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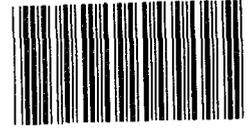
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MAY 30, 1979

The Honorable Jack Brooks
Chairman, Subcommittee on
Legislation and National Security
Committee on Government Operations
House of Representatives



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Dear Mr. Chairman:

In response to your letter dated July 10, 1978, we have reviewed the (1) cost or pricing data used to support an Army AN/APR 39 1/ sole-source contract awarded to E-Systems, Incorporated and (2) sources of material costs used by E-Systems and other bidders that responded to an Army AN/APR 39 formally advertised procurement. We also examined vendor quote information available within E-Systems at the date of the sole-source contract negotiations to determine whether vendors were quoting different prices for the same items and why.

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DLG 01684

The AN/APR 39 contracts reviewed were awarded by the Army's Communications and Electronics Materiel Readiness Command, Fort Monmouth, New Jersey, to two divisions of E-Systems--Melpar Division, Falls Church, Virginia, and Memcor Division, Huntington, Indiana. The details of the contracts follow.

Contract number	Contract division	Contract placement	Items purchased			Total fixed contract price
			AN/APR 39	Simulator	Other	
DAAB07-76-C-1930 modification P00010	Melpar	Negotiated sole source	355	64	Technical data	\$2,236,000
DAAB07-78-C-3619	Memcor	Two step advertised	1,488	172	Adaptor and technical data	2,483,226

1/A lightweight airborne signal system.

Letter Report
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PSAD-79-77
(950489)

The AN/APR 39 is used to protect aircraft against radar-directed, antiaircraft weapons, and the radar signal simulator is used as special test equipment for the AN/APR 39.

We reviewed contract documents and interviewed contractor officials at the two E-Systems locations, the seven other contractors who bid on the advertised contract, and nine E-Systems material suppliers. We also reviewed work of the Defense Contract Audit Agency and information contained in House Committee Report Number 95-1677, dated November 10, 1978. The report was a study on procurement practices conducted by staff members of the Subcommittee on Legislation and National Security, House Committee on Government Operations, at the Army's Communications and Electronics Materiel Readiness Command, Fort Monmouth, New Jersey. We visited Army locations in Washington, D.C.; St. Louis, Missouri; Fort Monmouth, New Jersey; and Europe. (See enc. II for a detailed listing of locations visited.)

Details of our review are in enclosure I. In summary, on sole-source contract modification P00010

- the contracting officer did not require the contractor to fully support or explain the basis for its labor hour estimates;
- labor and material costs, including applicable add-on factors, were overstated by \$141,349 because supporting cost or pricing data was not current, complete, and accurate; and
- E-Systems accounting practices used to account for a portion of engineering hours violated Cost Accounting Standard 401, which provides for consistency in estimating and accounting for costs.

We also found that another modification to the -1930 contract, P00014, was overpriced by about \$2,500 because Melpar included excess costs for some AN/APR 39 testing.

We found that on the advertised contract, E-Systems' bid included material costs which were as much as \$1,061 per AN/APR 39 unit less than other bidders. This variance resulted from (1) obtaining price quotes from different suppliers, (2) differences in material quantities used for bid purposes, and (3) reductions in material cost estimates based on expected price decreases during supplier negotiations. In those cases where suppliers quoted material prices to both

E-Systems and the other bidders, they quoted similar prices for similar quantities.

Some suppliers used by Melpar for contract modification P00010 quoted lower prices to Memcor for the advertised contract. However, the lower quotes were not available until after Melpar had negotiated purchase orders with the suppliers. These suppliers attributed the lower prices to the larger quantities of items purchased for the advertised contract.

Finally, the E-Systems bid on the advertised contract understated anticipated costs by more than \$1 million and, *can be*
~~in our opinion,~~ was a "buy-in."

considered a
*We are recommending that the Commanding General, Communications and Electronics Materiel Readiness Command: *should.*

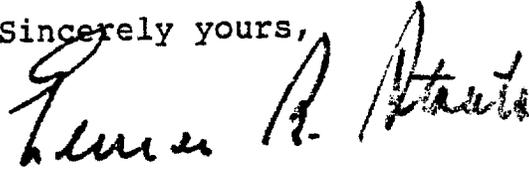
- Assure that adequate cost or pricing data is obtained to support all noncompetitive cost proposals.
- Consider the overpricing information to determine if any contract price reduction is warranted.
- Resolve the E-Systems' violation of Cost Accounting Standard 401, and determine if there is any adverse cost impact on the Government.
- Reduce the -1930 contract price by \$2,532.
- Assure that E-Systems does not recover on future contract actions any costs excluded from its bid price for the advertised contract.

