

00747D Program Description I

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Program Title FOOTBALL

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Program Description, Equations, Variables FOOTBALL PROGRAM KEEPS TRACK OF MOST OF THE ELEMENTS OF A FTBL GAME, LIKE YARDLINE, DOWN, YDS TO 1ST AND SCORE. THERE ARE 13 OPTIONS FOR THE OFFENSIVE PLAYER AND 4 OPTIONS FOR THE DEFENSIVE PLAYER.

EACH PLAY HAS A DATASET THAT GOVERNS THE POSSIBLE RANGE OF EVENTUALITIES.

a, b, c, c

DEFENSE 1 $2 * \text{RND}(c) - 3 * (\pm a)$

DEFENSE 2 $\text{RND}(c) - (\pm a)$

DEFENSE 3 $2 * \text{RND}(b) - (\pm 3 * a)$

DEFENSE 4 $\text{RND}(b) - (\pm a)$

WHERE IF $a > 10$, a IS NEG.

c, b ARE YARDAGE MAX.S FOR THAT PLAY (IF PASS PLAY, THEN $\text{MAX} = 2 * \text{NORMAL MAX}$)

WHERE $\text{RND}(x)$ GENERATES A P-RANDOM NR UP TO x

a IS USED FOR ADD-ON YARDAGE ON PASSES, MINUS YARDS ON GROUND PLAYS.

a IS ALSO THE PROBABILITY OF SUCCESS FOR A PASS.

$$\text{PROB} = 100 * \frac{1}{a}$$

THE RANDOMIZATION METHOD IS THE TAN^{-1} , DUE TO SPACE LIMITATIONS.

Operating Limits and Warnings IF PLAYER ONE'S SCORE GETS ABOVE 100, THE SCORING ROUTINE WILL PRESENT GARBAGE. YOU WILL HAVE TO KEEP TRACK OF THE SCORE INDEPENDENTLY IN THIS UNLIKELY CASE.

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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Program Description, Equations, Variables

OFFENSIVE PLAYS

1 = QB SNEAK

2 = PLUNGE/DIVE

3 = SLANT/RIDE

4 = DRAW

5 = FLOW-COUNTER

6 = SCREEN PASS

7 = LOOK-IN PASS

8 = SIDELINE PASS

9 = DEEP PASS

10 = PUNT

11 = KICK-OFF

12 = FIELD GOAL

13 = RUNBACK

TO COMPLETE THE DATA CARD, KEY THIS
IN AND STORE IT ON A 2ND CARD.

0.002 STO 1

1.006 STO 2

2.009 STO 3

3.012 STO 4

4.015 STO 5

5.117 STO 6

4.421 STO 7

3.524 STO 8

2.836 STO 9

100 STO D

10 STO E

f PZS

8.019 STO 0

13.017 STO 1

6.117 STO 2

2.025 STO 3

100 STO 7 → 1 STO 9

DEFENSES

1 : STUNT (PRESSURE VS RUN)

2 : PRO (CONTAINMENT VS RUN)

3 : BLITZ (PRESSURE VS PASS)

4 : NICKLE (CONTAINMENT VS PASS)

