

# THE GRUMMAN MALLARD STORY

By MATTHEW EDWARD RODINA, JR.

The history and operation of the Grumman G-73 Mallard has much more of an aura or mystique about it than does that of the Goose or Widgeon. The Mallard was built in smaller numbers (59) than either the Goose (350) or the Widgeon (274) but its use throughout the world has been at least as widespread as the other two types. While designed initially as a feeder-type airliner, the Mallard's real role has been as an executive transport and it is only within the last half-dozen years that the type has seen any widespread use in the role for which it was originally designed.

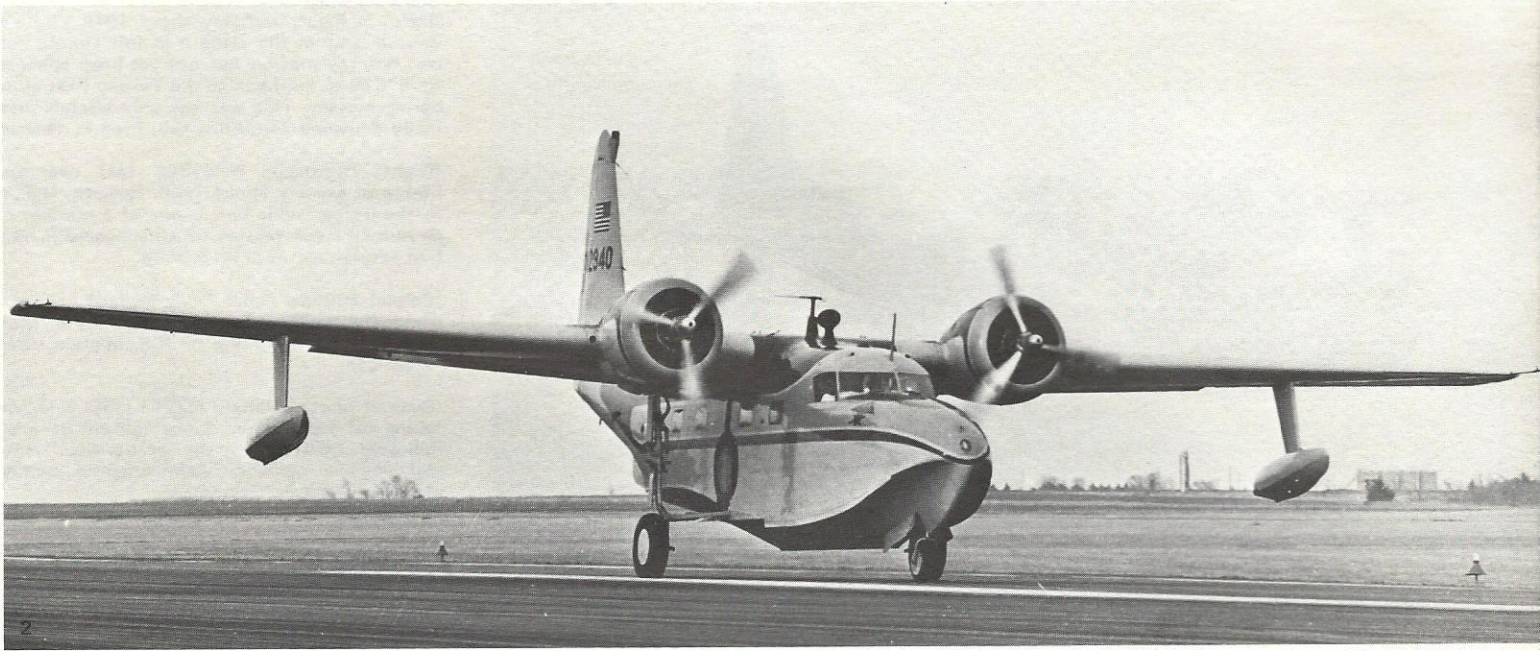
The Mallard design is really one of evolution and it follows directly from its predecessors—the Widgeon and Goose. The basic Goose design stayed largely unchanged from its introduction in 1937 until the completion of production in October, 1945. As the end of World War II came into view, Grumman, in common with all other aircraft manufacturers, began looking for post-war projects to keep its assembly lines busy. With an outstanding reputation for amphibious aircraft, Grumman found much to favor a follow-on design to the Goose. The new design, called the G-73, would draw heavily on the basic Goose, but would incorporate such new features as tricycle landing gear and fuel tanks within the wingtip floats in addition to a general cleanup of the design made possible by advancements in production methods developed during the war.

The Mallard, as the plane was eventually named, took shape under the watchful eye of Gordon Israel, who had joined Grumman in 1941 but had up until 1945 been concerned mainly with fighter-type aircraft such as the TBF and F7F.<sup>1</sup> Under William T. Schwendler, Vice President and Chief Engineer, Israel was Project Engineer from the initial design studies and wind-tunnel testing through flight test and certification. The first flight of the prototype took place on April 30, 1946, with Frederick C. Rowley as pilot. When Approved Type Certificate 783 was awarded on September 8, 1947, the Mallard joined the select group of aircraft having been certified for airline use under the then new C.A.R. Part 4B.<sup>2</sup> The only other aircraft certificated at that time was the

Martin 202. Operations up to that point had been under the "Normal" category.

In the design considerations for the Mallard, Grumman sought to move away from serving the "sportsman pilot" market which had categorized the early G-21 and G-44 owners. The company felt that the coming post-war boom in aviation and air travel would open up a large market for a feeder-type amphibious airliner carrying approximately 10 passengers plus a crew of two. Initial market projections for this type of aircraft showed a demand for 250 aircraft.<sup>3</sup> It is unfortunate that production reached only 59 aircraft before being halted in 1951. Several published sources have given total production as 61 aircraft. This is incorrect as are reports that these two aircraft were broken up on the production line. The low total production is a reflection of the overestimated market rather than a poor product, for such excellent contemporary designs as the Short Sealand also suffered the fate of limited production. It is ironic that the market which Grumman sought to leave behind, that of the "sportsman pilot," served to be the majority of the purchasers for the early production aircraft and in its guise as "executive/business aircraft" would take delivery of virtually all of the Mallards produced.

When manufacture began, the G-73 production line was located at Grumman Plant 2 at Bethpage, L.I., N.Y. However, in March, 1949, the line was shifted to Plant 1 in order to provide space for expanded production of the SA-16 Albatross.<sup>4</sup> The first Mallard delivery took place on September 27, 1946, when J2 was delivered to McIntyre Porcupine Mines of Toronto as CF-BKE. Production mounted rapidly with 26 aircraft being delivered during the next 12 months with a maximum of five aircraft being delivered in April, 1947. The succeeding 12-month period saw only 10 aircraft delivered. From that point on, Mallard production averaged approximately one aircraft every two months until the last aircraft, J59, was accepted by Grumman on May 4, 1951, for use as a utility aircraft.



