ROCKET.GUIDE

ISSUED BY THE DEPARTMENT FOR ROCKETS

Ryan's book

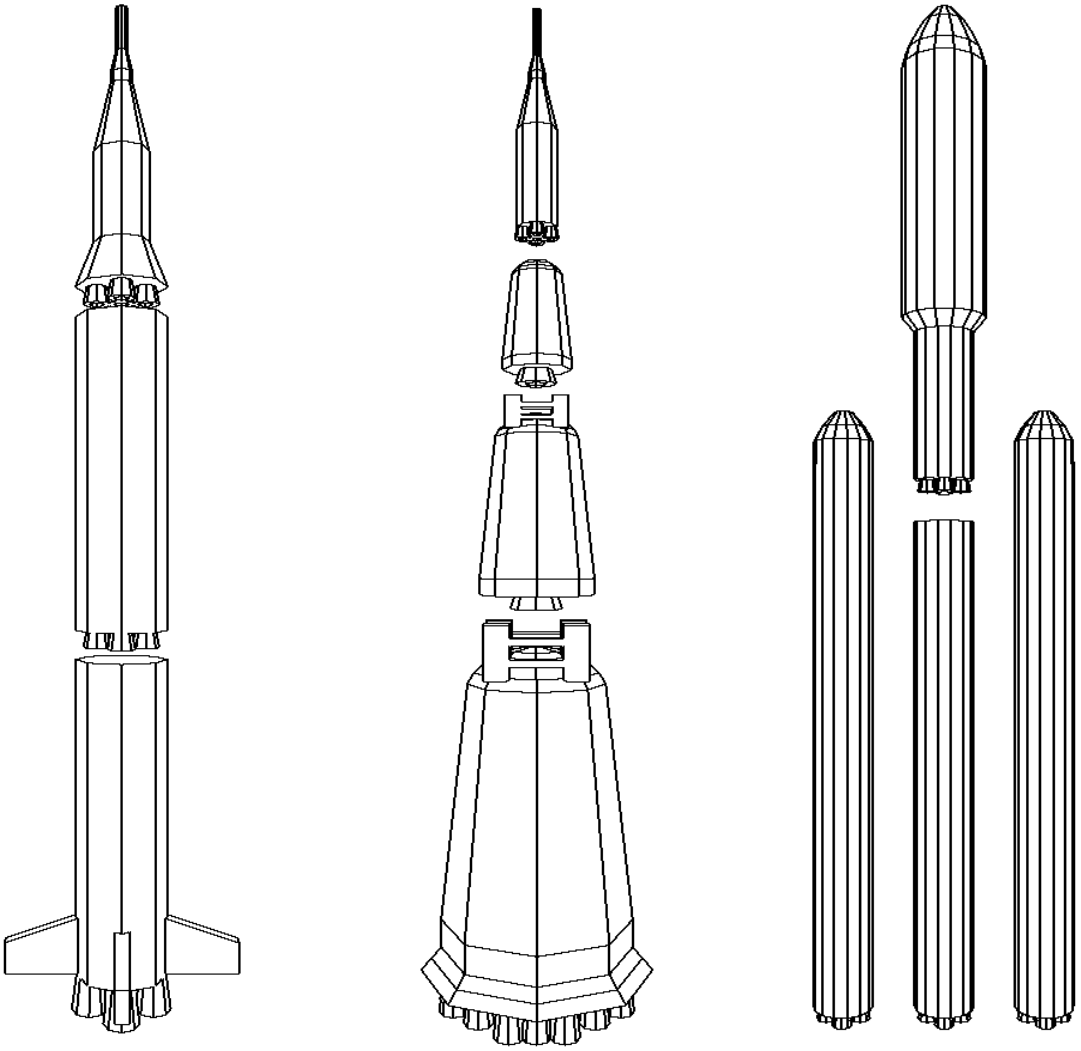
VERSION 2.3

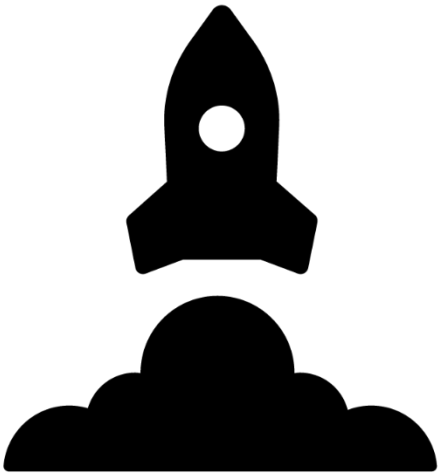
THE DEPARTMENT FOR ROCKETS

ROCKET GUIDE

COMPLETE GUIDE TO A SUCCESSFUL

LAUNCH





THE DEPARTMENT FOR "ROCKETS"

CONTENTS

OUR STORY

As a newly established governmental department, the Department for Rockets strives to make our country the world leaders in space technologies and capability.

After the launch of our very first rocket (a firework bought down at the local shop), we were addicted to unstable cylinders that propel fiery looking gasses out the bottom and fly upwards towards the stars. From that day, our dream was to launch this great nation into the space revolution.

With our new line of rockets, we will supercharge the space sector by launching more payloads than all other space agencies combined. To reach this goal, we will begin with only nonhuman spaceflight, with the hope of human spaceflight in our hearts*.

*Our rockets and/or staff are too unreliable for human spaceflight at time of writing.

Is this a joke...?

SUMMARY OF DOCUMENT

Welcome to The Department for Rockets' (DfR) 'Rocket Guide' guide book. This book contains everything you need to know in order to launch rockets at the Mission Control Center.

In order to successfully launch, you will need to control terminals with various panels associated with different systems of any given rocket. Our terminals are designed to be handled by one individual. However, there is a lot that needs to be done before the launch, during take-off and once it reaches orbit, so we recommend you have other staff members with you to help you.

Study and memorise this guide well to become a trusted and competent member of the DfR family.

^ lol

Please do not write in this book, as it will be shared between different staff members, and DfR are currently facing a funding shortage.

Good luck...

DEBUG

Debug panels are terminal-based and are active at all times during the mission. Until the payload has been released, you MUST manage them.

DEBUG

RGB

To keep the short term memory functioning properly, calibrate the RBG function depending on the light that turns on.

BUTTONS			
0	1	2	3

e.g. if red is on, press button 1

INPUT	R	G	B	Y	INPUT	R	G	B	Y
1	X				1		X		X
3		X			0	X		X	
2			X		1	X	X	X	
0				X	2	X	X		X
1	X	X			3	X		X	X
0		X	X		2		X	X	X
3			X	X	0	X	X	X	X
2	X			X					

DEBUG

CONFIG

Similarly, to RGB, but with long term memory, the CONFIG function need to be calibrated depending on the lights that are either on, or flashing.

	SOLID			FLASHING				SOLID			FLASHING		
INPUT	R	G	B	R	G	B	INPUT	R	G	B	R	G	B
1	X						23		X	X	X		
15				X			17			X	X	X	
14		X					16	X				X	X
7					X		20		X		X		X
2			X				3		X				X
4						X	6	X					X
0	X		X				11	X				X	
8				X		X	10			X	X		
13	X	X					18		X		X		
22				X	X		21			X		X	
5		X	X				7						
12					X	X	10	X	X	X			
19	X		X		X		2				X	X	X
9	X	X				X							

If this is done 4 times, no need to worry about it anymore!

DEBUG

BOOLEAN

The terminal is constantly communicating with the rocket onboard computer, but sometimes the connection is disrupted by rocket waves. Depending on the message, either press the button or leave it alone.

T= press

COMMAND	?	COMMAND	?	COMMAND	?	COMMAND	?
RED	T	STAGE	T	PENTAGON	F	LIQUID	T
GREEN	T	STAGES	F	BINARY	T	SOLID	F
BLUE	T	ABORT	F	CYCLE	T	NUCLEAR	T
YELLOW	F	RETRY	F	WHAT	T	HYBRID	F
ORANGE	F	QUIT	F	WHICH	F	COUNT	T
PURPLE	F	FLOPPY	T	HOW	F	ZERO	F
PINK	T	BEGIN	F	FAIL	T	PRESS	F
BLACK	F	STOP	F	WIND	F	HOLD	T
WHITE	F	START	F	X	T	FRY	T
GREY	T	INITIATE	F	Y	T	CAM	T
CYAN	F	NO	T	DAY	F	MAGNET	T
PHONE	T	YES	F	MONTH	T	CHILL	F
FUEL	T	TRY	F	THIS	T	STATIC	F
LAUNCH	F	DONT	F	THAT	F	ATOM	F
ROCKET	T	FIND	T	THERE	F	SHAPE	T
GUIDE	T	UP	F	THEIR	T	NAV	F
PROGRAM	F	DOWN	F	THEYRE	F	NAFF	T
CODE	T	LEFT	T	FLIGHT	F	TAP	F
BOOL	T	RIGHT	F	OFF	T	CLICK	F
THRUST	T	CIRCLE	T	ON	T	PAYLOAD	T
ORBIT	F	SQUARE	T	LOOKUP	F	WHERE	F
CABLE	T	TRIANGLE	T	Z	F	LIGHT	F
OTHER	F	HEXAGON	T	GAS	T	SCREEN	T

DEBUG

SYSTEM

A few bugs on the terminal will cause a catastrophic error (rocket go boom) if not dealt with correctly. To fix the major bugs, this panel is able to bypass the bad code via the flick of a switch. DO NOT flick the switch UNLESS either of the numbers below appear. If they do appear and you flick the switch, you don't need to worry about this anymore. You have ten seconds to flick the switch when required.

LIGHT STATE
74579
27456

If you get this wrong, rocket goes boom.

PRELAUNCH

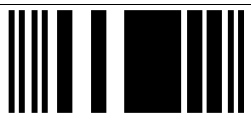
Prelaunch panels must be completed before the launch of the rocket. If any of these are incorrect, the rocket is more likely to fail. Some prelaunch activities are more likely to cause failure than others. Once the rocket has launched, these panels do not need to be touched anymore.

PRELAUNCH

Receipt usually on desk

COST

Rocket launches cost a lot of money. Input the correct number into the computer depending on the barcode of your receipt. This number acts as an additional security measure to calibrate the rocket.

BARCODE	COST	BARCODE	COST
	450,000		550,000
	100,000		244,000
	175,000		180,000
	890,000		770,000
	144,000		475,000
	770,750		780,970
	475,990		540,570
	670,890		209,060
	410,950		770,750
	250,000		880,500

PRELAUNCH

NOZZLE INITIATION CHECK

Convert in appendix 1

Before the rocket is launched, the nozzle must be initiated. Press and hold the button depending on the propulsion type and nozzle configuration (which is usually on a yellow sticky note). If the propulsion type is gas, hold 3 seconds, hybrid 2, nuclear 5, solid 2, and for liquid 4.

e.g. A1, B2 etc.

Get type from propulsion page of rocket. (app. 16 for icons)

NOZZLE CONFIGURATION	BUTTON	NOZZLE CONFIGURATION	BUTTON	NOZZLE CONFIGURATION	BUTTON
0	LAlt	18	RAlt	36	¦
1	%	19	RCtrl	37	¬
2	LCtrl	20	%	38	;
3	;	21	¦	39	%
4	¦	22	;	40	LAlt
5	RAlt	23	LCtrl	41	LCtrl
6	%	24	RAlt	42	RCtrl
7	%	25	LCtrl	43	LCtrl
8	LCtrl	26	%	44	LAlt
9	¦	27	LAlt	45	%
10	¬	28	RAlt	46	;
11	;	29	;	47	;
12	RCtrl	30	RCtrl	48	RCtrl
13	LAlt	31	¬	49	LCtrl
14	¬	32	¦		
15	LAlt	33	¬		
16	¦	34	Ralt		
17	RCtrl	35	RCtrl		

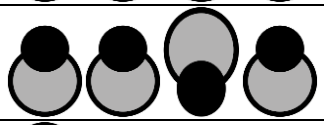
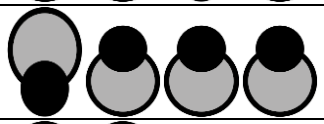
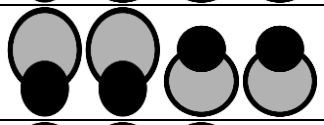
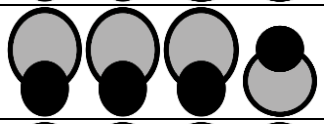
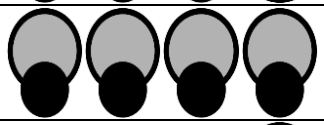
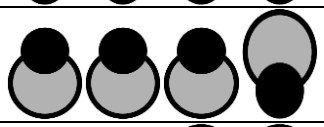
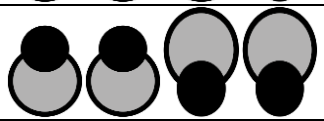
Has to be within +-0.5!

PRELAUNCH

CIRCUIT

APPENDIX 5

The circuit needs to be calibrated correctly before liftoff. Get the ID and input the correct switch pattern into the computer.

ASSOCIATED CIRCUITS	SWITCH
0, 1, 16, 24, 25, 40	
2, 3, 17, 26, 27, 41	
4, 5, 18, 28, 29	
6, 7, 19, 30, 31	
8, 9, 20, 32, 33	
10, 11, 21, 34, 35	
12, 13, 22, 36, 37	
14, 15, 23, 38, 39	

PRELAUNCH

TOTAL

Left screen

The binary totals need to be worked out before launch. Work out the total value of the byte (BINCODE). To convert the byte into a number, total the numbers which have a 1 and ignore the numbers which have a 0. The values of each column and example numbers are included below. You only get one chance to input the number, so make sure it's correct.

Practice here:

128	64	32	16	8	4	2	1
EXAMPLE: 194							
1	1	0	0	1	0	1	0

128	64	32	16	8	4	2	1
EXAMPLE: 50							
0	0	1	1	0	0	1	0

128	64	32	16	8	4	2	1
EXAMPLE: 22							
0	0	0	1	0	1	1	0

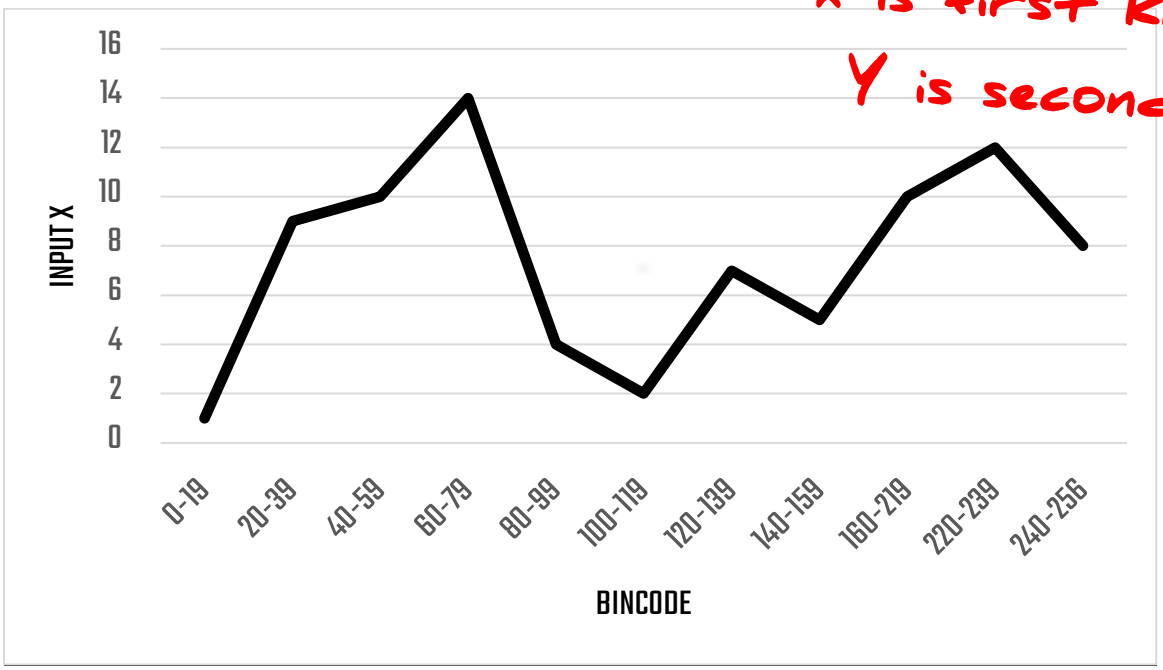
128	64	32	16	8	4	2	1
EXAMPLE: 85							
0	1	0	1	0	1	0	1

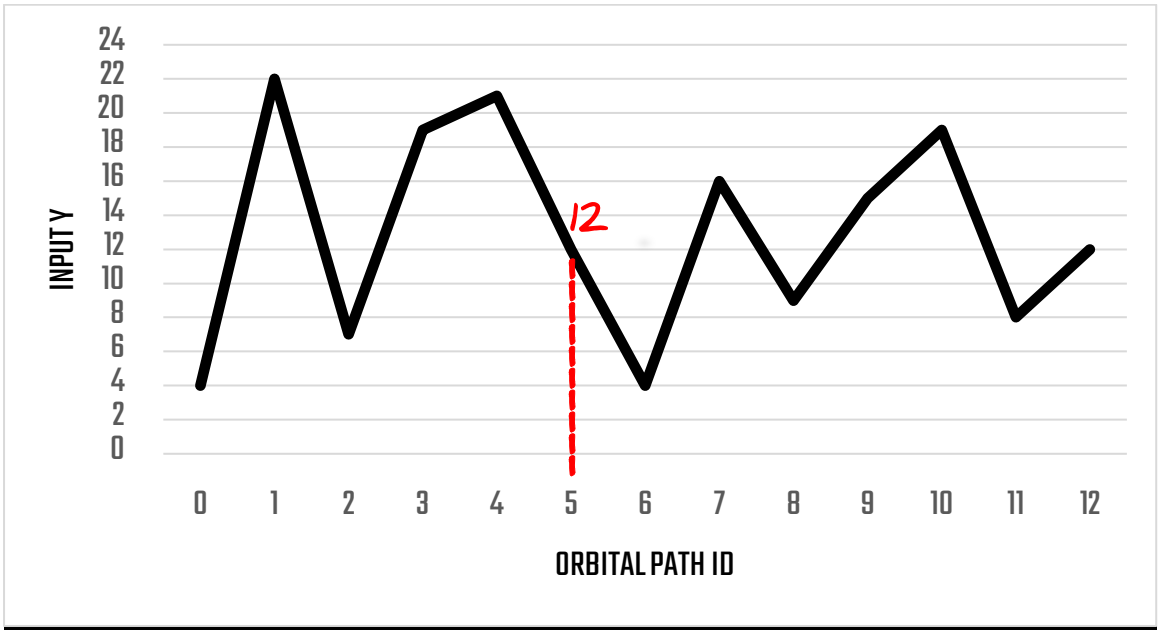
PRELAUNCH

VECTOR

The X (first knob) and Y (second knob) vectors need to be calibrated. The X vector is dependent on the BINCODE total (see previous page for help) and the Y vector is dependent on the orbital path ID. (Appendix 3)

^ x is first knob
Y is second.





PRELAUNCH

TABLE

You must configure the table values to ensure accurate vector control. You need to input the correct number depending on the parameters of the matrix.

^ screen on the left

MATRIX			
A (1)	N (2)	E (3)	D (4)
J (5)	K (6)	L (7)	O (8)
I (9)	B (10)	F (11)	C (12)
H (13)	G (14)	M (15)	P (16)

PRIORITY	MATRIX PARAMETERS	INPUT
LOWEST	IF A OR P IS 1 OR 16	3
	IF H OR I IS 41	2
	IF 2, 4, 6, 8, 10, 12, 14 OR 16 CONTAINS A 2	3
	If J, F OR K IS 61	4
	IF ANY 9-16 HAS 90+	2
	IF ANY 1-8 HAS 90+	4
	IF A, E, J OR L IS 2	1
	IF 10, 11 OR 12 CONTAINS A 3	2
	IF A OR P ARE LARGER THAN 50	1
HIGHEST	IF A, K, L OR M CONTAIN A 7	4

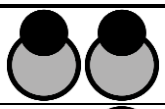
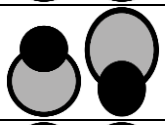
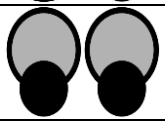
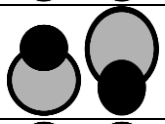
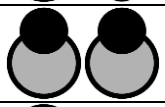
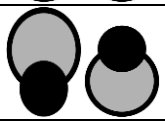
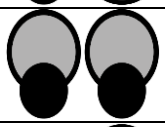
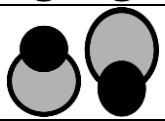
Higher priority is final input.

PRELAUNCH

SWITCH

Switches that are somewhere on the rocket need to be adjusted properly. The software interface on the terminal communicates with the rocket to deliver these adjustments, so depending on the software used, input the adjustment.

< appendix 6

FLOPPY ID	INPUT
0, 5	
3	
4, 9	
6	
8	
10	
1, 11	
2, 7	

PRELAUNCH

LAUNCH CODE

The launch code must be entered into the terminal so that it configures certain variables for this particular flight. This is a six colour combination, with the codes you need printed below.

W = WHITE R =RED Y =YELLOW G =GREEN B = BLUE PI = PINK PU = PURPLE O =ORANGE							
STEP ONE							
DATE ID	CODE	DATE ID	CODE	DATE ID	CODE	DATE ID	CODE
1	RRBO	13	RPUOY	25	GYRR	37	OYPIPU
2	PUYWB	14	GOGO	26	RBBB	38	RGPIO
3	PIPUOW	15	PIOPIPI	27	RBRB	39	BYOY
4	RGBR	16	WPIWPI	28	OYGPI	40	WBYO
5	OYBR	17	PIGPUR	29	PIPIPIPI	41	GWBY
6	PIPIBB	18	BWGB	30	GPIPUPI	42	PIBYG
7	OBBB	19	PUBWY	31	PUOYG	43	WBPUPI
8	WBRG	20	OYBG	32	BROY	44	BGWPI
9	PIBOY	21	PIYOB	33	YYYB	45	RGWPI
10	GGGG	22	WWWB	34	YYYG	46	RPUPUR
11	GRRY	23	GWGB	35	BWBW	47	BRBPI
12	PUGPUG	24	BOYPI	36	PIWPUPI	48	PUBWO
STEP TWO							
ROCKET ID	CODE	ROCKET ID	CODE	ROCKET ID	CODE	ROCKET ID	CODE
0	GB	5	BG	10	OG	15	WG
1	GB	6	WPI	11	RO	16	WR
2	WG	7	OY	12	RPI	17	RR
3	PUR	8	BB	13	PUG	18	GPI
4	WPU	9	GR	14	PUW	19	PUO

Date in APP ?

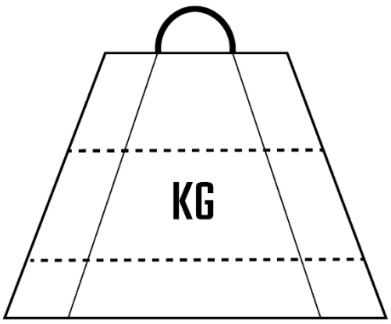
Rocket ID on rocket propulsion pages..

PRELAUNCH

WEIGHT

The weight of the rocket, it's fuel and the payload need to be inputted into the terminal so that it can configure the throttle during the launch.

Careful! There is no delete button!



STEP ONE: PROPULSION			
PROPULSION	TONS	PROPULSION	TONS
GAS	100	HYBRID	55
NUCLEAR	20	SOLID	45
LIQUID	50		

STEP TWO: WEIGHT OF PAYLOAD							
PAYLOAD	TONS	PAYLOAD	TONS	PAYLOAD	TONS	PAYLOAD	TONS
1	100	4	120	7	155	10	98
2	78	5	150	8	175	11	115
3	45	6	77	9	95	12	145

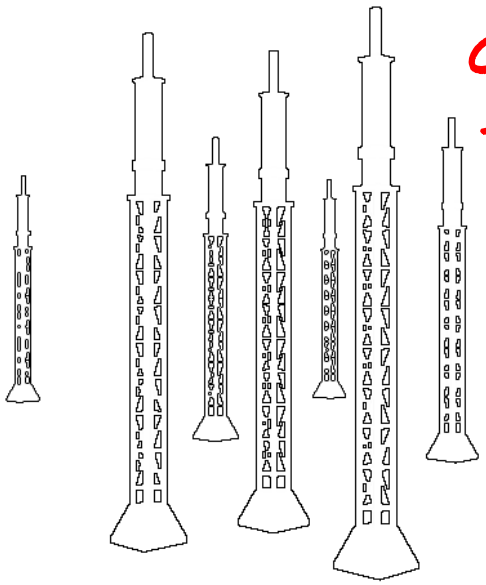
App. 15

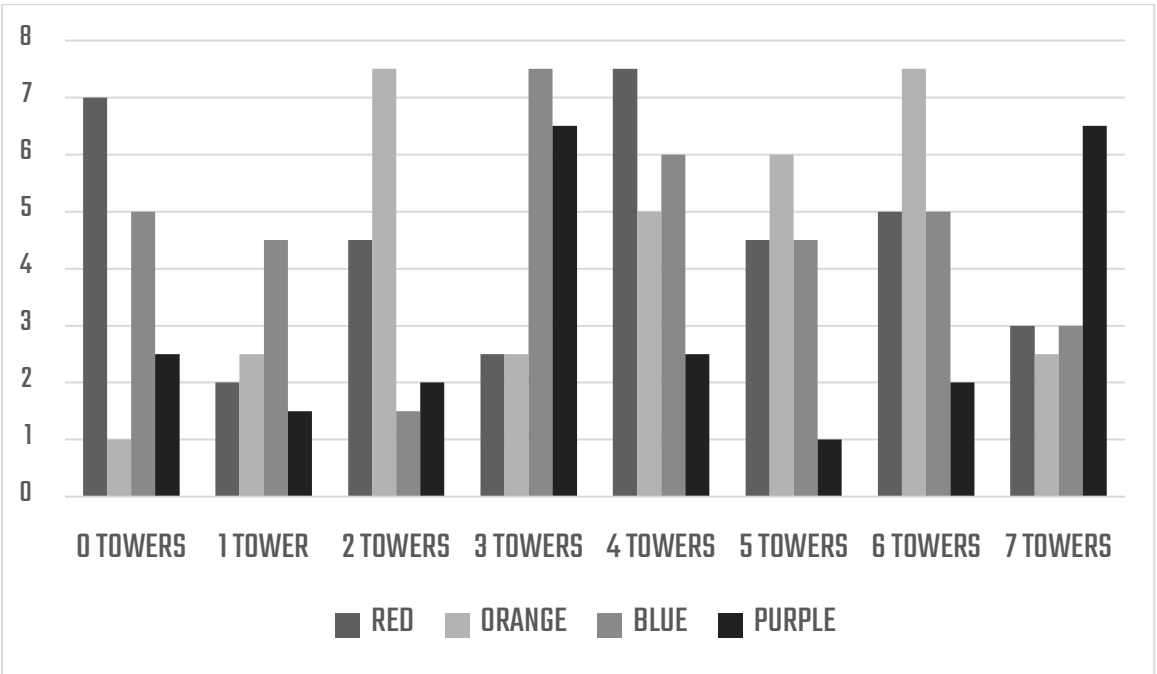
STEP THREE: ROCKET ID							
0	1120	5	550	10	1085	15	1400
1	875	6	420	11	975	16	1250
2	980	7	780	12	250	17	795
3	1005	8	970	13	540	18	550
4	1080	9	855	14	620	19	750

PRELAUNCH

TOWER

Flick the switches down and up multiple times depending on the amount of towers seen on the Launch Pad Cam. Flicking a switch down will add 0.5, and flicking it back up will add an additional 0.5.



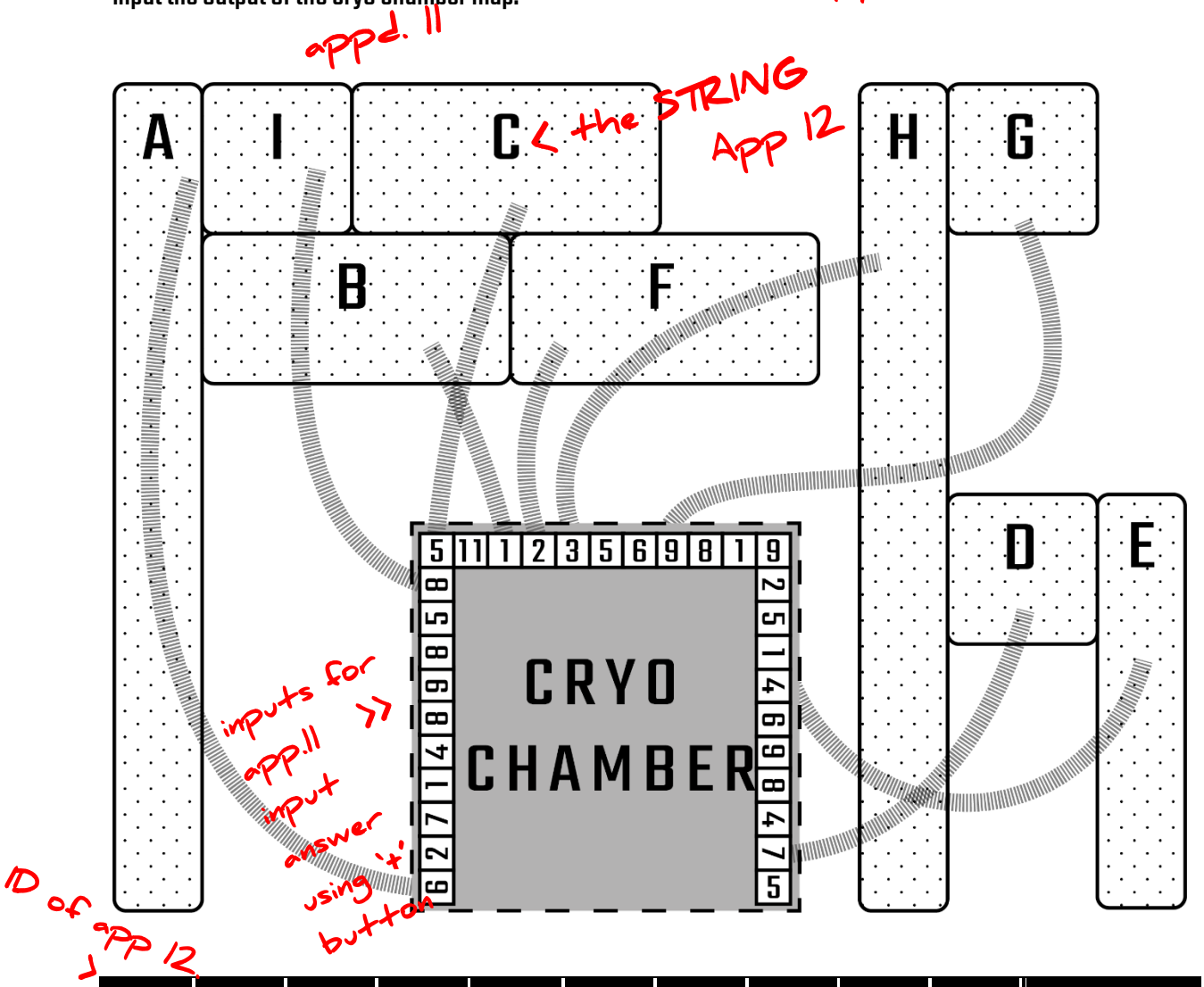


PRELAUNCH

CRYO

Lots of rocket components need to be really cold before launch for various reasons, e.g. the fuel needs to stay in the correct state. Input the correct values depending on the fuel tank setup. After this, use this same ID to input the output of the cryo chamber map.

