

Business and commercial **Aviation**

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**Planning and Purchasing
Handbook**

Forecast for 1986



Boeing Vertol Company's 234 Chinook

215 airports is that there is little uniformity among their noise-abatement policies. A national standard has never been required or established, and the closest thing to such a standard is compliance with FAR Part 150. Although all airports complying with this regulation have developed a noise-abatement policy using the same methodology, Part 150 is voluntary only and just a few airports have chosen to use it. What's more, some observers believe that the methodology of Part 150 doesn't accurately reflect the lower noise levels of newer general aviation aircraft.

Nevertheless, when an airport decides to use Part 150, aircraft operators should insist on participating in the development of the noise policy, pointing out to authorities that the regulation requires airport-user consultation.

While associations continue to encourage the use of quiet-flying tech-

niques and "good noise manners," the manufacturers are working on technical as well as operational solutions. Gates Learjet and Gulfstream Aerospace, for example, have developed noise-abatement operating techniques for their respective aircraft.

In addition, McDonnell Douglas Helicopters is three months into a new five-year NASA study aimed at developing a "comprehensive database and analytical prediction techniques" for designing less-noisy helicopters. Other NASA and manufacturer studies aimed at reducing aircraft noise have been underway for some time.

Despite a reduction in helicopter noise resulting from both design and flying techniques, however, the FAA intends to fulfill a promise it made several years ago to issue helicopter certification noise regulations before the end of 1987.

In an effort to put a halt to that other

pollution problem, a Congressional mandate to discover and stop leaks from underground fuel storage tanks has been imposed on thousands of FBOs, corporate flight departments and others. May 1986 is the deadline for complying with the first of many Environmental Protection Agency rules and rule proposals as a result of that mandate. For instance, owners of tanks currently in use and of those tanks that were removed from service within the past 10 years must fill out a special form and submit it to the EPA by May 1986.

Details of the legislation, associated rules, and the impact on owners and operators of underground tanks are contained in an article published in *B/CA Comstar*, March 1986, page C4. Copies of that article are available on request from B/CA, Hangar C-1, Westchester County Airport, White Plains, N.Y. 10604.

Rulemaking

This year's rules situation is a virtual replay of last year's: That is, the business aviation community still awaits the outcome of the Reagan Administration's proposals to eliminate the investment tax credit, to extend the depreciation period for aircraft, and to require that taxes be paid when an otherwise empty seat on a business flight is occupied by a passenger who is not traveling on business. For more on the impact of these Federal proposals see the Financing forecast.

On the more immediate and operational side of the rules picture, six important proposals shown in 1985's *Planning and Purchasing Handbook* were adopted: (1) flight and duty times for commercial operators; (2) clarification of pilot responsibilities following radio failure under IFR; (3) minimum equipment lists for Part 91 multiengine airplanes; (4) a rewrite of the FAA's war-risk insurance regs; (5) revisions to inspection authorization certification; and (6) a requirement that pilots must submit to blood-alcohol tests as a condition of being certificated.

Throughout the year, the FAA has been proposing and then adopting locations to be designated airport radar service areas. Because of the number of proposals and the various comment periods, it is impossible to provide you with an update here. But we will continue to provide ARSA information in the regular issues of *B/CA*.

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Environment

Pollution is this year's environmental buzzword. Federal and local government officials continue their attack on aircraft noise pollution at the same time that they start a new campaign against another source of pollution—leaks from underground fuel tanks.

On the noise front, exemptions that have been in effect to permit some older and noisier four-engine jet transports to operate beyond a December 1985 deadline, will end in December 1986 for those aircraft whose owners have contracted for the installation of a hush kit or engine retrofit.

Unless the FAA revises its noise

compliance rules (as it has in the past), no noisy U.S.-registered four-engine jet transports will be permitted to operate in the United States after December 31, 1986. The agency intends to end exemptions on about 280 noisy twin-engine airline-size aircraft on January 1, 1988. To date, the FAA reports that more than 90 percent of U.S. airline-size transports meet noise standards. (Some operators may be interested in obtaining an updated and complete listing of noise-level data for all U.S. and foreign-made airplanes that are certificated under FAR Part 36 noise regulations. Request a copy of FAA AC

36-1D from the DOT, Subsequent Distribution, M-494.3, Washington, D.C. 20590.)

Meanwhile, the number of airports having noise-abatement rules grows daily. Last year at this time, the NBAA reported that there were some 175 airfields with noise regulations. The latest count is close to 215, according to the association. (Operators may obtain a list of noise-sensitive airports from the NBAA, and additional information pertaining to noise-abatement procedures is available from the FAA's Airport Facility Directory.)

Especially frustrating about those

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Cessna Aircraft Company's Citation II



Beech Aircraft Corporation's Baron 85-58



Mooney Aircraft Corporation's M20K 252 TSE

the user-tax structure that provides monies for the Aviation Trust Fund and serves as a long-term plan for development and expansion of the U.S. aviation infrastructure.

Specifically, the Airport and Airway Improvement Act authorizes spending levels for key FAA programs, such as facilities and equipment and airport improvements. Despite the fact that there is expected to be an unobligated \$4.5 billion surplus in the Aviation Trust Fund at the end of fiscal 1986, the Reagan Administration continues to seek cutbacks in programs financed by the Trust Fund. It seems likely that the Administration may seek a major revision in funding levels for FAA programs, attempting to divert more money from capital improvements to ongoing operational costs such as the salaries of controllers and inspectors.

Given the budgetary pressures imposed by GRH and attempts by the Administration to hold down expenditures so that the Trust Fund surplus can be used to offset deficits in other areas, the aviation community is expected to be in for a major fight to retain adequate spending for FAA programs. The agency is expected to submit proposed Airport and Airway reauthorization legislation to Congress this spring, but no final action is expected until 1987. The last time authorizing legislation expired, it took two years to get a replacement bill through Congress.

Another important issue that has already received Congressional attention is the DOT's proposal to permit airlines to buy and sell slots at the four airports operating under the constraints of the so-called "high-density rule"—Chicago O'Hare, La Guardia and Kennedy in New York, and Washington National. As proposed, the buy-sell rule would continue to make some slots at those facilities available to general aviation. There is concern, however, that the initial proposal is only the nose of a very ugly camel that may end up pushing private aircraft out of the aviation tent at major airports.

During hearings in February before Senator Kassebaum's subcommittee, the NBAA delivered a blistering attack on the buy-sell proposal, charging that such a policy "discourages incentives to expand airspace and airport capacity" and will "institutionalize the FAA's own failure to meet its statutory mission of expanding capacity and promoting growth, rather than stagnation, in our industry." NBAA officials fear

Morristown: The Little Airport That Could

*Northern New Jersey
has a vital airport that
only a few years ago was
a money loser for its
owners, an irritant to its
neighbors and a source
of pilot complaints.*

by Gordon A. Gilbert





New Jersey's Morristown Municipal Airport, which once attempted to ban all jet operations, now is a much improved facility with three new FBOs, one of which is building a large facility for tenant and transient corporate aircraft.

In 1982 Avco Services Corporation established an FBO at Morristown when Avco was selected to manage the airport. In June 1985 Switzerland-based Jet Aviation took over the facility that was previously occupied by the corporate aviation department of Continental Can. And this month, a brand-new FBO facility, Linpro Jet Centre, opens for business. The three operations complement the pre-existing FBO, Aero Services, which has been at the airport for nine years.

