

00655C PROGRAM DESCRIPTION I

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Program Title Space War-Interactive

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Program Description, Equations, Variables This program was written to take advantage of something that I discovered the HP-41C could do. What I discovered was that it is possible to make the display scroll rapidly from left to right by using code similar to the following:

01 LBL 00

02 SF 25

03 AVIEW

04 Ø

05 1/X

06 LBL 01

07 GTO 01

This will cause whatever is in the ALPHA register to scroll from left to right. The speed of the scrolling being determined by the number of instructions between lines 6 and 7. After I had figured out how to use this feature, I wrote this program.

(continued)

Necessary Accessories one memory module

Operating Limits and Warnings Warning: It is very easy to spend much time playing this game.

Reference(s) none

This program has been verified only with respect to the numerical example given in *Program Description II*. User accepts and uses this program material AT HIS OWN RISK, in reliance solely upon his own inspection of the program material and without reliance upon any representation or description concerning the program material.

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(CONTINUATION PAGE)

As the captain of a spacecraft, your mission is to destroy as many of the enemy as possible. There are three types of enemy spacecraft; freighters, battleships, and fighters. Each time you destroy one of the enemy spacecraft, you score a certain number of points based on the type of the craft you destroyed. They are denoted by and worth the following:

- * fighter, worth 20 points
- ** battleship, worth 10 points
- *** freighter, worth 5 points

Of course, since the fighter is worth more, it is also more difficult to hit, as it is also with the battleship.

This brings us to the point of how to destroy the enemy spacecraft. After the program is started, a spacecraft (ie. "***", for a battleship) will scroll across the display. When it is over the flag 2 annunciator, your "sight", you push R/S, enter a 3, and push R/S again. If you were successful, the calculator will tell you so, and credit you with the number of points that the enemy was worth.

However, should you miss, or allow the enemy to go all the way across the display (it will only go across once) it will take a shot at you, with its success determined by the following:

- fighter: 80% success rate
- battleship: 60% " "
- freighter: 40% " "

Your spacecraft can still function after two hits. On the third hit the spacecraft is destroyed, and the game is over. The calculator will then display your score.

However, it is possible to repair your spacecraft after the first or second hits. Periodically, a star base will appear, denoted by "888". To dock with it you go through the same procedure that you do when shooting down the enemy; however, instead of entering a 3, you enter a 2. If you are successful, your ship will be repaired and as good as new. If, on the other hand, you are unsuccessful, nothing happens and the game continues. ^{sp}

Destroying the base is not recommended, and results in your being relieved of your duties. It also ends the game.

Equally bad is attempting to dock with the enemy. ^{sp} As you must turn off your defence fields to dock, you are defenceless, and the enemy can easily destroy your spacecraft, which ends the game.

Of course, the object of the game is to get as many points as possible. The calculator will also keep track of the highest score since the program was loaded. (high score stored in REG 02)

During the game, fighters will come up 25% of the time, battleships and freighters 35%, and star bases 5%

Good luck!

006556 PROGRAM DESCRIPTION II

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Sample Problem (Sketch if Desired) Due to the randomness of the user pushing the R/S key, it is impossible to give an example that can be duplicated. However, I will show parts of a sample run.

→

* *
 2 PRGM

Sample display

SOLUTION:

Input	Function	Display	Comments
	XEQ"SPACE"	"READY?"	Begin playing.
	R/S	"**" →	Spacecraft moving across the display.
	R/S	Ø	Stop calculator.
3	R/S	"YOU HAVE JUST BEEN HIT"	Missed him.
		"*" →	Spacecraft moving.
	R/S	Ø	Stop calculator.
3	R/S	"YOU SCORED A KILL"	Got him!
		"***" →	Spacecraft moving.
	R/S	Ø	Stop calculator.
3	R/S	"YOU HAVE JUST BEEN HIT"	Missed again.
		"888" →	Star base moving.
	R/S	Ø	Stop calculator.
2	R/S	"DOCKING COMPLETE"	Successful docking.
		"YOUR SHIP IS REPAIRED"	
.			
.			
.			
		"*" →	Spacecraft moving.
	R/S	Ø	Stop calculator.
3	R/S	"YOU HAVE JUST BEEN HIT"	Game over.
		"YOUR SHIP IS DESTROYED"	
		"YOUR SCORE IS 50"	
		"HIGH SCORE IS 50"	
		"AGAIN?"	

