

Program Title GOLF WITH UNIQUE PUTTING ROUTINEContributor's Name ERIK GOETZEAddress 1613 CAMULUS AV.City GLENDALEState CALIFZip Code 91208

Program Description, Equations, Variables PROGRAM PLAYS 9 OR 18 HOLES OF GOLF WITH VARIABLE GRASS HEIGHT, SCOREKEEPING, AND CHOICE OF CLUBS. PUTTING ROUTINE PRINTS EVERY SECOND OF MOTION THE VELOCITY AND DISTANCE TO HOLE. THEN AFTER YOU HOLE THE BALL, IT GIVES YOU THE HOLE SCORE YOU HAD, YOUR AMOUNT ABOVE / BELOW PAR FOR ALL THE HOLES UP TO NOW, AND THE TOTAL SCORE.

$$\text{DIS HIT} = \text{INT} \left[\frac{21 - \frac{(90-H)C + (20H)}{100}}{64} \right] P \cdot (8 + \text{RND}(\theta))$$

$$\text{OFF CENTER DISTANCE} = \left[\frac{H+1}{8} \right] [20 \text{RND}(\theta)] \tan \left[\frac{DH}{5} \right]$$

$$\text{PUTT VELOCITY} = \left[\frac{\%}{100} \right]^G - 2H \text{RND}(\theta)$$

$$\text{HOLE LENGTH} = 150 + 70 \text{RND}(\theta) - H$$

PAR 3 HOLES

$$\text{HOLE LENGTH} = 100K + 70 \text{RND}(\theta) - H$$

PAR 4 & 5 HOLES

$$\text{HOLE WIDTH} = 14 \text{LN}[K+H]$$

VARIABLES

C = CLUB RND(θ) = RANDOM NUMBER

P = % SWING V = VELOCITY

H = HANDICAP

DH = DISTANCE TO HOLE

D = DISTANCE HIT

K = PAR G = GRASS CONSTANT

ACHTUNG! HP67 USERS READ THIS
YOU MUST MAKE THE FOLLOWING
CHANGES IN W/PRGM MODE

GTO 0133 h DEL h PAUSE

GTO 0078 h DEL

GTO 0079 h PAUSE

THEN RECORD YOUR CARD.

HP 97 OWNERS: TO SAVE PAPER MAKE THE
FOLLOWING CHANGE IN W/PRGM MODE:

GTO 0133 h DEL h PAUSE

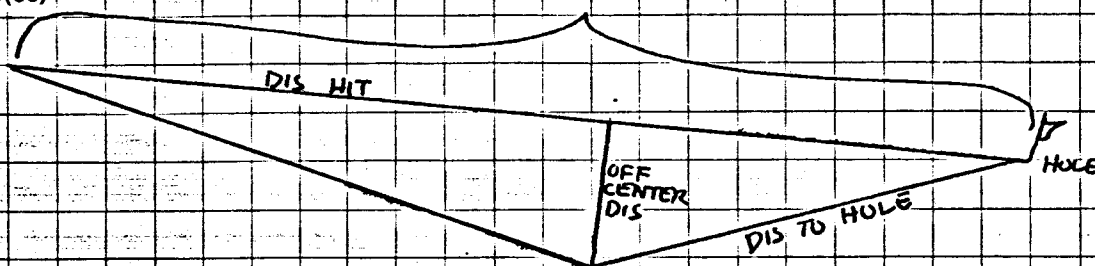
ALSO SINCE THE PROGRAM PRINTS ON ONLY 1/2 OF THE STRIP OF PAPER, YOU CAN, ON THE END OF THE 9th HOLE, REVERSE THE PAPER AND PRINT ON BOTH SIDES OF THE PAPER.