Morristown Municipal Airport was built in the early 1940s by the War Department as a military training base. But in 1944, the airport was declared "surplus" and reverted to the ownership of the town of Morristown. From that date until May 1982, when Avco took over the operation, the field went through ups and downs that would make even the wildest roller coaster ride seem tame.

During most of those years the airport lost money, was criticized by many pilots for its lack of upkeep and services, and became a community cause célèbre for both supporters and detractors. Anti-airport groups complained of noise and saw the airport as an eyesore. Many pilots shared an inside joke concerning runway clearing: "When it snows, stay away from Morristown." And for years Morristown officials tried to leave the airport business.

Other causes of the airport's woes were legal battles and petty debates between the town of Morristown and Hanover Township, where the facility is located. The two towns fought over which should control noise, firefighting, safety inspections, building permits and tax collections. Unfortunately, some unresolved issues still exist.

In spite of the difficulties that have surrounded the airport for nearly four decades, an expanding business community in northern New Jersey and an increased interest in private flying by the affluent of the area have resulted in the continued growth in the number of aircraft operations and tenants. And, along with more activity came more complaints about noise and lack of airport upkeep.

Also, the airport gained operator interest as the result of a couple of unrelated incidents. When Roosevelt Field on Long Island was closed, Continental Can chose Morristown Airport for its corporate aircraft and, in 1952, built one of the airport's first corporate hangars. The company also became the first tenant-manager of the airport.

The first tenant for the Linpro Jet Centre at Morristown Airport is AT&T. The company's second-floor dispatch office overlooks the new FBO's ramp and its other hangars.

Directory of Airframe Manufacturers

Pilatus Britten-Neuman, Ltd.
Bembridge Airport
Bembridge, Isle of Wight, England
PO355FR
(098) 387-2511
(U.S. distributor)
Jonas Aircraft and Arms Co., Inc.
225 Broadway
New York, N.Y. 10007
(212) 619-0300

Piper Aircraft Corp.
2926 Piper Dr.
Vero Beach, FL 32960
(309) 567-6361

Saab-Scania AB
Linköping, Sweden S-581-88
(461) 318-0000
(U.S. subsidiary)
Saab Aircraft of America, Inc.
P.O. Box 17188
Dulles International Airport
Washington, D.C. 20041
(703) 661-8422

Sabreliner Corp.
Lambert-St. Louis International
Airport
6161 Aviation Dr.
St. Louis, Mo. 63134
(314) 731-2260

Short Brothers PLC
Berkeley Square House
Berkeley Square
London, England W1X6DY
(01) 629-9941
(U.S. subsidiary)
Short Brothers USA, Inc.
2011 Crystal Dr.
Suite 713
Arlington, Va. 22202
(703) 769-5555

Skytrader Corp.
One Skytrader Dr.,
Harrisonville, Mo. 64701
(816) 887-3222

Mike Smith Aero, Inc.
Stanton County Airport
Box 430
Johnson, Ks. 67855
(316) 492-6840



Super 580 Aircraft Co.
2192 Palomar Airport Rd.
Carlsbad, Ca. 92008
(612) 438-3600

United States Aircraft Corp.
4511 Empire Ave., Hangar 5
Burbank, Ca. 91505
(213) 843-6076

Helicopter Manufacturers

Aerospatiale Helicopter Div.
B.P. 13
Marignane, France F-13722
(42) 899-022
(U.S. subsidiary)
Aerospatiale Helicopter Corp.
2701 Forum Dr.
Grand Prairie, Tx. 75053-4005
(214) 641-0000

Agusta SpA
21 Via Caldera
Milan, Italy I-20153
(02) 452-751
(U.S. subsidiary)
Agusta Aviation Corp.
Noncom & Red Lion Rds.
Philadelphia, Pa. 19154
(215) 245-8860

Bell Helicopter Tectron
P.O. Box 462
Fort Worth, Tx. 76101
(817) 280-3601

Boeing Vertol Co.
P.O. Box 16858
Boeing Center
Philadelphia, Pa. 19142
(215) 522-2121

Enstrom Helicopter Corp.
P.O. Box 277
Menominee, Mi. 49858
(906) 863-9971

European Helicopter Industries (EHI)
Granville House 132/135 Sloane St.,
London SW1X 9BB, England
(017) 307-243
(U.S. distributor of EH-101)
Westland Helicopters
1735 Jefferson Davis Hwy.,
Arlington, Va. 22202
(703) 486-8000

Hynes Helicopters, Inc.
P.O. Box 697
Frederick, Ok. 73542
(405) 335-2256

Kawasaki Heavy Industries
1-18, Nakamachi-dori 2-chome
Chuo-ku, Kobe, Japan 650-91
(078) 341-7731
(U.S. distributor of BK-117)
MBB Helicopter Corp.
P.O. Box 2349
900 Airport Rd.
West Chester, Pa. 19380
(215) 431-4150

McDonnell Douglas Helicopters
Centinela & Teale Sts.
Culver City, Ca. 90230
(213) 305-5000

Messerschmitt-Boelkow-Blohm GmbH (MBB)
Helicopter & Transport Div.
Postfach 80 1140
D-8000 Munich 80, Germany
(899) 6000-2590
(U.S. distributor)
MBB Helicopter Corp.
900 Airport Rd.
P.O. Box 2349
West Chester, Pa. 19380
(215) 431-4150

Robinson Helicopter Co., Inc.
24747 Crenshaw Blvd.
Torrance, Ca. 90505
(213) 539-0508

Rogerson-Hiller Helicopters
2075 W. Scranton Ave.
Ponterville, Ca. 93257
(209) 781-8600

Schweizer Aircraft Corp.
P.O. Box 147
Elmira, N.Y. 14902
(607) 739-3821

Sikorsky Aircraft
N. Main St.
Stratford, Ct. 06601
(203) 386-4000

Westland Helicopters, Ltd.
Yeovil, Somerset, England BA20 2YB
(09) 0935-75222
(U.S. distributor)
Westland, Inc.
1735 Jefferson Davis Hwy.,
Arlington, Va. 22202
(703) 486-8000

Introduction 1986 Avionics

The miracle of the microprocessor continues to dominate avionics at all levels of products for the general aviation community. Pilots, whether they be businessmen operating sophisticated singles or members of a salaried crew, are able to benefit from advances in system capability and from the reduced workload embodied in today's communication, navigation, identification, instrumentation and flight management systems.

Most of the developments in the area of communications, navigation and identification (CNI) equipment have been documented in the pages of *E/CA* throughout the last several years. The offering presented in the 1986 Planning and Purchasing Handbook should be familiar to most readers, although it includes some small refinements that are new and of interest.

While electronic flight instrument systems (EFIS) also were introduced several years ago, advances in symbology and software have given today's units more capability than was available in early EFIS. Collins has been able to certify an airspeed indication on the EFIS offered in the Falcon 200, thereby eliminating the requirement for the typical analog presentation of indicated airspeed that appears on a separate round dial. Bendix and Sperry also provide valuable presentations of advanced symbology in their versions of electronic instrumentation.

