Collection: Deaver, Michael
Folder Title: Howell, John S. (2)
Box: 44

WITHDRAWAL SHEET

Ronald Reagan Library

Collection Name DEAVER, MICHAEL: FILES

Withdrawer
KDB 8/16/2011

File Folder HOWELL, JOHN S. (2)

FOIA
F97-0066/19
COHEN, D

Box Number 46

109

DOC NO	Doc Type	Document Description	No of Pages	Doc Date	Restrictions
1	REPORT	RE HOWELL	2	8/1/1983	B6
2	FORM	RE HOWELL	1	11/29/1982	B6
3	LETTER	TO HOWELL	1	7/11/1983	B6

Freedom of Information Act - [5 U.S.C. 552(b)]

B-1 National security classified information [(b)(1) of the FOIA]
B-2 Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
B-3 Release would violate a Federal statute [(b)(3) of the FOIA]
B-4 Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
B-6 Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
B-7 Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
B-8 Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
B-9 Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

JOHN S. HOWELL

CORPORATION RESUME

1950	-	While working as a Tool Designer at Convair, Fort Worth, Texas, was assigned to develop a tool for testing the temperature system on the jet engines that powered the Convair B-36 Bombers.
	-	This led to the development of the U. S. Air Force and worldwide "JETCAL®" tester.
1951	-	Howell left Convair in January after obtaining the license to use the Convair heat application patented device as part of the JETCAL.
	-	Howell perfected the device for practical use and received Patent # 2,854,844 for inventing the heater probe, used in the tester, while working in his garage.
	-	With a $10,000 investment of his father-in-law, William T. Bradbury, formed B & H Instrument Company for the manufacture of the tester.
1954	-	Organized first subsidiary, Howell Instruments Company, for the manufacture of two newly invented products, the "TAPOT®" and Galvanometer.
1957	-	Organized second subsidiary, Howell Instruments of Puerto Rico, to manufacture own products in Puerto Rico.
1959	-	Howell invented the "Hot Section Analyzer", Patent # 3,237,448, an airborne recorder to monitor jet engine damage and jet engine life. A breakthrough in jet engine life monitoring.
1961	-	Went public with its stock and reorganized corporation under the name of "Howell Instruments, Inc.".
1964	-	Purchased majority of stock of A. Betzel Engineering, Arlington, Texas, and formed "The Hutson Corporation", a wholly owned subsidiary of "Howell Instruments, Inc.".
1969	-	Howell Instruments, Inc. divested itself of assets of Hutson Corporation.
1971	-	Purchased Lewis and Lambert.
1973	-	Purchased General Steel
1977	-	Purchased Childs Construction.

1977 - Made public offering and repurchased outstanding shares and went private. Formed umbrella organization "Howell Management, Inc.".

Howell Instruments and its predecessor, B & H Instruments, Inc., for the past 30 years have been in the forefront of jet engine maintenance with a number of firsts to its credit. In 1950 they invented the world famous JETCAL tester, a by-word in the industry, and followed with its ancillary line of testers. Since the early 1950's thousands of testers have been sold and have been or are currently being used on practically every jet engine in the world's inventory.

In the later 1950's Howell invented the "TAPOT" (Tape Potentiometer) which produced the first digital indicator to measure temperature and RPM in both ground test and cockpit indicators. All current digital engine cockpit instruments manufactured for present day jets are either Howell Instrument indicators of copies thereof.

In 1959 Howell invented the principle of the Hot Section Analyzer which is the basis of many jet engine monitors now flying on jet aircraft.

Howell has also penetrated the jet engine test cell market with its PATTS® (Programmable Automatic Test and Trim System) and AEDATS (Automatic Engine Data and Trim System) and is the first company to provide the jet engine industry with a programmed system to test jet engines in the test cell.

Howell has never taken nor accepted money for research and development from any governmental agency. It has always used its own retained earnings for this purpose.

Howell also very rarely bids on the manufacture of products other than its own design and development. The normal procedure at Howell is to search the industry for new product requirements then engineer, design, develop and manufacture its own products offering this product to its customers for sale.

Over the years sales at Howell have regularly increased from the first yearly sales of approximately $350,000 to the latest annual sales volume of approximately $20,000,000.

Although the patented "TAPOT", a Howell invention, provided the basis for its high accuracy instrumentation that gave the line maintenance personal laboratory precision for use in the tough environment of the flight line, its other two inventions, the JETCAL and Hot Section Analyzer, were the most dramatic in cost savings and pilots' lives.

The analysis by Dr. Self, industrial consultant and economics professor at TCU, showed that the cost savings to the Air Force and industry of the JETCAL tester alone, over a ten year average, saved over 1.25 million dollars per year over the cost of purchase, which equates to 1.25 billion dollars for the ten year average.

The same report equates the Hot Section Analyzer with approximately the same 1.25 billion dollar savings over cost for a ten year period, but official Navy records show that a minimum of some 42 pilots' lives have been saved that can be directly attributed to the use of the Hot Section Analyzer.

HH-

INTERNATIONAL REPORT

DUN & BRADSTREET, INC.

HOWELL INSTRUMENTS OF P.R. INC. MFRS. ELEC. INSTRUMENTS HATO REY. P.R.
263 Carpenter Rd.

(D2) 246 SN: MAY 7, 1959

Information received from Fort Worth, Texas indicates the following antecedent information:

John S. Howell born 1920 in Michigan and is married. Graduated University of Michigan June, 1948 with degree in engineering. Employed Abilene, Texas as engineer for Vaden Engineering Co. manufacturer of heavy refrigeration equipment. Resigned July , 1949 and became employed by Consolidated-Vultee Aircraft Corp., manufacturers at Fort Worth, as tool designer. Howell had been experimenting with jet engine testing equipment in his spare time and perfected a test instrument. He resigned his position with Consolidated to start B. & H. Instrument Co. Inc., Fort Worth, Texas.

