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A U.S. AIR FORCE COST ANALYSIS COST ESTIMATING MODEL PROGRAM FO--ETC(U)

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A U.S. AIR FORCE COST ANALYSIS COST ESTIMATING MODEL PROGRAM FOR  
USE WITH THE TI PROGRAMMABLE 59 HANDHELD CALCULATOR

Captain Joe M. Balding

May 1978

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The Rand Corporation  
Santa Monica, California 90406



A U.S. AIR FORCE COST ANALYSIS COST ESTIMATING MODEL PROGRAM FOR  
USE WITH THE "TI PROGRAMMABLE 59" HANDHELD CALCULATOR

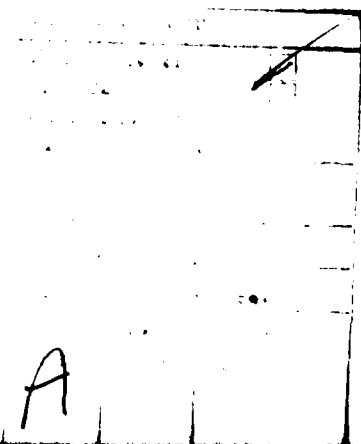
by

Captain Joe M. Balding

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I. INTRODUCTION

This paper documents a Texas Instruments "TI Programmable 59" calculator program that uses the U.S. Air Force Cost Analysis Cost Estimating (CACE) model described in Air Force Regulation 173-10, Volume I, USAF Cost and Planning Factors, dated 6 February 1975. The CACE model was designed with a "building block" approach to estimate annual operating costs of aircraft weapon systems. The model is useful to Air Force organizations, other Government agencies, and government contractors for cost analysis, life cycle cost exercises, or studies concerned with cost effectiveness comparisons between weapon systems. The program described in this paper provides the user with a means of using the CACE model with a handheld programmable calculator, eliminating lengthy manual computation or the necessity of using a computer. With its calculator connected to the Texas Instruments "PC-100A Print Cradle," the program allows the user to select among several cost factor input methods, estimate output formats, and summarization options. Although detailed instructions are included within the paper, familiarity with the "TI Programmable 59" calculator and/or the "PC-100A Print Cradle" is assumed.



II. ABBREVIATIONS LIST

AFR	Air Force Regulation
AMY	Airman Manyears
BM	Base Maintenance
BOS	Base Operation and Support
CACE	Cost Analysis Cost Estimating
CMY	Civilian Manyears
CR	Crew Ratio
DM	Depot Level
FAC	Flyaway Cost
FH	Flying Hour
MED	Medical
MMY	Military Manyears
MOD	Modification
MY	Manyears
OMY	Officer Manyears
PC	Print Cradle
PCS	Permanent Change of Station
PPE	Primary Program Element
RPM	Real Property Maintenance
SE	Support Equipment
UE	Unit of Equipment
UPT	Underground Pilot Training
UR	Utilization Rate
USAF	United States Air Force
TI	Texas Instruments
YR	Year

### III. USER PROCEDURES

The user should become familiar with the program description contained in Appendix A and the CACE Model described in Appendix B.

1. Enter program card sides 1 and 2.
2. Select output option using the following table.

Output Option	Press			
<sup>a</sup> Print/Subtotals	<sup>b</sup> RST			
<sup>a</sup> Print/Total Only	RST	2	D	
No Print/Subtotals	RST	1	D	
No Print/Total Only	1	D	2	D

<sup>a</sup>The print options require that the calculator be used with the PC-100A Print Cradle.

<sup>b</sup>This is the default option and does not need to be selected unless another option was previously selected.

3. Enter CACE cost factors. (See Appendix C). An example set of factors is shown in Appendix D.
  - a. If the factors are on magnetic card, enter card sides 3 and 4.
  - b. Enter factors not entered by magnetic card. Press "x" "STO" "nn," where "x" is desired factor and "nn" is appropriate data register as shown in Appendix C. Repeat as necessary.
  - c. If desired, record factors on magnetic card. Press "3" "2nd" "write," enter card, press "4" "2nd" "write," enter opposite end of card.
4. Input unit of value e.g., "1000000" to obtain estimates expressed in millions, or "1000" for thousands. Press "x" "B," where "x" is the unit of value. The unit of value is stored in register 55 and may be recorded on a magnetic card with other input data as described in Step 3c.

