	NMDA0002
YMDEV085	EvAppLvdtTblLoaded	67	7	5	1	7	20	20	42585	ALL	0	BLOCK	1	WMD06707
YMDEV085	EvAppLvdtTblLoaded	67	7	5	1	7	20	20	42585	ALL	1	PARAM	1	NMDA0EID
YMDEV085	EvAppLvdtTblLoaded	67	7	5	1	7	20	20	42585	ALL	2	PARAM	1	NMDA0002
YMDEV086	EvTipPosTblLoaded	67	7	5	1	7	20	20	42586	ALL	0	BLOCK	1	WMD06707
YMDEV086	EvTipPosTblLoaded	67	7	5	1	7	20	20	42586	ALL	1	PARAM	1	NMDA0EID
YMDEV086	EvTipPosTblLoaded	67	7	5	1	7	20	20	42586	ALL	2	PARAM	1	NMDA0002
YMDEV087	EvSavingTable	67	7	5	1	7	20	20	42587	ALL	0	BLOCK	1	WMD06707
YMDEV087	EvSavingTable	67	7	5	1	7	20	20	42587	ALL	1	PARAM	1	NMDA0EID
YMDEV087	EvSavingTable	67	7	5	1	7	20	20	42587	ALL	2	PARAM	1	NMDA0002
YMDEV088	EvRestoringTable	67	7	5	1	7	20	20	42588	ALL	0	BLOCK	1	WMD06707
YMDEV088	EvRestoringTable	67	7	5	1	7	20	20	42588	ALL	1	PARAM	1	NMDA0EID
YMDEV088	EvRestoringTable	67	7	5	1	7	20	20	42588	ALL	2	PARAM	1	NMDA0002
YMDEV089	EvInitialisingTable	67	7	5	1	7	20	20	42589	ALL	0	BLOCK	1	WMD06707
YMDEV089	EvInitialisingTable	67	7	5	1	7	20	20	42589	ALL	1	PARAM	1	NMDA0EID
YMDEV089	EvInitialisingTable	67	7	5	1	7	20	20	42589	ALL	2	PARAM	1	NMDA0002
YMDEV091	EvSearchForRefPulse	67	7	5	1	7	20	20	42591	ALL	0	BLOCK	1	WMD06707
YMDEV091	EvSearchForRefPulse	67	7	5	1	7	20	20	42591	ALL	1	PARAM	1	NMDA0EID
YMDEV091	EvSearchForRefPulse	67	7	5	1	7	20	20	42591	ALL	2	PARAM	1	NMDA0002
YMDEV092	EvSegmentFound	67	7	5	1	7	20	20	42592	ALL	0	BLOCK	1	WMD06707
YMDEV092	EvSegmentFound	67	7	5	1	7	20	20	42592	ALL	1	PARAM	1	NMDA0EID
YMDEV092	EvSegmentFound	67	7	5	1	7	20	20	42592	ALL	2	PARAM	1	NMDA0002
YMDEV101	EvRamTestStarted	67	7	5	1	7	20	20	42601	ALL	0	BLOCK	1	WMD06707
YMDEV101	EvRamTestStarted	67	7	5	1	7	20	20	42601	ALL	1	PARAM	1	NMDA0EID



YMDEV101	EvRamTestStarted	67	7	5	1	7	20	20	42601	ALL	2	PARAM	1	NMDA0002
YMDEV102	EvRamTestFinished	67	7	5	1	7	20	20	42602	ALL	0	BLOCK	1	WMD06707
YMDEV102	EvRamTestFinished	67	7	5	1	7	20	20	42602	ALL	1	PARAM	1	NMDA0EID
YMDEV102	EvRamTestFinished	67	7	5	1	7	20	20	42602	ALL	2	PARAM	1	NMDA0002
YMDEV103	EvRamTestOk	67	7	5	1	7	20	20	42603	ALL	0	BLOCK	1	WMD06707
YMDEV103	EvRamTestOk	67	7	5	1	7	20	20	42603	ALL	1	PARAM	1	NMDA0EID
YMDEV103	EvRamTestOk	67	7	5	1	7	20	20	42603	ALL	2	PARAM	1	NMDA0002
YMDEV111	EvLineScanFinished	67	7	5	1	7	20	20	42611	ALL	0	BLOCK	1	WMD06707
YMDEV111	EvLineScanFinished	67	7	5	1	7	20	20	42611	ALL	1	PARAM	1	NMDA0EID
YMDEV111	EvLineScanFinished	67	7	5	1	7	20	20	42611	ALL	2	PARAM	1	NMDA0002
YMDEV113	EvFullScanFinished	67	7	5	1	7	20	20	42613	ALL	0	BLOCK	1	WMD06707
YMDEV113	EvFullScanFinished	67	7	5	1	7	20	20	42613	ALL	1	PARAM	1	NMDA0EID
YMDEV113	EvFullScanFinished	67	7	5	1	7	20	20	42613	ALL	2	PARAM	1	NMDA0002
YMDEV121	EvAppOnMinPos	67	7	5	1	7	20	20	42621	ALL	0	BLOCK	1	WMD06707
YMDEV121	EvAppOnMinPos	67	7	5	1	7	20	20	42621	ALL	1	PARAM	1	NMDA0EID
YMDEV121	EvAppOnMinPos	67	7	5	1	7	20	20	42621	ALL	2	PARAM	1	NMDA0002
YMDEV122	EvAppOnMaxPos	67	7	5	1	7	20	20	42622	ALL	0	BLOCK	1	WMD06707