Operating Limits and Warnings IF YOUR SCORE GOES OVER 99, THE SCORE DISPLAY ROUTINE WILL MALFUNCTION. AT THE END OF THE GAME SIMPLY RECALL REGISTER FOUR FOR YOUR SCORE. ANYTIME YOU USE HIGH PERCENTAGES [91% - 99%] WITH WOODS YOU ARE TAKING CHANCES THAT YOU WILL GO OFF THE COURSE. IF YOU HIT THE WRONG KEY IN THE MAIN, THE PROGRAM WILL BOMB, SO YOU SHOULD START OVER.

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Sketch(es)



PUT 97 IN NORMAL MODE

Sample Problem(s)
RUN CARD 1 THRU BOTH SIDES

3.00 ENT1
3.00 ENT1
.2486531785 ENT1
13.00 G5BA
A FLASHING 2 INDICATES THAT
YOU SHOULD RUN CARD 2 THRU

THIS IS HOLE NR 1. T
THIS HOLE HAS A PAR 4. Z
THE WIDTH IS 30. YDS Y
THE LENGTH IS 444. YDS X

PERCENTAGE 91. ENT1
CLUB NR -1. G5BA

DIS HIT. DIS TO GO 285.240 ***

59.000 ENT1
-2.000 G5BA
LUCKY THAT IT DIDN'T GO OFF 233.018 ***

% 19.000 ENT1
Solution: IRON NR 9.000 G5BA

DIS HIT. DIS TO GO 18.001 ***
ON GREEN CAUSE
DISPLAY IS NEG. 6.00 G5BC

VELOCITY. DISTANCE -3.03 ***

BALL IS AT HOLE → 2.00 ***

BALL WENT PAST → 2.01 ***

THIS HAPPENS CAUSE
IT SHOWS ONLY THE
INTEGER PART OF
THE TWO NUMBERS
