

AD609883

DEPARTMENT OF DEFENSE

Training Guide Supplement MB

to

The Management of Value Engineering Programs  
in Defense Contracts

INSTRUCTOR'S NOTES FOR CASE PROBLEMS  
IN THE CONTRACTUAL ASPECTS OF VALUE ENGINEERING



April 1964

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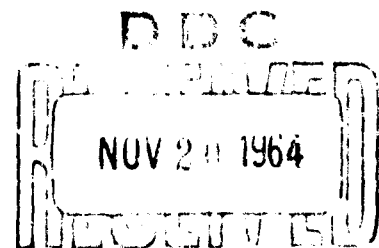
Prepared for the

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(Installations and Logistics)

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## FOREWORD

This Supplement contains answers, notes, and charts for the nine case problems on the contractual aspects of value engineering, which are presented in Chapter 5 of the DoD Training Guide for the Management of Value in Defense Contracts Engineering Programs. These notes are based upon interpretation of Revision 3, dated 15 November 1963, of Part 17 of Section 1 of the Armed Services Procurement Regulation.

CASE PROBLEM NO. 1 - SOLUTION

|  |          |                 |
|--|----------|-----------------|
| Reduction in unit test cost                    | \$ 500   |                 |
| Gross cost reduction for ten units             |          | \$ 5,000        |
| Fabrication cost of test stand<br>modification | \$ 3,000 |                 |
| Total implementation cost                      |          | <u>\$ 3,000</u> |
| Net cost reduction                             |          | 2,000           |
| Sharing Factor                                 |          | <u>50%</u>      |
| Contractor's Share of the Cost Reduction       |          | \$ 1,000        |
| Original contract price                        |          | \$110,000       |
| Government's share of the cost reduction       |          | <u>1,000</u>    |
| Revised contract price                         |          | \$109,000       |

CASE PROBLEM NO. 2 - SOLUTION

|  |    |     |              |
|--|----|-----|--------------|
| a) Reduction in unit fabrication cost    | \$ | 500 |              |
| Gross cost reduction for ten units       |    |     | \$ 5,000     |
| Total implementation cost                |    |     | <u>3,000</u> |
| Net Cost Reduction                       |    |     | \$ 2,000     |
| Sharing Factor                           |    |     | <u>50%</u>   |
| Contractor's Share of the Cost Reduction |    |     | \$ 1,000     |

|                         |              |           |
|-------------------------|--------------|-----------|
| Original target cost    | \$100,000    |           |
| Less net cost reduction | <u>2,000</u> |           |
| Revised target cost     |              | \$ 98,000 |

|                                      |               |           |
|--------------------------------------|---------------|-----------|
| Target profit                        | \$ 10,000     |           |
| Contractor's Share of Cost Reduction | <u>+1,000</u> |           |
| Revised target profit                |               | \$ 11,000 |
| Revised target price                 |               | \$109,000 |

|                              |              |           |
|------------------------------|--------------|-----------|
| b) Revised target cost       | \$ 98,000    |           |
| Original ceiling formula     | <u>125%</u>  |           |
|                              | \$122,500    |           |
| Contractor profit adjustment | <u>1,000</u> |           |
| Revised Ceiling Price        |              | \$123,500 |

Divide the revised ceiling price by \$98,000 to compute the revised ceiling limitation of 126 percent.

CASE PROBLEM NO. 2 - SOLUTION (Continued)

c) Erroneous answers on the revised ceiling price may be as follows:

(1) \$126,000 (128.6 percent)

The student adjusted the original ceiling price rather than the revised ceiling price.

(2) \$123,000 (125.5 percent)

The student retained the target-ceiling spread in terms of absolute dollars from the original contract.

(3) \$122,500 (125 percent)

The student retained the target-ceiling spread in terms of the original contract percentage.

The class should note that the use of a sharing formula in an incentive contract which differs from the maximum over-all cost incentive pattern of the contract is predicated upon a reasonable certainty that the cost savings can be accurately estimated. Otherwise, the sharing formula should be in accordance with the maximum over-all cost incentive pattern of the contract.

d) See graphic presentation in Figure S-1.