^ Appendix 12



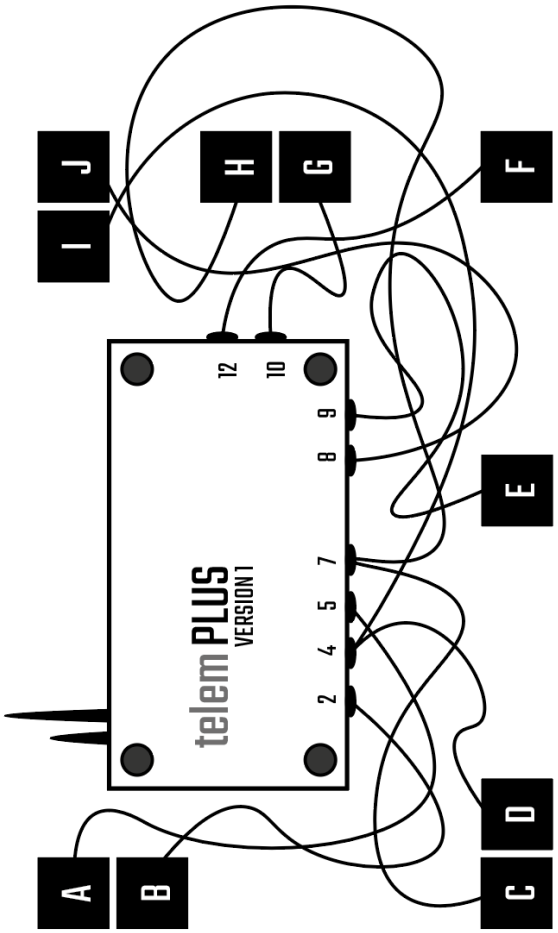
ID	R	G	B	ID	R	G	B	ID	R	G	B
1	7	2	6	5	1	5	5	9	18	19	20
2	20	5	2	6	10	8	11				
3	15	15	17	7	14	14	14				
4	8	4	15	8	7	20	6				

PRELAUNCH

TELEMETRY

Telemetry isn't just a fancy word, its important. This prelaunch activity is a three step process. Follow the steps below to calibrate the telemetry correctly.

STEP 1



Follow the connection and input the number that the letter is connected to.

appendix 5

CIRCUIT ID	INPUT
0	A
1, 2, 3, 4	B
5, 6, 7, 8, 9	C
10, 11, 12, 13, 14	D
15, 16, 17, 18, 19	E
20, 21, 22, 23, 24	F
25, 26, 27, 28, 29	G
30, 31, 32, 33, 34	H
35, 36, 37, 38, 39	I
40, 41	J

STEP 2

The switch must be up if the satellite dishes (on the launch pad) are facing north or west, and down if they are facing east or south. See appendix 2.

STEP 3

Press the button the same number of times as the orbital path ID.

appd. 3

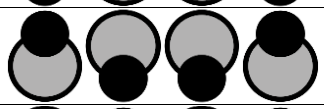
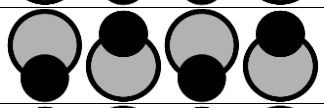
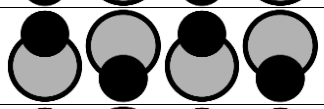
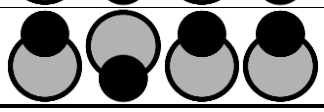
PRELAUNCH

FUEL BURN OFF

At ignition, some excess fuel that has escaped must be burnt off to stop it from damaging the rocket. Start by multiplying the number of blocks seen on the pad, with their value seen below. Then, depending on the propulsion type of the rocket, flick the switches to match the below pattern. Blocks below rocket!

e.g. if 2 red blocks, hold red button for 2 seconds

STEP 1			
RED	GREEN	BLUE	YELLOW
1	2	3	1

STEP 2	
TYPE	INPUT
GAS	
HYBRID	
NUCLEAR	
SOLID	
LIQUID	

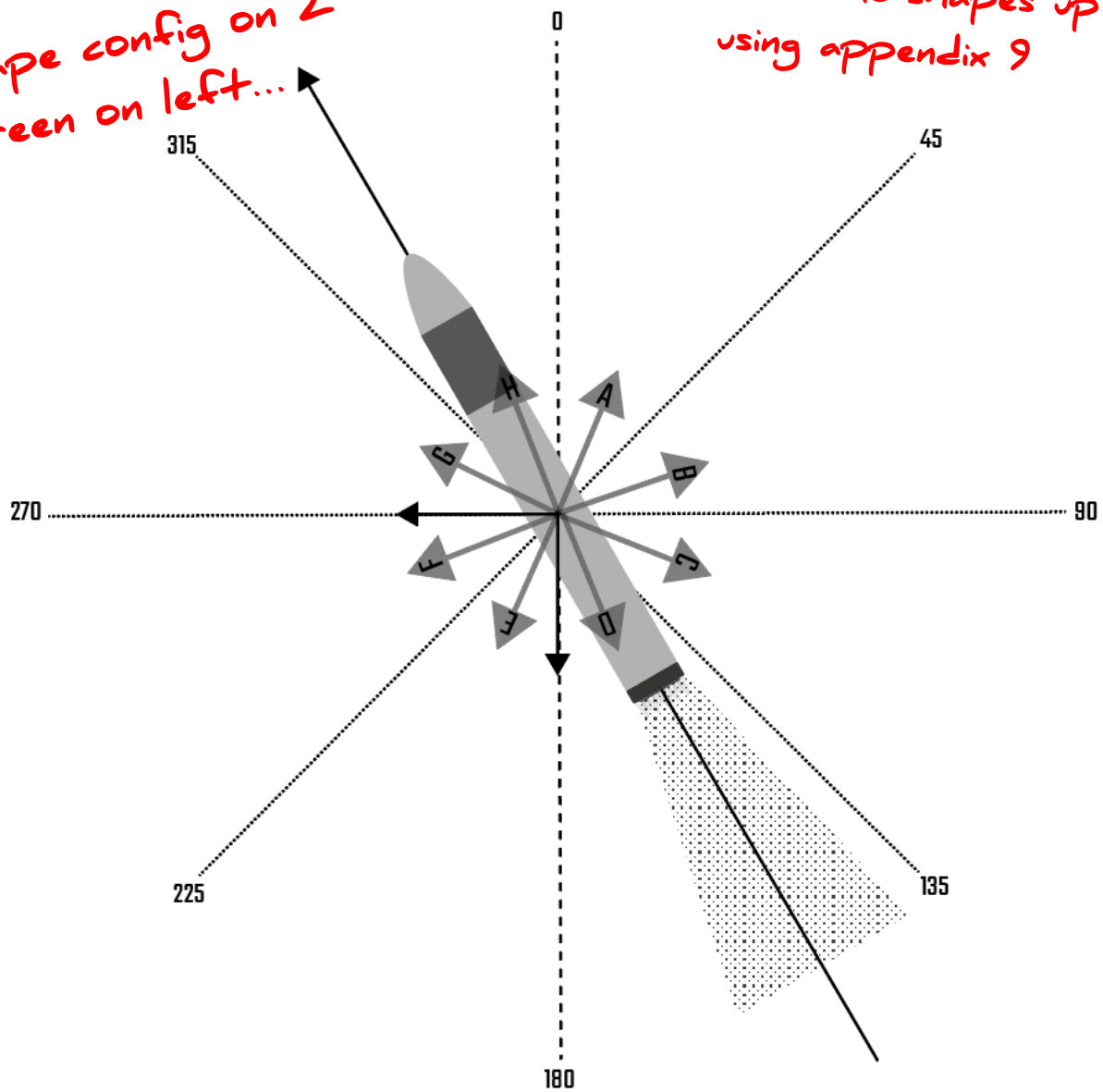
PRELAUNCH

DYNAMICS

The dynamics system controls motion. Get the letter depending on the inclination of the rocket.

Shape config on 2nd screen on left...

Add the shapes up using appendix 9



A	B	C	D	E	F	G	H
++>>*%>	-%#+=<>	+-=><-/	-//+>><	*/>-</*	<#>+<#>	*=-##>/	-<<+>>-

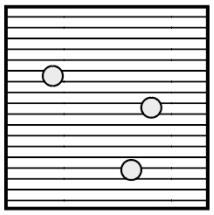
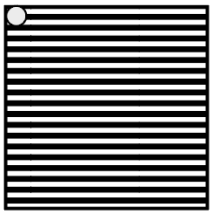
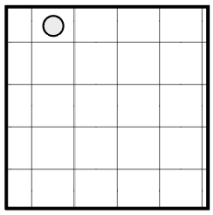
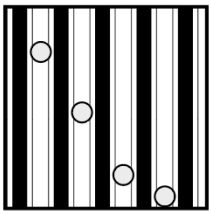
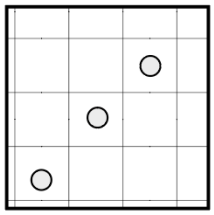
PRELAUNCH

STATIC

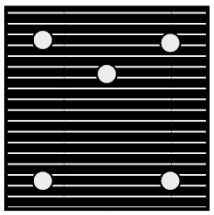
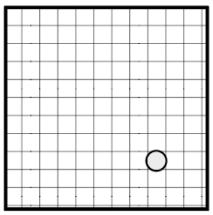
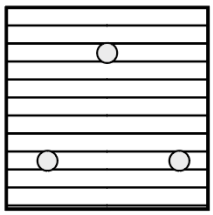
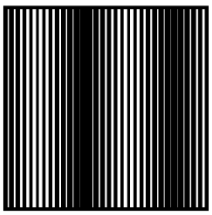
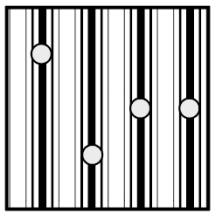
Static electricity must be grounded so that it does not affect any of the onboard systems on the rocket. Input the correct combination depending on the static distortion of that day.

'static distortion' on the first screen (left)

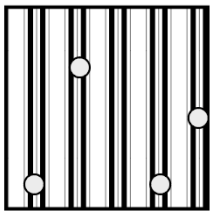
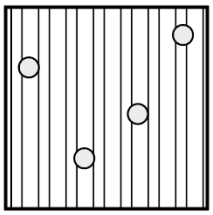
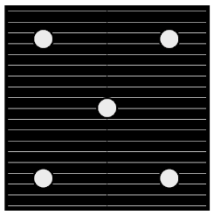
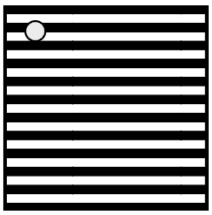
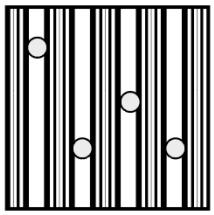
A-E

F-J

K-O

INPUT				
1	2	3	4	5
WHITE	WHITE	WHITE	WHITE	WHITE
YELLOW	YELLOW	YELLOW	YELLOW	YELLOW
COMBINATIONS				
1	2	3	4	5
ABGO	ADIKO	ACHJMN	ABCHJMNO	ABCDEGIJKNO
CDEFHIJKLMN	BCEFGHJLMN	BDEFGIKLO	DEFGIKL	FHLM

e.g. if static is 'B' – first button white, 2nd yellow, 3rd yellow, 4th white and 5th white

PRELAUNCH

CALIBRATION

The rocket needs calibration before liftoff to make sure all the variables are correct.

Start here >

INITIAL VALUE			
MODEL	CODE	MODEL	CODE
A100	AB	JJ13	AB
X476	BA	GH3	CD
F5	CB	LT70	DC
DDR4	BB	H3EE	CA
SSZ2	BC	J088	CD
GS4000	EE	H5	CA
LT60	BC	F2	CB
JJ46	CB	AC45	AA
HG4	DB	LT50	DC
H3EU	EE	S9T60	CB
HRE	EB	ABN90	AB
H6	BC	NT59	EB
S8U6	BB	ES54	EE

Then change...

FLOPPY OS			
OS	CHANGE CODE	OS	CHANGE CODE
DDR4	ADD 'B' AT THE END	DS01	IGNORE LAST LETTER
RAM2	INPUT FIRST ONLY	DDR1	TYPE CODE TWICE
HDFOUR	ADD 'A' AT THE END	DDRONE	NO CHANGE
6FDD	ADD 'C' AT THE END	79KB	INPUT NOTHING
SS3	ADD 'D' AT THE END	DDR3	ADD 'E' AT THE END
ED2	ADD 'G' AT THE END	HD44	ADD 'F' AT THE END

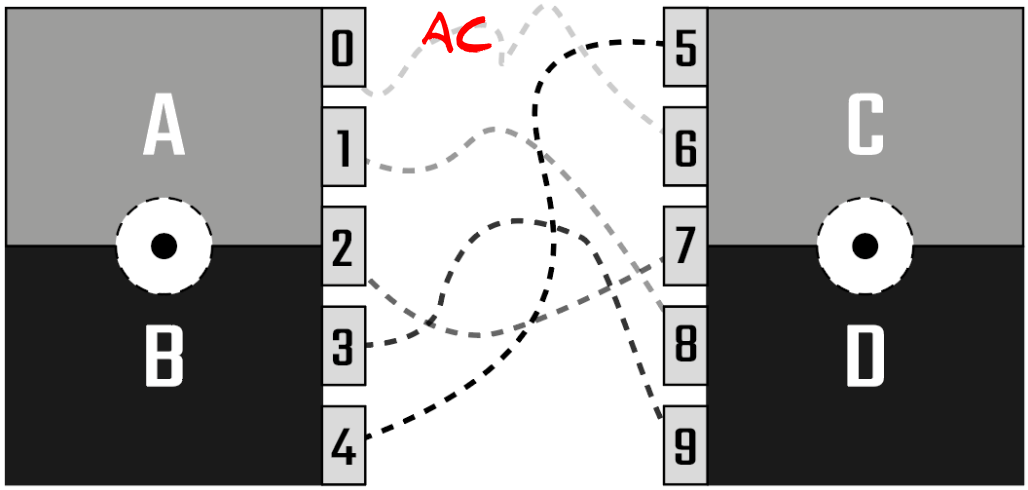
appendix. 6 ^

PRELAUNCH

INTERNAL POWER

You can't do it all by yourself, which is why onboard systems need to be powered to take care of a few things. Input the values below depending on the power system. Change the values accordingly depending on the cable configuration seen next to the rocket on the launch pad.

< convert num to power type



add col 1 to col 1, 2 to 2, 3 to 3...

STEP ONE			
POWER SYSTEM	1	2	3
AC	10	5	14
AD	12	7	9
BC	5	9	15
BD	11	8	8
ALL	14	11	4
STEP TWO			
WIRE	1	2	3
RED	1	2	4
GREEN	6	3	1
BLUE	2	7	5

+

cable 1-3 left to right

PRELAUNCH

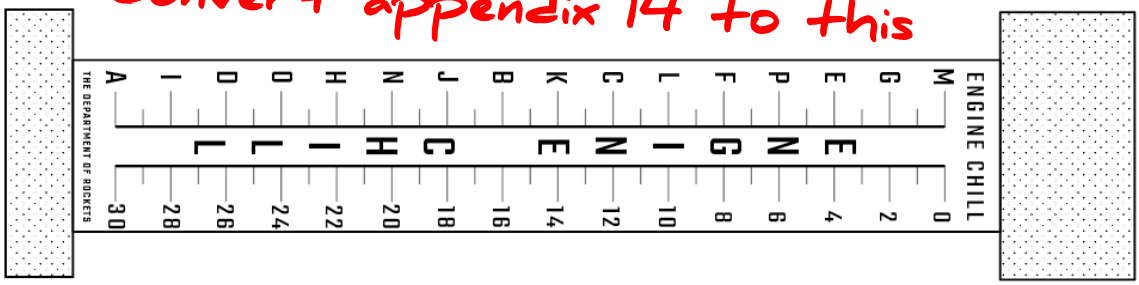
ENGINE CHILL

All of the engines must be chilled before launch so that they don't melt or something. This is a three step process (corresponding to the three colour inputs). We've laid out the instructions in a simple manner for you below.

STEP ONE: ROCKET PROPULSION (RED)	
PROPULSION	INPUT
GAS	-4
HYBRID	9
NUCLEAR	7
SOLID	-8
LIQUID	10

STEP TWO : ENGINE CHILL (GREEN)

Convert appendix 14 to this



STEP THREE: MAGNET (APPENDIX 8) – START AT CRYO MAP NODE THEN INPUT THE OUTPUT (BLUE)

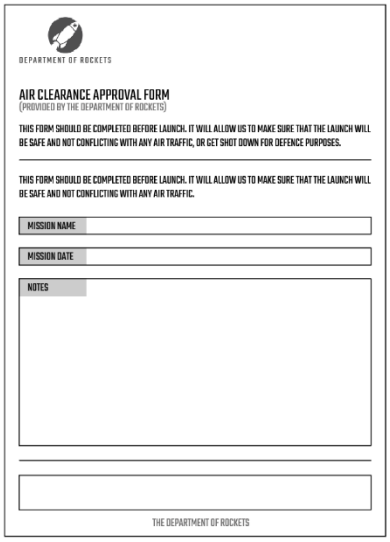
MAGNET	NODE	MAGNET	NODE	MAGNET	NODE	MAGNET	NODE
5	1	9	4	11	7	3	4
12/13	2	10	5	7	8	4	5
6	3	1	6	2	9	8	6

Cryo map is appendix 11

PRELAUNCH

CLEARANCE

Before launching, the rocket needs air clearance. The signal needs to be pressed at a precise moment depending on the date. If this is incorrect, it might get intercepted by air defense and made to self-destruct!



DEPARTMENT OF ROCKETS

AIR CLEARANCE APPROVAL FORM
(PROVIDED BY THE DEPARTMENT OF ROCKETS)

THIS FORM SHOULD BE COMPLETED BEFORE LAUNCH. IT WILL ALLOW US TO MAKE SURE THAT THE LAUNCH WILL BE SAFE AND NOT CONFLICTING WITH ANY AIR TRAFFIC, OR GET SHOT DOWN FOR DEFENCE PURPOSES.

THIS FORM SHOULD BE COMPLETED BEFORE LAUNCH. IT WILL ALLOW US TO MAKE SURE THAT THE LAUNCH WILL BE SAFE AND NOT CONFLICTING WITH ANY AIR TRAFFIC.

MISSION NAME

MISSION DATE

NOTES

THE DEPARTMENT OF ROCKETS

Get the date ID in appendix 7!

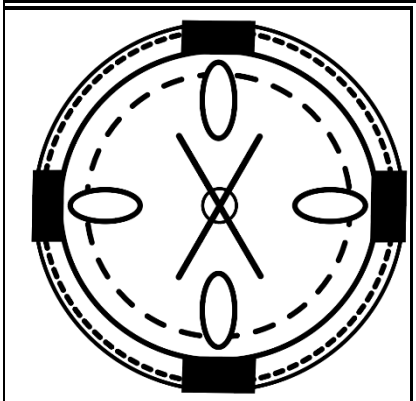
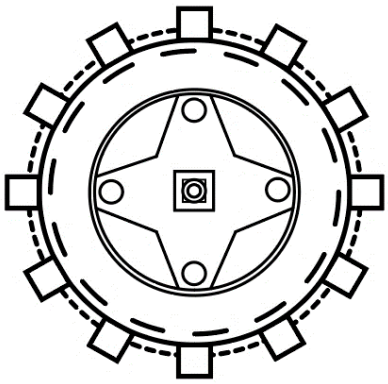
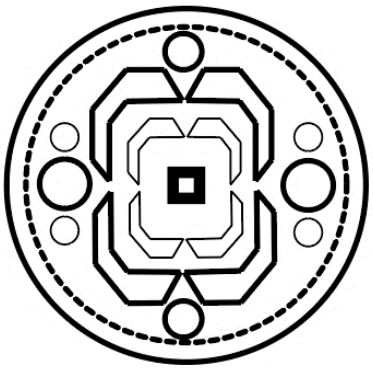
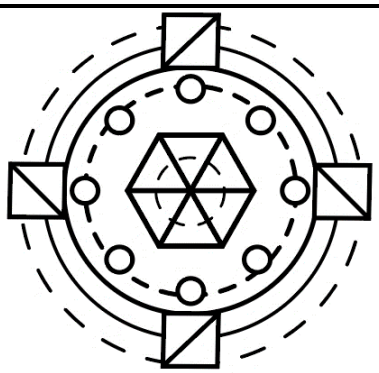
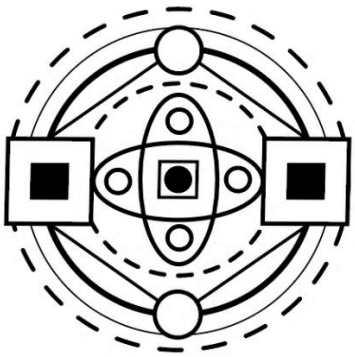
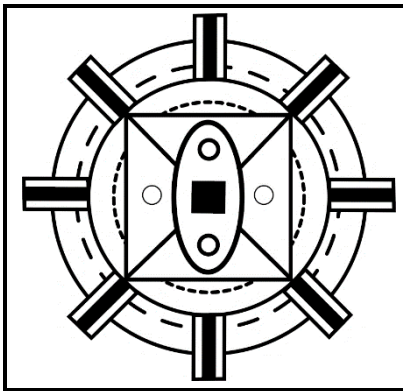
DATE ID	INPUT	DATE ID	INPUT	DATE ID	INPUT	DATE ID	INPUT	DATE ID	INPUT
1	2	12	2	23	5	34	3	45	6
2	6	13	4	24	3	35	2	46	7
3	1	14	4	25	5	36	1	47	1
4	4	15	5	26	2	37	4	48	1
5	6	16	6	27	1	38	5		
6	4	17	7	28	3	39	1		
7	1	18	7	29	1	40	2		
8	2	19	3	30	5	41	5		
9	4	20	2	31	7	42	2		
10	4	21	2	32	4	43	4		
11	7	22	1	33	6	44	5		

PRELAUNCH

PAYLOAD ATTACH

The payload locks need to be firmly attached to the rocket before liftoff. Depending on the rocket and the rocket version, different maneuvers need to be made.

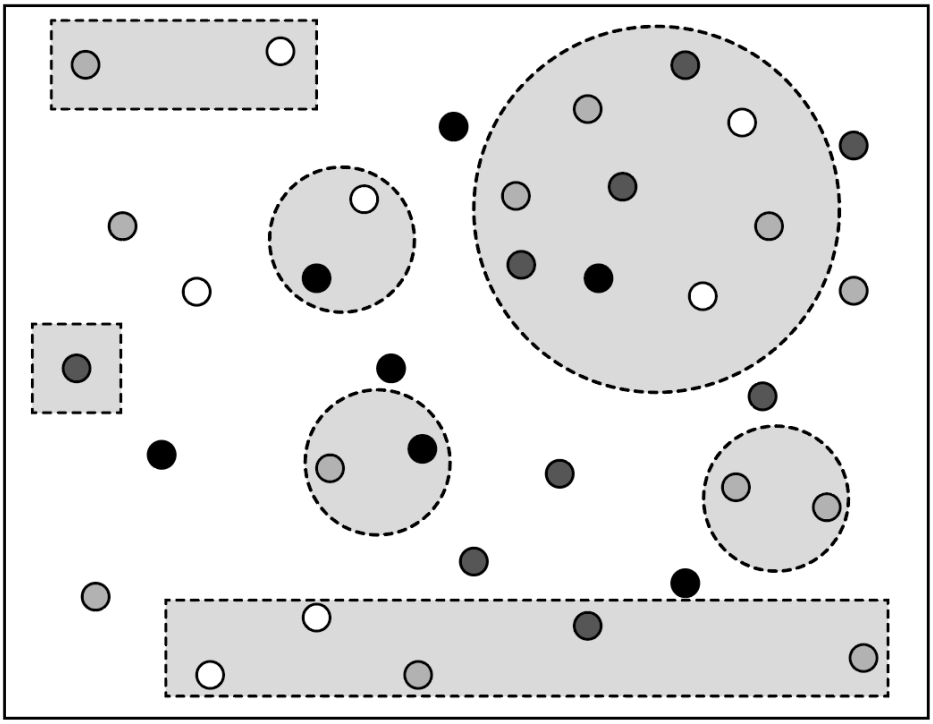
on the right

MECHANISM 1	MECHANISM 2	MECHANISM 3
		
CODE	CODE	CODE
UURLSSUL	RRSUDULU	LURUSDUS
MECHANISM 4	**MECHANISM 5**	**MECHANISM 6**
		
CODE	CODE	CODE
UULRLDUS	SUDSLRUS	DSUUSUDL

PRELAUNCH

COMMS

Different communications systems require different set up. Start with the direction of the satellites on the launch pad, then add the core values to this. The core values are included in the box below. Only those in the shaded part are included.



APPENDIX 2

STEP ONE			
DISH DIRECTION	INITIAL VALUE	DISH DIRECTION	INITIAL VALUE
NORTH	3	EAST	4
SOUTH	1	WEST	2
STEP TWO			
COLOUR	NODE WORTH	COLOUR	NODE WORTH
VERSION 1 & 2	1	VERSION 5 & 6	3
VERSION 3 & 4	2	VERSION 7 & 8 & 9	4

15

Get rocket version, then only add these shaded nodes to the value!

PRELAUNCH

WEATHER

The terminal must get updated by the weather conditions. Our advanced wind monitoring technology will guide you as to what the weather is like.

WEATHER ADJUSTMENTS					
WIND	INPUT	WIND	INPUT	WIND	INPUT
NORTH WEAK	42231	NORTH STRONG	43244	EAST WEAK	11112
EAST STRONG	32123	SOUTH WEAK	41121	SOUTH STRONG	11231
WEST WEAK	31422	WEST STRONG	12422		

Displayed on (left) screen as:

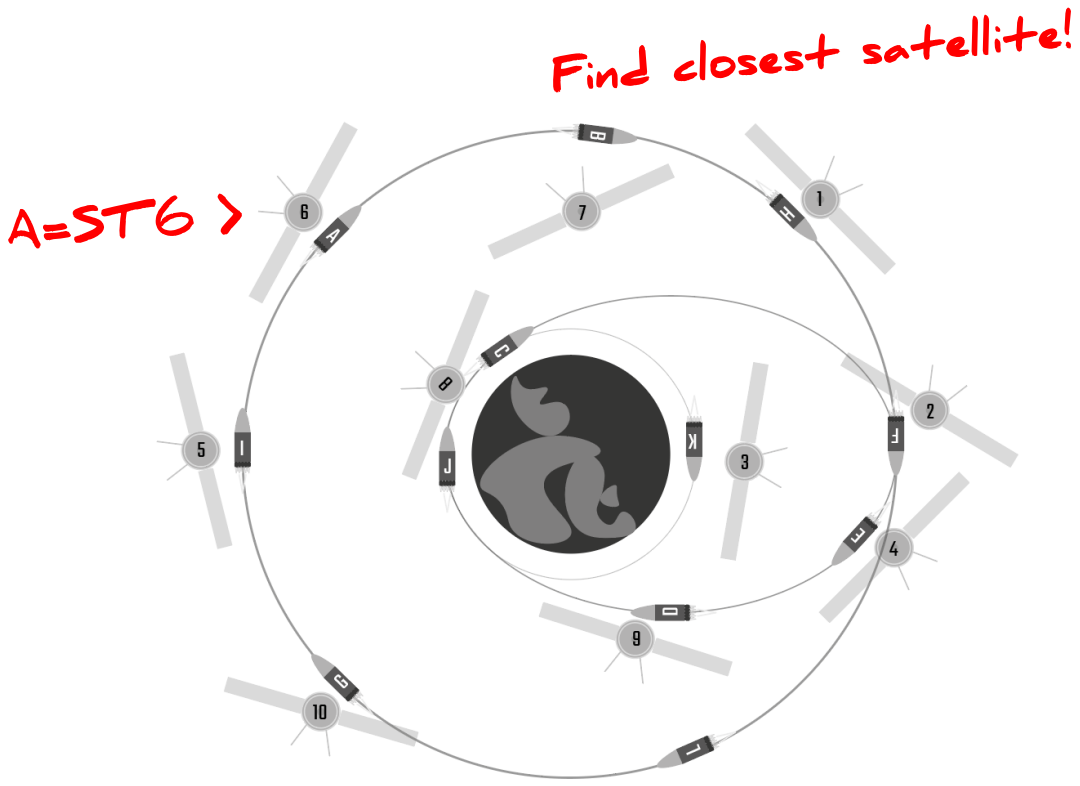
<< EAST strong

NORTH weak v

PRELAUNCH

TRACKING

Different rockets have different wiring for their navigation systems. Track the letter (shown on the terminal screen) to the number and input the number into the terminal.



PROPULSION	ST 1	ST 2	ST 3	ST 4	ST 5	PROPULSION	ST 1	ST 2	ST 3	ST 4	ST 5
GAS	4	3	3	2	1	SOLID	8	9	0	1	8
HYBRID	4	7	6	4	4	LIQUID	7	4	0	1	9
NUCLEAR	9	5	5	5	2						
PROPULSION	**ST 6**	**ST 7**	**ST 8**	**ST 9**	**ST 10**	**PROPULSION**	**ST 6**	**ST 7**	**ST 8**	**ST 9**	**ST 10**
GAS	2	4	8	6	6	SOLID	2	7	2	1	6
HYBRID	8	4	6	5	5	LIQUID	7	4	9	1	5
NUCLEAR	8	9	8	0	4						

PRELAUNCH

SOFTWARE

The onboard software systems that help run the rocket need to be built before launch. Build the software correctly depending on the output presented on the terminal.

Input 4 correct functions..

```
Public Class RocketCode () {
	Function Whoosh () {
		if (command == ////FIND or SWITCH 1: or //CAMERASWITCH() or
		WIND.DIRECTION or CLASS MISMATCH or PRIVATE VOID ROCKET() or
		POWER.TYPE 8; or CHANGE STAGE() or EXECUTE IF STATEMENT or
		ENGINE.CHILL or FIND 07; or RED or ALTITUDE GOAL() or CLASS DO() or
		ALTITUDE TO STRING() or ////FIND or SWITCH 1: or //CAMERIA SWITCH() or
		CLASS 00() or SWITCH 2: or PRIVATE VOID ROCKET() or POWER.TYPE 8; or
		CHANGE STAGE() or FIND 07;)
		{
			Do Build()
		}
	}
	Function Frrrrrrrr () {
		if (command == REPEAT COMMAND or PAYLOAD SPECS() or TEMP.FIND or
		CANNOT FIND ROCKET TYPE or RECURSIVE FUNCTION ERROR or CANNOT FIND
		ALTITUDE or ORANGE or LAUNCH ROCKET() or YELLOW or FIND FLIGHT; or
		FUNCTION ERROR)
		{
			Do Backup()
		}
	}
	Function Zoom () {
		if (command == NAMESPACE MISSING or POWER.TYPE; or FIND 56; or VOID
		WIND DIRECTION() or ENGINE COMMAND() or MAP() or TEMP.SEARCH or GREEN
		or POWER.TYPE 2; or PURPLE or CANNOT CONVERT FLOAT or PROPULSION READY
		or STRUCT or POWER.TYPE 4 or FIND.FLIGHT() or CANNOT CONVERT STRING)
		{
			Do Refresh()
		}
	}
	Function Blast () {
		if (command == EXECUTE ORIGINAL or SYNTAX ERROR or BAD MEMORY or BLUE
		or MACHINE ERROR  or RECURSIVE FUNCTION() or NAMESPACE MISSING or
		POWER.TYPE; or FIND 56; or VOID WIND or ENGINE COMMAND() or MAP() or
		EXECUTE ORIGINAL or SYNTAX ERROR or BAD MEMORY or BLUE or MACHINE
		ERROR() or RECURSIVE FUNCTION() or TEMP.SEARCH or GREEN or POWER.TYPE
		2; or PURPLE or CANNOT CONVERT FLOAT)
		{
			Do Refresh()
		}
	}
}
```

Bu

ba

Re

PRELAUNCH

MAGNET

The onboard magnets which help stabilize the rocket must be calibrated. Follow the steps below.