Barbara Howell is the wife of John S. Howell and is not active in the business.

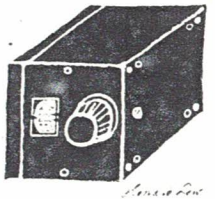
George Q. MaGown, Jr, is a well known attorney and is not active in the business, except in an advisory capacity.

B. & H. Instrument Co. Inc is located at 3479 West Vickery Bldv. Dort Worth, Texas. Started Jan. 1951 as partnership between John Howell and William Bradbury; subsequently succeeded by corporation Feb. 13, 1951. Manufactures air-craft equipment. Tangible networth at Nov. 30, 1958 was $523,039 with overall condition well balanced.

RELATED CONCERNS: Howell Instruments Co. Inc. located at Fort Worth, Texas, engaged as manufacturer of certain electrical components, relating to temperature measuring equipment for aircraft with output almost entirely to B, & H. Instrument Co. Accounts are settled at various intervals depending on working capital requirements of each concern. John S. Howell is President and owns 84% of the stock. It was chartered on Nov. 30, 1954, present authorized capital stock $100,000, outstanding capital stock $50,000 and tangible networth Nov. 30, 1958 was $102,734 and total debt $100,912.

Howco. Inc., Fort Worth, chartered Texas laws Aug. 8, 1955 for $5,000, John S. Howell is President and controlling stockholder. Owns building and land occupied by B. & H. Instrument Co. Inc., and Howell Instrument Co. Inc., on a lease arrangement. Financial statement not available.
MGS:ng

Father in-Law's $10,000



Ten years ago John S. Howell departed the University of Michigan with a brand-new B.S. degree in engineering, a wife and two babies, and $16. Today he is president and major stockholder of four corporations that have a combined net worth of $650,000, annual sales of $4 million, and net profits of about 10 per cent. Howell achieved all this with an instrument used to ground-test the exhaust gases of airplane jet engines and to detect overheating in any part of the plane.

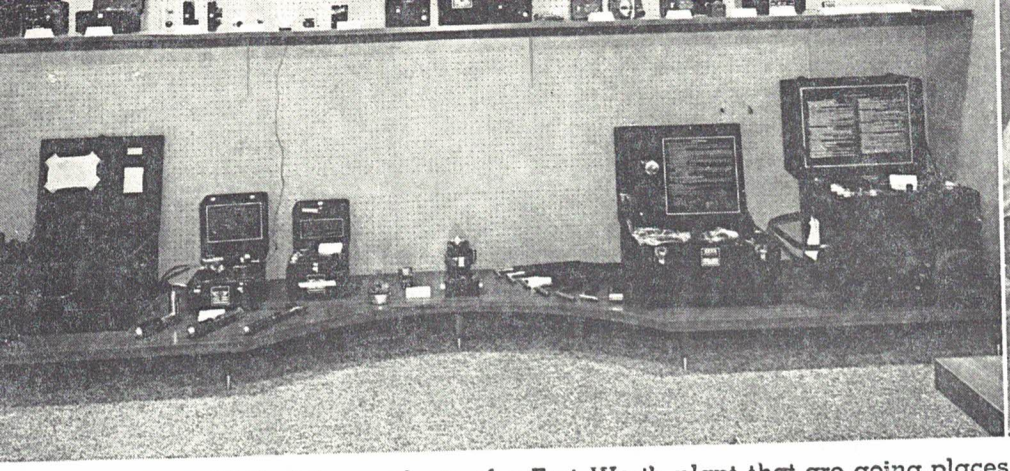
Soon after Howell got out of college he went to work for Convair's tool department at Fort Worth. For its jet engines Convair needed some way of testing exhaust-gas temperature in order to analyze engine performance. As the only engineer in the tool department, Howell was assigned to produce an instrument that would do this. After six months he turned out a functioning tester, but it was not entirely satisfactory. After six months of spare-time work he developed a satisfactory product.

Howell got a promise of a $10,000 loan from his father-in-law, William T. Bradbury, persuaded Convair (which had filed a prior patent application for a somewhat similar tester) to give him an exclusive license to make the instruments. He built three prototypes and a pilot model that were approved by the Air Force, and he was led to expect a contract for about 100 testers. But in August, 1951, after buying $40,000 worth of components, he had to stop: the contract had not come through. When it finally arrived, in November, Howell quickly borrowed $25,000 from a bank and, "from then on," he says, "we never looked back."

A few years later Howell and his staff invented a new type of potentiometer, a device that measures small electrical signals, and is used to ground-test airplane rpm, exhaust-gas temperature, de-icing and fire-warning systems. Virtually all U.S. airlines and the Navy and Air Force use the Howell potentiometer.

Of Howell's four companies, B. & H. Instrument is worth $500,000; Howell Instrument Co. $100,000; Howell Instruments of Puerto Rico $25,000. The fourth is a leasing corporation that lends equipment to the first three.

Components are expensive; inventory usually runs close to $300,000. "The idea," says Howell, "is to get the stuff in, get it built into our product, and out the door before the bill comes in." So far he has kept the product moving out the door so fast that, aside from profits retained, no new money has been put in the business beyond the original $10,000 borrowed from his father-in-law.



PICTURES of the products of a Fort Worth plant that are going places. Manufactured at B&H Instrument Company, the Jetcal Analyzer tests aircraft jet engines. B&H products are shown in photo top left. That's Chief Engineer Roger E. Robertson talking over an engineering matter with his staff.

B&H INSTRUMENT COMPANY

Young Man With an Idea Makes Jet Flying Safer

As you streak through the sky in one of the sleek new jet airliners to begin commercial service late this year—you likely can thank a relatively new Fort Worth company for the safety and smoothness of your flight.

That is 7½-year-old B&H Instrument Co., Inc., which has grown from nothing in 1951 to approximately 200 employees and over three million dollars in sales in 1957. The company's business is development of new and better electronic instruments to meet massive and expanding needs in the automation age of industry and defense.