5. Input decimal places, e.g., "3" to display estimates to three decimal places. Press "x" "C," where "x" is the number of decimal places desired. The number of decimal places is stored in register 56 and may be recorded on a magnetic card with other input data as described in Step 3c.

6. Compute estimates. Press "A."

- a. If "print/subtotal" option is selected, the estimates will be printed by the printer in the format shown in Appendix E. The same will result if no output option is selected.
- b. If "print/total only" option is selected, the total estimate will be printed by the printer, e.g.,  
"33.787      z."
- c. If the "no print/total only" option is selected, the calculator will display the total estimate, e.g.,  
"33.787."
- d. If the "no print/subtotal" option is selected, the calculator will display the first estimate produced by the CACE model and stop. Press "R/S" to calculate and display subsequent estimates. This step (6d) should be repeated until all the estimates have been displayed. A worksheet similar to that shown in Appendix F may be used to record the estimates as they are displayed.

Appendix A

PROGRAM DESCRIPTION

GENERAL

The program uses the CACE model and cost factors defined in AFR 173-10. Appendix B contains a description of the CACE model. The program allows the user to input the 46 cost factors manually or from a previously recorded magnetic card. Output estimates may be recorded manually using the worksheet provided in this paper, or recorded automatically by using the printer. The estimates may be displayed by element with subtotals for each category, or by grand total only. These display options are available whether or not the printer is used. The output options are selected by using flags as shown below. The unit of value and decimal places may be input by the user and stored on a magnetic card with other input data.

The following flags are used:

<u>Flag</u>	<u>Purpose</u>
1	Execute no print option.
2	Execute total only option.

The following data registers are used:

<u>Register</u>	<u>Purpose</u>
00	Not used.
01-46	Cost factors (see Appendix C).
47-53	Not used.
54	Flag pointer.
55	Unit of value (divisor).
56	Decimal places.
57	Grand total accumulator.
58	Temporary storage of estimate to be displayed.
59	Subtotal accumulator.

The following labels are used:

<u>Label</u>	<u>Step Locator</u>	
A'	001	Subroutine-formats estimate for display and accumulation.
CE	018	Subroutine-return instruction.
C'	021	Subroutine-checks for total only option.
LNx	026	Subroutine-prints.
B'	043	Subroutine-sets up subtotal for printing.
STO	061	Subroutine-iterative.
RCL	066	Subroutine-iterative.
E'	072	Subroutine-iterative.
D'	079	Subroutine-iterative.
E	092	Subroutine-iterative.
INV	105	Subroutine-iterative.
A	123	Initiates program.
CLR	456	Subroutine-stop and return instruction for no print option.
B	460	Stores unit of value in register 55.
C	465	Stores decimal places in register 56.
D	470	Selects output option.

Program Steps

000	76	LBL	↓	Formats estimate
001	16	A'	↓	for display and
002	95	=		accumulation
003	55	+		
004	43	RCL	}	Unit of value
005	55	55		
006	95	=		
007	58	FIX	}	Sets decimal places
008	40	IND		
009	56	56		
010	52	EE	}	Truncates digits not displayed
011	22	INV		
012	52	EE		
013	44	SUM	}	Accumulates subtotal
014	59	59		
015	42	STD		
016	58	58	}	Holds display value
017	76	LBL		
018	24	CE		Return instruction used if flag 2 set
019	92	RTN		
020	76	LBL	↓	Checks flag 2
021	18	C'	↓	
022	87	IFF	}	Return if flag set
023	02	02		
024	24	CE		
025	76	LBL	↓	Prints estimate
026	23	LNx	↓	
027	58	FIX		
028	09	09		
029	69	DP		
030	04	04		
031	58	FIX	}	Sets decimal places
032	40	IND		
033	56	56		
034	43	RCL	}	Recalls display value
035	58	58		
036	87	IFF	}	Checks flag 1 Stops if set
037	01	01		
038	25	CLR		
039	69	DP		

Program Steps  
(Cont)