Operating Limits and Warnings NO LONG BOMBS CAN BE USED WHEN YDLINE
IS < 20

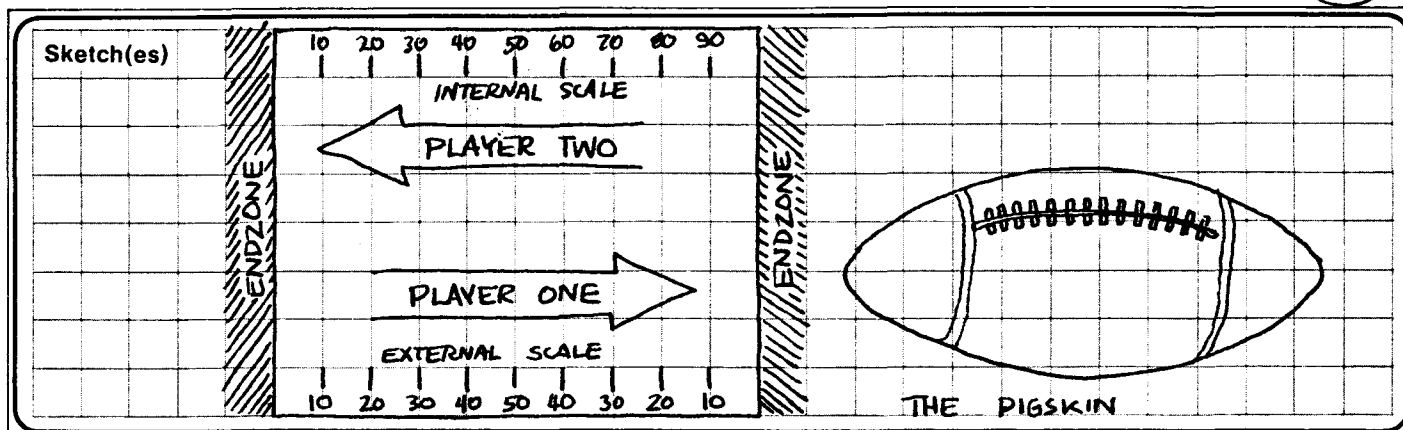
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Sample Problem(s)		PLAY FOOTBALL	6 B	0	SCREEN PASS
0.123456789	STO of a	INITIALIZE SEED	3 A	27	BLITZ GOOD FOR 27 YARDS
fe	30	KICK OFF POINT		2	STANDARD 5 OUTPUT
11 B	39	YARDS GAINED		1	
	1	PLAYER #		1	
	31	YDLINE		10	IS REALLY 1ST & GOAL, BUT IT DOESN'T MATTER.
	1	DOWN	2 B	0	PLUNGE/DIVE
THIS IS DELIBERATE, ONLY HAPPENS 1ST TIME	100	YDS TO FIRST	1 A	7	STUNT GOOD FOR 7 YARDS INTO ENDZONE
C	2	TURNOVER BALL TO 2ND PLAYER	fe	6.00	TD!
	31	YDLINE #	11 B	70	PREPARE TO KICK-OFF
	1	FIRST		57	KICK OF 57 YARDS
	10	↓ 10		2	STANDARD 5 OUTPUT
13 B	34	RUNBACK 34 YDS		13	
	2	2ND PLAYER		2	
				2	IGNORE AFTER KICKOFF BECAUSE
Solution(s)	35	YDLINE		3	
	1	FIRST	C	1	TURNOVER TO 1ST PL.
	10	AND TEN		13	
5 B	0	FLOW-COUNTER		1	
4 A	7	NICKLE GAIN OF 7 YARDS		10	
	2			10	
	28	STANDARD 5 OUTPUT	13 B	42	RUNBACK OF 42 YDS
	2			1	STANDARD 5 OUTPUT
	3			45	
				10	

Reference(s) HP65 LIB 1313A

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Sketch(es)

Sample Problem(s)

9B	0	LONG BOMB	1	
4A	9.999999+99	INCPED AT LINE OF SCR.	10	
C	2	TURN OVER BUT	0	LONG BOMB
	45	NO RUNBACK WHEN	0	UNSUCCESSFUL
	1	INCPED ON LINE/SCR.	2	
	10	PLAYER 2 HAS BALL AGAIN	39	ST 5
3B	0	SLANT/RIDE	2	
4A	2	NICKEL FOR 2	10	
	2		0	LOOK-IN PASS
	47	STANDARD 5	16	NICKLE PASS GOOD?
	2		2	
	8		23	ST 5
			1	
8B	0	SIDELINE PASS	10	
2A	7	PRO FOR 7	0	QB SNEAK FOR ONE YD
	2		1	
	46	ST 5	2	
	3		22	ST 5
	1		2	
4B	0	DRAW vs STUNT	9	
1A	7	FOR 7	0	FLOW-COUNTER
	2		8	PRO FOR 8 YDS
	39		2	

Reference(s)

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Sketch(es)

Sample Problem(s)

	14		7B	0	LOOKIN PASS
	3		4A	-4	QB LOST MORE YDS
	1			2	
1B	0	QB SNEAK VS		13	
1A	2	STUNT FOR 2		4	GOTTA GO FOR THE
	2			11	FIELD GOAL
	12	ST 5	12B	0	FIELD GOAL ATTEMPT
	1	1ST DOWN		2	NO GOOD *
	10			13	IGNORE **
2B	0	PLUNGE/DIVE VS BLITZ		4	
3A	8	FOR 8	C	11	
	2			1	TURNOVER
	4			13	
	2			1	

Solution(s)