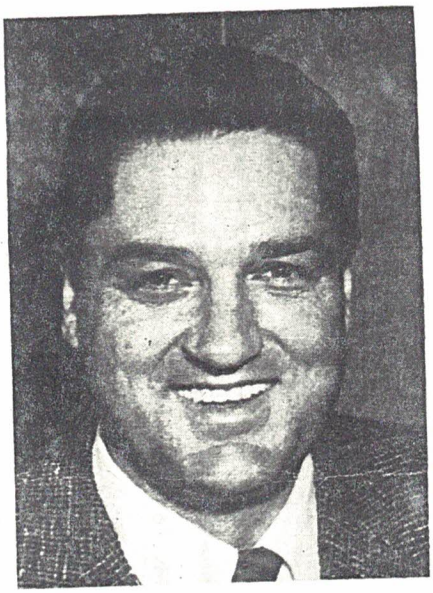
The B&H story springs from an idea of one man—John S. Howell, president and general manager—who founded the company when he was only 31.

The company's rapid growth and success is further evidence that Fort Worth provides the business climate to make such achievement possible. Certainly that's the belief of the 200 employees who received cash bonuses and shares of the company's profits totaling 30 per cent of their annual salaries in 1957.

Mr. Howell's leadership has attracted some of the nation's outstanding engineers to his staff as they have recognized the opportunity for personal gain and advancement.

A B&H instrument which will benefit jet airliners and their passengers is one already proved in worldwide use by the United States armed forces and NATO. It's the unique Jetcal analyzer, developed and made only by B&H—a rugged precision instrument for field use in pre-flight testing of jet engines.

The Navy's famed precision-flying team, the Blue Angels, found that their planes were more efficient—could fly up to 300 miles farther on the same fuel supply—when engines were adjusted in accord with Jetcal test indications.

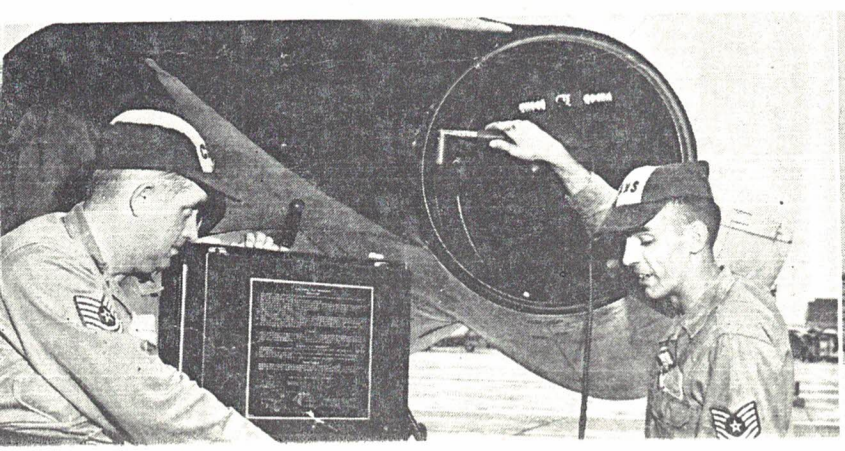


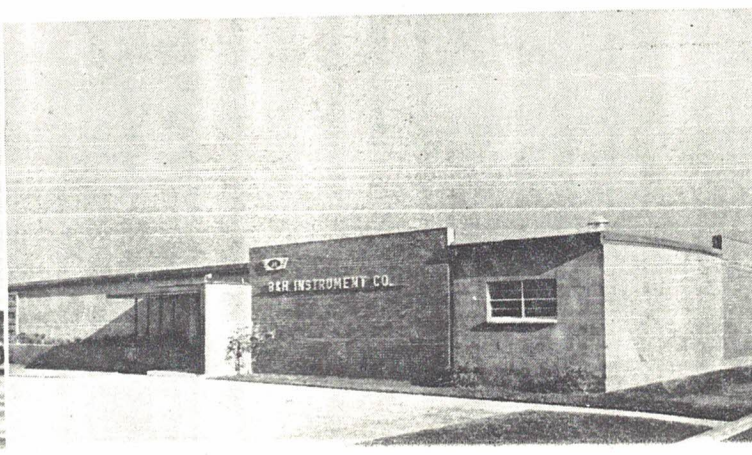
John S. Howell
B&H President

Mr. Howell grew up in Rochester, Mich., and before World War II he attended the University of Arizona

● Turn to Page 46

USING the analyzer to test the exhaust gas temperature of a Boeing B-52 jet engine are Carswell airmen T/Sgts. Charles C. Hawley and Donald R. Pettke. A view of a section of the company's engineering department which is doing things in a big way.





B&H INSTRUMENT

● Starts on Pagge 17

for three years. His major study was physics, and he also took pilot training. After World War II Air Force service he enrolled at the University of Michigan and was graduated (B. S., mechanical engineering) in June, 1948. In mid-1949 he came to Convair's Fort Worth plant as a tool designer.

During leisure time he used his garage as a workshop and developed the Jetcal analyzer. More than 3,000 Jetcals have been furnished to the Air Force, Navy, Army, NATO, airlines, and all the major aircraft and engine manufacturers. (Jetcals are used by Convair and Carswell Air Force Base.) Mr. Howell left Convair in January, 1951, having obtained license to use a Convair heat-application device in a commercial product.

The B&H Instrument Company was formed by Mr. Howell in partnership with William Bradbury of Marshall, his father-in-law. In February, 1951, they and Guy S. Tribble of Dallas incorporated the company.

Mr. Bradbury and Mr. Tribble subsequently sold their interests. Present stockholders are Mr. Howell, his wife, the former Barbara Bradbury of Cleburne, and George Q. McGown Jr., Fort Worth attorney. Mr. McGown is vice-president and treasurer, and Mrs. Howell is secretary of the company.