040	06	06	
041	92	RTN	
042	76	LBL	↓
043	17	B'	
044	65	*	
045	04	4	
046	22	INV	
047	28	LOG	
048	95	=	
049	48	EXC	
050	59	59	
051	42	STD	
052	58	58	
053	44	SUM	
054	57	57	
055	00	0	
056	48	EXC	
057	59	59	
058	61	GTO	
059	18	C'	
060	76	LBL	↓
061	42	STD	
062	43	RCL	
063	02	02	
064	65	*	
065	76	LBL	↓
066	43	RCL	
067	43	RCL	
068	01	01	
069	65	*	
070	92	RTN	
071	76	LBL	↓
072	10	E'	
073	71	SBR	
074	43	RCL	
075	43	RCL	
076	03	03	
077	92	RTN	
078	76	LBL	↓
079	19	D'	

Sets up to display subtotal

Indents category title

Places subtotal into register for display

Accumulates grand total

Zeros subtotal accumulator

Iterative subroutine

Iterative subroutine

Iterative subroutine

Iterative subroutine

Program Steps  
(Cont)

080	53	(	
081	43	RCL	
082	04	04	
083	85	+	
084	43	RCL	
085	07	07	
086	85	+	
087	43	RCL	
088	10	10	
089	54	)	
090	92	RTH	
091	76	LBL	Iterative subroutine
092	15	E	↓
093	53	(	
094	43	RCL	
095	05	05	
096	85	+	
097	43	RCL	
098	08	08	
099	85	+	
100	43	RCL	
101	11	11	
102	54	)	
103	92	RTH	
104	76	LBL	Iterative subroutine
105	22	INV	↓
106	19	D'	
107	75	-	
108	10	E'	
109	65	*	
110	53	(	
111	43	RCL	
112	13	13	
113	85	+	
114	43	RCL	
115	14	14	
116	54	)	
117	95	=	
118	65	*	
119	43	RCL	

Program Steps  
(Cont)

120	45	45	
121	92	RTN	
122	76	LBL	Main program
123	11	A	
124	25	CLR	Zeros accumulators
125	42	STD	
126	59	59	
127	42	STD	
128	57	57	
129	71	SBR	
130	43	RCL	
131	43	RCL	
132	35	35	
133	16	A'	Formats estimate for display
134	01	1	
135	03	3	A
136	18	C'	Checks output option/displays estimate
137	71	SBR	
138	42	STD	
139	43	RCL	
140	27	27	
141	16	A'	
142	01	1	
143	04	4	
144	18	C'	
145	71	SBR	
146	42	STD	
147	43	RCL	
148	28	28	
149	85	+	
150	71	SBR	
151	43	RCL	
152	43	RCL	
153	29	29	
154	16	A'	
155	01	1	
156	05	5	
157	18	C'	
158	71	SBR	
159	42	STD	

Program Steps  
(Cont)

160	43	RCL
161	30	30
162	85	+
163	71	SBR
164	43	RCL
165	43	RCL
166	31	31
167	16	A'
168	01	1
169	06	6
170	18	C'
171	71	SBR
172	43	RCL
173	43	RCL
174	33	33
175	65	x
176	43	RCL
177	34	34
178	16	A'
179	01	1
180	07	7
181	18	C'
182	71	SBR
183	43	RCL
184	43	RCL
185	25	25
186	85	+
187	10	E'
188	65	x
189	43	RCL
190	26	26
191	16	A'
192	02	2
193	01	1
194	18	C'
195	71	SBR
196	42	STD
197	43	RCL
198	32	32
199	16	A'

Program Steps  
(Cont)

200	02	2
201	02	2
202	18	C'
203	19	D'
204	85	+
205	15	E
206	95	=
207	65	*
208	43	RCL
209	24	24
210	16	A'
211	02	2
212	03	3
213	18	C'
214	02	2
215	17	B' }
216	19	D' }
217	65	*
218	43	RCL
219	16	16
220	85	+
221	15	E
222	65	*
223	43	RCL
224	17	17
225	16	A'
226	02	2
227	04	4
228	18	C'
229	43	RCL
230	06	06
231	85	+
232	43	RCL
233	09	09
234	85	+
235	43	RCL
236	12	12
237	95	=
238	65	*
239	43	RCL

- 1
- Indents title and displays estimate

Program Steps  
(Cont)