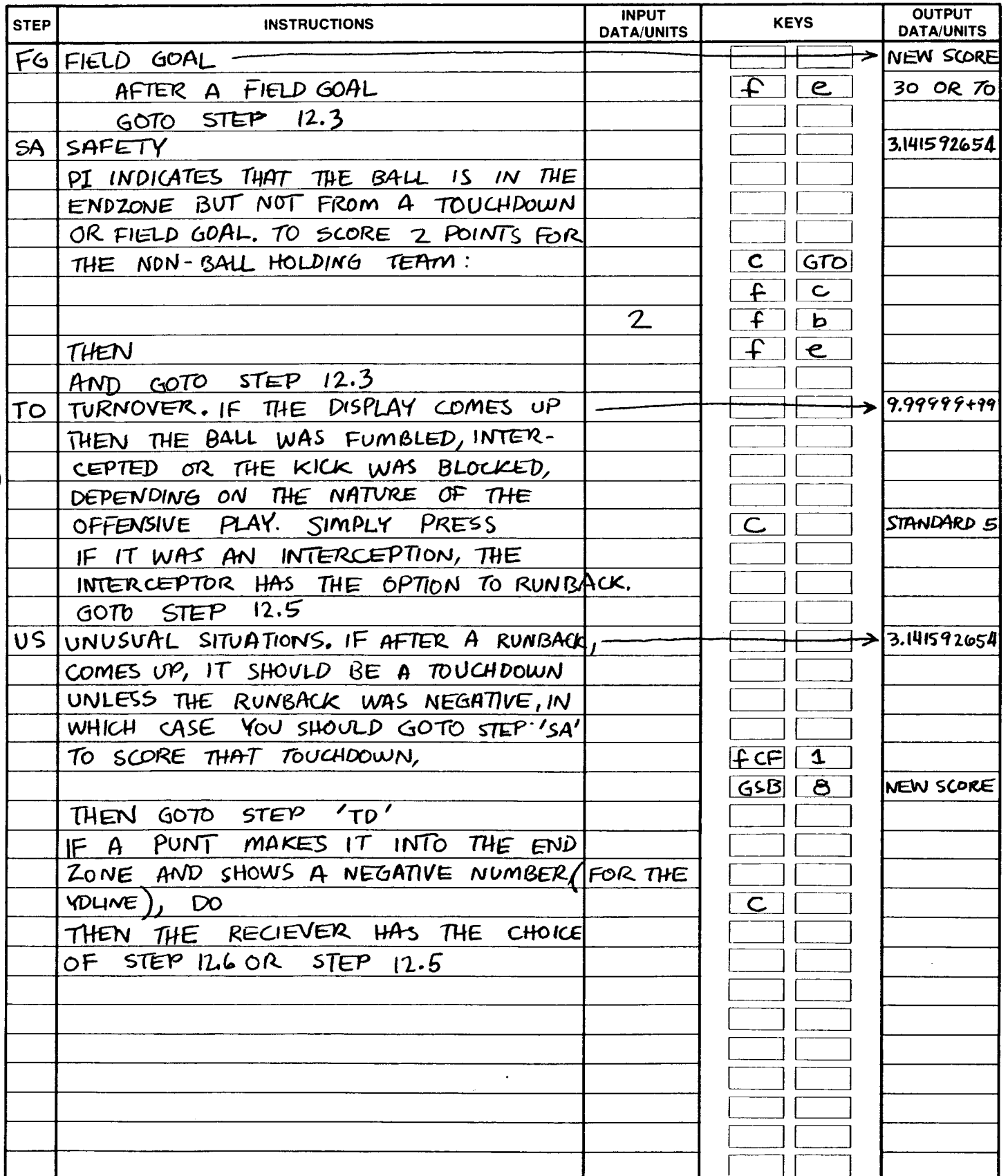
	2		10
	2		
8B	0	SIDELINE PASS	
3A	-5	SACKED THE QB!	* HAD IT BEEN GOOD, YOU
	2		WOULD HAVE SEEN A YARDAGE,
	9		THEN THE NEW SCORE
	3		** NO NEED TO RESTORE THE
	7		PREVIOUS YDLINE BECAUSE YDS
			GAINED = 0

Reference(s)

SEED STO 0 INITIALIZE	FOOTBALL		DOWN BALL ON 20 YDLNE	SET UP FOR KICKOFF
DEFENSE #	OFFENSE #	TURNOVER	THE SCORE	PLAYER NR. YARDLINE DOWN NR. YDS TO 1ST