B&H's first year, 1951, was strictly organization and development. There was a loss, no sales. In 1952 sales were $350,000, and annual sales in the five years since have increased 10-fold—to more than three million dollars in 1957.

Other key figures in B&H management include these department heads: Leon Becker, sales manager; (Mr.) Claire Bell, plant manager; Johnny Pipes, business manager; Roger Robertson, chief engineer.

B&H's owners formed the Howell Instrument Company in 1954. This company develops and manufactures products which are used as components of B&H products and are sold also to other users. For instance, Howell provides an instrument used in firing the Matador missile . . . and an engine temperature indicator for the new Lockheed Electra prop-jet airliner. As new products are designed, new equipment and procedures must be designed to produce them.

The companion companies—B&H and Howell Instrument—are housed in a masonry main building and an adjoining metal-sheathed structure for bulk fabrication and storage; the two total 18,000 square feet, on a 2½-acre site at 3479 West Vickery Blvd.

The B&H owners, in summer 1957, incorporated Howell Instruments of Puerto Rico—as a result of the commonwealth's intensive "Operation Bootstrap" to add manufacturing industry to what has been a dominantly agricultural economy. Still a small operation in San Juan, the Howell plant (4,000 square feet of leased space) makes certain components for products made by the two companies in Fort Worth.

B&H has sales-engineering offices in New York, Dayton and Los Angeles and an agent in Tokyo. In England, Bryans Airoquipment, Ltd., Surrey, is a licensed manufacturer of the Jetcal analyzer.

John Stinson Howell, today 38, and his wife have four children—Marian, 13; Susan, 9; Johnny, 4, and Bill, 3. Mr. Howell is a member of the American Society of Mechanical Engineers, the Society of Automotive Engineers, Tau Beta Pi and Phi Kappa Phi, scholarship fraternities; Colonial Country Club and Petroleum Club of Fort Worth. The family lives at 4420 Stadium Drive, Fort Worth.

COST/BENEFIT STUDY

OF

MILITARY AIRCRAFT EQUIPMENT

PRODUCED BY

HOWELL INSTRUMENTS, INC.

OF

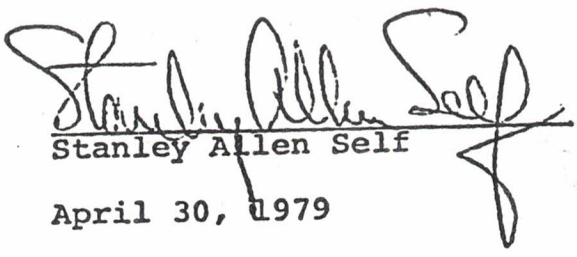
FORT WORTH, TEXAS

1952-1978

BY

STANLEY ALLEN SELF, Ph.D., ECONOMIST
2922 Sandage Avenue
Fort Worth, Texas

April, 1979



Stanley Allen Self

April 30, 1979

TABLE OF CONTENTS

SECTION 3

ANALYTICAL PROCEDURES

First step in any such study as this, in my opinion, is product familiarization. This required that I personally visit the manufacturing facilities and see the products under study. My personal inspection tour was accomplished during the afternoon of March 5, 1979. At that time, too, I secured the product catalog attached as Appendix C.

As a licensed private pilot and a former military officer, I was already reasonably familiar with aircraft instruments and engine maintenance. Also, as a former consultant to General Dynamics at its Fort Worth aircraft manufacturing facility, I was familiar with many of the problems of military aircraft design, manufacturing, maintenance, and operation.

Having taught economics, management, and production management for over thirty years at both the undergraduate and graduate university levels, I was able to recognize the manufacturing and engineering methods used at Howell Instruments, Inc., particularly with respect to high-technology applications in sophisticated military equipment.

Under the circumstances, I did not consider it necessary that I examine the products in use in the field, since usage procedures are well established in each product family group and are no longer experimental in nature.

Data collection extended into company sources, unclassified military reports and correspondence, transcripts of taped interviews with uniformed and civilian military aircraft maintenance officials, and general library bibliographical materials.

SECTION 4

THEORETICAL BASES OF STUDY

In the early stages of the study, it became clear that certain elements would be unique and challenging. Although I have often been involved in estimates of future costs and benefits, I have never encountered a retrospective study such as this. Consequently, it was necessary to adapt and extend economic methods generally used in future-oriented studies of military cost analysis, such as those pioneered by RAND Corporation.[1]

A basic decision was to use a familiar theoretical model: Cost/benefit analysis. In this model, the cost of an application is estimated, usually from relatively hard financial data. The focus here is typically upon incremental costs; that is, those additional costs associated with the introduction of a new product.

Benefits in this model may be calculated in a number of applicable forms, and the choice of methods to be used should relate closely to the decision criteria. Often, the benefits consist of estimated savings that the user may harvest as a result of an investment in capital equipment.

Numerous examples of cost/benefit analysis exist in the experience of public and private organizations in the U. S. and abroad. In the military, all weapons systems are now routinely analyzed using this method. In private industry, all large capital expenditures are analyzed this way, particularly in capital budgeting.

The method is not always precise. While high standards should go into the study, they should not be so high as to be self-defeating. Typically, the economist or systems analyst must do enough cross-checking to convince himself that, in all probability, he has the correct facts. This I have done.

---

1. Examples may be found in E. S. Quade, Analysis for Military Decisions (Chicago: Rand McNally & Co.) 1964, and Charles J. Hitch and Roland N. McKean, The Economics of Defense in the Nuclear Age (Santa Monica: Rand Corp.) 1960.

SECTION 5

PRODUCT COST/BENEFIT

Analysis of costs and benefits associated with military equipment may be fraught with technical difficulties, but reasonable estimates are required in a variety of decision-making situations. In this study, we attempt to quantify all elements--including some not usually quantified--in order to provide a reasonable basis for assessing the net value of Howell Instruments Products to their U. S. Military users.