As requested by your Office, we did not obtain agency or contractor comments. Unless you publicly announce its contents earlier, no further distribution of this report will be made until 10 days after the date of the report. At that time we will distribute the report to the Commanding General, Communications and Electronics Materiel Readiness

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Command; the Secretaries of Defense and the Army; E-Systems, Incorporated; and other interested parties. We will be available to respond to any comments or questions that you may have.

Sincerely yours,

A handwritten signature in cursive script, appearing to read "James A. Starks".

Comptroller General
of the United States

Enclosures - 2

REVIEW OF ARMY AN/APR 39CONTRACTS WITH E-SYSTEMS

We reviewed two contracts, a sole source and a formal advertised, awarded to E-Systems, Incorporated, by the Army's Communications and Electronics Materiel Readiness Command (Cercom), Fort Monmouth, New Jersey.

On the sole-source contract, modification P00010 to contract DAAB07-76-C-1930, we reviewed Cercom's cost evaluation efforts and the contractor's proposal. The modification was awarded on September 28, 1977, to E-Systems, Melpar Division (Melpar), Falls Church, Virginia. The price, a fixed price of \$2,236,000, was agreed to on March 27, 1978. Because of an urgent operational requirement, the Army determined that Melpar was the only source that could meet required delivery dates. Modification P00010 was a follow-on purchase of 355 AN/APR 39 radar signal detectors, 64 radar signal simulators, and related technical data.

The formal advertised contract, DAAB07-78-C-3619, was awarded to E-Systems, Memcor Division (Memcor), Huntington, Indiana. This two-step, formal advertised contract was awarded on July 11, 1978, at a fixed price of \$2,483,226. The contract was for 1,488 AN/APR 39s, 172 simulators, and other related equipment and data.

In summary, we found that on Army contract modification P00010

- the contracting officer did not require the contractor to fully support or explain the basis for its labor hour estimates;
- labor and material costs, including applicable add-on factors, were overstated by \$141,349 because supporting cost or pricing data was not current, complete, and accurate; and
- E-Systems accounting practices used to account for a portion of engineering hours violated Cost Accounting Standard 401, which provides for consistency in estimating and accounting for costs.

We also found that another modification to the -1930 contract, P00014, was overpriced by about \$2,500 because Melpar included excess costs for some AN/APR 39 testing.

We found that on the advertised contract, E-Systems' bid included material costs which were as much as \$1,061 per AN/APR 39 unit less than other bidders. This variance resulted from (1) obtaining price quotes from different suppliers, (2) differences in material quantities used for bid purposes, and (3) reductions in material cost estimates based on expected price decreases during supplier negotiations. In those cases where suppliers quoted material prices to both E-Systems and the other bidders, they quoted similar prices for similar quantities.

Some suppliers used by Melpar for contract modification P00010 quoted lower prices to Memcor for the advertised contract. However, the lower quotes were not available until after Melpar had negotiated purchase orders with the suppliers. These suppliers attributed the lower prices to the larger quantities of items purchased for the advertised contract.

Finally, the E-Systems bid on the advertised contract understated anticipated costs by more than \$1 million and, in our opinion, was a "buy-in."

MODIFICATION P00010

Background

Public Law 87-653, the Truth-in-Negotiations Act, and the Defense Acquisition Regulation (DAR) require that contractors, with certain exceptions, submit cost or pricing data to support proposed prices for noncompetitive contract actions expected to exceed \$100,000. Also, contractors are required to certify at the time of negotiations that data submitted is current, complete, and accurate. A clause is inserted in the contract which gives the Government a right to a price reduction if it is determined that the price was increased because the data submitted was not in accordance with the certification. The contractor certified on April 4, 1978, that its cost or pricing data submitted to support costs proposed for modification P00010 was current, complete, and accurate through April 3, 1978.