New developments in radar address the question of enhanced detection of turbulence by means of Doppler techniques. Super-sensitive circuits are able to process radar returns in order to detect the Doppler-induced shift in frequency caused by relative movement between particles of rain in a turbulent mass of air. Collins' new WXR-850 radar, which was introduced late last year and should be available in 1986, is the only general aviation unit featured in this year's Handbook that offers Doppler turbulence detection, but operators



of business jets and upper-end turboprops should be on the lookout for this capability from other manufacturers within the year.

In another development concerning radar equipment, a controversy has resulted from airline operators questioning whether the new-generation units that feature relatively low power transmitters and very sensitive receivers provide the desired level of penetration capability, or whether there are advantages in increasing the transmitter power of radar. Operators would be well-advised to follow that issue closely.

Loran-C continued to be a very popular item during the last year. Currently, the Aircraft Electronics Association estimates that between 27,000 and 28,000 units are operational within the general aviation fleet, but a very large percentage of these are not certificated for use under instrument flight rules. Industry experts anticipate that the demand for Loran-C will continue, particularly now that the precedent for non-precision approaches using Loran-C equipment has been established and because of support that is gaining momentum for adding the necessary Lo-

Aerospatale/ Aeritalia's ATR 42

The first in a family of regional transports from a European consortium, this aircraft mirrors the industry it serves.

by John W. Clcott

The seeds for the ATR family tree were planted years before the Airline Deregulation Act of 1978 accelerated the regional air transportation industry. And like the industry itself, the first fruit of that tree—the ATR 42—emerged larger and more capable than originally envisioned as the exploding needs of the regionals demanded more capacity.

Aerospatale, an equal partner with the Italian aerospace giant Aeritalia on the ATR 42, was formed from a collection of French airframe manufacturers that included Nord Aviation, developer of the first pressurized aircraft specifically designed for short-haul, low-density airline service. That regional transport, the 26- to 29-seat Nord 262, initially flew in late 1962 and continues in service throughout many parts of the world today even though only about 110 units of the design and its immediate derivative, the Fregate, were manufactured. As airline deregulation seemed all but a certainty during the latter part of the 1970s, Aerospatale perceived a need to restart production of an enhanced version of the Nord 262. Several preliminary designs were considered. No aircraft based upon the Nord 262, however, was approved by the French Government, owners of Aerospatale.

Convinced that the regional market needed an advanced aircraft designed to meet its specific requirements, and responding to research (circa 1979) that indicated 30 to 32 seats was near optimum, Aerospatale launched the A5 35, a 35-passenger, high wing, pressurized turboprop transport similar in appearance to the Nord 262.

But growth within the regional airline industry was rapid as the 1980s unfolded; Aerospatale planners felt that 35 seats simply weren't sufficient for an aircraft that was intended to attract new customers for the remainder of the century. So the company looked for another design—one that would capitalize on the Nord 262/A5 35 heritage yet be in harmony with an ever-expanding demand for seats.

Aeritalia also was eyeing the commuter/regional arena, and it conceived the AIT 230, a 30-passenger

Photography by Alan Stebbins



Command Airways Incorporated was the first U.S. air carrier to operate the Aerospatale/Aeritalia ATR 42, shown here conducting business at Command's headquarters airport in Poughkeepsie, New York (top and right) and at Westchester County Airport, also in New York. Command carries the American Eagle colors.





ran-C transmitters to close the Mid-Continent "gap" (a lapse in coverage continuity that affects the Midwestern United States and Canada). Proponents of Lozan-C emphasize that the computer hardware found within Lozan-C units could also be used to process navigational signals from satellites deployed for the Global Positioning System (GPS). Such capability would ease the transition from the present land-based system of navigation to one originating from space once GPS is operational, which some experts do not expect until the 1990s.

Digital flight control systems entered service with a number of operators since the 1985 Handbook was published, during the year in which the 1986 Handbook remains an active reference, digital systems will probably be the autopilots that attract the most attention among the operators of turbine equipment (although we know of at least one operator who installed a complete suite of digital avionics but insisted upon interlacing it with an analog autopilot).

The most significant trend that emerged within the last year and which

will gain great acceptance this year is the systems approach to aircraft electronics. The Sperry avionics that are found in the Gulfstream G-IV and the Collins avionics that are such an integral part of the Beech Starship are examples of systems that are as much a part of the airframe as are the aircraft's engines. No longer will an operator have the option or the need to specify a particular mix of units. Each piece of avionics equipment incorporated within the aircraft's design will be an integral part of an overall system that plays together as one happy family.

Slaying the Variable-Cost Dragon

The most dangerous beast
in the forest of aircraft operations
budgeting is the variable-cost dragon.
However, with a little bit of help
from airframe and engine manufacturers,
this dragon can be laid low.

by Richard N. Aarons



Product & Services Directory



Hermetic Aircraft Instrument Corp., 200 Marine St., Farmingdale, N.Y. 11735. (516) 694-6780.

Heuer Time & Electronics Corp., 960 S. Springfield Ave., Springfield, N.J. 07081. (201) 467-1890.

Hexcel Corp., 11711 Dublin Blvd., Dublin, Ca. 94566. (415) 828-4200.

Hi-Q Systems, 11861 Cardinal Circle, Unit 1, Garden Grove, Ca. 92643. (714) 636-6440.

Hobart Brothers Co., Hobart Square, Troy, Oh. 45373. (513) 339-6000.

Holt Lloyd Corp./LPS Chemical Products, 4847 Hugh Howell Rd., Tucker, Ga. 30084. (404) 934-7800.

Hoover Industries, 7260 NW 68th St., Miami, Fl. 33166. (305) 686-6791.

Host International Inc., Pico at 34th St., Santa Monica, Ca. 90406. (213) 450-7566.

HTL Industries Inc., 101 E. Wheeler Ave., Arcadia, Ca. 90016. (213) 574-8880.

ICOM America, 2380 116th Ave. NE, Bellevue, Wa. 98009. (206) 454-8155.

Inca, 3463 S. La Cienega Blvd., Los Angeles, Ca. 90016. (213) 559-6940.

Innotech Aviation Ltd., 455 Michel Jasmin, Dorval, Quebec, Canada H9P 1C2. (514) 636-8484.

Insight Instrument Corp., P.O. Box 194, Elliott Station, Buffalo, N.Y. 14205. (416) 871-6733.

Institute for Survival Technology, Nova University, 8000 N. Ocean Dr., Dana, Fl. 33004. (305) 475-7487.

Instrument Flight Research, 3002 Aviation Way, West Columbia, S.C. 29109. (803) 796-7400.

Instrument Tech Corp., P.O. Box 1012, Dallas, Tx. 75248. (214) 901-0075.

Interaction Research Corp., 2002 E. State St., Olympia, Wa. 98506. (206) 357-4454.

Intercontinental Dynamics Corp., P.O. Box 81, Englewood, N.J. 07631. (201) 567-3600.

International Aero Leasing, 14651 Dallas Pkwy., Dallas, Tx. 75245. (214) 238-5956.

International FBO Network, c/o Aero Services, Five Points Rd., Cleveland Hopkins Airport, Cleveland, Oh. 44135. (216) 267-3711.

Intertech Aviation Services, 3 Sunset Lane, Littleton, Co. 80121. (303) 781-4177.

Inventory Locator Service, P.O. Box 18767, Memphis, Tn. 38118. (901) 794-4784.