YMDEV122	EvAppOnMaxPos	67	7	5	1	7	20	20	42622	ALL	1	PARAM	1	NMDA0EID
YMDEV122	EvAppOnMaxPos	67	7	5	1	7	20	20	42622	ALL	2	PARAM	1	NMDA0002
YMDEV123	EvSurfaceFound	67	7	5	1	7	20	20	42623	ALL	0	BLOCK	1	WMD06707
YMDEV123	EvSurfaceFound	67	7	5	1	7	20	20	42623	ALL	1	PARAM	1	NMDA0EID
YMDEV123	EvSurfaceFound	67	7	5	1	7	20	20	42623	ALL	2	PARAM	1	NMDA0002
YMDEV124	EvAbsAppPosReached	67	7	5	1	7	20	20	42624	ALL	0	BLOCK	1	WMD06707
YMDEV124	EvAbsAppPosReached	67	7	5	1	7	20	20	42624	ALL	1	PARAM	1	NMDA0EID
YMDEV124	EvAbsAppPosReached	67	7	5	1	7	20	20	42624	ALL	2	PARAM	1	NMDA0002
YMDEV131	EvLinPosReached	67	7	5	1	7	20	20	42631	ALL	0	BLOCK	1	WMD06707
YMDEV131	EvLinPosReached	67	7	5	1	7	20	20	42631	ALL	1	PARAM	1	NMDA0EID
YMDEV131	EvLinPosReached	67	7	5	1	7	20	20	42631	ALL	2	PARAM	1	NMDA0002
YMDEV132	EvLinOnMinPos	67	7	5	1	7	20	20	42632	ALL	0	BLOCK	1	WMD06707
YMDEV132	EvLinOnMinPos	67	7	5	1	7	20	20	42632	ALL	1	PARAM	1	NMDA0EID
YMDEV132	EvLinOnMinPos	67	7	5	1	7	20	20	42632	ALL	2	PARAM	1	NMDA0002
YMDEV133	EvLinOnMaxPos	67	7	5	1	7	20	20	42633	ALL	0	BLOCK	1	WMD06707
YMDEV133	EvLinOnMaxPos	67	7	5	1	7	20	20	42633	ALL	1	PARAM	1	NMDA0EID
YMDEV133	EvLinOnMaxPos	67	7	5	1	7	20	20	42633	ALL	2	PARAM	1	NMDA0002
YMDEV141	EvFScanStarted	67	7	5	1	7	20	20	42641	ALL	0	BLOCK	1	WMD06707
YMDEV141	EvFScanStarted	67	7	5	1	7	20	20	42641	ALL	1	PARAM	1	NMDA0EID
YMDEV141	EvFScanStarted	67	7	5	1	7	20	20	42641	ALL	2	PARAM	1	NMDA0002
YMDEV142	EvFScanCycleStarted	67	7	5	1	7	20	20	42642	ALL	0	BLOCK	1	WMD06707
YMDEV142	EvFScanCycleStarted	67	7	5	1	7	20	20	42642	ALL	1	PARAM	1	NMDA0EID
YMDEV142	EvFScanCycleStarted	67	7	5	1	7	20	20	42642	ALL	2	PARAM	1	NMDA0002
YMDEV143	EvFScanCycleFinished	67	7	5	1	7	20	20	42643	ALL	0	BLOCK	1	WMD06707
YMDEV143	EvFScanCycleFinished	67	7	5	1	7	20	20	42643	ALL	1	PARAM	1	NMDA0EID
YMDEV143	EvFScanCycleFinished	67	7	5	1	7	20	20	42643	ALL	2	PARAM	1	NMDA0002
YMDEV144	EvFScanFinished	67	7	5	1	7	20	20	42644	ALL	0	BLOCK	1	WMD06707
YMDEV144	EvFScanFinished	67	7	5	1	7	20	20	42644	ALL	1	PARAM	1	NMDA0EID
YMDEV144	EvFScanFinished	67	7	5	1	7	20	20	42644	ALL	2	PARAM	1	NMDA0002
YMDEV145	EvAutoFScanFinished	67	7	5	1	7	20	20	42645	ALL	0	BLOCK	1	WMD06707
YMDEV145	EvAutoFScanFinished	67	7	5	1	7	20	20	42645	ALL	1	PARAM	1	NMDA0EID
YMDEV145	EvAutoFScanFinished	67	7	5	1	7	20	20	42645	ALL	2	PARAM	1	NMDA0002
YMDEV146	EvThresholdAmpFound	67	7	5	1	7	20	20	42646	ALL	0	BLOCK	1	WMD06707
YMDEV146	EvThresholdAmpFound	67	7	5	1	7	20	20	42646	ALL	1	PARAM	1	NMDA0EID
YMDEV146	EvThresholdAmpFound	67	7	5	1	7	20	20	42646	ALL	2	PARAM	1	NMDA0002
YMDEV151	EvLinToTipStarted	67	7	5	1	7	20	20	42651	ALL	0	BLOCK	1	WMD06707
YMDEV151	EvLinToTipStarted	67	7	5	1	7	20	20	42651	ALL	1	PARAM	1	NMDA0EID
YMDEV151	EvLinToTipStarted	67	7	5	1	7	20	20	42651	ALL	2	PARAM	1	NMDA0002
YMDEV152	EvLinToAbsStarted	67	7	5	1	7	20	20	42652	ALL	0	BLOCK	1	WMD06707
YMDEV152	EvLinToAbsStarted	67	7	5	1	7	20	20	42652	ALL	1	PARAM	1	NMDA0EID
YMDEV152	EvLinToAbsStarted	67	7	5	1	7	20	20	42652	ALL	2	PARAM	1	NMDA0002