The DAR defines cost or pricing data as all facts existing up to the time of agreement on price which prudent buyers and sellers would reasonably expect to have a significant effect on the price negotiations. The Government contracting officer is responsible for obtaining this data and determining the reasonableness of a contractor's proposed price.

Adequate cost or pricing data not obtained

Cercom's contracting officer did not obtain adequate cost or pricing data, as prescribed by Public Law 87-653 and DAR to support labor costs proposed for modification P00010. Consequently, an adequate technical evaluation could not be performed.

To support labor costs, Melpar submitted to Cercom summarization sheets of proposed direct labor hours and rates. The Army engineer responsible for performing a technical evaluation of the contractor's proposal requested the contracting officer to obtain a more detailed breakdown of the engineering hours. Responding to the engineer, the contracting officer requested Melpar to provide additional support. However, Melpar only provided additional summarization sheets for the AN/APR 39 main components. None of the data explained the basis or the rationale for the labor hours and labor costs proposed.

We found that, in the absence of the data requested, the engineer's conclusions were generally based on his years of experience. In our opinion, had he been provided with the basis for proposed hours, his evaluation could have been more substantive.

Melpar's proposed costs
were overstated by \$141,349

Our review showed that modification P00010 was overpriced by \$141,349 because Melpar did not use current, complete, and accurate cost data to support its cost proposal. The proposed costs that were overstated related to manufacturing, quality control and reliability, and material.

The following table summarizes the overstated costs.

<u>Cost category</u>	<u>Overstated amount</u>
Manufacturing	\$ 16,743
Quality control and reliability (due to overstated hours)	8,023
Manufacturing and quality control and reliability (due to over- stated rates)	22,982
Materials	3,000
Add-ons:	
Applicable overheads, general and administrative costs, cost of money, and profit	<u>90,601</u>
Total	<u>\$141,349</u>

Proposed manufacturing costs overstated by \$16,743

Melpar's proposed manufacturing costs were overstated by \$16,743 because current data and learning experience were not used. Melpar proposed manufacturing costs for modification P00010 by applying proposed labor rates to average manufacturing hours from producing 350 AN/APR 39s and 50 simulators under contract -1930. However, at the time its final proposal was submitted, all 497 AN/APR 39 units previously purchased under the contract had been produced. Using data from the entire production quantity, Melpar computed a learning curve for the majority of AN/APR 39 manufacturing hours (representing machine shop fabrication, assembly, and printed circuit board fabrication) for the 497 units. However, the contractor did not apply the learning curve to compute modification P00010 manufacturing labor requirements, nor could we locate any learning curve data provided to the Army as the contractor contended.

Had Melpar used the current data and learning experience, its proposal would have been reduced by more than 3,000 hours, as shown below.

<u>Production unit</u>	<u>Manufacturing hours proposed Feb. 17, 1978</u>	<u>Our calculation based on current, complete, and accurate data</u>	<u>Hours overstated</u>
AN/APR 39	35,130	30,006	5,124
		Less total manufacturing hours reduced per Mar. 27, 1978, proposal	<u>1,700</u>
		Total overstatement	<u>3,424</u>

The average hourly manufacturing rate proposed, \$4.89, applied to these hours resulted in a \$16,743 overstatement of cost.

Quality control and reliability costs overstated by \$8,023 due to overstated hours

The proposed cost for quality control and reliability on modification P00010 was overstated by \$8,023 because Melpar did not use current, complete, and accurate data. These costs included AN/APR 39 inspection and testing, simulator inspection and testing, and technical data reports on these equipment tests.

Melpar based its AN/APR 39 quality control and reliability labor hour estimate on experience gained in producing 362 units. Some AN/APR 39 technical data report hours proposed were also based on experience and estimates. Hours for simulators and related technical data reports were based on estimates.

We found that Melpar did not use nor provide to the Army current, complete, and accurate data as of the date certified. As previously discussed, at the time of its final proposal Melpar had data available from the production of approximately 497 AN/APR 39 units. Also, while the contractor estimated some quality control and reliability hours required to produce the simulators and technical data reports, these hours could have been supported by cost data available from the prior production.

