

PACS\_Spec\_Gra\_IST\_Check\_2\_OBS  
 File: H\_COP\_PAC\_G202.xls  
 Author: R. Biggins



## Procedure Summary

### Objectives

The objective of this procedure is to check the stability of the grating under a given set of controller parameters. This is done by enabling the grating controller and performing a few movements without homing.

Based on procedure:  
 PACS\_Spec\_Gra\_IST\_Check\_2\_OBS (v2 dated 20.04.09)

### Summary of Constraints

RT Science must be enabled to receive the Diagnostic HK packets

### Spacecraft Configuration

#### Start of Procedure

PACS in NO\_PRIME (SAFE) mode

#### End of Procedure

PACS in NO\_PRIME (SAFE) mode  
 - PACS is generating Spectroscopy HK

### Reference File(s)

#### Input Command Sequences

#### Output Command Sequences

HCPG202X  
 HCPG202Y

### Referenced Displays

<b>ANDs</b>	<b>GRDs</b>	<b>SLDs</b>
ZAZ98999	PG002420	
PA016420		

### Configuration Control Information

DATE	FOP ISSUE	VERSION	MODIFICATION DESCRIPTION	AUTHOR	SPR REF
10/10/08		1	Created	R. Biggins	
11/12/08		2	Updates due to new import files (dated 12.10.2008) - Procedure split into 2 sequences - Formal Parameter list updated	R. Biggins	
12/12/08	2	3	Changes due to IPF testing - ALL time tags updated (ET removed) - no change bars	R. Biggins	
17/04/09		4	Final updates before flight - Summary updated - TC flags updated	R. Biggins	
20/04/09	2.3	5	Changes due to new inputs from B. Vandenbussche - TCs in step 6 updated (new FPs) requiring updated IPF definition	R. Biggins	

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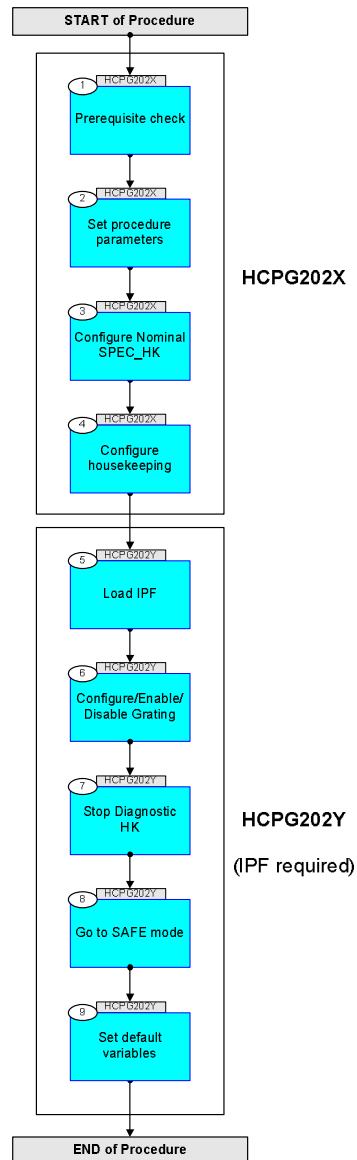


28/04/09	2.4	6	Update due to problems in IPF□ - ET times removed	R. Biggins	
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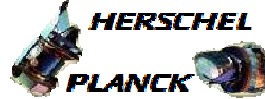


## Procedure Flowchart Overview





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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	DPU_SET_HK_LIST  DPU_SET_HK_LIST  Command Parameter(s) : HK_PACKET_ID PP005380 SPU_ARRAY PP025380  Subsch. ID : 90 Det. descr. : SET THE PREDIFINED LIST OF HK VALUES FOR THE HK PACKET	PC003380  SPEC BOTH Array	
		Verify Telemetry  DP_TM_RATE PM049380	= SPEC	AND=ZAZ98999
4		Configure housekeeping		Next Step: 5
	ET=+ UT=+00.00.01	DMC_SET_BBID  DMC_SET_BBID  Command Parameter(s) : BUILDING_BLOCK_ID PP070420  TC Control Flags :  GBM IL DSE --Y -- ---  Subsch. ID : 90 Det. descr. : SET BBID IN DMC	PC079420  409D0001 <hex>	
	ET=+ UT=+00.00.01	Execute Telecommand  DMC_WRT_DIAG_HK_LIST  Command Parameter(s) : DMC_DATA_LENGTH PP065420 DMC_4_BYTES_WORDS_DATA PP067420 DMC_4_BYTES_WORDS_DATA PP067420 DMC_4_BYTES_WORDS_DATA PP067420 DMC_4_BYTES_WORDS_DATA PP067420 DMC_CHECKSUM PP066420  Subsch. ID : 90 Det. descr. : WRITE THE LIST OF DIAGNOSTIC HK INTO DMC MEMORY	PC160420  4 <dec> FA <hex> FB <hex> 1C4 <hex> FFFF <hex> CDF9 <hex>	
	ET=+ UT=+00.00.01	DMC_START_DIAG_HK  DMC_START_DIAG_HK  Command Parameter(s) : DIAG_HK_PERIOD PP076420  Subsch. ID : 90 Det. descr. : START THE ACQUISITION OF THE DIAGNOSTIC HK	PC146420  0 <dec>	
		Verify Telemetry  DM_BBID PM029420	= 409D0001 <hex>	AND=ZAZ98999