00655C USER INSTRUCTIONS

[illegible]

REGISTERS, STATUS, FLAGS, ASSIGNMENTS

[illegible]

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STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS	STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS
01	*LBL	"SPA CE"		45	XEQ	14	
02	*LBL	05		46	6		
03	FIX	0		47	X=Y?		Kill it?
04	3		Initialize	48	GTO	06	yes
05	STO	03	registers and	49	RDN		
06	CF	06	flags.	50	7		
07	SF	02		51	X=Y?		Kill it?
08	0			52	GTO	06	yes
09	STO	01		53	6		
10	"READY?"			54	GTO	03	
11	PROMPT			55	*LBL	06	
12	CLA			56	XEQ	11	
13	AVIEW			57	TONE	7	
14	*LBL	00	Determine the	58	AVIEW		
15	20		type of ship	59	10		
16	XEQ	10	to be used.	60	ST+	01	Add to score.
17	5			61	GTO	00	
18	-			62	*LBL	02	
19	X>0?		Fighter?	63	7		
20	GTO	02	no	64	-		
21	.01		Fighter	65	X>0?		Freighter?
22	STO	00	routine.	66	GTO	02	no
23	"**"			67	.008		Freighter
24	XEQ	14		68	STO	00	routine.
25	7			69	"****"		
26	X=Y?		Kill it?	70	XEQ	14	
27	GTO	12	yes	71	5		
28	8			72	X<=Y?		Kill it?
29	GTO	03		73	GTO	13	yes
30	*LBL	12		74	4		
31	XEQ	11		75	GTO	03	
32	TONE	9		76	*LBL	13	
33	AVIEW			77	RDN		
34	20			78	8		
35	ST+	01	Add to score.	79	X>Y?		Kill it?
36	GTO	00		80	GTO	13	yes
37	*LBL	02		81	4		
38	7			82	GTO	03	
39	-			83	*LBL	13	
40	X>0?		Battleship?	84	XEQ	11	
41	GTO	02	no	85	TONE	5	
42	.009		Battleship	86	AVIEW		
43	STO	00	routine.	87	5		
44	"**"			88	ST+	01	Add to score.
				89	GTO	00	

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STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS	STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS
90	LBL 02		Base routine. (docking)	130	GTO 08		Random number generator.
91	.008			131	LBL 10		
92	STO 00			132	RCL 04		
93	"888"			133	9821		
94	XEQ 01			134	*		
95	CLA			135	.211327		
96	AVIEW			136	+		
97	RCL 00			137	FRC		
98	INT			138	STO 04		
99	5			139	*		
100	X>Y?		Successful? no	140	RTN		
101	GTO 00						
102	RDN			141	LBL 11		
103	7			142	"YOU SCO RED A "		
104	X<Y?		Successful? no	143	"FKILL"		
105	GTO 00			144	RTN		
106	RCL Z						
107	2			145	LBL 14		
108	X=Y?		Shoot at base? yes	146	XEQ 01		
109	GTO 02			147	CLA		
110	"DOCKING COMPLET"			148	AVIEW		
111	"HE"			149	2		
112	AVIEW			150	X=Y?		Dock with enemy? no
113	"YOUR SH IP "			151	GTO 04		
114	"HIS REP AIRED"			152	"YOU ATT EMPTED "		
115	FS?C 06		Damage? yes	153	"FTO DOC K"		
116	AVIEW						
117	3			154	AVIEW		
118	STO 03		Repair ship.	155	PSE		
119	GTO 00			156	"WITH TH E ENEMY"		
120	LBL 02			157	AVIEW		
121	"YOU DES TROYED "			158	PSE		
122	"YOUR B ASE"			159	GTO 07		
123	AVIEW			160	LBL 04		
124	PSE			161	RCL 00		
125	"AND HAV E BEEN "			162	INT		
126	"RELIEV ED"			163	RTN		
127	AVIEW			164	LBL 01		Scrolling routine.
128	PSE			165	CF 22		
129	"OF YOUR COMMAND"			166	SF 25		
				167	0		
				168	AVIEW		
				169	LN		Causes an error condition.

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STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS	STEP/ LINE	KEY ENTRY	KEY CODE (67/97 only)	COMMENTS
170*	LBL	09		209	PSE		
171	FS?	22	User input?	210	"AGAIN?"		
172	RTN		yes	211	PROMPT		
173	ISG	00	Crossed dis.?	212	GTO 05		go play again.
174	GTO	09	no	213	END		
175	RTN						
176*	LBL	03	Hit routine?				
177	10			60			
178	XEQ	10					
179	X>Y?		Enemy successful?				
180	GTO	00	no				
181	SF	06					
182	"YOU HAV						
	E JUST "						
183	"HBEEN H						
	IT"						
184	TONE	3					
185	TONE	3		70			
186	AVIEW						
187	DSE	03					
188	GTO	00					
189	PSE		Game over routine.				
190*	LBL	07					
191	"YOUR SH						
	IP IS "						
192	"HDESTRO			80			
	YED"						
193	BEEP						
194*	LBL	08					
195	AVIEW						
196	PSE						
197	"YOUR SC		Print out scores.				
	ORE IS "						
198	"H "						
199	ARCL	01		90			
200	AVIEW						
201	PSE						
202	RCL	02					
203	RCL	01					
204	X>Y?		New high?				
205	STO	02	yes				
206	"HIGH SC						
	ORE IS "						
207	ARCL	02					
208	AVIEW			00			

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