



~~710790~~

094159

REPORT TO THE CONGRESS

Independent Research And Development Allocations Should Not Absorb Costs Of Commercial Development Work B-164912

Department Of Defense

BY THE COMPTROLLER GENERAL
OF THE UNITED STATES

~~710790~~

094159

DEC. 10, 1974



COMPTROLLER GENERAL OF THE UNITED STATES
WASHINGTON, D.C. 20548

B-164912

4 To the Speaker of the House of Representatives
and the President pro tempore of the Senate

We are reporting that Department of Defense allocations to independent research and development should not absorb costs of commercial development work.

We made our review pursuant to the Budget and Accounting Act, 1921 (31 U.S.C. 53), and the Accounting and Auditing Act of 1950 (31 U.S.C. 67).

We are sending copies of this report to the Director, Office of Management and Budget; the Secretary of Defense; and the Secretaries of the Navy and Air Force.

Thomas B. Staats

Comptroller General
of the United States

C o n t e n t s

	<u>Page</u>
DIGEST	i
CHAPTER	
1 INTRODUCTION	1
2 QUESTIONABLE ALLOWANCE OF JT9D DEVELOPMENT AS IR&D	2
Commercial orders for JT9D engines	5
DOD regulations on IR&D	7
Pratt & Whitney and Navy interpretations	8
Review of ASPR files	9
Our interpretation	10
Armed Services Board of Contract Appeals decision	13
Impact of JT9D development costs on DOD contracts	14
Agency and contractor comments	15
Conclusions	16
Recommendations	16
3 OTHER QUESTIONABLE ALLOWANCES OF IR&D	17
Stationary powerplants	17
Development of the JT8D-15	17
Conclusions	18
Recommendations	18
4 NEED TO IMPROVE REVIEWS OF IR&D PROGRAMS	19
DOD procedures	21
Conclusions	22
Agency and contractor comments	23
Recommendations	24
APPENDIX	
I Letter from Assistant Secretary of Defense dated Nov. 21, 1973	25
II Letter from United Aircraft Corporation dated July 13, 1973	45

APPENDIX

III	Letter from United Aircraft Corporation dated August 6, 1973	49
IV	Principal officials of the Department of Defense and the Department of the Navy responsible for administering activities discussed in this report	51

ABBREVIATIONS

ASPR	Armed Services Procurement Regulation
DCAA	Defense Contract Audit Agency
DOD	Department of Defense
GAO	General Accounting Office
IR&D	independent research and development

COMPTROLLER GENERAL'S
REPORT TO THE CONGRESS

INDEPENDENT RESEARCH AND DEVELOPMENT
ALLOCATIONS SHOULD NOT ABSORB
COSTS OF COMMERCIAL DEVELOPMENT WORK
Department of Defense B-164912

1-5
2-423
3-473

D I G E S T

WHY THE REVIEW WAS MADE

In a review of defense contractors' independent research and development (IR&D) programs, GAO noted that Pratt & Whitney Aircraft Division, United Aircraft Corporation, had devoted over half its IR&D efforts to developing various models of its JT9D engine for the Boeing 747 and McDonnell Douglas DC-10 aircraft.

Because large amounts of money are involved and because the Department of Defense (DOD) contracts for military engine research and development directly with Pratt & Whitney, GAO wanted to find out whether DOD should have absorbed a share of the IR&D costs of the commercial JT9D engine.

FINDINGS AND CONCLUSIONS

Questionable allowance of JT9D engine development as IR&D

GAO questions DOD's acceptance of up to \$87 million of JT9D development costs as IR&D from 1968 through 1973, because the development was sponsored by, or required in the performance of, contracts with commercial customers and therefore did not meet the Armed Services Procurement Regulation (ASPR) definition of IR&D.

Pratt & Whitney refused GAO access to its commercial agreements for

JT9D engines; therefore, GAO could not verify how much of the JT9D development was sponsored by, or required in the performance of, these agreements.

Nevertheless, GAO thinks much of this development cost should not have been allowed as IR&D because the engines had not been developed when Pratt & Whitney contracted to deliver them to Boeing and McDonnell Douglas. (See p. 5.)

Pratt & Whitney said all JT9D development charges were allowable as IR&D under its interpretation of the ASPR definition because its production contracts did not specifically require, and thus did not sponsor, the development. (See p. 8.)

GAO believes that technical effort should not be considered IR&D if a company has an order requiring explicitly or implicitly that research and development be performed before that order can be filled. (See p. 10.)

The Navy made two interpretations of the ASPR definition of IR&D: Before a 1972 revision, the JT9D development was allowable as IR&D because the work was not sponsored by a contract; for 1972 and later, the revision made such development unallowable as IR&D if the work was required to fulfill the terms of a contract. (See p. 8.)

GAO believes both the Navy and Pratt & Whitney have interpreted "sponsored" too narrowly. According to the Navy, Pratt & Whitney alone assumed responsibility for the JT9D development and there was no evidence that Boeing

- provided financial support,
- assumed any risk, or
- exercised control over the development.

However, the agreements between Boeing and Pratt & Whitney contained elements of sponsorship.

- Boeing established the requirements to be met.
- Pratt & Whitney, by discontinuing development, would have provided a basis for legal action by Boeing.
- Boeing provided firm orders which lessened Pratt & Whitney's financial risk.
- Boeing assumed some risk by entering into binding commitments to its customers. (See pp. 11 and 12.)

Questionable allowance of other development as IR&D

From 1969 to 1971 about \$3.9 million of JT8D-15 development costs were allowed as IR&D and allocated to DOD contracts. During 1972 and 1973 Pratt & Whitney undertook projects estimated to cost \$26.4 million to develop or improve three stationary powerplants. GAO believes orders may have existed for these engines before development. If so, these costs should not have been allowed as IR&D. (See ch. 3.)

Price adjustments for unallowable IR&D efforts

Pratt & Whitney said retroactive price adjustments would be inequitable and inappropriate as the amounts were paid to Pratt & Whitney on advance understandings properly entered into between Pratt & Whitney and the Government. The Navy agreed that its past actions have estopped the Government from attempting to recover unallowable costs paid.

GAO believes that, while these costs should not have been allowed under ASPR either before or after the change effective in 1972, the lack of clarity in the pre-1972 regulation, together with the Navy's actions, estops the Government from recovering these costs. Costs incurred after the ASPR change are clearly unallowable, and any such costs included in IR&D are recoverable. (See p. 15.)

Inadequate reviews of IR&D programs

DOD needs to improve its administration of IR&D to insure that technical effort included therein is not sponsored by, or required in the performance of, commercial contracts. This need is evident in DOD's review of Pratt & Whitney's IR&D program in which the Navy did not determine whether the JT9D program met the definition of IR&D even though:

- Pratt & Whitney's 1968 IR&D program was the largest ever proposed to the Navy.
- An Air Force official in 1971 questioned the allowability of JT9D development as IR&D.

--GAO discussed the definition of IR&D with the Navy contracting officer in early 1972. (See p. 19.)

DOD believes no change is needed in its IR&D review procedures as the current IR&D definition clearly excludes work required by a commercial contract. GAO disagrees.

To be fully effective, DOD must require that the parties responsible for reviewing IR&D programs--technical review teams, Defense Contract Audit Agency, and contracting officers--insure compliance with the definition of IR&D. (See p. 23.)

Access to records

The Government must have access to commercial records to verify whether technical effort is unallowable as IR&D because it is required by a commercial contract. Pratt & Whitney denied access to both GAO and the Navy.

Access is particularly needed for IR&D projects such as those described in chapter 3. Publicity given to them was small in comparison to the JT9D program. These projects may have been required under contracts with commercial customers. Pratt & Whitney said there were no commercial orders for one of these projects but did not comment on the other three. Accordingly, an independent determination on their allowability is not possible without access to the specific requirements of the commercial contracts.

Pratt & Whitney said GAO had demonstrated that, under GAO's interpretation of IR&D, there was no need for authority to examine commercial contracts to determine if an order existed.

But GAO believes the Government must have access to these contracts to determine which projects are unallowable because they are sponsored or required by a contract. In GAO's opinion, audits of multimillion-dollar matters cannot be left to newspaper articles or project descriptions in IR&D brochures.

DOD should provide for access through a clause in its IR&D advance agreements with contractors. A similar position was expressed by five of the 12 members of the Commission on Government Procurement in its recent report.

This does not mean the Government should always examine contractors' commercial records or that the authority should be without limitation. Instead, when analysis of available evidence raises questions, this authority should permit examinations to assess the propriety of IR&D charges to the Government. (See pp. 22-24.)

RECOMMENDATIONS

The Secretary of Defense should determine how much of Pratt & Whitney's technical effort in 1972 and later is not allowable as IR&D because it was explicitly or implicitly required in the performance of commercial contracts, and obtain price adjustments where appropriate. (See pp. 16 and 18.)

To improve the administration of IR&D, the Secretary of Defense should

--provide specific guidance to Government review teams and the Defense Contract Audit Agency to insure that technical effort allowed as IR&D is not sponsored

by, or required in the performance of, commercial contracts and

--expedite action under consideration to require that IR&D agreements specifically authorize access to contractors' commercial records for determining whether IR&D costs are allowable. (See p. 24.)

AGENCY ACTIONS AND UNRESOLVED ISSUES

Although agreeing that the 1972 ASPR revision made commercial development, such as that for the JT9D, unallowable if done to fulfill the terms of a contract, the Navy decided that Pratt & Whitney's 1972 JT9D development was not related to engines under contract. (See p. 9.) In GAO's opinion, some contractually

required, and thus unallowable, development was charged to IR&D in 1972. (See p. 15.)

Because access to commercial records raises some far-reaching issues, DOD believes that an access provision should be extensively reviewed before it is adopted and that statutory authority may be necessary. DOD will consider the recommendation in IR&D reviews. (See p. 23.)

MATTERS FOR CONSIDERATION BY THE CONGRESS

This report should assist Committees and individual Members of the Congress concerned with legislative oversight of DOD's administration of IR&D programs.

CHAPTER 1

INTRODUCTION

Defense contractors perform independent research and development (IR&D) to provide the technical capabilities, concepts, and information needed to meet anticipated customer demands for new and improved products. The Department of Defense (DOD) recognizes IR&D as a necessary business expense and shares in its cost.

Pratt & Whitney Aircraft Division, United Aircraft Corporation, has developed various models of its JT9D engine for the Boeing 747 and McDonnell Douglas DC-10 aircraft. From 1968 to 1973, the effort to develop this engine was allowed as IR&D and part of these costs were allocated to defense contracts. Because this was a commercial engine, we wanted to find out whether DOD should have absorbed a portion of the development costs.

Pratt & Whitney refused us access to its commercial business records. Nevertheless, we pieced together the events that took place, and their effect, from United Aircraft Corporation annual report; Government records; company newspaper; the public press; and discussions with Pratt & Whitney, and Government officials.

Before 1968 Pratt & Whitney absorbed the cost of developing commercial engines, such as the JT9D. In 1968 the Navy and Pratt & Whitney began negotiating annual advance agreements to share the costs of an IR&D program. These agreements limit IR&D costs to be shared and provide that they will be treated as general and administrative expenses and allocated to commercial and DOD work on the ratio of total manufacturing costs.

Although new commercial engines are developed under Pratt & Whitney's IR&D program, military engines are usually developed under specific contracts with separate contracts for production engines. On December 31, 1973, the naval plant representatives was administering 29 active DOD contracts totaling \$97 million for research and development of military products by Pratt & Whitney.