STEP	INSTRUCTIONS	INPUT DATA/UNITS	KEYS	OUTPUT DATA/UNITS
1	LOAD SIDE 1 + 2 OF DATA CARD		<input type="text"/> <input type="text"/>	
2	LOAD SIDE 1 + 2 OF PROGRAM		<input type="text"/> <input type="text"/>	
3	ENTER SEED (DIFFERENT EACH TIME) INITIALIZE	$0 < n < 1$	STO o f a	
4	PLAYER ONE KICKS-OFF		f e	30
		11	B <input type="text"/>	YDS GAINED
			<input type="text"/> <input type="text"/>	PLAYER NR
			<input type="text"/> <input type="text"/>	YARDLINE
			<input type="text"/> <input type="text"/>	DOWN
			<input type="text"/> <input type="text"/>	YDS TO 1ST
5	TURNOVER BALL TO PLAYER 2		C <input type="text"/>	PLAYER NR
			<input type="text"/> <input type="text"/>	YARDLINE
			<input type="text"/> <input type="text"/>	DOWN
			<input type="text"/> <input type="text"/>	YDS. TO 1ST
6	PLAYER 2 CAN CHOOSE TO RUNBACK OR DOWN THE BALL TO RUNBACK BALL,	13	B <input type="text"/>	YDS GAINED
			<input type="text"/> <input type="text"/>	PLAYER NR
			<input type="text"/> <input type="text"/>	YARDLINE
			<input type="text"/> <input type="text"/>	DOWN
			<input type="text"/> <input type="text"/>	YDS TO 1ST
	TO DOWN BALL,		f d	80
7	PLAYER 2 INPUTS OFFENSIVE PLAY	PLAY NR	B <input type="text"/>	0.00
8	PLAYER 1 SELECTS DEFENSIVE PLAY	PLAY NR	A <input type="text"/>	STANDARD 5
	IN GENERAL:		<input type="text"/> <input type="text"/>	
9	ALWAYS INPUT OFFENSE BEFORE DEFENSE. IF THE PLAY NR IS > 10, THE PROG. AUTOMATICALLY SELECTS DEFENSE 1 AND PROCEEDS FROM THERE	OFFENSE PLAY NR	B <input type="text"/>	0.00
10	ALWAYS USE DEFENSES 1-4, OTHER- WISE PROGRAM BOMBS	DEFENSE PLAY NR	A <input type="text"/>	STANDARD 5
11	PLAYERS KEEP CYCLING BETWEEN 9 AND 10 UNTIL ONE OF THE FOLLOWING OCCURS:		<input type="text"/> <input type="text"/>	
TD	TOUCHDOWN		<input type="text"/> <input type="text"/>	NEW SCORE
	AFTER A TD,		f e	30 OR 70
	GOTO STEP 12.3		<input type="text"/> <input type="text"/>	
	(PROG. AUTO. CALCS. P.A.T. FOR YOU)		<input type="text"/> <input type="text"/>	

STANDARD 5 output



CLEAR IF GROUND PLAY
CC
CC

IF PLAY IS ZYX, INPUT
DEFENSE OF 1 AUTO.
AND CALCULATE YDS.

DEFENSE NR 3

DEFENSE NR 1

DEFENSE NR 4

DEFENSE NR 2

STORE YARDAGE

IF GROUND PLAY,
GTO b

PROB OF
FAILURE $\frac{1}{9}$

PROB OF
PASS
SUCCESSFUL

PROB OF
FUMBLE $\frac{1}{40}$

356 S10A 35 11

REGISTERS

112 5020 10 00

0	8.019	1	13.017	2	6.117	3	2.025	4	40LINE	5	$\pm a$	6	a	7	YDS TO GO TO FIRST	8	SCORE	9	DOWN NR.
S0	SEED	S1	0.002	S2	1.006	S3	2.009	S4	3.012	S5	4.015	S6	5.117	S7	4.421	S8	3.524	S9	2.836
A	b		B YARDS GAINED ON LAST PLAY			C		c		D		100		E		10		I DEFENSE NR.	

