

**PAYLOAD AND GENERAL SUPPORT COMPUTER / BUS INTERFACE ADAPTER  
GAS PAYLOAD CONTROL 0.5  
USER'S GUIDE**

**for**

**LIMITED DURATION SPACE ENVIRONMENT CANDIDATE MATERIALS EXPOSURE  
and  
THERMAL ENERGY STORAGE**

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## 1.0 Program Operation

To execute the program on the Payload and General Support Computer (PGSC), insert the diskette in drive A: of the PGSC. Power on the PGSC. The PGSC performs a diagnostic test on itself followed by a beep. Press the "F" key within five seconds after hearing this beep. The PGSC then boots from the floppy drive. The program is automatically executed. Communications to the Bus Interface Adapter (BIA) are handled through Comm Port 2 of the PGSC.

To execute the program without the BIA/GCDs or without the GAS Simulator and simply as a demonstration, boot an IBM Compatible PC running under the MS-DOS version 5.0 operating system from its hard disk. Once booted, insert the diskette in drive A: and enter the command A:GASDEMO. No I/O is performed in the demo version of the software, relay status is automatically set as commanded. Note that previous versions of DOS will result in relay commands not being logged to the diskette.

## 2.0 Displays

This section shows each display and provides information on how to select the items or execute the functions on the display.

Computer / Bus Interface Adapter

DURATION SPACE ENVIRONMENT CANDIDATE MATERIAL EXP  
L E ENERGY STORAGE

## 2.1 GAS/CAP MENU

To select a display from the GAS/CAP MENU, use the up or down arrow key to highlight the desired menu item and press the Return Key to execute the function. Displays can also be selected by using the Alt Key with the letter highlighted in the display's description:

HELP : Press [Alt]-[F1] or [Alt]-[H].  
LDCE : Press [Alt]-[L].  
TES : Press [Alt]-[T].  
GAS Summary : Press [Alt]-[S].  
Master Reset : Press [Alt]-[R].  
Update MET : Press [Alt]-[U].  
Raw Commands : Press [Alt]-[C].

To exit from the GAS/CAP MENU, press [Alt]-[X]. The message "Program terminated, data WILL be saved." will appear. Press [Alt]-[Y] to confirm, any other key will return you to the menu. After confirming, the message "YOU HAVE REQUESTED SHUTDOWN OF THIS APPLICATION." will appear. Press [Ctrl]-[Y] to confirm.

To exit at any time from any display, press [Alt]-[Q]. The following message will appear: "Program terminated, data WILL be saved." Press [Alt]-[Y] to confirm. After confirming, the message "YOU HAVE REQUESTED SHUTDOWN OF THIS APPLICATION." will appear. Press [Ctrl]-[Y] to confirm.

Perform GAS Summary function.

Perform Master Reset function.

Update GMT.

Receive Commands.

Go to LDCE.

Go to TES.



## 2.2 HELP from GAS MENU

To display this Help screen, highlight HELP or press [Alt]-[F1] or [Alt]-[H] from the GAS/CAP MENU. This display lists all the options and screens available from the menu.

To exit this display and return to the GAS/CAP MENU, press any key.

(PGSC / BIA)

ON SPACE ENVIRONMENT CANDIDATE MATERIALS EXP

COMMAND

DISABL/ENABLE

**OPEN** /CLOSE

DISABL/ENABLE

OPEN /CLOSE

DISABL/ENABLE

OPEN /CLOSE

arrow keys and [Return] to send command

press [Escape] to return to Main Menu



## 2.3 LIMITED DURATION SPACE ENVIRONMENT CANDIDATE MATERIALS EXPOSURE

To display this screen, select LDCE or press [Alt]-[L] from the GAS/CAP MENU.

Choose the desired command by pressing the up, down, left or right arrow keys. To send the highlighted command, DISABL/ENABLE, or OPEN/CLOSE, press the Return Key. The confirmation message "You have requested ..." will appear. Press [CTRL]-[Y] to confirm. The status field will be updated with the command sent.