CHAPTER 2

QUESTIONABLE ALLOWANCE OF JT9D DEVELOPMENT AS IR&D

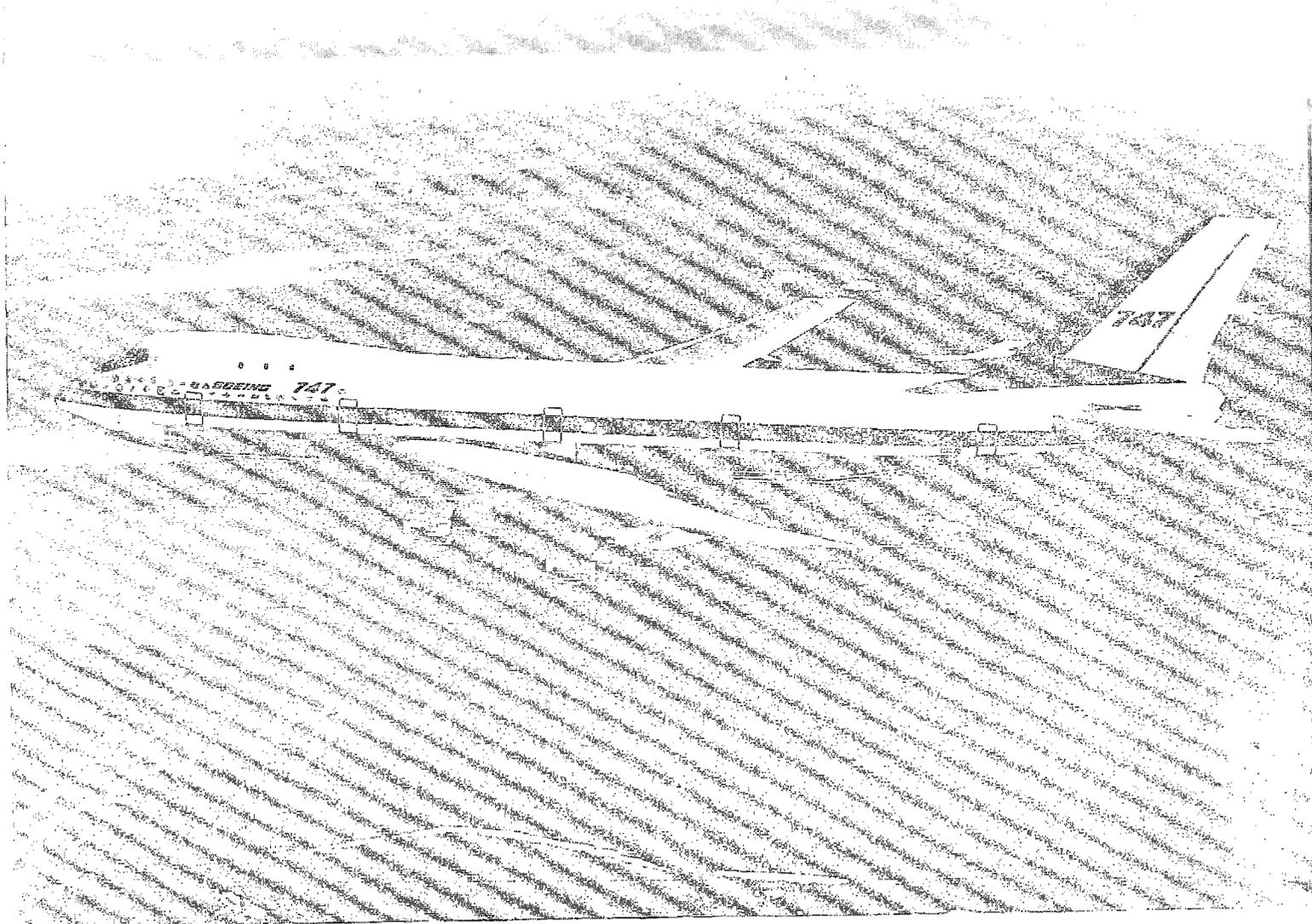
We question DOD's accepting allocations of up to \$87 million for JT9D development costs from 1968 through 1973 because, in our opinion, the technical effort was performed to meet the requirements of agreements between Pratt & Whitney and airframe manufacturers. We believe these costs should have been borne by Pratt & Whitney.

The following table is an analysis of JT9D development costs from 1965 through 1973 and Pratt and Whitney's total IR&D costs from inception of the IR&D program in 1968 through 1973. Of the \$566.1 million incurred for all IR&D projects, about \$306.9 million, or 54 percent, was for the JT9D engines. We estimate that up to \$87 million of JT9D development costs was allocated to DOD contracts under IR&D agreements from 1968 through 1973.

Pratt & Whitney Aircraft Division
IR&D and JT9D Development Costs

	<u>JT9D development costs</u>				<u>Total IR&D costs</u>
	<u>Wholly absorbed by Pratt & Whitney</u>	<u>Charged to IR&D and shared by</u>			
		<u>Pratt & Whitney</u>	<u>DOD</u>	<u>Total</u>	
	(millions)				
1965	\$ 2.1			\$ 2.1	
1966	21.5			21.5	
1967	<u>59.4</u>			<u>59.4</u>	
Total	<u>\$83.0</u>			<u>\$ 83.0</u>	
1968		\$ 51.5	\$20.2	\$ 71.7	\$103.9
1969		31.6	18.9	50.5	81.7
1970		34.6	13.5	48.1	82.5
1971		31.6	12.6	44.2	74.4
1972		<u>28.8</u>	<u>10.9</u>	<u>39.7</u>	<u>94.5</u>
Total		<u>178.1</u>	^a <u>76.1</u>	<u>254.2</u>	<u>437.0</u>
1973		<u>41.8</u>	<u>10.9</u>	<u>52.7</u>	<u>129.1</u>
Total		<u>\$219.9</u>	<u>\$87.0</u>	<u>\$306.9</u>	<u>\$566.1</u>

^aCalculation of DOD share made by GAO with the same rationale as used by United Aircraft Corporation in annual reports to stockholders. Navy calculated the DOD share differently and arrived at a total of \$48.9 million. (See page 14.)



BOEING 747 POWERED BY FOUR PRATT & WHITNEY JT9D ENGINES

(Photo Courtesy of Pratt & Whitney)

(Photo courtesy of Pratt & Whitney)

MCDONNELL DOUGLAS DC-10 POWERED BY THREE PRATT & WHITNEY JT9D ENGINES



COMMERCIAL ORDERS FOR JT9D ENGINES

Through 1973 Pratt & Whitney had delivered a total of 1,301 JT9D engines to Boeing for model 747 aircraft, to McDonnell Douglas for model DC-10 aircraft, and to various airlines.

The Boeing Company

In 1965 Boeing and Pratt & Whitney lost the competition for the military's C5A airframe and powerplant. However, in November 1965 Boeing proceeded with a development schedule for the 747 aircraft. Also, in 1965 Pratt & Whitney began design and configuration studies for the JT9D engine using experience gained in developing high-performance turbofan engines, including the engine proposed for the C5A competition.

In April 1966 Pan American World Airways, Inc., agreed to purchase the first Boeing 747 aircraft. Twelve other airlines also ordered 747s, and a total of 93 aircraft were on order at the end of 1966. These purchase agreements included Boeing's comprehensive guarantee on 747 performance, covering such aspects as fuel consumption, range, and altitude.

Also in April 1966 a business agreement between Boeing and Pratt & Whitney detailed the terms and conditions for Boeing's purchase of JT9D engines. The parties agreed to special terms relating to the initial production of JT9D engines, such as prices, delivery schedules, quantities, and detailed engine specifications. These specifications were developed by Pratt & Whitney in response to Boeing's engine requirements, including weight, size, heat, noise level, and fuel consumption.

At that time, neither the 747 airframe nor the JT9D engine had been fully developed. Boeing was responsible for delivery of 747 aircraft which met its performance guarantees to the airlines whether Pratt & Whitney succeeded in developing the engine or not. According to Boeing officials, if Pratt & Whitney had not met the agreed-to requirements and Boeing could not have delivered the aircraft, the airlines would have looked to Boeing for redress, and Boeing would have turned to Pratt & Whitney to make good.

Boeing originally negotiated purchase of a 41,000-pound-thrust JT9D-1 and renegotiated the thrust requirement with Pratt & Whitney to 42,000 pounds later in the year. In the IR&D proposal for 1968, Pratt & Whitney said the objective of the JT9D development program was to develop and deliver a 42,000-pound-thrust engine by the end of 1968. The proposal did not mention that Pratt & Whitney had already agreed to deliver a 42,000-pound-thrust engine to Boeing.

In July 1967 Boeing negotiated the purchase of an increased thrust JT9D-3 engine rated at 43,500 pounds. The first production engine with this thrust rating was delivered in April 1969.

Later versions of the JT9D delivered to Boeing were outgrowths of the JT9D-3. To correct problems experienced with the engines delivered, Pratt & Whitney modified the JT9D-3 and shipped the first production unit of this modified version (the JT9D-3A) on December 31, 1969.

In August and September of 1967, Boeing discussed with Pratt & Whitney the development of a 45,500-pound-thrust engine to accommodate heavier versions of the 747 aircraft. Purchase orders were subsequently placed for this engine and Pratt & Whitney delivered the first production unit (the JT9D-7) on July 13, 1971.

In 1970 and 1972, respectively, Boeing and United Aircraft Corporation¹ entered damage claims against one another arising from the use of JT9D-3A engines in 747s. In announcing settlement of these claims, United Aircraft's annual report for 1972 states:

"We are pleased to report that early in 1973 the managements of United Aircraft and The Boeing Company jointly announced the withdrawal of their claims against one another arising out the use of the JT9D-3A engine in the 747. As part of the agreement, our Pratt & Whitney Aircraft Division will develop a new, advanced model of the JT9D, designated the JT9D-70, capable of providing thrust up to

¹Pratt & Whitney is a division of United Aircraft Corporation.

60,000 pounds. Boeing will offer the 747 with the advanced engine for deliveries commencing in late 1975."

Early in 1973 Seaboard World Airlines ordered three 747s powered by JT9D-70 engines. Development costs of the JT9D-70 are being charged to IR&D. Development of advanced JT9D engine models is continuing in 1974 and is being charged to IR&D.

Boeing officials reviewed this and other pertinent sections of the report and had no major disagreements.

The McDonnell Douglas Corporation

In October 1968 United Aircraft entered into an agreement with McDonnell Douglas Corporation to provide JT9D engines for its wide-bodied, three-engined DC-10 aircraft. Presumably, McDonnell Douglas included specific performance requirements in its agreement for these engines which had not been developed at the time McDonnell Douglas agreed to purchase them. Pratt & Whitney agreed to assume up to \$100 million of the costs of incorporating the JT9D engine in the DC-10.

Pratt & Whitney shipped the first production engine (the JT9D-15) for the DC-10 in June 1972. This engine, subsequently redesignated the JT9D-20, is essentially the same as the JT9D-7 with external parts rearranged to fit the DC-10 airframe. The costs of developing the JT9D-15 were charged to IR&D.

DOD REGULATIONS ON IR&D

Until 1972, section 15-205.35 (c) of the Armed Services Procurement Regulation (ASPR) stated,

"A contractor's independent research and development is that research and development which is not sponsored by a contract, grant, or other arrangement."

This section was amended effective January 1, 1972, and now reads,

"A contractor's independent research and development effort (IR&D) is that technical effort

which is not sponsored by, or required in performance of a contract or grant * * *."

The DOD official who originated this change stated that the additional words, "or required in performance of," were not intended to broaden or change the definition of IR&D but just to clarify it. (See p. 9.)