YMDEV153	EvLinToMinStarted	67	7	5	1	7	20	20	42653	ALL	0	BLOCK	1	WMD06707



YMDEV153	EvLinToMinStarted	67	7	5	1	7	20	20	42653	ALL	1	PARAM	1	NMDA0EID
YMDEV153	EvLinToMinStarted	67	7	5	1	7	20	20	42653	ALL	2	PARAM	1	NMDA0002
YMDEV154	EvLinToMaxStarted	67	7	5	1	7	20	20	42654	ALL	0	BLOCK	1	WMD06707
YMDEV154	EvLinToMaxStarted	67	7	5	1	7	20	20	42654	ALL	1	PARAM	1	NMDA0EID
YMDEV154	EvLinToMaxStarted	67	7	5	1	7	20	20	42654	ALL	2	PARAM	1	NMDA0002
YMDEV155	EvLineScanStarted	67	7	5	1	7	20	20	42655	ALL	0	BLOCK	1	WMD06707
YMDEV155	EvLineScanStarted	67	7	5	1	7	20	20	42655	ALL	1	PARAM	1	NMDA0EID
YMDEV155	EvLineScanStarted	67	7	5	1	7	20	20	42655	ALL	2	PARAM	1	NMDA0002
YMDEV156	EvFullScanStarted	67	7	5	1	7	20	20	42656	ALL	0	BLOCK	1	WMD06707
YMDEV156	EvFullScanStarted	67	7	5	1	7	20	20	42656	ALL	1	PARAM	1	NMDA0EID
YMDEV156	EvFullScanStarted	67	7	5	1	7	20	20	42656	ALL	2	PARAM	1	NMDA0002
YMDEV161	EvBackAppStarted	67	7	5	1	7	20	20	42661	ALL	0	BLOCK	1	WMD06707
YMDEV161	EvBackAppStarted	67	7	5	1	7	20	20	42661	ALL	1	PARAM	1	NMDA0EID
YMDEV161	EvBackAppStarted	67	7	5	1	7	20	20	42661	ALL	2	PARAM	1	NMDA0002
YMDEV162	EvApproachStarted	67	7	5	1	7	20	20	42662	ALL	0	BLOCK	1	WMD06707
YMDEV162	EvApproachStarted	67	7	5	1	7	20	20	42662	ALL	1	PARAM	1	NMDA0EID
YMDEV162	EvApproachStarted	67	7	5	1	7	20	20	42662	ALL	2	PARAM	1	NMDA0002
YMDEV163	EvWaiting	67	7	5	1	7	20	20	42663	ALL	0	BLOCK	1	WMD06707
YMDEV163	EvWaiting	67	7	5	1	7	20	20	42663	ALL	1	PARAM	1	NMDA0EID
YMDEV163	EvWaiting	67	7	5	1	7	20	20	42663	ALL	2	PARAM	1	NMDA0002
YMDEV164	EvApproachFinished	67	7	5	1	7	20	20	42664	ALL	0	BLOCK	1	WMD06707
YMDEV164	EvApproachFinished	67	7	5	1	7	20	20	42664	ALL	1	PARAM	1	NMDA0EID
YMDEV164	EvApproachFinished	67	7	5	1	7	20	20	42664	ALL	2	PARAM	1	NMDA0002
YMDEV165	EvZpiezoFineAdj	67	7	5	1	7	20	20	42665	ALL	0	BLOCK	1	WMD06707
YMDEV165	EvZpiezoFineAdj	67	7	5	1	7	20	20	42665	ALL	1	PARAM	1	NMDA0EID
YMDEV165	EvZpiezoFineAdj	67	7	5	1	7	20	20	42665	ALL	2	PARAM	1	NMDA0002
YMDEV170	EvSwTaskStarted	67	7	5	1	7	20	20	42670	ALL	0	BLOCK	1	WMD06707
YMDEV170	EvSwTaskStarted	67	7	5	1	7	20	20	42670	ALL	1	PARAM	1	NMDA0EID
YMDEV170	EvSwTaskStarted	67	7	5	1	7	20	20	42670	ALL	2	PARAM	1	NMDA0002
YMDEV171	EvSwTaskFinished	67	7	5	1	7	20	20	42671	ALL	0	BLOCK	1	WMD06707
YMDEV171	EvSwTaskFinished	67	7	5	1	7	20	20	42671	ALL	1	PARAM	1	NMDA0EID
YMDEV171	EvSwTaskFinished	67	7	5	1	7	20	20	42671	ALL	2	PARAM	1	NMDA0002
YMDEV172	EvFeatureStarted	67	7	5	1	7	20	20	42672	ALL	0	BLOCK	1	WMD06707
YMDEV172	EvFeatureStarted	67	7	5	1	7	20	20	42672	ALL	1	PARAM	1	NMDA0EID
YMDEV172	EvFeatureStarted	67	7	5	1	7	20	20	42672	ALL	2	PARAM	1	NMDA0002
YMDEV173	EvFeatureFinished	67	7	5	1	7	20	20	42673	ALL	0	BLOCK	1	WMD06707
YMDEV173	EvFeatureFinished	67	7	5	1	7	20	20	42673	ALL	1	PARAM	1	NMDA0EID
YMDEV173	EvFeatureFinished	67	7	5	1	7	20	20	42673	ALL	2	PARAM	1	NMDA0002
YMDEV174	EvAbsApprStarted	67	7	5	1	7	20	20	42674	ALL	0	BLOCK	1	WMD06707