The error message, "Door is not enabled." may be displayed on this form if a command is sent to open the MDA and Door Power is not enabled. Press any key to remove the message.

To exit this form and return to the GAS/CAP MENU, press the down arrow key while at the last item on the display and answer the question "Do you want to exit this form? [y/n]" by pressing [y]. Pressing the Escape key from any item will also return you to the GAS/CAP MENU.

(PGSC / BIA)

PAGE

COMMAND

/OFF

OPEN /CLOSE

/OFF

/OFF

OPEN /CLOSE

ON /OFF

STATUS

OFF

OPEN

OFF

F

F

F

arrow keys and [Return] to send command

press [Escape] to return to Main Menu

GMT 281/12:00:00

## 2.4 THERMAL ENERGY STORAGE

To display this screen, select TES or press [Alt]-[T] from the GAS/CAP MENU.

Choose the desired command by pressing the up, down, left or right arrow keys. To send the highlighted command, ON/OFF or OPEN/CLOSE, press the Return Key. The confirmation message "You have requested ..." will appear. Press [CTRL]-[Y] to confirm. The status field will be updated with the command sent.

To exit this form and return to the GAS/CAP MENU, press the down arrow key while at the last item on the display and answer the question "Do you want to exit this form? [y/n]" by pressing [y]. Pressing the Escape key from any item will also return you to the GAS/CAP MENU.

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## 2.5 GAS SUMMARY MENU

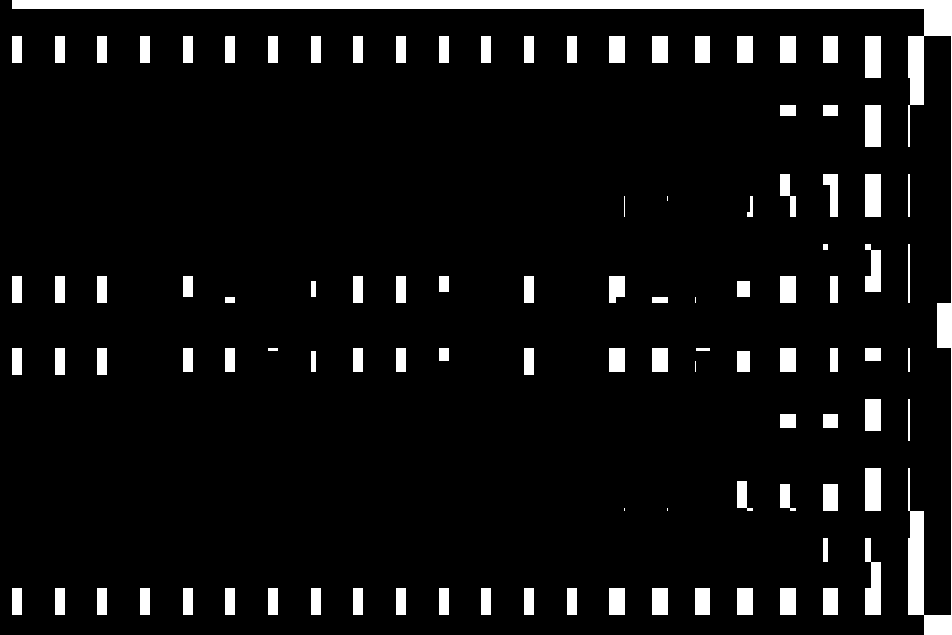
To display this screen, highlight GAS SUMMARY or press [Alt]-[S] from the GAS/CAP MENU.

To execute the GAS Summary function from this menu, use the up and down arrow key to highlight the item and press the Return Key. The function can also be executed by pressing [Alt]-[S]. The Gas Summary function will interrogate all active relays to determine their current status. Upon execution of this function, the message "You have requested Gas Summary" will appear. Press [Ctrl]-[Y] to confirm. A window will appear displaying the message "Now Polling Relay ..." with a description of the relays. This message will be displayed for each active relay. When polling has completed, a window will appear showing the relay descriptions and their status. Press the Escape key to return to the Gas Summary menu.

