

MCDONNELL *Aircraft Corporation*



ACHIEVEMENTS

1939 • 1956



J. B. McDonnell
President

THE McDONNELL STORY

A program of daring engineering, conducted unconventionally with airplane parts manufacturing during World War II saw the McDonnell Aircraft Corporation through its early, lean years. Its early success in the field of jet propulsion, coupled with experience gained in meeting tough delivery schedules, has paid dividends.

For McDonnell products have made aviation history with consistent frequency



... the F4U Phantom ... F4U-1, F4U-2, and F4U-3 Banshee ... X4HD-1 Whirlaway ... XH-20 "Little Hairy" ... XF-63 Goblin ... XF-58 Voodoo ... F4H-1Q Denno ... F-101A, RF-101A and F-101B Voodoo series ... XV-1 Convertiplane ... F4H-1 Attack Fighter ... XHCH-1 "Flying Crane" Helicopter ... and others still under development.

The same progressive spirit that has characterized the company's early history may still be sensed by the visitor of today. Coupled with the best of facilities, including a low-speed wind tunnel, jet propulsion laboratory, and flight test ranges, the McDonnell plant is a vital defense installation where entirely new fields of airplane, helicopter, propulsion and missile research are being constantly probed for new designs and new production ideas.

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OPPORTUNITIES WITH THE M.A.C. TEAM

Engineers and Technicians who would like further information on career opportunities at McDonnell are invited to write:

B. F. KALETTA, Technical Placement Supervisor
McDonnell Aircraft Corporation
P. O. Box 118, St. Louis 8, Mo.



Headquarters of M.A.C. at Lambert Field



The XP-67 "bomber destroyer," first M.A.C. design



XP-1 Phantom, first all-jet Navy fighter

BRIEF HISTORY

1939

McDonnell Aircraft Corporation was founded July 6, 1939, and started to work with two employees. By October, the company had expanded to 15 employees and moved into a modest office at Lambert-St. Louis Municipal Airport.

1940

In June, McDonnell Aircraft occupied its first factory of 37,400 square feet at Lambert - St. Louis Municipal Airport. Just three months later, in September, the company executed its first contract with the U. S. Army Air Force, for \$20,000 worth of aeronautical engineering work.

December brought McDonnell its first major airframe sub-contracts and marked the beginning of the company's rapid growth.

1941

September was a major turning point for the expanding McDonnell engineering team. Three months before Pearl Harbor, the U. S. Army Air Force awarded McDonnell an experimental contract for the XP-67 "Bomber Destroyer" fighter, McDonnell's first contract for an experimental airplane of its own design.



The XHJD-1 "Whifloway" during hoisting tests



F4U, production model of the Phantom



RTV-2 Gorgeyle, radio-controlled bomb

1942

Increasing sub-contracts for aircraft parts caused continued growth and expansion of the manufacturing facilities.

In January, the U. S. Army Air Force awarded McDonnell a contract to produce \$15,288,608 worth of twin-engine bomber trainers. This was the first production airplane contract awarded the company.

1943

January brought with it an experimental Navy contract for a plane that was destined to write aircraft history, the *XFD-1*, a twin-engined jet fighter now known the world over as the *Phantom*.

A still larger volume of airframe sub-contract work was being required of McDonnell.

1944

In May, the U. S. Navy awarded an experimental contract to McDonnell for the world's first twin-engined jet helicopter, the five-ton *XHJD-1 Whirlaway*.

In June, work was begun on McDonnell's first pilotless aircraft, the Navy *RTV-C Gargoyle*, a radio-controlled flying bomb.

1945

March was a memorable month in the company's history. For the first time, it received a production contract from the U. S. Navy for a plane that was McDonnell's own design—the *FH-1 Phantom*. This twin-jet fighter was the first all-jet



Historic first flight of XFD-1 Phantom



Comparison of N.A.C. B-25 and Phantom



Phantoms in the fleet, over Havana, Cuba

airplane to be put into production by the U. S. Navy.

Also in March, McDonnell was awarded a contract by the U. S. Navy to experimentally design, construct and flight test the XF3H-1 twin-jet Banshee, prototype for the Banshee produced later.

McDonnell successfully developed its first pulse-jet engine.