1. "The Blue Tail Fly," Charles Kettering's Mallard, is shown in flight over Long Island. As N5115 (J42) it served as an adjunct to the General Motors fleet. Following GM's practice, it was registered N51151 on its sale in 1959. Harold G. Martin

2. N2940 (J4) of Aero Commander still carries previous owner Boris Sergievsky's personal emblem on the nose. Sergievsky operated the plane in charter service for eighteen years prior to its sale to Aero Commander. He had been Sikorsky's Chief Test Pilot on amphibious aircraft during the 1930's. Aero Commander

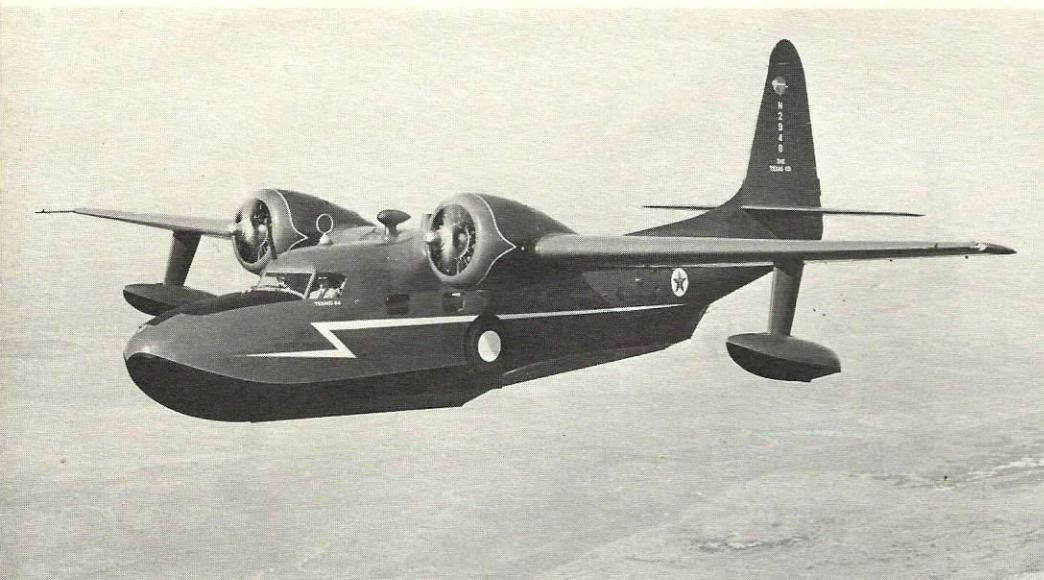
3. A sandy beach on the island of Fiji provides the background for the fueling of VQ-FBC (J13) prior to its ferry flight to the U.S.A. Hand pump and 55-gallon gasoline drums are evidence of the remote base from which Air Pacific operated the aircraft. Special ferry tanks were required for the Honolulu-San Francisco leg of the flight. Eric Barnum

4. The prototype NX41824 (J1) lifts off the water during flight testing. Lack of ADF antennas, dual pilot installation including the airspeed calibration device on the port side, and the surface obstruction light on the bow are items of interest in this photo. Franklin T. Kurt

5. Frank Fuller's ownership Mallard N2945 (J8) was the second longest length of ownership—almost twenty-eight years. Note unusual location of ADF antenna in this photo taken at San Diego. H.W. Arnold

6. Fuller Brush Company's N2943 (J6) is shown in a 1946 photo. Note the sawhorse used prior to installation of the "squat strut." Leading edge slot is also evident in photo. Propeller warning stripe is unusual on Mallards. Peter M. Bowers





(Left) "Texaco 64," N2948 (J11) of Texaco is shown in flight, probably about 1948. Photo is unusual in that the plane is in full Texaco colors, but registration has not yet been changed to N1628 to conform to the Texaco fleet numbering system. This was the only aircraft originally delivered for airline use. Fred W. Hotson

(Right) Prototype NC41824 (J1) over the Statue of Liberty about 1946. Newark, N.J., is in the background. This is one of a number of Grumman stock photos which appeared in Mallard advertising. Fred W. Hotson

(Below) Ontario Paper Co.'s Mallard (J2) at a decidedly un-Canadian location. Note flush ADF and tail mounting of ILS antenna. Fred W. Hotson

(Bottom photo) Mallard N2973 (J38) is shown taking off from water. Large amount of spray indicates aircraft is not yet "on the step." Note still another type of ADF antenna located above the cockpit. Grumman

### PRIVATE/CORPORATE OWNERS

As indicated above, private owners played a much more important role in the history of the Mallard than Grumman had anticipated. In fact, of the 59 aircraft manufactured, only one (J11) was delivered to an airline-type operator. The high regard in which Grumman products were held by "sportsmen pilots" was demonstrated by the fact that seven of the first 12 aircraft delivered were purchased by persons who had previously owned Gooses or Widgeons.

Two aircraft were manufactured for the Egyptian Air Force's Royal Flight. These were ordered for the personal use of King Farouk which resulted in extraordinary attention being lavished on them by the Royal Flight unit which was essentially independent of the Egyptian Air Force.<sup>5</sup> The aircraft were still in existence at Cairo about 10 years ago and the flyable machine still had a throne for the King's use in the forward compartment.<sup>6</sup> Their current status is not known, but the hostilities in the Middle East during the last decade may have sealed their fate.

Business and corporate users followed rapidly after the initial "sportsmen pilots." At the time, the comfort and performance of the Mallard was matched by few business aircraft of its size. During the immediate post-World War II period, only two categories of aircraft were available to the large corporate user, the heavy category aircraft such as the DC-3 and Lodestar or a medium twin of the Beech D-18S type. The Mallard with its 10-passenger configuration, high cruising speed, long range, and large comfortable interior was a match for the heavy category aircraft for all but the largest groups and longest flights, even though such operations were rare in corporate aviation. It provided much more room, speed, and range than the Twin Beech while being relatively economical to operate. Although more costly to purchase than a DC-3 type aircraft, the Mallard's lower operating costs combined with its amphibious flexibility made it an excellent executive plane. It is also interesting to note that the Mallard may have been the first executive airplane to make regular Trans-Atlantic flights without extra fuel tankage. By 1949, at least seven Mallards had been flown to Europe.<sup>7</sup> In fact, as early as the Spring of 1948, one Mallard had ranged as far as Nairobi on a business trip,<sup>8</sup> providing an early foundation for such later routine inter-continental operations of aircraft such as the Gulfstream I and Gulfstream II. All of this was in addition to extensive operations in Canada, Central and South America.

A breakdown of the categories of customers to whom first deliveries of Mallards were made provides some interesting information:

Oil Industry	12
Manufacturing & Industrial Products	9
Individuals	7
Publishing	5



Consumer Products	5
Automobile Industry	4
Foreign & Domestic Governments	4
Textiles	3
Lumber/Mining/Resources	3
Other	7
	<hr/> 59

### AIRLINE OPERATIONS

Only one plane was delivered for airline use, that being J11 which went to Air Commuting, Inc., of New York City on June 9, 1947. Air Commuting, Inc., flew services to Manhattan from points in the New York City/Long Island area. Operations were not successful and the plane was sold to Texaco, Inc., on June 30, 1948, having accumulated only 240 airframe hours.

The first extensive airline operation occurred in 1954 when Pacific Western Airlines of Vancouver, B.C., acquired three Mallards to fly local services in British Columbia. Operations were



begun initially on the Vancouver-Kitimat route and later expanded to other cities in the region.<sup>9</sup> Service was marred by the crash of CF-10A on August 3, 1955, but operations were continued with the two remaining aircraft. On May 26, 1959, as part of a major realignment of Canadian air routes, the P.W.A. routes and aircraft were transferred to B.C. Airlines. Shortly thereafter, B.C. Mallard CF-HPU had the honor of carrying Queen Elizabeth and Prince Phillip from Kamloops, B.C., to Pennash Lake, B.C., during their tour of Canada.<sup>10</sup> Mallard CF-MHG was acquired in 1960 to increase the fleet size to three. Coming full circle, the B.C. Airlines operation was acquired by Pacific Western Airlines in 1972 and remained until it was spun off to West Coast Air Services in 1974. Despite the changes in ownership, these routes represent the longest continuous operations of Mallards in airline service as attested to by the high airframe hours accumulated on these aircraft.

