

41C/97 '67 MUSTANG DRAG RACE SIMULATION

'67 MUSTANG FASTBACK
A DRAG RACE SIMULATION GAME FOR THE 67 OR 97

Having owned a 33E for a year, I got a second-hand 67 in November of 1979. (Thanks, Dad. I hope you're enjoying your 41C.) By Christmas, I had written this program, my first for the 67. I still have a lot to learn, so I think I've probably missed some obvious shortcuts that more experienced users may see. The only drawback is the rather long execution time for each cycle of the game. If anyone discovers a way to speed up the game, please type it up and send it to Richard for the PPCJ. --Joseph Holmes (3673)

THE GAME

You are the driver of a 1967 Mustang Fastback Funny Car. (A Funny Car is a dragster built up from a standard Detroit production car.) Your car is idling on the starting line of a quarter-mile track in Englishtown, N.J. You pop it into first gear and accelerate hard. As you pick up speed, you shift into second, then third and fourth. You clock 216 mph as you cross the finish line, but now you've got only 400 feet before you hit the brick wall. Braking and downshifting, you squeal to a stop with 65 feet to spare. Your time for the quarter-mile: 9.5 seconds?

HOW TO PLAY

Press f a to initialize the game. This clears the distance, speed, time and gear registers and the flags and puts the Mustang into IDLE with the parking brake on. During the game, you'll see the speed (S) and gear (G) displayed during pauses in FIX, DSP 1: SSS.G. For example, 60 mph in third gear will show 60.3. Since you're now idling, you'll see 0.0, zero mph in neutral. (You can shift into neutral as well as the four gears. However, there is NO reverse. I tried a program with reverse, but I kept running over my mechanic.)

TO SHIFT: hit the gear number you want, then C (clutch), during any pause. Immediately following each SSS.G pause, there is always a DISTANCE pause, showing the distance traveled so far, in feet. The FINISH LINE is at 1320 feet. When you cross that point you'll see: .3333333333. That's the finish line. After you cross it, the DISTANCE pause will display the current distance to the WALL. You can shift during the SSS.G pauses or you can wait to see the distance pause. It makes no difference to the calculator.

When shifting, two things can happen that will end the game:

If you go too fast for the gear you're in, you'll blow the engine. See: .1111111111

If you go too slow for the gear you're in, (or shift too soon), you'll stall the engine. See: .0000000000

The accompanying chart shows the minimum and top speeds for each gear. From the chart you can see that you've got to shift from first to second before you hit 30 mph; otherwise, .1111111111. Likewise, in second, you'll shift before you get to 65 mph. Etc. The chart also shows you that you can't shift from first into second until you reach 15 mph. Otherwise you'll stall: .0000000000. You may want to cut out the chart or photocopy it, for reference. It's the right size to fit into your cardholder.

Along with shifting, you can ACCELERATE, BRAKE, and LIGHT BRAKE. Here is a summary:

C -- clutch. Press 0, 1, 2, 3, or 4 and then C to shift up or down. Shift during any PAUSE.

D -- brake. This brakes pretty hard. You don't want to use D if you're going less than 80 or 90 mph in gear. You'll stall. Instead, use:

rd -- light brake. This slows you less. Hit D or fd during any PAUSE.
E -- accelerate. A Random Number Generator creates a bit of mystery. Sometimes hitting E is not going to increase your speed much at all. The higher gears accelerate more.

Each PAUSE displaying SSS.G is one cycle of the game, equal to ONE-HALF SECOND on the timing clock. You may hit any ONE of the choices above, during the pause. (You may also wait for the distance pause. This does not add any time to the clock.) The clock stops when you reach the FINISH LINE (.3333333333). If you do not take any action during the pauses, your car, in gear, will

NONE -- light accelerate. For any cycle in which you did not hit any label keys, your Mustang will slightly accelerate.

However, if you're in NEUTRAL, your car will DECELERATE slightly, and eventually drift to a stop (if you don't hit the wall.)

Crossing the finish line is the easy part. You only have 400 feet in which to stop the car before you (.4444444444) hit the wall. (Or the grandstand, if you're into that kind of thing.) Learning to stop is the real challenge of the game!