YMDEV174	EvAbsApprStarted	67	7	5	1	7	20	20	42674	ALL	1	PARAM	1	NMDA0EID
YMDEV174	EvAbsApprStarted	67	7	5	1	7	20	20	42674	ALL	2	PARAM	1	NMDA0002
YMDEV198	EvMainPgmHello	67	7	5	1	7	20	20	42698	ALL	0	BLOCK	1	WMD06707
YMDEV198	EvMainPgmHello	67	7	5	1	7	20	20	42698	ALL	1	PARAM	1	NMDA0EID
YMDEV198	EvMainPgmHello	67	7	5	1	7	20	20	42698	ALL	2	PARAM	1	NMDA0002
YMDEV199	EvKernelHello	67	7	5	1	7	32	32	42699	ALL	0	BLOCK	1	WMD06707
YMDEV199	EvKernelHello	67	7	5	1	7	32	32	42699	ALL	1	PARAM	1	NMDA0EID
YMDEV199	EvKernelHello	67	7	5	1	7	32	32	42699	ALL	2	PARAM	1	NMDA0002
YMDEV199	EvKernelHello	67	7	5	1	7	32	32	42699	ALL	3	PARAM	1	NMDA0EC1
YMDEV199	EvKernelHello	67	7	5	1	7	32	32	42699	ALL	4	PARAM	1	NMDA0EC2
YMDEV199	EvKernelHello	67	7	5	1	7	32	32	42699	ALL	5	PARAM	1	NMDA0EC3
YMDEV199	EvKernelHello	67	7	5	1	7	32	32	42699	ALL	6	PARAM	1	NMDA0RC1
YMDEV199	EvKernelHello	67	7	5	1	7	32	32	42699	ALL	7	PARAM	1	NMDA0RC2
YMDEV199	EvKernelHello	67	7	5	1	7	32	32	42699	ALL	8	PARAM	1	NMDA0RC3
YMDEV200	EvTimer	67	7	5	1	7	32	32	42700	ALL	0	BLOCK	1	WMD06707
YMDEV200	EvTimer	67	7	5	1	7	32	32	42700	ALL	1	PARAM	1	NMDA0EID
YMDEV200	EvTimer	67	7	5	1	7	32	32	42700	ALL	2	PARAM	1	NMDA0002
YMDEV200	EvTimer	67	7	5	1	7	32	32	42700	ALL	3	PARAM	1	NMDASCET
YMDEV200	EvTimer	67	7	5	1	7	32	32	42700	ALL	4	PARAM	1	NMDASCET
YMDEV201	EvTcPktRejected	67	7	5	2	7	32	32	42701	ALL	0	BLOCK	1	WMD06707



YMDEV201	EvTcPktRejected	67	7	5	2	7	32	32	42701	ALL	1	PARAM	1	NMDA0EID
YMDEV201	EvTcPktRejected	67	7	5	2	7	32	32	42701	ALL	2	PARAM	1	NMDA0002
YMDEV201	EvTcPktRejected	67	7	5	2	7	32	32	42701	ALL	3	PARAM	1	NMDAST01
YMDEV201	EvTcPktRejected	67	7	5	2	7	32	32	42701	ALL	4	PARAM	1	NMDAST02
YMDEV201	EvTcPktRejected	67	7	5	2	7	32	32	42701	ALL	5	PARAM	1	NMDAST10
YMDEV201	EvTcPktRejected	67	7	5	2	7	32	32	42701	ALL	6	PARAM	1	NMDAST30
YMDEV201	EvTcPktRejected	67	7	5	2	7	32	32	42701	ALL	7	PARAM	1	NMDAST31
YMDEV201	EvTcPktRejected	67	7	5	2	7	32	32	42701	ALL	8	PARAM	1	NMDAST03
YMDEV211	EvScanNoSet	67	7	5	2	7	20	20	42711	ALL	0	BLOCK	1	WMD06707
YMDEV211	EvScanNoSet	67	7	5	2	7	20	20	42711	ALL	1	PARAM	1	NMDA0EID
YMDEV211	EvScanNoSet	67	7	5	2	7	20	20	42711	ALL	2	PARAM	1	NMDA0002
YMDEV212	EvNoValidSet	67	7	5	2	7	20	20	42712	ALL	0	BLOCK	1	WMD06707
YMDEV212	EvNoValidSet	67	7	5	2	7	20	20	42712	ALL	1	PARAM	1	NMDA0EID
YMDEV212	EvNoValidSet	67	7	5	2	7	20	20	42712	ALL	2	PARAM	1	NMDA0002
YMDEV213	EvScanAborted	67	7	5	2	7	20	20	42713	ALL	0	BLOCK	1	WMD06707
YMDEV213	EvScanAborted	67	7	5	2	7	20	20	42713	ALL	1	PARAM	1	NMDA0EID
YMDEV213	EvScanAborted	67	7	5	2	7	20	20	42713	ALL	2	PARAM	1	NMDA0002
YMDEV220	EvNoExtendedCode	67	7	5	2	7	20	20	42720	ALL	0	BLOCK	1	WMD06707
YMDEV220	EvNoExtendedCode	67	7	5	2	7	20	20	42720	ALL	1	PARAM	1	NMDA0EID
YMDEV220	EvNoExtendedCode	67	7	5	2	7	20	20	42720	ALL	2	PARAM	1	NMDA0002
YMDEV230	EvCtxRejected	67	7	5	2	7	20	20	42730	ALL	0	BLOCK	1	WMD06707
YMDEV230	EvCtxRejected	67	7	5	2	7	20	20	42730	ALL	1	PARAM	1	NMDA0EID
YMDEV230	EvCtxRejected	67	7	5	2	7	20	20	42730	ALL	2	PARAM	1	NMDA0002