The next reported airline operation involved Tahiti-Hawaii Airlines which may also have been known as Air Tahiti. In March, 1951, THA announced the purchase of a Mallard<sup>11</sup> for use on the inter-island route from Bora Bora where Tahiti's airport was located to Papeete, the capital of the Society Islands, there being no airport constructed at Papeete until 1959. It is believed that the aircraft involved was F-OAII (J29) which had been sold by Ford Motor Company to the Government of Tahiti at about the same time. Little is known about this operation, but the Mallard was returned to the U.S.A. in 1956 at approximately the same time that Reseau Aerien Interinsulaire took over the Bora Bora-Tahiti service and began using a Short Sandingham flying boat.

The next airline to operate Mallards was Nitto Aviation of Japan, a small local service carrier serving the Osaka and Nagoya areas with amphibians and helicopters. Nitto had begun operations in 1954, but the first Mallard was not acquired until 1959. Two former General Motors aircraft (J40 and J56) were acquired in late 1959 and early 1960. The aircraft were prepared for the ferry flight from the U.S.A. to Japan by Pacific Airmotive Corp. of Burbank, Calif., who had purchased the planes from General Motors. One additional aircraft was acquired in 1961 and two in 1962. All five aircraft were operated until JA5067 crashed on February 18, 1964, near Osaka. Nitto was eventually absorbed by Japan Domestic Airways and the four remaining aircraft were sold to Frederick B. Ayer & Associates of New York City who eventually resold all of the aircraft in the U.S.A.

No mention of Mallard operators would be complete without a discussion of Chalk's International Airlines. Historically a Goose operator, Chalk's found the need for additional capacity on its routes to the Bahamas from Miami during the late 1960's and

selected the Mallard as the logical replacement. At about this time, the former Nitto Aviation aircraft arrived in the U.S.A. and Chalk's purchased its first plane (N7338, J38) in 1968. Named "City of Miami," this aircraft was later joined by five others which flew from Chalk's colors at one time or another. At its peak in late 1973, the six aircraft represented the largest number of Mallards ever operated by a single owner at one time. Among the noteworthy events which occurred to Chalk's Mallards was the hijacking of N3010 to Cuba in March, 1972. Capt. Jim Cothron, who was shot and seriously wounded in the incident, is back flying with Chalk's and has become an author in his own right by his article describing a typical Chalk's flight as well as some of the handling characteristics of the plane itself.<sup>12</sup> Early in 1974, with the full impact of the fuel crunch hurting tourism, travel to the Bahamas slacked off and Chalk's, which had been acquired by Resorts International, began reducing their fleet with the sale of N7338 and N7356 to Antillies Air Boats, leaving Chalk's with its current fleet of four Mallards.

Antillies Air Boats first began Mallard operations in March, 1974, having previously also been a Goose operator since its founding by retired Pan Am pilot and well-known distance flier Capt. Charles F. Blair, Jr., in 1964.<sup>13</sup> Flying short-haul routes from St. Croix in the Virgin Islands, AAB has now built up its Mallard fleet to four in addition to a number of Gooses.

Several smaller airline-type operations should be mentioned. Swift Air Service operated a 14-seat Mallard from San Diego, Calif., to Catalina Island and Las Vegas, Nevada, from 1962 until the aircraft was lost in an accident in 1967. Midwest Airlines of Winnipeg, Manitoba, operated J55 from 1969 until 1972 (Midwest had merged with Transair in Nov., 1969) and Nordair, also of Canada, acquired CF-UOT (J34) from Canadair, Ltd., in 1971, and subsequently converted the plane to turboprops. Northern Consolidated Airways, later merged with Wien to form Wien Consolidated, has also operated two Mallards in Alaska since the mid-1960's.

## OVERSEAS OPERATIONS

In common with many other types of amphibious aircraft, the Mallard has found a home in many locations which border on the three-quarters of the globe which is covered by water. While most Mallards have remained in the United States and Canada, those which have left have ended up in some very interesting places. A brief description of Mallard operations by geographic areas shows: *Central and South America*—Only one Mallard registered, that being HP-383 (J5) of Club de Pesca de Panama of Bay of Penas, Panama. Little is known of this operation, but the aircraft flew the Panamanian flag for at least three years prior to its sale and return to the United States in the Summer of 1966.

At least one Mallard was based in South America, that one being N2973 (J38) which was owned by International Petroleum Co., a subsidiary of Standard Oil Co. of New Jersey (now Exxon) and operated for at least five years from Talara, Peru, in support of oil exploration operations.

*Europe/Africa*—While a number have been operated, only four have been registered on these two continents and one of these was registered for ferrying purposes only. The French registration F-OAII (covered by J29 which was based in Tahiti) is considered under airline operators. Eliminating the two Egyptian Air Force planes, only the two Mallards registered in Great Britain represent direct European involvement. The first, G-ALLJ (J41) was registered to Shell Refining and Marketing Co. ostensibly for ferrying from Amsterdam to Djakarta, but the author could find no evidence to indicate that this marking was ever carried on the aircraft. In fact, the Grumman delivery photo of this aircraft shows the PK-AKE registration. The other British Mallard, G-ASCS, had a history of several owners from the time it was imported by the electronics manufacturer Ferranti until it was sold in Canada. Five of the seven years were spent with Ferranti, but much of the remaining time was spent idle. One exception was the period of several months in 1968 during which it was used by the Grossvenor Estates while their Goose was being converted to turboprops.

One other aircraft should be mentioned, that being N2966 (J26). While registered in the U.S. to Christian Dior, Inc., the aircraft was actually at Tousses le Nobel Airport near Paris and operated by Dior's Marcel Boussac. Much of the time was spent idle as only 1700 airframe hours were acquired during its first 17 years, at least 13 of which were spent with Christian Dior, Inc. The plane was sold in the United States in 1966 and subsequently converted to turboprops.

Moving to Africa, only one Mallard operation other than the Egyptian Air Force is worthy of note and that took place in Egypt as well. The two Superior Oil Company aircraft were used extensively to support oil exploration operations along the Nile River.<sup>14</sup> A fatal accident involving one of these aircraft at London, England, in late 1949 caused a reduction in this support activity.

*Far East/Australia*—Undoubtedly one of the most interesting and unfortunately little-known Mallard operations was involved with the support of oil exploration operations by the Royal Dutch/Shell group of companies in Indonesia, succeeding a fleet of Gooses operated in the same area. Five different Mallards have been registered in either Indonesia or New Guinea during the past three decades, all of which were operated by Royal Dutch/Shell companies. Each of the five was originally registered in Indonesia with two subsequently being carried on the Dutch New Guinea Register prior to that area's receiving independence from the Netherlands. Unfortunately, it must be reported that no details of this operation have been learned during the lengthy period of research by the author. This represents perhaps the largest single gap in the Mallard history. One may surmise that Mallard operations were gradually reduced during the mid-1960's, possibly as the result of introduction of long-range, high-capacity turbine helicopters in a support role. Two of the aircraft were sold to the Indonesian Police Force while another returned to the U.S.A. by the roundabout way of Australia, New Zealand, and Fiji.

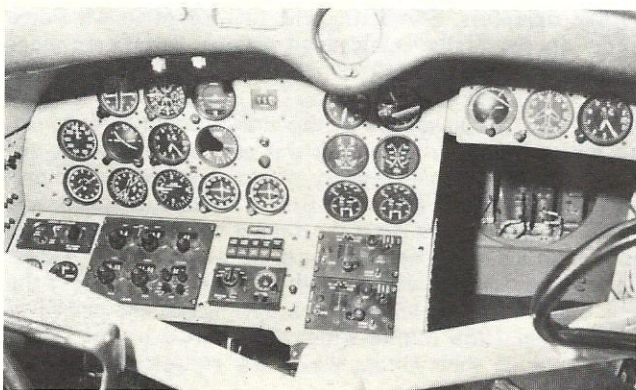
## ACCIDENTS

As Mallard operations have spanned almost three decades, it is not unexpected that a number have been lost through accidents. Of the 18 aircraft destroyed to date, four have been on the ground, primarily hangar fires. Chronologically, the crash of Superior Oil's J15 in 1949 was the first known loss in which fatalities were involved. It is believed that two of the three unknown losses occurred during the late 1940's or early 1950's as these aircraft are missing from a Grumman listing published in 1951. One source recalls some details of the loss of two aircraft presumed to be these, but no record is available.