240	18	18
241	16	A'
242	02	2
243	05	5
244	18	C'
245	03	3
246	17	B'
247	43	RCL
248	04	04
249	85	+
250	43	RCL
251	05	05
252	85	+
253	43	RCL
254	06	06
255	95	=
256	65	X
257	43	RCL
258	23	23
259	16	A'
260	02	2
261	06	6
262	18	C'
263	43	RCL
264	07	07
265	85	+
266	43	RCL
267	10	10
268	85	+
269	43	RCL
270	08	08
271	85	+
272	43	RCL
273	11	11
274	85	+
275	43	RCL
276	09	09
277	85	+
278	43	RCL
279	12	12

Program Steps  
(Cont)

280	95	=
281	65	*
282	43	RCL
283	23	23
284	16	A'
285	02	2
286	07	7
287	18	C'
288	04	4
289	17	B'
290	19	D'
291	65	*
292	43	RCL
293	21	21
294	16	A'
295	03	3
296	00	0
297	18	C'
298	15	E
299	65	*
300	43	RCL
301	22	22
302	16	A'
303	03	3
304	01	1
305	18	C'
306	05	5
307	17	B'
308	19	D'
309	65	*
310	43	RCL
311	19	19
312	16	A'
313	03	3
314	02	2
315	18	C'
316	15	E
317	65	*
318	43	RCL
319	20	20

Program Steps  
(Cont)

320	16	A'
321	03	3
322	03	3
323	18	C'
324	06	6
325	17	B'
326	10	E'
327	65	X
328	43	RCL
329	13	13
330	65	X
331	43	RCL
332	43	43
333	65	X
334	43	RCL
335	41	41
336	16	A'
337	03	3
338	04	4
339	18	C'
340	10	E'
341	65	X
342	43	RCL
343	14	14
344	65	X
345	43	RCL
346	44	44
347	65	X
348	43	RCL
349	41	41
350	16	A'
351	03	3
352	05	5
353	18	C'
354	71	SBR
355	22	INV
356	65	X
357	43	RCL
358	41	41
359	16	A'

Program Steps  
(Cont)

360	03	3
361	06	6
362	18	C'
363	15	E
364	65	X
365	43	RCL
366	46	46
367	65	X
368	43	RCL
369	42	42
370	16	A'
371	03	3
372	07	7
373	18	C'
374	10	E'
375	65	X
376	43	RCL
377	13	13
378	65	X
379	43	RCL
380	43	43
381	65	X
382	43	RCL
383	36	36
384	16	A'
385	04	4
386	01	1
387	18	C'
388	10	E'
389	65	X
390	43	RCL
391	14	14
392	65	X
393	43	RCL
394	44	44
395	65	X
396	43	RCL
397	37	37
398	16	A'
399	04	4

Program Steps  
(Cont)

400	02	2
401	18	C'
402	71	SBR
403	22	INV
404	65	X
405	43	RCL
406	38	38
407	16	A'
408	04	4
409	03	3
410	18	C'
411	43	RCL
412	15	15
413	65	X
414	43	RCL
415	46	46
416	65	X
417	43	RCL
418	39	39
419	16	A'
420	04	4
421	04	4
422	18	C'
423	15	E
424	75	-
425	43	RCL
426	15	15
427	95	=
428	65	X
429	43	RCL
430	46	46
431	65	X
432	43	RCL
433	40	40
434	16	A'
435	04	4
436	05	5
437	18	C'
438	07	7
439	17	B'

Program Steps  
(Cont)

440	43	RCL	}	Places grand total into register for display
441	57	57		
442	42	STO		
443	58	58		
444	04	4		
445	06	6		
446	71	SBR		
447	23	LN $\bar{X}$		
448	58	FIX	}	Returns floating decimal
449	09	09		
450	25	CLR	}	Zeros calculator display
451	98	ADV		
452	98	ADV		
453	98	ADV		
454	98	ADV		
455	76	LBL	└	Stop and return instructions for no print option
456	25	CLR		
457	91	R/S		
458	92	RTN		
459	76	LBL	└	Stores unit of value
460	12	B		
461	42	STO		
462	55	55		
463	91	R/S		
464	76	LBL	└	Stores decimal places
465	13	C		
466	42	STO		
467	56	56		
468	91	R/S		
469	76	LBL	└	Sets flag
470	14	D		
471	42	STO		
472	54	54		
473	86	STF		
474	40	IND		
475	54	54		
476	91	R/S		
477	00	0		
478	00	0		
479	00	0		