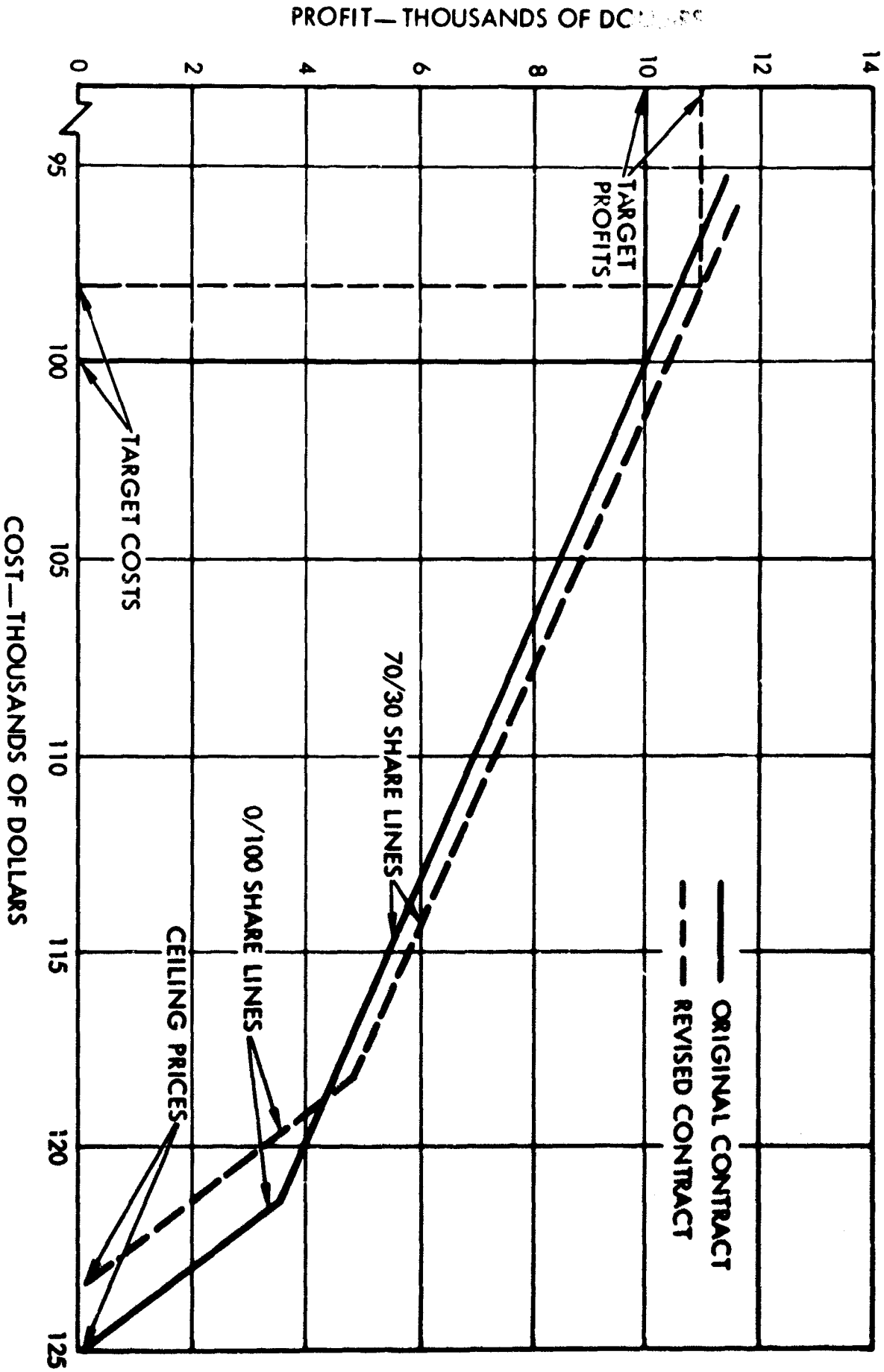


Figure S-1. Problem No. 2—(See Supplement MB)