Hold the button down to get the number!

Ap. 5

STEP ONE (FIRST COLUMN): CIRCUIT BOARD

ID	INPUT	ID	INPUT	ID	INPUT	ID	INPUT	ID	INPUT	ID	INPUT
0	N2	7	S7	14	N2	21	N4	28	N5	35	S4
1	N1	8	N2	15	N5	22	S0	29	S1	36	S2
2	S5	9	N5	16	N3	23	N5	30	S2	37	S5
3	S4	10	N1	17	S2	24	S7	31	N4	38	N4
4	N4	11	N2	18	S3	25	S1	32	N5	39	N1
5	S1	12	S4	19	N0	26	S2	33	S2	40	S1
6	S2	13	S3	20	S1	27	N4	34	S1	41	S2

STEP TWO (SECOND COLUMN): PAYLOAD MODEL

Ap. 15

ID	INPUT	ID	INPUT	ID	INPUT	ID	INPUT	ID	INPUT	ID	INPUT
1	S2	3	N0	5	S1	7	S5	9	S2	11	N5
2	S5	4	N4	6	N2	8	N1	10	S4	12	S4

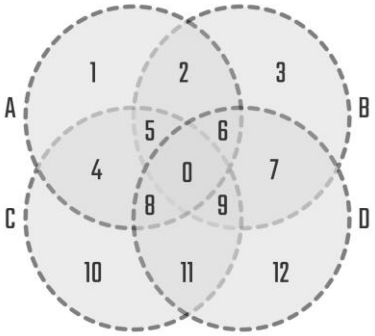
Ap. 8

STEP THREE (THIRD COLUMN): MAGNETIC CALIBRATION

ID	INPUT	ID	INPUT	ID	INPUT	ID	INPUT	ID	INPUT	ID	INPUT
1	N4	3	N0	5	S2	7	S1	9	S5	11	S5
2	N1	4	S4	6	S3	8	N2	10	N2	12/13	N1

STEP FOUR (FOURTH COLUMN): MAGNETIC FIELD

Left screen - 'fields'



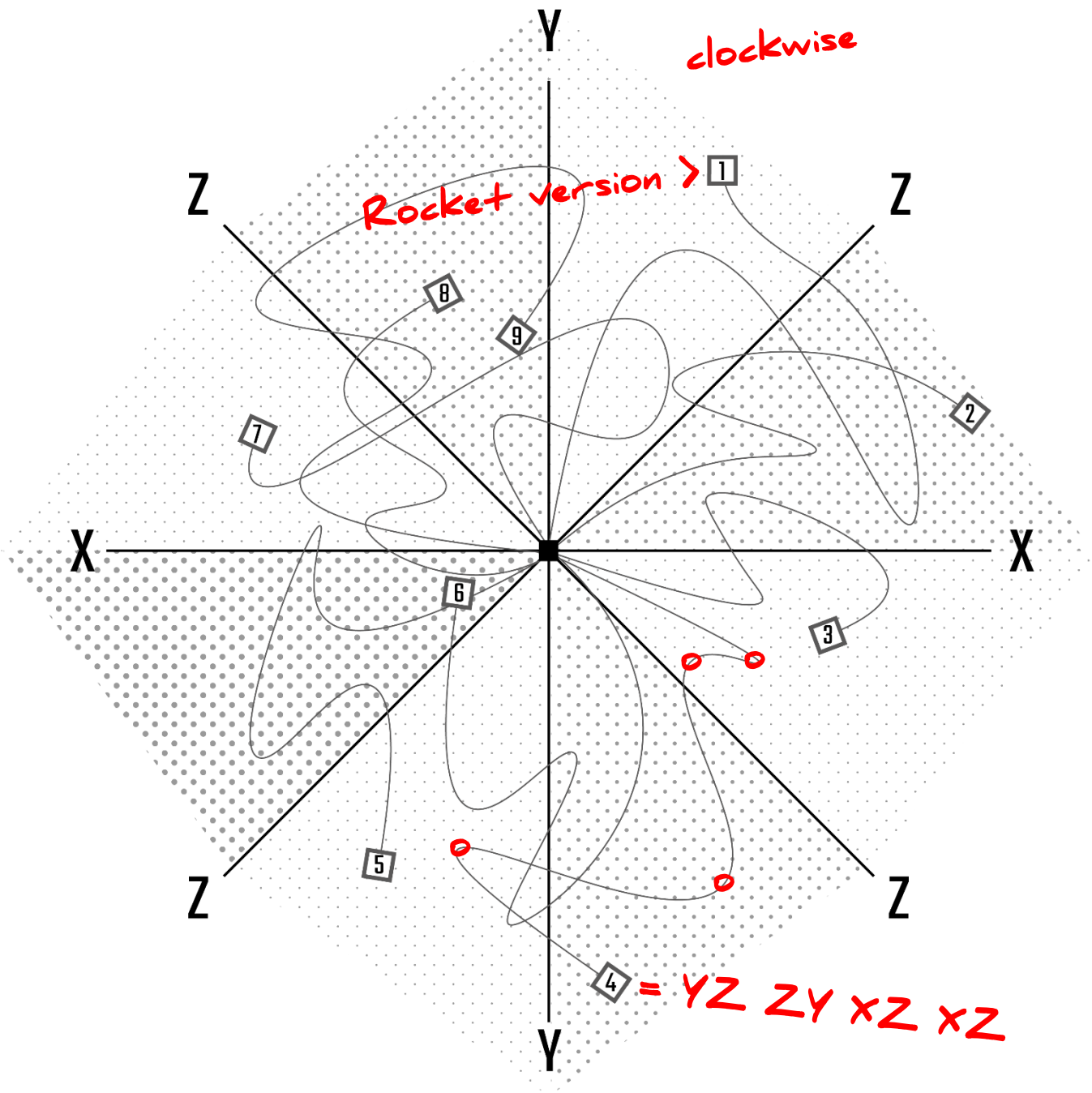
FIELD	INPUT	FIELD	INPUT	FIELD	INPUT
1	N3	5	S4	9	N2
2	S5	6	S3	10	S1
3	S2	7	N5	11	S4
4	N4	8	N1	12	N4

ABC = 5 (5 is inside all three circles!

PRELAUNCH

3-AXIS

The 3-axis stabilisation needs to be calibrated. Input the buttons into the terminal based on the axis.



STAGES & PROPULSION

The stages and propulsion panels need to be managed AFTER the launch button has been pressed, when the rocket is in the air. These panels deactivate once the rocket reaches orbit.

STAGES

BEGIN COUNTDOWN, STAGES, RELEASE PAYLOAD

When the timer reaches 0, you must launch the rocket. You may wish to start the countdown if you find yourself with excess time. If this is the case, press the BEGIN button on the stages panel to automatically change the countdown timer to 10 seconds.

Each rocket has a set amount of stages shown on the timeline (in the following pages), along with a percentage that shows when these stages should be initiated. This percentage signifies the percentage of the altitude goal. For example, a rocket that initiates stage 2 at 50% of a 250 altitude goal will need to be initiated at 125.

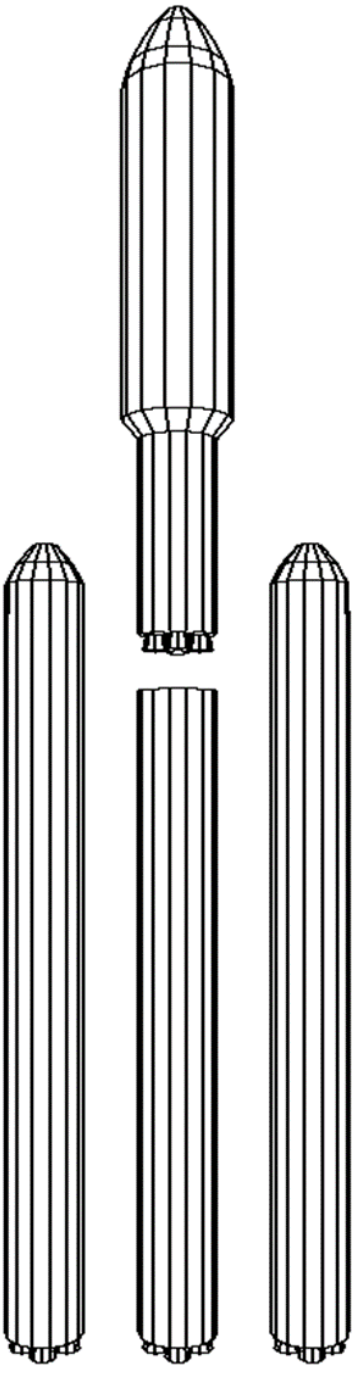
Once the rocket reaches the altitude goal, orbit has been achieved, and there is a short window when the payload MUST be released. Press the END button when the ORBIT panels have been completed. Otherwise, the payload will automatically be released when the timer reaches 0.

PROPULSION

Hybrid (appendix 16)

PIGEON HEAVY

ID	0

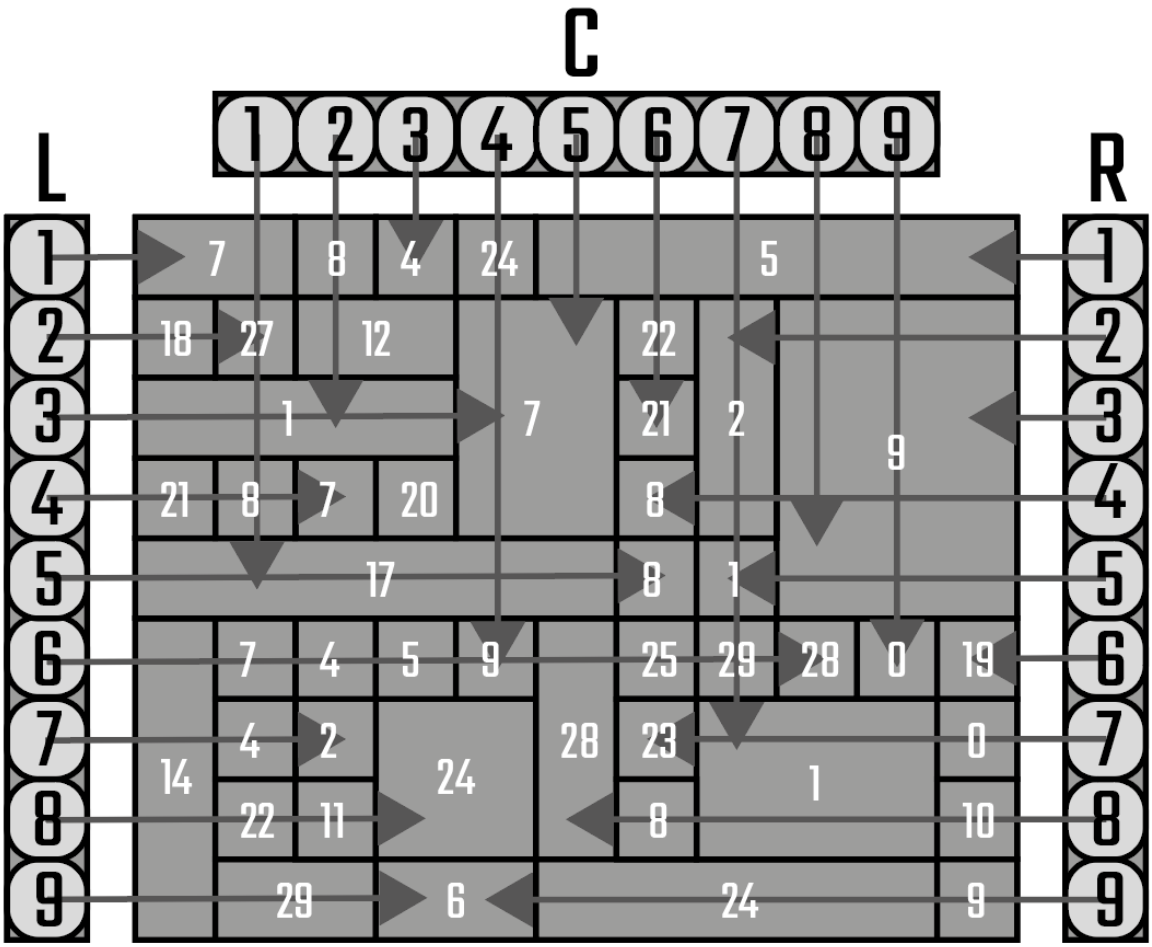


ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	
70	STAGE 3
65	
60	
55	
50	
45	
40	
35	
30	
25	
20	STAGE 2
15	
10	
5	
0	LIFTOFF

PH
PIGEON HEAVY

LAUNCH INSTRUCTIONS

The Pigeon Heavy is a three stage reusable rocket with two side boosters and a central core that is used to help the shuttle reach orbit. The two side boosters and central core need to be monitored and their variables adjusted during the flight. Depending on the rocket version, change the left booster (first input), central core (second input) and right booster (third input) values to their corresponding number as below.

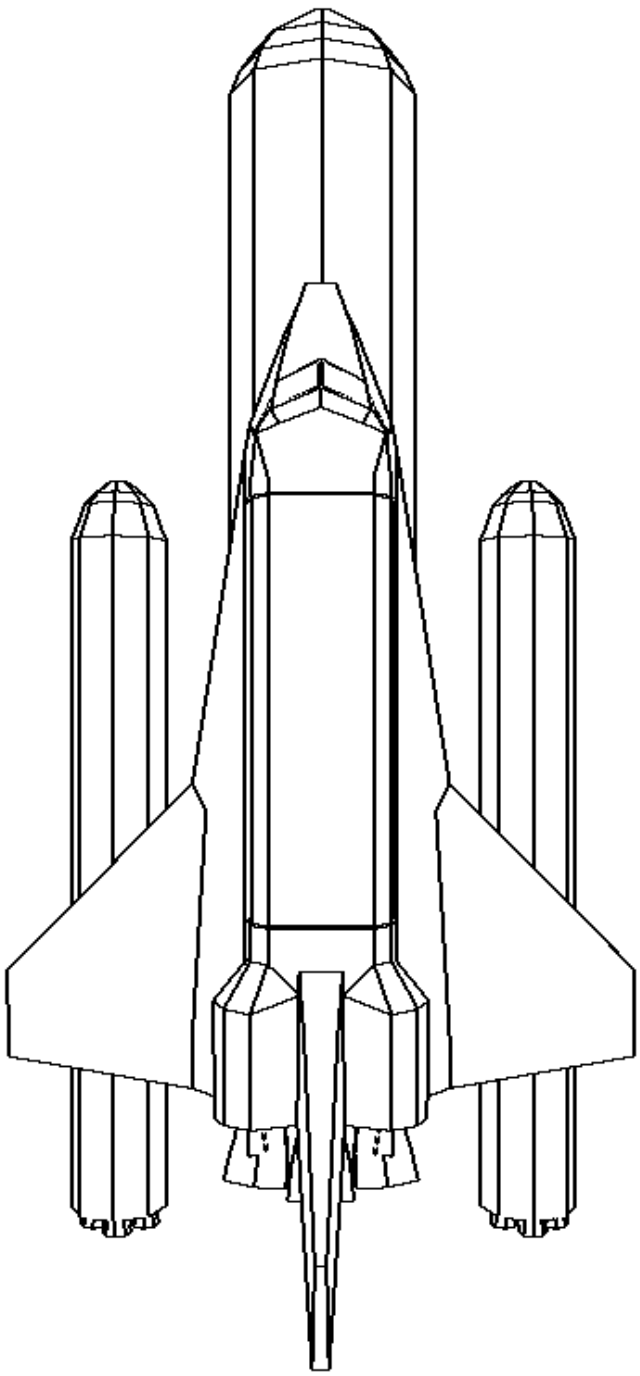


Keep checking to make sure the values stay at this!

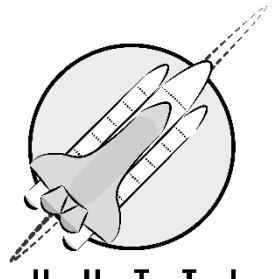
PROPULSION

SHUTTLE

ID	1



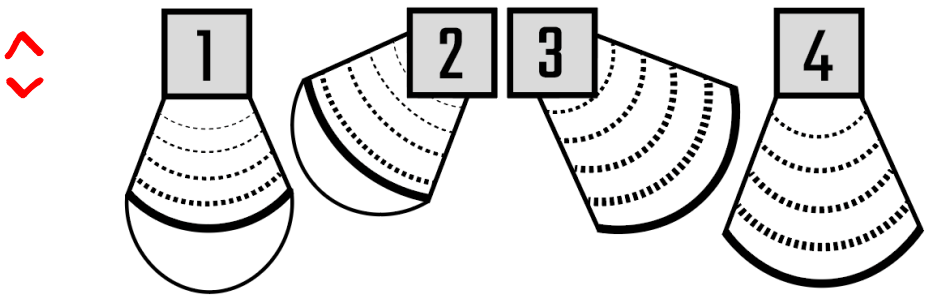
ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	
70	
65	
60	STAGE 3
55	
50	
45	
40	
35	
30	
25	STAGE 2
20	
15	
10	
5	
0	LIFTOFF



LAUNCH INSTRUCTIONS

The Shuttle is a three stage reusable launch system with two side booster and a central tank. The two side boosters and central tank are ignited at launch and require no monitoring, however the Shuttle engine positions are adjustable and must be adjusted during the flight.

Arrow buttons in order on terminal.



VERSION 1, VERSION 2				
STAGE				
1	2	0	2	2
2	2	1	2	7
3	-4	3	1	0

VERSION 3, VERSION 4				
STAGE				
1	4	6	-7	-2
2	0	-2	-4	5
3	-1	2	2	6

VERSION 5				
STAGE				
1	5	-7	-4	-8
2	9	-5	0	2
3	5	4	-4	-5

VERSION 6				
STAGE				
1	-3	-7	3	-4
2	-1	4	4	-2
3	8	7	6	5

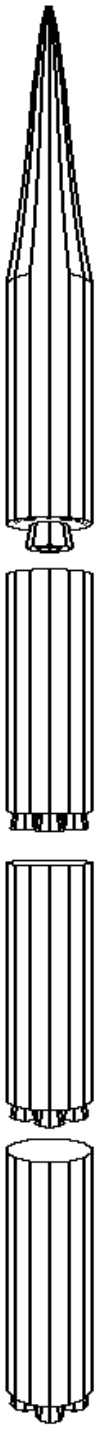
VERSION 7, VERSION 8				
STAGE				
1	9	-6	7	-2
2	-1	5	5	3
3	9	-7	-2	7

VERSION 9				
STAGE				
1	4	1	4	7
2	-4	-2	5	1
3	5	7	4	3

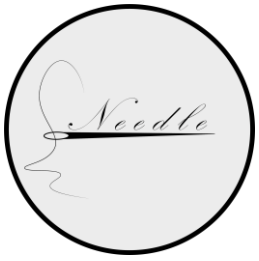
PROPULSION

NEEDLE

ID	2



ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	
70	STAGE 4
65	
60	
55	
50	
45	
40	STAGE 3
35	
30	
25	STAGE 2
20	
15	
10	
5	
0	LIFTOFF

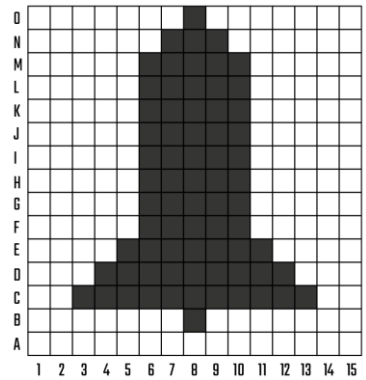
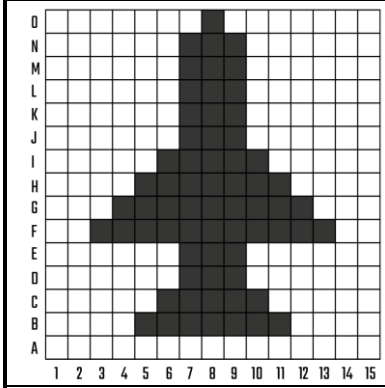
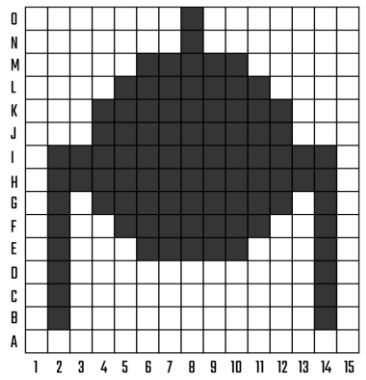
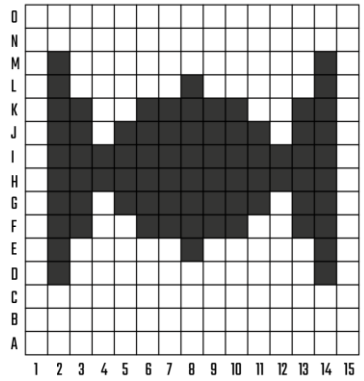
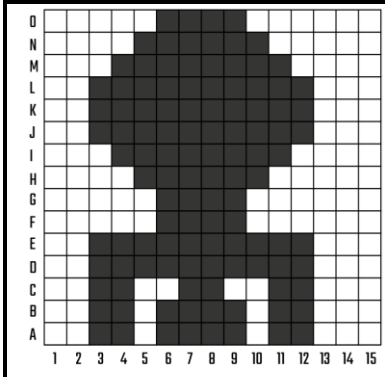
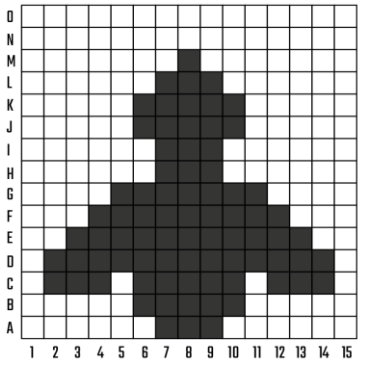
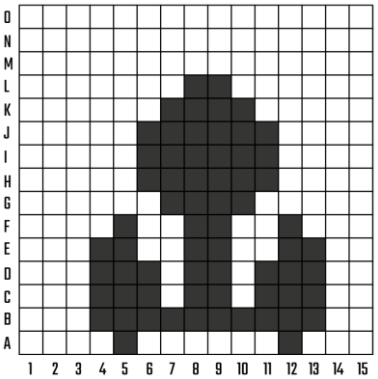
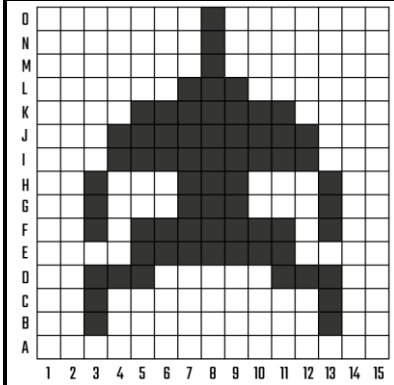
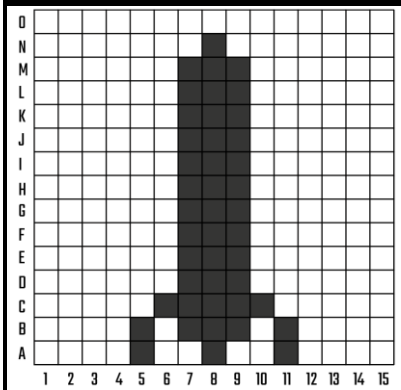


LAUNCH INSTRUCTIONS

The Needle is a four stage rocket with sharp focus. Below are stitching patterns that include the values you need. Eliminate all grey boxes until one grey box remains, then convert the value using the needle config.

< Appendix 13

At stage 2, add 5 to this value, at stage 3, add 7 to this value and at stage 4, subtract 1 from this value.

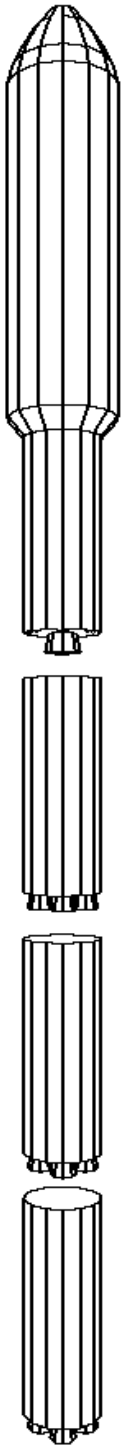
VERSION 1	VERSION 2	VERSION 3
		
6, 7, 8, 9 & 10. 11E, C, D	B-H, J-O, 16, 19, 17, ,10	E, G-N, 80, 5, 6, 7, 9, 11, 8
VERSION 4	**VERSION 5**	**VERSION 6**
		
2- 5, G-K, 8-14, L, M, 6F	A-J, 3, 4K, I, J, M, 5-12	A, 14, 11D, 12C, B, E-M, 2-10, 13, 11C
VERSION 7	**VERSION 8**	**VERSION 9**
		
4, B, D-H, 6-13, A, I-L	1-6, A, L, 8M, 10-13, O	A-E, H-N, 7, 9G, 9F, G

A bit like battleships!

PROPULSION

PIGEON

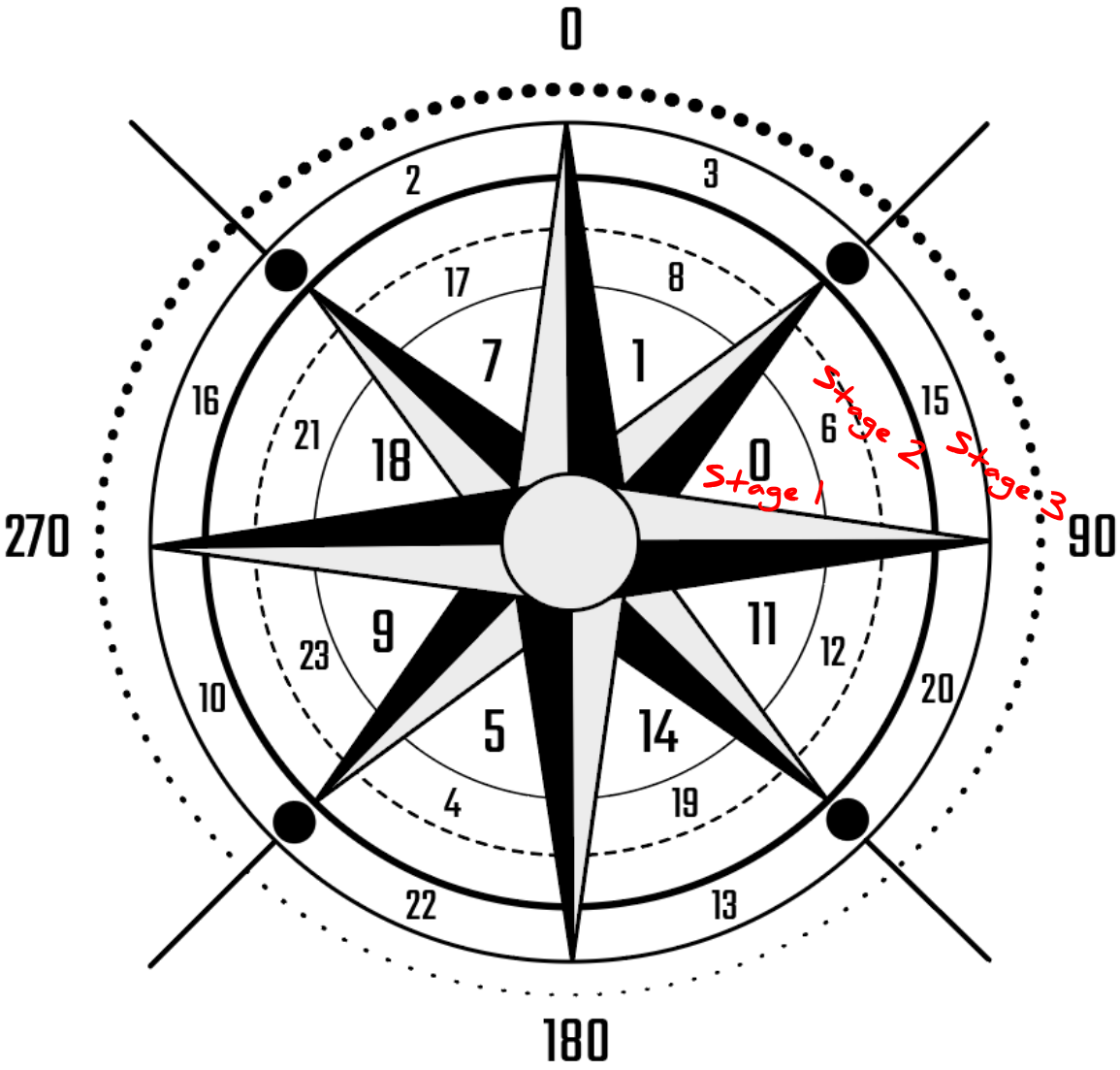
ID	3



ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	
70	STAGE 3
65	
60	
55	
50	
45	
40	
35	
30	STAGE 2
25	
20	
15	
10	
5	
0	LIFTOFF

LAUNCH INSTRUCTIONS

The Pigeon is a three stage rocket with four components. The rocket must be adjusted during the flight, with the below values. In the very readable graphic below, the inner ring constitutes stage 1, the middle ring stage 2, and the outer ring stage 3.

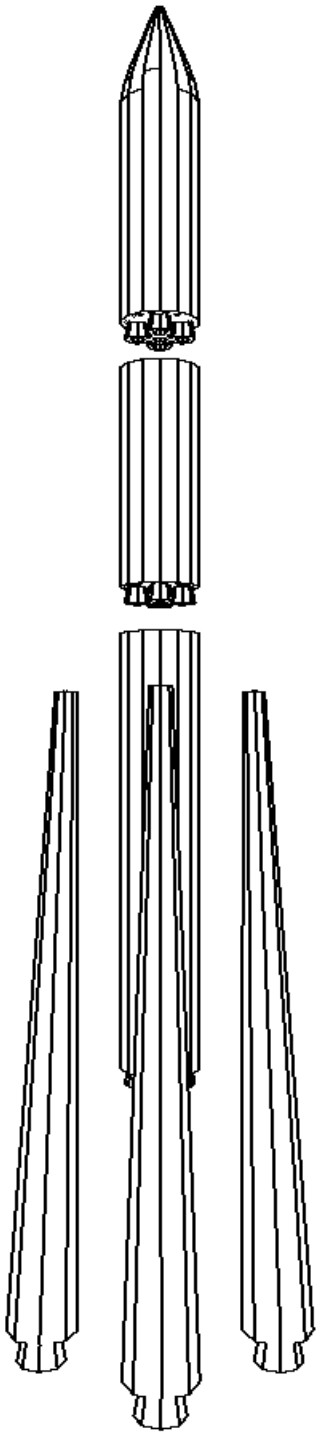


Terminal gives you a value from 0-360.