YMDEV231	EvCtxTimeout	67	7	5	2	7	20	20	42731	ALL	0	BLOCK	1	WMD06707
YMDEV231	EvCtxTimeout	67	7	5	2	7	20	20	42731	ALL	1	PARAM	1	NMDA0EID
YMDEV231	EvCtxTimeout	67	7	5	2	7	20	20	42731	ALL	2	PARAM	1	NMDA0002
YMDEV241	EvShtMoveAborted	67	7	5	2	7	20	20	42741	ALL	0	BLOCK	1	WMD06707
YMDEV241	EvShtMoveAborted	67	7	5	2	7	20	20	42741	ALL	1	PARAM	1	NMDA0EID
YMDEV241	EvShtMoveAborted	67	7	5	2	7	20	20	42741	ALL	2	PARAM	1	NMDA0002
YMDEV242	EvWaxHeatAborted	67	7	5	2	7	20	20	42742	ALL	0	BLOCK	1	WMD06707
YMDEV242	EvWaxHeatAborted	67	7	5	2	7	20	20	42742	ALL	1	PARAM	1	NMDA0EID
YMDEV242	EvWaxHeatAborted	67	7	5	2	7	20	20	42742	ALL	2	PARAM	1	NMDA0002
YMDEV243	EvXyaHeatAborted	67	7	5	2	7	20	20	42743	ALL	0	BLOCK	1	WMD06707
YMDEV243	EvXyaHeatAborted	67	7	5	2	7	20	20	42743	ALL	1	PARAM	1	NMDA0EID
YMDEV243	EvXyaHeatAborted	67	7	5	2	7	20	20	42743	ALL	2	PARAM	1	NMDA0002
YMDEV246	EvXCalAborted	67	7	5	2	7	20	20	42746	ALL	0	BLOCK	1	WMD06707
YMDEV246	EvXCalAborted	67	7	5	2	7	20	20	42746	ALL	1	PARAM	1	NMDA0EID
YMDEV246	EvXCalAborted	67	7	5	2	7	20	20	42746	ALL	2	PARAM	1	NMDA0002
YMDEV247	EvYCalAborted	67	7	5	2	7	20	20	42747	ALL	0	BLOCK	1	WMD06707
YMDEV247	EvYCalAborted	67	7	5	2	7	20	20	42747	ALL	1	PARAM	1	NMDA0EID
YMDEV247	EvYCalAborted	67	7	5	2	7	20	20	42747	ALL	2	PARAM	1	NMDA0002
YMDEV251	EvAlreadyOnRefPulse	67	7	5	2	7	20	20	42751	ALL	0	BLOCK	1	WMD06707
YMDEV251	EvAlreadyOnRefPulse	67	7	5	2	7	20	20	42751	ALL	1	PARAM	1	NMDA0EID
YMDEV251	EvAlreadyOnRefPulse	67	7	5	2	7	20	20	42751	ALL	2	PARAM	1	NMDA0002
YMDEV252	EvWheelMoveAborted	67	7	5	2	7	20	20	42752	ALL	0	BLOCK	1	WMD06707
YMDEV252	EvWheelMoveAborted	67	7	5	2	7	20	20	42752	ALL	1	PARAM	1	NMDA0EID
YMDEV252	EvWheelMoveAborted	67	7	5	2	7	20	20	42752	ALL	2	PARAM	1	NMDA0002
YMDEV256	EvFullScanAborted	67	7	5	2	7	20	20	42756	ALL	0	BLOCK	1	WMD06707
YMDEV256	EvFullScanAborted	67	7	5	2	7	20	20	42756	ALL	1	PARAM	1	NMDA0EID
YMDEV256	EvFullScanAborted	67	7	5	2	7	20	20	42756	ALL	2	PARAM	1	NMDA0002
YMDEV257	EvLineScanAborted	67	7	5	2	7	20	20	42757	ALL	0	BLOCK	1	WMD06707
YMDEV257	EvLineScanAborted	67	7	5	2	7	20	20	42757	ALL	1	PARAM	1	NMDA0EID
YMDEV257	EvLineScanAborted	67	7	5	2	7	20	20	42757	ALL	2	PARAM	1	NMDA0002
YMDEV261	EvBackwApprAborted	67	7	5	2	7	20	20	42761	ALL	0	BLOCK	1	WMD06707
YMDEV261	EvBackwApprAborted	67	7	5	2	7	20	20	42761	ALL	1	PARAM	1	NMDA0EID
YMDEV261	EvBackwApprAborted	67	7	5	2	7	20	20	42761	ALL	2	PARAM	1	NMDA0002
YMDEV262	EvApproachAborted	67	7	5	2	7	20	20	42762	ALL	0	BLOCK	1	WMD06707
YMDEV262	EvApproachAborted	67	7	5	2	7	20	20	42762	ALL	1	PARAM	1	NMDA0EID
YMDEV262	EvApproachAborted	67	7	5	2	7	20	20	42762	ALL	2	PARAM	1	NMDA0002



YMDEV263	EvAbsAppPosAborted	67	7	5	2	7	20	20	42763	ALL	0	BLOCK	1	WMD06707
YMDEV263	EvAbsAppPosAborted	67	7	5	2	7	20	20	42763	ALL	1	PARAM	1	NMDA0EID
YMDEV263	EvAbsAppPosAborted	67	7	5	2	7	20	20	42763	ALL	2	PARAM	1	NMDA0002
YMDEV264	EvAppContact	67	7	5	2	7	20	20	42764	ALL	0	BLOCK	1	WMD06707