**CASE PROBLEM NO. 3 - SOLUTION**

|                                      |               |
|--------------------------------------|---------------|
| a) Gross cost reduction              | \$ 30,000     |
| Total implementation cost            | <u>1,000</u>  |
| Net cost reduction                   | \$ 29,000     |
| Sharing Factor                       | <u>50%</u>    |
| Contractor's share of cost reduction | \$ 14,500     |
| <br>                                 |               |
| Original target cost                 | \$1,000,000   |
| Net cost reduction                   | <u>29,000</u> |
| Revised target cost                  | \$971,000     |
| <br>                                 |               |
| b) Original minimum fee              | \$ 40,000     |
| Contractor's share of cost reduction | <u>14,500</u> |
| Revised minimum fee                  | \$ 54,500     |
| <br>                                 |               |
| Original target fee                  | \$ 80,000     |
| Contractor's share of cost reduction | <u>14,500</u> |
| Revised target fee                   | \$ 94,500     |
| <br>                                 |               |
| Original maximum fee                 | \$120,000     |
| Contractor's share of cost reduction | <u>14,500</u> |
| Revised maximum fee                  | \$134,500     |

c) See graphic presentation in Figure S-2.

d) One possible solution is a revised target cost of \$971,000 with the original fee structure remaining unchanged. The emphasis on this portion of the problem is the comparison with the results obtained with the value engineering clause.