Appendix B

COST ANALYSIS COST ESTIMATING (CACE) MODEL

Recurring Investment and Miscellaneous Logistics

$$I = A + B + C + D + E + F + G + H$$

Common Support Equipment (including spares)

$$A = {}^a_{UE} \times \text{SE Factor} \\ {}^b_{000} \times 180$$

Aviation Fuel

$$B = UE \times FH \times \text{Fuel Factor} \\ 000 \times 005 \times 140$$

Base Level Aircraft Maintenance (material only)

$$C = (UE \times FH \times \text{BM/FH Factor}) + (UE \times \text{BM/UE Factor}) \\ (000 \times 005 \times 145) + (000 \times 150)$$

Depot Level Aircraft Maintenance

$$D = (UE \times FH \times \text{DM/FH Factor}) + (UE \times \text{DM/UE Factor}) \\ (000 \times 005 \times 155) + (000 \times 160)$$

Class IV Modifications (including initial spares)

$$E = UE \times \text{FAC} \times \text{MOD Factor} \\ 000 \times 170 \times 175$$

Training Munitions

$$F = (UE \times \text{UE Related Factor}) + (UE \times \text{CR} \times \text{Crew-related Factor}) \\ (000 \times 135) + (000 \times 010 \times 137)$$

---

<sup>a</sup> Abbreviations are defined in Abbreviations List.

<sup>b</sup> Numeric codes are named in Appendix C with their associated locations in calculator data memory. The actual factors may be found by referring to Table 51A, AFR 173-10, Vol. I.

Replenishment Spares

$$G = UE \times FH \times \text{Replenishment Spares Factor} \\ 000 \times 005 \times 165$$

Vehicular Equipment

$$H = \text{PPE, BOS/RPM and MED MMY} \times \text{UE Factor} \\ (015 + 030 + 045 + 020 + 035 + 050) \times 130$$

Pay and Allowances for:

$$2 = I + J$$

Military

$$I = (\text{PPE, BOS/RPM and MED OMY} \times \text{Pay Factor}) + (\text{PPE, BOS/RPM} \\ \text{and MED AMY} \times \text{Pay Factor}) \\ [(015 + 030 + 045) \times 085] + [(020 + 035 + 050) \times 090]$$

Civilian

$$J = \text{PPE, BOS/RPM and MED CMY} \times \text{Pay Factor} \\ (025 \times 040 + 055) \times 100$$

Major Force Program II - BOS/RPM Support of

$$3 = K + L$$

PPE Manpower

$$K = \text{PPE MY} \times \text{BOS/RPM Factor} \\ (015 + 020 + 025) \times 125$$

BOS/RPM and MED Manpower

$$L = \text{BOS/RPM and MED MY} \times \text{BOS/RPM and MED Factor} \\ (030 + 045 + 035 + 050 + 040 + 055) \times 125$$

Major Force Program VIII - Support of

$$4 = M + N$$

Officers

$$M = \text{PPE, BOS/RPM and MED OMY} \times \text{Medical Factor} \\ (015 + 030 + 045) \times 115$$

Airmen

$$N = \text{PPE, BOS/RPM and MED AMY} \times \text{Medical Factor} \\ (020 + 035 + 050) \times 120$$

Personnel Support - Personnel Change of Station for

$$5 = O + P$$

Officers

$$O = \text{PPE, BOS/RPM and MED OMY} \times \text{PCS Factor} \\ (015 + 030 + 045) \times 105$$

Airmen

$$P = \text{PPE, BOS/RPM and MED AMY} \times \text{PCS Factor} \\ (020 + 035 + 050) \times 110$$

"Pipeline" Costs

$$6 = Q + R + S + T + U + V + W + X + Y$$

Pilot Officer Acquisition

$$Q = \text{UE} \times \text{CR} \times \text{Pilot/Crew} \times \text{Turnover Factor} \times \text{Acquisition Factor} \\ 000 \times 010 \times 060 \times 250 \times 210$$