The approach used here is to analyze costs and benefits associated with each of four product family groups. These groups include, through time, a variety of specific, individual product models. Each product group reflects, therefore, many product improvements as technology has advanced over the 27-year period under study.

Costs are based upon shipping documents at Howell Instruments that show the value of shipments to the U. S. Military of each product family. These data more accurately reflect the actual initial military usage of instrumented equipment, moreso than any other available data series, such as sales data or production data.

When the shipments are added together for an entire calendar year, the resulting total becomes the primary cost data for that year. Of course, use of discrete year-end totals to describe a continuous flow of costs and benefits may not be completely precise, but it is both conservative in its results and useful in application. Conservative results occur because of the time lag between a midyear average datum point and a year-end datum point.

All the product costs considered here are usually called investment costs in military cost analysis. In this study, we confine investment costs to product costs only, since these are the only incremental costs that are relevant to the analysis. This approach does not consider, therefore, certain costs that usually accompany investment costs, such as training in use of equipment, repair, and maintenance. The assumption underlying incremental cost analysis is that these operational costs would be necessary in any event.

SECTION 6

JETCAL: PRODUCT FAMILY ONE

Jetcal is essentially a device for checking the calibration of cockpit indicators of jet engine temperatures. In use, the device applies a known-temperature heat source to sensors in the engine. If cockpit indicators agree with the heat-source temperatures, engine operators (pilot or ground crew) can then be assured of reliable data for use in flight or in ground test-pad adjustment ("trimming"). On the other hand, if the cockpit indicator registers "wrong," then the temperature-sensing system is adjusted, repaired, or replaced. This simple explanation is in stark contrast to the complexity of the Jetcal's design and manufacturing.

Key to the usefulness and value of the Jetcal is the criticality of exhaust gas temperature in a jet engine. Maximum designed performance requires maximum operating temperature. If the pilot receives false data from the cockpit indicators, his aircraft may under-perform by, for example, crashing on takeoff. If excessive temperatures actually occur while the cockpit indicators show only "normal" temperatures, the engine may fail by "burning." Thus, engine temperature gauges must be accurate to ensure safe, effective performance.

Since 1952, Jetcals have been the mainstay of Howell Instruments production and sales. For the entire 27-year period, Jetcals have constituted about five-eighths of total shipments to the U. S. Military, in terms of constant 1978 dollars. The Jetcal's useful life is estimated to be about 20 years.

Costs to the military have been about $60 million, with purchases averaging about $2.25 million per year.

Our estimate is that about 1,000 Jetcals are still in military service. Usage of 1,000 Jetcals forms the basis for estimating current dollar savings in operating costs in the following equation. Number of inspections per day is estimated to be 4 per Jetcal. Working days per year are 260. Each Jetcal inspection is estimated to save 5 man-hours of labor at $25 per hour that would otherwise be necessary to calibrate indicators by the next-best alternative method.

TABLE I

HOWELL JETCAL SHIPMENTS TO UNITED STATES MILITARY UNITS, ADJUSTED FOR INFLATION, 1952-1978
(In Thousands of Dollars)

YEAR	CURRENT VALUE	1978=100 GNP IMPLICIT PRICE DEFLATOR	CONSTANT VALUE (1978=100)
1952	$ 382	35.2	$ 1,085
1953	474	35.7	1,328
1954	1,376	36.2	3,801
1955	1,458	37.0	3,941
1956	1,953	38.2	5,113
1957	3,166	39.5	8,015
1958	2,789	40.1	6,955
1959	3,888	41.0	9,483
1960	4,599	41.7	11,029
1961	4,050	42.0	9,643
1962	1,500	42.8	3,505
1963	1,228	43.4	2,829
1964	1,388	44.1	3,147
1965	1,565	45.1	3,470
1966	1,781	46.6	3,822
1967	2,200	47.9	4,593
1968	1,750	50.1	3,493
1969	1,250	52.6	2,376
1970	1,570	55.4	2,834

Table 1 Continued

YEAR	CURRENT VALUE	1978=100 GNP IMPLICIT PRICE DEFLATOR	CONSTANT VALUE (1978=100)
1971	2,288	58.3	3,925
1972	2,052	60.7	3,381
1973	1,725	64.2	2,687
1974	3,512	70.4	4,989
1975	3,591	77.2	4,652
1976	4,750	81.2	5,850
1977	4,800	90.7[a]	5,292
1978	4,178	100.0[a]	4,178
TOTALS	$ 65,263		$ 125,416

NOTE: Gross National Product Implicit Price Deflator series is taken from U. S. Department of Commerce, Survey of Business Statistics, 1977, in which 1972=100. Converted statistically to 1978=100 by Dr. Allen Self.

[a]Official statistics not yet available; estimated by Dr. Allen Self by linking linearly with Consumer Price Index.

SECTION 7

HOWELL HOT SECTION ANALYZERS: PRODUCT FAMILY TWO

The Howell Hot Section Analyzer (HSA) is an aircraft-mounted instrument that measures the total debilitating effect of excessive operating temperatures on a jet engine. In more general terms, the device is sometimes called an integrating time-temperature recorder.

Key element in the device's usefulness is its ability to measure, indirectly, the amount of metallic "creep" in part dimensions that occurs when an engine is over-stressed by excessive heat. Irreversible creep continues as a function of time and temperature, with "damage" doubling with each +18°C of excessive operating temperature.

By digital integration, the HSA records the deterioration of the engine. This alerts the ground crew to potential hot section distress. If the engine is not deteriorating, then the tear-down inspection interval can be extended, thereby saving unnecessary tear-down inspections. If the HSA forecasts hot section distress, the engine can be replaced immediately, thereby avoiding tragic loss of aircraft and flight crew.