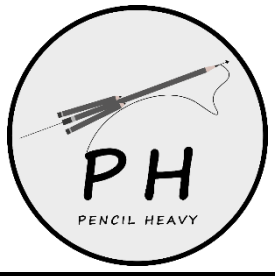
PROPULSION

PENCIL HEAVY

ID	4



ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	
70	STAGE 4
65	
60	
55	
50	
45	
40	
35	STAGE 3
30	
25	
20	
15	STAGE 2
10	
5	
0	LIFTOFF

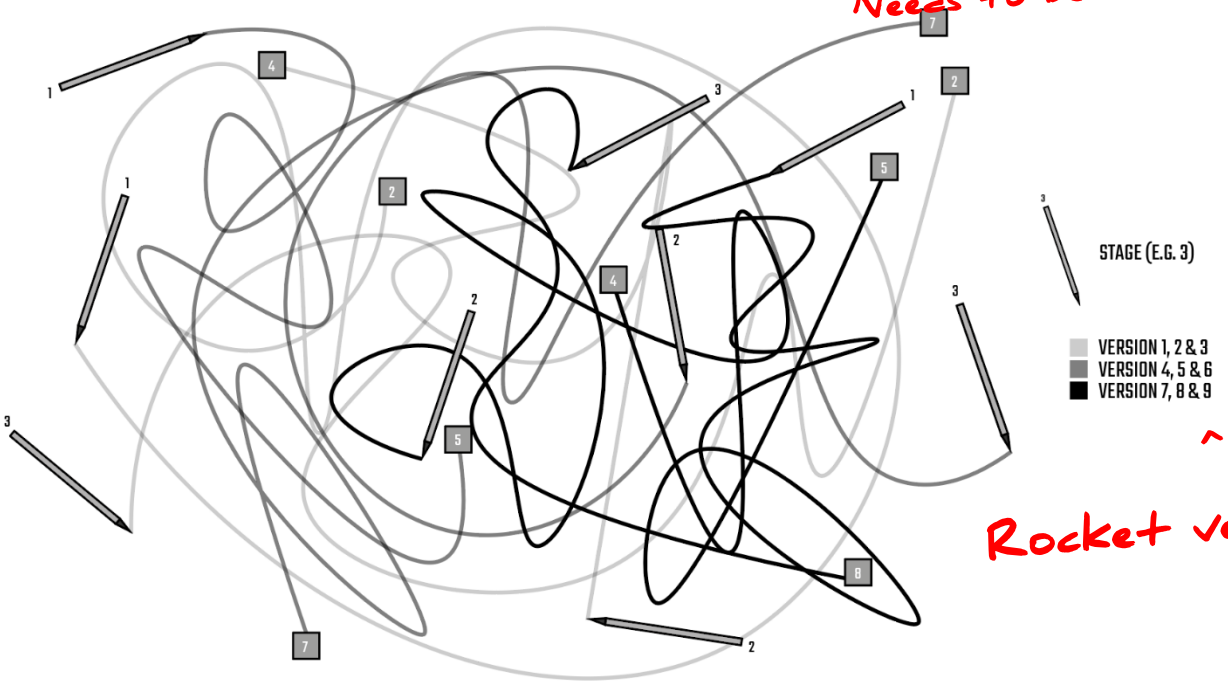


LAUNCH INSTRUCTIONS

The Pencil Heavy is a four stage rocket with a central core and four side boosters. We've printed the values you will need in the graphic below to make things easier for you.

Heat values:

Keep an eye on the heat!
Needs to be within 2 units!



^ Rocket version

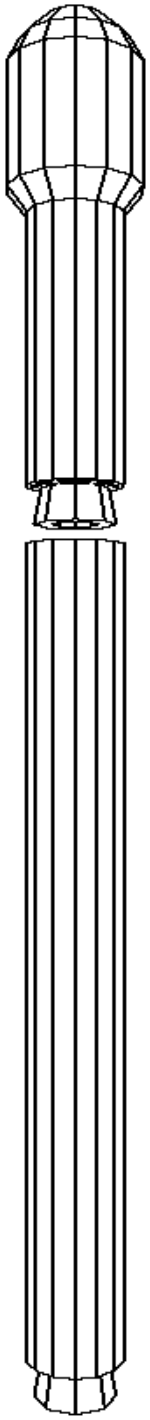
VERSION 1	RATE	VERSION 2	RATE	VERSION 3	RATE
STAGE 1	-5	STAGE 1	4	STAGE 1	14
STAGE 2	-7	STAGE 2	3	STAGE 2	10
STAGE 3	3	STAGE 3	15	STAGE 3	4
VERSION 4	**RATE**	**VERSION 5**	**RATE**	**VERSION 6**	**RATE**
STAGE 1	5	STAGE 1	4	STAGE 1	9
STAGE 2	7	STAGE 2	-1	STAGE 2	1
STAGE 3	7	STAGE 3	16	STAGE 3	7
VERSION 7	**RATE**	**VERSION 8**	**RATE**	**VERSION 9**	**RATE**
STAGE 1	-4	STAGE 1	2	STAGE 1	7
STAGE 2	6	STAGE 2	12	STAGE 2	10
STAGE 3	4	STAGE 3	-4	STAGE 3	2

^ the rate (blue arrow buttons)

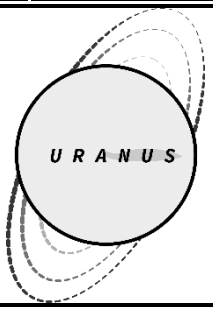
PROPULSION

URANUS

ID	5



ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	
70	
65	
60	
55	
50	STAGE 2
45	
40	
35	
30	
25	
20	
15	
10	
5	
0	LIFTOFF

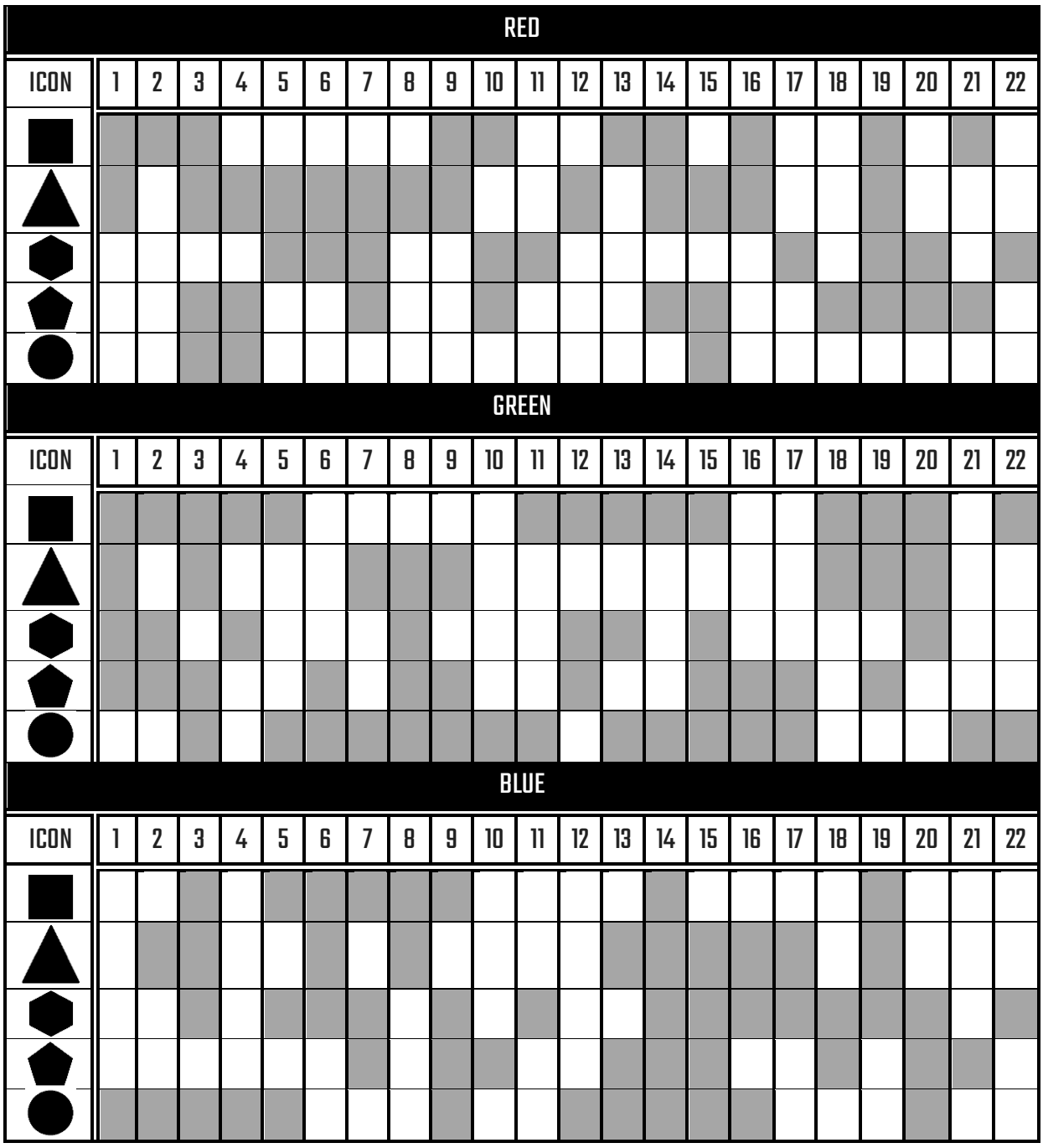


LAUNCH INSTRUCTIONS

Complete in 2 mins!

Uranus is powered by nuclear technology and is a two stage rocket. There are twenty-two switches that must be flicked up or down depending on the shape presented on the corresponding display. The grey box below means the switch must be flicked down.

Shapes will be coloured on display.



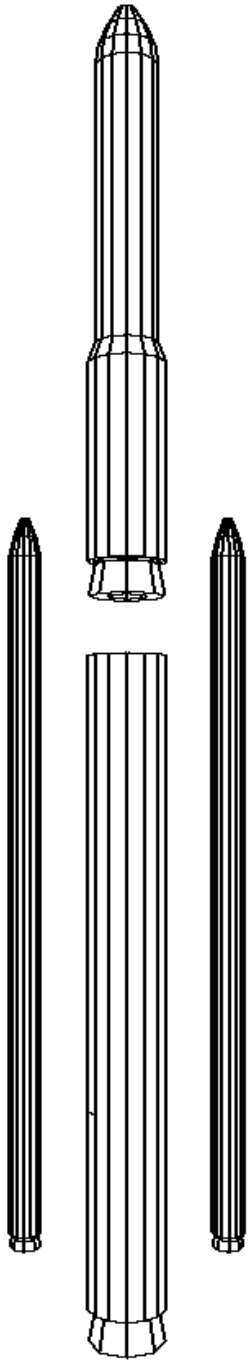
Switches start at 1 (first row 1-11 and second row 12-22)

e.g. if a blue circle is shown on the 20th switch, flick it down ^

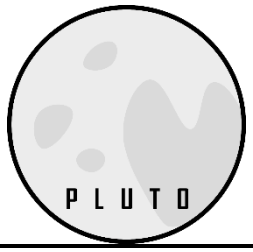
PROPULSION

PLUTO

ID	6



ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	STAGE 4
70	
65	
60	
55	
50	STAGE 3
45	
40	
35	
30	
25	
20	STAGE 2
15	
10	
5	
0	LIFTOFF



LAUNCH INSTRUCTIONS

The Pluto rocket is two stage rocket with a thin design. It's so light it isn't classed as a rocket, but rather a dwarf rocket. As a result of this design, the onboard systems must be calibrated to react to current wind direction and strength. Start by entering the appropriate values as per the below table, and supplement this with the wind direction corresponding number.

ALTITUDE	VERSION								
-	1	2	3	4	5	6	7	8	9
0-10	2	3	4	3	2	4	2	2	2
50-119	1	3	2	2	4	1	2	2	2
120-209	2	4	1	2	2	2	4	1	3
210-299	1	4	1	3	1	2	2	3	2
300-379	1	1	4	1	3	3	2	1	1
380-449	2	4	1	1	3	2	2	2	4
450+	3	2	4	1	2	2	2	1	2

With these strings – include the wind digits at the end:

WIND	VALUE
WEAK NORTH	3
STRONG NORTH	4
WEAK EAST	1
STRONG EAST	2
WEAK SOUTH	1
STRONG SOUTH	4
WEAK WEST	1
STRONG WEST	2

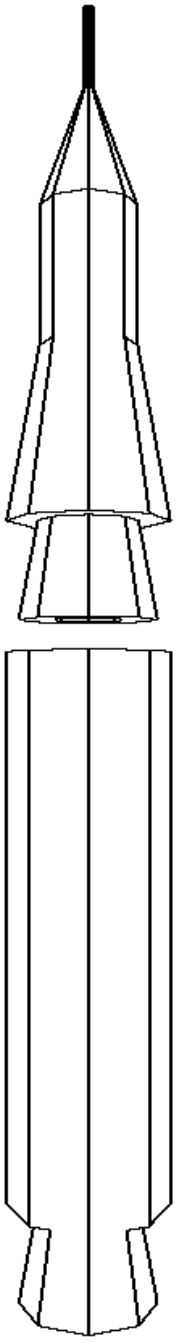
e.g. at 0-10 altitude for a version 1 rocket with weak north wind: the code is: 23.
2 is from the first table, and 3 from the wind table.

See pg. 31 for help with wind direction.

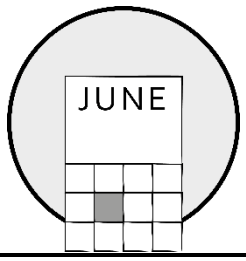
PROPULSION

JUNE

ID	7



ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	
70	
65	
60	
55	
50	
45	
40	STAGE 2
35	
30	
25	
20	
15	
10	
5	
0	LIFTOFF



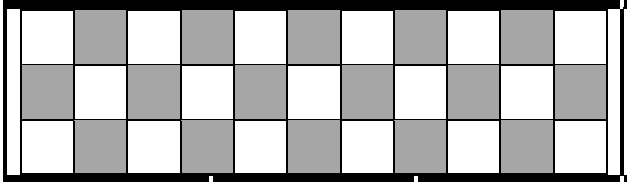
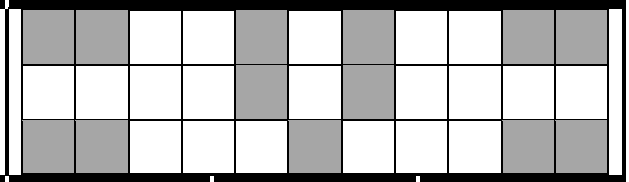
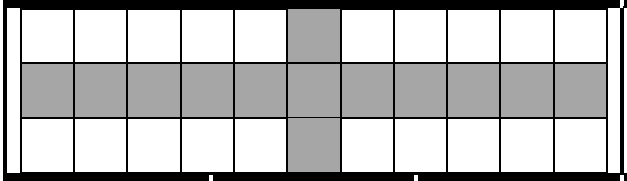
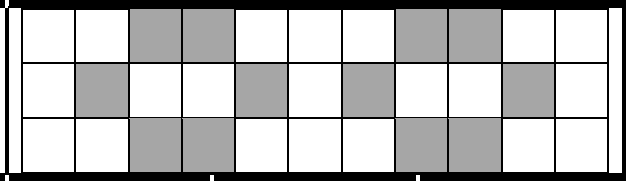
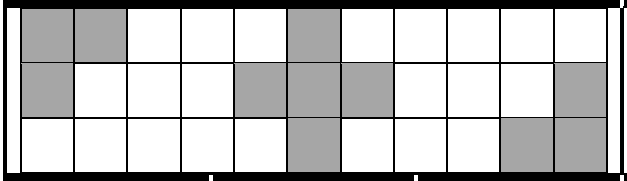
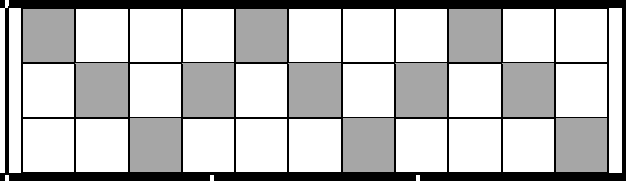
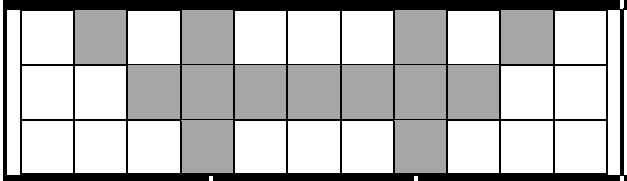
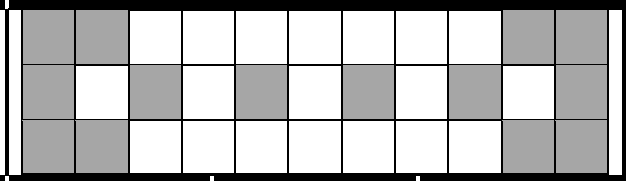
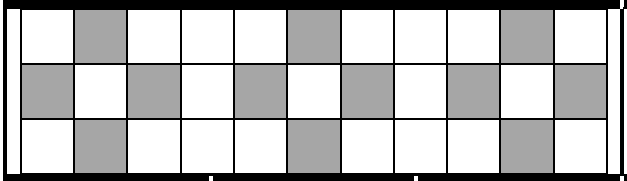
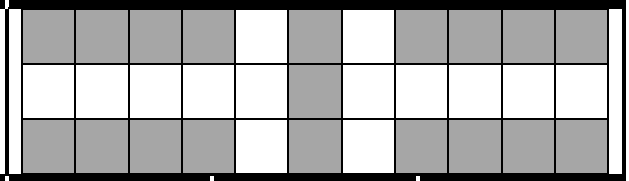
5 second deadline!

(A bit like control)

LAUNCH INSTRUCTIONS

June is a two stage rocket that uses simple pattern communications for any adjustments needed.

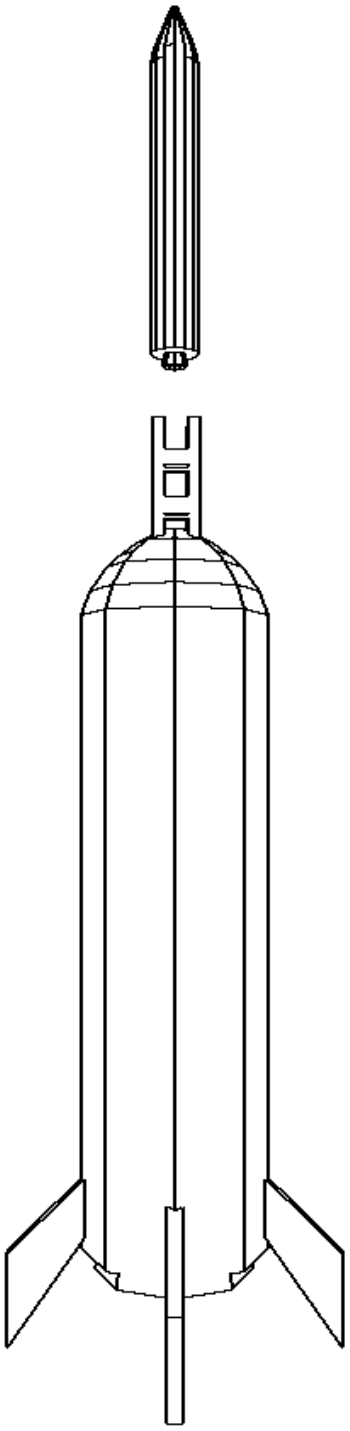
New command at random intervals...

PATTERN 1			PATTERN 2		
					
RED	GREEN	BLUE	RED	GREEN	BLUE
1	7	4	2	6	9
PATTERN 3			**PATTERN 4**		
					
RED	GREEN	BLUE	RED	GREEN	BLUE
1	2	3	8	7	5
PATTERN 5			**PATTERN 6**		
					
RED	GREEN	BLUE	RED	GREEN	BLUE
1	4	8	2	5	9
PATTERN 7			**PATTERN 8**		
					
RED	GREEN	BLUE	RED	GREEN	BLUE
5	2	4	9	3	7
PATTERN 9			**PATTERN 10**		
					
RED	GREEN	BLUE	RED	GREEN	BLUE
6	1	4	9	1	2

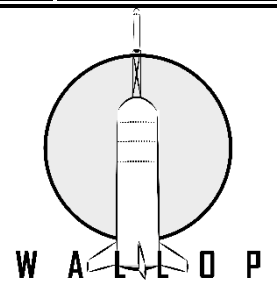
PROPULSION

WALLOP

ID	8



ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	STAGE 2
70	
65	
60	
55	
50	
45	
40	
35	
30	
25	
20	
15	
10	
5	
0	LIFTOFF



LAUNCH INSTRUCTIONS

Wallop is an old two stage rocket that is easy to control at the terminal. Respond to the command using the below table.

< grey means you need to press enter!
1, 2 and 3 correspond to the screens on the panel

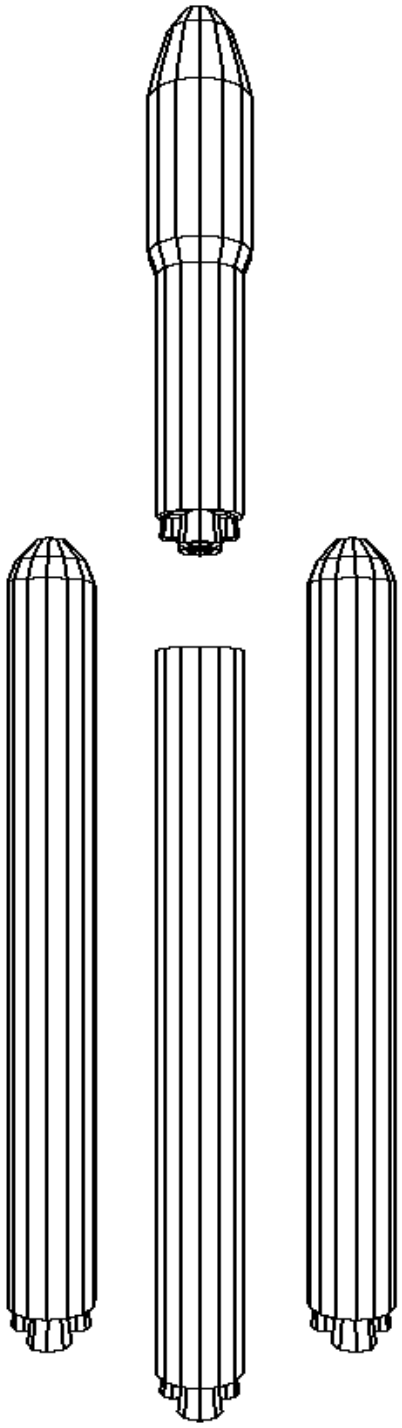
COMMAND	1	2	3	COMMAND	1	2	3	COMMAND	1	2	3
7SEVEN			■	ROCKET	■			BOUNCE	■		■
ROCKITS			■	PHONE				BLACK	■		
PRESS	■		■	UPDATE	■		■	MOON		■	■
FUEL	■			PAGE		■		BEGIN		■	
01011	■	■		PRESS	■	■		BACK			
ALTITUDE		■	■	AIR		■	■	READ	■	■	■
PLUS.MA	■	■	■	PRESSURE		■	■	001111			■
THRUST	■			ORBIT		■		FALCON			■
JOE10	■	■		FIND				PINK		■	
SEVEN7	■	■		-.NA			■	POWER			
STAGE				STAGES	■	■		LIFT			■
+.NA		■		GREEN	■	■		RED	■	■	
ENGINE			■	WHITE		■	■	PLUS4			
0101111			■	CONTROL		■		ORANGE		■	■
ATTITUDE	■			+PLUSFOUR	■	■		FLY	■		
ROCKETS		■		L1FT	■	■		MANUAL			■
WHICH	■	■	■	EAGLE		■		OVER			■
FIRE				HIT				FLIE		■	■
NOMINAL		■	■	YELLOW	■	■	■	WHERE			
LAUNCH	■	■	■	TURN			■	BLUE	■	■	
JOETEN			■	BLEW	■	■	■	WEAR		■	

Commands come in at random intervals
Keep an eye on it!

PROPULSION

ROBIN

ID	9



ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	
70	
65	STAGE 3
60	
55	
50	
45	
40	
35	
30	
25	STAGE 2
20	
15	
10	
5	
0	LIFTOFF

LAUNCH INSTRUCTIONS

The Robin is a three stage expendable rocket. The below table may not be easy to understand, but we couldn't think of a more productive way to convey the values. Depending on the colour presented on the terminal, change the values of each variable.

Must change at each stage.

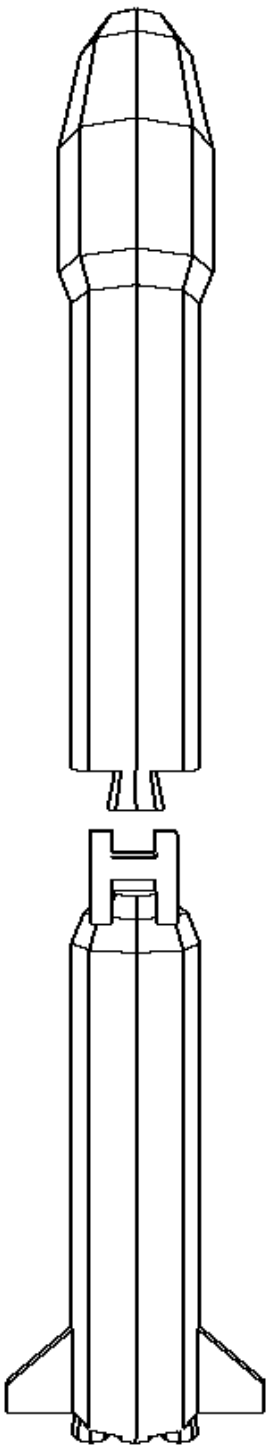
COLOUR	1	2	3	4	5
RED	14	4	12	15	5
GREEN	7	20	4	2	18
BLUE	19	5	11	15	4
CYAN	9	19	2	2	19
MAGNETA	8	18	9	7	17
YELLOW	10	1	17	7	8
WHITE	2	20	1	19	9
GREY	10	15	11	2	4

Careful! Deadline is 30 seconds!

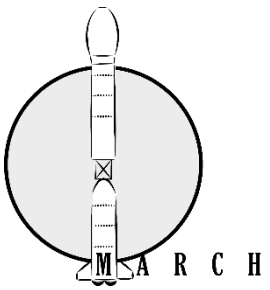
PROPULSION

MARCH

ID	10



ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	
70	
65	
60	
55	
50	STAGE 2
45	
40	
35	
30	
25	
20	
15	
10	
5	
0	LIFTOFF



LAUNCH INSTRUCTIONS

The March is a two stage long rocket with high reliability. We can't figure out how to change the language settings on the onboard systems, so the signals will need to be interpreted and the appropriate response given.

15 second deadline!

new command each stage.

COMMAND	RESPONSE	COMMAND	RESPONSE
FUSE	ELECTRICITY	FEATHERING	CHICKEN
SPAN	WIDE	NOFUEL	NOTHING
NOISE	SOUND	BOIL	HOT
PROCESSOR	PROCESSING	PRESSURE	AIR
XCOORD	WIDE	VALVE	OPEN
HARMONY	SOUND	CHARGE	ELECTRICITY
CURRENT	ELECTRICITY	EMPTY	NOTHING
PORT	OPEN	AERODYNAMIC	AIR
FLOW	ELECTRICITY	ENERGY	ELECTRICITY
SWEETSOUR	CHICKEN	SHORT	ELECTRICITY
MELT	HOT	MEMORY	PROCESSING
SHIELD	BURN	BURN	HOT
DISPLAY	PROCESSING	WIND	AIR
BINARY	PROCESSING	RADIATION	BURN
CLEAR	NOTHING	VIBRATION	SOUND

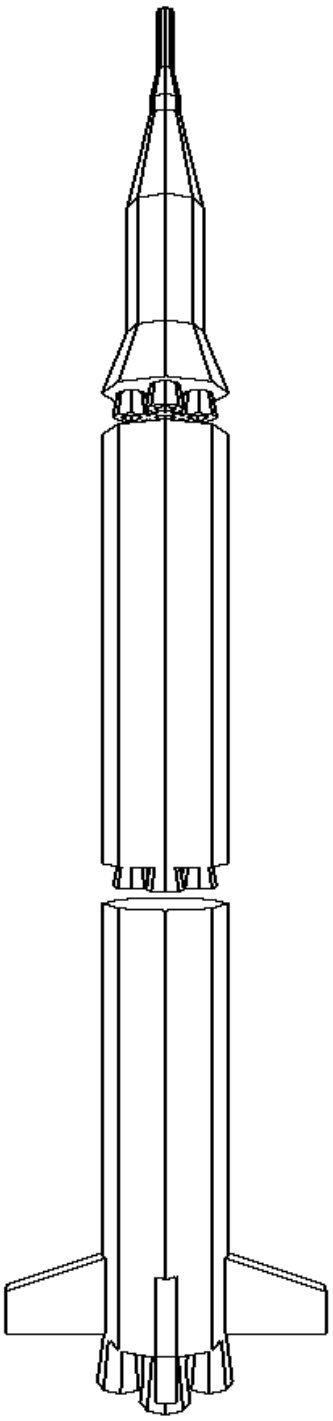
TRANSLATIONS			
RESPONSE	CHINESE (SIMPLIFIED)	RESPONSE	CHINESE (SIMPLIFIED)
ELECTRICITY	电	CHICKEN	鸡
OPEN	开	AIR	气
NOTHING	无	BURN	烧
HOT	热	SOUND	声
WIDE	广	PROCESSING	处

^ Press that correct button

PROPULSION

SATURN

ID	11



ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	
70	STAGE 3
65	
60	
55	
50	
45	
40	
35	
30	STAGE 2
25	
20	
15	
10	
5	
0	LIFTOFF

SATURN

LAUNCH INSTRUCTIONS

The Saturn is a three stage rocket that we hope will get us to the moon. It's one small step towards the perfect rocket. The simple table below will guide you with what to do.

20 second deadline each stage!

Rocket version (above main screen in orange)

VERSION	STAGE 1		STAGE 2		STAGE 3	
	KNOB 1	KNOB 2	KNOB 1	KNOB 2	KNOB 1	KNOB 2
1	22	20	11	5	20	16
2	10	15	10	4	6	22
3	11	0	12	1	4	5
4	5	0	4	5	16	17
5	1	22	18	22	4	11
6	8	14	17	0	1	4
7	15	1	23	4	18	9
8	17	5	18	1	14	22
9	15	17	18	0	22	17

VERSION	STAGE 1	STAGE 2	STAGE 3
1			
2			
3			
4			
5			
6			
7			
8			
9			

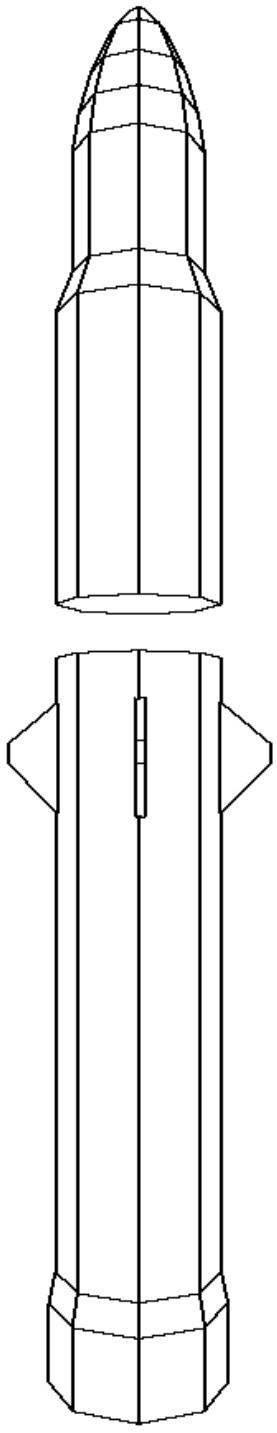
MOON	CODE	MOON	CODE	MOON	CODE	MOON	CODE	MOON	CODE
TITAN	1	IAPETUS	7	TETHYS	4	PAN	1	SIARNAQ	8
ENCELADUS	3	PHOEBE	5	HYPERION	2	JANUS	1	TELESTO	4
PROMETHEUS	1	PANDORA	1	MIMAS	2	ATLAS	1	DIONE	6
EPIMETHEUS	2	RHEA	1	SURTUR	1	METHONE	2	CALYPSO	6

Press 'moon' button x ^ many times

PROPULSION

PRIME

ID	12

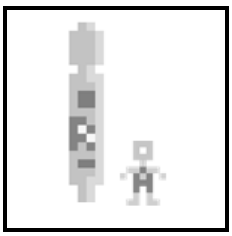


ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	
70	
65	
60	
55	
50	STAGE 2
45	
40	
35	
30	
25	
20	
15	
10	
5	
0	LIFTOFF

LAUNCH INSTRUCTIONS

The Prime rocket is a two stage rocket that delivers payloads at a (mostly) reasonable time. We have designed an 8-bit game and installed it into the terminal that is used to control the rocket. The game is not that great but does make controlling the rocket easier. Depending on the position of the astronaut and the rocket, input the correct command on the controller.