Invented A Inc., 401 Forest Hill Ln., Grand Prairie, Tx. 75051. (214) 264-0066.

Invin Industries Inc., 630 Fifth Ave., New York, N.Y. 10111. (212) 977-2500.

Israel Aircraft Industries, Bedek Aviation Div., Ben Gurion International Airport, Tel Aviv, Israel 70100. (03) 972-653.

J&C Lamb Corp., 24-20 Jackson Ave., Long Island City, N.Y. 11101. (718) 729-5000.

JCR Industries, P.O. Box 1213, Canoga Park, Ca. 91311. (213) 759-4860.

JOC Manufacturing, 1400 Industrial Way, Redwood City, Ca. 94063. (415) 384-7440.

Jeppesen Sanderson Inc., 55 Inverness Dr. E., Englewood, Co. 80112-5498. (303) 799-9090.

Jerry's Caterers, P.O. Box 2817, AMF, Miami, Fl. 33159. (305) 671-1670.

Jet Aviation AG, P.O. Box 1524, Zurich Airport, Switzerland, CH-8056. (01) 814-0114.

The Jet Center, 16300 Daily Dr., Van Nuys, Ca. 91406. (818) 588-2800.

Jet Electronics & Technology Inc. (J.E.T.), P.O. Box 8239, Grand Rapids, Mi. 49508-0239. (616) 949-6600.

Jetson Air Center, Hangar 17, Suffolk County Airport, W. Hampton, N.Y. 11976. (516) 266-5995.

Product & Services Directory

Center, P.O. Box 25082, Oklahoma City, Ok. 73125. (405) 696-4363.

Fairchild Aviation Recorders, Fruitville Rd., P.O. Box 3041, Sarasota, Fl. 33578. (813) 371-0811.

Fairhope Aero, Fairhope Municipal Airport, P.O. Box 325, Fairhope, Al. 36533. (205) 928-1230.

Falcon Jet Corp., P.O. Box 967, Little Rock, Ar. 72203. (501) 372-5254.

Fanvil Inc., 400 Main St., Ashland, Ma. 01721. (617) 881-2000.

Flame Engineering Inc., P.O. Box 577, La Crosse, Ks. 67548. (913) 222-2873.

Flight Apparel Industries, Hammonton Airport, P.O. Box 156, Hammonton, N.J. 08037. (609) 561-9200.

Flight Information Publications, P.O. Box 18678, St. Louis, Mo. 63106. (314) 469-1488.

Flightmatic, 150 Riser Rd., Teterboro Airport, Teterboro, N.J. 07608. (201) 933-5134.

Flight Opps, 2857 Birch St., Suite 237, Newport Beach, Ca. 92560. (714) 644-8215.

Flight Safety Foundation, 5510 Columbia Pike, Arlington, Va. 22204-3194. (703) 820-2777.

FlightSafety International Inc., Marine Air Terminal, LaGuardia Airport, Flushing, N.Y. 11371. (718) 565-4100.

Flight Suits Ltd., 1675 Pioneer Way, Suite D, El Cajon, Ca. 92020. (619) 440-8978.

Flow Technology, P.O. Box 21348, Phoenix, Az. 85028. (602) 437-1315.

Fluid Power Inc., P.O. Box 208, Hudson, Oh. 44236-0208. (216) 653-5107.

FMC Corporation, P.O. Box 13400, Orlando, Fl. 32806. (305) 851-3377.

Foster-Edwards Aircraft Co., P.O. Box 574, Addison, Tx. 75001. (214) 931-0933.

Foxboro Co., 28020 Stanford Ave., Valencia, Ca. 91355. (805) 257-4200.

Foxtronics Inc., 6614 Waddell, Dallas, Tx. 75235. (214) 358-4425.

FPS International Inc., 3610 Kennedy Rd., S. Plainfield, N.J. 07080. (201) 753-7717.

Frasca Aviation Inc., 606 S. Neil St., Champaign, Il. 61820-5279. (217) 369-3951.

Futab Inc., P.O. Box 1385, Canton, Oh. 44708. (216) 477-7211.

Garrett Manufacturing Ltd., 255 Atwell Dr., Rexdale, Ontario, Canada M9W 5S8. (416) 675-1411.



Schweizer-Hughes' Model 300C

Garrett Turbine Engine Co., 111 S. 34th St., Phoenix, Az. 85034. (602) 231-1000.

Gayston Corp., P.O. Box 239, Dayton, Oh. 45404. (513) 233-7723.

General Aviation Electronics Inc., 802 E. Lord St., Indianapolis, In. 46202. (317) 262-2000.

General Bandages Inc., 8300 Lehigh Ave., Morton Grove, Il. 60053. (312) 966-8383.

General Electric Aviation Service Dept., Mail Drop N-35, Cincinnati, Oh. 45215. (513) 243-2000.

Gentex Corp., Western Operations, 2824 Metropolitan Pl., Pomona, Ca. 91767. (714) 596-8512.

Georgetown Aircraft Services, P.O. Box 21, Rt. 5, Georgetown, De. 19947. (302) 856-7333.

Gilbert Greg & Associates, P.O. Box 720543, Atlanta, Ga. 30358. (404) 643-2457.

Glatzer Industries Corp., 15 River St., New Rochelle, N.Y. 10801. (914) 578-2700.

Global Weather Dynamics Inc., 2400 Garden Rd., Monterey, Ca. 93940. (408) 649-4550.

Go-Air Inc., 1000 E. Valencia, Tucson, Az. 85706. (502) 889-4571.

BF Goodrich Co., Engineered Products Group, 500 S. Main St., Akron, Oh. 44318. (216) 374-3600.

Goodyear Aerospace, 1210 Massillon Rd., Akron, Oh. 44315-0001. (216) 796-2121.

Ground Tech Corp., 164 W. Zion Rd., Salisbury, Md. 21801. (301) 749-6993.

Gulfstream Aerospace Corp., P.O. Box 2206, Savannah, Ga. 31402. (912) 964-3000.

Gulton Industries, Engineered Magnetics Div., 13041 Centex Ave., Hawthorne, Ca. 90250. (213) 679-0111.

Gulton Industries, Luminator Div., 1200 E. Plano Parkway, Plano, Tx. 75074. (214) 424-6511.

Hamilton Aviation, P.O. Box 11746, Tucson, Az. 85734. (602) 294-3481.

Hamilton Standard Div., United Technologies Corp., Windsor Locks, Ct. 06096. (203) 625-1821.

Harlan Corp., P.O. Box 15159, Kansas City, Ks. 66115. (913) 342-5950.

Hayes International, P.O. Box 929, Dothan, Al. 36302. (205) 980-4571.

Heads Up Checklist, 7515 Lammon Ave., Hangar C, Suite 102, Dallas, Tx. 75209. (214) 351-4766.

Helikraft Corp., 116 N. Racquette Dr., Fort Collins, Co. 80524. (303) 482-2100.

Heli-Dyne Systems, P.O. Box 18967, Fort Worth, Tx. 76118. (817) 282-9804.

Helplex, 424 W. Fork Dr., Arlington, Tx. 76012. (817) 277-9024.

Heltronics, 12 N. Mescham Field, Fort Worth, Tx. 75201. (817) 624-7236.