SUGGESTIONS FOR PLAYING

- (1) The higher gears accelerate more. Shift up as soon as you can. (But don't stall out!)
- (2) Braking or Light Braking in Neutral does not slow you as much as if you are in a gear. (Of course it's much easier to brake in neutral than to brake and downshift.)
- (3) Downshifting slows you more than braking. (Again, downshifting is tougher than just popping it into neutral and braking, but you'll be able to stop a lot sooner.)
- (4) If you crash, your time is erased from R2. That's the penalty for being killed.
- (5) When you're trying to stop, get down to about five mph, put it in neutral, and light brake to 0.0 Then push A for IDLE. This puts on the parking brake and you can relax.

As you'll see by playing, the OBJECT is to drive as fast as possible, and still be able to stop. You'll find that you're going to have to hold down your speed until you get good at stopping. When you first play '67 Mustang Fastback, keep your speed down to 120 or so, and learn to brake and downshift. When you get good, you should be able to reach 200 mph; the best time I can get is 8.5 seconds. Can anybody beat that? Some NNNs might add color to the game.

'67 MUSTANG FASTBACK

Program Listing

001*LBL f a	32 25 11	INITIALIZE
002 DSP 1	23 01	
003 CF 0	35 61 00	
004 CF 1	35 61 01	
005 CL x	44	
006 STO 0	33 00	
007 STO 2	33 02	
008 STO 3	33 03	
009 STO 4	33 04	
010 ST I	35 33	
011*LBL A	31 25 11	IDLE
012 RCL 4	34 04	
013 x ≠ 0?	31 61	neutral?
014 GTO 4	22 04	no, stall out.
015 RCL 0	34 00	
016 x ≠ 0?	31 61	
017 GTO 5	22 05	
018 PAUSE	35 72	display 0.0
019 GTO A	22 11	
020*LBL C	31 25 13	SHIFT
021 RCL 4	34 04	
022 x ≠ y	35 52	
023 STO 4	33 04	
024 EEX	43	
025 1	01	
026 STO ÷ 4	33 81 04	
027 +	61	
028 STO A	33 11	top speed register
029 5	05	
030 +	61	
031 STO 5	33 05	min. speed register
032 5	05	
033 +	61	
034 STO 8	33 08	gear constant register
035 R↓	35 53	
036 RCL 4	34 04	

037 x = 0?	31 51
038 GTO 5	22 05
039 CF 0	35 61 00
040 x ≤ y?	32 71
041 GTO 2	22 02
042*LBL E	31 25 15
043 F0?	35 71 00
044 GTO 5	22 05
045 RCL 8	34 08
046 x ≠ I	35 24
047 RCL (i)	34 24
048 RCL 1	34 01
049 Pi	35 73
050 +	61
051 2	02
052 1	01
053 X	71
054 g FRAC	32 83
055 STO 1	33 01
056 EEX	43
057 2	02
058 X	71
059 f SIN	31 62
060 X	71
061 STO + 0	33 61 00
062*LBL 3	31 25 03
063 .	83
064 5	05
065 STO + 2	33 61 02
066 Pi?	35 71 01
067 STO - 2	33 51 02
068 RCL 0	34 00
069 RCL 9	34 09
070 FRAC	32 83
071 X	71
072 STO + 3	33 61 03
073 GSB 0	31 22 00
074 GSB 1	31 22 01
075 GSB 7	31 22 07
076 RCL 0	34 00
077 f INT	31 83
078 RCL 4	34 04
079 +	61
080 DSP 1	23 01
081 h PAUSE	35 72
082 RCL 3	34 03
083 Pi?	35 71 01
084 RCL 7	34 07
085 DSP 0	23 00
086 h PAUSE	35 72
087 F0?	35 71 00
088 GTO 5	22 05
089 GTO 6	22 06
090*LBL 0	31 25 00
091 RCL 5	34 05
092 x ≠ I	35 24
093 RCL 0	34 00
094 RCL (i)	34 24
095 x ≤ y?	32 71
096 h RTN	35 22
097*LBL 4	31 25 04
098 0	00
099 DSP 9	23 09
100 R/S	84
101*LBL 1	31 25 01
102 RCL A	34 11
103 x ≠ I	35 24
104 RCL (i)	34 24
105 RCL 0	34 00
106 x ≤ y?	32 71
107 h RTN	35 22
108 DSP 9	23 09
109 9	09
110 h 1/x	35 62
111 R/S	84
112*LBL 2	31 25 02
113 GSB 1	31 22 01
114 √x	31 54
115 2	02
116 X	71
117 STO - 0	33 51 00
118 GTO 3	22 03
119*LBL D	31 25 14
120 RCL 0	34 00
121 .	83
122 9	09
123 5	05
124 F0?	35 71 00
125 h 1/x	35 62
126 X	71
127 3	03
128 0	00
129 -	51
130 STO 0	33 00
131 F0?	35 71 00
132 GTO 5	22 05