Who makes a game about rockets...?



40 second deadline!

ASTRONAUT POSITION	8-BIT ROCKET POSITION			
	UP	RIGHT	DOWN	LEFT
TOP LEFT	UDLRE	RLALE	ABCDE	BBRLE
TOP RIGHT	UDMCE	SDMAE	ADBAE	MUDLE
BOTTOM RIGHT	DDABE	LRRLE	RRLLE	LRAAE
BOTTOM LEFT	CBDME	MMRLE	DBBAE	CBDLE

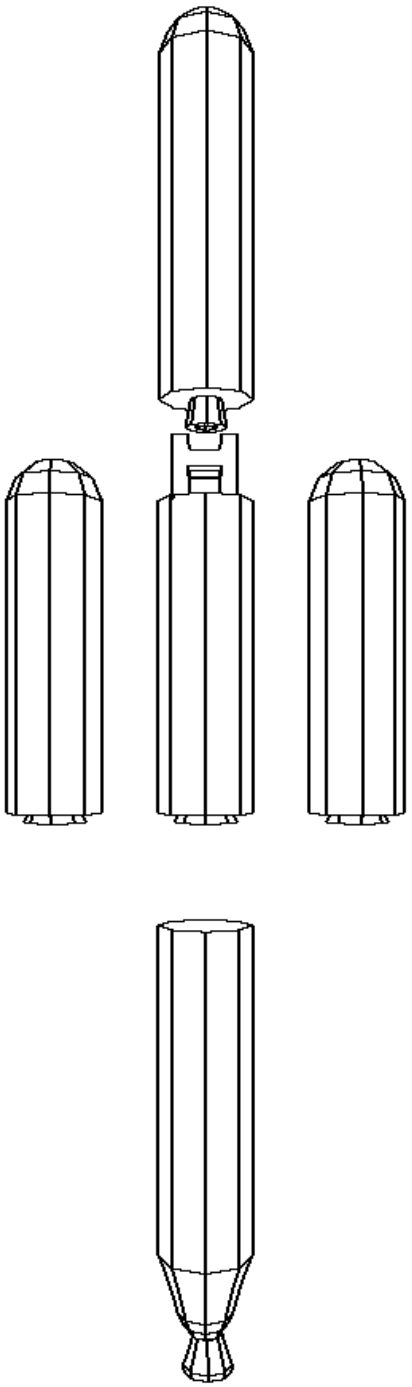
BUTTON	ICON	BUTTON	ICON	BUTTON	ICON	BUTTON	ICON
UP	U	LEFT	L	DOWN	D	RIGHT	R
MIDDLE	M	F BUTTON	F	SELECT	S	ENTER	E
C BUTTON	C	B BUTTON	B	A BUTTON	A		

Have to do this twice, one for stage 1 and another for stage 2.

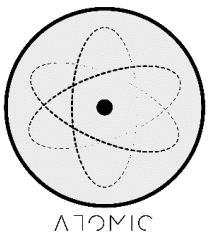
PROPULSION

ATOMIC

ID	13



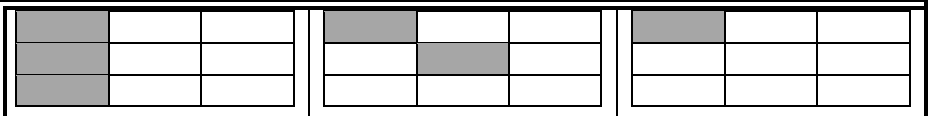
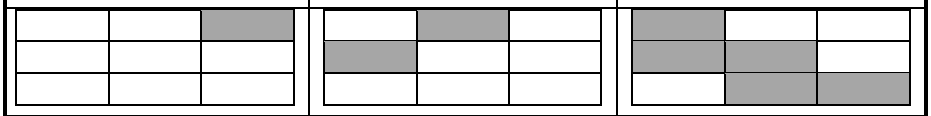
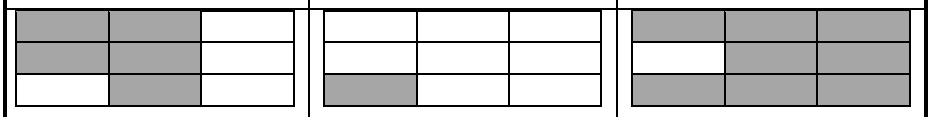
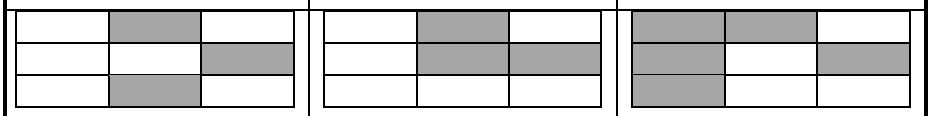
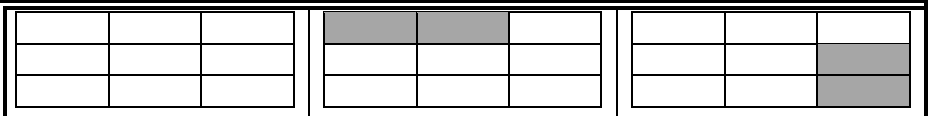
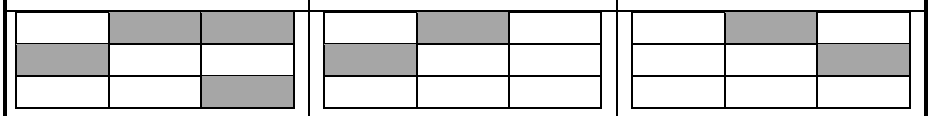
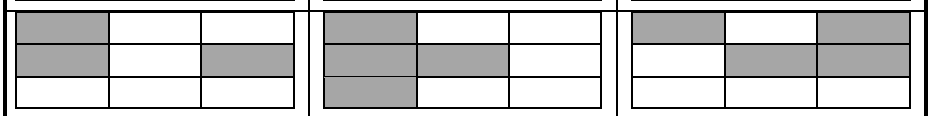
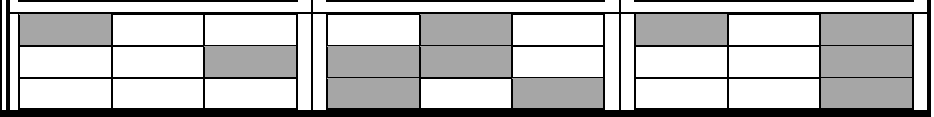
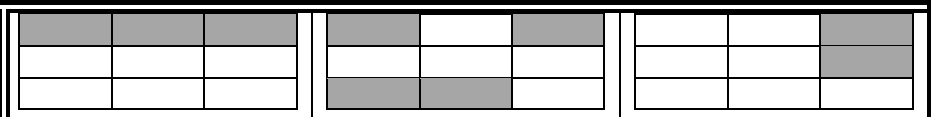
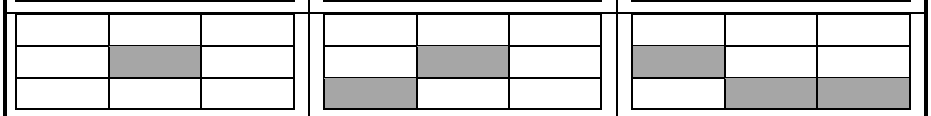
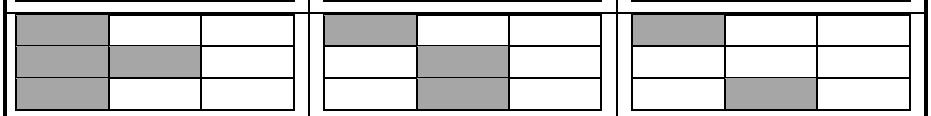
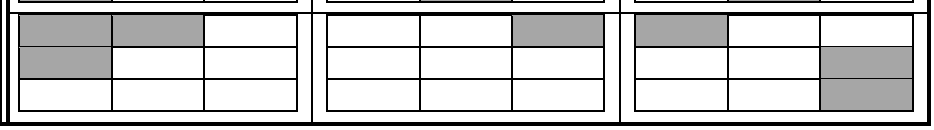
ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	STAGE 4
70	
65	
60	
55	
50	
45	
40	STAGE 3
35	
30	
25	
20	
15	STAGE 2
10	
5	
0	LIFTOFF



LAUNCH INSTRUCTIONS

The Atomic is a four stage rocket using the newest of our nuclear propulsion technology. Change the grid light input depending on the rocket version and stage as per the below table.

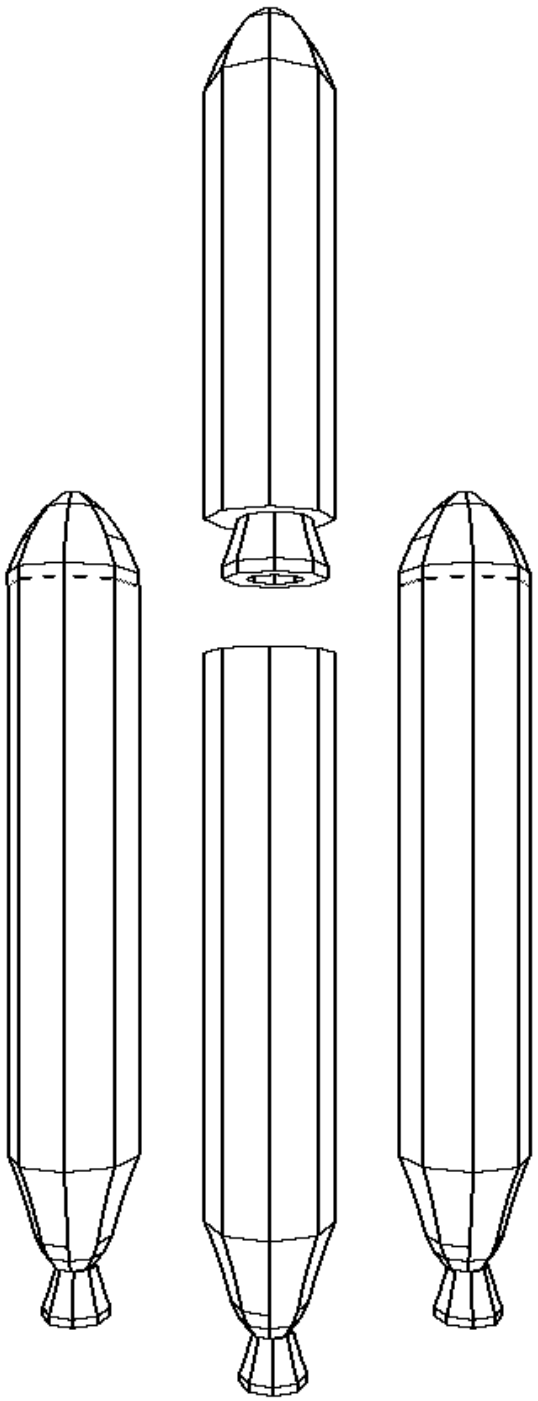
Shaded = light should be on

VERSIONS 1, 2 AND 3	
STAGE 1	
STAGE 2	
STAGE 3	
STAGE 4	
VERSIONS 4, 5 AND 6	
STAGE 1	
STAGE 2	
STAGE 3	
STAGE 4	
VERSIONS 7, 8 AND 9	
STAGE 1	
STAGE 2	
STAGE 3	
STAGE 4	

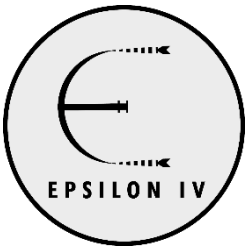
PROPULSION

EPSILON IV

ID	14



ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	
70	STAGE 3
65	
60	
55	
50	
45	
40	
35	STAGE 2
30	
25	
20	
15	
10	
5	
0	LIFTOFF

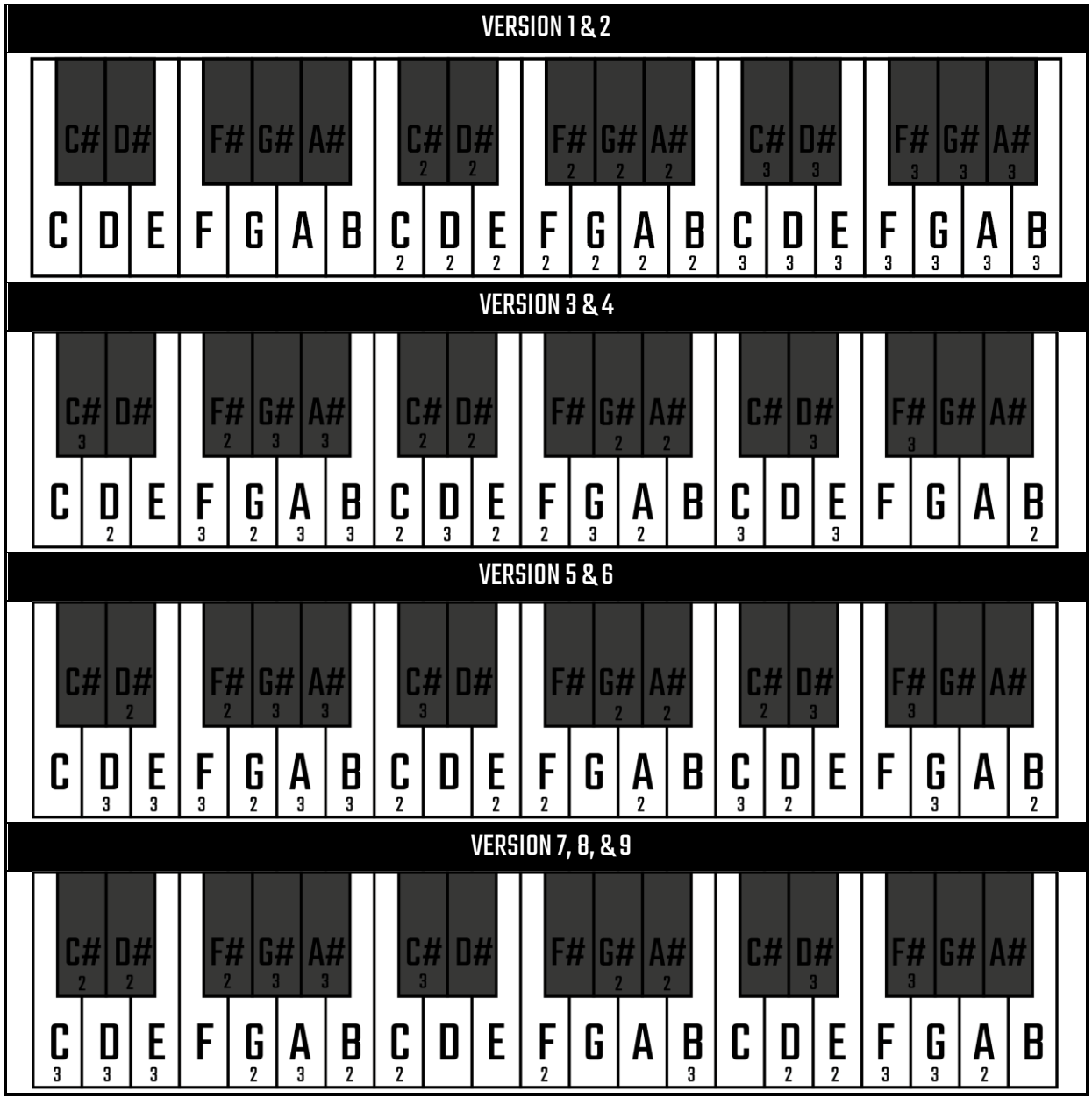


LAUNCH INSTRUCTIONS

The Epsilon IV is a three stage rocket that makes lovely sounds. The onboard software requires certain tunes to make the rocket function properly. The keyboard inputs are different depending on the rocket version.

^ Appendix 17.

Different tune each stage! 40 second deadline.

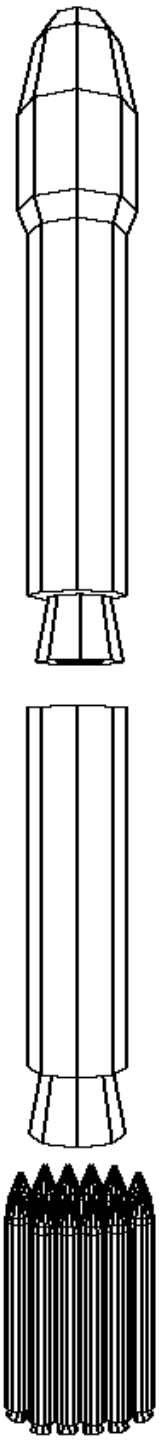


MUSICAL NOTATION							
A	B	C	D	E	F	G	#
♩	♪	♫	♬	♭	♮	♯	B
EXAMPLE				(♭B)(♯)(♩)(♩B2)		(E#)(G)(A)(A#2)	

PROPULSION

EPSILON II

ID	15



ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	
70	STAGE 3
65	
60	
55	
50	
45	
40	
35	STAGE 2
30	
25	
20	
15	
10	
5	
0	LIFTOFF

LAUNCH INSTRUCTIONS

The Epsilon II is a three stage rocket with twelve small side boosters attached around the shaft of the first stage. You may notice that the keyboard on the terminal is incomplete. That is because we couldn't afford the missing keys, but not to worry, we have adapted. Input the following commands below depending on the stage and config shown on the screen. Aside from the minor keyboard problem, some keys do not input what they are supposed to and these are included in the below table.

Correct answer is checked each stage.

CONFIG	STAGE		
	1	2	3
AA	FNAIR	RIGHT>	FNNTHRUST
AB	ADJUSTYAW	CTRLAL	NEWTON
BA	YAWTORE	FIREFIRE	STARRYNIGHT
BB	FNADD5	ENGINE	FNLEFT<
CC	ZZZZSLEE9	STELLAR	CC12
CA	0ZERO	FNFLIGHT	VELOCITY
CB	XFUEL	FINDOR8IT	ELECTRIX
AC	FNWASD1234	VLINK	8LACKKNIGHT
BC	43110HELLO	VARIA8LE	CTTEA

KNOWN KEYBOARD ISSUES			
KEY	OUTPUT	KEY	OUTPUT
SPACE	Z	UP	X
FN	N	DOWN	V

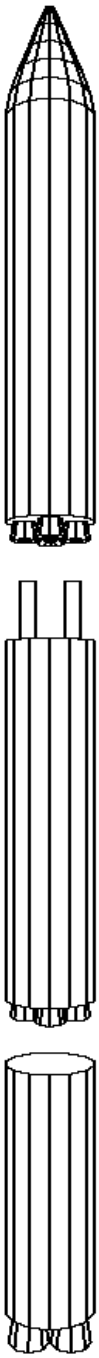
H and J backwards..

Careful... you need the EXACT string.

PROPULSION

ZETA

ID	16



ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	STAGE 3
70	
65	
60	
55	
50	
45	
40	
35	STAGE 2
30	
25	
20	
15	
10	
5	
0	LIFTOFF

LAUNCH INSTRUCTIONS

The Zeta is a three stage rocket with a very simple command interface. Due to the black and white nature of this manual (as you may already know), the colours needed have been converted into numbers below.

Rocket version ↓ You have until the end of that stage to complete the command, or boom!

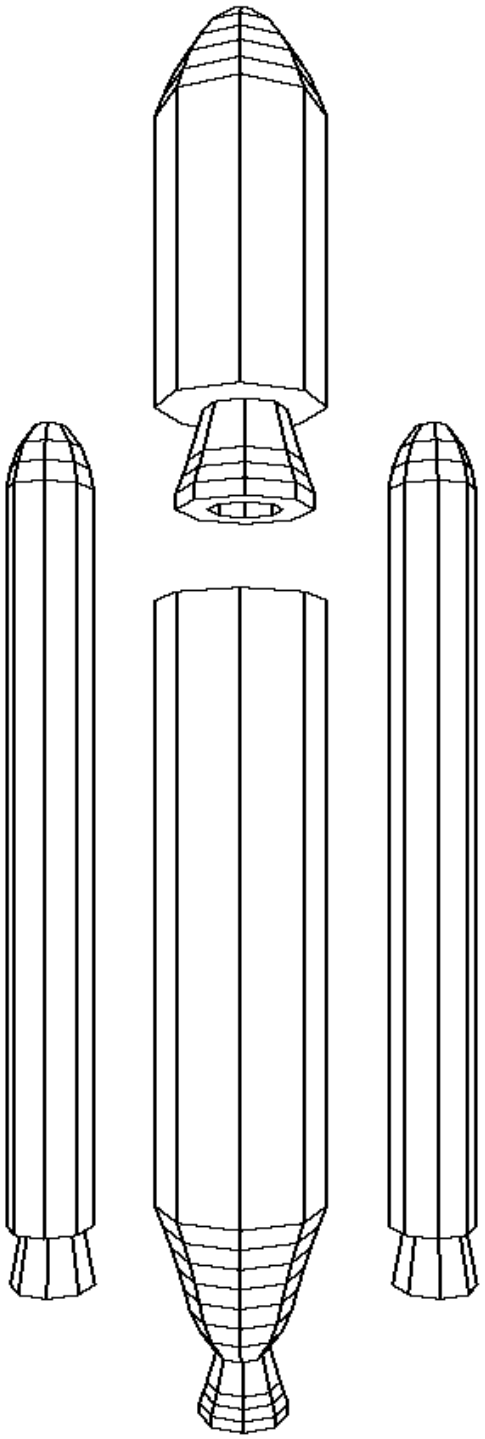
VERSIONS 1, 2 AND 3										
STAGE 1	1	0	0	4	3	3	4	1	2	1
	3	4	1	2	0	1	1	4	0	2
STAGE 2	0	2	4	0	0	4	2	3	3	1
	2	2	3	3	3	4	3	0	2	2
STAGE 3	2	4	0	2	2	1	2	4	4	2
	4	1	2	1	0	1	4	4	3	0
VERSIONS 4, 5 AND 6										
STAGE 1	4	3	3	1	2	4	2	0	4	1
	2	2	0	3	1	2	1	4	2	2
STAGE 2	4	1	4	3	4	2	0	1	3	0
	2	4	2	0	2	1	3	4	3	0
STAGE 3	2	3	1	2	4	2	1	2	0	0
	2	1	3	1	2	1	4	1	1	4
VERSIONS 7, 8 AND 9										
STAGE 1	1	2	0	3	2	1	0	3	1	2
	4	2	3	4	0	1	2	2	1	1
STAGE 2	2	3	3	4	2	2	2	4	0	2
	1	4	4	1	0	0	3	2	1	4
STAGE 3	2	4	4	4	1	0	0	1	2	4
	2	3	4	1	0	2	4	1	3	2

COLOURS			
NUMBER	COLOUR	NUMBER	COLOUR
0	CYAN	3	GREEN
1	YELLOW	4	BLUE
2	PURPLE		

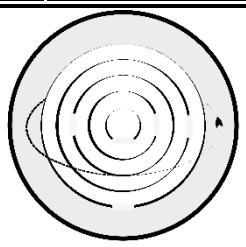
PROPULSION

ARIADNE

ID	17

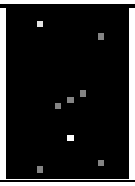
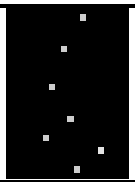
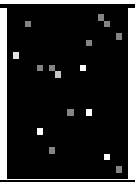
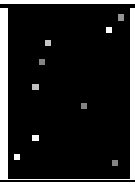
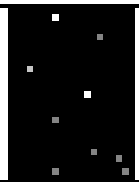
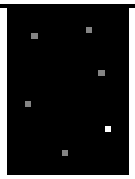
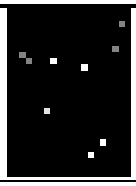
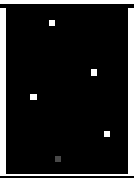
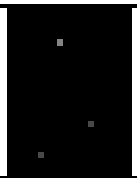
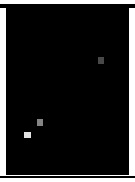
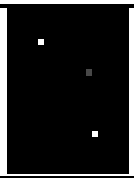
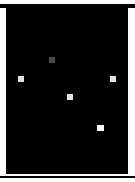
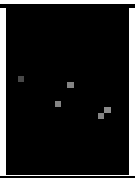
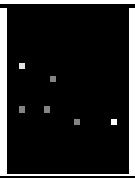
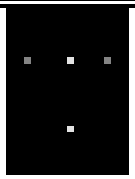
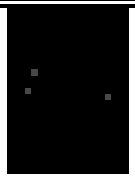
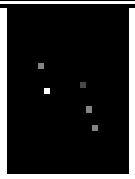
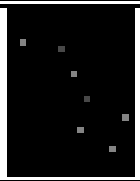
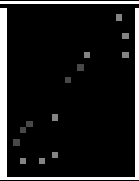
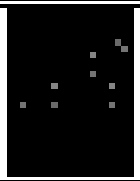
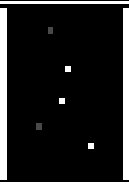


ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	STAGE 3
70	
65	
60	
55	
50	
45	
40	
35	
30	STAGE 2
25	
20	
15	
10	
5	
0	LIFTOFF



LAUNCH INSTRUCTIONS

Ariadne is a three stage rocket with two side boosters. We have created software that changes commands from the rocket into star constellations to make the control process easier. Depending on the choices of constellations presented, enter the correct answer included in the below table.

CONSTELLATIONS							
PICTURE							
NAME	OR	LB	HE	EA	HM	CH	GO
PICTURE							
NAME	CE	OC	PY	SE	AN	CM	NO
PICTURE							
NAME	TA	CI	LY	UR	SC	LE	CA

CHOICE	DO	CHOICE	DO	CHOICE	DO
OR, LB, HE, EA	HE	HE, LB, TA, LY	HE	PY, LB, CE, EA	CE
LY, CH, AN, EA	EA	LY, GO, HE, SC	SC	TA, SE, LY, EA	EA
OC, GO, HE,SC	OC	CH, LB, OC, CH	OC	OR, UR, CI, HM	CI
LE, PY, HE, CI	CA	SE, PY, HE, NO	HE	LE, LB, HE, EA	LE
CH, LB, OC, CM	LB	OC, UR, HM, CH	CH	PY, UR, CH,CI	UR
CH, AN, TA,SC	SC	OR, HM, CH, CE	CE	HE, CE, OC, CA	CA

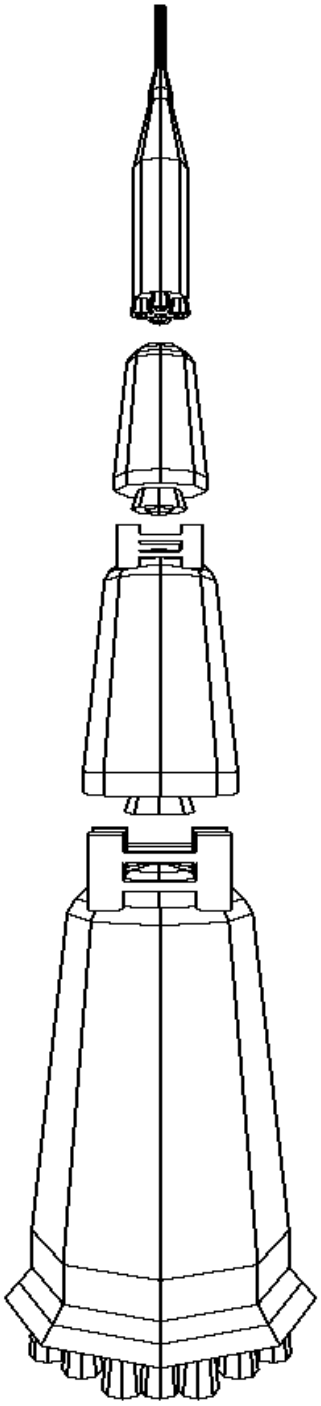
These are the names >

Based on your choice, select this >

PROPULSION

SPIELMANN

ID	18



ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	
70	STAGE 4
65	
60	
55	
50	
45	STAGE 3
40	
35	
30	
25	
20	STAGE 2
15	
10	
5	
0	LIFTOFF

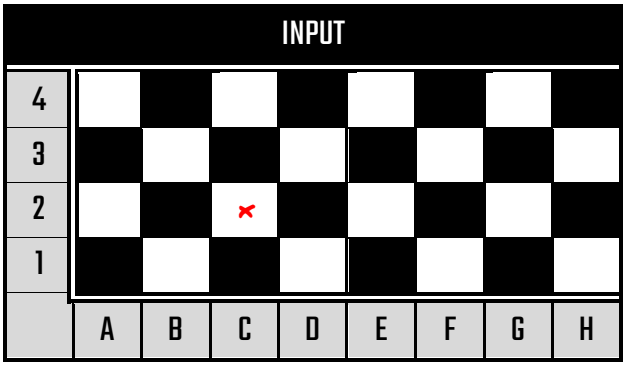
SPIELMANN

LAUNCH INSTRUCTIONS

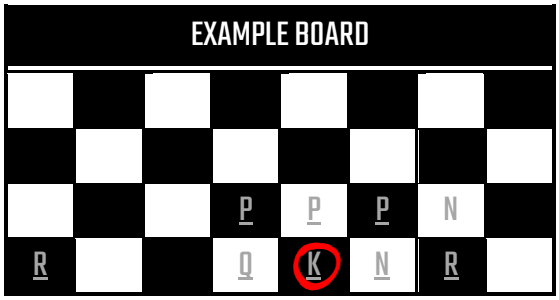
Spielmann is a four stage rocket. We have created an easy to understand chess interface for the control.

You need to save your king because he is in check. The move will determine what you need to enter.

Your pieces are underlined. Complete this before the rocket reaches space!



e.g. X is C2



= G1G2

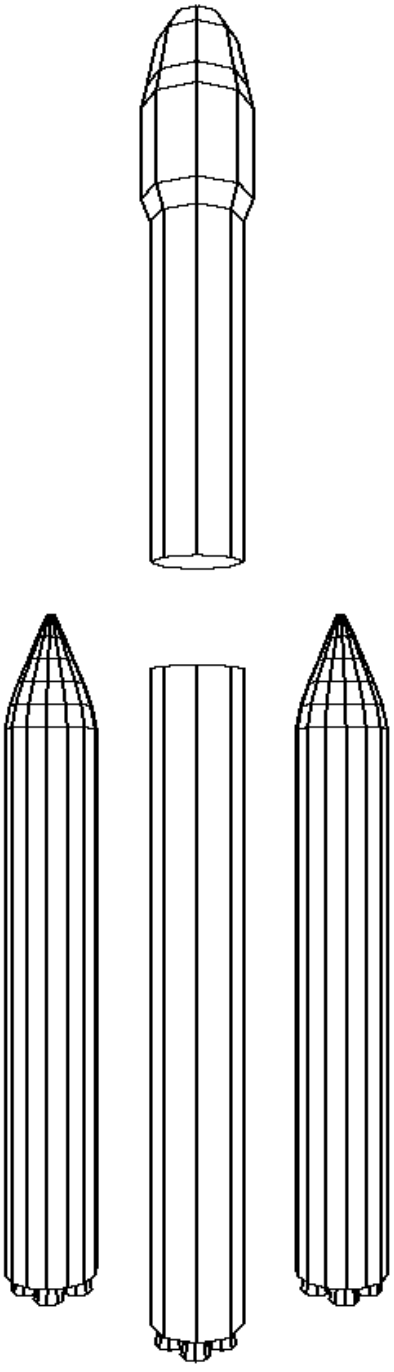
Rook takes the knight to protect the King

PIECE	LETTER	PIECE	LETTER
PAWN	P	BISHOP	B
KNIGHT	N	KING	K
ROOK	R	QUEEN	Q

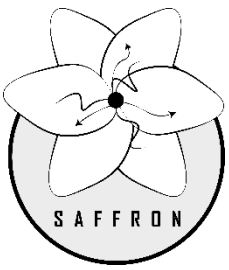
PROPULSION

SAFFRON

ID	19



ALT %	DESCRIPTION
100	ALTITUDE GOAL
95	
90	
85	
80	
75	
70	STAGE 3
65	
60	
55	
50	
45	
40	
35	
30	STAGE 2
25	
20	
15	
10	
5	
0	LIFTOFF



LAUNCH INSTRUCTIONS

The Saffron is a three stage rocket with two side boosters. Gram for gram, the Saffron is worth more than gold. The command interface utilises the common calculator, with equations coming in that need to be 'solved' by inputting the appropriate formula as per the below table.