Aron D. Steiner

Eastern's gates at Boston's Logan International Airport can accommodate everything from an Airbus Industrie A300 (pictured here) to smaller, 15-place commuter aircraft.

course because Delta ground services occupy the ground-floor end of the concourse. The jetway equipment is still in place, but the carrier uses stairs instead of the jetways for passengers.

"Our main problem," Beiser said, "is that anybody who feeds a hub is dealing with the nature of the beast. We need a rotation 35 to 40 minutes before Delta to get their feed to them, so we have between nine and 12 aircraft here all at once—it's feast or famine out there.

"If we were carrying local O&D traffic, we could spread the schedule out more, but we're locked into a massive operation, and I think it [gate operation] is one of the key operational problems facing the regionals at the hubs." ASA therefore operates a finely tuned ramp that's as choreographed as the Ice Capades, with its aircraft cycling through a "push" in waves; parking becomes a matter of inches, measured wingtip to wingtip.

ASA's neighbor, Eastern Metro Express, was able to persuade Eastern to give up the butt end of the concourse, where a jetway had been installed and some ground-service facilities had been operating. So, Eastern Metro Express's ramp operation is markedly different—even if only in appearance—from ASA's. Metro's Jetstream 31s line up abreast during its "pushes," and the passenger gate includes an escalator to the wide, glass-enclosed reception area that doubles as a carry-on baggage transfer point as passengers disembark.

Metro's Atlanta manager, Doug Caldwell, said,

"Eastern looked at our feed versus their jetway and made the decision based on 'incremental revenue.' They determined that the dedicated feed was worth it." In June, Metro fed 35,000 passengers through its Atlanta doors, with the bulk going to Eastern.

Horizon examined its situation serving the Northwest from hubs like Sea-Tac (Seattle-Tacoma) and went for the "front door." The airline reasons that on short trips typical of the regional airlines, the duration of the ground segment just to get aboard the airplane can eclipse the flight itself.

Horizon's strategy has been to use one gate but get it close to the groundside facilities, and six aircraft at a time—as many as 35 flights a day—may feed through a single gate. Horizon's primary thrust is to attach some value to the passenger's time, and compromise on sheer numbers of gates and ramp expense if it can locate a gate to serve its traffic better. Like other regionals, Horizon has found gates difficult to get and expensive to keep, so it does the most with what it has.

Horizon President Milt Kuolet says the airports don't think about the passenger: "The shorter the flight, the closer the gate ought to be," he said. "If you're boarding a six-hour flight, who cares about the walk from the car to the airplane? Still, at a lot of airports, even though we could have the largest number of flights per day, just because the passenger count is not as high as the trunk's one flight, we're shoved off into some nondescript cozier. In addition, an airport manager can be as goofy about



Photography by Mark Stebbins

Directory of Airframe Manufacturers

Airplane Manufacturers

Aeritalia

Piazzale V. Tecchio 51/A
I-80125 Napoli, Italy
(081) 725-2111
(U.S. distributor—ATR 42)
Aerospaziale Aircraft Corp.
1110 Vermont Ave. NW
Suite 1220
Washington, D.C. 20005
(202) 331-8980

Aerospaziale

37, Blvd. de Montmorency
Paris Cedex 16
France F-75781
(1) 524-4321
(U.S. subsidiary—ATR 42)
Aerospaziale Aircraft Corp.
1110 Vermont Ave. NW
Suite 1220
Washington, D.C. 20005
(202) 331-8980

Allison Gas Turbine Division

General Motors Corp.
P.O. Box 420
Indianapolis, In. 46206
(317) 242-5000

American Aviation Industries (AAI)

16700 Roscoe Blvd.
Van Nuys, Ca. 91406
(818) 786-1921

Avions Marcel Dassault-Breguet Aviation

33, rue du Professeur Pauchet
Vaucresson, France F-92420
741-7921
(U.S. subsidiary)
Falcon Jet Corp.
Teterboro Airport,
Teterboro, N.J. 07608
(201) 298-5300

Avtek Corp.

4680 Calle Carga
Camarillo, Ca. 93010
(805) 482-2700

Beech Aircraft Corp.

9709 E. Central
Wichita, Ks. 67201
(316) 681-7111



Boeing Commercial Airplane Co.

Corporate Aircraft Sales
P.O. Box 3707 (MS 75-03)
Seattle, Wa. 98124
(206) 237-0115

British Aerospace PLC

Brooklands Rd.
Weybridge, Surrey, England KT13 0SJ
0932-53444
(U.S. subsidiary)
British Aerospace, Inc.
Dulles International Airport
Washington, D.C. 20041
(703) 435-9100

Canadair, Ltd.

P.O. Box 6087, Station A
Montreal, Quebec, Canada H3C 3G9
(514) 744-1511
(U.S. subsidiary)
Canadair, Inc.
274 Riverside Ave.
Westport, Ct. 06880
(203) 226-1581

Cessna Aircraft Co.

P.O. Box 1521
Wichita, Ks. 67201
(316) 685-9111

Construcciones Aeronauticas, S.A. (CASA)

Rey Francisco, 4.28008
Madrid 8, Spain
(1) 248-53-09
(U.S. subsidiary)
CASA, Inc.
1215 Jefferson Davis Hwy.
Suite 404
Arlington, Va. 22202
(703) 486-5370

The de Havilland Aircraft of

Canada, Ltd.
Garratt Blvd.
Downsview, Ontario, Canada
M3K 1Y5
(416) 633-7310

Dornier GmbH

P.O. Box 1420, Friedrichshafen
West Germany D-7990
(07) 342-090
(U.S. subsidiary)
Dornier Aviation (North America) Inc.
1213 Jefferson Davis Hwy.
Suite 1001
Arlington, Va. 22202
(703) 769-7228

Empresa Brasileira de Aeronautica, S.A. (Embraer)

Av. Brig. Faria Lima, 2170
Sao Jose dos Campos, SP, Brazil
12200
(123) 215-400
(U.S. subsidiary)
Embraer Aircraft Corp.
276 SW 34th St.
Fort Lauderdale, Fl. 33315
(305) 524-5755

Falchold Aircraft Corp.

P.O. Box 32486
San Antonio, Tx. 78284
(512) 824-9421

Fokker-B.V.

P.O. Box 1065
Amsterdam, The Netherlands
NL-1000 BB
(020) 544-9111
(U.S. subsidiary)
Fokker Aircraft USA, Inc.
1199 N. Fairfax St., Suite 500
Alexandria, Va. 22314
(703) 838-0100

Introduction 1986 Commuters



The year of the designator. That, in a phrase, describes the commuter/regional airline marketplace for 1985.

Condensed further, it is now a question of the "haves" and the "have-nots"—the vital key that in 1986 may well determine those carriers that will survive and those that will not. Traditionally, the industry has dwelled on such matters as public issues, mergers and acquisitions, planning smart in terms of route development, capacity versus frequency, yield and cost control. All the good markets are gone in the wake of airline deregulation, reasoned some carrier executives. Therefore, the time had come for fine-tuning the product and building defenses against potential opportunistic incursions from aia.

Now it would seem that all of the best management skills available, the greatest route structure in the world, the most modern fleet and a debt-equity ratio the envy of all, just may not be enough to hack it... if there isn't a large

carrier's two-letter designator as well.