(Right) Interior photo shows layout of forward compartment. Normal executive configuration was two three-place divans facing one another with removable table between them. Rear compartment had four individual seats for a total passenger capacity of ten.

(Opposite page) NC41824 (J1) over New York City which was used extensively in Mallard advertising. Grumman

(Below) Mallard's typically have excellent flight instrumentation. Partial panel on co-pilot's side is required to permit access to bow compartment. Eric Barnum



The year 1951 saw the loss of two Mallards, Shell's J41 on the ground at Djakarta in January and the prototype J1 in an accident while owned by a Canadian corporation.

The years 1954 and 1955 saw four aircraft lost, three of these having occurred while in flight and, strangely enough, all involving icing. Union Producing Co.'s J16 crashed near Shreveport, Louisiana, in January, 1954, killing all aboard including Tom Braniff, founder of Braniff Airways. While returning from a hunting trip, the aircraft encountered heavy icing without deicing equipment installed. Of the two aircraft lost in 1955, one was directly related to icing while in the case of the other, icing may have been a factor as well. The loss of these three aircraft served to confirm the policy of many Mallard pilots of avoiding heavy icing situations. Several design factors are related to this decision. First, with piston engines, the Mallard is underpowered.<sup>15</sup> Second, the amphibious design of the fuselage causes greater drag and hence provides more opportunities for ice to accumulate. Finally, such features as wingtip floats, which are not deiced, provide excellent locations for ice to accumulate. The wingtip slots are also particularly vulnerable in this regard and the last aircraft built, J59, had a new slotless wing in an attempt to remedy this situation.

Almost a decade elapsed between the icing accidents of 1954/55 and the next confirmed loss of a Mallard. Engine trouble on takeoff is given as the reason for the loss of J40 while operating a Nitto Airlines flight en route from Osaka to Tokyo in February, 1964.

Three aircraft were lost while in flight between 1967 and 1974 with fatalities to all aboard in each instance. Ice may have been a factor in one of these accidents.

Overall, the safety record of the Mallard must be considered fairly good. Given the environment in which most Mallards were operated, i.e., a large number of takeoffs and landings on both land and water, it is a tribute to the flight crews involved that there have not been more mishaps. If one were to exclude those accidents in which icing was involved or suspected, the Mallard's safety record becomes even better. None of the accidents or incidents studied by the author resulted from any design characteristic or weaknesses in the design of the airplane.

## TURBOPROP CONVERSIONS

As originally conceived, the Mallard design required a total of 1400 horsepower for optimal performance. Lacking suitable engines in the 700-horsepower range,<sup>16</sup> Grumman settled on the readily available Pratt & Whitney R-1340 series engine which provided a takeoff rating of 600 horsepower.<sup>17</sup> Although the reduc-



tion in power did make for more economical operating costs, the smaller engine left the Mallard pilot with less margin for error, particularly in such areas as single-engine operation and heavy icing conditions. In addition, the reduced gross weight (12,750 pounds) required by the R-1340 engines caused the Mallard to have a useful load of approximately 3100 pounds. This translates into approximately a three-hour range with full passenger load, about 500 miles.

Many people had seen the need for improved Mallard performance, payload, and range, but it was not until the Pratt & Whitney developed the PT-6 series of small but powerful turboprop engines that a powerplant became available which would transform the Mallard into an outstanding performance. It was to fall to former bush pilot Fred Frakes to provide the motivating force which brought together the PT-6 and the Mallard airframe. Several years of operating J36 had caused Frakes to begin design work on the turboprop conversion. As he tells the story:

In 1964 I sold my Mallard to Mr. Ray Peterson of Northern Consolidated Airlines, who arranged to put one of the early Pratt and Whitney PT6 turbines on the right side of N2974 and fly a test-bed program of about 50 hours, then remove the turbine and reinstall the R-1340. Enough credit has not been given Ray Peterson, who is now president of Wien Consolidated Airlines of Anchorage, Alaska, for his foresight in running this test-bed program. It proved several very important factors:

- Water ingestion in the turbine would not be a problem.
- Corrosion in the turbine was not an insurmountable problem.
- That as soon as the PT6 engine should have sufficient horsepower, it would make an ideal installation in the Grumman Mallard.

1 April, 1968, I bought N2974 back from Wien Consolidated Airlines (Northern Consolidated and Wien Alaska had merged) for the express purpose of installing PT6A-27 engines. The Grumman Mallard was an ideal aircraft for conversion. With the R1340s installed, the airplane was nose heavy and required most of the radio gear in the aft section for weight and balance purposes. When the 1340s were removed and the PT6 engines installed, the radio equipment was transferred to the bow of the aircraft and the weight and balance problems were effectively solved.

Engine installation dictated that the thrust line would have to be raised 8.5 inches. The propeller arc was brought forward 5.5 inches. The angle of incidence was originally five degrees positive. It was dropped to one degree positive. The propeller blade length was reduced from 101 inches to

96 inches—the end result being that with the aircraft sitting on the water the propeller tips had approximately an additional foot of clearance. All of these factors add up on the positive side. Whereas originally propeller erosion was a serious problem, with the Frakes Turbo-Mallard there is virtually no water erosion problem.<sup>18</sup>

How did these new engines affect the Mallard's performance? Frakes provides the results of his conversion:

The converted Frakes Turbo Mallard is grossed at 13,500 lbs. if fuel is put in the aft compartments of the wing floats. If the customer desires to gross the aircraft at 14,000 lbs., it is necessary to install additional auxiliary fuel tanks in the wings, then capacity being 166 gallons. These tanks weigh 100 lbs. giving a net useful load gain of 400 lbs. The zero fuel weight of the aircraft, without the auxiliary wing fuel tanks or pneumatic de-icing boots, is 11,450 lbs. With the boots or auxiliary wing tanks installed, the zero fuel weight will be 11,650 lbs.

The empty weight of the converted aircraft normally runs from 8,500 to 8,700 lbs. This gives the Turbo Mallard a useful load of 5,000 to 5,500 lbs. A maximum fuel load of 4,500 lbs. is possible. This, of course, would only allow a crew of two and three passengers plus 88 lbs. baggage. The range would be six hours and 45 minutes for 1,440 miles at normal cruise, with 45 minutes or 160 miles reserve left.

For a more realistic situation, let us revert to the original crew of two and 10 passengers. Instead of only three hours' range for 540 miles with no baggage, you would now have a crew of two and 10 passengers plus 480 lbs. baggage and five hours' range for 1,065 miles.

To sum it all up in round figures, we have given the Mallard owner an extra ton of useful load, increased his cruising speed by 40 miles per hour, cut his direct operating costs and added at least 15 years more life to the finest amphibian ever built.

What more could a man want?<sup>19</sup>

Work on the first conversion (J36) was completed at Frakes' Angwin California base in 1971. Extensive test flying and demonstrations followed with the first conversion for a customer being Gold Bond Stamp Co.'s J32..Boyne Mountain Lodge's N2966 was the third conversion and Nordair's CF-UOT being the latest. Frakes' facility was moved to Cleburne, Texas, in 1972. Several other Mallard operators are currently considering the conversion, but the high price tag for conversion of the customer's existing airframe has limited sales.