Nonpilot Aircrew Officer Acquisition

$$R = \text{UE} \times \text{CR} \times \text{Nonpilot/Crew} \times \text{Turnover Factor} \times \text{Acquisition} \\ \text{Factor} \\ 000 \times 010 \times 065 \times 255 \times 210$$

Nonaircrew Officer Acquisition

$$S = \text{Nonrated Officer MY} \times \text{Turnover Factor} \times \text{Acquisition} \\ \text{Factor} \\ \{(015 + 030 + 045) - [000 \times 010 \times (060 + 065)]\} \times 260 \times 210$$

Airmen Acquisition

$$T = \text{PPE, BOS/RPM and MED AMY} \times \text{Turnover Factor} \times \text{Acquisition} \\ \text{Factor} \\ (020 + 035 + 050) \times 265 \times 215$$

Pilot Officer Training

$$U = \text{UE} \times \text{CR} \times \text{Pilots/Crew} \times \text{Turnover Factor} \times \text{UPT Training} \\ \text{Factor} \\ 000 \times 010 \times 060 \times 250 \times 185$$

Nonpilot Aircrew Officer Training

$$V = \text{UE} \times \text{CR} \times \text{Other Aircrew MY} \times \text{Turnover Factor} \times \text{Training} \\ \text{Factor} \\ 000 \times 010 \times 065 \times 255 \times 190$$

Nonaircrew Officer Training

$$W = \text{Nonaircrew MY} \times \text{Turnover Factor} \times \text{Training Factor} \\ \{(015 + 030 + 045) - [000 \times 010 \times (060 + 065)]\} \times \\ 260 \times 195$$

Base Level Aircraft Maintenance Airmen Training

$$X = \text{Maintenance AMY} \times \text{Turnover Factor} \times \text{Training Factor} \\ 075 \times 265 \times 200$$

Airmen Training (less aircraft maintenance airmen)

$$Y = (\text{PPE, BOS/RPM and MED AMY} - \text{Maintenance AMY}) \times \text{Turnover} \\ \text{Factor} \times \text{Training Factor} \\ (020 + 035 + 050 - 075) \times 265 \times 205$$

Grand Total Estimate

$$Z = 1 + 2 + 3 + 4 + 5 + 6$$

Appendix C

CACE COST FACTORS

<u>Data</u> <u>Register</u>	<u>Model</u> <u>Code</u>	<u>Factor Description</u>
01	000	Unit Equipment (UE)
02	005	Utilization Rate (UR)
03	010	Crew Ratio (CR)
04	015	Primary Program Element-Officers
05	020	Primary Program Element-Airmen
06	025	Primary Program Element-Civilians
07	030	Base Operations/Real Property Maintenance (BOS/RPM)-Officers
08	035	Base Operations/Real Property Maintenance (BOS/RPM)-Airmen
09	040	Base Operations/Real Property Maintenance (BOS/RPM)-Civilian
10	045	Medical Dispensary-Officers
11	050	Medical Dispensary-Airmen
12	055	Medical Dispensary-Civilians
13	060	Aircrew-Rated Officer, Pilots
14	065	Aircrew-Rated Officer, Other
15	075	Base Maintenance-Airmen
16	085	Pay & Allowances-Officers
17	090	Pay & Allowances-Airmen
18	100	Pay & Allowances-Civilian
19	105	Permanent Change of Station-Officers
20	110	Permanent Change of Station-Airmen
21	115	Medical-Officer Support
22	120	Medical-Airmen Support
23	125	BOS/RPM (inc. dispensary)
24	130	Vehicular Equipment
25	135	Munitions, Training/UE/YR
26	137	Munitions, Training/Crew/YR
27	140	Fuel, Aviation
28	145	Base Level Aircraft Maintenance/FH
20	150	Base Level Aircraft Maintenance/UE/YR
30	155	Depot Maintenance/FH
31	160	Depot Maintenance/UE/YR
32	165	Replenishment Spares
33	170	Flyaway Cost (FAC)
34	175	Modification, Class IV, and Spares
35	180	SE (inc. spares), Common
36	185	UPT-Training
37	190	Aircrew Officer Training (excluding UPT)
38	195	Nonrated Officer Training
39	200	Airman, Maintenance Function, Training
40	205	Airman, Other, Training
41	210	Acquisition-Officer