Bill Britt's perceived successes—Britt Airways is privately held and does not report financial results—were legendary among his colleagues. Then the freshly merged Air Wisconsin/Mississippi Valley Airlines hit him from the north and east with the 'UA' code; American Eagle Simmons came out from Chicago; Ozark Midwest and TWEExpress encroached from St. Louis to the west... 140 commuter and 16 carrier slots at O'Hare and no one to feed. Suddenly, Britt was being acquired by People Express.

But are all of the good markets really gone? Piedmont didn't think so when it decimated Provincetown-Boston's burgeoning Florida markets with Fokker F28 jets; Air Midwest apparently doesn't think so as it becomes the Eagle feeding American's new Nashville hub this month; and, Air Wisconsin's planned East Coast invasion as primary feed for United's new Washington-Dulles International hub is not a sign of timidity in the marketplace.

A Game of Take-Away

It has become a game of take-away—surrogate carriers establishing or preserving feed for their senior partners by taking it away from someone else. The current year will likely see a continuation of such predatory alliances with foreseeable results—a thinning of the ranks as the less healthy fall by the wayside or are simply gobbled up.

At last count, there were 14 jet carriers that had made 43 shared-code agreements with 39 regional and commuter carriers; more were cooking. American and USAir topped the list with seven each. Three regionals, on the other hand, boasted multiple agreements with large carriers—Air Midwest with three, and Metro and Simmons each with two.

Concurrent with the dual-designator frenzy is a more subtle change underway in the equipment marketplace. A number of carriers thought that alignment with a major carrier would elevate the requirement for larger equipment, especially the so-called new-gen-

Forecast for 1986



Cockpit of Israel Aircraft Industries' Astra IA-1125

addressed the lack of consistency among national regulations, such as in the United States, which has enacted domestically-generated regulations that differ from those of ICAO. Variances are such that compliance is nearly impossible on an international scale, particularly for operations of aircraft that are in some places described as "non-noise complying" yet are in compliance elsewhere.

"IBAC supports reasonable and constructive efforts to achieve significant reductions of aircraft noise that are consistent with the highest standards of safe and efficient aircraft operations. These efforts must permit continued

unconstrained airspace and airport access without unduly increasing aircraft fuel consumption or reducing operating efficiencies."

Among the several considerations that IBAC listed, the Council feels that curfews create an undue burden on commerce and are unacceptable as a means of controlling perceived or real noise from aircraft. The policy says that governments must evaluate all sources of airport noise. The Council encouraged the use of noise-abatement landing and departure procedures as well as the development of airport-compatible buffer zones.

Cockpit data recording has been and

still is a controversial issue among those involved in aviation. While IBAC's position paper on cockpit voice recorders and flight data recorders generally supported the principle of their installation, the Council had serious reservations about other intangible factors involved in their use: "...the questions of demonstrated needs, size of aircraft, and benefits versus costs, as well as the timing of installation schedules of CVRs/FDRs, must be closely analyzed. Standards also should be developed that protect the liability of the operations and aircrews from non-safety use of the information."

IBAC's sixth policy paper had several recommendations regarding aircrew licensing. IBAC stated that its members should adhere to a minimum of an ICAO commercial pilot's license with a current instrument rating. Consideration also should be given to the crewmember holding an ATP when flying passengers as pilot in command. In addition, IBAC advocated the highest possible levels of initial and recurrent training for aircrews.

According to IBAC, "Business aviation has earned the respect of safety-standards authorities and has, upon occasions, prevented the imposition of inhibiting and unnecessary legislation. High professional standards of operation, which have provided a first-class safety record, are also a powerful argument for favorable insurance rates."

IBAC's membership consists of several prominent aviation associations, including the Business Aircraft Users Association in the United Kingdom; Business Aviation Division of the Commercial Aviation Association of Southern Africa; Canadian Business Aircraft Association; European Business Aircraft Association (based in Brussels); German Business Aircraft Association and the NBAA.

Financing

In 1986, attractive low-rate, long-term financing on up to 100 percent of an aircraft's purchase price may lure a substantial portion of potential aircraft purchasers back from the temptation of leasing.

In the past, a great concern of companies that were considering buying (as opposed to leasing) an aircraft has been the large down payment required by lenders and the large monthly payments associated with five- to seven-year financing. Today, some lending

Introduction 1986 Helicopters



Rotorcraft industry observers a year ago were not far from the mark when they predicted little growth potential in 1985 for the North American civil market. Where they may have gone wrong was in making generally optimistic projections for 1986.

In the dawning days of this calendar year, U.S. helicopter manufacturers were girding themselves for more of the same market climate experienced last year. The outlook was for intensified competition for the sale of new units to emergency medical and public service users. For other applications, the marketplace was expected to be of more limited dimensions than have been known in more than 25 years, with prospective customers perhaps in a better position to be demanding of improved quality and after-sale support than have ever existed in the past.

Following four consecutive years of

declining deliveries, new-unit shipments during 1985 at least reflected a halt in the plunge. The U.S. Department of Commerce and larger manufacturing firms cautiously projected a further slight rise in 1986, with Commerce Department statisticians calculating that gain to be about 7.7 percent over 1985 (see accompanying "U.S. Rotorcraft Shipments" chart). But confidence levels within the manufacturing and vending segments of the industry might be described as guarded, at best.

A survey of both domestic and international rotorcraft builders revealed a general consensus that significant advancements should not be anticipated this year in either technical or financial improvements for products offered. Several airframe companies did indicate that they were making efforts to reduce ownership costs by means of ex-

tended component-life programs, and retail prices of equipment should reflect only marginal increases. But the uncertain tax credit situation (in the United States) was reported to be keeping many prospective purchasers from taking the step into either first-time or upgrade buys.

Consequently, the attitude was that suppliers who are in the most enviable position this year and for the longer haul are those who have military contracts to sustain them while the civil market continues to sort itself out. A few emerging phenomena were discerned by company sales forces, however, that could brighten the picture. Builders of larger equipment see a growing trend in the marketplace toward replacement of single-turbine machines with more sophisticated light to medium twins so that the value of the active fleet will increase, even

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1986 Helicopters

though its actual numbers may not. Makers of light piston-powered models, conversely, believe that a resurging interest in their products signals a broadening in both the training and personal use of helicopters. With regard to executive applications of its machines, Bell Helicopter Textron disclosed that of 83 completely refurbished, zero-time used units it delivered in 1985 (in addition to the 38-percent share that the company claimed for new units delivered), over half were to first-time corporate purchasers.

With offshore and other energy-related markets continuing in—or even descending further into—a state of depression and with the sales of new executive units expected to remain relatively flat, however, EMS and public service applications have captured primary attention. The public service market, particularly, which encompasses multimission activities beyond those of law-enforcement and fire fighting agencies, is seen as a bright spot during the coming year.

From the standpoint of total fleet

growth in North America, it is suspected that a greater number of helicopters were taken out of service than were added to it in terms of new units delivered during the past year. Of the Commerce Department's preliminary figure of 390 civil machines delivered by U.S. manufacturers, an estimated 35 percent were exported to other continents. Those statistics indicate that, even considering the number imported into the United States by overseas manufacturers, North American consumption totaled little more than 200 new units in 1985. And despite some pretty innovative sales approaches that were reported to be evolving this year, some U.S. manufacturers acknowledged that they are gearing realistically for no more than a two- to five-percent boost in the production rate.