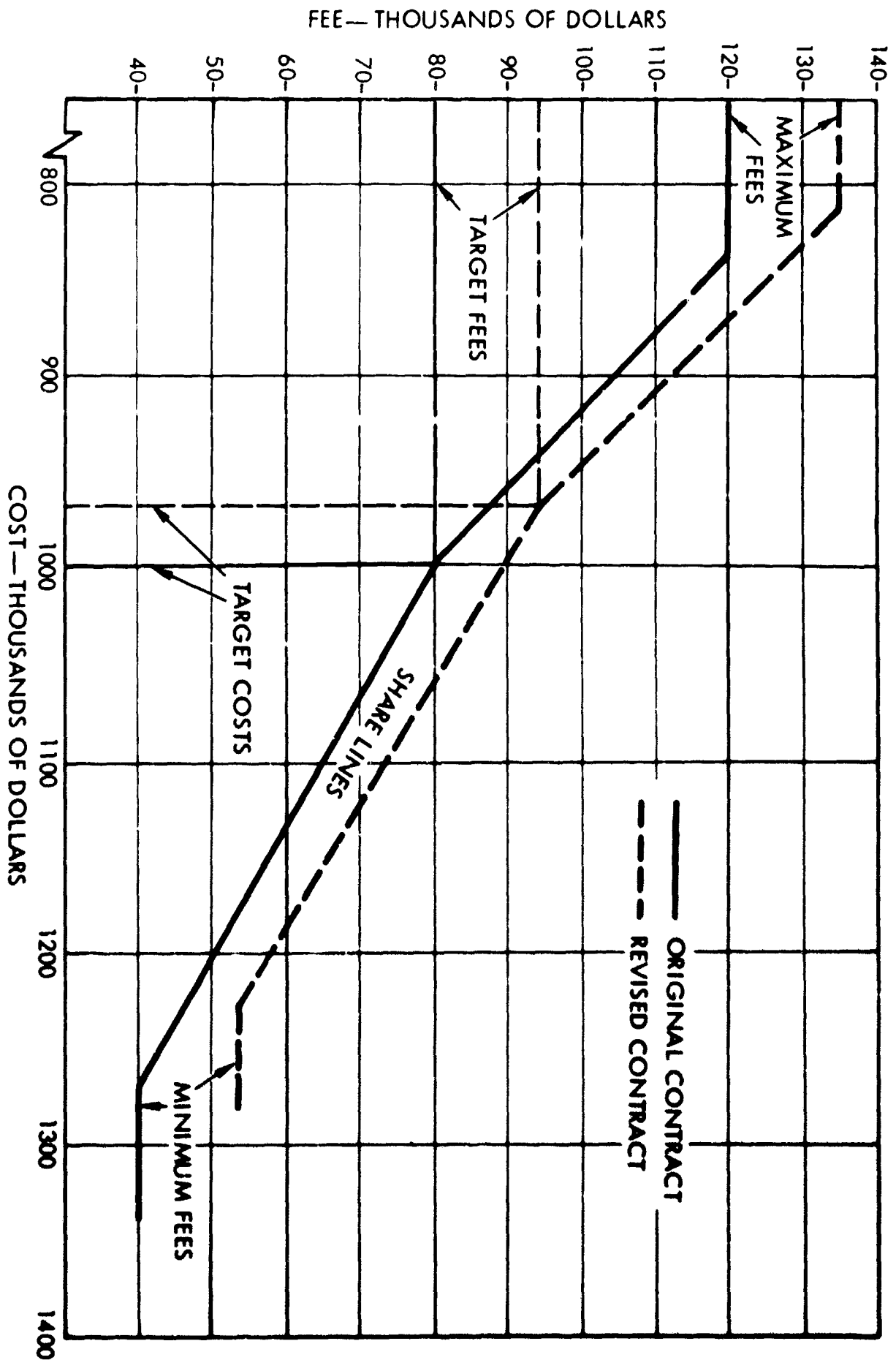


Figure S-2. Problem No. 3—(See Supplement MB)



**CASE PROBLEM NO. 4 - SOLUTION**

|                                      |              |            |
|--------------------------------------|--------------|------------|
| a) Gross cost reduction              | \$ 30,000    |            |
| Total implementation cost            | <u>1,000</u> |            |
| Net cost reduction                   |              | \$ 29,000  |
| Sharing Factor                       |              | <u>25%</u> |
| Contractor's Share of Cost Reduction |              | \$ 7,250   |

|                      |               |           |
|----------------------|---------------|-----------|
| Original target cost | \$1,000,000   |           |
| Net cost reduction   | <u>29,000</u> |           |
| Revised target cost  |               | \$971,000 |

|                                      |              |           |
|--------------------------------------|--------------|-----------|
| b) Original minimum fee              | \$ 40,000    |           |
| Contractor's share of cost reduction | <u>7,250</u> |           |
| Revised minimum fee                  |              | \$ 47,250 |

|                                      |              |           |
|--------------------------------------|--------------|-----------|
| Original target fee                  | \$ 80,000    |           |
| Contractor's share of cost reduction | <u>7,250</u> |           |
| Revised target fee                   |              | \$ 87,250 |

|                                      |              |           |
|--------------------------------------|--------------|-----------|
| Original maximum fee                 | \$120,000    |           |
| Contractor's share of cost reduction | <u>7,250</u> |           |
| Revised maximum fee                  |              | \$127,250 |

|             |                          |                  |                  |
|-------------|--------------------------|------------------|------------------|
| c)          |                          | <u>Problem 3</u> | <u>Problem 4</u> |
|             | <u>Original Contract</u> | <u>50% Share</u> | <u>25% Share</u> |
| Target cost | \$1,000,000              | \$971,000        | \$971,000        |
| Target fee  | 80,000                   | 94,500           | 87,250           |
| Minimum fee | 40,000                   | 54,500           | 47,250           |
| Maximum fee | 120,000                  | 134,500          | 127,250          |

CASE PROBLEM NO. 5 - SOLUTION

|                                      |            |
|--------------------------------------|------------|
| Net cost reduction                   | \$ 8,000   |
| Sharing Factor                       | <u>10%</u> |
| Contractor's share of cost reduction | \$ 800     |
| <br>                                 |            |
| Original fixed fee                   | \$ 70,000  |
| Contractor's share of cost reduction | <u>800</u> |
| Revised fixed fee                    | \$ 70,800  |

CASE PROBLEM NO. 6 - SOLUTION

|                                      |               |           |
|--------------------------------------|---------------|-----------|
| a) Original target cost              | \$1,000,000   |           |
| Net cost reduction                   | <u>15,000</u> |           |
| Revised target cost                  |               | \$985,000 |
| b) Net cost reduction                | \$ 15,000     |           |
| Sharing Factor                       | <u>20%</u>    |           |
| Contractor's share of cost reduction |               | \$ 3,000  |
| Original minimum fee                 | \$ 40,000     |           |
| Contractor's share of cost reduction | <u>3,000</u>  |           |
| Revised minimum fee                  |               | \$ 43,000 |
| Original target fee                  | \$ 80,000     |           |
| Contractor's share of cost reduction | <u>3,000</u>  |           |
| Revised target fee                   |               | \$ 83,000 |
| Original maximum fee                 | \$ 120,000    |           |
| Contractor's share of cost reduction | <u>3,000</u>  |           |
| Revised maximum fee                  |               | \$123,000 |

## CASE PROBLEM NO. 7 - SOLUTION

The intent of this problem is to develop the trainee's awareness of the distinction between the data rights acquired by the Government under the "Value Engineering Incentive" clause as compared to the rights of the Government under the "Value Engineering Program Requirement" clause.