PRATT & WHITNEY AND NAVY INTERPRETATIONS

Neither Pratt & Whitney nor the Navy agrees with the conclusion that much of the JT9D development work should not have been allowed as IR&D because it did not comply with the ASPR definition.

Pratt & Whitney contends that its practice since 1968 of charging the development costs of commercial engines, such as the JT9D, to IR&D is proper and allowable by ASPR because the production contracts do not specifically require, and thus do not sponsor, development of the engine. Pratt & Whitney acknowledges that the 1972 ASPR revision merely clarifies the preexisting definition but argues that acceptability of technical effort as IR&D still hinges on the word "sponsored." It stated:

"* * * Sponsorship denotes one party's assumption of liability for the obligations of another, i.e., a surety relationship. We assume that your office is satisfied that our customers do not assume such a liability as to the development costs simply by placing production orders for commercial engines with us. * * *"

The Navy made two interpretations of the ASPR definition of IR&D. The Navy believes that, for the period prior to 1972, the words "sponsored by a contract" defined IR&D as research and development work for which a company alone assumed responsibility and for which no other party had accepted responsibility in the event of failure. According to the Navy, the JT9D development before 1972 was allowable as IR&D because Pratt & Whitney alone assumed responsibility for the development. There was no evidence of financial support from, or assumption of risk by, Boeing; and Boeing did not exercise control over the development.

The Navy considers that the 1972 revision, which added the words "or required in performance of," changed the meaning of ASPR and made development, such as that for the JT9D, unallowable if the work had to be accomplished to fulfill the terms of any existing contract. However, the Navy decided that all 1972 JT9D development was allowable as IR&D because none of the technical effort was related to engines under contract. (See p. 15.)

In our opinion, the interpretation of the ASPR definition of IR&D by Pratt & Whitney, and by the Navy for the pre-1972 period, is too narrow. Both interpret "sponsored" in the strictest dictionary sense of a surety relationship, that is, one party formally agreeing to be responsible for another's (in this case Pratt & Whitney's) failure to perform. Both maintain that the JT9D development was allowable as IR&D because only Pratt & Whitney had accepted responsibility in the event of failure. We believe the term "sponsored by" must be given a broader meaning. The added words "or required in performance of" provide such a connotation which, as explained below, was always intended.

The Navy contends that the definition must have changed because, under legal principles, added words are presumed to add meaning unless another intent can be established. The Navy discounted the statement of the DOD official who originated the revision that only clarification was intended.

REVIEW OF ASPR FILES

The ASPR case files and the files of an ad hoc committee of DOD officials who proposed this revision show that only clarification was intended.

The DOD official who originated the revision did not remember specifically when or why concern was first expressed over the definition, but isolated cases had turned up indicating a need for some clarification. He introduced the thought while acting as secretary to an informal DOD committee that was working on a new cost principle for IR&D and bid and proposal expenses.

In late 1967 the informal committee presented a proposed cost principle to the ASPR Committee, which sent it out in draft form to industry and Government agencies for comment in January 1968. It defined IR&D as:

"* * * that technical effort which is not sponsored by, or in support of, a contract * * *"

Various organizations commented on different parts of the proposed cost principle. Only the Council of Defense and Space Industry Associations commented specifically on the additional words "or in support of." The Council was concerned that the new wording might preclude technical effort broadly related to a contract or grant. It suggested that ASPR not be changed and observed that:

"* * * both Government and industry clearly do not intend to have IR&D effort defined as including that specific effort required to be performed as part of the scope of a particular contract or grant * * *."

The informal committee considered the Council's objection to the new wording and eventually decided on the words "or required in performance of" to clarify the IR&D definition. The explanation to the ASPR Committee stated:

"It is the intent of this change to convey the concept that any work which must be accomplished in order to fulfill contractual requirements is a contract cost."

There was no mention of any intent to change the definition of IR&D as suggested by the Navy. Moreover, there was no indication that anyone interpreted the meaning of "sponsored" as narrowly as the Navy.

Apparently the ASPR Committee viewed the additional wording as a clarification because it did not designate the wording as a change, as it did for other revisions when the IR&D cost principles were published. If the ASPR Committee had intended such a major change in meaning as that suggested by the Navy, it would have noted that intent in its records.

OUR INTERPRETATION

The definition of IR&D in effect through 1971 was established in 1959 when ASPR was completely revised. We believe this definition, as clarified by the 1972 revision, excludes not only technical effort explicitly required by a research and development contract but also that effort

implied by the terms of--that is, "required in performance of"--a production contract. We do not mean that all technical effort should be disallowed simply because a buyer agrees to purchase a product if and when a seller successfully develops it. Rather, research and development ceases to be independent when the performer contracts to deliver a still-to-be-developed article to a purchaser's requirements.

Boeing's procedures support our view that technical effort should not be considered IR&D if a company has an order requiring, explicitly or implicitly, that such effort be performed before that order can be filled. Like the JT9D engine, the 747 airplane itself was not developed in 1966 when Boeing agreed to deliver 747s to Pan American World Airways. But, unlike Pratt & Whitney, Boeing did not charge airplane development costs to IR&D once orders for the airplane materialized. Instead, these costs were charged to a 747 product development account and were not allocated to the Government.

We believe that the important question is, what characteristics make research and development effort "independent" and thereby allowable as IR&D? Because ASPR defines IR&D as technical effort which is "not sponsored by a contract," the issue has centered on the meaning of the word "sponsored."

Sponsorship is clear when the Government or a commercial customer awards a research and development contract specifying the work to be done. Technical effort on such a contract is clearly not allowable as IR&D. Sponsorship also exists, in our opinion, in the case of a production contract that implicitly requires research and development to satisfy the requirements for production articles--such as the agreements between Boeing and Pratt & Whitney for JT9D engines. In either case, the factors which suggest sponsorship are a loss of independence by the performer of the research or financial support and assumption of risk by, or benefit to, the buyer of the production article.

Loss of independence

The agreements with Boeing had a determining influence over the JT9D development. Both parties knew that development was required before production engines could be

delivered. Pratt & Whitney was not free to discontinue the project, and its product had to conform to the detailed specifications contained in the agreement for production engines.

Boeing officials told us that Boeing was obligated to deliver airplanes to its customers and that Pratt & Whitney, in turn, was obligated to deliver engines to Boeing. If Pratt & Whitney did not deliver, the airlines would seek redress from Boeing. This demonstrates a loss of independence by Pratt & Whitney, since to discontinue development would give Boeing a basis for legal action.

Financial support

There can be little doubt that the agreements with Boeing and McDonnell Douglas greatly lessened Pratt & Whitney's financial risk in the JT9D development. Pratt & Whitney had firm orders for 1,140 JT9D engines totaling about \$1 billion before the first model was fully developed in 1969.

Assumption of risk

In our opinion, Boeing assumed some risk on JT9D development when it agreed to deliver airplanes with these engines. Conversely, Pratt & Whitney, by entering into these agreements with Boeing, lessened the risk that it would have had, had it developed the engine solely on its own.

One might claim that Boeing, by subcontracting the engine to Pratt & Whitney, passed along its risk for engine development. However, if Pratt & Whitney had failed and had become insolvent, Boeing would have had to look to its own resources to meet its obligations to the airlines.

Benefits

The direct benefit of JT9D development to Pratt & Whitney customers is obvious. It allowed them to meet contractual obligations and earn revenues that otherwise might have gone to competitors.

ARMED SERVICES BOARD OF CONTRACT
APPEALS DECISION

The Navy, in supporting its position on allowability of the JT9D development, cited a 1966 decision of the Armed Services Board of Contract Appeals.¹ The Navy concluded that the decision made the JT9D development clearly allowable as IR&D. We disagree.

In this case, a contractor had obtained partial financing of certain projects from private utility companies and associations of utility companies. The project costs in excess of this financing were included as IR&D, which an Air Force contracting officer had disallowed. The contractor appealed the Air Force's determination to the Board.

The Board explored the meaning of sponsored in the definition of IR&D at some length, stating:

"* * * we must try to determine what that section of ASPR means. The words of the section [15-205.35(c)] themselves do not solve the problem, and, unfortunately, we have found, or been directed to, little else which does. * * * Some independent research on our part has not brought to light anything which would qualify as meaningful legislative history of section 15-205.35(c) of ASPR. * * *"

* * * * *

"At a minimum, the clause was intended to insure that a contractor performing research and development work would not be paid twice for its effort, i.e., once under a contract covering the work directly, and a second time, in part at least, by an overhead markup resulting from research and development costs applied to all of the Government contracts which the contractor had." (Under-scoring supplied.)

In expanding on this, the Board interpreted sponsorship as being somewhere between any financial support and total financial support of a research project from outside sources.

¹ASBCA No. 10254, June 28, 1966.

The Board stated that sponsorship could turn on something not connected entirely or directly with money, such as, for whose purpose was the project undertaken, who controlled the project, or who would benefit from it. Thus, the Board defined sponsorship in much the same way that we do.

Although the Board ruled in favor of the contractor, it noted that it might have decided otherwise if the Government had presented its case differently. We believe that the Board's 1966 decision supplied some amplification of the definition of IR&D which the Navy should have considered in allowing the JT9D development as IR&D.

IMPACT OF JT9D DEVELOPMENT COSTS ON DOD CONTRACTS

The Navy used a different method of calculating the dollar effect of JT9D development on DOD contracts from that we used. The Navy contended that the annual IR&D ceilings were set at amounts lower than Pratt & Whitney proposed because of the commercial nature of the JT9D engine. Therefore, the Navy considered that DOD shared only the amount of JT9D development costs which remained after all IR&D costs above the annual negotiated ceilings had been attributed to JT9D development. In our calculation, we considered that DOD contracts absorbed JT9D development costs in the proportion of such costs to the total IR&D costs incurred each year.

By the Navy's method of calculation, DOD contracts absorbed about \$48.9 million of JT9D development costs during 1968-72. We calculated the amount absorbed to be about \$76.1 million for this period.

Our method is consistent with that used by United Aircraft to compute its share of JT9D development costs in annual reports to stockholders. This method is also consistent with Pratt & Whitney's annual agreements with the Navy for sharing IR&D costs. No proposed projects were specifically excluded or included in setting the amount to be allocated to all contracts proportionately. The negotiation files for the IR&D agreements for the years 1968-72 indicated an intent to share JT9D costs along with those of other IR&D projects.

The Navy considered all JT9D development costs for 1968-71 allowable under its interpretation of the pre-1972 ASPR definition. The Navy determined that all JT9D development effort charged to IR&D in 1972 was allowable because none of the work related to engines under contract. The Navy did not examine Pratt & Whitney's commercial contract but relied on a schedule of incurred research and development costs and oral statements by Pratt & Whitney officials.

The JT9D-15 engine, originally ordered in 1968, was certified by the Federal Aviation Administration in April 1972, and the first production engine was shipped in June 1972. Pratt & Whitney records show that \$4.9 million for JT9D-15 development was charged to IR&D in 1972. It seems evident that some contractually required, and thus unallowable, development was charged to IR&D in 1972.

According to the contracting officer, Pratt & Whitney had requested a \$10 million increase in the ceiling for 1973, but he was able to hold the line at the 1972 level because he had raised the issue of the JT9D being unallowable as IR&D. This resulted in a saving to DOD contracts of about \$3.9 million.

The Navy apparently now considers that some of the costs of the 1973 IR&D program may be unallowable. The contracting officer indicates that some JT9D development was for engines for which Pratt & Whitney had commercial contracts.