In addition to this principal function, the Howell HSA provides:

1. An accurate (±2°C) engine temperature indicator in the cockpit.
2. A warning light signaling excessive temperatures.
3. A warning light if temperature spread between hottest and coldest thermocouple is exceeded.
4. Several other clocks, flags, and counters, that establish the trend of engine condition.

Investment costs of the Howell HSA to the U. S. Military were incurred mostly during the Viet Nam war years from 1965 through 1972, when $9,759,000 in HSA shipments were delivered. In constant 1978 dollars, these shipments amounted to $19,224,000.

Total investment costs from 1962 through 1978 were $12,453,000, or $22,740,000 in 1978-value dollars.

Average yearly investment costs, in 1978 dollars, were $1,337,647 for the entire 17-year period from 1962 through 1978.

Benefits include savings in investment costs of aircraft and operating expenses of several kinds.

Investment cost savings were realized through two means:
(1) decreases in aircraft losses from hot section distress, and
(2) increases in flight hours realized.

Analytically, the Howell HSA cannot be credited with all of the savings realized by the military following HSA installations. Better maintenance procedures and components were simultaneously being installed, the most significant being the Spectrometric Oil Analysis Program (SOAP), which detects metallic fragments in lubricating oil samples.

Data do not permit statistical allocation of these joint cost savings by HSA and SOAP, but a reasonable estimate would credit one-half to each.

Several anecdotal measures from combat reports aid the analyst in estimating cost savings:

1. In 1966, nine F-105's were lost from hot section distress. After HSAs were installed, this cause was immediately eliminated. Aircraft cost was $2,136,668 each.

2. By May, 1968, engine removals as a result of HSA readings numbered 49. These engines might have failed in flight otherwise.

3. HSA-equipped aircraft were compared with non-analyzer equipped aircraft. For HSA-equipped aircraft, the result was a 34 percent increase in flying hours and a 73 percent decrease in replacement parts cost. Operating time between inspections were 191 hours vs 126 hours, a 52 percent improvement. HSA modification cost ($3,667 each) was only 22 percent of savings realized during the first phased inspection following modification. Savings were $16,668 in about the first six months, or about $33,336 per year per HSA. This is about nine times cost for first year only.

These and other data provide an indication of benefits amounting to about 10 times cost in subsequent years of normal operation. About 3,000 HSAs are in use today.

Thus, operating cost savings are about 10 times $3,667 times 3,000 equals $110,010,000 per year.

Credit for SOAP will reduce investment cost savings attributable to HSA by one-half, but the saving estimated is still quite large:

1. Aircraft saved from loss due to hot section distress each year, 1967-74, equals 9. Total for period equals 72 at $2.1 million each equals $151,200,000

2. Aircraft saved from loss due to hot section distress each year, 1975-1978, equals 3. Totals for period equals 12 at $2.1 million each equals $ $ 25,200,000

3. Pilots saved, assuming one-half of 84 aircraft losses would result in loss of pilot: 42. Pilot value is estimated at cost of initial training ($220,000) times a factor of 5 for experience following initial training, or $1,100,000 each (In 1964, economist Dr. Stephen Enke of RAND estimated pilot life value at $450,000 in connection with F-111 cockpit capsule development. In 1978 dollars, this would be $1,020,408.)

   Pilots lives saved: 42 times $1,100,000=$ 46,200,000

4. Total investment costs saved in F-105 squadrons since 1967 = $222,600,000

5. Less 50 percent credit to SOAP -111,300,000

6. HSA investment cost savings, F-105 $111,300,000

7. Divided by 144 aircraft = $ 772,917

8. Cost savings of $772,917 times 3,000 HSAs = $257,638,888

In summary, HSA cost savings are:

A.	Operating Cost Savings $110,010,000 times 10 years equals	$1,100,100,000
B.	Investment Cost Savings	257,638,888
C.	Total	$1,357,738,888
D.	Less Cost	(22,740,000)
E.	Net Savings	($1,334,998,888)

TABLE 2

HOWELL HOT SECTION ANALYZERS SHIPPED TO UNITED STATES MILITARY UNITS, ADJUSTED FOR INFLATION, 1962-1978
(Thousands of Dollars)

YEAR	CURRENT VALUE	1978=100 GNP IMPLICIT PRICE DEFLATOR	CONSTANT VALUE (1978=100)
1962	$ 62	42.8	$ 145
1963	153	43.4	353
1964	8	44.1	18
1965	2,170	45.1	4,812
1966	1,326	46.6	2,845
1967	1,122	47.9	2,342
1968	313	50.1	625
1969	1,818	52.6	3,456
1970	800	55.4	1,444
1971	870	58.3	1,492
1972	1,340	60.7	2,208
1973	346	64.2	539
1974	270	70.4	384
1975	412	77.2	534
1976	80	81.2	98
1977	800	90.7	882
1978	563	100.0	563
TOTALS	$ 12,453		$ 22,740

SECTION 8

TEMPERATURE INDICATORS: PRODUCT FAMILY THREE

Temperature indicators utilize a "tape potentiometer" that is highly accurate to ±2°C. Indicator units also display a red warning light for overtemperature conditions in the engine. The unique aspect of the Howell indicators is their extreme accuracy.

Since 1962, indicators shipped have cost the military $27,880,000. About 25,000 units are estimated to be still in use, with an estimated useful life of 10 years. In 1978 dollars, shipments total $47,698,000.

In my opinion, these devices have a cost/benefit ratio of one-third (1/3). No objective means of measuring the benefit is available, unfortunately, since the device is a design-required component. Competitive devices are available, of course, but they are not as accurate. Inaccurate gauges can lead to undetected overtemperature conditions in aircraft not equipped with HSA.