in neutral?
go to deceleration
downshift?
go to downshift routine
ACCELERATION

Random Number Generator

DISTANCE CALCULATION for
current cycle

Time Clock
past finish line?
don't add time

gsb stall check
gsb bl. engine check
gsb finish line check

display speed and gear
rcl distance
past finish line?
show distance to wall

display distance
in neutral?
go to deceleration r'time
go to lt. accel. routine
STALL CHECK

min. spd. ≤ current spd.?
yes-return
STALL DISPLAY

display .0000000000
BLOWN ENGINE CHECK

current spd. ≤ top spd.?
yes-return

display .1111111111
DOWNSHIFT
blown engine check

go to distance calc.
HARD BRAKE

in neutral?
less braking!

133 GTO 3 22 Ø3 go to distance calc.
 134*LBL fd 32 25 14 LIGHT BRAKE
 135 RCL Ø 34 ØØ
 136 ENTER ↑ 41
 137 √x 31 54
 138 - 51
 139 FØ? 35 71 ØØ
 140 . 83
 141 2 Ø2
 142 - 51
 143 x < Ø? 31 71 speed < Ø mph?
 144 Ø ØØ make it Ø
 145 STO Ø 33 ØØ
 146 FØ? 35 71 ØØ
 147 GTO 5 22 Ø5
 148 GTO 3 22 Ø3 LIGHT ACCELERATION
 149*LBL 6 31 25 Ø6
 150 RCL Ø 34 ØØ
 151 √x 31 54
 152 STO + Ø 33 61 ØØ
 153 GTO 3 22 Ø3
 154*LBL 5 31 25 Ø5 NEUTRAL ROUTINE
 155 SFØ 35 51 ØØ
 156 RCL Ø 34 ØØ
 157 ENTER ↑ 41
 158 √x 31 54
 159 3 Ø3
 160 ÷ 81
 161 - 51
 162 x < Ø 31 71
 163 Ø ØØ
 164 STO Ø 33 ØØ
 165 GTO 3 22 Ø3
 166*LBL 7 31 25 Ø7 FINISH LINE CHECK
 167 F1? 35 71 Ø1
 168 GTO 8 22 Ø8
 169 RCL 3 34 Ø3
 170 RCL 6 34 Ø6
 171 x > y 32 81
 172 h RTN 35 22
 173 SF1 35 51 Ø1
 174 3 Ø3
 175 ENTER ↑ 41
 176 9 Ø9
 177 ÷ 81
 178 DSP 9 23 Ø9 display .333333333
 179 h PAUSE 35 72
 180*LBL 8 31 25 Ø8 WALL CRASH CHECK
 181 RCL 9 34 Ø9
 182 f INT 31 83
 183 RCL 3 34 Ø3
 184 RCL 6 34 Ø6
 185 - 51
 186 - 51
 187 x < Ø 31 71 distance to wall
 188 GTO 9 22 Ø9 less than Ø?
 189 STO 7 33 Ø7 go to wall crash display
 190 h RTN 35 22
 191*LBL Ø9 31 25 Ø9 WALL CRASH DISPLAY
 192 Ø ØØ
 193 STO 2 33 Ø2
 194 4 Ø4
 195 ENTER ↑ 41
 196 9 Ø9
 197 ÷ 81
 198 DSP 9 23 Ø9 display .444444444
 199 R/S 84