AGENCY AND CONTRACTOR COMMENTS

We have already discussed the Navy and Pratt & Whitney positions on the allowability of JT9D development cost as IR&D. DOD also provided the Navy's rationale on there being no basis for a claim against Pratt & Whitney. (See app. I for complete DOD and Navy reply. See apps. II and III for Pratt & Whitney's responses.)

The Navy, in commenting on the possibility of obtaining a refund from Pratt & Whitney, stated that the Government probably would not be able to recover any amounts paid, even if they were now considered unallowable, because the Navy had agreed to accept these costs at the time. The Navy claimed its past actions have "estopped" the Government from attempting to recover unallowable costs paid. Pratt & Whitney takes the same position as the Navy.

CONCLUSIONS

The IR&D costs allocated to DOD contracts by Pratt & Whitney from 1968 through 1973 could include up to \$87 million of JT9D development costs which, in our opinion, were incurred to meet the requirements of agreements with commercial airframe manufacturers and, therefore, should not have been allowed. We recognize, however, that the lack of clarity in ASPR, together with the Navy's actions, estops the Government from recovering costs for 1968-71. After the 1972 change, such costs are clearly unallowable under the ASPR definition of IR&D.

RECOMMENDATIONS

We recommend that the Secretary of Defense determine how much of the JT9D technical effort for 1972 and subsequent years is not allowable as IR&D because it was sponsored by, or required in performance of, contracts and obtain price adjustments where appropriate.

CHAPTER 3

OTHER QUESTIONABLE ALLOWANCES OF IR&D

Development programs other than the JT9D may also have been sponsored by, or required in the performance of, contracts and, therefore, should not have been allowed as IR&D.

STATIONARY POWERPLANTS

Pratt & Whitney's IR&D proposal for calendar year 1973 described a \$4.2 million effort undertaken in 1972 to develop a production version of the FT4C-1 engine. This development was to have been completed in October 1972 when the first unit was scheduled for shipment. Pratt & Whitney does not normally build such engines for inventory. Therefore, we believe an order for this engine may have existed before its development. If so, the development was improperly included in IR&D.

Another project, the FT4C-3 engine, had projected spending of \$1.7 million in 1972 and \$3.2 million in 1973. This new model is designed to generate electrical power, with increased output and decreased fuel consumption. Pratt & Whitney's IR&D proposal stated that these improvements were required to meet production dates. Because Pratt & Whitney does not normally produce powerplants for inventory, we believe commercial contracts may also exist for this engine.

The proposal described another project, the FT50A-1 engine development, with estimated funding of \$5.3 million in 1972 and \$12 million in 1973. Since engine production was scheduled to start, we believe an order for this engine may have existed, making development as IR&D improper.

Pratt & Whitney said it had no orders for the FT50A-1 engine but did not comment on whether it had orders for the FT4C-1 or FT4C-3 engines. The Navy did not comment on these projects.

DEVELOPMENT OF THE JT8D-15

In 1969 Pratt & Whitney started developing an improved version of the JT8D engine, designated the JT8D-15. This engine, which is used in a number of aircraft including the Boeing 727, was to have increased thrust with no increase in weight. Development costs charged to IR&D were:

<u>Year</u>	<u>Amount</u>
	(millions)
1969	\$0.6
1970	3.0
1971	<u>0.3</u>
	<u>\$3.9</u>

The Federal Aviation Administration certified the JT8D-15 engine on April 7, 1971, and Pratt & Whitney shipped the first production model the next day. This almost simultaneous occurrence indicates that a contract for delivery of the engine probably existed before its development. If so, development should not have been IR&D.

Pratt & Whitney did not indicate whether they had contracts for the JT8D-15 engine, nor did the Navy comment on this project.

CONCLUSIONS

We believe that these projects may also have been sponsored by, or required in the performance of, contracts. We were unable to verify this because Pratt & Whitney refused us access to its commercial records. If commercial contracts existed for these engines, development costs incurred to meet contractual requirements should not have been allowed as IR&D. Costs incurred after the ASPR change are clearly unallowable.

RECOMMENDATIONS

We recommend that the Secretary of Defense determine that part of the technical effort for these projects which was performed in 1972 and later and which is not allowable because it was sponsored by, or required in the performance of, contracts and obtain price adjustments where appropriate.

CHAPTER 4
NEED TO IMPROVE REVIEWS OF
IR&D PROGRAMS

DOD needs to improve its administration of IR&D to insure that proposed IR&D technical effort meets the ASPR definition.

To be recognized as IR&D and allocable to DOD contracts, proposed technical effort must meet two basic tests. First, it must meet the definition of IR&D. Second, it must meet a test of relevance.

Before 1971 the relevance test determined whether the IR&D technical effort related to a Government product line. Since January 1, 1971, the relevance test has determined whether the technical effort has a potential relationship to a military operation or function as required by section 203 of Public Law 91-441. DOD has procedures to test relevancy.

To determine whether the technical effort meets the IR&D definition, DOD has criteria on whether proposed IR&D is sponsored by, or required in performance of, DOD contracts. However, DOD does not determine whether a contractor's proposed IR&D program is sponsored by, or required in performance of, commercial contracts.

In January 1967 Pratt & Whitney proposed its first IR&D program (for 1968) of about \$108.8 million, of which \$50 million was for JT9D development. Although this program was the largest ever proposed to the Navy, the records of negotiation do not indicate that Government representatives considered whether the program met the definition of IR&D. The records do show that Government representatives were concerned about the impact such a program would have on DOD contract prices and that the JT9D was a commercial endeavor.

However, the technical review team leader observed, 2 weeks before the final agreement was negotiated in October 1967, that the JT9D development had only "a potential commercial application." But the JT9D had much more than a potential commercial application because Pratt & Whitney had firm orders for the engine from Boeing as disclosed in the

news media, corporate annual reports, and company newspapers.

Once the review team became aware that the development was potentially commercial, procedures should have been established to ascertain whether the commercial application actually occurred. However, there is no indication that the Navy or DOD ever followed up on this important fact. The records of negotiation for 1969-72 do not indicate that the Navy evaluated the development in terms of the ASPR definition of IR&D.

The Navy contracting officer relies primarily on the annual technical review of Pratt & Whitney's proposals by the DOD technical review team. The technical review team considers whether the effort proposed as IR&D is required by military contracts but not whether it is required by commercial contracts. These reviews are primarily concerned with whether the proposed projects have a potential military relationship.

In 1971 an Air Force official who attended an IR&D technical review at Pratt & Whitney noted that the Navy was handling IR&D differently than the Air Force. Accordingly, he wrote to the Navy in July 1971, stating:

"* * * we question the fundamental merits of permitting the Contractor to charge JT9 development effort to the IR&D program. We feel that P&W has a contractual obligation to develop the JT9 engine for his commercial customers. Therefore, why should the IR&D program be required to augment this contractual obligation? * * *"

Copies of this letter were sent to several Navy officials, including the contracting officer at Pratt & Whitney. Later, the Air Force official wrote to an Air Force negotiator stating:

"* * * ASPR 15-205.35(c) provides that IR&D is that research and development which is not sponsored by a contract, grant, or other arrangement. If this rule were applied to the P&WA IR&D program, that contractor could have run a demonstrator JT9 engine, but once they secured a commercial JT9D contract, the further development

of the engine would have been supported outside the IR&D program as a private development program. * * *

This issue warranted the full consideration of all parties involved but, on the basis of our discussions with Navy and Air Force representatives, we concluded no action was taken.

In March 1972 we discussed the revised ASPR definition of IR&D with the Navy contracting officer at Pratt & Whitney. This was about 3 months after the change in wording became effective but before the Navy executed the advance agreement for IR&D with Pratt & Whitney in April 1972.

The contracting officer said he knew the definition had been revised. Although he was chairman of a DOD subcommittee that evaluated the new IR&D cost principle which included the change in definition, he suggested that we talk to a DOD official on the rationale for the change. (See p. 9.)

Although our discussion should have alerted the contracting officer, we found no indication that he established this definition as an issue that should be resolved.

DOD PROCEDURES

A DOD official told us that the individual services are responsible for ensuring compliance with the definition of IR&D. DOD's Technical Evaluation Group, which establishes evaluation criteria, methodology and forms to be used by the military departments, issued the form "Independent Research and Development Project Technical Evaluation." All branches of DOD have been required to use this form since May 1972 for technical reviews of IR&D programs. One item on this form states:

"If it is necessary to conduct a research and development task in order to fulfill the requirements of a contract, then the effort is not independent R&D and is considered to be in direct support of the contract whether or not it is specifically set forth in the contract work statement."

This criteria clearly prohibits all development by Pratt & Whitney required by contracts with Boeing or other

customers. Although this form suggests that DOD has criteria for insuring compliance with the ASPR definition of IR&D, the Chairman of the Technical Evaluation Group has stated that the technical review team is not expected to review each IR&D project and that the team would refer to this description only if a contract requiring the proposed effort were known or suspected to exist.

The Defense Contract Audit Agency (DCAA) auditor-in-charge at Pratt & Whitney informed us that he had not extensively reviewed IR&D costs because the contractor had incurred large amounts above the negotiated ceilings. In 1972, at the request of the Navy plant representative, DCAA reviewed the IR&D program at Pratt & Whitney for 1971 and concluded that the costs were allowable and allocable in accordance with ASPR, section 15.

The audit program indicated that consideration was to have been given to whether these costs met the definition of IR&D. However, the extent to which it was actually considered was not indicated, except for a request that was made to the contractor for certain commercial records. According to DCAA, Pratt & Whitney did not respond to this request. DCAA said that it does not have access to the commercial records necessary to insure compliance with the ASPR definition of IR&D. We noted that the DCAA audit manual does not specifically provide for determining whether IR&D technical effort meets the ASPR definition.

CONCLUSIONS

DOD components have focused their review of IR&D on verifying that projects have a potential military relationship. They have not considered the equally relevant ASPR criterion that projects should not be required in performance of a commercial contract. The review teams felt that they would have had difficulty insuring compliance with this requirement without access to the contractor's commercial records.

We recognize the difficulty of verifying the propriety of IR&D charges when a contractor, such as Pratt & Whitney, is reluctant to permit Government representatives access to records of its commercial business. For this reason, we believe the Government should be provided sufficient access to these records to enable a determination that IR&D costs are

allowable. In its recent report, 5 of the 12 members of the Commission on Government Procurement supported this position.

This does not mean that the Government should always examine contractor's commercial records or that the authority should be without limitation. Instead, when analysis of available evidence--such as published annual reports, other public releases, and the planned IR&D program furnished to the Government--raises questions, the authority should be available to permit examination to the extent necessary to determine the propriety of the questionable IR&D charges.

AGENCY AND CONTRACTOR COMMENTS

DOD believes a change in procedures is unnecessary because the ASPR definition of IR&D effective since January 1972 clearly prohibits charging IR&D for work required to fulfill the requirements of a commercial contract. We believe the definition sets out criteria; but, to be fully effective, DOD must implement the requirements of the IR&D technical review form and prescribe that the definition of IR&D be considered by all parties responsible for reviewing IR&D programs--the technical review teams, DCAA, and the contracting officers.

DOD said that, because requiring access to records on commercial contracts raises some far-reaching issues, extensive review should be made before such a procedure is adopted, and statutory authority may be necessary. DOD will consider the recommendation in current reviews of the IR&D area.

Pratt & Whitney stated that, if our interpretation of the ASPR definition of IR&D is correct, access to commercial contracts is not required to determine whether a project is allowable. The only test to be applied is whether the contractor has accepted a single order for any item being developed on an IR&D project. Pratt & Whitney said GAO had demonstrated on the JT9D case that access to commercial contracts was not required for that determination.