Market shares last year reflected subtle shifts, largely because of radical changes in the import picture. Through the first three calendar quarters of 1985, the statistical branch of the Aerospace Industries Association of America (AIA) calculated that, in dollar vol-

ume, Bell Helicopter claimed 46 percent of civil sales, Sikorsky accounted for 41.3 percent, McDonnell Douglas (Hughes 500/530 single turbine lines) for 8.0 percent, Robinson for 1.7 percent, Rogerson-Hiller for 0.8 percent and Schweizer (Hughes 300C) for 0.6 percent. Those computations did not include the reported delivery of four Boeing Vertol 234 heavy twins (three new and one used), however; at retail prices in excess of \$20 million each, with spares, the addition of those machines to the data would greatly skew financial shares of the total market.

The number of helicopters imported into North America from January through September 1985 totaled only 37, worth an estimated \$32.417 million. The AIA's ratios of that market were broken down this way: France, 27 percent of units/38.8 percent of dollar value; West Germany, 51.3 percent/37.9 percent; United Kingdom, 18.8 percent/22.5 percent; and Italy, 10.8 percent/6.1 percent.

One cannot be certain whether these figures illustrate a stronger "buy American" attitude in response to concerns over technology transfer that led the AIA to set up a special task force a few years ago, or whether U.S. firms have just become more aggressive about marketing on their own turf. The nature of both the domestic and international markets, however, seems to illuminate new "concepts for survival" that appear to be evolving within the rotorcraft industry.

Perhaps over-simplified, those concepts are keyed to growing beliefs that the demise of any given major helicopter manufacturer will not necessarily improve the market position of its competitors, but rather will result in weakening the industry as a whole. That concept already has led to unprecedented teaming arrangements between manufacturers, primarily to gain advantages in bidding for military contracts, but also to spread the increasing costs of new-product development over broader bases. Several manufacturers believe that it is conceivable, even probable, that such an approach will be strongly reflected in the civil helicopter arena this year.

As one company official phrased it: "Tomorrow we fully expect to be sleeping with yesterday's mortal enemy, in a competitive sense, and loving every minute of it. It's a matter of survival. But the biggest beneficiary will be the helicopter buyer."



McDonnell Douglas Helicopters' MD 500E

U.S. Rotorcraft Shipments, 1980-1986†

Year	No. of Units	% Change	Value (million)	% Change	Average Unit Value	% Change
1980	1,353	+29.5	\$674	+67.2	\$498,152	+28.6
1981	953	-29.6	\$636	-5.6	\$667,366	+33.9
1982	587	-38.4	\$365	-42.6	\$621,806	-6.8
1983	401	-31.7	\$269	-26.3	\$670,823	+7.9
1984	376	-6.2	\$330	+22.7	\$877,660	+30.8
1985*	390	+3.7	\$360	+9.1	\$923,077	+5.2
1986**	420	+7.7	\$400	+11.1	\$952,381	+3.2

†Derived from U.S. Department of Commerce data

*Preliminary **Estimated

How to Use the Airplane Charts



Piper Aircraft Corporation's Malibu PA-46-310P

To get full value from the charts in the *B/CA 1986 Planning and Purchasing Handbook*, you'll need to know the ground rules for our calculations. These are outlined below by reference to chart column heads.

MANUFACTURER/MODEL—

Name of the aircraft manufacturer and aircraft model designation. Company addresses and other information can be found in the "Directory of Airframe Manufacturers" on page 126.

B/CA EQPD. PRICE—The *B/CA* equipped price. This is our calculation of the average retail price of an aircraft equipped according to the minimum specifications on page 61. These prices are calculated using the manufacturer's own standard equipment and options list for each aircraft. Generally, we are showing equivalently equipped aircraft at the lowest price at which each is offered by the manufacturer, according to its options list.

Adjustments were made if a required item of equipment was not available for factory installation. A value conformity—matching equally such factors as quality in construction, interior design and fabrication techniques—is, of course, impossible to achieve. Differences in these areas often show up in price differentials for otherwise similar airplanes.

It is important to remember that these prices are estimates based on first-quarter 1986 information. Most

manufacturers adjust prices throughout the year.

Where long production lead times are involved, prices normally are quoted in dollars based on a certain year. Such cases are noted in the **NOTES** section.

CHARACTERISTICS

Seating—Information on typical configuration and seating is shown in the form: P+TS/MS. "P" is the number of crewmembers required by regulation for normal executive-transport operations. "TS" is the typical passenger seating. "MS" is the maximum passenger seating.

Editorial decisions must be made in order to determine both TS and MS. When differences arise, we have attempted to base both TS and MS on aircraft experience in the field. Neither TS nor MS includes crew. Therefore, a four-place single will be shown as 1+3/3.

Wing Ld./Pwr. Ld.—Wing loading and power loading are shown for all airplanes. Wing loading is in max gross takeoff weight in pounds per square-foot of wing area. Power loading is in max gross takeoff weight in pounds per horsepower (or per pound of thrust for turboprops and turbojets).

Noise—These figures are external overhead or takeoff and approach noise levels as appropriate. For small, propeller-driven airplanes, the noise figure is dBA overhead. For turbojets and turboprops the noise figure is EPNdB for takeoff and approach.

DIMENSIONS

External—These are the standard external dimensions—length, height and wingspan—in feet and tenths of feet. They are used for determining hangar space requirements.

Internal—These are interior dimensions, in feet and tenths of feet, of an aircraft with a complete interior. For cabin class twins and turbine aircraft, the internal dimensions are for the passenger compartment only. The length measurement is taken from the rear surface of the cockpit or cabin divider to the back of the rearmost seat (that can be installed) in its normal upright position. For all other airplanes these dimensions include the pilot compartment, with length measured from the bulkhead forward of the rudder pedals to the back of the rearmost seat in its normal upright position. Cabin dimensions, especially length, are subject to large variations depending on how an interior of an aircraft is furnished.

POWER

Engines—The items in this information block show the number of engines (except for singles), the engine manufacturer and the engine model number. The following abbreviations are used for engine manufacturers: For piston airplanes, **Cess** is Teledyne Continental and **Lyc** is the Lycoming Division of Avco Lycoming. For turbine powered aircraft, **AR** is Garrett Allison, **GE** is General Electric, **Avco** is Avco Lycoming, **P&W** is Pratt & Whitney of Canada and **RR** is Rolls-Royce.

HP/SHP/Thrust — Horsepower, shaft horsepower or thrust (in pounds) is shown, as appropriate, for each engine.

TBO—Engine manufacturer's recommended overhaul interval in hours is shown where available. "Prog." means progressive, and the term "OC" means on condition. (Note: Piper usually shows a TBO that should be achievable by the time the fleet reaches the value shown. Cessna does not. In any event, P&W engines of similar designations have similar TBOs regardless of airplane manufacturer claims.)

WEIGHTS

The weights (in pounds) appropriate to each class of aircraft are shown under this heading.

Max Ramp—Maximum ramp (taxi) weight as specified in certification data.



Introduction 1986 Airplanes

If a "good" year means that a record number of airplanes were sold, 1985 was not a "good" year, nor at this writing was there much hope for a particularly "good" 1986.

In such times, there are always choices to be made. Companies, or individuals for that matter, can choose to ignore the realities of the present and simply hope for a better future. Or they can begin to prepare for those better times—to make them happen.