REGISTER CONTENTS
 Ø speed
 1 * RNG seed (Ø < n < 1)
 2 time in sec.s
 3 distance in ft.
 4 current gear
 5 current min. spd.
 6 * 132Ø (feet)
 7 current d to wall
 8 gear constant reg.
 9 * 4ØØ.732864
 SØ * 5ØØ
 S1 * 3Ø
 S2 * 65
 S3 * 11Ø
 S4 * 275
 S5 Ø
 S6 * 1
 S7 * 15
 S8 * 4Ø
 S9 * 75
 A top speed reg.s
 B * 1Ø
 C * 15
 D * 20
 E * 30
 I used

LABELS
 A IDLE
 C CLUTCH
 D BRAKE
 E ACCELERATOR
 fa initialize
 fd light brake
 Ø stall check
 1 blown engine check
 2 downshift
 3 distance calculation
 4 stall display
 5 neutral
 6 light acceleration
 7 finish line check
 8 wall crash check
 9 wall crash display
MACHINE STATUS
 DSP 1, FIX
 All flags clear
 FØ - set in neutral
 F1 - set when finish line is crossed
 F2, F3 - not used

* - Must be stored by hand or on data card before playing.

User Instructions



NOTE: SEE DETAILED DESCRIPTION

Step	Instructions	Inputs	Keys	Output
1.	Load sides 1 & 2 of Data and Program cards.			
2.	Store RNG seed in R1	Ø<n<1	STO 1	
3.	Initialize		fa	Ø.Ø
4.	To SHIFT (during pause)	Ø to 4	C	SSS.G
	To BRAKE	"	D	SSS.G
	To LIGHT BRAKE	"	fd	SSS.G
	To ACCELERATE	"	E	SSS.G

To see distance (distance traveled, before you reach the finish line, distance to wall after you cross the finish line), wait for the second pause. You may perform step 4. during the first pause (SSS.G) or the second pause (DISTANCE).

Taking no action during step 4. will cause a LIGHT ACCELERATION when in gear, or a LIGHT DECELERATION when in neutral.

- If you have: See:

Stalled the engine	.0000000000
Blown the engine	.1111111111
Crossed the finish line	.3333333333
Hit the wall	.4444444444
- At the end of the game:

To see distance to the wall	RCL 9
	RCL 3
	RCL 6
	-
	- dist.
To see elapsed time	RCL 2 sec.s
- To play again, go to step 2.

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PHOTOCOPY, CUT OUT AND SAVE...

GEAR	TOP SPEED	MIN. SPEED
1	30	1
2	65	15
3	110	40
4	275	75

(3673)

WILL FIT IN YOUR CARD HOLDER...

ATEND:
 TO SEE DIST TO WALL:
 RCL 9
 RCL 6
 RCL 3
 -
 TO SEE ELAPSED TIME:
 RCL 2

67 MUSTANG FASTBACK
 REFERENCE CARD

PPC TELEPHONE BULLETINS

Peter Steinmetz (5379) has taken on the task of recording and transcribing the PPC Telephone Bulletins. Here is the first entry of what I hope will be a regular 'column'. Our answering machine has an intermittent problem in that it doesn't always record the incoming messages. It is difficult to take it "off the air" since it is used so much so we will 'suffer' a little longer. The For Sale and Wanted to Buy portions of the bulletin are not included.

PPC Telephone Bulletin #15

August 1, 1980

Wands are available - check with your dealer. Get them now or be prepared to wait. New wand users are reminded to review your June Member Letter for VLF interference information. June issue barcodes should all read OK - except Curve Fit which is marginal and the 1000 digit pi program. The KA program picked up some strange errors. All synthetic codes are OK. Read the barcodes then delete line 103. Key instruction X<Ø1, then delete four lines starting with line 56, through 53, and key in "KEY". The Computer Journal of PPC is in progress - details August 16. Custom ROM - an index is complete. If you want to work on a routine call me at the clubhouse afternoons. Early 41Cs are at the end of one year warranty - don't wait any longer if you want your ROM update. Jake Schwartz is preparing two hex tables in barcodes - these will be in the July-August Calculator Journal at the end of the month.