However, in our opinion, audits of multimillion-dollar matters cannot be left to newspaper articles or project descriptions in IR&D brochures. Therefore we believe the Government should have access to contractor's commercial records.

The need for access is particularly evident for assessing the allowability of projects such as those discussed in chapter 3. The publicity given them was small in comparison to the JT9D program. A firm determination of their allowability would not be possible without access to the specific requirements of the commercial contracts.

RECOMMENDATIONS

We recommend that, to improve administration of IR&D, the Secretary of Defense

- provide specific guidance to Government review teams and DCAA to insure that technical effort allowed as IR&D is not sponsored by, or required in the performance of, commercial contracts and
- expedite action under consideration to change ASPR to require that IR&D advance agreements specifically authorize access to contractors' commercial records for determining that IR&D costs are allowable.



ASSISTANT SECRETARY OF DEFENSE
WASHINGTON, D.C. 20301

INSTALLATIONS AND LOGISTICS

21 NOV 1973

Mr. Harold Rubin
Deputy Director, Procurement
and Systems Acquisition Division
U. S. General Accounting Office
Washington, D. C. 20548

Dear Mr. Rubin:

This is a follow-up of our letters of August 9, 1973 and October 11, 1973 concerning the General Accounting Office (GAO) draft report titled, "Need to Assure That DOD Does Not Absorb Costs of Commercial Development Work Through IR&D Allocations" (OSD Case #3646). GAO provides four recommendations; two designed to improve the administration of IR&D, and two directed at the specifics of the IR&D allowance provided by Navy to Pratt & Whitney during the period 1968 - 1972.

As to the first recommendation, GAO suggests a determination be made whether IR&D is sponsored or required in the performance of commercial contracts. The Armed Services Procurement Regulation (ASPR) was amended effective January 1, 1972 to exclude clearly from the definition of IR&D that technical effort which is not only "sponsored by" a commercial contract but also that technical effort which is "required in the performance of" a commercial contract. The allowance of IR&D for work required in order to fulfill the requirements of a commercial contract would not be permitted under this change. We believe this ASPR modification is consistent with the GAO recommendation.

The second recommendation, i. e., that the Department of Defense (DOD) should have access to contractor's commercial records to determine whether IR&D costs are allowable, raises some very far reaching issues. Extensive review of this matter must be made before any such recommendation could be adopted. It may be that statutory authority would prove to be necessary to effect such a recommendation, if it is otherwise appropriate. This matter will be considered along with many other matters under current review in the IR&D area.

APPENDIX I

As to the recommendations addressing the question of recovery of IR&D payments from Pratt & Whitney, we have enclosed an extensive analysis prepared by the Navy on this matter. This analysis sets forth the rationale why there is no valid basis for a claim against Pratt & Whitney. Those comments in the enclosure concerned with the first two GAO recommendations for changes in DOD policy will be considered in our further study of this matter.

We appreciate the extension in time provided by GAO to make these comments. We trust you will find them responsive to your report recommendations.

Sincerely,



ARTHUR I. MENDOLIA
Assistant Secretary of Defense
(Installations & Logistics)

Enclosure
a/s

NAVY COMMENTS
ON
GAO DRAFT REPORT OF 15 JUNE 1973
ON
NEED TO ASSURE THAT DOD DOES NOT
ABSORB COSTS OF COMMERCIAL
DEVELOPMENT WORK THROUGH IR&D ALLOCATIONS
(OSD Case #3646)

TABLE OF CONTENTS

I. GAO Findings and Recommendations

II. Navy Comments

A. Introduction

B. Discussion

1. The interpretation of the regulations
2. The extent of costs paid out by DOD for the JT9D
3. The interpretation of the ASPR principles and the parties course of conduct
4. The nature of the P&W contracts
5. Consideration for acceptance of IR&D JT9D Costs and P&W offsets
6. The 1972 JT9D IR&D costs
7. The impracticability of GAO's recommended change in the regulations
8. The Navy's recommendations for revision of the regulations

18 October 1973

I. GAO Findings and Recommendations

In a review of contractors' IR&D (Independent Research and Development) programs, GAO noted that Pratt & Whitney Aircraft Division, United Aircraft Corporation, had devoted over half of its IR&D efforts to developing various models of its JT9D engine for the Boeing 747 and McDonnell Douglas DC-10 aircraft. Because DOD contracts directly with Pratt & Whitney for research and development for military engines, GAO wanted to find out whether DOD should have absorbed a share of the JT9D portion of the IR&D costs.

GAO estimates that DOD may have paid as much as \$76.1 million of JT9D engine development costs during 1968 through 1972 without determining that this technical effort was properly allowable as IR&D--i.e., not sponsored by or required in performance of a contract or grant. Pratt & Whitney officials contend that JT9D engine development is allowable as IR&D because Pratt & Whitney does not have commercial contracts specifically requiring research and development. GAO believes that technical effort should not be considered as IR&D if a company has an order requiring explicitly or implicitly, that research and development be performed before that order can be filled. Pratt & Whitney refused GAO access to its commercial contractual agreements for JT9D engines. Nevertheless, GAO states that there are strong indications that much of this development should not have been allowed as IR&D because the engines had not been developed when Pratt & Whitney contracted to deliver them to the Boeing Company and the McDonnell Douglas Corporation.

GAO bases its position on the definition of IR&D, as contained in the ASPR since 1968, maintaining that throughout this period, the JT9D effort was either "sponsored by" (in accordance with the pre-1972 ASPR language) or "required in performance of" (in accordance with the 1972 ASPR language) a contract, e.g., the Boeing-P&W contract. GAO finds no substantive difference in the definition of IR&D prior to 1972 and that contained in the ASPR after 1972, but states that the inclusion of the words "or required in performance of" did not change the meaning of ASPR. In this context, GAO states on page 13 of its draft report that, "the DOD official who originated this change stated that the additional words 'or required in performance', were not intended to broaden or change the definition of IR&D, but just to clarify it. He also stated that this requirement was intended to apply to commercial as well as DOD contracts." The reported statement of a "DOD official" is the sole bases stated in the GAO report for the conclusion that the pre-1972 language ("sponsored by") contemplates the P&W situation.

APPENDIX I

To remedy the situation, GAO recommends revision of the regulations and assertion of a claim against P&W. Specifically, GAO recommends that DOD:

1. Improve its administration of IR&D by (a) determining that contract effort allowed as IR&D is not sponsored by or required in the performance of commercial contracts, and (b) revising the ASPR (Armed Services Procurement Regulation) to require that advance IR&D agreements contain specific authority for the Government to have sufficient access to a contractor's commercial records to determine that IR&D costs are allowable.

2. At Pratt & Whitney, (a) determine if any part of the technical effort is not allowable as IR&D because it was sponsored by or required in the performance of contracts; and (b) seek equitable price adjustments to the extent appropriate.

II. Navy Comments

A. INTRODUCTION

The Navy does not agree that there exists any basis for a claim against P&W, nor does it agree with GAO's recommended change in the administration of IR&D for the following reasons:

1. GAO's interpretation of the pre-1972 ASPR regulation (15-205.35) is incorrect. It does not contemplate the JT9D situation.

2. Even assuming GAO's interpretation of the regulation was correct, there would still not be a basis for a claim against P&W because:

- a. The Government is "estopped" from now asserting a claim for such costs;

- b. The Government has waived its right to recover such costs;

- c. Many of the costs were included in fixed price type contracts which are not susceptible to cost disallowances;

- d. The Government received consideration for accepting such costs and is now bound by its agreement to include such costs in IR&D allocations; and

- e. P&W can assert a valid offset in the event the Government can support a case for recovery of JT9D R&D costs.

3. GAO's interpretation of the 1972 ASPR regulation is correct. Nevertheless, inclusion of the JT9D costs in the 1972 IR&D agreement was appropriate inasmuch as none of the IR&D tasks undertaken by P&W in 1972 related to FAA certified engines sold to commercial customers in that year. There were no commercial orders in existence in 1972 related to any IR&D tasks undertaken in that year. The 1972 IR&D tasks all related to improvements over and above and beyond anything called for in existing commercial orders. Such improvement tasks were determined by the Armed Services Research Specialists Committee to be of potential military relevancy and therefore appropriate for inclusion in the 1972 IR&D agreement.

4. Even assuming, as GAO maintains, that 1972 JT9D costs could not be included in IR&D, there would still not exist a basis for asserting a claim against P&W for 1972 IR&D costs for the reasons set forth in 2(a) through (e) above.

5. Adoption of GAO's proposal regarding the review of commercial contracts and records is impractical, would not serve a useful purpose and would unduly burden the military departments.

6. The Navy's current procedures for negotiation of IR&D advance agreements, which have a built-in mechanism for assuring an equitable distribution of costs relating to items having commercial application, should be continued. They are prudent and advantageous from a business and economic point of view. Since the Navy's approach might in the future, result in a situation which is not condoned under the literal terms of the current ASPR 15-205.35, appropriate change in the ASPR should be made (as recommended herein) or a blanket deviation should be granted the Navy for use of its approach to the negotiation of IR&D Advance Agreements.

B. DISCUSSION

1. The interpretation of the regulations

At issue in the subject case are two regulations, both of which establish a definition of IR&D. The later regulation (effective 1 January 1972) is merely an extension of the IR&D definition as contained in the ASPR since 1959. For 13 years, it was defined as work "not sponsored by a contract, grant or other arrangement." In 1972, one change was made to the regulation's definition of IR&D: that was to exclude work which was not only not "sponsored" under another contract, but also work which was not "required in the performance of" another contract. Both GAO and P&W maintain that the new definition did not in any manner affect the meaning of ASPR, although both parties construe the alleged consistent meaning in different ways. GAO construes it to always cover the JT9D effort while P&W construes it as having always excluded JT9D type work.

APPENDIX I

Before analyzing the words of the regulation, to wit "sponsored by" and "required in performance of," it is appropriate to review certain rules of statutory construction which courts and boards have used in interpreting statutes and regulations. First, it is noted that there is a presumption in the law that every word, sentence or provision of a statute or regulation was intended for some useful purpose. It is presumed that when words are included in or added to a statute or regulation they are intended to have some force and effect and, as such, some meaning is to be given to each word. Conversely, there is a presumption that no superfluous words or provisions are included in statutes or regulations (See 82 CJS Sec. 316, and cases cited in footnotes 52 through 56). The general rule is that when new words are added to a statute or regulation, a new meaning is brought to that statute or regulation. It is never presumed that additional verbiage was intended to create redundancy: in effect, to say again, in other words, what had already been stated in the regulation. Along these lines there are numerous cases wherein the courts have held that, "where the words or provision of a statute differ from those of a previous statute on the same subject, they are presumably intended to have a different construction or meaning and to denote the intention to change the law." (Id. See cases cited in footnotes 61 and 62).

Another pertinent rule of statutory construction is that the meaning of a statute or regulation is to be ascertained primarily from the language used and not from extrinsic sources (See 82 CJS Sec. 322). Furthermore, in interpreting the words of a statute or regulation the courts have held that they should be interpreted according to their plain, obvious and reasonable meaning: it should not be presumed that a meaning other than ordinarily understood from the words was ever intended. (Id. See footnotes 53 through 60). Only when the words of a statute or regulation cannot be interpreted literally have the courts resorted to legislative intent as an aid to its interpretation. (Id. See footnotes 65 through 71)

Based on the rules of statutory construction, set forth above, in order to interpret the meaning of ASPR 15-205.35, we must begin with the assumption that the 1972 revised IR&D definition did, in fact, change the existing definition. The inclusion of the words "or required in the performance of," were intended to add a new category of work which would not be acceptable as a part of a contractor's IR&D program. Notwithstanding the statements of a "DOD official" to the contrary, the regulation cannot be read as creating redundancy. Moreover, it should be noted that nothing in the ASPR file supporting the revision would indicate that such was intended. In fact, nothing in the ASPR case files indicates what was contemplated by the inclusion of the words "or required in the performance of". Under such circumstances, it is unlikely that the general presumption of "no redundancy" could be overcome merely because of the statement of a "DOD official."