Operating cost savings for indicators over the period of their production is therefore estimated at (3 times cost)-(cost), or (2 times cost) = $ 95,396,000

TABLE 3

HOWELL TEMPERATURE INDICATORS SHIPPED TO UNITED STATES MILITARY UNITS, ADJUSTED FOR INFLATION, 1962-1978
(Thousands of Dollars)

YEAR	CURRENT VALUE	1978=100 GNP IMPLICIT PRICE DEFLATOR	CONSTANT VALUE (1978=100)
1962	$ 1,100	42.8	$ 2,570
1963	900	43.4	2,074
1964	1,443	44.1	3,272
1965	1,567	45.1	3,475
1966	1,964	46.6	4,215
1967	1,982	47.9	4,138
1968	2,101	50.1	4,194
1969	1,500	52.6	2,852
1970	1,550	55.4	2,798
1971	1,389	58.3	2,383
1972	1,350	60.7	2,224
1973	1,353	64.2	2,107
1974	1,380	70.4	1,960
1975	1,456	77.2	1,886
1976	1,940	81.2	2,389
1977	2,500	90.7	2,756
1978	2,405	100.0	2,405
TOTALS	$ 27,880		$ 47,698

SECTION 9

TRIM TESTERS: PRODUCT FAMILY FOUR

Howell Trim Testers are the newest product family, having been introduced in about 1970. The device records and analyzes engine revolutions, fuel flow and exhaust gas temperatures overtime, thereby allowing an engine to be properly trimmed on a test pad or in a test cell.

These devices are noted for their accuracy and dependability, but competitive devices are available.

Cost of shipments since 1970 to military users totals $5,421,000. In 1978 dollars, this total is $6,993,000.

As in the case of indicators, the cost/benefit ratio for this device is one-third (1/3). Therefore, I estimate total cost savings associated with these devices at twice the 1978 cost or $13,986,000.

TABLE 4

HOWELL TRIM TESTERS SHIPPED TO UNITED STATES MILITARY UNITS, ADJUSTED FOR INFLATION, 1970-1978
(Thousands of Dollars)

YEAR	CURRENT VALUE	1978=100 GNP IMPLICIT PRICE DEFLATOR	CONSTANT VALUE (1978=100)
1970	$ 333	55.4	$ 601
1971	681	58.3	1,168
1972	280	60.7	461
1973	290	64.2	452
1974	207	70.4	294
1975	460	77.2	596
1976	750	81.2	924
1977	750	90.7	827
1978	1,670	100.0	1,670
TOTALS	$ 5,421		$ 6,993

TABLE 5

TOTAL 1978 VALUE OF HOWELL SHIPMENTS
TO UNITED STATES MILITARY UNITS, 1952-1978

PRODUCT	1978 VALUE
Jetcals	$125,416,000
Hot Section Analyzers	22,740,000
Temperature Indicators	47,698,000
Trim Testers	6,993,000
TOTAL	$202,847,000

SECTION 10

S U M M A R Y

The following table summarizes the results of my analysis of cost savings.

TABLE 6
COST SAVINGS RESULTING FROM
MILITARY USE OF HOWELL PRODUCTS,
1952 - 1978

PRODUCT	INVESTMENT COST SAVINGS	OPERATING COST SAVINGS	TOTAL
1. Jetcal	-0-	$1,277,500,000	$1,277,500,000
2. Hot Section Analyzer	$234,898,888	1,100,100,000	1,334,998,888
3. Indicators		95,396,000	95,396,000
4. Trim Testers		13,986,000	13,986,000
TOTALS	$234,898,888	$2,486,982,000	$2,721,880,888

APPENDIX A

V I T A

Dr. Stanley Allen Self has been Professor of Management at the M. J. Neeley School of Business at Texas Christian University since 1964. During that period, he has also served as Director of the Bureau of Business Research and as Chairman of the Management Department.

From 1957 to 1964, Dr. Self taught at North Texas State University in Denton, Texas. He acted as Chairman of the Management Division in 1963-64 and was one of the founders of the journal North Texas Business Studies.

He was at the University of Oklahoma from 1954 to 1957. For two years he was an instructor in the Economics Department; in his third year, he received a Southern Fellowship from the Rockefeller Fund for dissertation research in the economics of electric utility systems.

His degrees include the Ph.D. in economics from the University of Oklahoma in 1957, the M.A. in economics from North Texas State University in 1949, and the B.A. in history and economics from Texas A. and M. University in 1947.

Post-doctoral studies include summers at the Graduate School of Business Administration at Harvard University in 1961 and at the Graduate School of Industrial Administration at Carnegie-Mellon University in 1963, both assignments under Ford Foundation grants.

He is co-author of Job Evaluation: Text and Cases, Third Edition, published by Richard D. Irwin, Inc., in 1964. In 1962, he edited Executive Operations Technique, published by Prentice-Hall. He has also written a great number of business research reports.

Dr. Self is a licensed private pilot. He served as an Army Artillery Officer during the Korean War and was honorably discharged as a Captain after 11 years of reserve service.

JOHN S. HOWELL

REPUBLICAN PARTY RESUME

1952	-	Co-founder of modern Republican Party in Tarrant County, Texas in a predominately Democratic majority state.
1952	-	Precinct, County and State Republican Delegate.
1960	-	Worked in Nixon Campaign and continued working to elect John Tower in 1961.
1961-63	-	Served on Texas State Finance Committee.
1961-65	-	Key Republican (State).
1961	-	Founder and President of first Republican Club in Tarrant County.
1962	-	Ran for Texas State Legislature on Republican ticket.
1964-66	-	Republican County Chairman. First popularly elected County Chairman in Tarrant County.
1964	-	Computerized Republican voting records from Precinct level on up -- perhaps the first county so computerized.
1965	-	Hosted "An Evening With Ronald Reagan" - filled the Will Rogers Auditorium and raised a considerable sum for the State and Local Republican Party.
On Retiring	-	Left Tarrant County with first large dollar surplus.
1968	-	Active in Draft-Reagan movement.
1976	-	Active in Reagan Campaign. Elected as an Alternate/ Delegate (one of four from state) At-Large to National Convention, as a Delegate for Ronald Reagan at Kansas City.
1982-83	-	Republican Eagle.