STEP	KEY ENTRY	KEY CODE	COMMENTS	STEP	KEY ENTRY	KEY CODE	COMMENTS
113	X=0	16-43		163	RTN	24	
114	ST06	22 06	IF FUMBLE, GTO 6	170	*LBL6	21 16 13	
115	*LBL5	21 05		171	3	03	
116	RCLB	36 12	PAUSE ON YARDAGE	172	GT06	22 16 12	
117	PSE	16 51		173	*LBL8	21 08	
118	F0?	16 23 00	MODIFY FOR OWNING PL.	174	F1?	16 23 01	
119	CHS	-22	ADD TO CURRENT YOLINE	175	GT07	22 07	
120	ST+4	35-55 04		176	1	01	
121	F1?	16 23 01		177	7	07	
122	GT06	22 16 12	IF THIS PLAY NR > 10	178	ST0C	35 13	
123	1	01	DONT INCREMENT DOWN	179	GSB0	23 00	
124	ST+9	35-55 09	OR SUBTRACT YARDS	180	8	08	
125	RCLB	36 12	DECREMENT YDS TO 1ST	181	X>Y?	16-34	
126	ST-7	35-45 07		182	X<Y?	16-35	
127	RCL7	36 07		183	7	07	
128	X>0?	16-44		184	X>Y?	16-34	
129	GT06	22 16 12		185	6	06	
130	RCL6	36 15		186	*LBL6	21 16 12	
131	ST07	35 07	1ST DOWN!	187	F0?	16 23 00	
132	1	01		188	GT06	22 16 12	
133	ST09	35 09		189	RCLD	36 14	
134	RCL6	36 06		190	=	-24	
135	8	08	IF PUNT, NO 1ST DOWN	191	*LBL6	21 16 12	
136	X=Y?	16-33		192	ST+8	35-55 08	
137	GT0E	22 15		193	RCL8	36 08	
138	*LBL6	21 16 12	CHECK FOR ENDZONE SITUATIONS.	194	DSP2	-63 02	
139	RCLD	36 14		195	RTN	24	
140	RCL4	36 04		196	*LBL7	21 07	
141	X<0?	16-45	LINE < 0	197	6	06	
142	GT08	22 08	LINE > 100	198	RCL6	36 06	
143	X>Y?	16-34		199	X=Y?	16-33	
144	GT08	22 08		200	GT06	22 16 13	
145	RCL9	36 09		201	Pi	16-24	
146	5	05	IS PLAYER OUT OF DOWNS?	202	DSP9	-63 09	
147	X<Y?	16-35		203	RTN	24	
148	GT0C	22 13	TURN OVER IF SO	204	*LBL6	21 06	
149	*LBL6	21 15	DATA PRINTOUT ROUTINE	205	RCLD	36 14	
150	DSP0	-63 00		206	N!	16 52	
151	1	01	PLAYER NR	207	RTN	24	
152	F0?	16 23 00		208	*LBL6	21 16 15	
153	2	02		209	3	03	
154	RCL4	36 04		210	0	00	
155	5	05		211	GT06	22 16 12	
156	0	00	GET YOLINE IN RIGHT FORMAT	212	*LBLd	21 16 14	
157	X<Y	-41		213	2	02	
158	X<Y?	16-35		214	0	00	
159	GT06	22 16 12		215	*LBL6	21 16 12	
160	RCLD	36 14		216	RCLD	36 14	
161	X<Y	-41		217	X<Y	-41	
162	-	-45		218	F0?	16 23 00	
163	*LBL6	21 16 12		219	-	-45	
164	X<Y	-41		220	ST04	35 04	
165	R4	-31		221	RTN	24	
166	RCL9	36 09	DOWN NR	222	*LBL6	21 16 11	
167	RCL7	36 07	YDS TO FIRST	223	P<S	16-51	
168	PPST	16-14	PRINT	224	RTN	24	

LABELS

FLAGS

SET STATUS

A DEFENSE	B OFFENSE	C TURNOVER	D SCORE ?	E REVIEW DATA	0 SET = PLAYER 2 HAS BALL	FLAGS	TRIG	DISP
a INITIALIZE	b SKIP LABEL FOR JUMPING	c FIELD GOAL	d DOWN BALL ON TWENTY	e SET UP FOR KICK-OFF	1 SET = PLAY NR IS > 10	ON OFF	DEG <input checked="" type="checkbox"/>	FIX <input checked="" type="checkbox"/>
0 RANDOMIZATION	1 STUNT	2 PRO	3 BLITZ	4 NICKEL	2 SET = PASS	1 <input type="checkbox"/> <input type="checkbox"/>	GRAD <input type="checkbox"/>	SCI <input type="checkbox"/>
5 MAIN CONTROL	6 INTERCEPT	7 CHECK FOR FIELD GOAL	8 SCORING ROUTINE	9 MAIN CONTROL	3	2 <input type="checkbox"/> <input type="checkbox"/>	RAD <input type="checkbox"/>	ENG <input type="checkbox"/>
						3 <input type="checkbox"/> <input type="checkbox"/>		n 2