Having established variances in the regulations, the next step is to interpret the words of the individual regulations in accordance with their ordinary and reasonable meaning in routine parlance. Under the first ASPR version of 15-205.35, in effect from 1959 to 1972, IR&D was that work which was not "sponsored by a contract, grant or other arrangement." The Second Unabridged edition of Webster's New International Dictionary, 1950, defines the word "sponsor", in its noun form as "one who binds himself to answer for another's default" and in its verb form as, "to accept responsibility for". Applying the definition of "sponsor" to its context in the pre-1972 ASPR 15-205.35 provision, it can be said that IR&D is research and development work for which a company alone assumes responsibility and for which no other party has accepted responsibility in the event of failure.

The interpretation of ASPR, as just described, varies significantly from that espoused by GAO: it finds "sponsorship" whenever there exists a commercial contract for the subject matter of the development program. This interpretation, however, is not only inconsistent with the ASPR language, it is also likely to produce an anomalous situation. An extreme example can illustrate this. Assume a contractor undertakes a multi-million dollar development effort for which there is a determination of extensive potential military relationships (PMR) and for which potential projected sales show 90% sales to the Government. If, during the course of this independent development effort, the contractor accepts a contract from a commercial contractor for the sale of one item should it eventually be developed, under GAO's interpretation of ASPR, none of the development effort can be categorized as IR&D and it must be totally disallowed against all DOD contracts.

The meaning of the pre-1972 ASPR definition of IR&D was explored by the ASBCA in a case involving a cost disallowance taken under a General Dynamics - Air Force contract. The ruling in this case corroborates the explanation of the definition of IR&D, as detailed herein, and negates the explanation espoused by GAO. In Appeal of General Dynamics Corp., ASBCA No. 10254, 66-1 BCA 5680 (1966), an Air Force contracting officer disallowed certain IR&D costs attributable to projects which were partially financed by contributions from private utility companies or associations. In making the disallowance, the contracting officer specifically cited ASPR 15-205.35(c), the IR&D definition. The Government's position was that inasmuch as the specific development effort was not wholly funded with corporate funds, it could no longer be classified as "independent research and development." The Board saw the issue at hand as follows:

"What does the word 'sponsored' in the definition connote? The gravamen of the Government's argument apparently is that sponsorship is present if a contractor receives any financial support toward its research and development effort from outside sources. At the opposite end of the financial spectrum would be the position that a project is 'sponsored' only if it were paid for entirely by the outside source." (Id. at p. 26,501)

The Board indicated that the ASPR definition was not clear enough to compel either of the two extreme interpretations. Only one thing could be clearly construed from the definition. As the Board stated:

"At a minimum, the clause was intended to insure that a contractor performing research and development work would not be paid twice for its effort, i.e., once under a contract covering the work directly, and a second time, in part at least, by an overhead markup resulting from research and development costs applied to all of the Government contracts which the contractor had." (Id.)

With regard to the General Dynamics situation, the Board ruled that the costs should be allowed even though they pertained to a project which was not wholly funded with company funds and which was also being done for the benefit of commercial customers who had agreements in existence which covered the subject matter of the development program. In this context, the Board stated:

"What does the definition sentence intend to say about projects which are partly sponsored financially by this appellant and partly by other sources, which were the idea of the appellant but are of great interest to the utility companies and foundations which are participating financially? In this area where guidance to interpretation is lacking, we are impressed with one of the appellant's 'common-sense' arguments. It suggests that if it had carried on these research programs without any financial assistance from outside sources, there would apparently have been no question raised about the Government's accepting the costs under ASPR 15-205.35 as a proper component to reach overhead markups to apply as indirect costs to Government contracts. Appellant then suggests that it is anomalous indeed that after it successfully seeks outside assistance in financing its research programs, the effect of which is to reduce the total amount to be applied

against Government contracts, the Government refuses to recognize this reduced amount as properly includible in a pool to be allocated to Government contracts. The effect of this is to penalize the appellant for reducing the costs allocable to Government contracts. We would not be inclined to read subparagraph (c) to reach such a result unless its language clearly compels it. We do not think that such is the case. We do not think that the language of the subparagraph is clear enough, when applied to the facts of this case, to COMPEL any specific result." (Id.)

The outcome of the General Dynamics case would seem inevitable in the instant P&W case. Here, there is evidence of no financial support whatsoever from Boeing: merely a commitment to purchase engines if P&W succeeds in its development efforts. Boeing assumes no risk and exercises no control over the course of the JT9D development. In the event the JT9D effort turned out to be a failure, Boeing would not be responsible for any costs related to the JT9D development. Under these circumstances, the Board could hardly find that ASPR 15-205.35(c) compels a finding of Boeing "sponsorship" for the JT9D development program. Rather, under the pre-1972 ASPR, it seems clear that the JT9D work was not sponsored by anyone but P&W and, as such, the costs of that work should have been included in P&W's IR&D pool.

The 1972 definition of IR&D added the words "or required in performance of". In accordance with the rules of statutory construction it can be presumed that a new category of work was encompassed by the inclusion of these words which was previously not covered by the regulation. The dictionary defines the word "require" as, "to be necessary or requisite" for. In the context of the 1972 ASPR 15-205.35, this would mean that an effort cannot be classified as IR&D if it must be accomplished in order to fulfill an obligation assumed under another contract, grant or other arrangement. Even if the effort might not be encompassed within the express terms of another contract, if it is a prerequisite to accomplishment of the other contract, then it is "required in the performance" of that other contract and is unacceptable as IR&D.

In the instant case, it would appear that the JT9D development effort would have to be excluded as IR&D under the 1972 regulation. It is immaterial that development costs were not charged to the Boeing contract and that Boeing had no liability or responsibility in the event of an unsuccessful developmental effort. Under the 1972 regulation, regardless of these factors, if the work has to be accomplished in order to fulfill the terms of an existing contract, it cannot be IR&D. This literal interpretation of the words should prevail even though it would result in the anomalous situation, as illustrated above, of a single contract excluding a multi-million dollar development effort from being categorized as IR&D. The question is not whether

anyone else is responsible for the development, but whether the development is necessary to fulfill the terms of any other contract, even if the contract is for a limited number of items. Any other interpretation would not give new meaning to the ASPR and would be contrary to the ordinary meaning of its language.

2. The extent of costs paid out by DOD for the JT9D

In every year since P&W has had an IR&D program, it has exceeded the negotiated ceiling on IR&D costs by significant amounts. To a large extent, this is due to the fact that the negotiations recognized that the JT9D, although it did have PMR, nevertheless had a predominant commercial application. As such, in establishing IR&D ceilings, the Navy negotiator insisted upon a significant reduction in the total IR&D ceiling. From 1968 to 1972, P&W incurred IR&D costs which almost equated their original proposal for IR&D programs prior to the year. During these years, JT9D costs incurred were equivalent to the magnitude proposed in P&W's original proposals. Under these circumstances, there appears little question but that the significant reductions in the proposed ceilings were attributable to consideration of the commercial application of the JT9D engine. Although final ceilings were negotiated on a lump sum basis and individual elements were not broken out, the parties course of conduct indicates that the individual elements were major factors in determining the amount of IR&D costs which would be allowed, especially in the case of the JT9D.

In 1972, for example, total costs reimbursed by DOD to P&W for IR&D amounted to \$24.5 million. Based on the course of conduct of the parties and the expressed intent of the Navy negotiator during the negotiations, it can be argued that the entire difference between P&W's proposed ceiling and the agreed upon ceiling is attributable to JT9D costs. On that basis, total JT9D costs incurred would first have to be reduced by the amount of the ceiling reduction before a determination could be made as to the portion reimbursed by DOD through IR&D allocations. Under this assumption, during 1972, vice the \$10.9 million allocation of GAO, it can be argued that only \$1.4 million was reimbursed to P&W for JT9D effort. This figure would be arrived at by reducing the total cost incurred for JT9D (\$39.37 million) by the difference between the total IR&D costs incurred and the 1972 ceiling (\$36 million), and applying the percentage of DOD business (42.2%) against the difference (\$3.2 million). The result of this computation is \$1.4 million.

To the extent that a claim can be maintained under the 1972 regulation for recovery of 1972 JT9D IR&D costs, it would appear that the claim would lie somewhere between a minimum of \$1.4 million and a maximum of \$10.9 (GAO's calculation). In view of the nature of the negotiations which resulted in substantial reductions in the ceiling, it is highly unlikely that anything near \$10.9 million could be supported.

3. The interpretation of the ASPR principles and the parties course of conduct

In examining questions of cost allowability, the Board has often looked into the course of conduct between the contracting parties in order to determine whether a disallowance can be sustained. Even where the Board determines that a specific cost should not be allowed under the cost principles, it has often refused to enforce the principle where the parties' course of conduct was such as to lead the contractor to believe that his method of accounting and allocation was proper. In effect, the Board has found an "estoppel" barring the Government from asserting a cost disallowance.

In The Appeal of Peninsular Chemresearch Inc., ASBCA No. 14384, 71-2 BCA 9066 (1971), the Government attempted to disallow part of an overhead allocation on the grounds that the contractor had improperly included within the overhead pool the expenses of the commercial sales department. The Government contended that these expenses related entirely to the contractor's commercial products and, therefore, could not be included in the overhead pool. Under the contractor's normal accounting procedure, only a single overhead pool was maintained for allocation to both Government and commercial contracts. Noting the reliance the contractor had placed on this system when he entered the contract, the Board stated that retroactive adjustment was not proper when the Government had tacitly approved the system by not objecting at the outset. The Government was estopped from challenging such costs even though they might be found to be unallowable under a cost principle.

Either under a concept of "estoppel" or "waiver", the Board has, on numerous occasions, found that a retroactive price adjustment will not be sustained where the Government has approved the contractor's method of accounting and allocation. In the Peninsular Chemresearch case, *supra*, the Board thus said the following:

"Retroactive adjustment of appellant's previous accounting system is not now in order. . . respondent has waived its defense of unallowability by its prior consistent acceptance of appellant's system." (Id. at 42055)

Similarly, in the Appeal of Wolf Research and Development Corp., ASBCA No. 10913, 68-2 BCA 7222 (1968), the Board stated:

"If costs are not allowable under ASPR for a particular contract because their allocation to that contract is not in accordance with generally accepted accounting principles, they need not be reimbursed even though Government auditors failed to question such costs in prior years. The Government's failure to object to prior allocation practice may be persuasive evidence of its acceptability in a given case;

but if the practice is correctly determined to be unacceptable the previous failure to question it would not ordinarily bind the Government for future years." (Id. at 33,545)

Similarly, in the General Dynamics case, supra, where the Board interpreted the words "sponsored by", the Board also reflected upon the significance of the conduct of the parties prior to the disallowance. The Board thus stated:

"Our conclusion above is strengthened by the actions of the parties themselves and their treatment of the same costs in preceding years. In the years prior to 1960 such costs. . . were apparently accepted by the Government. . . the events of 1960 are particularly significant because that was the first year's costs which were challenged. . . Initially the appellant submitted a brochure clearly identifying the research programs and disclosing the participation therein by outside financial sources. . . the contracting parties thus appear to have had no qualms about the propriety of recognizing the contractors costs above contributions on the later questioned projects. . . The fact that the costs were recognized gainsays the present argument that they are barred completely by the provisions of ASPR 15-205.35(c)." (Id. at 26,502)

The above cited cases dealing with the doctrines of "estoppel" and "waiver" in cost disallowance situations, indicate that the Government would be hard pressed to demand a retroactive price adjustment from P&W in light of its conduct over the last five years. This is certainly true with regard to the costs between 1968 and 1972, where the parties course of conduct can be interpreted consistently with the regulations. However, it is equally true with regard to any claim for 1972 IR&D costs. Although the regulations indicate that as of 1 January 1972 the JT9D costs should have been disallowed as IR&D (since they were required "in performance of" a contract), it is unlikely that the Government could succeed in sustaining a disallowance where it knowingly agreed to the acceptance of such costs and where its conduct since the inception of the IR&D program at P&W was such as to lead P&W to believe that such costs were allowable and would continue to be so. The Government's acceptance of these costs was not unwitting in this instance, but it was done with full knowledge. Under such circumstances, the doctrines of "estoppel" and "waiver" could be relied upon by P&W.