Appendix C (Cont)

<u>Data Register</u>	<u>Model Code</u>	<u>Factor Description</u>
42	215	Acquisition-Airman
43	250	Pilot Turnover Rate, Officer
44	255	Other Aircrew Turnover Rate, Officer
45	260	Nonaircrew Turnover Rate, Officer
46	265	Airman Turnover Rate

Appendix D

EXAMPLE SET OF CACE COST FACTORS STORED IN DATA REGISTERS

<u>Cost Factor</u>	<u>Data Register</u>
24.	01
238.	02
1.1	03
88.	04
633.	05
2.	06
2.	07
90.	08
20.	09
3.	10
7.	11
3.	12
1.	13
1.	14
434.	15
24785.	16
10312.	17
12469.	18
5063.	19
2378.	20
602.	21
530.	22
589.	23
51.	24
0.	25
17612.	26
637.	27
327.	28
0.	29
590.	30
166683.	31
686.	32
9740000.	33
0.004494	34
34675.	35
120360.	36
40162.	37
4290.	38
5605.	39
2800.	40
38000.	41
3320.	42
0.063	43
0.059	44
0.094	45
0.134	46

Appendix E

EXAMPLE OUTPUT IN DEFAULT OPTION

Estimate <sup>a</sup>	Category Subtotal Desig.	Element Designation
0.832		H
3.639		B
1.868		C
7.370		D
1.051		E
0.465		F
3.918		G
0.042		H
19.185	1	I
9.833		J
0.312		
10.145	2	K
0.426		L
0.074		
0.500	3	M
0.056		N
0.387		
0.443	4	O
0.471		P
1.736		
2.207	5	Q
0.063		R
0.059		S
0.144		T
0.325		U
0.200		V
0.063		W
0.016		X
0.326		Y
0.111		
1.307	6	Z ← Grand Total
33.787		

These designations correspond to those in the CACE model

<sup>a</sup>This example shows unit of value of 1000000 to 3 decimal places.

Appendix F

EXAMPLE CACE ESTIMATE WORKSHEET

TITLE \_\_\_\_\_ DATE \_\_\_\_\_

Recurring Investment and Miscellaneous Logistics

- A. Common support equipment (including spares) \_\_\_\_\_
- B. Aviation fuel \_\_\_\_\_
- C. Base level aircraft maintenance (material only) \_\_\_\_\_
- D. Depot level aircraft maintenance \_\_\_\_\_
- E. Class IV modifications (including initial spares) \_\_\_\_\_
- F. Training munitions \_\_\_\_\_
- G. Replenishment spares \_\_\_\_\_
- H. Vehicular equipment \_\_\_\_\_
- 1. Subtotal \_\_\_\_\_

Pay and Allowances

- I. Military \_\_\_\_\_
- J. Civilian \_\_\_\_\_
- 2. Subtotal \_\_\_\_\_

Major Force Program II - BOS/RPM Support of:

- K. PPE manpower \_\_\_\_\_
- L. BOS/RPM and MED manpower \_\_\_\_\_
- 3. Subtotal \_\_\_\_\_

Major Force Program VIII Support of:

- M. Officers \_\_\_\_\_
- N. Airmen \_\_\_\_\_
- 4. Subtotal \_\_\_\_\_

Personnel (Permanent Change of Station) Support of:

- O. Officers \_\_\_\_\_
- P. Airmen \_\_\_\_\_
- 5. Subtotal \_\_\_\_\_

"Pipeline" Costs

- Q. Pilot officer acquisition \_\_\_\_\_
- R. Nonpilot aircrew officer acquisition \_\_\_\_\_
- S. Nonaircrew officer acquisition \_\_\_\_\_
- T. Airmen acquisition \_\_\_\_\_
- U. Pilot officer training \_\_\_\_\_
- V. Nonpilot aircrew officer training \_\_\_\_\_
- W. Nonaircrew officer training \_\_\_\_\_

Appendix F (Cont)

TITLE	DATE
X. Base level aircraft maintenance airmen training	
Y. Airmen training (less aircraft maintenance airmen)	
6. Subtotal	
Z. Grand total	