(Above) Three of Texaco's four Mallards at Memphis, Tenn., after repainting, date unknown. Current paint is white with red trim. Eric Barnum

(Below) N2947 (J10) was originally a demonstrator for Grumman prior to its delivery to Popular Mechanics Magazine. This 1947 photo shows it prior to delivery. Harold G. Martin

The following table summarizes the four conversions:

Conversion Number	Serial	R/N	Owner	Engines	De-ice
1	J36	N2974	J. Fred Frakes	PT-6A-27	No
2	J32	N298GB	Gold Bond Stamp Co.	PT-6A-27	Yes
3	J26	N2966	Boyne Mtn. Lodge	PT-6A-34	Yes
4	J34	CF-UOT	Nordair, Ltd.	PT-6A-27	Yes

### PRICES

One of the most interesting facets of the Mallard history has been the fact that the aircraft has always been in demand by potential buyers, which has resulted in premium prices being paid for these aircraft. With the exception of the very early aircraft which were contracted for prior to the post-World War II inflation, most aircraft were delivered by Grumman at prices in the \$100,000 to \$125,000 range. During the almost quarter century since production halted, rarely has any well-equipped, executive configuration aircraft sold for less than a six-figure price. The steady demand for these aircraft, together with the dwindling supply, has served to make the Mallard an aircraft whose value does not decrease.

### HOURS, MILES AND YEARS

Examination of the accompanying production list will show that an attempt has been made to keep track of the total airframe hours flown by each aircraft. Based on reports from operators, as well as other sources, the author estimates that as of March 31, 1975, the Mallard fleet has rung up a total of some 410,000 flying hours. At an average cruising speed of about 160 miles per hour, this represents some 65 million miles flown since 1946.

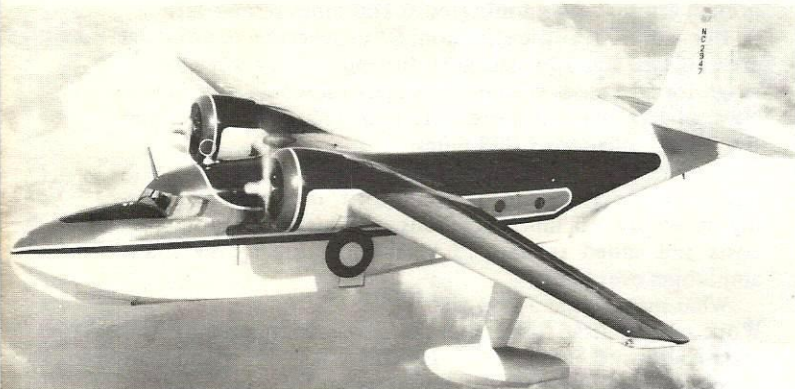
Honors for highest airframe time would probably belong to J9 of West Coast Air Services, which has in excess of 20,000 hours. Low time for operational Mallards probably rests with J26, with about 3,000 hours. It should be remembered that airplanes do not fly themselves, so in this regard it should be noted that at least one pilot has over 10,000 hours logged in the Mallard.

The longest continuous period of ownership of a Mallard belongs to Texaco's J30, which just edges out Frank W. Fuller, Jr.'s relationship with J8. For the record:

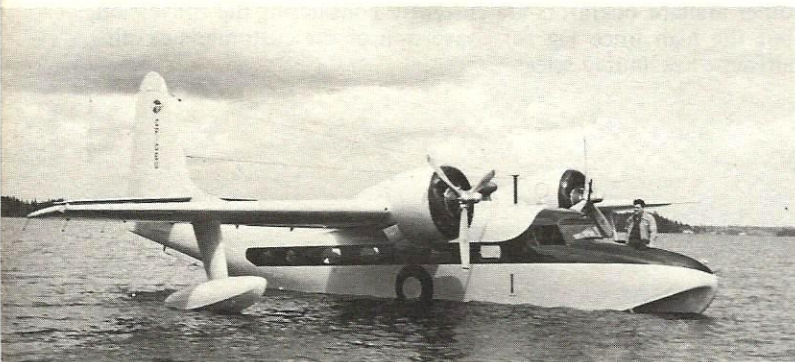
Aircraft	Owner	Period
J30	Texaco, Inc.	27 years
J8	Frank Fuller	27
J22	N.Y. Daily News	26
J24	Corps of Engineers	26
J10	Bower Roller Bearing	22
J51	Texaco, Inc.	21
J54	Union Oil Co.	20
J4	Boris Sergievsky	18
J18	McLouth Steel Co.	18

### MISCELLANEOUS

1. It will be noted that some of the accompanying photographs show Mallards with a single pitot tube while others have two. The explanation: Dual pitots indicate the dual installation required for airline operations. Many of the executive aircraft had



(Below) Ontario Hydro-Electric Power Commission's Mallard CF-GEU (J33) at anchor at Gogama, 1952. Pilot stands in forward hatch used in docking. Ontario Hydro



(Below) Burlington Mills, Inc.'s N2972 (J32) is shown at San Francisco in March, 1954. Note close proximity of High Frequency, ILS, and ADF antennas, above cockpit. William T. Larkins



full dual panels and, as a result, sported two pitots.

2. While certified in the Transport Category, one Canadian pilot is reported to have done the usual aerobatics prohibited in this type of aircraft and indicated that the ship performed well in all maneuvers, including slow rolls.

3. The "squat strut" was developed to solve a problem which had not arisen in conventional gear amphibians. The Mallard had a disturbing tendency to sit on its tail whenever too much weight was placed aft of the center of gravity while parked on the ground. The solution was classic simplicity and added one final item to the Mallard checklist: "Copilot lower squat strut."

### UNSOLVED PROBLEMS

Knowledge of several major areas of Mallard history are lacking at this time, and this is reflected in the accompanying material; namely, the fates of J3, J12, J29 and J46, which are known to have been destroyed. In addition, more information is required on the current status and location of J17, J35, J37, J47, and J48. In terms of a lack of general knowledge about an area of Mallard operations, the weakest spot must be in the oil exploration operations, particularly in Indonesia, but to a lesser extent in South America as well. The author would appreciate any information which would aid in completing the Mallard history.