4. The nature of the P&W contracts

In determining whether the Government might pursue a claim against P&W for recoupment of unallowable IR&D costs, attention must be given to the

nature of the contracts involved. Even if it could be established that unallowable costs were paid, recovery might still be barred if the contract type is such that it cannot be opened for a disallowance. In this context, it should be noted that most of the contracts executed with P&W since 1968 are of the fixed price type; the major ones being fixed price incentive type contracts. The Government has had relatively few cost type contracts with P&W.

With regard to fixed price type contracts, two propositions are significant: first, where you have a firm fixed price contract or a fixed price incentive contract which has been finally redetermined, a cost disallowance is barred since payments under these contracts are made on the basis of "price" rather than through the reimbursement of "cost", and second, even with respect to fixed price incentive contracts which have not been redetermined, a cost disallowance will not be sustained under the ASPR provision in existence prior to 1 July 1970.

The above principles were illustrated in the Appeal of G.C. Dewey Corporation, ASBCA No. 13221, 69-1 BCA 7732 (1969). The Dewey case involved a 1967 Marine Corps contract which was originally executed as a letter contract. In definitizing the letter contract, the parties included, as an element of the fixed price, the cost of deferred engineering and development. Under the ASPR section 15 cost principles, deferred engineering costs were clearly unallowable. Having negotiated a fixed price, the Marine Corps sent a business clearance to the Chief of Naval Material for review and approval. Exception was taken to the inclusion of costs for deferred engineering and development and as a result, the contracting officer went back to the contractor and attempted to exclude such costs. The contractor disagreed and an appeal followed. In determining that the cost should be allowed, notwithstanding the cost principle to the contrary, the Board reflected upon the nature of the contract and the status of the regulation. The Board thus stated:

"The Board is in agreement that the [cost] provisions are not mandatory for a fixed price contract. . . In our view the only possible remaining reason for the refusal of the questioned cost would be that the contracting officer had acted beyond the scope of his actual authority. . . The Board recognizes that where regulations require pre/post business clearance for certain contracts by the Office of Naval Material, in appropriate circumstances, the most stringent cost provisions of section 15 might be applicable to definitization of a fixed price letter contract, but here, the terms of a letter contract had been arrived at through the free right to bargain between the Government and the appellant. In the instant contract, all the

APPENDIX I

facts were known by the Government prior to entering into the contract with the appellant. . . . At the time of the letter contract capitalization was spread on the company's books for all to see and was fully covered in the request for clearance and in the negotiation for the letter contract. . . . We conclude on the foregoing that while the contracting officer was obligated by ASPR and the Navy Procurement Directive to obtain a post clearance prior to arriving at a firm fixed price the matter of acceptance of the cost in question was no longer open to negotiation except as to amount." (Id. at. 35,921)

In Dewey, even though a contract on a firm fixed price basis had not yet been fully executed, the Board still found an "accord and satisfaction" regarding the acceptability of deferred engineering costs once the letter contract was issued and, as such, the Government could not challenge that cost at a later time. Citing the Luzon Stevedoring case, ASBCA No. 11650, 68-2 BCA 7193 and the R.W. Borrowdale case, ASBCA No. 11362, 69-1 BCA 7564, the Board reiterated its position that:

"the ASPR cost principles were made a guide to contracting officers and were not incorporated by reference into fixed price contracts as a contractually binding [standard]. It follows that this standard cannot be imposed on the contractor by fiat of the contracting officer or on appeal by fiat of this board if to do so would result in other than an equitable adjustment. . . ."

Only after 1 July 1970 did fixed price contracts call for the mandatory application of the cost principles. This resulted from the issuance of DPC 79 on 15 March 1970. Even with the application of the cost principles, however, the nature of the fixed price type contract was still, to a large extent, preserved: they did not carry with them the future possibility of cost disallowances as could result in cost type contracts. As was noted in the introduction to DPC 79:

"particular attention is directed to paragraph 15-106 as revised which points out that the application of section 15 cost principles to fixed price contracts has not required the negotiation of individual elements of cost. The practice of negotiating an overall total price should be continued."

Once a fixed price is agreed to, it obtains a certain integrity and it is not subject to challenge. Taking into consideration the nature of P&W's contracts and the holdings of the Board in connection with fixed price type contracts, it can be concluded that even if the JT9D costs were unallowable under the cost principles, most of the costs which GAO maintains were improperly paid would still not be recoverable since they were paid out under fixed price type contracts executed prior to 1 July 1972 or included in firm fixed price or finally redetermined incentive type contracts executed after 1 July 1972. Even under GAO's interpretation of the regulations, a claim would only be viable in connection with cost contracts which have not been closed out or under open fixed price incentive contracts executed after 1 July 1972.

5. Consideration for Acceptance of IR&D JT9D Costs and P&W Offsets

An aspect of the P&W situation mitigating against any Navy claim for recoupment of IR&D costs concerns the parties dealings. Since 1968, in return for the Navy's agreeing to include a small portion of the JT9D costs in the IR&D ceiling, P&W has agreed not to defer any JT9D R&D costs to the Government in any future sales. This "no deferral" agreement represents legal consideration for the Navy's acceptance of the costs. To date, the Government has purchased three JT9D engines and there is reason to believe that there will be many more sales in the future. No deferred development and engineering costs were included in the price of the three engines. In the absence of the "no deferral" agreement, if P&W would include deferred R&D in the price of its JT9D engine, the price of the engine would increase substantially.

In light of the "no deferral" agreement, P&W can argue that the Government has given up its right to claim return of JT9D costs: it has bargained for and received consideration in return for its binding agreement to pay JT9D costs. And, since the Government has already taken advantage of the agreement in the purchase of the three JT9D engines, it can hardly disavow it at this time. At a minimum, if JT9D costs were disallowed, P&W would have a valid claim to assert as an "offset" against the Government. At this juncture, its offset would relate to the three engines thus far bought by the Government. In addition, however, it would open the door to the future payment of deferred R&D costs in any future sale of JT9D engines to the Government.

Attachment 1 covering P&W's estimated future military and other Government sales of the JT8, JT9 and FT9 engines project substantial Government sales of these aircraft engines. These projections have been reviewed and appear reasonable subject to the possibility that some of these requirements may be procured competitively among aircraft engine manufacturers. In the event that P&W were to defer such development costs, its recovery on such levels of potential sales would substantially exceed what the DOD has recognized in the negotiation of annual IR&D ceilings. Also, it must be anticipated that if the present IR&D approach covering development of more advanced aircraft

APPENDIX I

engines is abandoned, P&W may be entitled to charge the DOD commercial prices for such advanced engine configurations. These prices would likely be higher than would otherwise be negotiated by the DOD.

6. The 1972 JT9D IR&D Costs

A review of P&W's IR&D program for calendar year 1972 indicates that none of the work relating to the JT9D engine, which was classified as IR&D, was done in connection with certified JT9D engines. Rather, all of this work was undertaken in order to develop advanced versions of the JT9D engine. Consistent with P&W's historic practice, it did not include in IR&D any effort relating to certified engines. Similarly, it has been determined that during 1972 P&W did not have in existence any contract or other agreement with commercial customers covering the future purchase of advanced model JT9D engines. During this year, P&W only had contracts with its commercial customers for the certified versions of the JT9D engine.

As recognized herein, the 1972 ASPR 15-205.35 precludes work from being classified as IR&D, if it must be accomplished in order to fulfill the obligations of an existing contract. In P&W's case, none of the 1972 JT9D development effort related to "contracted for" engines. On the contrary, it was confined only to advance engines for which no contracts existed. Moreover, all of this development work was found by the Armed Services Research Specialists Committee to have a potential military relationship and, as such, it was recommended for inclusion in the IR&D program. Under these circumstances, there is little doubt that the JT9D development effort was properly classified as IR&D. In fact, it would be contrary to the regulations to have excluded it from P&W's IR&D pool, since "allowability" is dictated when the work has PMR and is not required in performance of another contract.

7. The Impracticability of GAO's Recommended Change In the Regulations

In order to comply with the current ASPR 15-205.35 in its fullest sense, GAO recommends that DOD gain access to contractor's commercial contracts and records. The purpose for this presumably is so that DOD personnel can inspect such documents and assure themselves that no element of a proposed IR&D program is "required" as a prerequisite to fulfillment of an obligation undertaken in a commercial agreement.

The procedure recommended by GAO would be extremely burdensome to administer: it would require many additional manhours for auditors, lawyers, contract negotiators and technical personnel, with very little to be gained as a result. The intent of the ASPR regulations and DOD policy surrounding IR&D is to recognize costs incurred in performing an effort which has PMR, but only to the extent of its military application. DOD does not intend to sponsor or subsidize commercial work nor does it intend to allow contractors

to duplicate their recovery of development costs by permitting them to charge commercial customers and DOD for the same work. GAO's recommended approach to IR&D does not ensure the fulfillment of DOD's objectives which the current ASPR does not clearly enunciate. Even if DOD inspected all commercial records in extreme detail and ascertained that no agreements covered the proposed IR&D work, the work might still be directed primarily towards a commercial application. Yet it would be allowable because it had some PMR. Contractors could merely refuse to enter into binding commitments during the development stage of a product and thereby ensure the allowability of their IR&D costs.

The approach employed by the Navy to IR&D, on the other hand, is geared to the fulfillment of DOD's objectives. Under the Navy's practice, an assessment is made of the commercial application of the IR&D's effort. This assessment represents a major factor in determining the extent to which IR&D proposed costs will be recognized in establishing the IR&D ceiling regardless of whether there exists a commercial contract for the item. Even without such a contract, the costs will not be considered to the extent that they are being incurred for future commercial customers. This was the system which was successfully employed in P&W's case since 1968 and which resulted in the negotiation of ceiling limitations between 1968 through 1973 of \$355 million although P&W proposed and will have spent approximately \$550 million. And, of course, within the \$355 million ceilings, DOD only reimbursed P&W for its allocable share. Also, if JT9D costs were excluded from IR&D, the Government would have to abandon its present "no deferral" arrangement in which case it would be charged for the development costs in the price of future sales. As indicated earlier, these charges would exceed the amounts recognized for the JT9D's development in IR&D ceilings.

8. The Navy's Recommendation for Revision Of The Regulations

In its report, GAO has highlighted one problem which clearly warrants action. It is evident that the current terms of ASPR 15-205.35 are not clearly understood by many and may not be adequate to fulfill DOD's objectives with regard to IR&D. The potential of commercial contracts arising as a result of IR&D projects is not unique to P&W, but exists with respect to all IR&D agreements. It is believed that this aspect has not been fully recognized in the present ASPR provision on IR&D and represents a further reason for clarification. It is a situation which is likely to result throughout DOD whenever IR&D work has both a military and commercial application.