WORLD WAR II SUMMARY

McDonnell manufactured 7,000,000 pounds of airframes. The work performed totaled \$60,000,000, on which earnings after taxes averaged three-fourths of one per cent. Maximum floor area was 700,000 square feet divided between 20 buildings in St. Louis and Memphis. Maximum employment was 5,212, of whom about 60% were women.

POSTWAR 1945

In October, McDonnell consolidated all operations in the present well-equipped plant at Lambert-St. Louis Municipal Airport.

The same month brought the first post-war contract, the experimental XF-85 Goblin, jet parasite fighter for the U. S. Army Air Force.

1946

In June, two additional experimental contracts were received from the U. S. Army Air Force. One was for the XF-88 Voodoo, long range penetration fighter.



XF3H-1, production model of the twin-jet Banshee



The XF-85 parasite fighter heads for hook on



Touchdown for the XF-88A Voodoo after test flight

The other was for the world's first ram-jet helicopter, now known affectionately throughout the aviation world as *Little Henry*.

In July the *XFD-1 Phantom* made aviation history as the first all-jet airplane to take off and land on a U. S. aircraft carrier.

1947

In May, McDonnell received its first postwar production contract, for 56 *F2H-1 Banshees* for the U. S. Navy.

In June, the company received its first postwar contract for the design, development and manufacture of guided missiles. This work is still being vigorously continued in our Missile Engineering Division.

1948

179 more *Banshees*, this time the *F2H-2*, were ordered by the U. S. Navy in May.

May brought more good news. An entire squadron of *Phantoms* completed successful trials aboard the U.S.S. *Saipan*, and the 60th and last *Phantom* was delivered by the McDonnell team, one month ahead of the contract schedule.

In order to meet its continually increasing requirements for testing models of advanced aircraft, in July M.A.C. purchased a one-sixth interest in the Southern California Cooperative Wind Tunnel at Pasadena. The tunnel was constructed by, and is operated by, the California Institute of Technology under the finan-



XH-40 Little Henry, jet-powered helicopter



Section of F2H-2 Banshees on Air Strike in Korea



Banshee Formation in the Mediterranean, Over Stromboli

cial sponsorship of six aircraft companies. This tunnel is considered by aerodynamicists to be one of the best of its type in the country.

Throughout 1948 an operating team was built up at Edwards Air Force Base in California for experimental flight testing and development of the *XF-85 Golden* and *XF-88 Voodoo*.

1949

In May, the U. S. Navy *F2H-1 Banshee* completed aircraft carrier trials aboard the U.S.S. *Franklin D. Roosevelt*.

The *F2H-1 Banshee* was credited in August with setting an altitude record for jet airplanes — 52,000 feet.

Deliveries commenced in November on the *F2H-2N Banshee*, designed for night fighting operations.

1950

Banshees played a leading aerial role in "Operation Portrex", held in February.

In March, the M.A.C. Board of Directors declared the first dividend on the company's common stock.

Banshees again pointed up an aerial assault in April during the "Operation Crossover" maneuvers in North Carolina.

In July, Air Force flight evaluation of the *XF-85* was concluded. M.A.C. closed its flight test facility at Edwards Air Force Base, Muroc, California.

An engineering contract was placed by M.A.C. in October for construction of a \$3,500,000 flight test operations building.



The *F2H-1P* photo *Banshee* over Missouri countryside



Banshees of the Royal Canadian Navy over Nova Scotia.



Newer, more powerful . . . the *F2H-3 Banshee*

1951

In March, a contract was received from the U. S. Navy for production of the *F3H-1 Demon*.

Two important experimental helicopter contracts were received in June — one for development of a Navy assault transport helicopter; the other, for development of an Air Force convertiplane.

In July, M.A.C. purchased a main portion of its plant from the City of St. Louis for \$9,873,003.

The *F3H-2P Banshee*, first jet carrier-based photographic airplane developed, was announced in August. During that same month, *F3H-2 Banshees* of *VF-17B* aboard the carrier, *USS Essex* went into action in Korea.

First flight of the *XF3H-1 Demon* took place at Lambert-St. Louis Municipal Airport on August 7.