### GRUMMAN G-73 MALLARD PRODUCTION LIST

C/N	REGISTRY	DATE ACQ	OWNER AND HISTORY
J1	NX41824	—	First flight 4-30-46, prototype and demonstrator, later NC41824
	VO-ACC	1-49	Avalon Industries, Ltd., St. John, Nfld.
	CF-GPA	3-24-49	Canada Veneers, Ltd., St. John's, N.B., crashed & burned at St. John's 12-4-51
J2	CF-BKE	9-27-46	J.P. Bickle (McIntyre Porcupine Mines), Toronto
		4-16-48	Major A.P. Holt, Montreal
		12-19-50	T.H. Flahiff (Ontario Paper)
		9-30-58	The Ontario Paper Co., Thorold, Ont., (9252 hrs at 1-15-75)
J3	N2941	10-18-46	Forstmann Woolens Co., New York City, destroyed prior to 1951, date and circumstances unknown
J4	N2940	10-25-46	Boris Sergievsky, New York City
		12-64	Aero Commander Div. Rockwell Standard Corp., Bethany, Okla. (at 3700 hrs)
		12-66	Jack Adams Aircraft Sales, Inc., Walls, Mississippi (at 3741 hrs)
		8-67	Hart Stud Mill, Jasper, Tex. (at 3750 hrs)
	N121SP	1969	reregistered
		6-21-75	Dean Franklin, Miami (at 4741 hrs)
J5	CF-EIZ	11-8-46	Toronto Globe & Mail
		1954	Irving Oil Transport, St. John's, N.B. (at 1300 hrs)
		—	Canada Veneers, Ltd., St. John's, N.B.
	N74842	—	Madden & Smith Aircraft, Miami by 1963
	HP-383	1963	Club de Pesca de Panama, Bay of Pinas
	N168W	8-1-66	Tulakes Aviation, Inc., Bethany, Okla. (5030 hrs at 11-21-66)
		1968	Business Aircraft, Inc., Green Bay
		1970	Jack Richards Aircraft Sales
		1971	Edward F. Dixon, Frackville, Penna.
J6	N2943	11-28-46	Fuller Brush Co., Hartford, Conn.
		1961	Pacific Airmotive Corp., Burbank, Cal.
	JA5090	6-19-61	Nitto Aviation, Ltd., Osaka, Japan (8708 hrs at 10-64)
	N7306	9-22-66	Frederick B. Ayer & Assoc., New York
		1970	Dean Franklin (Chalk's), Miami (11,886 hrs at 1-31-75)
J7	N2944	12-11-46	Powell Crosley, Jr., Cincinnati, Ohio
	CF-HPA	6-54	Pacific Western Airlines, Vancouver
		5-26-59	B.C. Airlines, Ltd., Vancouver (14,675 hrs at 3-1-67)
		1972	Abitibi Paper Co., Ltd.
		1973	North Coast Air Service, Ltd., Prince Rupert, B.C., crashed 3-5-74 near Prince Rupert
J8	N2945	12-7-46	Frank W. Fuller, Jr., Hillsborough, Cal.
		10-74	Reid W. Dennis, Woodside, Cal. (at 5260 hrs)
J9	N2946	—	Grumman Aircraft, demonstrator
		11-23-48	Twentieth Century-Fox Films, Hollywood
	CF-HPU	10-54	Pacific Western Airlines, Vancouver
		5-26-59	B.C. Airlines, Ltd., Vancouver
		1972	Pacific Western Airlines, Vancouver
		1974	West Coast Air Service, Ltd.
	N123DF	1975	Dean Franklin, Miami (at 24,000 hrs)
J10	N2947	—	Grumman Aircraft, demonstrator
		11-4-47	Popular Mechanics Magazine, Detroit
		1951	Bower Roller Bearing Co., Detroit
		1973	Frakes Aviation, Inc., Cleburn, Tex.
	C-GHLA	10-74	West Coast Air Service, Ltd. (13,400 hrs at 6-25-75)
J11	N2948	6-9-47	Air Commuting, Inc., New York City
		6-30-48	Texaco, Inc., Houma, La., "Texaco 64" (at 240 hrs)
		—	reregistered (10,243 hrs at 12-31-74)
J12	N1628	—	J.J. Ryan, Arlington, Virginia
	N2949	6-27-47	General Tire & Rubber Co., Akron, Ohio
		(1951)	M.A. Miller, Akron, Ohio
		(1955)	Trade-Ayer, Inc., Linden, N.J., crashed into Lake Erie, date and circumstances unknown, late 1950s
J13	CF-FFG	1-23-47	early 1960s
		11-1-47	Canprint Securities, Ltd. (Lord Beaverbrook), Montreal, Quebec
		6-14-48	New Brunswick Holding Co., Frederickton
	PK-AGK	4-51	Major A.P. Holt, Montreal
	JZ-POB	1962	Asiatic Petroleum Corp. (Shell Oil), operated in Indonesia
		1962	NV Nederlandsch Nieuw Guinea Petroleum Maatschappij, Dutch New Guinea
		1962	East Coast Airlines, Brisbane
	VH-TGA	1962	Trans Australia Airlines
	ZK-CDV	9-11-63	Utah Construction & Mining, Invercargill, N.Z. (at 2300 hrs), (4031 hrs at 1-66)
	VQ-FBC	2-25-69	Air Pacific, Ltd., Fiji Islands, "Nasacala"
	N2442H	4-14-71	Crow, Inc., Toledo, Ohio
		12-15-73	Pelican Seaplanes, Inc., Ft. Lauderdale
		1974	Barnett Leasing Co., Ft. Lauderdale
		6-75	Seagull Air Service, Inc., Miami
J14	N2954	2-15-47	Gar Wood Industries, Inc., Detroit
		1956	Packer Pontiac Co., Detroit
		1968	Precision Valve Co., Yonkers, N.Y.
J15	N2956	2-8-47	Superior Oil Co., Houston, crashed on takeoff London, England, 10-28-49 with 1200 hrs
J16	CF-FOD	3-14-47	Algoma Steel Co., Ltd., Sault Ste. Marie
	N4949N	(1950)	Union Producing Co., Shreveport, La., crashed 1-10-54 at Shreveport with 1730 hrs
J17	N2957	3-7-47	George F. Ryan
		—	Grumman Aircraft, used as demonstrator
	N586	5-6-50	Bendix Corp., Detroit at 1500 hrs
	PK-AKH	11-11-51	Asiatic Petroleum Corp. (Shell Oil), at 2360 hrs, operated in Indonesia
		1962	Reported sold to Frederick B. Ayer & Assoc., New York (5623 hrs at 5-6-62)
		11-9-63	Indonesian Police Force, damaged beyond repair 5-18-70
J18	N2958	4-8-47	Burrus Mills, Inc., Dallas, "Mill-ing Around", operated occasionally by Ben Bransom Charter Service
	N10M	3-20-56	McLouth Steel Corp., Detroit (8900 hrs at 6-30-75)
J19	N2959	4-10-47	Howes Bros. Leather Co., Boston
		(1955)	Perfect Circle Co., Hagerstown, Ind.
	CF-KQZ	—	Unknown
	CF-JFC	—	J.F. Crothers, Ltd., Toronto
	CF-HWG	—	Timmins Aviation, Ltd., Toronto
		(1960)	Spartan Air Services, Ltd., Toronto
		—	Great Lakes Paper Co., Ft. William
		—	Dean Franklin, Miami
	N176W	1972	Northwestern Flying Service, Nestor Falls, Ontario (6757 hours at 7-3-75)
	C-GEFE	5-8-75	Hudson Bay Mining & Smelting Co., Ltd., Winnipeg, Manitoba, operated by Hudson Bay Air Transport, Ltd.,
J20	CF-FLC	4-7-47	





NC41824 (J1) over Manhattan in 1946. Franklin T. Kurt



Even by 1951, J.J. Ryan's N3010 (J43) had become a world traveler as the twenty-five flags painted on the nose indicate. San Francisco was the location. William T. Larkins



N7338 (J38) was the first of Chalk's Mallards to arrive in 1968. Photo taken at Chalk's Seaplane Base, Miami, Florida. Thompson Productions, Inc.