To bring up the IVT Screen, use the up and down arrow key to highlight the item and press the Return Key. The screen can also be brought up by pressing [Alt]-[I]. The IVT Screen will display 33 GAS Command Decoders (GCD). Initially the GCDs with active relays will be enabled by the program. Other GCDs can be enabled/disabled by moving the cursor to the desired GCD and pressing the Return key. Pressing the [Alt]-[P] keystroke combination will cause the program to poll each of the relays in all of the enabled GCDs. For each relay, the status will be shown as 'H' for Hot, 'L' for Latent, 'M' for contact malfunction and '-' for No Response.

Press the Escape key to return to the Gas Summary menu.

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## 2.6 MASTER RESET MENU

To display this screen, highlight MASTER RESET or press [Alt]-[R] from the GAS/CAP MENU.

To execute the Master Reset function from this menu, press the Return Key. The function can also be executed by pressing [Alt]-[R] for Master Reset.

The Master Reset function will reset all relays to the latent state. Upon execution of this function, the message "YOU HAVE REQUESTED MASTER RESET" will appear. Press [Ctrl]-[Y] to confirm and execute or any other key to cancel. Once the Master Reset has completed, the message "Press any key to continue to GAS Summary." will be displayed. The summary will be performed automatically once a key is pressed.

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(PGSC / BIA)

GMT 281/12:00:00



## 2.7 UPDATE GMT CLOCK

To display this screen, highlight UPDATE GMT CLOCK or press [Alt]-[U] from the GAS/CAP MENU.

Whenever the program is started, the user should compare the GMT clock shown on every display with the actual GMT time. The GMT displayed is taken from the PGSC clock. If the GMT is not correct, the UPDATE GMT CLOCK function can be used to set the correct time. After the desired GMT has been entered, press the Return Key. The confirmation message "YOU HAVE REQUESTED... PRESS [CTRL]-[Y] TO SET GMT CLOCK" will appear. Press [Ctrl]-[Y] to confirm. The GMT clock is actually set when the entry is confirmed.

To exit this display and return to the GAS/CAP MENU, press the Escape key.

Computer / Bus Interface Adapter

(PGSC / BIA)

PERMANENT (U-98) [ ]  
COMMA (7P) [ ]

GMT 281/12:00:00

## 2.8 RAW COMMANDS

To display this screen, highlight RAW COMMANDS or press [Alt]-[C] from the GAS/CAP MENU.

To send a raw command, first enter the relay number (00-99) and press [Return]. Enter the desired command: S for set, R for reset, or P for poll. The confirmation message "YOU HAVE REQUESTED... PRESS [CTRL]-[Y] TO CONFIRM" will appear. Press [Ctrl]-[Y] to confirm. The command will be sent. The relay status from the response message will be displayed.

To exit this form and return to the GAS/CAP MENU, press the Escape key.

### 3.0 Command Log File

All commands that set, reset or poll a relay including the Master Reset command are timestamped and logged to the file COMMAND.LOG. The program will create the file at initialization if it does not exist, otherwise it will append commands to the end of the file. The log file is a text file that can be viewed with any editor or by using the MS-DOS "TYPE" command. Each line in the log file contains the GMT of the command, the relay description, the command state description, and the response state description. The following is an example of the log file:

281/11:05:44	LDCE-6	MDA	OPEN	OPEN
281/11:06:55	LDCE-7	MDA	OPEN	OPEN
281/11:07:02	LDCE-6	MDA	CLOSE	CLOSE
281/11:08:09	LDCE-7	MDA	CLOSE	CLOSE
281/11:09:23	MASTER	RESET	RESET	NO RSP