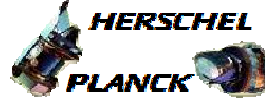
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
		<b>NOTE:</b> The verification of the generation of the <b>TM(21,3)</b> diagnostic packets cannot be done on the MCS, but can be seen on the NCTRS (VC7)		
TC Seq. Name :HCPG202Y (Grating Check 2)  TimeTag Type: N Sub Schedule ID:  <input type="checkbox"/>				
5		Load IPF		Next Step: 6
		Load the following IPF (TPF) file into the Manual Stack (where vvvv is the latest version number):  <b>HCPG202Y_GRATING2_vvvv.IPF</b>		
6		Configure/Enable/Disable Grating		Next Step: 7
		The following parameters should be monitored:		
		Verify Telemetry DM_GRAT_CUR_POS                  PM054420		GRD=PG002420
		Verify: This value should be stable DM_GRAT_OUTPUT                  PM256420		AND=PA016420
	ET=+ UT=+00.00.01	DMC_WRT_GRAT_CONF_PAR DMC_WRT_GRAT_CONF_PAR  Command Parameter(s) : DMC_4_BYTES_WORDS_DATA                  PP067420          1 DMC_4_BYTES_WORDS_DATA                  PP067420          2 DMC_4_BYTES_WORDS_DATA                  PP067420          3 DMC_4_BYTES_WORDS_DATA                  PP067420          4 DMC_4_BYTES_WORDS_DATA                  PP067420          5 DMC_4_BYTES_WORDS_DATA                  PP067420          6 DMC_4_BYTES_WORDS_DATA                  PP067420          7 DMC_4_BYTES_WORDS_DATA                  PP067420          8 DMC_4_BYTES_WORDS_DATA                  PP067420          9 DMC_CHECKSUM                  PP066420         10  TC Control Flags :  GBM IL DSE --Y -- ---  Subsch. ID : 90 Det. descr. : WRITE THE PARAMETERS TO CONFIGURE THE GRATING SERVO LOOP	PC162420	



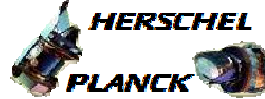
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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.05	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -200000 <dec>	
	ET=+ UT=+00.00.04	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	



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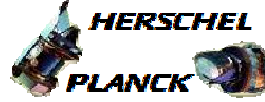
Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  400000 <dec>	
	ET=+ UT=+00.00.06	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	

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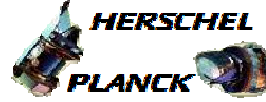
Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -200000 <dec>	
	ET=+ UT=+00.00.04	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	

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	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	
	ET=+ UT=+00.00.01	DMC_MOVE_GRAT_REL_RAW  DMC_MOVE_GRAT_REL  Command Parameter(s) : SET_POINT_INCREMENT                   PP078420  Subsch. ID : 90 Det. descr. : MOVE GRATING OF A RELATIVE POSITION	PC113420  -117 <dec>	
	ET=+ UT=+00.00.16	DMC_DISABLE_GRAT_CONT  DMC_DISABLE_GRAT_CONT  Subsch. ID : 90 Det. descr. : DISABLE GRATING CONTROLLER	PC111420	
7		Stop Diagnostic HK		Next Step: 8
	ET=+ UT=+00.00.01	DMC_STOP_DIAG_HK  DMC_STOP_DIAG_HK  TC Control Flags :  GBM IL DSE --Y -- ---  Subsch. ID : 90 Det. descr. : STOP THE ACQUISITION OF THE DIAGNOSTIC HK	PC147420	
		<b>NOTE:</b> The verification of the cessation of generation of the <b>TM(21,3)</b> diagnostic packets cannot be done on the MCS, but can be seen on the NCTRS (VC7)		
8		Go to SAFE mode		Next Step: 9

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Step No.	Time	Activity/Remarks	TC/TLM	Display/ Branch
	ET=+ UT=+00.00.01	DMC_SET_BBID  Command Parameter(s) : BUILDING_BLOCK_ID                   PP070420  TC Control Flags :  GBM IL DSE --Y -- ---  Subsch. ID : 90 Det. descr. : SET BBID IN DMC	DMC_SET_BBID  PC079420  40180001 <hex>	
	ET=+ UT=+00.00.01	DPU_START_OBCP  Command Parameter(s) : PROCEDURE_ID                   PP012380 NUMBER_OF_TIMES               PP010380  Subsch. ID : 90 Det. descr. : START AN OBCP WITH THE COMMANDED PARAMETERS	DPU_START_OBCP  PC012380  GO_SAFE_MODE 0 <dec>	
		Verify Telemetry  DP_TM_RATE                   PM049380	= NO PRIME	AND=ZAZ98999
9		Set default variables		Next Step: END
	ET=+ UT=+00.00.01	DMC_SET_OBSID  Command Parameter(s) : OBSERVATION_ID               PP069420  TC Control Flags :  GBM IL DSE --Y -- ---  Subsch. ID : 90 Det. descr. : SET OBSID IN DMC	DMC_SET_OBSID  PC078420  00000000 <hex>	
	ET=+ UT=+00.00.00	DMC_SET_BBID  Command Parameter(s) : BUILDING_BLOCK_ID               PP070420  Subsch. ID : 90 Det. descr. : SET BBID IN DMC	DMC_SET_BBID  PC079420  40000000 <hex>	
		Verify Telemetry  DM_OBSID                   PM028420	= 00000000 <hex>	AND=ZAZ98999
		Verify Telemetry  DM_BBID                   PM029420	= 40000000 <hex>	AND=ZAZ98999
<b>End of Procedure</b>				