In September, M.A.C. won a design competition for a cargo unloader helicopter.

In November, M.A.C. entered the longest term collective bargaining agreements ever reached in the aircraft manufacturing industry. The agreements covered three of the company's collective bargaining units and extended for 52 months.

1952

Delivery of the first *F3H-3 Banshee* was made in March.

In April, deliveries were completed on schedule of the first *F3H-3 Banshee* series.



Two XV-1 Convertiplanes in formation at Sewart Field.



F3H-2N Demon launch from steam catapult during trials.



"Heavy weight" Take-off of F-101A with external tanks.

The final *FH-1P* photographic *Banshee* was delivered, on schedule, in August.

An order was received from the Air Force in September for production quantities of the *F-101* *Voodoo*, a twin-jet fighter airplane on which contracts for production engineering and tooling had been previously awarded.

1953

The *XF-88B* *Voodoo* was equipped with a turbo-prop installation to test propellers at sonic speeds.

In March, an Air Force contract for production engineering and tooling was received for a photo-reconnaissance fighter, the *RF-101A*.

In October, the last *FH-3* was delivered to the Navy, at which time more than 800 *Banshees* of all types had been delivered.

The *XF3H-1* *Demon* successfully completed Navy Carrier Qualification Trials on the U.S.S. *Coral Sea* during October.

Under the \$20 million Emergency Facilities Program, the jet Propulsion Laboratory and Hangar Building were completed and put into operation.

The No. 1 *F3H-1N* *Demon* made its initial flight at Lambert Field on December 24.

1954

"Roll out" of the *XF-1* *Comet* airplane, first military aircraft of its type, was made in February with full scale wind tunnel tests being completed in May. A flight test program was then initiated, continuing throughout the year.

Another M.A.C. "first" was chalked up in June when a *FH-3* *Banshee* was the



F3H-2N *Demon* with external fuel tanks and rocket packages.



RF-101A *Voodoo* refuels from tanker for long-range flight.



"Snobal nose" is prominent feature of *RF-101A* photo *Voodoo*.

first Navy jet to be launched from a carrier, the U.S.S. Hancock, by steam catapult.

The Air Force *F-101A Voodoo*, a supersonic long-range strategic fighter, made its first flight at Edwards AFB, Calif., during the fall of 1954. Believed to be the most powerful fighter in the world, the twin-jet *Voodoo* is capable of carrying atomic weapons and was designed to have versatile combat capabilities.

1955

MAC received a production order for the *F-101B Interceptor* version of the *Voodoo* for the Air Defense Command.

An order for the *F3H-3M*, missile-carrying version of the *Demon* was received from the Navy.

On April 29, world's first full conversion to airplane flight was achieved by the *XV-3 Convertiplane*.

MAC completed fiscal 1955 with record sales of \$154,588,816 and record earnings after taxes \$4,555,795.

In April 1955, the *F3H-3N Demon* with *J-72* turbo-jet engine was delivered to the Navy.

The number of Missile Engineering and Production contracts in work for both the Navy and Air Force was increased to nine (9) during the year. The development of additional versions of the Talos missile was added to M.A.C. assignments.

1956

The *Voodoo* was scheduled to be the first tactical airplane to be utilized by all three major commands of the Air Force. The three versions include *F-101A*, fighter-bomber, *RF-101A* photo-reconnaissance airplane, and *F-101B* all-weather interceptor.



Four F3H-3N Demons on duty near Jacksonville, Florida.



"Parabreak" arrests landing roll out of F-101A *Voodoo*.



Development testing of a new missile.

The *F-101A Fuzzo* was the only supersonic airplane to be exposed in flight to an H-bomb explosion during tests at Bikini Atoll in May.

The *F3H-2N Demos* successfully completed all Navy trial and evaluation programs required for Fleet release. The *F3H-2M* missile-carrying fighter also completed all Navy trial and evaluation programs for Fleet release.

The *XF-1* Conquest plane again bettered the unofficial world's helicopter speed record attaining a speed of 200 statute miles per hour during an advanced Air Force flight evaluation program.

The missile backlog reached \$34 million during the year and personnel of Missile Engineering Division increased nearly 50% over the previous year.