C/N	REGISTRY	DATE ACQ	OWNER AND HISTORY
J21	N2961	4-22-47 (1960)	destroyed in hangar fire at Flin Flon, Manitoba 4-63 with 2300 hrs William E. Boeing, Seattle
	CF-MHG	3-60  (1972) (1974)	Crowley Launch & Barge Corp. Puget United Transportation B.C. Airlines, Ltd., Vancouver at 1082 hrs Pacific Western Airlines, Ltd. West Coast Air Services, Ltd., 17,903 hrs at 6-25-75
J22	N2962	5-2-47	New York Daily News, "Miss Daily News"
	CF-HUB	1973 4-74	Dean Franklin, Miami at 4422 hrs West Coast Air Service, Ltd., 6142 hrs at 6-25-75
J23	N2964	5-13-47 11-28-62	Superior Oil Co., Houston Lincoln First Federal Savings & Loan, Spokane, Wash. at 7131 hrs
	C-GHDD	3-66 5-74	Gordon W. Blair, Huntington Valley, Penna., "Patricia", at 7741 hrs North Coast Air Services, Ltd., Prince Rupert, B.C.
J24	N2965	4-23-47	U.S. Army Corps of Engineers, Vicksburg, Miss., "Black Mallard" (6921 hrs at 12-1-66)
		(1973)	U.S. Dept. of Interior, Alaska, crashed 9-74 in Pacific Ocean off Alaska
J25	N2968	5-9-47 6-62	Chatham Mfg. Co., Elkin, N.C. J.W. Dowdle (Swift Air Service), San Diego, Cal. (at 6032 hrs), oper- ated as Catalina/Vegas Airlines (9745 hrs at 11-11-66), crashed 5-27-67 off Catalina Island
	J26	N2966	8-27-47 (1951)
C-GHUM		1966 6-14-75	Boyne Mountain Lodge, Boyne Moun- tain, Mich., converted to turboprops West Coast Air Services, Ltd. (at 3148 hrs)
J27	N2969	5-12-47	Vincent Astor, New York City, "Flying Neurmahal"
	N200S	6-63	Freeport Sulfur Co., New Orleans (at 3450 hrs), (6500 hrs at 6-30-75)
J28	N2970	8-20-47 (1955)	Sid W. Richardson, Dallas, Texas Union Producing Co., Shreveport, La.
		2-65	Coastal Aviation Co., W. Trenton, N.J. (at 4000 hrs)
J29	N2971	1970	Rand Broadcasting Co., Miami
	N304K F-OAII	1973 — 2-28-51	Chalk's Flying Service, Miami, (8502 hrs at 1-31-75) Ford Motor Co., Detroit reregistered 10-50 Government of Tahiti, "Ciel de Polenesie"
J30	N10400	(1956)	William C. Wold & Assoc., New York City (at 2300 hrs), crashed, date and circumstances unknown)
	N3500 N1627	9-16-47 —	Texaco, Inc., Houma, La., "Texaco 61" reregistered between 1951 and 1955, (10,958 hrs at 12-31-74)
J31	N2992	6-20-47 (1955)	Charles B. Wrightsman, Palm Beach Lyon, Inc., Detroit
	N1898T	3-61 2-64	J. Curtis McKinney, Titusville, Pa. (at 4300 hrs) Kearney & Trecker Corp., Milwaukee (at 4500 hrs), (5635 hrs at 9-30-66) reregistered 1970
J32	N1888T	— 1973	John J. Mark, Hales Corners, Wisc.
	N2972	11-26-47 (1952) 1965	Burlington Mills Corp., Greensboro Beatrice Kean (Joyce Lumber Co.) Flight Lease, Inc., Columbus, Ohio, operated by Crow, Inc.
J33	N298GB	6-67	Gold Bond Stamp Co., Minneapolis, converted to turboprops (7600 hrs at 2-1-75)
	CF-GEU	12-22-47	Hydro Electric Power Commission of Ontario, crashed 1-15-55 at Crumlin, Ontario with 1595 hrs
J34	CF-GEV	1-9-48 8-19-61	Canadian Breweries, Ltd., Toronto Rodair, Inc., Montreal (at 5412 hrs)
	N2977 CF-UOT	3-26-66 7-14-66	Quality Sales Co., Detroit (at 5890 hrs) Canadair, Ltd., Montreal (at 5968 hrs),

		9-71	Nordair, Ltd., Montreal, converted to turboprops
J35	N2973 PK-AKD	5-11-48 (1948)	J.J. Ryan, Arlington, Virginia Asiatic Petroleum Co., operated in Indonesia (4310 hrs at 5-62)
		(1962)	Frederick B. Ayer & Assoc., New York
J36	P2011 N2974	11-9-63 4-17-48 1961 1962 3-1-64	Indonesian Police Force Republic Oil Refining, Pittsburgh J. Fred Frakes, Anchorage, Alaska Red Dodge, Anchorage, Alaska Northern Consolidated Airlines, Anchorage (9353 hrs at 5-26-66)
		4-1-68	J. Fred Frakes, Cleburn, Texas, prototype turboprop conversion in 1971 (13,000 hrs at 1-31-75)
J37	PK-AKU	6-2-48	Asiatic Petroleum Co., operated in Indonesia
	JZ-POC	—	reregistered about 1958, current status unknown
J38	N2973	5-19-48	Thos. S. Lee Enterprises, Inc.
		—	Ruan Equipment Co., Des Moines
		(1951)	Esso Shipping Co., operated in Peru
	JA5106	2-23-62	Nitto Aviation (9351 hrs at 10-64)
	N7338	5-25-66 1968	Frederick B. Ayer & Assoc., New York Dean Franklin, Miami, operated by Chalk's, "City of Miami," may have been "Bimini Gal" at one time, Antillies Air Boats (at 11,000 hrs)
		3-74	J.J. Ryan, Arlington, Va.
J39	N2975 CF-IOA	— 10-3-49	Imperial Oil Air Transport, Ltd.
		—	K.J. Springer, Toronto
		4-55	Pacific Western Airlines, Vancouver, crashed 8-3-55 between Vancouver and Kitimat, B.C.
J40	N2996 N5110 N51100	— 12-10-48 5-60	Pre-delivery registration General Motors Corp., Detroit Pacific Airmotive Corp., Burbank (at 6912 hrs)
	JA5067	7-5-60	Nitto Aviation, Osaka, crashed 2-18-64 at Osaka
J41	G-ALLJ	—	Shell Refining & Marketing Co., registered for ferry flight from Amsterdam to Djakarta
	PK-AKE	4-6-49	Asiatic Petroleum Co., destroyed by fire 1-27-51 while undergoing maintenance at Djakarta
J42	N2976 N5115	— 1-20-49	Pre-delivery registration C.F. Kettering, Inc., Dayton, "The Blue Tail Fly"
	N51151	10-1-59 11-14-59 12-17-65	Kiekhaefer Corp., Eau Claire, Wisc. The New York Yankees (at 4770 hrs) Crow, Inc., Toledo (5959 hrs), (8754 hrs at 6-21-75)
J43	N3010	3-15-49 1963	J.J. Ryan, Arlington, Virginia Coastal Aviation Co., West Trenton, N.J., "Huckleberry Duck", (at 3500 hrs)
		1970	Dean Franklin (Chalk's), Miami, (8607 hrs at 1-31-75)
J44	N2977	4-13-49	R.M. Hollingshead Co., Camden, N.J. (1850 hrs at 6-53)
	N1208	(1955) 1962 3-31-64	Freuhauf Trailer Co., Detroit J. Fred Frakes, Anchorage, Alaska Northern Consolidated Airlines, Anchorage (4880 hrs at 5-25-66), became Wien Air Alaska
J45	N2978	5-19-49 11-23-59	Briggs Mfg. Co., Detroit Evans Products Co., Plymouth, Mich. (at 6064 hrs)
		8-1-63	Quality Sales Co. d/b/a Land-Sea Airways, Detroit (at 7874 hrs)
		1970	William Horvath, Ida, Michigan, destroyed by fire at Ida 10-70, remains purchased by Crow and Frakes
J46	N74044	5-26-49	John W. Galbreath & Co., Columbus, Ohio, destroyed prior to 1951, date and circumstances unknown
J47	F7	3-30-49	Egyptian Air Force, at Cairo 1966 being cannibalized, 3360 hrs
J48	F8	8-30-49	Egyptian Air Force, at Cairo 1966 with 1960 hrs
J49	N2979	11-11-49	General Foods Corp., New York
		(1955)	AD Properties, Inc., New York
	N300S	1960	Freeport Sulfur Co., New Orleans (8830 hrs at 7-1-75)
J50	N2980 N1626	— 12-7-64	Grumman Aircraft, utility aircraft Texaco, Inc., Houma, La., "Texaco 90" (6765 hrs at 12-31-74)
J51	H2981	9-1-50	Ft. Sumpter Chevrolet Co., Charleston, South Carolina



A closeup of N7356 (J56) shows cockpit and engine detail as well as aircraft name: "The Cat Cayer-Aristocrat of the Bahamas." Photo taken at Miami, 1972. Matthew E. Rodina, Jr.