1.02 ***
1.02 ***
1.02 ***

YOU CAN ENTER
FRACTIONAL NRS. 2.50 G5BC
-2.03 ***

DISPLAY SHOWS 5.3704
ABOVE PAR FOR A
TOTAL OF FIVE 1.65 **

HOLE NR 2. T
PAR 4. Z
WIDTH 30. Y
LENGTH 420. X

BRUTE FORCE! 1.-02 ENT1
IT WENT OFF,
PENALTY STROKE
INFLECTED. -1. G5BA
0.420 ***

MORE REASONABLE 90.000 ENT1
-1.000 G5BA

SPLIT DOWN
THE MIDDLE 210.211 ***

NOT
BAD. 210.000 ENT1
-2.000 G5BA
DISPLAY SHOWS
-6.00 4.00 G5BC

DISPLAY 5.3704

TOTAL
SCORE
2.10
ABOVE
PAR

DISPLAY SHOWS 3.3704

2.13 ***

4. T

4. Z

30. Y

441. X

92. ENT1

-1. G5BA

223.215 ***

92.000 ENT1

-2.000 G5BA

196.025 ***

23.400 ENT1

9.000 G5BA

DISPLAY
SHOWS -8.00 23.003 ***
3.60 G5BC

-3.06 ***

-2.05 ***

-2.03 ***

1.01 ***

DISPLAY SHOWS 4.3704

2.17 ***

5. T

5. Z

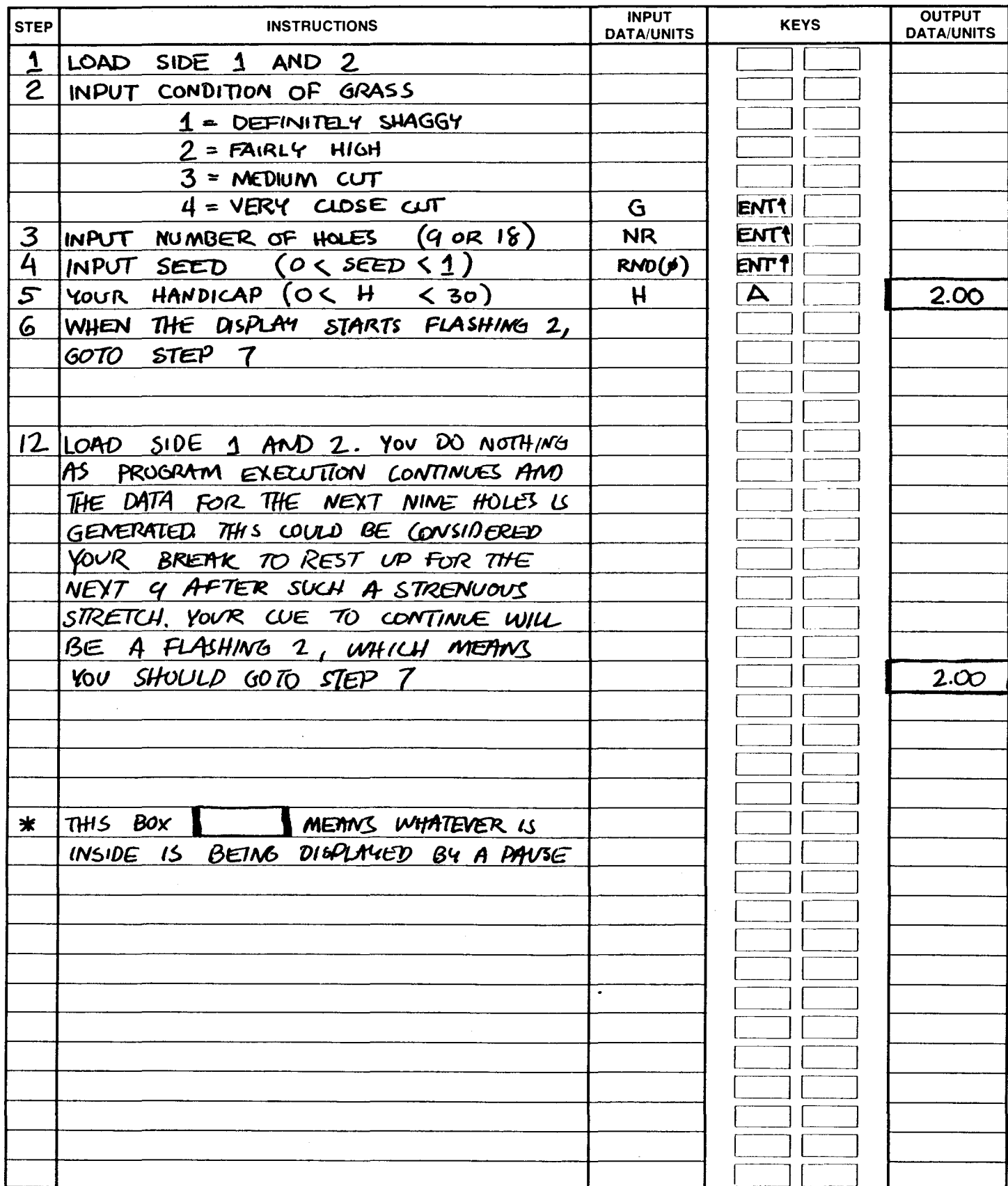
31. Y

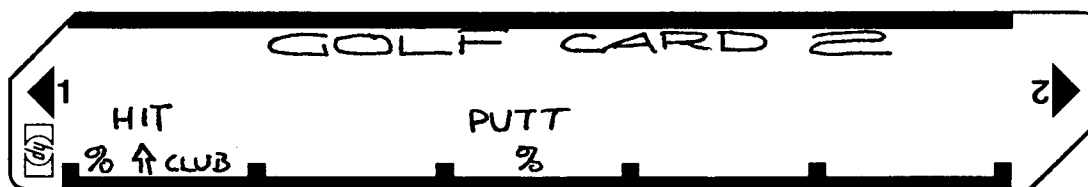
339. X

Reference(s)

NOTE: IF YOU WANT TO MAKE HOLING THE BALL EASIER,
ADJUST THE VELOCITY THRESHOLD BY THE FOLLOWING STEPS. (IN W/PRGM MODE)

GTO-116F DEL F DEL 2 THEN RERECORD THE PROGRAM. OR IF
YOU WANT TO MAKE IT HARDER, PUT A 1 INSTEAD OF THE 2 IN
THAT SEQUENCE ABOVE.





