

File: 308-07/CRU1

August 17, 1999

To: Regional Managers

Re: *Cruising Manual - Amendment No. 1 Errata*

Please remove pages T-5, T-6, F-5 and F6 from the manual and replace it with the attached pages.
We apologize for any inconvenience this may have caused.



J. W. Laton
Manuals Coordinator
Revenue Branch



Enclosure: (6)

cc: Distribution List



**BRITISH
COLUMBIA**

Ministry of
Forests



MANUAL REVISION TRANSMITTAL

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MANUAL TITLE

Cruising Manual

**AMENDMENT
NO.**

1 - Addendum

ISSUE DATE

August 1, 1999

MANUAL CO-ORDINATOR

Judy Laton
Revenue Branch

AUTHORIZATION (Name, Title)

W. Howard
Director, Revenue Branch

Please make the following changes to your copy of the above Ministry manual. Please insert the following specified pages and **file this notice** immediately after the Amendments Tab.

ACTION (Remove/Insert)	(VOL.) CHAPTER-SECTION-SUBJECT	PAGE(S)	COMMENTS
	TABLE OF CONTENTS		
REMOVE	Tables	5, 6	
INSERT	Tables	5, 6	
REMOVE	Forms	5, 6	
INSERT	Forms	5, 6	

Table 3 Distribution of "t"

Degrees of Freedom	0.05
1	12.706
2	4.303
3	3.182
4	2.776
5	2.571
6	2.447
7	2.365
8	2.306
9	2.262
10	2.228
11	2.201
12	2.179
13	2.160
14	2.145
15	2.131
16	2.120
17	2.110
18	2.101
19	2.093
20	2.086
21	2.080
22	2.074
23	2.069
24	2.064
25	2.060
26	2.056
27	2.052
28	2.048
29	2.045
30	2.042
40	2.021
60	2.000
120	1.980
∞	1.960

Stump and Breast Height Diameter Tables for the British Columbia Merchantable Tree Species (Tables 4 to 8)¹

The following tables (Tables 4 to 8) are designed to be used in the estimation of diameters breast height outside bark (DBH) from stump diameter inside bark (DSIB) measured at a fixed height above ground level (SH). Each table was derived from a regression equation that was fitted on butt diameter measurements of the same trees that were used in the Ministry of Forests metric volume equations.

The regression equations are of the following form:

$$DBH = DSIB + b_0 DSIB (2.3 - SH) + b_1 DSIB \ln [(SH + 1.0) / 2.3]$$

where DBH and DSIB are in centimetres. SH is measured in metres and can range from 0.15 to 1.05 m. For a given stump cruise, all DSIB measurements should be at a given stump height to facilitate computer compilation.

The constant b_0 and b_1 for the various species and zones are listed in Table 4. A map of the British Columbia forest inventory zones is shown in Appendix 4.

¹ A. Kozak, Faculty of Forestry, University of British Columbia and S. A. Omule, Research Branch, Ministry of Forests, February 1989.

FS 695 Provincial Office Check of Field Cruise Data



**PROVINCIAL
OFFICE CHECK OF FIELD CRUISE DATA**

TENURE: _____	_____
C.P.: _____	_____

A. CRUISE PLAN and FINAL CRUISE MAP	YES	NO	N/A
1. Is Cruise Plan approved?			
2. Was the Cruise Plan followed?			
3. Is the FINAL Cruise Map acceptable			

B. PLOT CARDS	YES	NO	N/A
4. Are all of the plot cards submitted?			
5. Is each plot card properly filled out?			
6. Is each plot card SIGNED and DATED? (Cruising Manual, Sect. 3.1.1)			
7. Is the prism (or fixed area plot) size consistent within each timber type?			
8. Do the plot locations by type, strip and outblock concur with the final cruise map?			
9. If count plots are used, indicate the count/measure ratio	COUNT	MEASURE	

C. MERCHANTABLE STEM COUNT																																									
PRISM CRUISES (Prov. Cruising Manual, Sect. 2.1.1)	1. Clearcut logging. "Minimum" average of 4 merchantable trees per plot If SE 15% not achieved. 2. Partial cut logging. "Minimum" average of 6 merchantable trees per plot If SE 15% not achieved.																																								
FIXED AREA CRUISES	1. Clearcut logging. "Recommended" average tree count is not less than 10. 2. Partial cut logging. "Recommended" average tree count is not less than 15.																																								
	<table border="1" style="width: 100%;"> <tr> <th>Type</th> <th>Area</th> <th>Count</th> <th>Measure</th> <th>Count</th> <th>Measure</th> <th>Count</th> <th>Measure</th> </tr> <tr> <td>10. Total Number of Plots</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>11. Average Number of stems per plot.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>12. No. Plots with < than the recommended average stem no.</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>13. Average No. of Stems per point per type acceptable? (Y/N)</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </table>	Type	Area	Count	Measure	Count	Measure	Count	Measure	10. Total Number of Plots								11. Average Number of stems per plot.								12. No. Plots with < than the recommended average stem no.								13. Average No. of Stems per point per type acceptable? (Y/N)							
Type	Area	Count	Measure	Count	Measure	Count	Measure																																		
10. Total Number of Plots																																									
11. Average Number of stems per plot.																																									
12. No. Plots with < than the recommended average stem no.																																									
13. Average No. of Stems per point per type acceptable? (Y/N)																																									