YMDEV264	EvAppContact	67	7	5	2	7	20	20	42764	ALL	1	PARAM	1	NMDA0EID
YMDEV264	EvAppContact	67	7	5	2	7	20	20	42764	ALL	2	PARAM	1	NMDA0002
YMDEV265	EvAppError	67	7	5	2	7	20	20	42765	ALL	0	BLOCK	1	WMD06707
YMDEV265	EvAppError	67	7	5	2	7	20	20	42765	ALL	1	PARAM	1	NMDA0EID
YMDEV265	EvAppError	67	7	5	2	7	20	20	42765	ALL	2	PARAM	1	NMDA0002
YMDEV266	EvApproachStuck	67	7	5	2	7	20	20	42766	ALL	0	BLOCK	1	WMD06707
YMDEV266	EvApproachStuck	67	7	5	2	7	20	20	42766	ALL	1	PARAM	1	NMDA0EID
YMDEV266	EvApproachStuck	67	7	5	2	7	20	20	42766	ALL	2	PARAM	1	NMDA0002
YMDEV267	EvAppLvdOnMaxPos	67	7	5	2	7	20	20	42767	ALL	0	BLOCK	1	WMD06707
YMDEV267	EvAppLvdOnMaxPos	67	7	5	2	7	20	20	42767	ALL	1	PARAM	1	NMDA0EID
YMDEV267	EvAppLvdOnMaxPos	67	7	5	2	7	20	20	42767	ALL	2	PARAM	1	NMDA0002
YMDEV268	EvAppLvdOnMinPos	67	7	5	2	7	20	20	42768	ALL	0	BLOCK	1	WMD06707
YMDEV268	EvAppLvdOnMinPos	67	7	5	2	7	20	20	42768	ALL	1	PARAM	1	NMDA0EID
YMDEV268	EvAppLvdOnMinPos	67	7	5	2	7	20	20	42768	ALL	2	PARAM	1	NMDA0002
YMDEV271	EvLinMoveAborted	67	7	5	2	7	20	20	42771	ALL	0	BLOCK	1	WMD06707
YMDEV271	EvLinMoveAborted	67	7	5	2	7	20	20	42771	ALL	1	PARAM	1	NMDA0EID
YMDEV271	EvLinMoveAborted	67	7	5	2	7	20	20	42771	ALL	2	PARAM	1	NMDA0002
YMDEV276	EvAutoFScanAborted	67	7	5	2	7	20	20	42776	ALL	0	BLOCK	1	WMD06707
YMDEV276	EvAutoFScanAborted	67	7	5	2	7	20	20	42776	ALL	1	PARAM	1	NMDA0EID
YMDEV276	EvAutoFScanAborted	67	7	5	2	7	20	20	42776	ALL	2	PARAM	1	NMDA0002
YMDEV277	EvCalcOperatVars	67	7	5	2	7	20	20	42777	ALL	0	BLOCK	1	WMD06707
YMDEV277	EvCalcOperatVars	67	7	5	2	7	20	20	42777	ALL	1	PARAM	1	NMDA0EID
YMDEV277	EvCalcOperatVars	67	7	5	2	7	20	20	42777	ALL	2	PARAM	1	NMDA0002
YMDEV278	EvSwTaskAborted	67	7	5	2	7	20	20	42778	ALL	0	BLOCK	1	WMD06707
YMDEV278	EvSwTaskAborted	67	7	5	2	7	20	20	42778	ALL	1	PARAM	1	NMDA0EID
YMDEV278	EvSwTaskAborted	67	7	5	2	7	20	20	42778	ALL	2	PARAM	1	NMDA0002
YMDEV279	EvFeatureAborted	67	7	5	2	7	20	20	42779	ALL	0	BLOCK	1	WMD06707
YMDEV279	EvFeatureAborted	67	7	5	2	7	20	20	42779	ALL	1	PARAM	1	NMDA0EID
YMDEV279	EvFeatureAborted	67	7	5	2	7	20	20	42779	ALL	2	PARAM	1	NMDA0002
YMDEV301	EvSidNotHandled	67	7	5	2	7	24	24	42801	ALL	0	BLOCK	1	WMD06707
YMDEV301	EvSidNotHandled	67	7	5	2	7	24	24	42801	ALL	1	PARAM	1	NMDA0EID
YMDEV301	EvSidNotHandled	67	7	5	2	7	24	24	42801	ALL	2	PARAM	1	NMDA0002
YMDEV301	EvSidNotHandled	67	7	5	2	7	24	24	42801	ALL	3	PARAM	1	NMDAST04
YMDEV301	EvSidNotHandled	67	7	5	2	7	24	24	42801	ALL	4	PARAM	1	NMDA0SID
YMDEV302	EvTypeNotHandled	67	7	5	2	7	24	24	42802	ALL	0	BLOCK	1	WMD06707
YMDEV302	EvTypeNotHandled	67	7	5	2	7	24	24	42802	ALL	1	PARAM	1	NMDA0SID
YMDEV302	EvTypeNotHandled	67	7	5	2	7	24	24	42802	ALL	2	PARAM	1	NMDA0002
YMDEV302	EvTypeNotHandled	67	7	5	2	7	24	24	42802	ALL	3	PARAM	1	NMDAST04
YMDEV302	EvTypeNotHandled	67	7	5	2	7	24	24	42802	ALL	4	PARAM	1	NMDA0EID



6.8 Anomaly Report Definitions

NAME	INAME	PID	PCKCATEG	SERVICE	SUBSERVICE	USAGE	MINLENGTH	MAXLENGTH	SDFVALUE	STARTDATA	TMPE_ORDER	ELTTYPE	REPEAT	VALUE
