APPENDIX C: SCORING COMMODITY COMPLEXITY FOR SUPPLY ACTIVITIES (C-factor)

PART 1: Complexity Factor (C-factor) Methodology Description

The S&S JCSG developed a "complexity factor" (C-factor) to adjust for the complexities of managing different commodity types and product groups. The C-factor will be applied to all inventory management questions.

The C-factor considers two dimensions: 1) complexity differences between commodity types and 2) complexity differences between product groups. Based on the process outlined below each activity is assigned a complexity factor. The C-factor is multiplied by the 0.0 to 1.0 normalized score of each inventory management question. The data set is normalized a second time following the application of the C-factor. The C-factor is determined by:

1) The field completes a table (a header question will present the table) bounded by commodity type rows on the left and product group columns on the top. (The weights of the commodity types and product groups will not be displayed.)

2) The field populates each cell of the table with a number representing the percentage of the items managed (e.g. Aviation Repair parts, 5%). If the cell does not apply, the activity will be asked to annotate the cell with a "zero." All cells should add up to 100% to account for all line items managed by the activity.

Note: Some Activities provided data to this question that did not add to 100% as instructed. Appendix G describes the resolution to this issue.

3) The S&S JCSG, using the Complexity Factor Calculation Worksheet, calculates the commodity type contribution to the C-factor by summing the three product group values.
   a. Product group values are determined by multiplying the weights of the commodity type and product group by the percentage of line items managed.

4) The S&S JCSG sums the commodity type contributions to determine the Activity's C-factor

Note: See Part 3 of this Appendix for an example calculation.

PART 2: Complexity Factor Table

Header Question

Based on the total number of line items managed by the Supply and Storage Activity as of 30 Sep 2003, complete the following table by entering the percentages of the total line items for each product group by commodity type. Percentages may be entered for multiple commodity types; however, the total for all the percentages entered must equal 100%. Product groups not managed by your activity should be annotated with a "zero."

Commodity Types	Product Groups			Total
	End Items % of Total Line Items Managed	Reparables % of Total Line Items Managed	Consumables % of Total Line Items Managed	
Armaments				
Aviation				
Chemical & Biological				
Communications - Electronics				
Construction Equipment				
Conventional Ordnance				
Ground Vehicles				
Fuels/POL				
Medical				
Space & Missiles				
Nuclear Subsafe				
Ships, Vessels & Watercraft				
Subsistence				
Troop Support				
Other				
Other				
Totals				**100%**

PART 3: Complexity Factor Example

A C-factor Calculation Worksheet is provided to show how the C-factor is calculated. An example is provided below and shows the weights of both the commodity types and

the product groups. The calculations in the table are illustrated on the next page. **All data provided is for illustrative purposes only.**

Complexity Factor Calculation Worksheet

Complexity Ranking	Commodity Types	Product Groups			Commodity Type Contribution
		End Items % of Total Line Items Managed Weight - 1.0	Reparables % of Total Line Items Managed Weight - .75	Consumables % of Total Line Items Managed Weight - .25	
1	Nuclear Subsafe Weight - 1.0				
2	Aviation (SOF) Weight - .95				
3	Space & Missiles Weight - .90	15%	20%	5%	.281
4	Communications-Electronics Weight - .85	10%	25%	25%	.297
5	Ships, Vessels & Watercraft Weight - .80				
6	Armaments Weight - .75				
8	Chemical & Biological Weight - .70				
8	Conventional Ordnance Weight - .70				
9	Ground Vehicles Weight - .65				
10	Construction Equipment Weight - .55				
12	Troop Support Equipment Weight - .45				
13	Medical Weight - .40				
14	Fuels/POL Weight - .30				
14	Subsistence Weight - .30				

14	Other Weight - .30				
			Activity's Complexity Factor		**.579**

Explanation:

The weights assigned to commodity types and product groups were determined using the military judgment of most of the S&S JCSG members.

Example Calculation:

Factor for Missiles
$= (.90)(.15)(1.0) + (.90)(.20)(.75) + (.90)(.05)(.25) = .281$

Factor for Communications-Electronics
$= (.85)(.1)(1.0) + (.85)(.25)(.75) = (.85)(.25)(.25) = .298$

Activity's Complexity Factor
$= .281 + .298 = .579$