STEP	INSTRUCTIONS	INPUT DATA/UNITS	KEYS	OUTPUT DATA/UNITS	
7	LOAD SIDE 1 AND 2			HOLE NR	STACK REVIEW
				PAR	
				WIDTH	
				LENGTH	
8	ENTER PERCENTAGE SWING ($0 < n < 100$)	%	ENTER		
9	CLUB NR YOU ARE USING				
	-1 to -5 > WOODS 1 to 9 IRONS	C.NR	A	DIS. HIT	DIS. TO GO
	IF YOU MADE IT TO THE GREEN (DIS < 12 YD)				
	IT WILL SHOW THE DIS. TO GO IN FEET WITH A NEGATIVE SIGN. GOTO STEP 11				
10	OTHERWISE CONTINUE DOING STEP 9				
	(DIS. HIT WILL BE ZERO IF THE BALL WENT IN THE WOODS OR IN A TRAP. JUST CONTINUE)				
11	NOW THAT YOU ARE ON THE GREEN, INPUT PERCENT PUTT ONLY	%	C	± A.B	SEE KEY
	± A.B				
	VELOCITY IN FT/SEC → DISTANCE TO THE HOLE (NEGATIVE AS YOU ARE APPROACHING, POSITIVE AS YOU GO AWAY)				
	THERE ARE TWO POSSIBLE DISPLAYS AT THIS POINT				
	① THE BALL HAS NOT BEEN HOLED AND THE VELOCITY IS ZERO				
	IN THIS CASE, GOTO STEP 11				
	② YOU HAVE HOLED THE BALL			X.3704	
	X = NR OF STROKES TO HOLE, .3704 IS 'HOLE' UP-SIDE DOWN				
	A.B WHERE B IS YOUR TOTAL SCORE AND A IS THE → AMOUNT BY WHICH YOU ARE ABOVE / BELOW PAR			A.B**	*
	THERE ARE 3 POSSIBLE DISPLAYS AT THIS POINT				
	① THIS IS THE END OF THE GAME			9.00 OR	
	IT WILL DISPLAY THE NR OF HOLES YOU PLAYED			18.00	
	② A FLASHING 1 INDICATES THAT YOU SHOULD GOTO STEP 12 ON THE OTHER PAGE			1	
	③ A STACK REVIEW MEANS THAT THIS IS YOUR NEXT HOLE. GOTO STEP 8			HOLE NR	STACK REVIEW
				PAR	
				WIDTH	
				LENGTH	

STEP KEY ENTRY KEY CODE

COMMENTS

STEP

KEY ENTRY

KEY CODE

COMMENTS

001	*LELE	21 12
002	1	01
003	2	02
004	STOI	35 46
005	SF8	16 21 00
006	GTOE	22 15
007	*LEL3	21 03
008	RCL8	36 12
009	RCL6	36 06
010	P2S	16-51
011	RCL5	36 15
012	+	-24
013	+	-55
014	STOI	35 45
015	P2S	16-51
016	D821	16 25 46
017	RTN	24
018	2	02
019	DSP2	-63 02
020	*LELD	21 14
021	PSE	16 51
022	GTOO	22 14
023	*LELD	21 00
024	RCL8	36 00
025	TAN-	16 43
026	FRC	16 44
027	STOO	35 00
028	RTN	24
029	*LELA	21 11
030	CF8	16 22 00
031	STOI	35 07
032	R4	-31
033	STOO	35 00
034	R4	-31
035	P2S	16-51
036	STOO	35 00
037	P2S	16-51
038	R4	-31
039	1	01
040	-	-45
041	.	-62
042	1	01
043	1	01
044	*	-35
045	.	-62
046	5	05
047	+	-55
048	STOO	35 13
049	*LELE	21 13
050	1	01
051	RCL1	36 46
052	X#Y?	16-32
053	STOO	22 09
054	4	04
055	STOE	35 05
056	STOI	22 01

COMING IN FROM MAIN
WITH HOLE NRS 4
THRU 14 TO GENERATE

10

STORE DIS. PAR

RANDOMIZATION

INITIALIZATION
STORE THE
VARIOUS THINGS.