YMDEV401	EvShutterTimeout	67	7	5	3	7	20	20	42901	ALL	0	BLOCK	1	WMD06707
YMDEV401	EvShutterTimeout	67	7	5	3	7	20	20	42901	ALL	1	PARAM	1	NMDA0EID
YMDEV401	EvShutterTimeout	67	7	5	3	7	20	20	42901	ALL	2	PARAM	1	NMDA0002
YMDEV402	EvWaxActTimeout	67	7	5	3	7	20	20	42902	ALL	0	BLOCK	1	WMD06707
YMDEV402	EvWaxActTimeout	67	7	5	3	7	20	20	42902	ALL	1	PARAM	1	NMDA0EID
YMDEV402	EvWaxActTimeout	67	7	5	3	7	20	20	42902	ALL	2	PARAM	1	NMDA0002
YMDEV403	EvXyActTimeout	67	7	5	3	7	20	20	42903	ALL	0	BLOCK	1	WMD06707
YMDEV403	EvXyActTimeout	67	7	5	3	7	20	20	42903	ALL	1	PARAM	1	NMDA0EID
YMDEV403	EvXyActTimeout	67	7	5	3	7	20	20	42903	ALL	2	PARAM	1	NMDA0002
YMDEV404	EvSegSearchTimeout	67	7	5	3	7	20	20	42904	ALL	0	BLOCK	1	WMD06707
YMDEV404	EvSegSearchTimeout	67	7	5	3	7	20	20	42904	ALL	1	PARAM	1	NMDA0EID
YMDEV404	EvSegSearchTimeout	67	7	5	3	7	20	20	42904	ALL	2	PARAM	1	NMDA0002
YMDEV405	EvLinMoveTimeout	67	7	5	3	7	20	20	42905	ALL	0	BLOCK	1	WMD06707
YMDEV405	EvLinMoveTimeout	67	7	5	3	7	20	20	42905	ALL	1	PARAM	1	NMDA0EID
YMDEV405	EvLinMoveTimeout	67	7	5	3	7	20	20	42905	ALL	2	PARAM	1	NMDA0002
YMDEV406	EvApproachTimeout	67	7	5	3	7	20	20	42906	ALL	0	BLOCK	1	WMD06707
YMDEV406	EvApproachTimeout	67	7	5	3	7	20	20	42906	ALL	1	PARAM	1	NMDA0EID
YMDEV406	EvApproachTimeout	67	7	5	3	7	20	20	42906	ALL	2	PARAM	1	NMDA0002
YMDEV407	EvCalCycleTimeout	67	7	5	3	7	20	20	42907	ALL	0	BLOCK	1	WMD06707
YMDEV407	EvCalCycleTimeout	67	7	5	3	7	20	20	42907	ALL	1	PARAM	1	NMDA0EID
YMDEV407	EvCalCycleTimeout	67	7	5	3	7	20	20	42907	ALL	2	PARAM	1	NMDA0002
YMDEV408	EvMaxCalCycles	67	7	5	3	7	20	20	42908	ALL	0	BLOCK	1	WMD06707
YMDEV408	EvMaxCalCycles	67	7	5	3	7	20	20	42908	ALL	1	PARAM	1	NMDA0EID
YMDEV408	EvMaxCalCycles	67	7	5	3	7	20	20	42908	ALL	2	PARAM	1	NMDA0002
YMDEV409	EvInvalidTblNo	67	7	5	3	7	20	20	42909	ALL	0	BLOCK	1	WMD06707
YMDEV409	EvInvalidTblNo	67	7	5	3	7	20	20	42909	ALL	1	PARAM	1	NMDA0EID
YMDEV409	EvInvalidTblNo	67	7	5	3	7	20	20	42909	ALL	2	PARAM	1	NMDA0002
YMDEV411	EvRamTestNotOk	67	7	5	3	7	20	20	42911	ALL	0	BLOCK	1	WMD06707
YMDEV411	EvRamTestNotOk	67	7	5	3	7	20	20	42911	ALL	1	PARAM	1	NMDA0EID
YMDEV411	EvRamTestNotOk	67	7	5	3	7	20	20	42911	ALL	2	PARAM	1	NMDA0002
YMDEV416	EvMoveAbortedApp	67	7	5	3	7	20	20	42916	ALL	0	BLOCK	1	WMD06707
YMDEV416	EvMoveAbortedApp	67	7	5	3	7	20	20	42916	ALL	1	PARAM	1	NMDA0EID
YMDEV416	EvMoveAbortedApp	67	7	5	3	7	20	20	42916	ALL	2	PARAM	1	NMDA0002
YMDEV421	EvThresholdNotFound	67	7	5	3	7	20	20	42921	ALL	0	BLOCK	1	WMD06707
YMDEV421	EvThresholdNotFound	67	7	5	3	7	20	20	42921	ALL	1	PARAM	1	NMDA0EID
YMDEV421	EvThresholdNotFound	67	7	5	3	7	20	20	42921	ALL	2	PARAM	1	NMDA0002
YMDEV431	EvXGainMinCalAbort	67	7	5	3	7	20	20	42931	ALL	0	BLOCK	1	WMD06707
YMDEV431	EvXGainMinCalAbort	67	7	5	3	7	20	20	42931	ALL	1	PARAM	1	NMDA0EID
YMDEV431	EvXGainMinCalAbort	67	7	5	3	7	20	20	42931	ALL	2	PARAM	1	NMDA0002
YMDEV432	EvXGainMaxCalAbort	67	7	5	3	7	20	20	42932	ALL	0	BLOCK	1	WMD06707
YMDEV432	EvXGainMaxCalAbort	67	7	5	3	7	20	20	42932	ALL	1	PARAM	1	NMDA0EID