A new 5-year facilities program was commenced. Building 32, first unit of the new Engineering Campus was occupied by the Missile Engineering Division.

Fiscal 1956 ended with record sales, earnings, backlog, payroll, and employment.

A new Research Department was established in June 1956, to maintain the company's pioneering position in the development of aircraft and weapons systems.

INDUSTRIAL TEAM

Union Contract:

An outstanding industrial relations program has fostered harmony between McDonnell and The Machinists, I.B.E.W., Teamsters and Firemen and Other unions.

Cafeteria:

A non-profit cafeteria, one of the most modern and sanitary in the country, is operated by McDonnell.



Jet propulsion laboratory



Low speed wind tunnel



Building 32, first unit in the Engineering Campus.

McDONNELL AIRCRAFT

An Institution Serving the Community and the Nation

As shown by the record for the 17 years from the beginning of the company
through 30 June 1956

1. Sales	\$995,272,310
2. Payroll	\$427,200,281
3. Ratio of payroll to sales	42.93%
4. Payroll of ten highest paid executives (average per man per year \$18,377)	\$ 2,206,120
5. Ratio of payroll of ten highest paid executives to sales	0.2206% of 1%
6. On 30 June 1956: The salary and bonus (total) after income taxes of president of M.A.C. is equal to the wages for 68 hours per week after income taxes	\$ None compared
7. Personnel welfare, including retirement income plan, group insurance, social security taxes, workmen's compensation insurance, employee activities, vacations, sick leave and holidays (\$85,820,250 vacation, sick leave and holiday pay is part of Item 6)	\$ 80,185,000
8. Ratio of personnel welfare to sales	8.05%
9. Ratio of man days lost due to strikes to total man days worked	1.9915 of 1%
10. All taxes paid by M.A.C. (including \$10,730,000 social security taxes which are part of Item 7)	\$ 30,615,207
11. Ratio of all taxes paid by M.A.C. to sales	3.07%
12. Estimated additional taxes paid by personnel out of their pay	\$ 62,730,700
13. Estimated taxes paid by M.A.C. and personnel	\$158,345,907
14. Ratio of taxes paid by M.A.C. and personnel to sales	15.79%
15. Materials, parts and supplies	\$399,814,089
16. Rent, heat, light, maintenance, depreciation, plant insurance	\$ 58,821,000
17. All other operating expenses	\$ 18,005,014
18. Dividends	\$ 4,025,180
19. Ratio of dividends to sales	0.4049% of 1%
20. Earnings retained for growth (including \$6,375,100 transferred to capital)	\$ 61,730,200
21. Ratio of earnings retained for growth to sales	6.22%
22. Earnings after taxes	\$ 35,737,782
23. Ratio of earnings after taxes to sales	3.59%

Retirement Income Plan

All employees can avail themselves of this plan which provides for retirement at age 65. The company is paying about two-thirds of the cost. Approximately 98.7% of the employees who are eligible have availed themselves of the plan.

Personal Charity Trust

Worthy charitable organizations are awarded funds from this trust which is subscribed to by voluntary payroll deductions of 0.47% of all employees and administered by a Charity Board of three employees.

Training

U. S. Navy and Marine Corps personnel as well as McDonnell employees utilize company training facilities. These technical courses are taught by company personnel. In addition, McDonnell maintains cooperative student training programs with prominent universities.

Medical Facilities

Model emergency and sick-room facilities are staffed at all times. Several national safety awards indicate M.A.C.'s effective program for personnel welfare.

Insurance

Life Insurance, Disability, Accident, Sickness, Hospital and Surgical Benefits are all available through this comprehensive low-cost group plan, which is utilized by 99.9% of the personnel.

Recreation

The McDonnell team has twice-a-day, 10-minute rest periods in the shop, sports programs, paid vacations and holidays, an annual picnic, Christmas parties and musical comedy productions.

Information

All employees are kept informed on company matters by "Mr. Mac" via the public address system as well as by mail to their homes, including special letters, annual reports, films, and "Aircraft", company publication.





In Production . . . All Purpose F-101 Mustang and Navy F101-200 Phantom

MCDONNELL *Aircraft Corporation*

McDonnell Aircraft Corporation, St. Louis, Missouri