An Evening with

RONALD REAGAN

An Evening with

RONALD REAGAN

WILL ROGERS COLISEUM

SUNDAY, JUNE 6, 1965

AN EVENING WITH

DINNER PROGRAM

6:30 p.m.

Master of Ceremonies ..... Hon. J. A. Gooch

Return of Thanks ..... Dr. John F. Elliott
Calvary Presbyterian Church

Recognition of Special and Out of Town Guests ..... John S. Howell
Tarrant County Republican Chairman
Evan Evans
Chairman, Texas Highschool TARS

Dinner

GENERAL PROGRAM

8:00 p.m.

Master of Ceremonies ..... Hon. J. A. Gooch

Invocation ..... Dr. James M. Moudy
Vice-Chancellor, Texas Christian University

National Anthem ..... Mrs. Henry Palmros

Pledge of Allegiance ..... Sung By Washington Heights Elementary School Chorus

Chorus ..... Washington Heights Elementary School
Directed by Miss Brenda Elms
Accompanied by Miss Marthe Frances Brown

Make America Proud of You
God Bless America

Recognition of Dignitaries ..... Mr. Gooch

Medley of Beloved Songs ..... Miss Gail Allen

Introduction of Speaker ..... Hon. Peter O'Donnell
Chairman, Texas Republican Party

Speaker of the Evening ..... RONALD REAGAN

Presentations to Speaker ..... Hon. Harris P. Hoover
City Councilman, Fort Worth
Lon Evans
Sheriff, Tarrant County
Mrs. Charles Bedford, United Fund

RONALD REAGAN DINNER SPONSORS

DR. AND MRS. JOHN J. ANDUJAR

MR. AND MRS. J. A. GOOCH

MR. AND MRS. NORVELL L. SMITH

MR. AND MRS. RICE TILLEY

MR. AND MRS. ROBERT KLABZUBA

MR. AND MRS. GORDON FITZGERALD

MR. AND MRS. PRESTON M. GEREN, SR.

MR. AND MRS. JOHN S. HOWELL

MR. AND MRS. ARCH ROWAN

MR. AND MRS. JAMES S. GARVEY

MR. AND MRS. J. A. JUNGE

DR. AND MRS. CHARLES E. PUGH

DR. AND MRS. JACK EIDSON, WEATHERFORD

MR. AND MRS. WILLIAM HORAN

MR. AND MRS. DONALD NAPIER, HOUSTON

MR. AND MRS. R. E. (JEB) STUART

MR. AND MRS. STANLEY NEELEY, DALLAS

MR. AND MRS. PETER O'DONNELL, DALLAS

DR. AND MRS. S. E. SMITH, WOLFE CITY

DR. AND MRS. FRED REHFELDT

MR. CHARLTON LYONS, SHREVEPORT, LA.

MR. W. A. MONCRIEF

MR. AND MRS. JOHN LEEDOM, DALLAS

DR. AND MRS. ROGER W. WITT

WITHDRAWAL SHEET

Ronald Reagan Library

Collection Name
DEAVER, MICHAEL: FILES

Withdrawer
KDB 8/16/2011

File Folder
HOWELL, JOHN S. (2)

FOIA
F97-0066/19
COHEN, D

Box Number
46

109

DOC NO	Document Type / Document Description	No of pages	Doc Date	Restrictions
1	REPORT RE HOWELL	2	8/1/1983	B6

Freedom of Information Act - [5 U.S.C. 552(b)]

B-1 National security classified information [(b)(1) of the FOIA]
B-2 Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
B-3 Release would violate a Federal statute [(b)(3) of the FOIA]
B-4 Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
B-6 Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
B-7 Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
B-8 Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
B-9 Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

WITHDRAWAL SHEET

Ronald Reagan Library

Collection Name
DEAVER, MICHAEL: FILES

Withdrawer
KDB 8/16/2011

File Folder
HOWELL, JOHN S. (2)

FOIA
F97-0066/19
COHEN, D

Box Number
46

109

DOC NO	Document Type / Document Description	No of pages	Doc Date	Restrictions
2	FORM RE HOWELL	1	11/29/1982	B6

Freedom of Information Act - [5 U.S.C. 552(b)]

B-1 National security classified information [(b)(1) of the FOIA]
B-2 Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
B-3 Release would violate a Federal statute [(b)(3) of the FOIA]
B-4 Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
B-6 Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
B-7 Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
B-8 Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
B-9 Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

C. Closed in accordance with restrictions contained in donor's deed of gift.

WITHDRAWAL SHEET

Ronald Reagan Library

Collection Name
DEAVER, MICHAEL: FILES

Withdrawer
KDB 8/16/2011

File Folder
HOWELL, JOHN S. (2)

FOIA
F97-0066/19
COHEN, D

Box Number
46

109

DOC NO	Document Type / Document Description	No of pages	Doc Date	Restrictions
3	LETTER TO HOWELL	1	7/11/1983	B6

Freedom of Information Act - [5 U.S.C. 552(b)]

B-1 National security classified information [(b)(1) of the FOIA]
B-2 Release would disclose internal personnel rules and practices of an agency [(b)(2) of the FOIA]
B-3 Release would violate a Federal statute [(b)(3) of the FOIA]
B-4 Release would disclose trade secrets or confidential or financial information [(b)(4) of the FOIA]
B-6 Release would constitute a clearly unwarranted invasion of personal privacy [(b)(6) of the FOIA]
B-7 Release would disclose information compiled for law enforcement purposes [(b)(7) of the FOIA]
B-8 Release would disclose information concerning the regulation of financial institutions [(b)(8) of the FOIA]
B-9 Release would disclose geological or geophysical information concerning wells [(b)(9) of the FOIA]

C. Closed in accordance with restrictions contained in donor's deed of gift.