STORE GRASS HEIGHT
CONSTANT

IF THIS IS HOLE 1, STORE
PAR 4

PAR 4

057	*LELE	21 08
058	2	02
059	+	-24
060	INT	16 34
061	2	02
062	x	-35
063	RCL1	36 46
064	-	-45
065	4	04
066	+	-55
067	STOE	35 06
068	RCL1	36 46
069	1	01
070	-	-45
071	4	04
072	+	-24
073	FRC	16 44
074	X#0?	16-42
075	GTO1	22 01
076	5	05
077	STOE	35 06
078	*LEL1	21 01
079	3	03
080	RCL6	36 06
081	X#Y?	16-32
082	GTO5	22 05
083	2	02
084	+	-24
085	*LEL5	21 05
086	RCLD	36 14
087	x	-35
088	RCL7	36 07
089	-	-45
090	GS88	23 00
091	7	07
092	0	00
093	x	-35
094	+	-55
095	INT	16 34
096	STOE	35 12
097	F0?	16 23 00
098	GTO4	22 04
099	GS83	23 03
100	GTOE	22 15
101	*LEL4	21 04
102	RCL1	36 46
103	9	09
104	-	-45
105	STOI	35 46
106	GS83	23 03
107	RCL1	36 46
108	9	09
109	+	-55
110	STOI	35 46
111	STOE	22 15
112	R4S	51

STORE PAR

5 PAR

3 PAR?

100

ALGO. FOR DETERMINING
DISTANCE

STORE DIS. PAR

RETURN TO ACTUAL HOLE NR

1.0000 STOI
1.0000 STOE
100.0000 STOE
10.0000 STOE
9.0000 STOI

FW/DATA

RECORD ON SIDE TWO OF
CARD NUMBER ONE

REGISTERS SAME AS MAIN

NOTE THE FOLLOWING KEYSTROKES →
ARE NECESSARY TO COMPLETE THE
PROGRAM CARD. THE ABOVE KEY -
STROKES HAVE TO BE RELOADED
ON SIDE ONE