Our analysis using the current prior production data showed that Melpar's proposal was overstated as follows.

<u>Production unit</u>	<u>Quality control and reliability hours proposed Feb. 17. 1978</u>	<u>Our calculation of hours based on current, complete, and accurate data</u>	<u>Hours overstated</u>
AN/APR 39	8,406	6,766	1,640
Simulator	551	498	53
Technical data	<u>2,701</u>	<u>2,158</u>	<u>543</u>
Total	<u>11,658</u>	<u>9,422</u>	2,236
		Less total quality control and reliability hours reduced per Mar. 27, 1978, proposal	<u>1,282</u>
		Total overstatement	<u>954</u>

These overstated hours multiplied by the average proposed labor rate of \$8.41 shows an \$8,023 overstatement of cost.

Manufacturing and quality control
and reliability overstated by \$22,982
because labor rates overstated

Melpar's proposed costs for manufacturing and quality control and reliability were overstated by \$22,982 because labor rates were based on average skill level rates rather than actual rates experienced on the prior production. Its proposed hourly rates were \$4.890 and \$8.409, respectively. However, we found that the rates should have been \$4.437 and \$7.533 per hour, respectively.

We calculated these latter rates by dividing the direct labor costs by the direct labor hours for the period July 4, 1977, through March 26, 1978. This period closely corresponds with the beginning of Melpar's production of the Army's second purchase on contract -1930 through the closing of Melpar's accounting records before price agreement on modification P00010. A 4.5 percent escalation factor was then used to adjust these rates, based on the contractor's expected annual labor increase of .5 percent per month. The following comparison shows the overstated labor rates.

<u>Labor category</u>	<u>Labor rate proposed</u>	<u>Labor rate based on current, complete, and accurate data</u>	<u>Overstated</u>
Manufacturing	\$4.890	\$4.437	\$0.453
Quality control and reliability	8.409	7.533	0.876

Applying the overstated rates to the hours proposed less those questioned previously results in \$22,982 of overstated costs. The calculations are shown below.

<u>Labor category</u>	<u>Hours proposed less overstated</u>	<u>Labor rate overstated</u>	<u>Labor cost overstated</u>
Manufacturing	32,513	\$0.453	\$14,728
Quality control and reliability	<u>9,422</u>	0.876	<u>8,254</u>
Total	<u>41,935</u>		<u>\$22,982</u>

Material costs
overpriced by \$3,000

For the most part, proposed material costs were adequately supported. However, we did find that one material handling process was overpriced by \$3,000.

Melpar's November 10, 1977, bill of materials showed an estimate of \$2,000 for finish coating 355 red lenses and \$2,000 for coating 355 neutral lenses. These estimates were based on a supplier's cost of \$1,000 for coating a production run of 277 lenses, with each type of lens requiring two runs. At the start of negotiations in February 1978 Melpar revised its proposed cost for coating the red lenses to \$4,000. We found no support for this increase. Moreover, the coating supplier advised Melpar on February 10, 1978, approximately 2 months before certification date, that a production run of 277 lenses could be mixed. Thus, only 3 runs would be needed to coat 710 red and neutral lenses. We found no evidence that Melpar disclosed this information to the contracting officer.

Our calculation of overpricing is as follows.

Proposed bill of material cost:

To coat 355 red and 355 neutral--	
6 runs at \$1,000 each	\$6,000
Cost per current, complete, and	
accurate data:	
To coat 710 red and neutral lenses--	
3 runs at \$1,000 each	<u>3,000</u>
Overstated cost	<u>\$3,000</u>

Accounting treatment of engineering hours
violates Cost Accounting Standard 401

Melpar's method of accounting for a portion of engineering hours on modification P00010 was not consistent with the way it estimated those hours. This inconsistency violates Cost Accounting Standard 401.

Cost Accounting Standard 401, Consistency in Estimating, Accumulating, and Reporting Costs states in part:

"The purpose of this Cost Accounting Standard is to insure that each contractor's practice used in estimating costs for a proposal are consistent

with cost accounting practice used by him in accumulating and reporting costs * * *. With respect to individual contracts, the consistent application of cost accounting practices will facilitate the preparation of reliable cost estimates used in pricing a proposal and their comparison with the costs of performance of the resulting contract. Such comparisons provide one important basis for financial control over costs during contract performance and aid in establishing accountability for costs in the manner agreed to by both parties at the time of contracting * * *."