Govt. of Tahiti's F - OA11 (J29) at San Francisco in March, 1956 en route to William C. Wold & Associates in New York. "Ciel de Poluensie" on left side of nose and "TEMANUNUIONUKUHIVA" on right side. Colors are grey with blue trim. William T. Larkins



Prototype TurboMallard N2974 takes off from a Northern California lake. Aircraft was flown in bare metal configuration for a while during test flying. This photo shows full paint. J. Fred Frakes

C/N REGISTRY DATE ACQ OWNER AND HISTORY

		6-13-53	Sherman-Marquette Advertising, Chicago (at 290 hrs)
	N99V	(1954)	Atlantic Aviation Co., Teterboro, N.J.
	N1629	3-15-54	Texaco, Inc., Houma, La., "Texaco 76" (8983 hrs at 12-31-74)
J52	N2982	6-1-50	Admiral Corp., Chicago
	N66A	(1954)	Union Producing Co., Shreveport, La.
		—	Trans Air Corp., New Orleans
	JA5117	12-26-62	Nitto Aviation, Osaka (3933 hrs at 10-64)
	N7352	7-3-66	Frederick B. Ayer & Assoc., New York
		1968	Commercial Centers, Inc., Los Angeles
		1969	Ranchaire, Inc. (Walter Scott)
		1974	Dean Franklin, Miami
	TR-???	1974	President of Gabon, crashed 6-75 in Atlantic Ocean off Gabon
J53	N2983	6-30-50	Copano Oil Co., Victoria, Texas
		10-7-60	Sikorsky Aircraft, Hartford (at 1200 hrs)
		(1963)	Chicago Steel Service Co., Chicago
		(1963)	Riverside Business Flight Service
		3-67	K.C. Machine & Tool Co., Detroit (at 2241 hrs)
		1973	Tulakes Aviation, Inc., Oklahoma City
	C-GIRL	5-74	West Coast Air Service, Ltd., Vancouver (4747 hrs at 6-25-75)
J54	N2984	—	Grumman Aircraft demonstrator
	N76U	1-54	Union Oil Co., Los Angeles (at 800 hrs)
		1974	Dean Franklin, Miami (at 9500 hrs)
	C-GENT	8-74	West Coast Air Service, Ltd., Vancouver (10,172 hrs at 6-25-75)
J55	N2986	11-18-50	John W. Galbreath & Co., Columbus, Ohio
	CF-HAV	(1953)	Miron & Freres, Ltee., Montreal (700 hrs)
		6-55	Quebec Dept. of Colonization
	CF-PQE	2-60	Quebec Dept. of Transport & Communication
	G-ASCS	9-7-62	Dennis Ferranti Meters, Ltd., Bangor, Wales, U.K. (at 3595 hrs)
		11-2-67	F.M. Lawreys, London
		5-8-68	J.A. Goldschmidt, Ltd., Biarritz
	CF-YQC	4-13-69	Midwest Airlines, Ltd., Winnipeg (merged with Transair 11-69)
	N73556	3-72	Chalk's Flying Service, Miami (7082 hrs at 1-31-75)
J56	N5118	12-28-50	General Motors Corp., Detroit
	N51181	11-59	Pacific Airmotive Corp., Burbank (at 5010 hrs)
	JA5057	12-12-59	Nitto Aviation, Osaka (9571 hrs at 10-64)
	N7356	6-3-66	Frederick B. Ayer & Assoc., New York
		1969	Amphibious Airways, Inc. (Chalk's), Miami, "The Cat Cayer" (11,500 hrs at 1-74)
		3-74	Antillies Air Boats
J57	N2990	1-29-51	American Cyanamid Corp., New York
		1955	Daniel G. Van Clief, Charlottesville, Virginia, "Jemeima Puddleduck"
		1962	Chevron Oil Co., New Orleans (at 3312 hrs), (8123 hrs at 12-31-74)
J58	N2989	3-15-51	General Foods Corp., New York
	N298D	—	may have been registered at one time
	N298GB	6-62	Gold Bond Stamp Co., Minneapolis (at 4125 hrs), (5075 hrs at 3-67), crashed at Huron, S.D. on 5-3-67, remains sold to Crow, Inc.
J59	N2993	5-4-51	Grumman Aircraft demonstrator and utility, modified slotless wing
	CF-HPN	—	Robertson & O'Connell, Ltd. destroyed in hangar fire at St. John's, Quebec, on 12-8-54

REFERENCES

1. C.M. Daniels, "Gordon Israel, Golden Ager," *WINGS*, IV (October, 1974), p. 52.
2. "An Amphibious Feeder-Liner," *The Aeroplane* (November 28, 1947), p. 706.
3. "Another American Amphibian," *Flight* (January 2, 1947), p. 17.
4. "Business Use of Mallard Climbs," *Aviation Week* (July 18, 1949), p. 47.
5. David Nicolle, "Egyptian Phoenix," *Air Britain Digest*, XXVI (January-February, 1974), p. 10.
6. Robert Hanley, letter to the author, November 24, 1966.
7. "Business Use of Mallard Climbs," *loc-cit*.

8. *Flight* (April 8, 1948), p. 380.
9. *Canadian Aviation* (September, 1954), p. 131.
10. P.E. Groves, letter to the author, March 6, 1967.
11. *American Aviation* (March 5, 1951), p. 42.
12. Captain James Cothron, "Over the Blue," *Shell Aviation News*, #422 (1974), p. 3.
13. Marius Lodeesen, "Mother Goose," *Shell Aviation News*, #378 (1969), p. 2.
14. "Business Use of Mallard Climbs," *loc-cit*.
15. See discussion of turboprop conversion for more details on Mallard powerplants.
16. Three engines were evaluated for possible use on the Mallard: Ranger V-770 (550 HP), Wright R-975 (650 HP), and Pratt & Whitney R-1340 (600 HP).
17. Major R-1340 production had been for the North American AT-6/SNJ and Noorduyn Norseman series aircraft. The engine was dependable and parts availability was excellent.
18. J. Fred Frakes, "Turbo-Mallard," *Shell Aviation News*, #409 (1972), p. 12.
19. Frakes, *ibid*.

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ABOUT THE AUTHOR

At age 30, almost one-third of Matt Rodina's life has involved research on the history of the Grumman Mallard. Although unable to recall precisely how he became interested in the type, he began formal research in 1966 by corresponding with Mallard owners and operators to compile a detailed history of each aircraft. This initial work has since been expanded to include similar research on the Grumman Goose and Widgeon.

Born and raised in the Chicago area, Matt's interest in aviation was inherited from his father and mother, both of whom were pilots, the former an airline captain, although it has only been since 1972 that Matt has been flying (gliders) himself. His educational background includes undergraduate and graduate degrees from Illinois Institute of Technology and the University of Chicago in the areas of finance and economics. While initially being employed by United Air Lines, Inc., the author's last three years have been spent with Waste Management, Inc., an Oak Brook, Illinois refuse hauling conglomerate, in financial and treasury functions. In addition to his historical research, he has also been involved with his brother Mike in restoring both a Taylorcraft A and a BC-12D aircraft. His current interest in amphibious aircraft causes him to describe himself as a "frustrated flying boat pilot" and he hopes to check out in seaplanes once he becomes comfortable flying with an engine and propeller up front.

In addition to AAHS, Mr. Rodina belongs to the Canadian Aviation Historical Society, for whose Journal he is writing an account of Mallard operations in Canada, and Air Britain, for whom he serves as Grumman amphibian specialists.