In order to remedy this situation and ensure the proper treatment of IR&D by all segments of DOD, the Navy recommends revision of the regulations to provide that:

APPENDIX I

- a. IR&D costs be allowable only to the extent that they are incurred for projects having a PMR, though they also have commercial application (i.e. only an appropriate portion of the costs should be allowed commensurate with their PMR), and
- b. contractors should be required to certify that costs incurred for IR&D projects are not and will not be charged, directly or indirectly to any other project, contract or effort.

United Aircraft

President
Chief Executive Officer

July 13, 1973

Mr. Harold H. Rubin
Deputy Director (Technology Advancement)
United States General Accounting Office
Washington, D. C. 20548

Dear Mr. Rubin:

We appreciate the opportunity you have afforded us to comment on the Comptroller General's Draft Report on "Need to Assure that DOD Does Not Absorb Costs of Commercial Development Work Through IR&D Allocations."

The principal thrust of this report is that our Pratt & Whitney Aircraft Division (P&WA) charged portions of the cost of development of the JT9D engine to its IR&D program, in which costs the Government shares; that after P&WA had received orders from customers for engines such costs should not have been included in the IR&D program shared by the Government; that in the future the Government should exclude from approved IR&D programs work on products for which orders have been received; and that the Government should "seek equitable price adjustments to the extent appropriate." The report also considers in passing, the possibility that the practices complained of were followed by P&WA for products other than the JT9D. The report recommends that DOD be granted limited access to contractors' commercial contracts for the purpose of determining whether or not IR&D projects are required to fulfill the terms of those contracts.

It has not been P&WA's practice to contract for the development of commercial aircraft engines. When a future need for a new commercial aircraft and engine is recognized, P&WA works very closely with the airlines and with airframe companies to meet the future need with no contractual relationship with either the airlines or airframe companies. At the earliest practicable date, when an airplane specification can be written, the airplane is offered for sale. When an order for an airplane is received from an airline, the airframe manufacturer normally places a firm fixed price order with P&WA for engines for that airframe. There is, again, no contract between P&WA on the one hand, and either the airframe manufacturer or the airline on the other for the development of the engine.

Your draft report states, in pertinent part:

"Until 1972, Section 15-205.35 of the ASPR stated, "a contractor's independent research and development is that research and development which is not sponsored by a contract, grant or other arrangement."

APPENDIX II

UNITED AIRCRAFT CORPORATION

Mr. Harold H. Rubin
U. S. General Accounting Office

July 13, 1973
Page 2

We believe it is clear that a firm fixed price order for one, or indeed, for 100 engines cannot be said to be a contract, grant, or other arrangement, which sponsors the development program. It follows, therefore, that the wording set forth above would not rule out the inclusion of the JT9D effort in the IR&D program.

Your draft report goes on to say:

"This section was amended effective January 1, 1972, and now reads, 'A contractor's independent research and development effort (IR&D) is that technical effort which is not sponsored by, or required in performance of, a contract or grant*****'. The DOD official who originated this change stated that the additional words, 'or required in performance of' were not intended to broaden or change the definition of IR&D but just to clarify it....."

The quoted statement is in accord with the position the Government has consistently taken both in negotiations with P&WA, and in answer to P&WA's informal queries.

The draft report simply ignores this point. We believe it is clear that JT9D effort need not be excluded from the IR&D program in which the Government shares, and the quotations above reinforce that belief. The report gives no rationale for arriving at the opposite conclusion, that acceptance of one order (or any number of orders) for an item being developed on an IR&D project automatically disqualifies that project for inclusion in the IR&D program.

If the January 1, 1972 revision of ASPR 15-205.35 merely clarifies the pre-existing definition, without broadening or changing it, then it follows that the technical effort to be excluded from IR&D is that which is required by a contract which "sponsors" that effort. Sponsorship denotes one party's assumption of liability for the obligations of another, i.e., a surety relationship. We assume that your office is satisfied that our customers do not assume such a liability as to the development costs simply by placing production orders for commercial engines with us.

If we accept the GAO interpretation of ASPR then the GAO's recommendation that the ASPR be revised "...to require that advance IR&D agreements contain specific authority for the Government to have sufficient access to contractor's commercial records to determine that IR&D costs are allowable" seems without merit. If the GAO interpretation is correct, and we believe it is not, the only test to be applied is whether the contractor has accepted a single order for any item being developed on an IR&D project, and as the GAO has demonstrated in this case, access to commercial contracts is not required to make that determination.

Under our commercial contracts for the sale of JT9D engines our customers do not sponsor the development of the engine. We believe the intent of ASPR is clear that in these circumstances, the JT9D development program is, and has been, properly included in the IR&D program which is shared by the Government. It follows that

UNITED AIRCRAFT CORPORATION

Mr. Harold H. Rubin
U. S. General Accounting Office

July 13, 1973
Page 3

retroactive price adjustments to permit the Government to recover amounts paid to P&WA pursuant to advance understandings properly entered into between P&WA and the Government, in accordance with applicable regulations, would be both inequitable and inappropriate.

The foregoing paragraphs deal with the principal thrust of the draft report.

[See GAO note.]

APPENDIX II

UNITED AIRCRAFT CORPORATION

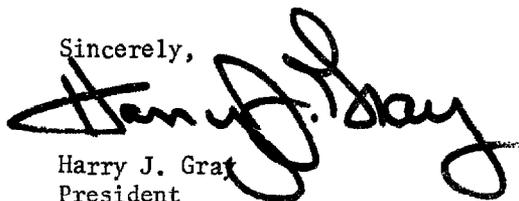
Mr. Harold H. Rubin
U. S. General Accounting Office

July 13, 1973
Page 4

[See GAO note.]

Again, may I state our appreciation at being afforded the opportunity to comment on the draft report. We trust that if the report is issued, this letter will also be published with it.

Sincerely,

A handwritten signature in black ink, appearing to read "Harry J. Graf". The signature is written in a cursive style with a large, looping "H" and "G".

Harry J. Graf
President

HJG:hsq

GAO note: Material eliminated relates to matters which were presented in the draft report but which have been revised or omitted from the final report.

United Aircraft

President
Chief Executive Officer

August 6, 1973

Mr. Harold H. Rubin
Deputy Director (Technology Advancement)
United States General Accounting Office
Washington, D. C. 20548

Dear Mr. Rubin:

On July 13, 1973, I wrote you my comments on the Comptroller General's Draft Report on "Need to Assure that DOD Does Not Absorb Costs of Commercial Development Work Through IR&D Allocations."

In reading the Draft Report again, I could infer from it that the Government contracts for, and pays all the costs of, the development of every engine used by the military, and at the same time, through its IR&D support, pays a portion of the cost of development of engines which have purely commercial application. Because this inference is not consistent with the facts, and because I did not discuss this subject in my July 13, 1973 letter, I am writing this second letter to dispel any misunderstanding of this point.

The term "commercial engine" as it is used in my letter connotes an engine, the development of which was undertaken by Pratt & Whitney Aircraft on its own initiative, and to its own Specification, to meet what it believed to be a market requirement, as opposed to a "military engine" which is developed under contract with the Government to the Government's specification, to meet the Government's requirements.

A "commercial engine" is offered to all potential customers, Government as well as commercial, on the same terms and conditions and at the same price. "Commercial engines" have, in fact, been purchased in significant quantities by the Government.

The development of the JT8D engine, for example, was initiated by P&WA in March 1960. P&WA has had no contracts either Government or commercial, for the development of the engine. The first production engine was delivered in 1962. Since that time and through 1974, P&WA will have delivered 109 JT8D engines to the Government for use in the AF C9A, the Navy C9B, the AF T43 Navigational Trainer and the FAA's Boeing 727 airplane.

Other P&WA "commercial engines" purchased by the Government include the JT3D, the JT12, and the JT9D.

UNITED AIRCRAFT CORPORATION

Mr. Harold H. Rubin
U. S. General Accounting Office

August 6, 1973
Page 2

I trust that this information dispels any remaining doubts as to the equity of the present system of allocating the costs of developing engines. If the Comptroller General's report is published, I should appreciate your publishing this letter, as well as my letter of July 13, 1973, with it.

Sincerely,

A large, stylized handwritten signature in black ink, appearing to read "Harry J. Gray". The signature is written in a cursive, flowing style with a prominent loop at the end.

Harry J. Gray
President

HJG:jp

PRINCIPAL OFFICIALS OF THE DEPARTMENT OF DEFENSE
AND THE DEPARTMENT OF THE NAVY
RESPONSIBLE FOR ADMINISTERING ACTIVITIES
DISCUSSED IN THIS REPORT

	Tenure of office	
	From	To
<u>DEPARTMENT OF DEFENSE</u>		
SECRETARY OF DEFENSE:		
James R. Schlesinger	July 1973	Present
Elliot L. Richardson	Jan. 1973	May 1973
Melvin R. Laird	Jan. 1969	Jan. 1973
Clark M. Clifford	Mar. 1968	Jan. 1969
Robert S. McNamara	Jan. 1961	Feb. 1968
DEPUTY SECRETARY OF DEFENSE:		
William P. Clements, Jr.	Jan. 1973	Present
Kenneth Rush	Feb. 1972	Jan. 1973
Vacant	Jan. 1972	Feb. 1972
David Packard	Jan. 1969	Dec. 1971
Paul H. Nitze	July 1967	Jan. 1969
Cyrus R. Vance	Jan. 1964	June 1967
DIRECTOR OF DEFENSE RESEARCH AND ENGINEERING:		
Malcolm R. Currie	June 1973	Present
Dr. John S. Foster, Jr.	Oct. 1965	June 1973
Dr. Harold Brown	May 1961	Sept. 1965
ASSISTANT SECRETARY OF DEFENSE (INSTALLATIONS AND LOGISTICS):		
Arthur I. Mendolia	June 1973	Present
Barry J. Shillito	Jan. 1969	Feb. 1973
Thomas D. Morris	Sept. 1967	Jan. 1969
Paul R. Ignatius	Dec. 1964	Aug. 1967

APPENDIX IV

Tenure of officeFrom ToDEPARTMENT OF THE NAVY

SECRETARY OF THE NAVY:

J. William Middendorf II	June 1974	Present
John W. Warner	May 1972	May 1974
John H. Chafee	Jan. 1969	May 1972
Paul R. Ignatius	Sept. 1967	Jan. 1969
Charles F. Baird (acting)	Aug. 1967	Sept. 1967
Robert H. Baldwin (acting)	July 1967	Aug. 1967
Paul H. Nitze	Nov. 1963	June 1967

CHIEF OF NAVAL MATERIAL:

Adm. Isaac C. Kidd, Jr.	Dec. 1971	Present
Adm. Jackson D. Arnold	July 1970	Dec. 1971
Adm. Ignatius J. Gallantin	May 1965	June 1970

Copies of this report are available at a cost of \$1 from the U.S. General Accounting Office, Room 4522, 441 G Street, N.W., Washington, D.C. 20548. Orders should be accompanied by a check or money order. Please do not send cash.

When ordering a GAO report please use the B-Number, Date and Title, if available, to expedite filling your order.

Copies of GAO reports are provided without charge to Members of Congress, congressional committee staff members, Government officials, news media, college libraries, faculty members and students.

AN EQUAL OPPORTUNITY EMPLOYER

UNITED STATES
GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548

OFFICIAL BUSINESS
PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
U. S. GENERAL ACCOUNTING OFFICE



THIRD CLASS