New equation every stage.

7	8	9	SQ	%	C	AC
4	5	6	MR	/	X	=
1	2	3	M-	+	-	
0	.	SC	M+			

Deadline is 30 secs!

EQUATION	FORMULA	EQUATION	FORMULA
T	54+87-1	M*g*T	SCCSQ
M*g	6M+M--	M*(dv/dt)	0.0.0.=
0.5*rho*Cd*A*v^2	SQ==AC	da = T - M*g - k*v	%20M-M+
K*v^2	10%C7	M*k(kv/2)	743SCC
F = T - M*g - k*v^2	3SCM+	0.2*r*Cd*A*x	M+=+=71/
F = M*a	.8AC	dm = N*dv / (T - M*g - k*4)	61%3.COM+
T - M*g - kv^2	3=M+C2	F = g - M*2 - k*v^2	SQSCCAC
dt = M*dv / (T - M*g - k*v^2)	3CAC8	X(g+62/n)	C32AC2.0
(M / k)*(dv / [q^2 - v^2])	123132/1	(Mm / k)*(da / [q^2 - v])	SQSC991
q = sqrt([T - M*g] / k)	85X89%	q = sqrt([Ta + N*g] / ka)	2=5MRXSQ
(M / k)*(dv / 0)	//%3.5=	(M / c)*(dve / 1)	MRAC3M+.
T = d(d*M/dt)	+-+-=	T + 53 (M / c)	ACC=42
T - M*g^2 - kv	1CC1SC	F (Ma * 4) / 0	MRAC/X2
F = M*a / (M/dt)	M-M+=-=	Fa (Da * 8) / 20	SQ+5.20

The screen doesn't fully display the equation...

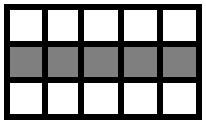
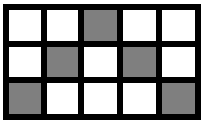
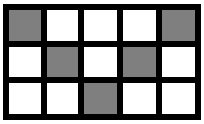
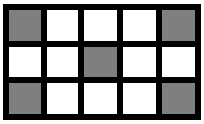
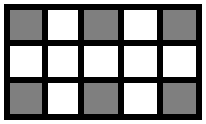
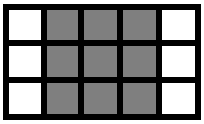
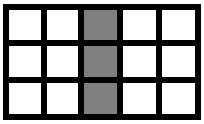
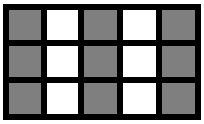
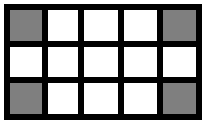
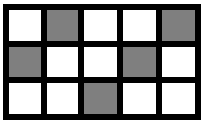
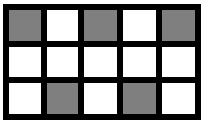
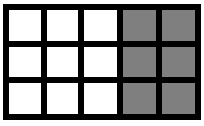
FLIGHT

These panels become active after the rocket has left the pad and is in flight. These panels deactivate once the rocket achieves orbit.

FLIGHT

CONTROL

Any errors with the rocket's internal software system will be reported to the terminal in the form of a pattern. Depending on the pattern, press the correct button. Unfortunately, due to reasons unbeknownst to us, four incorrect responses will yield catastrophic failure of all systems.

PATTERN 1		PATTERN 2		PATTERN 3		PATTERN 4	
							
CONTROL 1	CONTROL 2	CONTROL 1	CONTROL 2	CONTROL 1	CONTROL 2	CONTROL 1	CONTROL 2
3	4	1	2	1	2	4	2
PATTERN 5		**PATTERN 6**		**PATTERN 7**		**PATTERN 8**	
							
CONTROL 1	CONTROL 2	CONTROL 1	CONTROL 2	CONTROL 1	CONTROL 2	CONTROL 1	CONTROL 2
2	1	3	4	4	2	2	4
PATTERN 9		**PATTERN 10**		**PATTERN 11**		**PATTERN 12**	
							
CONTROL 1	CONTROL 2	CONTROL 1	CONTROL 2	CONTROL 1	CONTROL 2	CONTROL 1	CONTROL 2
4	1	1	3	1	3	2	1

FLIGHT

TELEPHONE

Sometimes you need to communicate with different control centers from different locations in order for the rocket to fly safely. Respond using the numbers below depending on which message is received.

INPUT	RUSSIAN	INPUT	RUSSIAN
1	Планета Солнце Меркурий Венера данные	6	Получать Аппарат Спускаться Модуль
2	Юпитер Сатурн Уран Нептун науки	7	Земля Марс Передавать Метеорит
3	Космос Вселенная Комета Астероид	8	Предел Вращается Спутник Модуль
4	Орбита Телескоп Астронавт Созвездие	9	Галактика вниз Луна Звезда
5	Но Людей Станция Передавать		

FLIGHT

UPDATE

The terminal assembly must be updated occasionally while the rocket is in flight. Depending on the command presented, enter the appropriate value.

COMMAND	ENTER	COMMAND	ENTER	COMMAND	ENTER
FINE	22	PROPULSION	9	BETA	7
UPPER	1	SPACE	4	ALMA	1
ALPHA	2	POWER	14	AUTHORISED	5
INTERNALS	7	LOWER	18	THRUST	15
BOUNCE	15	ENGINE	19	SEVEN	12
FLIGHT	20	RED	0	ERROR	20
SITE	19	NINE	8	BURN	21
ALTITUDE	9	MEDIUM	18	ORBIT	5
CHILL	0	CONE	15	SKY	14
PRESSURE	16	DIRECTION	2	PAYLOAD	7
STAGE	18	AIR	1	SIGHT	8
NITROGEN	17	OXYGEN	4	MAXQ	14

FLIGHT

MAX Q

When the altitude of the rocket reaches 20% of its altitude goal, the vehicle will be experiencing maximum pressure (MAXQ). All our rockets have been built to withstand this, but pressing the MAXQ button will ensure the rocket is prepared. At MAXQ, press the button.

useful graphic >

ORBIT

These panels become active once the rocket reaches orbit, you have a deadline to complete these before the payload detaches from the rocket.

Real secure...

ORBIT

LOGIN

Sometimes you need to login before you can deploy the payload. The terminal doesn't allow passwords to be changed, so below we have included everyone's password*, in case anyone forgets.

*Please find your name in the below table and do not look at other staff member's passwords, for security reasons.

only press enter after you've inputted the pw!

ID INFO	PASSWORD	ID INFO	PASSWORD
BARRY S.	ROCKETS1	LEWIS A.	MOONBASE2
JUSTIN L.	SPACE55	LEWIS W.	APOLLO4
AMELIA J.	72DOGGO	MARTIN C.	TERMINAL4
DION W.	HELLO123	LAURENCE H.	TYSON12
SHANE R.	123123	ALI J.	BLACKHOLES
MADDY H.	LAUNCH5	RYAN J.	SAGAN1
MATT J.	ROCKETMAN	BEV J.	PLANETS5
LEWI H.	CHOCOLATE4	RON Y.	URANUS4
LUCY J.	MARS17	BARB Y.	1ORBIT
MANTIN W.	1ONE	TOR B.	PULSARRRR

Works like texting. Get the letter then press >> to input that letter.

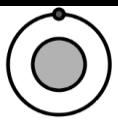
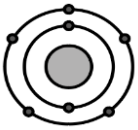
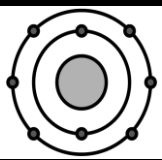
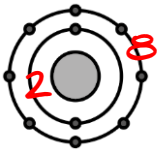
ORBIT

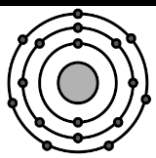
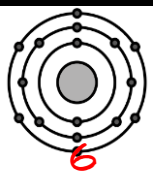
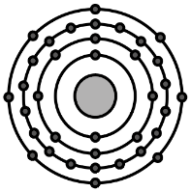
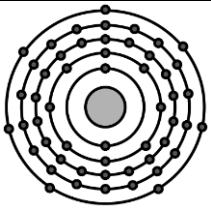
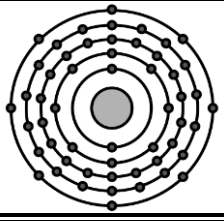
PAYLOAD FUEL

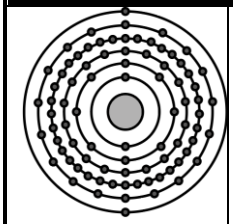
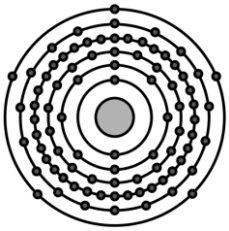
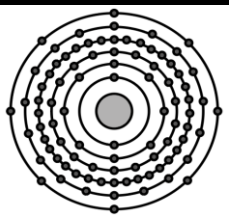
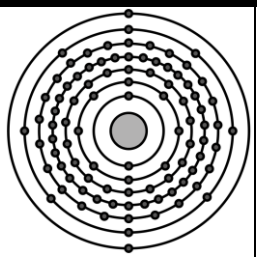
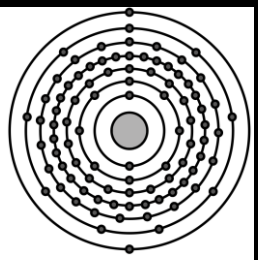
Check appendix 10 to get the symbol.

Occasionally, the payload must have its fuel topped up from the rocket, because of an unexpected leak. First, enter the chemical symbol seen on screen, then the middle value followed by the value associated with the rocket as per the below table.

The atom diagram is on the left with the rotating numbers.

HYDROGEN	HELIUM	NITROGEN	OXYGEN	NEON
				

CHLORINE	SULFUR	KRYPTON	BISMUTH	IODINE
				

MERCURY	XENON	RADON	PLUTONIUM	URANIUM
				

ROCKET ID	FUEL	ROCKET ID	FUEL	ROCKET ID	FUEL	ROCKET ID	FUEL
1	S7	6	Rn2	11	O4	16	O7
2	H1	7	U7	12	H6	17	H4
3	Xe4	8	H4	13	He4	18	S9
4	O8	9	Cl7	14	Pu7	19	O4
5	S4	10	Kr4	15	S2	20	Bi1

This is just nonsensical...

ORBIT

BINARY

Sometimes the binaries underlying the software on the rocket need to be calibrated. You need to match the binary number displayed on the screen with the buttons. You must be careful though because the buttons change which numbers they input depending on the terminal software being used (appendix 6). When the switch is down, that bit is active.

The floppy disc > (appendix 6)

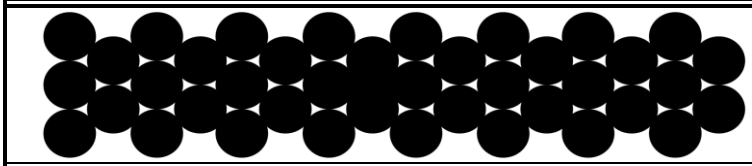
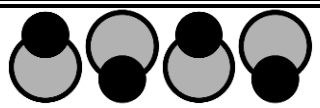
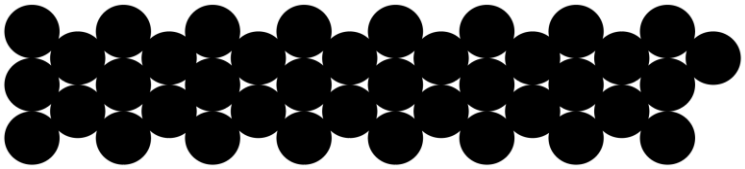
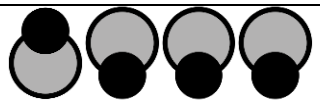
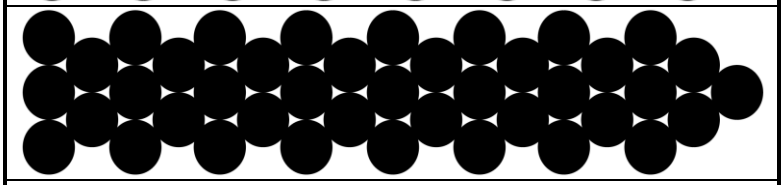
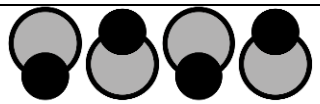
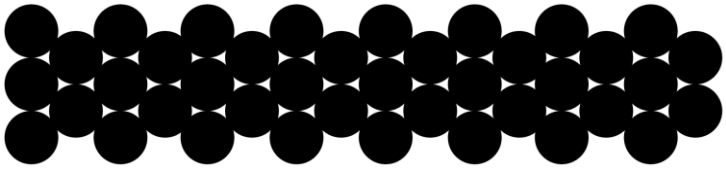
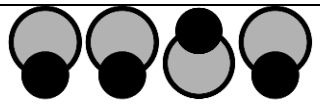
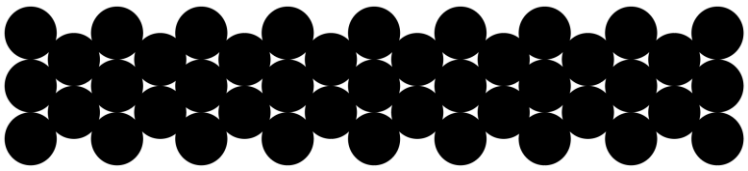
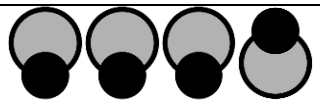
DISC: DDR4, DS01, RAM2			
1	16	8	128
4	32	2	64
DISC: DDR1, HDFOUR, DDRONE			
2	4	64	16
32	8	1	128
DISC: 6FDD, 79KB, SS3			
2	1	128	32
16	64	8	4
DISC: DDR3, ED2, HD44			
4	8	128	64
1	16	32	2

ORBIT

NOISE

Sometimes, noise interferences interfere with the communication between the rocket and Mission Control.

Change the knobs depending on the message on the terminal to reduce the noise.

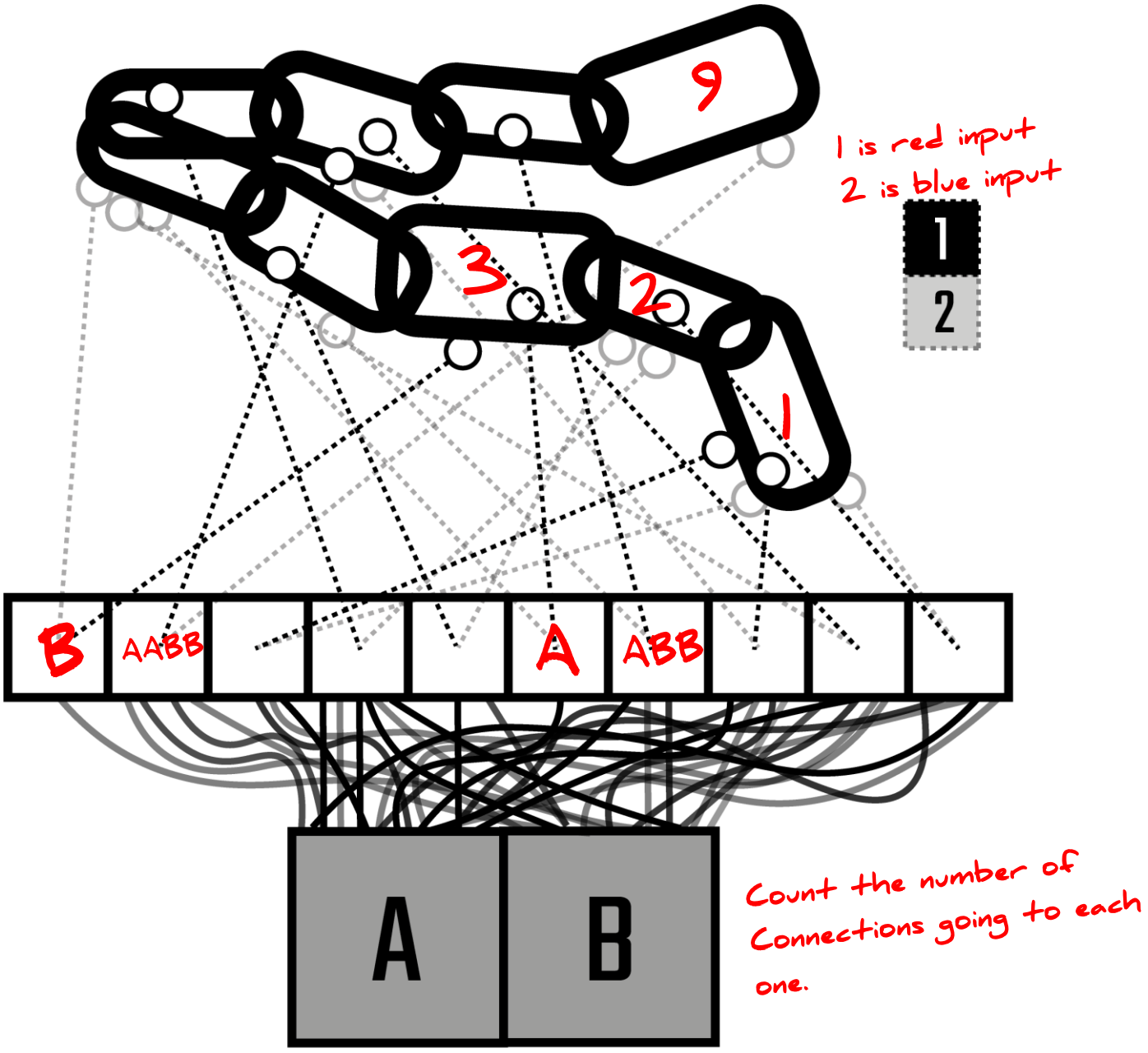
NOISE	SWITCHES
	
	
	
	
	

Pretty self-explanatory

ORBIT

LINK

A link needs to be kept between ground control and the rocket, and sometimes the link values need to be changed in order to keep a strong connection.



ORBIT

PAYLOAD POWER

The payload's power module needs to be calibrated before it reaches its altitude goal where it will need to power on. Input the number below into the terminal. Each time a number is inputted, that button will change values depending on the propulsion type.

FLOPPY ID	CODE	FLOPPY ID	CODE
0	645724512	1	382777492
2	677436534	3	889945142
4	759244872	5	659234452
6	119922837	7	324566557
8	225624987	9	555883498
10	576873899	11	322224458

BUTTON LAYOUT

GAS			HYBRID			NUCLEAR			SOLID			LIQUID		
6	1	8	9	5	6	9	8	3	5	9	7	8	3	9
2	4	7	4	2	1	4	2	7	4	6	8	4	7	1
3	5	9	7	3	8	1	5	6	1	2	3	6	5	2

IMPORTANT

IF THE 'TYPE' IS A MULTIPLE OF 3, THE CODE IS 123456789

i.e. for gas, button 1 becomes 6 after it has been pressed. When pressed a 2nd time, the number goes back to 1. – in this example, the input is 161.

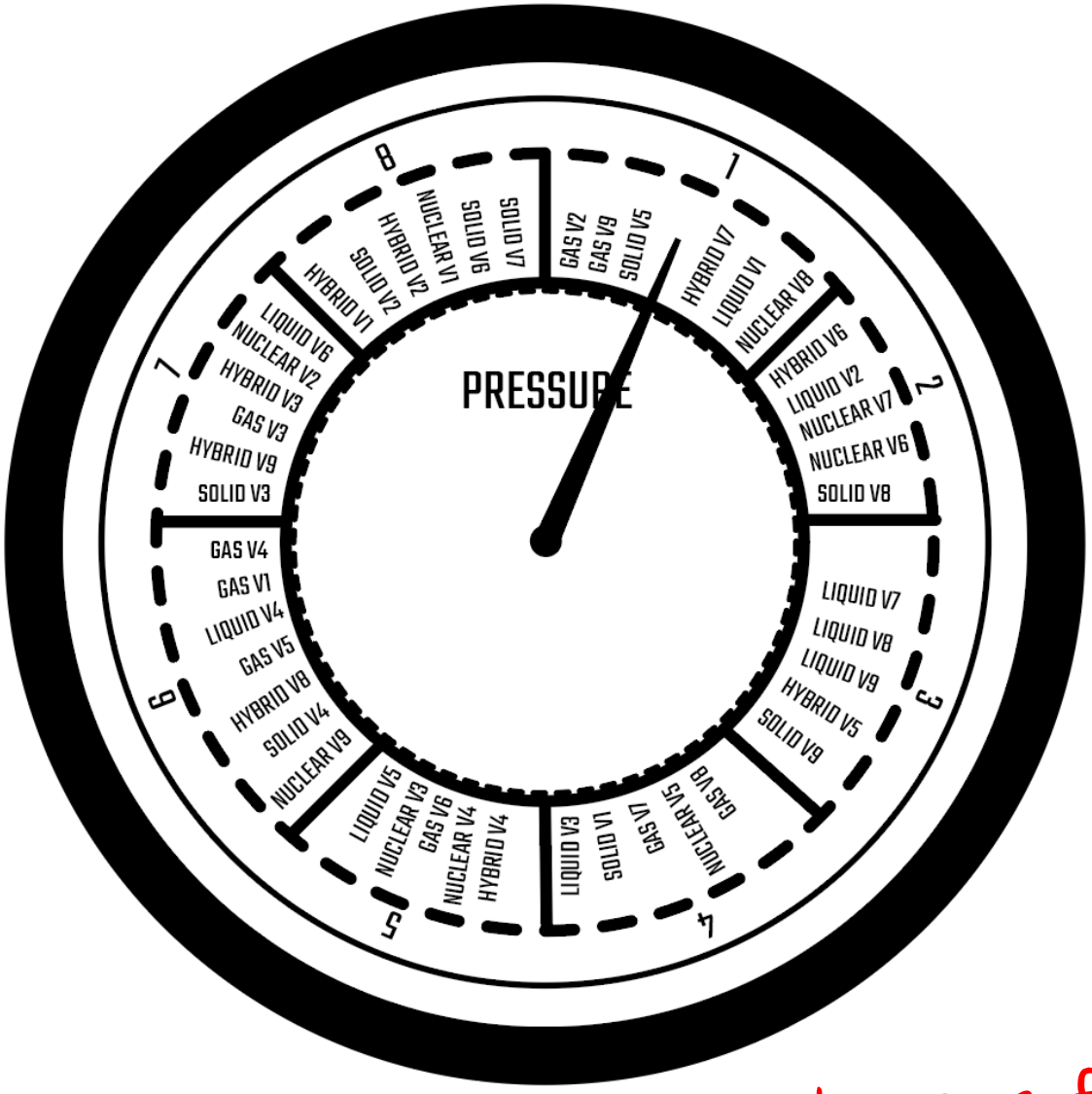
ORBIT

PRESSURE

The forces exerted onto the rocket put pressure on all of the payload systems. However, the pressure system can only be updated once the payload is in space. Change the pressure using the below values by holding down the pressure button for that amount of seconds.

3 tries!

Get rocket version in appendix 17



For rocket type, see propulsion page, find icon (top left) and refer to appendix 16.

ORBIT

PAYLOAD NAVIGATION

Sometimes the navigation system on the payload must be calibrated before it is ejected from the rocket and orbits the Earth. This must be completed before the rocket reaches its altitude goal. Depending on the payload configuration, change the six variables.

^ Gets shown at orbit!

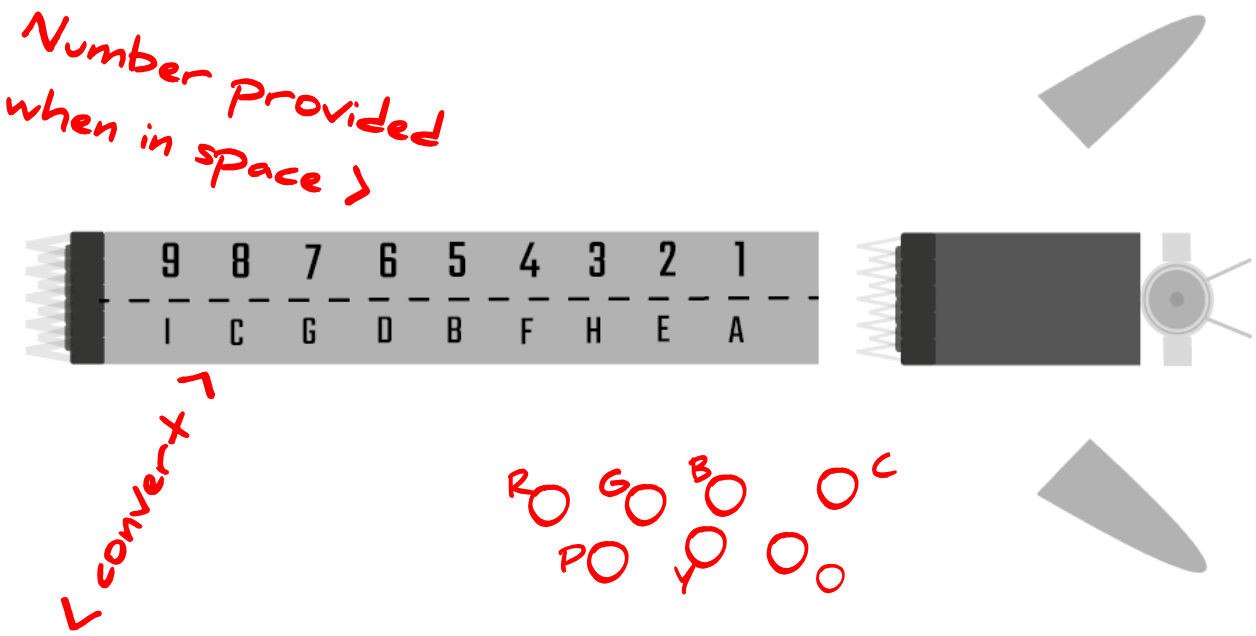
PAYLOAD CONFIG	PAYLOAD ATTACHMENT MODEL					
	1	2	3	4	5	6
A67M	0277447	8253274	5802732	2649674	7324584	0277447
B44B	9602732	7442642	3826427	5896327	8250274	0277774
S2TO	3224938	0777297	9658724	0747232	3240277	3826427
S55S	2645872	0277774	2407249	2492644	8254722	0782532
PNTY	0777744	0702707	0273297	0270272	9632264	2640742
G6GS	8250274	3240277	8250774	2640742	2642494	2649707
2E6M	8257496	5802724	7402732	0273274	3224942	7458382
NMME	0702732	4444274	3807458	9774472	7222642	2497074
UWUW	2642497	7449674	9624997	2244774	0777724	5858249
PE3T	9632264	2648252	2249322	2647432	8257496	7402732

Appendix 18 for Payload attachment model

ORBIT

SEPARATION

The separation mechanics need to be primed for when the payload separates from the rocket. Depending on the rocket propulsion type and version, input the following values using the seven knobs.



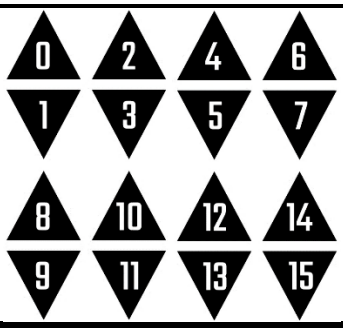
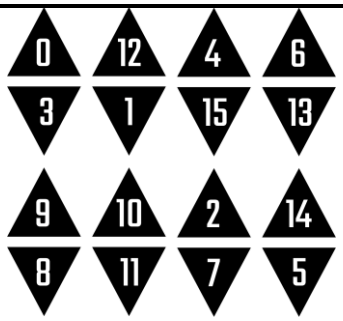
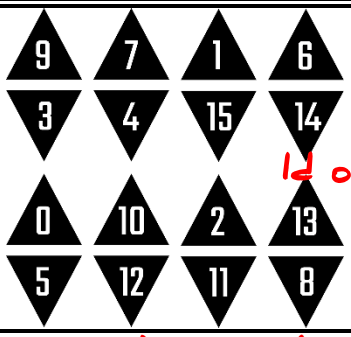
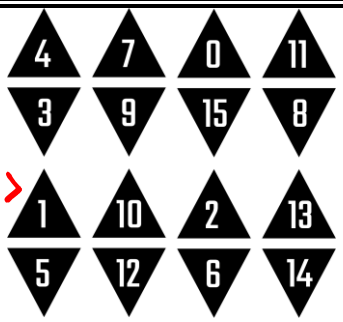
LETTER	LIQUID, SOLID AND HYBRID PROPULSION							NUCLEAR AND GAS PROPULSION						
	R	G	B	C	P	Y	O	R	G	B	C	P	Y	O
A	5	7	7	0	17	0	18	3	2	21	11	18	14	4
B	8	18	9	4	21	7	21	8	17	12	9	1	8	8
C	11	5	10	12	4	20	1	18	21	9	4	3	15	4
D	2	14	11	9	17	12	2	15	19	8	2	4	7	9
E	15	22	7	17	7	6	17	20	17	4	17	18	8	0
F	22	16	9	23	4	8	19	22	6	17	20	1	4	15
G	20	8	0	9	8	18	22	1	7	21	17	5	17	18
H	9	9	4	0	2	9	16	6	4	5	19	8	13	13
I	2	10	17	10	17	10	14	7	21	12	14	21	12	9

ORBIT

PAYLOAD SOFTWARE

Sometimes the payload software must be installed. We can't do this until after liftoff for reasons. Input the combination depending on the payload model. You will have to hold the button down for a specific time. This needs to be done for each command to get the final code.

The input resets after 10 seconds of inactivity!