D. HEIGHTS	YES	NO	N/A
14. Are the height calculations done correctly?			
15. Are sufficient samples taken for each major ($\geq 20\%$) species?			
16. Have 100% of the heights been taken for all minor species ($< 20\%$)?			

E. AGES	YES	NO	N/A
17. Are adequate age samples collected?			
18. Are age/height corrections done properly?			
19. Are the maturity classes correct?			

Remarks: _____

Accepted: _____	Rejected: _____	Date: _____
Action: _____		
Signature: _____		
Approval/rejection letter sent by: _____		Date: _____

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Figure F.4 FS 695 - Provincial Office Check of Field Cruise Data.

FS 696 Provincial Field Check Cruise Summary



 PROVINCIAL FIELD CHECK CRUISE SUMMARY		TENURE: _____ C.P.: _____
IS CHECK CRUISE REQUIRED? _____ (Note: If no, inform licensee.)		
Cruised by: _____	Cruise Date: _____	# plots: _____
Checked by: _____	Check Date: _____	# plots: _____
A. PLOT ESTABLISHMENT & DISTANCE MEASUREMENTS	ACCEPTABLE (Y/N)	CRUISING MANUAL REFERENCE
1. Distance AND Bearings between plots		Sec. 3.6.2.1, 8
2. Plot establishment		Sec. 3.6.2.1, 8
3. Sample trees marked		Sec. 3.5.3.3
4. Age samples representative of stand		Sec. 3.5.9, 3.6.2.1, 6
5. Boundaries checked: (Indicate Yes, No or NOT Checked)		Sec. 3.6.2.1, 8
B. SPECIES IDENTIFICATION		Sec. 3.6.2.1, 2
6. % of Stems incorrectly identified:		
C. NUMBER OF STEMS		Section 3.6.2.1, 3
7. FIXED AREA PLOTS		
I. % of Plots where stem count difference is > 1 STEM IN 50		
II. % Average absolute variation of all stems counted		
8. PRISM PLOTS		
I. Variation of all stems counted		
D. BREAST HEIGHT		Section 3.6.2.1, 7
9. Total Number of Stems Checked:		
10. Number of Stems > 5% HIGH or < 5% LOW		
11. Average Error of All Samples:		
E. DIAMETERS		Section 3.6.2.1, 7
12. Number of Diameters Checked		
13. % of Diameters in Error by > + 2%:		
14. Average Error of All Samples:		
F. PATHOLOGICAL INDICATORS/DAMAGE CODES		Section 3.6.2.1, 6
15. Number of Plots with > 1 Risk Group Change		
16. % Risk Group changes — all trees		
17. % trees checked with incorrect fire/blowdown/insect codes		
G. HEIGHT SAMPLES		Section 3.6.2.1, 3
17. Height samples representative of stand		
18. 100% HEIGHT METHOD		
I. # of heights checked		
II. % Average absolute variation of all heights checked. (Measured & Estimated)		
H. AGES		Section 3.6.2.1, 5
19. 95% of ALL trees in correct maturity class for loss factor deductions		
I. QUALITY (Coast Immature Only)		Section 3.6.2.2
20. I. % trees with path incorrectly coded in 1" and 2" third		
II. % of quality indicators ± 1 code change		
III. Spiral grain — code > 4 does not require checking		
IV. Knots and knot indicators — # of 5 m log quarters > 2 quarters difference		
J. IS THERE ANY BIAS OBSERVED IN THIS CRUISE?		Section 3.6.3.05
<div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> <div style="display: flex; justify-content: space-between;"> Accepted: _____ Rejected: _____ Date: _____ </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Action: _____ Signature: _____ </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> Approval/rejection letter sent by: _____ Date: _____ </div> </div>		

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NOTE: ANY UNACCEPTABLE FINDINGS MAY BE GROUNDS FOR REJECTION.

Figure F.5 FS 696 - Provincial Field Check Cruise Summary.