YMDEV432	EvXGainMaxCalAbort	67	7	5	3	7	20	20	42932	ALL	2	PARAM	1	NMDA0002
YMDEV433	EvXOffsMinCalAbort	67	7	5	3	7	20	20	42933	ALL	0	BLOCK	1	WMD06707
YMDEV433	EvXOffsMinCalAbort	67	7	5	3	7	20	20	42933	ALL	1	PARAM	1	NMDA0EID
YMDEV433	EvXOffsMinCalAbort	67	7	5	3	7	20	20	42933	ALL	2	PARAM	1	NMDA0002
YMDEV434	EvXOffsMaxCalAbort	67	7	5	3	7	20	20	42934	ALL	0	BLOCK	1	WMD06707
YMDEV434	EvXOffsMaxCalAbort	67	7	5	3	7	20	20	42934	ALL	1	PARAM	1	NMDA0EID
YMDEV434	EvXOffsMaxCalAbort	67	7	5	3	7	20	20	42934	ALL	2	PARAM	1	NMDA0002
YMDEV435	EvYGainMinCalAbort	67	7	5	3	7	20	20	42935	ALL	0	BLOCK	1	WMD06707
YMDEV435	EvYGainMinCalAbort	67	7	5	3	7	20	20	42935	ALL	1	PARAM	1	NMDA0EID



YMDEV435	EvYGainMinCalAbort	67	7	5	3	7	20	20	42935	ALL	2	PARAM	1	NMDA0002
YMDEV436	EvYGainMaxCalAbort	67	7	5	3	7	20	20	42936	ALL	0	BLOCK	1	WMD06707
YMDEV436	EvYGainMaxCalAbort	67	7	5	3	7	20	20	42936	ALL	1	PARAM	1	NMDA0EID
YMDEV436	EvYGainMaxCalAbort	67	7	5	3	7	20	20	42936	ALL	2	PARAM	1	NMDA0002
YMDEV437	EvYOffsMinCalAbort	67	7	5	3	7	20	20	42937	ALL	0	BLOCK	1	WMD06707
YMDEV437	EvYOffsMinCalAbort	67	7	5	3	7	20	20	42937	ALL	1	PARAM	1	NMDA0EID
YMDEV437	EvYOffsMinCalAbort	67	7	5	3	7	20	20	42937	ALL	2	PARAM	1	NMDA0002
YMDEV438	EvYOffsMaxCalAbort	67	7	5	3	7	20	20	42938	ALL	0	BLOCK	1	WMD06707
YMDEV438	EvYOffsMaxCalAbort	67	7	5	3	7	20	20	42938	ALL	1	PARAM	1	NMDA0EID
YMDEV438	EvYOffsMaxCalAbort	67	7	5	3	7	20	20	42938	ALL	2	PARAM	1	NMDA0002
YMDEV440	EvSwTaskFailed	67	7	5	3	7	20	20	42940	ALL	0	BLOCK	1	WMD06707
YMDEV440	EvSwTaskFailed	67	7	5	3	7	20	20	42940	ALL	1	PARAM	1	NMDA0EID
YMDEV440	EvSwTaskFailed	67	7	5	3	7	20	20	42940	ALL	2	PARAM	1	NMDA0002
YMDEV451	EvTmQueueFull	67	7	5	4	7	20	20	42951	ALL	0	BLOCK	1	WMD06707
YMDEV451	EvTmQueueFull	67	7	5	4	7	20	20	42951	ALL	1	PARAM	1	NMDA0EID
YMDEV451	EvTmQueueFull	67	7	5	4	7	20	20	42951	ALL	2	PARAM	1	NMDA0002

6.9 Context File Definition

NAME	INAME	P ID	PCKCATEG	SERVICE	SUBSERVICE	USAGE	MINLENGTH	MAXLENGTH	SDFVALUE	STARTDATA	TMPE_ORDER	ELTTYPE	REPEAT	VALUE
YMDCTX01	ContextReport	67	11	18	2	7	318	318		ALL	0	BLOCK	1	WMD06711

6.10 Data and Dump File Definitions

NAME	INAME	P ID	PCKCATEG	SERVICE	SUBSERVICE	USAGE	MINLENGTH	MAXLENGTH	SDFVALUE	STARTDATA	TMPE_ORDER	ELTTYPE	REPEAT	VALUE
YMDMEM01	MemDumpReport	67	9	6	6	7	26	2072	90	ALL	0	BLOCK	1	WMD06709
YMDMEM01	MemDumpReport	67	9	6	6	7	26	2072	90	ALL	1	PARAM	1	NMDA0MID
YMDMEM01	MemDumpReport	67	9	6	6	7	26	2072	90	ALL	2	PARAM	1	NMDA0MEA
YMDMEM01	MemDumpReport	67	9	6	6	7	26	2072	90	ALL	3	PARAM	1	NMDA0MEL
YMDMEM01	MemDumpReport	67	9	6	6	7	26	2072	90	ALL	4	PARAM	1024	NMDA0MED
YMDMEM02	MemCheckReport	67	7	6	10	7	26	330	90	ALL	0	BLOCK	1	WMD06707
YMDMEM02	MemCheckReport	67	7	6	10	7	26	330	90	ALL	1	PARAM	1	NMDA0MID
YMDMEM02	MemCheckReport	67	7	6	10	7	26	330	90	ALL	2	PARAM	1	NMDA0MEA
YMDMEM02	MemCheckReport	67	7	6	10	7	26	330	90	ALL	3	PARAM	1	NMDA0MEL
YMDMEM02	MemCheckReport	67	7	6	10	7	26	330	90	ALL	4	PARAM	153	NMDA0MCK