G	X
	
Y	**Z**
	

Id of the button >

Appendix 18 (payload attachment)

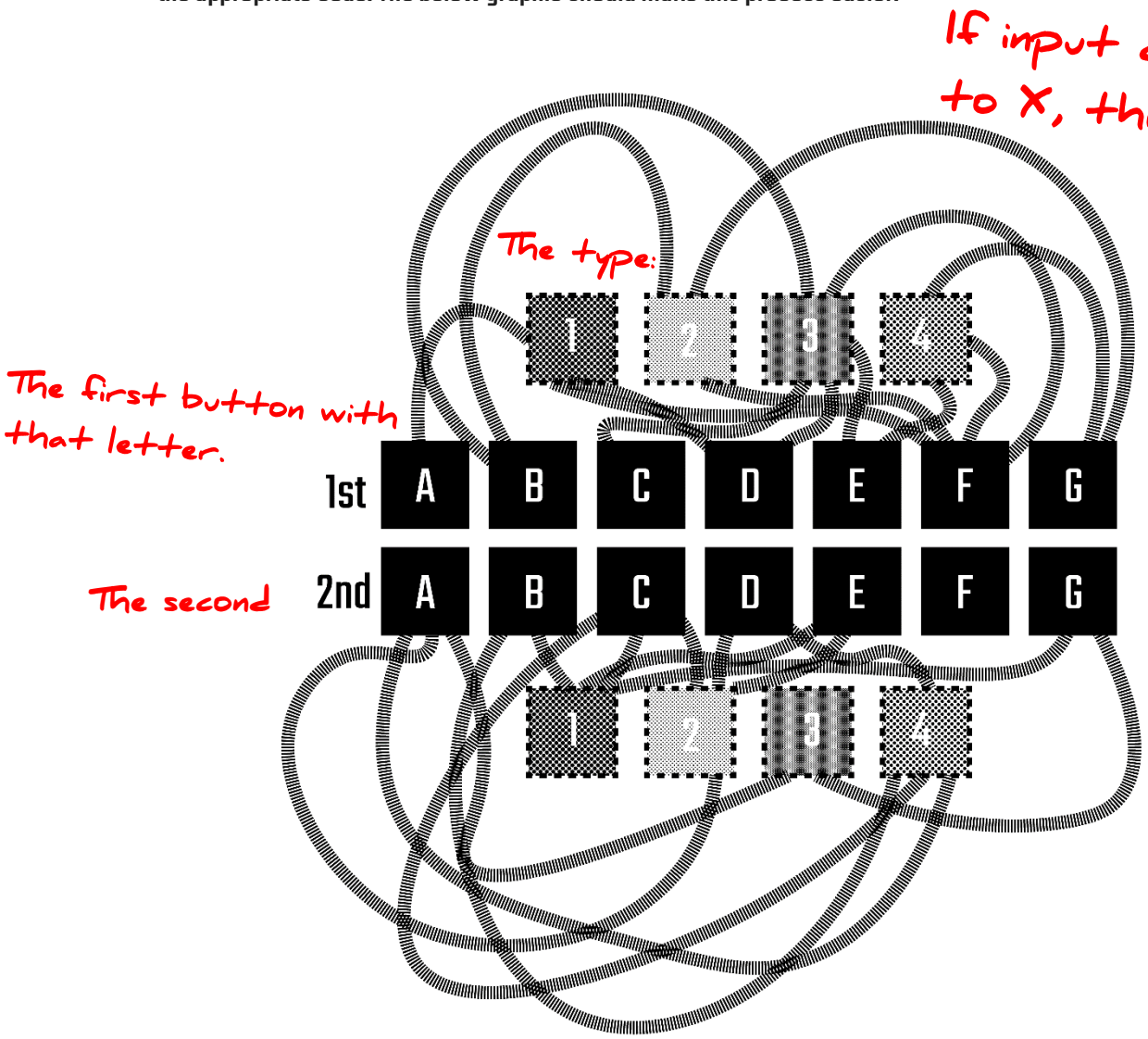
PAYLOAD ATTACHMENT	COMMAND 1		COMMAND 2		COMMAND 3		COMMAND 4	
	ID	HOLD	ID	HOLD	ID	HOLD	ID	HOLD
1	3	4	4	2	15	4	14	4
2	11	5	13	1	4	3	13	2
3	5	2	0	5	11	4	4	2
4	3	3	13	4	7	5	9	3
5	13	5	0	1	10	4	6	2
6	8	4	1	3	15	2	4	4

e.g. for 6 ^ hold button 8 for 4 seconds, button 1 for 3 secs, button 15 for 2 secs and button 4 for 4 sec.

ORBIT

PAYLOAD CALIBRATION

Sometimes the payload needs calibration, due to distortion during the flight. Depending on the payload, input the appropriate code. The below graphic should make this process easier.



Appendix 15 >

PAYLOAD	CODE	PAYLOAD	CODE	PAYLOAD	CODE
1 & 4	ABDEFGG	5 & 11	GFAABEE	7 & 10	CBDGEGG
2 & 3	BDDEFBA	6 & 9	GFGGEAC	8 & 12	AFDECBA

APPENDICES

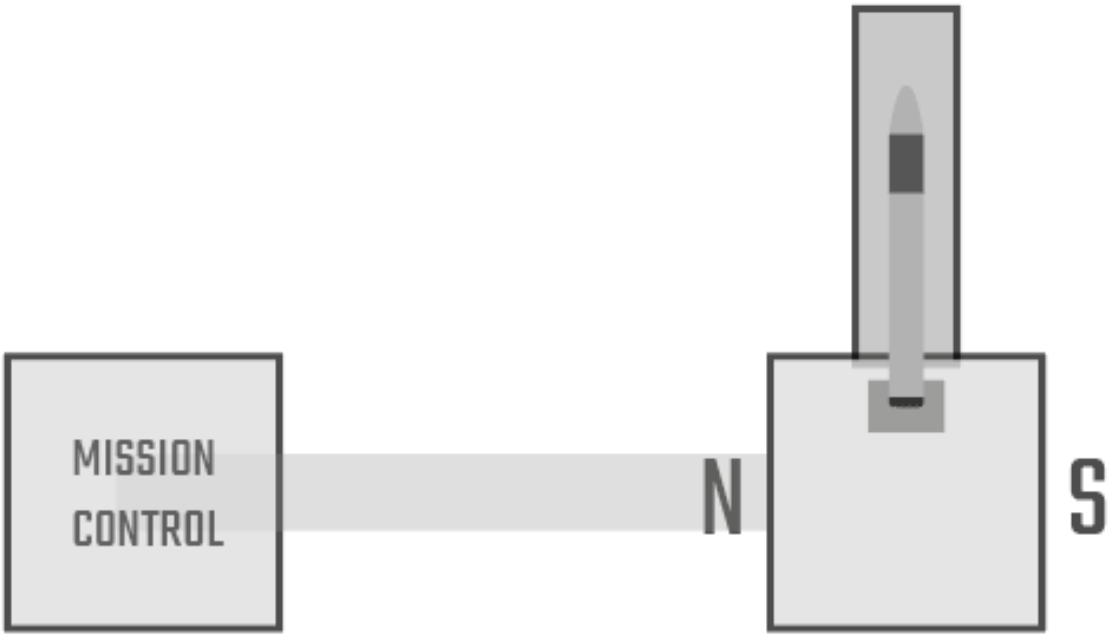
APPENDIX 1

STICKY

LSP	#	LSP	#	LSP	#	LSP	#	LSP	#	LSP	#	LSP	#
A1	0	A9	38	B7	40	C5	22	D3	48	E1	15	E9	35
A2	3	A10	23	B8	7	C6	4	D4	49	E2	1	E10	16
A3	13	B1	19	B9	5	C7	8	D5	6	E3	17		
A4	9	B2	33	B10	24	C8	2	D6	12	E4	34		
A5	20	B3	37	C1	10	C9	25	D7	21	E5	43		
A6	26	B4	46	C2	31	C10	44	D8	18	E6	45		
A7	36	B5	11	C3	30	D1	32	D9	27	E7	39		
A8	42	B6	28	C4	14	D2	41	D10	29	E8	47		

APPENDIX 2

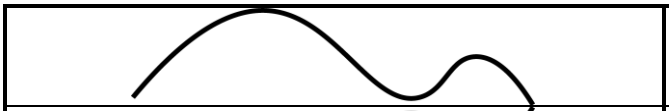
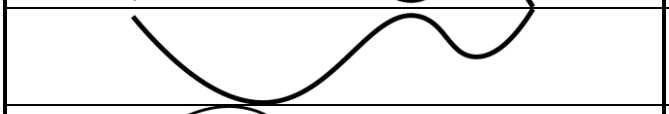
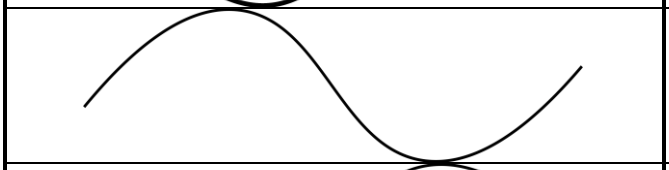
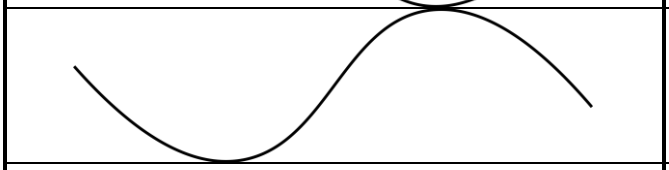
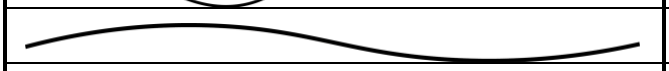
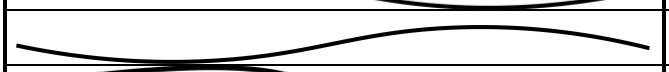
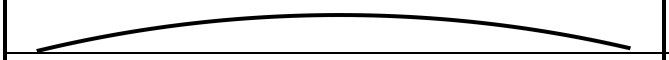
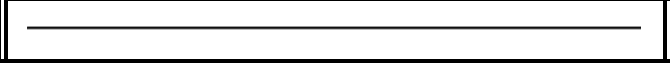
SATELLITE DISHES



DIRECTION	ID
WEST	0
NORTH	1
SOUTH	2
EAST	3

APPENDIX 3

ORBITAL PATHS

ID	ORBITAL PATH	GAS	HYBRID	NUCLEAR	SOLID	LIQUID
0		2	8	8	2	7
1		4	4	9	7	4
2		8	6	8	2	9
3		6	5	2	1	1
4		2	4	5	1	1
5		3	7	5	9	4
6		6	5	4	6	5
7		4	4	8	9	7
8		1	4	2	8	9
9		6	3	4	1	9
10		5	6	2	3	1
11		1	7	5	3	8
12		3	2	7	8	5

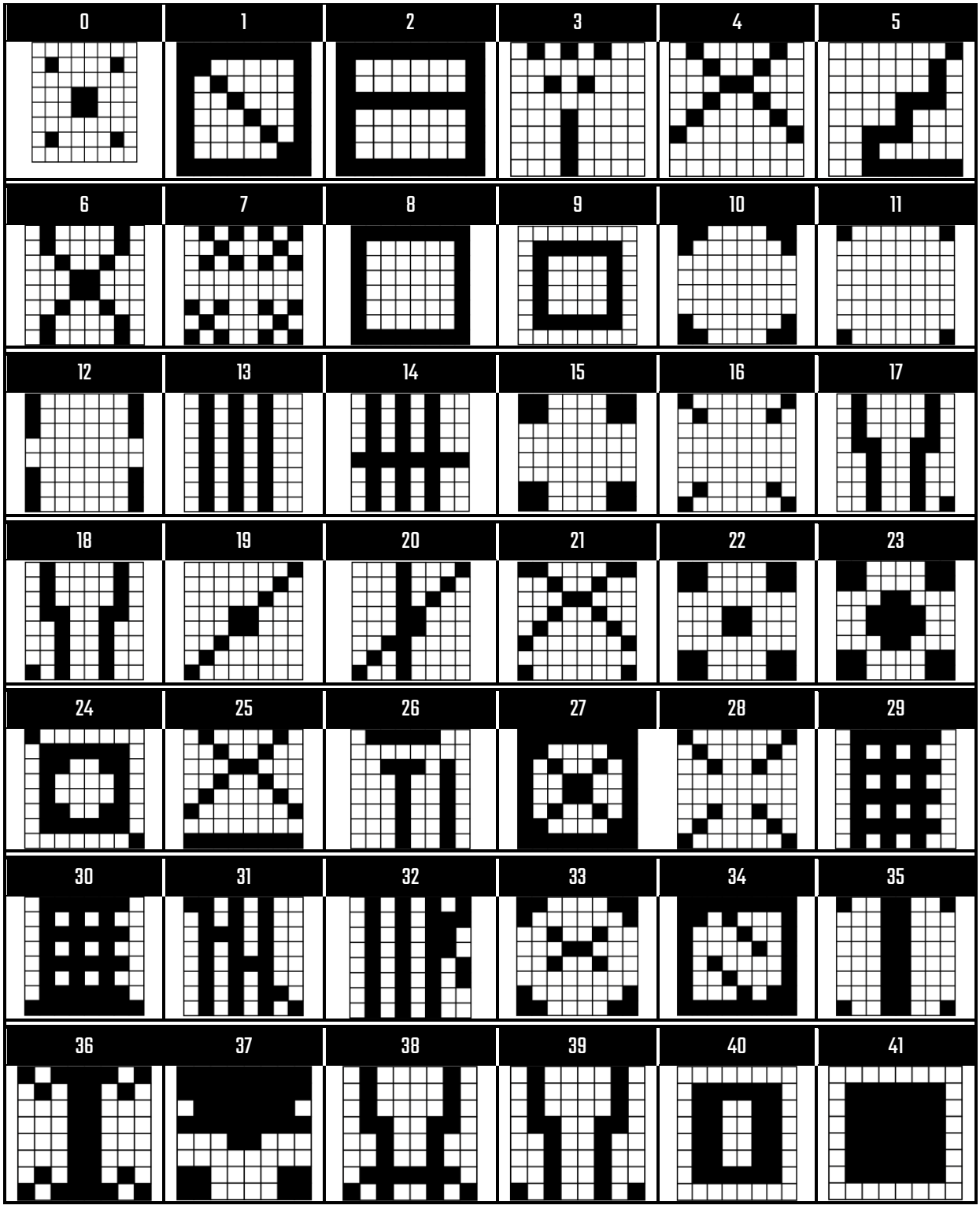
APPENDIX 4

FUEL TANKS

COLOUR	WEIGHT
RED	4
GREEN	2
BLUE	1
ORANGE	3

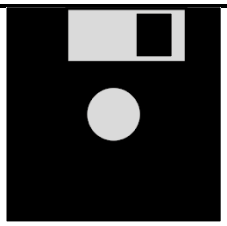
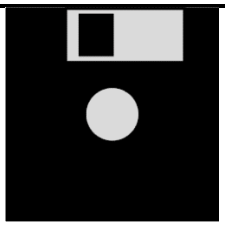
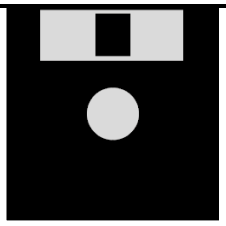
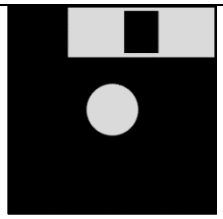
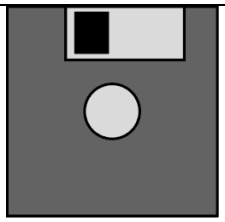
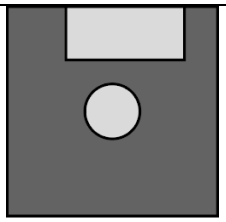
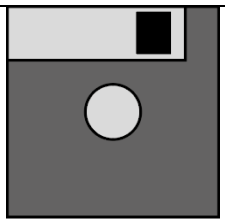
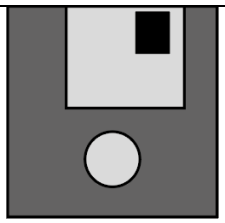
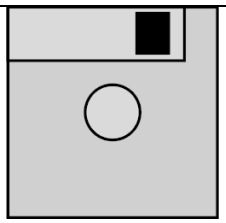
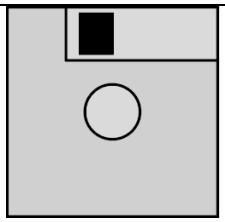
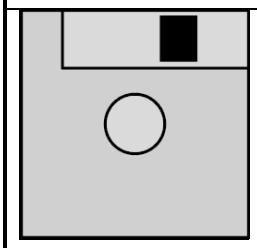
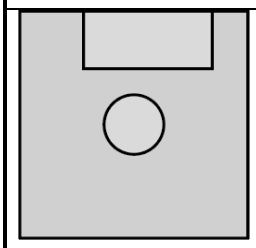
APPENDIX 5

CIRCUITS



APPENDIX 6

COMPUTER OPERATING SYSTEM

FLOPPY DISC	OPERATING SYSTEM	FLOPPY DISC	OPERATING SYSTEM	FLOPPY DISC	OPERATING SYSTEM
	DDR4 ID 0		DS01 ID 1		RAM2 2
	DDR1 3		HDFOUR etc..		DDRONE
	6FDD		79KB		SS3
	DDR3		ED2		HD44

APPENDIX 7

DATES

ID	DATE	ID	DATE	ID	DATE	ID	DATE
1	04	13	29	25	21	37	13
2	11	14	05	26	28	38	20
3	18	15	12	27	05	39	27
4	25	16	19	28	12	40	04
5	01	17	26	29	19	41	11
6	08	18	03	30	26	42	18
7	15	19	10	31	02	43	25
8	22	20	17	32	09	44	01
9	01	21	24	33	16	45	08
10	08	22	31	34	23	46	15
11	15	23	07	35	30	47	22
12	22	24	14	36	06	48	29

Launches start in January and occur every Saturday. December is a launch free month and no rockets will be launched during this month. The above list is in chronological order and includes the day in which a launch occurs.

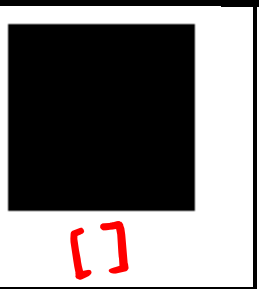
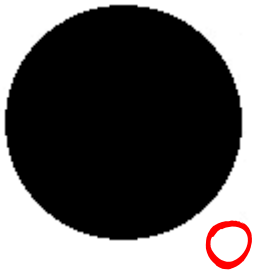
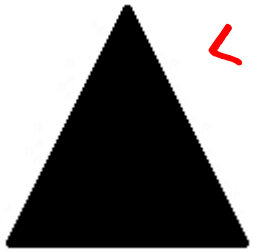
APPENDIX 8

MAGNETIC FIELD

ID	LEFT					RIGHT				
1	RED	BLUE	RED	BLUE	RED	RED	BLUE	RED	BLUE	RED
2	RED	BLUE	BLUE	BLUE	BLUE	RED	BLUE	RED	BLUE	RED
3	RED	BLUE	GREEN	BLUE	GREEN	GREEN	ORANGE	GREEN	ORANGE	GREEN
4	ORANGE	GREEN	ORANGE	GREEN	ORANGE	RED	BLUE	GREEN	RED	GREEN
5	RED	BLUE	RED	BLUE	RED	GREEN	RED	GREEN	RED	GREEN
6	RED	GREEN	GREEN	GREEN	BLUE	RED	BLUE	GREEN	RED	GREEN
7	RED	ORANGE	RED	ORANGE	RED	RED	ORANGE	RED	ORANGE	GREEN
8	RED	BLUE	RED	BLUE	RED	GREEN	BLUE	GREEN	BLUE	GREEN
9	BLUE	BLUE	GREEN	BLUE	BLUE	RED	ORANGE	RED	ORANGE	RED
10	RED	BLUE	RED	ORANGE	RED	RED	BLUE	RED	ORANGE	RED
11	GREEN	BLUE	GREEN	BLUE	GREEN	GREEN	BLUE	GREEN	BLUE	GREEN
12	ORANGE	GREEN	ORANGE	GREEN	ORANGE	ORANGE	GREEN	ORANGE	GREEN	ORANGE
13	RED	GREEN	ORANGE	GREEN	RED	ORANGE	GREEN	RED	GREEN	RED

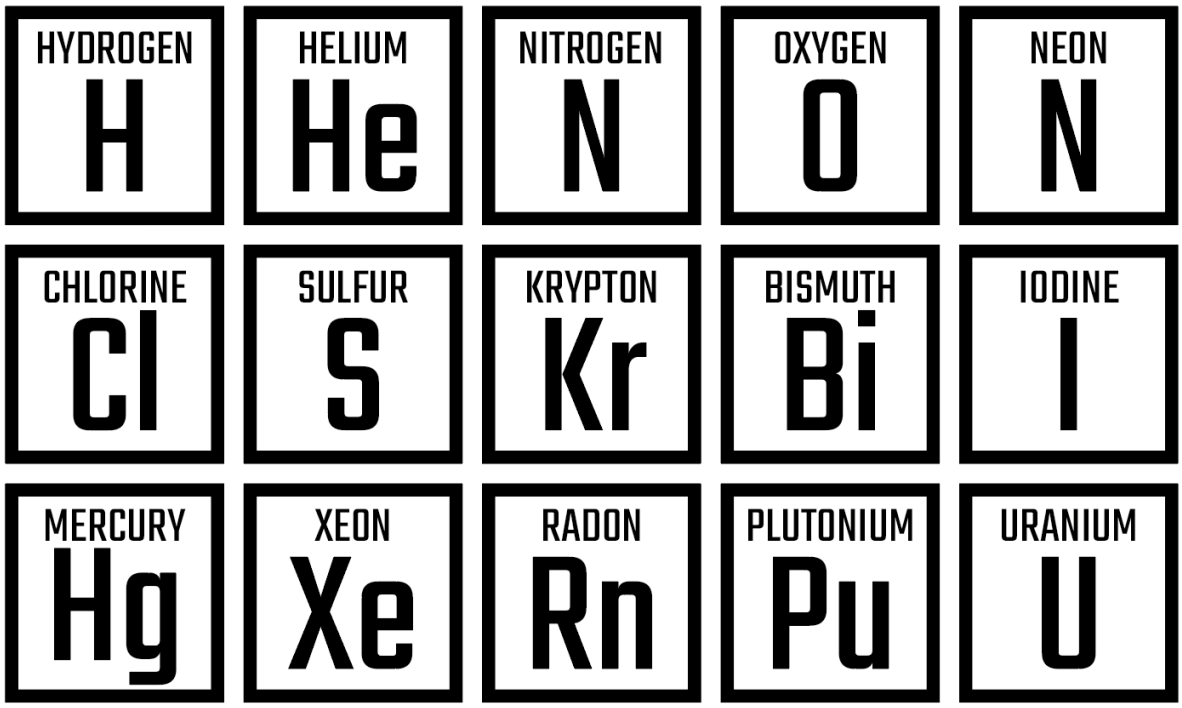
APPENDIX 9

AXIS

SHAPES			
			
20	40	100	200

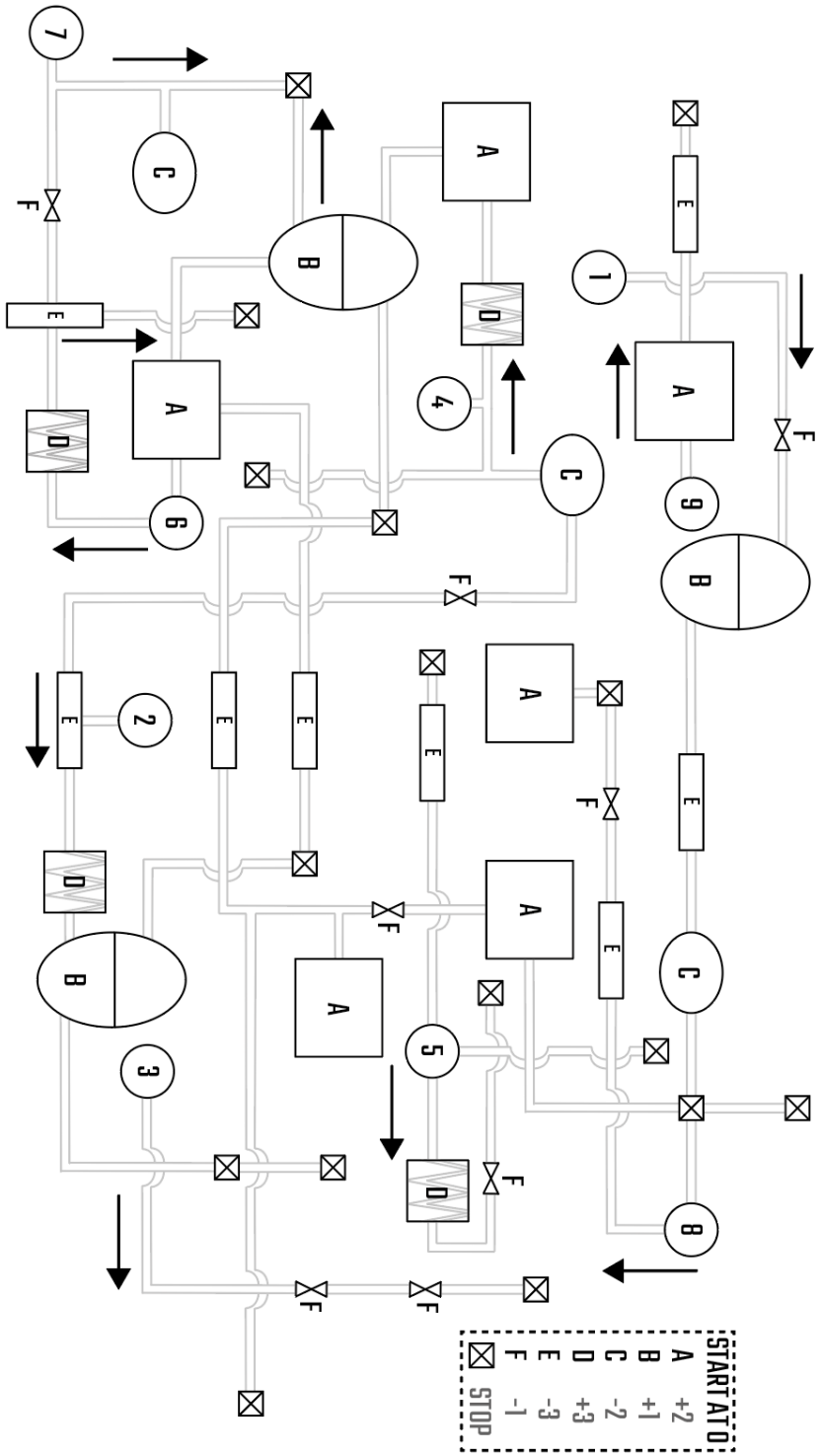
APPENDIX 10

PERIODIC TABLE



APPENDIX 11

ENGINE CRYO SYSTEMS



APPENDIX 12

HYDRAULICS CHAMBER

CONFIG	DESCRIPTION	STRING
1	1 black pipe and 1 red pipe. Water colour red. 12 grates.	D
2	1 black pipe and 1 red pipe. Water colour blue. 11 grates.	H
3	1 blue pipe 1 black pipe. 2 rods. Mixer clockwise.	A
4	1 blue pipe 1 black pipe. 2 rods. Mixer counter-clockwise.	F
5	Gas 1 above 3. Gas 2 below 3. 1 rod. No grids.	C
6	Gas 1 above 3. Gas 2 below 3. 2 rods. No grids.	B
7	4 grates. 1 rod. Water colour blue. Mixer clockwise.	G
8	4 grates. 1 rod. Water colour blue. Mixer counter-clockwise.	I
9	20 grates.	E

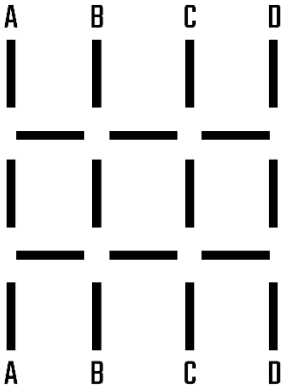
APPENDIX 13

NEEDLE CONFIGURATIONS

O	1	31	11	13	34	0	33	5	12	2	34	31	26	5	23
N	2	0	2	32	14	33	38	15	4	16	0	17	24	25	18
M	7	9	9	23	20	22	27	28	0	21	11	6	6	18	19
L	33	8	16	14	1	32	6	31	31	21	6	3	17	23	8
K	7	35	19	31	30	8	32	35	20	16	4	22	24	14	0
J	4	30	17	37	9	29	36	12	0	8	29	33	32	38	0
I	10	0	17	22	7	30	28	0	25	27	4	5	18	9	38
H	6	8	5	14	26	0	7	0	13	0	35	7	10	22	7
G	29	29	37	4	28	36	5	1	21	0	34	3	4	5	36
F	3	15	16	10	1	6	5	13	16	9	32	20	10	8	37
E	0	5	2	18	3	4	12	2	2	2	36	27	0	6	19
D	0	4	15	38	24	14	22	19	28	35	34	17	38	11	24
C	28	0	3	11	12	25	13	0	2	37	3	8	25	19	33
B	9	19	8	12	36	11	35	24	38	33	34	9	29	7	35
A	21	27	20	26	37	0	3	25	10	32	31	1	30	27	12
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

APPENDIX 14

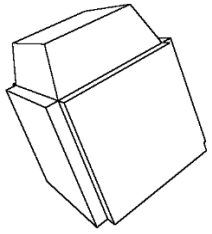
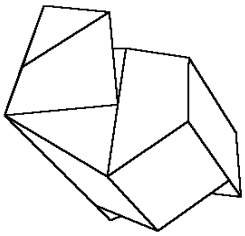
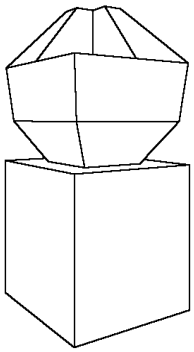
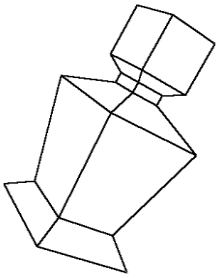
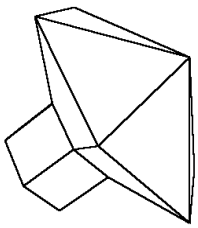
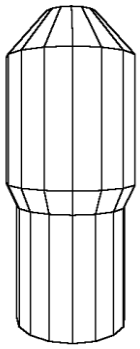
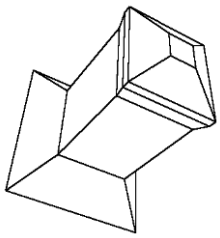
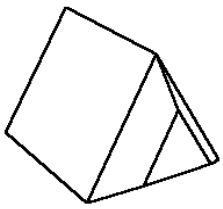
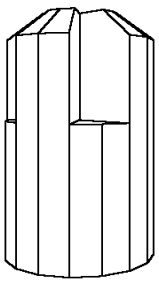
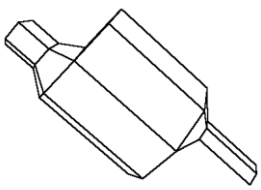
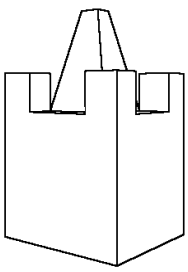
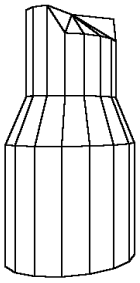
CHILL CONFIG