Melpar's proposal was based on separate cost estimates for the AN/APR 39, simulator, and technical data. The direct engineering labor cost proposed for each included a cost for "program management." To compute program management cost, Melpar applied a 6-percent factor to the respective estimated direct cost for engineering test support, manufacturing, and quality control and reliability. However, actual program management costs for modification P00010 were recorded under a single cost element for the contract.

This inconsistency in estimating and recording costs does not permit a comparison of actual engineering performance costs with proposed engineering costs. Furthermore, accumulating and reporting program management costs under a single cost element for the contract does not truly represent the individual costs for the AN/APR 39, simulator, and technical data. This could have a distorting impact on the estimated costs for each of the items in a follow-on procurement.

COSTS OVERSTATED ON MELPAR CONTRACT ENGINEERING CHANGE

We noted that the price negotiated for an engineering change on contract -1930, modification P00014, included \$2,532 (\$1,850 subcontractor cost plus add-ons) for a test that E-Systems knew would be furnished at no charge by a subcontractor. Melpar officials acknowledged that they did not pay for the test and that inclusion of the cost was an oversight.

REVIEW OF SUSPECTED BUY-IN ON ARMY ADVERTISED CONTRACT

We believe that E-Systems knowingly "bought-in" on contract DAAB07-78-C-3619 to enhance its competitive position

for the AN/APR 39. This action was apparently taken in anticipation of significant additional sales to the Army and foreign governments.

DAR defines buying-in as attempting to obtain a contract award by knowingly offering a price or cost estimate less than anticipated costs with the expectation of either (1) increasing the contract price or estimated cost during the period of performance through change orders or other means or (2) receiving future follow-on contracts at prices high enough to recover any losses on the original buy-in contract. Where a buy-in is suspected, the contracting officer is to assure that excluded amounts are not recovered in future actions. The Department of Defense does not favor buy-ins because of potential long-term effects, such as diminished competition or poor contractor performance.

Army contract -3619 was awarded to Memcor on July 11, 1978. Memcor was the lowest of eight competing bidders, at a total price of \$2,483,226. The Memcor bid price was \$2 million below the second lowest bidder and the unit price bid for the AN/APR 39 was \$1,605, compared to an estimated negotiated unit price of \$5,584 on the Melpar contract.

Our analysis of Memcor bid support data showed that it had underbid estimated costs by more than \$1 million. In arriving at its bid on the AN/APR 39, the contractor (1) estimated total purchased parts cost at less than supplier quotes, (2) understated originally estimated labor and overhead costs, and (3) applied no factor for general and administrative expenses. Also, other contract line items to be subcontracted were bid below the subcontractor's estimated costs. Finally, each of the other contract line items were bid below the Memcor estimated costs.

E-Systems headquarters officials stated that the Memcor AN/APR 39 bid was based on material and labor estimates, with the application of incremental overhead costs. In burdening direct costs in this manner, E-Systems officials claimed that only those incremental indirect expenses, which would be incurred in the performance of the AN/APR 39 contract, were included.

We assessed the potential for follow-on actions (engineering changes and follow-on purchases) to contract -3619 where cost recovery could occur and found that the potential for engineering changes should be minimal. Possible changes due to faulty specifications should be negligible because E-Systems developed the AN/APR 39, and the Army reviewed and accepted the AN/APR 39 specifications before the

competitive contract solicitation. Also, before the competitive contract award, Melpar made several engineering changes which resulted from AN/APR 39 deficiencies identified during extensive Army development and operational testing.

However, the potential for follow-on AN/APR 39 purchases appears to be good. Based on existing Army aircraft survivability equipment requirements and the Army helicopter inventory, additional AN/APR 39 purchases could total about 5,000 units. Furthermore, contractors that bid on the AN/APR 39 competitive contract, including Memcor, felt that the AN/APR 39 foreign sales potential was significant--one contractor estimated about 5,000 units. Also, E-Systems' Melpar Division had made small quantity AN/APR 39 sales to several foreign countries at prices considerably higher than those bid on contract DAAB07-78-C-3619 before the competitive contract award.