0	1	2
S0	S1	S2
A	B	

STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
001	GT0E	22 15	GT0 DATA DISPLAY ROUT.	057	XBY?	16-35	IS OFF CENTER DIS & HOLE WIDTH
002	*LBLH	21 11		058	GT01	22 01	
003	DSP3	-63 03	SET DISPLAY FOR XXX.YYY	059	ISZ1	16 26 46	
004	SF0	16 21 03	SET FLAG FOR GREEN	060	0	00	INFLECT PENALTY STROKE
005	X0?	16-44		061	ST02	35 02	
006	GT02	22 02		062	*LBL1	21 01	
007	CH5	-21	CHANGE SIGN IF CLUB WAS A WOOD	063	ROL1	36 01	
008	GT03	22 03		064	ROL2	36 02	
009	*LBL2	21 02		065	-	-45	
010	5	05	ADD FIVE IF CLUB WAS AN IRON	066	+P	34	FIND TRUE LENGTH
011	+	-35		067	ST01	35 01	
012	*LBL3	21 03	EVALUATE DISTANCE THAT BALL WAS HIT	068	1	01	
013	5	05		069	2	02	
014	0	00		070	XBY	-41	
015	ROL7	36 07		071	XBY?	16-35	
016	-	-45		072	CF0	16 22 00	IS BALL ON GREEN?
017	X	-35		073	EEN	-23	
018	2	02		074	3	03	SET UP DISPLAY
019	0	00		075	+	-24	
020	ROL7	36 07		076	ROL2	36 02	
021	X	-35		077	+	-35	
022	+	-35		078	FRTX	-14	XXX.YYY
023	ROL0	36 14		079	F07	16 23 00	
024	+	-24		080	R/S	51	IF NOT ON GREEN, STOP
025	2	02		081	3	03	CONVERT YARDS TO FEET
026	1	01		082	STA1	35-35 01	
027	XBY	-41		083	GT0x	22 15 11	GT0 GREEN ROUTINE
028	-	-45		084	*LBL0	21 13	PUTTING ROUTINE
029	X	-35		085	DSP0	-63 00	
030	DSP0	23 00		086	ISZ1	16 26 46	
031	6	06		087	.	-62	INCREMENT HOLE SCORE
032	+	-35		088	7	07	
033	X	-35		089	YX	31	
034	6	06		090	2	02	
035	4	04		091	ROL7	36 07	
036	+	-24		092	X	-35	
037	INT	16 34		093	2	02	
038	ST02	35 02		094	G3E0	23 00	RANDOM VARIATION UP TO 24% OF VELOCITY
039	ISZ1	16 26 46	INCREMENT HOLE SCORE EVALUATE OFF-CENTER DISTANCE	095	X	-35	
040	6	06		096	-	-45	
041	+	-24		097	ST06	35 12	
042	TAN	43		098	GT02	22 02	STORE VELOCITY
043	HB5	16 31		099	*LBL7	21 07	
044	ROL7	36 07		100	DSP0	-63 00	
045	8	08		101	ROL7	36 12	
046	+	-24		102	ROL1	36 13	
047	1	01		103	X	-35	REDUCE VELOCITY BY GREEN CONSTANT
048	+	-35		104	ST08	35 12	
049	X	-35		105	RND	16 24	
050	G3E0	23 00		106	X=0?	16-43	
051	2	02		107	GT0x	22 15 11	
052	0	00		108	ROL6	36 12	
053	X	-35		109	ROL1	36 01	
054	X	-35		110	+	-55	
055	ROL5	36 05	HOLE WIDTH	111	INT	16 34	
056	XBY	-41		112	ST01	35 01	

REGISTERS

0 SEED	1 DIS TO HOLE	2 DIS HIT	3 HOLE NR	4 TOTAL SCORE	5 HOLE WIDTH	6 DAR	7 HANDICAP	8 AVERAGE (TOTAL PAR)	9 PUTT STRENGTH
S0 N2 HOLES	S1ST HOLE DATA	S2ND HOLE DATA	S3RD HOLE DATA	S4TH HOLE DATA	S5TH HOLE DATA	S6TH HOLE DATA	S7TH HOLE DATA	S8TH HOLE DATA	S9TH HOLE DATA
A 0.3704	B VELOCITY	C GRASS RESISTANCE CONSTANT	D 100	E 10	I HOLE SCORE				

STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
113	X#09	16-42	STORE NEW DIS	169	RCLO	35 00	NR OF HOLES TO BE PLAYED
114	GT02	22 02		170	P25	16-51	
115	5	05		171	X#Y9	16-53	WAS THIS THE LAST HOLE?
116	LN	32	DIS WAS 0, CHECK IF	172	R#5	51	YES
117	RCLE	36 12	VELOCITY IS LESS	173	1	01	INCREMENT NR OF HOLE
118	X#Y9	16-55	THAN 1.61 FT/SEC	174	ST+3	35-55 00	
119	GT05	22 05		175	RCLE	36 15	
120	*LBLE	21 02	IF BALL HOLED, GTO SCORE	176	RCLE	36 05	IS THIS HOLE NR 10?
121	RCLE	36 01	ROUT. DISPLAY ROUTINE	177	X#Y9	16-52	
122	RCLO	36 14		178	GT0E	22 15	
123	+	-24		179	*LBLE	21 14	
124	X#09	16-45	.YY WHERE W = DIS.	180	1	21	INDICATE THAT IS IS TIME
125	SF2	16 21 02		181	P2E	16 51	FOR RUNNING CARD 1 THRU
126	ABS	16 31		182	GT0E	22 14	
127	RCLE	36 12	EVERYTHING + SO IT ADDS	183	*LBLE	21 15	
128	RND	16 24	UP	184	RCLE	36 05	
129	+	-55		185	RCLE	36 15	
130	F29	16 23 02	XXX,YY	186	X#Y9	16-54	IF HOLE NR IS > 10,
131	THS	-22	IF IT WAS NEG,	187	GT05	22 05	SUBTRACT 4 FROM
132	DSF2	-63 02	CHS	188	R4	-31	IT TO GET THE NR
133	FRTX	-14		189	5	05	OF THE UPPER REGISTER
134	GT07	22 07	PRINT VELOCITY, DISTANCE	190	-	-45	THAT HAS THE DATA
135	*LBLE	21 16 11		191	X#Y	-41	FOR THAT HOLE.
136	RCLE	36 01	V = 0 OR BALL IS NOW ON	192	*LBLE	21 05	
137	X#09	16-45	GREEN	193	X#Y	-41	
138	GT06	22 06		194	ST01	35 45	
139	ABS	16 31		195	P25	16-51	
140	CHS	-22	MAKE SURE DIS IS NEG	196	RCLE	36 45	RCL HOLE DATA
141	INT	16 34		197	FRC	16 44	PAR
142	ST01	35 01		198	RCLE	36 45	DIS
143	DSF2	-63 02		199	INT	16 34	
144	RTH	24		200	P25	16-51	
145	*LBLE	21 06	SCORING ROUTINE	201	ST01	35 01	
146	RCLE	36 46	HOLE SCORE	202	LN	32	DERIVE WIDTH
147	ST+4	35-55 04	THE WORD 'HOLE' UPSIDE DOWN	203	5	05	
148	RCLE	36 11		204	+	-35	
149	+	-55		205	ST05	35 05	
150	DSF4	-63 04		206	6	26	
151	P2E	16 51		207	ST01	35 45	CLR HOLE SCORE
152	DSF2	-63 02	HOLE SCORE, 3704	208	RCLE	36 05	
153	RCLE	36 04		209	RT	16-31	
154	RCLE	36 31		210	RCLE	36 15	
155	-	-45	DIFFERENCE BETWEEN PL SCORE	211	X	-35	
156	X#09	16-45	AND TOTAL PAR	212	ST0E	35 0E	
157	SF2	16 21 02		213	ST+8	35-55 08	ADD PAR TO TOTAL PAR
158	ABS	16 31		214	RCLE	36 05	SETUP FOR STACK
159	RCLE	36 04		215	RCLE	36 01	
160	RCLO	36 14		216	DSF0	-53 00	PRINT DATA
161	+	-24		217	FFST	16-14	
162	+	-55		218	FRTX	24	
163	F29	16 23 02		219	*LBLE	21 00	RANDOMIZATION ROUTINE
164	CHS	-22		220	RCLE	36 00	
165	SF0	16-11		221	TAN	16 43	
166	FRTX	-14		222	FRC	16 44	
167	RCLE	36 05	HOLE NR	223	ST00	35 00	
168	P25	16-51		224	RTH	24	

LABELS			FLAGS			SET STATUS		
ANYAIN HIT ROUTINE	B	CPUTT ROUTINE	D PAUSE LOWP	E DATA PUWNT START	0 ON GREEN OR NOT	FLAGS	TRIG	DISP
a USED	b	c	d	e	1	ON OFF	DEG <input checked="" type="checkbox"/>	FIX <input checked="" type="checkbox"/>
0 RANDOMIZATION	1 USED	2 USED	3 USED	4	2 PUS OR NEG	0 <input type="checkbox"/> <input type="checkbox"/>	GRAD <input type="checkbox"/>	SCI <input type="checkbox"/>
5	6 USED	7 USED	8	9 USED	3	1 <input type="checkbox"/> <input type="checkbox"/>	RAD <input type="checkbox"/>	ENG <input type="checkbox"/>
						2 <input type="checkbox"/> <input type="checkbox"/>		n 3
						3 <input type="checkbox"/> <input type="checkbox"/>		