CONFIG	CONVERT
AA	O
AB	M
AC	G
AD	E
BA	D
BB	P
BC	F
BD	L
CA	I
CB	C
CC	K
CD	B
DA	A
DB	J
DC	N
DD	H

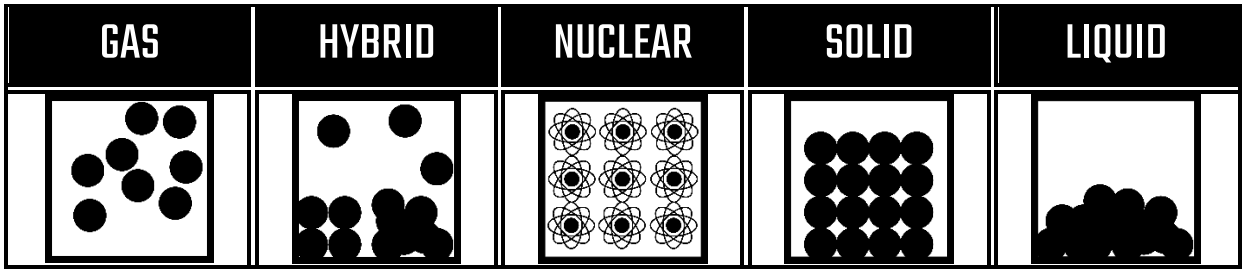
APPENDIX 15

PAYLOADS

PAYLOAD	ID	PAYLOAD	ID	PAYLOAD	ID
	1		5		9
	2		6		10
	3		7		11
	4		8		12

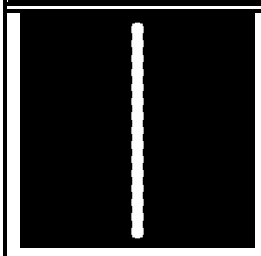
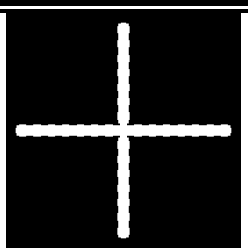
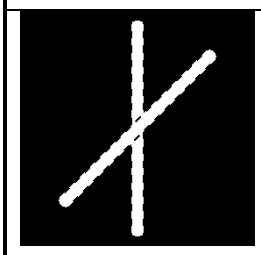
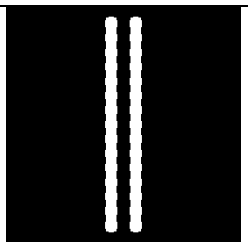
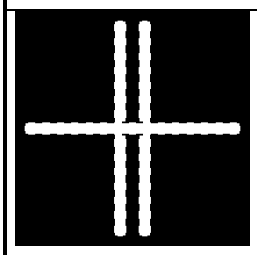
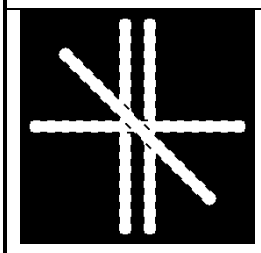
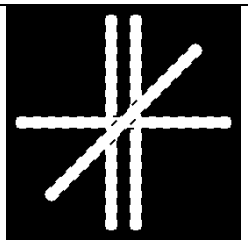
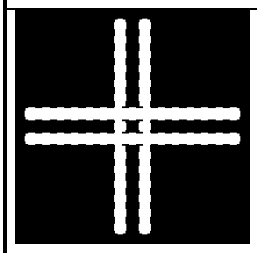
APPENDIX 16

ROCKET PROPULSION TYPES



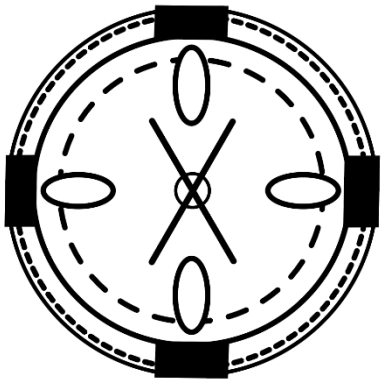
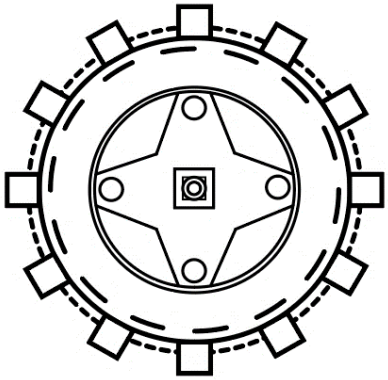
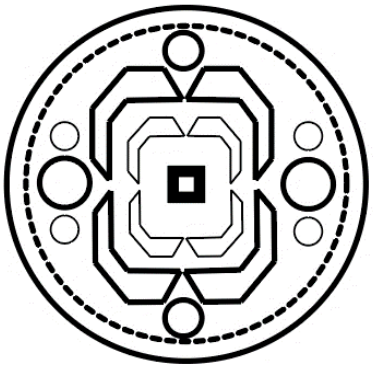
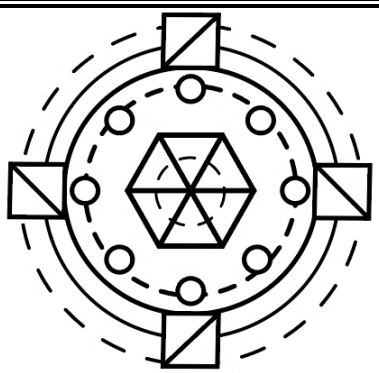
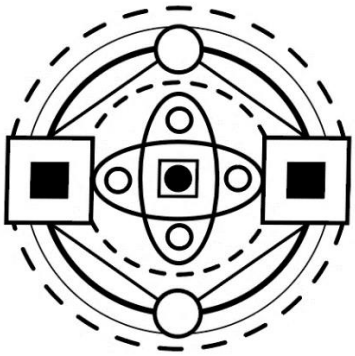
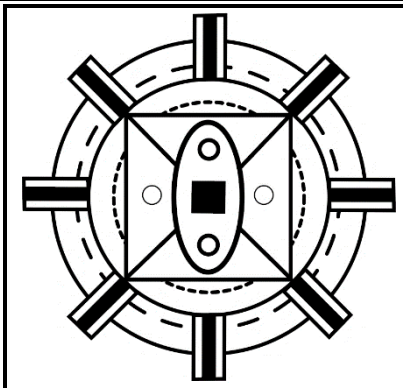
APPENDIX 17

ROCKET VERSION

CONFIG	VERSION	CONFIG	VERSION	CONFIG	VERSION
	1		2		3
	4		5		6
	7		8		9

APPENDIX 18

PAYLOAD ATTACHMENTS

MECHANISM 1	MECHANISM 2	MECHANISM 3
		
MECHANISM 4	**MECHANISM 5**	**MECHANISM 6**
		

MISSIONS

SUMMARY

Below is a summary table for all the steps that need to be taken in order for the mission to be a success.

Please follow each step precisely.

STEP 1: PREPARE
LOOK AT THE MISSION TABLE (NEXT SECTION) AND PREPARE YOURSELF, TAKING NOTE OF THE PANELS.
STEP 2: PRELAUNCH AND DEBUG
COMPLETE ALL THE PRELAUNCH PANELS, WHILST KEEPING AN EYE ON THE DEBUG PANELS.
STEP 3: LAUNCH ROCKET
PRESS THE LAUNCH BUTTON.
STEP 4: PROPULSION, STAGES, FLIGHT AND DEBUG
MANAGE THE PROPULSION, STAGES, FLIGHT AND DEBUG PANELS.
STEP 5: ORBIT AND DEBUG
ONCE ORBIT IS REACHED, THERE IS A DEADLINE TO FINISH THE ORBIT PANELS. KEEP AN EYE ON THE DEBUG PANELS.
STEP 6: RELEASE PAYLOAD
PRESS THE 'RELEASE' BUTTON, OR WAIT FOR THE TIMER TO REACH 0.
STEP 7: PARTY
CELEBRATE BECAUSE THE PAYLOAD HAS BEEN LAUNCHED AND DFR GETS PAID.

MISSIONS

HOW TO READ

once the rocket reaches orbit, you have this long to release the payload

If 'fail rate' reaches this value, rocket will explode!

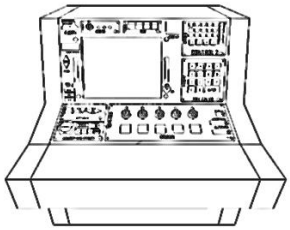
MISSION 1														
NAME		COUNTDOWN		ALTITUDE GOAL		RELEASE D/L			MAX FAIL					
EARLY BIRD		100		200		60			100					
PROPULSION	DEBUG	PRELAUNCH							ORBIT			FLIGHT		
PIGEON	0	0		NO	CA	INT	CHI	CL	0	FUEL	LOG	0	CRTL1	
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
NO	SYS	RL	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	EASY		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	1

Once known, please highlight which panels are relevant for each mission (our previous rule of no writing in the guide book is relaxed here)

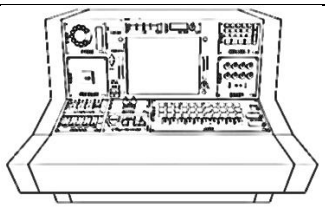
ITEM	PANEL	ITEM	PANEL	ITEM	PANEL	ITEM	PANEL	ITEM	PANEL
NO	NOZZLE CHECKS	SO	SOFTWARE	WT	WEIGHT	BL	BOOLEAN	POW	PAYLOAD POWER
CA	CALIBRATION	INE	INERTIAL MSRMNT	TW	TOWER	SYS	SYSTEM	UPL	LINK MANAGER
INT	INTERNAL POWER	3A	3-AXIS	CR	CRYO	RL	CONFIG	NOI	NOISE
CHI	ENGINE CHILL	CIR	CIRCUIT	TEL	TELEMETRY	FUEL	PAYLOAD FUEL	PNA	PAYLOAD NAV
CL	CLEARANCE	TOT	TOTAL	FU	FUEL B/O	LOG	LOGIN	SEP	SEPARATION
AT	PAYLOAD ATTACH	VE	VECTOR	DY	DYNAMICS	BIN	BINARY	CTRL	CONTROL
CO	COST	TA	TABLE	CS	COMMS	PSO	PAYLOAD SOFT	TELE	TELEPHONE
WE	WEATHER	SW	SWITCH	ST	STATIC	PCA	PAYLOAD CALIB	UPD	UPDATE
TR	TRACKING	LC	LAUNCH CODE	R	RGB	PR	PRESSURE	MAXQ	MAXQ

MISSIONS

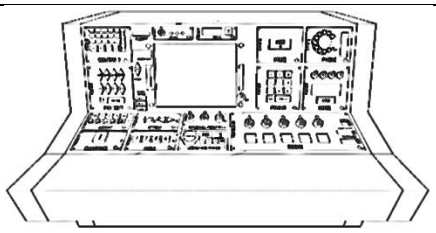
TERMINAL 1: 1 PRELAUNCH, 2 DEBUG, 1 FLIGHT, 1 ORBIT, 1 STAGES & 1 PROPULSION.



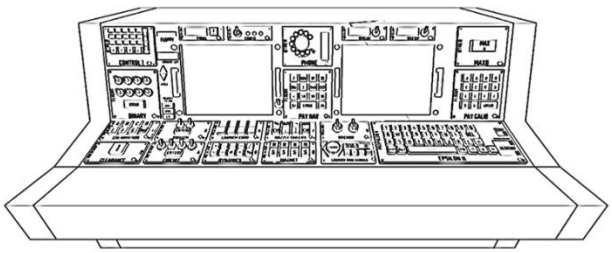
TERMINAL 2: 3 PRELAUNCH, 2 DEBUG, 2 FLIGHT, 2 ORBIT, 1 STAGES & 1 PROPULSION.



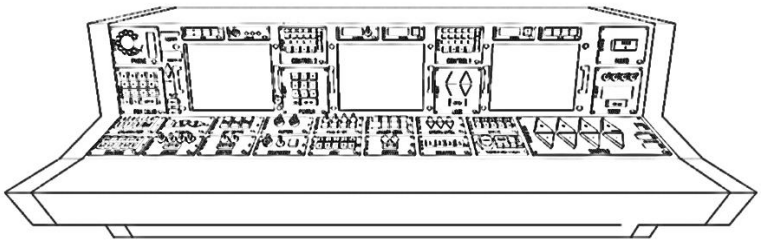
TERMINAL 3: 5 PRELAUNCH, 2 DEBUG, 3 FLIGHT, 3 ORBIT, 1 STAGES & 1 PROPULSION.



TERMINAL 4: 9 PRELAUNCH, 4 DEBUG, 3 FLIGHT, 3 ORBIT, 1 STAGES & 1 PROPULSION.



TERMINAL 5: 15 PRELAUNCH, 6 DEBUG, 4 FLIGHT, 4 ORBIT, 1 STAGES & 1 PROPULSION.



MISSION 1

NAME	COUNTDOWN	ALTITUDE GOAL	RELEASE D/L	MAX FAIL
EARLY BIRD	200	200	-	100

PROPULSION	DEBUG	PRELAUNCH							ORBIT			FLIGHT	
PIGEON	0	1	NO	CA	INT	CHI	CL		0	FUEL	LOG	0	CRTL1
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
NO	SYS	C	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	EASY		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	1

MISSION 2

NAME	COUNTDOWN	ALTITUDE GOAL	RELEASE D/L	MAX FAIL
SECOND WIND	120	250	220	100

PROPULSION	DEBUG	PRELAUNCH							ORBIT			FLIGHT	
WALLOP	0	1	NO	CA	INT	CHI	CL		1	FUEL	LOG	0	CRTL1
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
NO	SYS	C	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	EASY		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	1

MISSION 3

NAME	COUNTDOWN	ALTITUDE GOAL	RELEASE D/L	MAX FAIL
AN ENDEAVER	200	250	200	100

PROPULSION	DEBUG	PRELAUNCH							ORBIT			FLIGHT	
SHUTTLE	0	1	NO	CA	INT	CHI	CL		1	FUEL	LOG	1	CRTL1
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
NO	SYS	C	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	EASY		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	1

MISSION 4

NAME		COUNTDOWN		ALTITUDE GOAL		RELEASE D/L		MAX FAIL	
SUMMER TIME		220		300		150		150	
PROPULSION	DEBUG	PRELAUNCH				ORBIT		FLIGHT	
JUNE	1	2	NO	CA	INT	CHI	CL	1	FUEL	LOG	1	CRTL1
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
YES	SYS	C	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	EASY		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	1

MISSION 5

NAME		COUNTDOWN		ALTITUDE GOAL		RELEASE D/L		MAX FAIL	
CHINESE ROOM		120		250		150		120	
PROPULSION	DEBUG	PRELAUNCH				ORBIT		FLIGHT	
MARCH	1	2	NO	CA	INT	CHI	CL	1	FUEL	LOG	1	CRTL1
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
YES	SYS	C	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	EASY		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	1

MISSION 6

NAME		COUNTDOWN		ALTITUDE GOAL		RELEASE D/L		MAX FAIL	
DELIVER		140		320		120		100	
PROPULSION	DEBUG	PRELAUNCH				ORBIT		FLIGHT	
PRIME	1	2	NO	CA	INT	CHI	CL	1	FUEL	LOG	1	CRTL1
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
YES	SYS	C	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	MEDIUM		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	2

MISSION 7

NAME			COUNTDOWN			ALTITUDE GOAL			RELEASE D/L			MAX FAIL	
NO SIDEKICK			200			320			120			100	
PROPULSION	DEBUG		PRELAUNCH						ORBIT			FLIGHT	
ROBIN	1		3	NO	CA	INT	CHI	CL	1	FUEL	LOG	1	CRTL1
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
YES	SYS	C	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	MEDIUM		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	2

MISSION 8

NAME			COUNTDOWN			ALTITUDE GOAL			RELEASE D/L			MAX FAIL	
EX PLANET			220			400			120			100	
PROPULSION	DEBUG		PRELAUNCH						ORBIT			FLIGHT	
PLUTO	0		3	NO	CA	INT	CHI	CL	1	FUEL	LOG	2	CRTL1
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
YES	SYS	C	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	MEDIUM		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	2

MISSION 9

NAME			COUNTDOWN			ALTITUDE GOAL			RELEASE D/L			MAX FAIL	
FALLEN CHIP			200			420			140			100	
PROPULSION	DEBUG		PRELAUNCH						ORBIT			FLIGHT	
PIGEON HEAVY	1		3	NO	CA	INT	CHI	CL	2	FUEL	LOG	1	CRTL1
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
YES	SYS	C	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	MEDIUM		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	2

MISSION 10

NAME	COUNTDOWN	ALTITUDE GOAL	RELEASE D/L	MAX FAIL
CONCEPT	180	400	100	90

PROPULSION	DEBUG	PRELAUNCH							ORBIT			FLIGHT	
ATOMIC	2	3	NO	CA	INT	CHI	CL		2	FUEL	LOG	1	CRTL1
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
YES	SYS	C	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	MEDIUM		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	2

MISSION 11

NAME	COUNTDOWN	ALTITUDE GOAL	RELEASE D/L	MAX FAIL
TERRITORIAL	220	460	110	90

PROPULSION	DEBUG	PRELAUNCH							ORBIT			FLIGHT	
EPSILON II	1	4	NO	CA	INT	CHI	CL		2	FUEL	LOG	2	CRTL
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
YES	SYS	C	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	HARD		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	3

MISSION 12

NAME	COUNTDOWN	ALTITUDE GOAL	RELEASE D/L	MAX FAIL
NO SCRIBBLE	240	410	100	100

PROPULSION	DEBUG	PRELAUNCH							ORBIT			FLIGHT	
PENCIL HEAVY	2	5	NO	CA	INT	CHI	CL		2	FUEL	LOG	1	CRTL1
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
YES	SYS	C	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	HARD		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	3

MISSION 13

NAME	COUNTDOWN	ALTITUDE GOAL	RELEASE D/L	MAX FAIL
Z ETA IS GUD	200	380	200	100

PROPULSION	DEBUG	PRELAUNCH							ORBIT			FLIGHT	
ZETA	0	5	NO	CA	INT	CHI	CL		2	FUEL	LOG	3	CRTL1
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
YES	SYS	S	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	HARD		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	3

MISSION 14

NAME	COUNTDOWN	ALTITUDE GOAL	RELEASE D/L	MAX FAIL
LOOKS GOOD	200	440	100	100

PROPULSION	DEBUG	PRELAUNCH							ORBIT			FLIGHT	
URANUS	1	5	NO	CA	INT	CHI	CL		2	FUEL	LOG	2	CRTL1
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
NO	SYS	S	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	HARD		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	3

MISSION 15

NAME	COUNTDOWN	ALTITUDE GOAL	RELEASE D/L	MAX FAIL
A MAZE ING	200	400	120	100

PROPULSION	DEBUG	PRELAUNCH							ORBIT			FLIGHT	
ARIADNE	2	5	NO	CA	INT	CHI	CL		2	FUEL	LOG	2	CRTL1
STAGES	R	BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
NO	SYS	S	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	HARD		TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	3

MISSION 16

NAME	COUNTDOWN	ALTITUDE GOAL	RELEASE D/L	MAX FAIL
HAYSTACK	220	400	120	90

PROPULSION	DEBUG	PRELAUNCH							ORBIT			FLIGHT	
NEEDLE	2	6	NO	CA	INT	CHI	CL		3	FUEL	LOG	2	CRTL1
STAGES	R BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
YES	SYS RL	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	VERY HARD	TW	CR	TEL	FU	OY	CS	ST	NOI	PNA	SEP	TERMINAL	4

MISSION 17

NAME	COUNTDOWN	ALTITUDE GOAL	RELEASE D/L	MAX FAIL
INFUSION	200	410	90	90

PROPULSION	DEBUG	PRELAUNCH							ORBIT			FLIGHT	
SAFFRON	2	7	NO	CA	INT	CHI	CL		3	FUEL	LOG	3	CRTL1
STAGES	R BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
YES	SYS RL	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	VERY HARD	TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	4

MISSION 18

NAME	COUNTDOWN	ALTITUDE GOAL	RELEASE D/L	MAX FAIL
HARMONY	250	320	120	80

PROPULSION	DEBUG	PRELAUNCH							ORBIT			FLIGHT	
EPSILON IV	3	8	NO	CA	INT	CHI	CL		3	FUEL	LOG	1	CRTL1
STAGES	R BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
YES	SYS C	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	VERY HARD	TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	4

MISSION 19

NAME	COUNTDOWN	ALTITUDE GOAL	RELEASE D/L	MAX FAIL
DEEP BLUE	260	440	100	70

PROPULSION	DEBUG	PRELAUNCH							ORBIT			FLIGHT	
SPIELMANN	3	9	NO	CA	INT	CHI	CL		3	FUEL	LOG	2	CRTL1
STAGES	R / BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
YES	SYS / C	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	VERY HARD	TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	4

MISSION 20

NAME	COUNTDOWN	ALTITUDE GOAL	RELEASE D/L	MAX FAIL
MOONSHOT	240	450	100	60

PROPULSION	DEBUG	PRELAUNCH							ORBIT			FLIGHT	
SATURN	4	9	NO	CA	INT	CHI	CL		3	FUEL	LOG	3	CRTL1
STAGES	R / BL	AT	CO	WE	TR	SO	INE	3A	BIN	PSO	PCA	CTRL2	TELE
YES	SYS / RL	CIR	TOT	VE	TA	SW	LC	WT	PR	POW	UPL	UPD	MAXQ
DIFFICULTY	VERY HARD	TW	CR	TEL	FU	DY	CS	ST	NOI	PNA	SEP	TERMINAL	4

NOTES

Steps:

1. Look at the debug panels (above terminal screen) and go to the corresponding pages in this book. These turn on at random intervals, and need to be dealt with!

2. Look at the pre launch panels (light blue) and find the corresponding pages in this book. Then complete these panels

3. When countdown reaches 0, press launch (you can press the begin countdown button to skip the timer to T-10)

4. If you have a full launch, go the the appropriate propulsion page depending on which rocket you're launching and complete the instructions

5. If you have to do the stages (check mission section of this book), change stages at the appropriate times (found on the propulsion pages) using the number buttons near the launch button

6. If you have FLIGHT panels, these also have to be dealt with after launch. These deactivate once orbit has been achieved.

7. When you reach your altitude goal, you are in orbit and you must complete the orbit panels before the release deadline. Either wait for 0 or press the end button located near the launch button

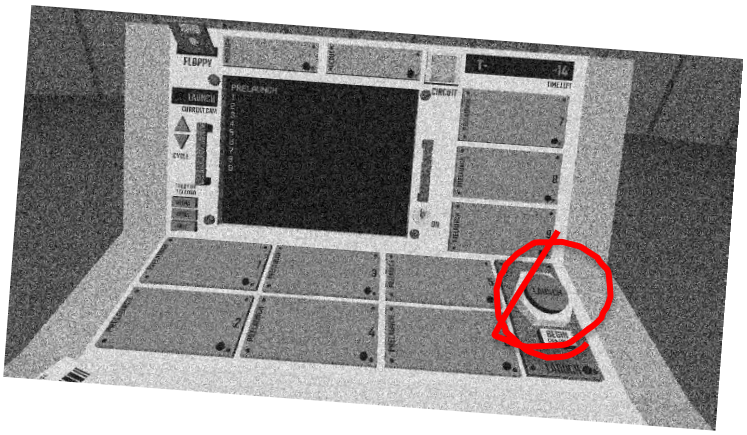
TUTORIAL MISSION BRIEFS

1. Welcome to Launch Party. You have been selected to head our launch operations on your own from mission control. This is not due to budget constraints at all, but because we think you are eminently capable of performing this duty alone. However, we will start your career with an easy launch to get you used to our systems. Simply launch the rocket when the countdown reaches 0.
2. Well done on launching the first rocket! For this next mission, you will need to do a PRELAUNCH panel. These are jobs that need to be completed before you launch the rocket. There should be some pages from the guide spread around that you might need in order to launch successfully, so make sure you take a look. You can also move the pages around if you like.
3. Great job so far. The directors are very happy with your progress so far. This next mission also requires you to complete a PRELAUNCH puzzle before liftoff. You'll need to know a bit about binary to be successful! Remember, if you have completed the PRELAUNCH job with time to spare and you don't want to wait for the timer, you can press the 'begin countdown' button to start the timer at 10.
4. Fantastic, just fantastic. Keep it up and you'll be promoted to Chief Rocket Scientist*. Some jobs require you to look at more than one page in order to do. The following PRELAUNCH panel is one such job. Remember, you can open multiple pages at a time. You can also use a mobile/PC/tablet to access the guide at rocket.guide if you're so inclined. *cannot guarantee increase of wages due to financial difficulties.
5. Ok you've proven yourself to the directors. Just one more of these PRELAUNCH only missions before things start to get more serious.
6. Good job so far. For this mission, there will be a DEBUG panel above the terminal screen. For these panels, you need to keep your eye on them for the ENTIRE mission. If the light on the panel goes green, it means it's active and you potentially need to do something. Complete the PRELAUNCH panel and launch whilst managing the DEBUG!
7. That was impressive, those DEBUG panels are a pain. For this next mission, there will be a different DEBUG panel to manage. This one is a bit more 'hands-on' and might mean you have to keep looking back and forth at the guide. Eliminate those (potential) bugs!

8. Forget PRELAUNCH and DEBUG for now. For this mission, you have to manage the STAGES of the rocket. Depending on the rocket, there will be a different amount of stages, that need to be transitioned to correctly. Sometimes this is automatic, but in this mission, you have to do it manually. Check the altitude goal, then workout when you need to change stages based on the % of altitude required.
9. Excellent. For this mission, let's see if you can handle a PRELAUNCH job as well as managing the STAGES. You will start struggling soon, no one is THIS good at launching rockets.
10. Truly inspiring. However, this next one might give you some difficulty. You will have to manage a DEBUG job, whilst completing the PRELAUNCH and managing the STAGES. This is where additional employees would be useful. If you happen to have any friends, show them the guide and let them help you!
11. Did you get help in that last one? If not, very well done. We are now going to introduce the FLIGHT jobs to you now. These jobs are similar to DEBUG, however they become active after the launch, and deactivate once orbit is achieved /when altitude goal has been reached. Have a read of the guide before lifting off to make sure you know what to do! STAGES will be done automatically in this one.
12. The directors are extremely happy with the progress you're making. They wish they could be there in person to see these rockets fly, so gracefully, first hand. Alas they have other business to attend to. In this mission, manage the STAGES and FLIGHT job after launching.
13. Your progress is astounding. No wonder I was demoted to writing these mission briefs instead of pressing that big red button. Oh how I miss the feeling of power and satisfaction...Let's take some of what you've learned so far and blend them together. First do the PRELAUNCH, hit launch and manage the FLIGHT and STAGES panels. No, I am not SOLELY the reason for the current financial situation of the department...
14. Things are getting serious now, let's see if you can handle this PROPULSION panel (back in the day these needed at least 25 of us). In this mission, you must control the PROPULSION panel, which becomes active after you hit launch, and deactivates once orbit is achieved. You will be controlling our flagship rocket, the Pigeon. Although it's not the best aesthetically pleasing thing to look at, it does fly (as you have already seen previously).

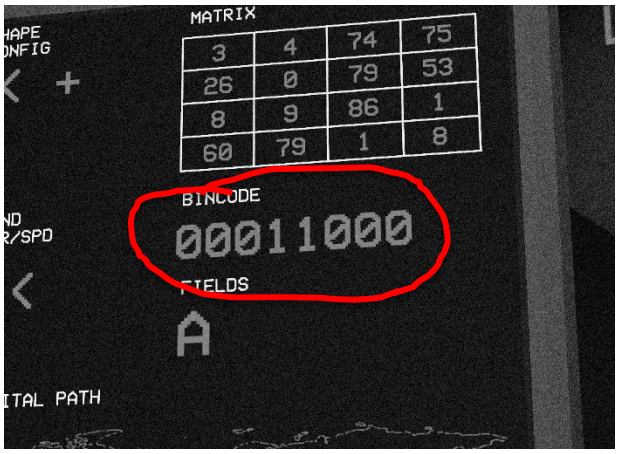
15. Spectacular. I can hardly believe what I am being told. Yet here I am, writing another mission brief! This next mission brings back those pesky DEBUG panels. Let's see if you can manage those whilst completing the PRELAUNCH, and managing the PROPULSION and STAGES panels. I've had a word with the directors, and they are thinking about also making you Mission Control manager. This will become more of a big deal when the Department starts hiring...
16. You're two missions away from a full on full launch, you can do it! In this mission, you have to take everything you've learned so far and apply it. It's going to be hard, it's going to be stressful, but by Ariadne I think you can do it.
17. Massive congratulations for getting this far. You are the best employee this department has seen. But don't let that get to your head, you've still got one more step to learn. In this mission, you will have to complete an ORBIT panel. These jobs become active when the rocket reaches orbit (duh) and MUST be 100% correct before the 'RELEASE DL' timer reaches 0. If you are done before the timer reaches 0, press the END button.
18. This is it, the first FULL mission you will be presented with. Take everything you know, and forget it, because this is another level. Don't really forget it, you will need all that knowledge to make this mission a success, it was just a figure of speech. Good luck and God speed, Chief Rocket Launcher Person*. *I and the directors compromised on this job title

NOTES Tutorial help



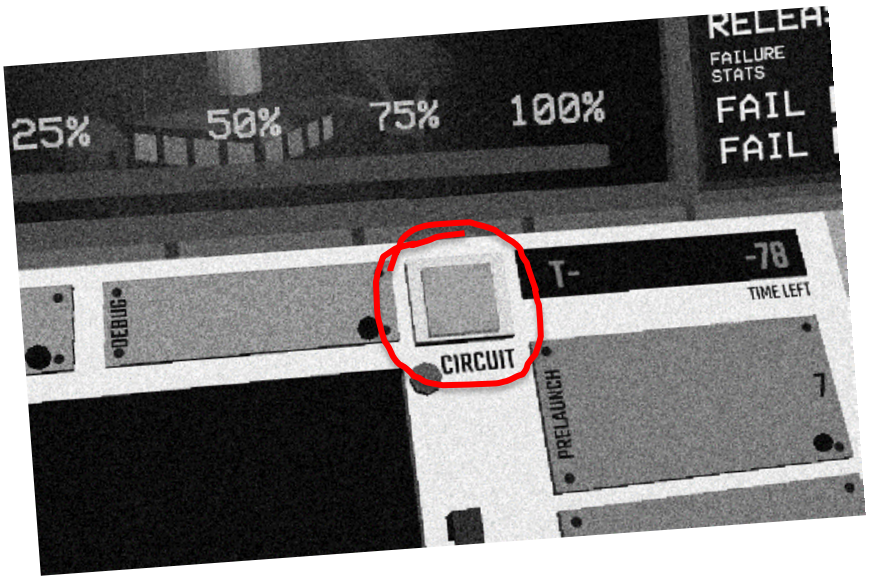
< this is the launch button

e.g. look at this and compare to pg 13



< for TOTAL

~~NOTES~~ Tutorial help

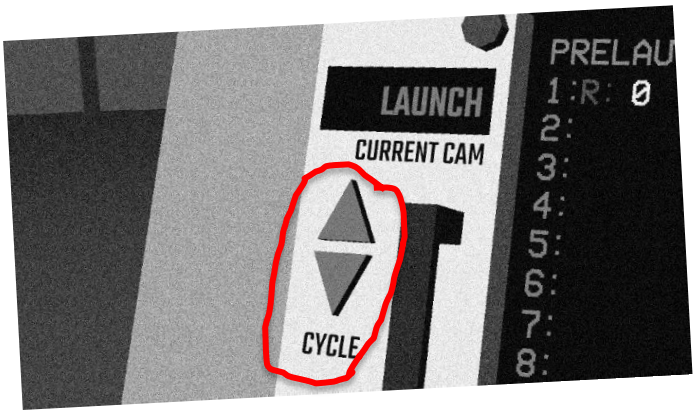


Get circuit no. in page 103.

Get the Floppy ID in Page 104.

Always keep on eye on these.

~~NOTES~~ Tutorial help

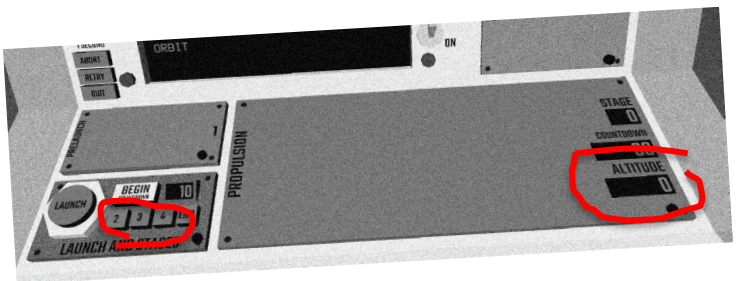


Change camera views

For TOWER, Use different Views to count.

See the altitude goal here.

e.g. Pigeon is 30% (stage 2) and 70% (stage 3) = altitude 60 (stage 2) and altitude 140 (stage 3).



^change stages at different altitudes.

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