Some of the points which the class should develop are:

- a) The contractor has a right to restrict the data under the "Value Engineering Incentive" clause.
- b) The contractor's right to restrict data under the "Value Engineering Incentive" clause is valid until the Government accepts the proposal by the issuance of a contract change notice or order.
- c) The contractor does not have the right to restrict data submitted under the "Value Engineering Program Requirement" clause. The Government may use submitted data, including value engineering change proposals, "... in any manner and for any purpose...", whether accepted or not.

**CASE PROBLEM NO. 8 - SOLUTION**

|   |              |
|---|--------------|
| a) Subcontractor's estimated gross cost reduction | \$ 25,000    |
| Subcontractor's cost of implementation            | <u>500</u>   |
| Net subcontract cost reduction                    | 24,500       |
| Contractor's cost of implementation               | <u>4,000</u> |
| Subcontract value engineering base                | 20,500       |
| Subcontract sharing factor                        | <u>60%</u>   |
| Subcontractor's share of cost reduction           | \$ 12,300    |
| Original subcontract price                        | \$ 450,000   |
| Less value engineering reduction                  | <u>8,200</u> |
| Revised subcontract price                         | 441,800      |

|                                       |               |
|---------------------------------------|---------------|
| b) Gross cost reduction               | 25,000        |
| Subcontract implementation cost       | \$ 500        |
| Contractor implementation cost        | 4,000         |
| Subcontractor share of cost reduction | <u>12,300</u> |
| Contractor value engineering base     | 8,200         |
| Contractor sharing factor             | <u>75%</u>    |
| Contractor share of cost reduction    | \$ 6,150      |
| Original contract price,              | \$10,000,000  |
| Government's share of cost reduction  | <u>2,050</u>  |
| Revised contract price                | \$ 9,997,950  |

Recapitulation

|                            |              |
|----------------------------|--------------|
| Subcontract implementation | \$ 500       |
| Subcontract sharing        | 12,300       |
| Contractor implementation  | 4,000        |
| Contractor sharing         | 6,150        |
| Government sharing         | <u>2,050</u> |
|                            | \$ 25,000    |

**CASE PROBLEM NO. 8 - SOLUTION (Continued)**

- c) The contract price to Dynamic Motors would remain \$10, 000, 000. Kalamazoo Motors would retain the \$20, 500 net saving.
- c) (1) The contractor and subcontractor could proceed to submit the change proposal again. Authority for its submission would be the portion of the clause which states that "Cost Reduction proposals submitted under the provisions of any other contract also may be submitted under this contract. . .". If accepted, the contractor and subcontractor would share in the savings.
- (2) The trainee's discussion should indicate that the unit price of the trucks would probably be \$25 less than the original price. That is, the Government would obtain the total benefit of the previous cost reduction proposal.

CASE PROBLEM NO. 9 - SOLUTION

|   |            |              |
|---|------------|--------------|
| Original Material Cost  | \$13.04    |              |
| Increased cost  | <u>.10</u> |              |
| Revised Material Cost   |            | \$ 13.14     |
| Material Handling at 10 percent   |            | 1.31         |
| <b>Labor:</b>   |            |              |
| Assembly 41 minutes per unit at<br>90 percent efficient at \$2.40<br>per man-hour |            | 1.80         |
| Test  |            | 1.00         |
| Burden at 175 percent   |            | 4.90         |
| Original industrial engineering   |            | .20          |
| Original engineering burden   |            | .20          |
| Additional industrial engineering -<br>100 hours at \$4.00/10,000                 |            | .04          |
| Additional engineering burden   |            | <u>.04</u>   |
| Subtotal  |            | \$ 22.63     |
| Previous subtotal   |            | <u>22.83</u> |
| Net cost reduction per unit   |            | .20          |
| Total cost reduction for 10,000   |            | 2,000.00     |
| Sharing Factor  |            | <u>60%</u>   |
| Contractor's share of cost reduction  |            | \$1,200.00   |
| Original Contract Price   |            | \$ 262,500   |
| Government's share of cost  |            | <u>800</u>   |
| Revised Contract Price  |            | \$ 261,700   |