The good news this year is that the general aviation industry seems to be making the best of these somewhat scary times in order to position itself for better things; in fact, to make better things happen.

Of course, during such times of maturing, old dreams are let go. The dream of a general aviation industry fashioned after General Motors is at last dead. No more wistful thoughts of an airplane in every garage. No more dreams of crowds swamping the local

airplane exposition every fall, beckoned by the call to see the "Brand New 1986 Line of Family Airplanes." No more claims that "anybody can fly" or that "anybody can afford to fly."

For the most part, the realization is that general aviation airplanes, except for the very smallest of the genre, are business machines. They are designed to provide a premium service of travel speed and versatility unmatched by other modes.

Shortly before press time, *B/C/A* editors polled marketers and sales engineers, the middle-level-management types, hoping to find exactly what's happening.

In some segments of the market—scheduled commuter and corporate commuter, for example—the sales engineers don't have enough hours in the day to meet the demands for route comparisons and evaluations. These requests portend a "good" 1986 in the utility and commuter segments. Not

only will we see continued activity in this market from European and South American manufacturers, but there will be an increased emphasis among the U.S. manufacturers for shares of this market. Look for significant improvements in the equipment from Fairchild (San Antonio) especially.

Cessna Jet is taking a bold and innovative step by getting into the remanufacturing business. The company is taking 500 series Citations in trade on later versions and is remanufacturing the 500 series airplanes to zero-time, factory-new specs. The Citation I shown in this year's fixed wing aircraft tables is a remanufactured product.

The biggest turbojets seem to be doing fine. The order books for Gulfstream III and IVs are solid, as are orders for the Falcon 900. Readers will note new performance information for the Gulfstream IV and the Falcon 900 in this issue. Big-airplane followers will also note that only one Canadair Chal-

Forecast for 1986



Embraer's Brasilia EMB-120

the year at various locations by at least two other sources: (1) Management Alternatives, P.O. Box 8119, Stamford, Ct. 06905. Phone: (203) 322-4927; and (2) Richardson Management Associates, 2162 Sherbrooke St. W., Suite 2, Montreal, Quebec H3H 1G7. Phone: (514) 935-2593.

For strictly FAR Part 135 operators, the FAA's Oklahoma City facility is sponsoring two- and three-day cabin-safety workshops once a month from April through September 1986. Each session is limited to 10 participants, is free of charge and includes physiological training. For more information contact: Mark George, FAA, AAC-119, Oklahoma City, Ok. 73125. Phone: (405) 686-4851.

Inflight emergency care workshops are being offered in Media, Pennsylvania in April, June and October. For more information, contact: Emergency & Safety Programs, 13 Northgate Village, Media, Pa. 19063. Phone: (215) 566-3680.

1986

April 10-12: Composite aviation management institute, Daytona Beach. Contact: Carole Mondlak, Embry-Riddle Aeronautical University, 266 N. Young St., Ormond Beach, Fl. 32074. (904) 673-0078.

April 14-16: Flight Safety Foundation composite aviation safety seminar, Cincinnati. Contact: FSF, 5510 Columbia Pike, Arlington, Va. 22204. (703) 820-3777.

April 15-16: Communications for aviation management, Los Angeles. Contact: University of Southern California, Los Angeles, Ca. 90089-0021. (213) 743-6523.

April 18-19: Business aircraft and avionics exhibition, Las Vegas. Contact: H.J. Greenfield, Hughes Aviation Services, P.O. Box 18428, Las Vegas, Nv. 89114-8428. (702) 739-1100.

April 21-26: Cessna Conquest and Caravan operators conference, Wichita. Contact: Cessna Aircraft, P.O. Box 1521, Wichita, Ka. 67201. (316) 685-9111.

April 23-26: Canadair Challenger operators meeting, Montreal. Contact: Canadair, P.O. Box 6087, Station A, Montreal, Quebec, Canada H3C 3G9. (514) 744-1511.

April 29-26: National Air Transportation Association annual convention, Dallas. Contact: NATA, 4226 King St., Alexandria, Va. 22302. (703) 845-9000.

April 30-May 2: Sabliner operators symposium, Fort Lauderdale. Contact: Richard Urbeck, Sabliner Corporation, 6161 Aviation Dr., St. Louis, Mo. 63134. (314) 731-2260.

May 4-6: Canadian Business Aircraft Association annual convention, Vancouver, B.C. Contact: CBAA, 275 Slater St., Ottawa, Ontario, Canada K1P 5H9. (613) 236-5611.

May 4-7: Wisconsin aviation conference, Appleton, WI. Contact: Bureau of Aeronautics, P.O. Box 7914, Madison, WI. 53707-7914. (608) 266-3351.

May 4-8: Managing composite aviation, Charlottesville, Va. Contact: Robert Fair, University of Virginia, P.O. Box 6556, Charlottesville, Va. 22906-6556. (804) 924-3000.

May 5-6: Aviation fuel farm seminar, Buffalo, N.Y. Contact: Larry Hedrick, Greater Buffalo International Airport, Buffalo, N.Y. 14225. (716) 632-3115.

May 13-16: Aviation Distributors and Manufacturers Association semi-annual meeting, Dallas. Contact: ADMA, 1900 Arch St., Philadelphia, Pa. 19103. (215) 564-3484.

May 12-17: Cabin and cockpit crew training seminar, Ann Arbor, MI. Contact: Penntastar Aviation, Willow Run Airport, Ypsilanti, MI. 48197. (313) 482-8700.

May 13-15: Shorts 330/360 operators meeting, Belfast, Northern Ireland. Contact: Short Brothers USA, 2011 Crystal Dr., Arlington, Va. 22202-3702. (703) 769-5555.

May 16-18: Aviation trade fair, Lansing, MI. Contact: Aviation Technology Dept., Lansing Community College, 3428 W. Hanger Dr., Lansing, MI. 48966. (517) 483-1406.

May 14-16: Safety and the aging pilot, Vancouver, B.C. Contact: William McArthur, International Society of Air Safety Investigators, 310-4900 Kingsway, Burnaby, British Columbia, Canada V5H 2E3. (604) 432-1644.

May 15, 17, 30, 31: Using weather radar workshops, May 15 in Trenton, N.J.; May 17 in Buffalo, N.Y.; May 30 in Wichita; and May 31 in Kansas City, Mo. Contact: Gary Worden, B/CA, 6660 NW Tower Dr., Kansas City, Mo. 64151. (816) 743-5151.

May 19-21: U.S. aerospace exhibition, Beijing, China. Contact: Crawford Brubaker, Commerce Dept., Washington, D.C. 20230. (202) 377-8228.

May 17-21: Aircraft Electronics Association annual meeting, Toronto. Contact: AEA, 15100 Avon, Independence, Mo. 64055. (816) 373-6565.

May 18-21: American Association of Airport Executives 57th annual conference and exposition, Seattle. Contact: AAAE, 4224 King St., Alexandria, Va. 22302. (703) 824-0500.

May 20-22: Cessna Citation operators meeting, Wichita. Contact: Cessna Aircraft, P.O. Box 1521, Wichita, Ka. 67201. (316) 685-9111.

June 2-3: Conference on the effects of European air regulations on aircraft demand and value, London. Contact: AVMARK, 1911 N. Fort Meyer Dr., Arlington, Va. 22209. (703) 528-5610.