MUDIFILATIONS DIRECTORY

For those of you who are interested in or have decided on a conversion or modification, we have compiled this list of mod shops to help you locate the people who can rejuvenate your airplane. To find out who does what to your model, check the cross-reference list for your airplane, then look in the directory for the company or companies listed. (You may have heard of a conversion or modification that is not listed; a number of companies did not answer our queries.)

Many facilities around the country will supply supplemental type certificates and the necessary paper work and instructions so that you can do your own work or have an airframe and powerplant mechanic do it; others will perform the modifications in their own shops.

Some conversions/modifications are completed under license from the STC holder. Robertson and Ram Aircraft have several conversion centers or dealers around the country, and Schafer Aircraft Modifications has licensed Pronto Aviation in Canonsburg, Pennsylvania, to perform the Comanchero 750 conversion. Pearce Aeronautics, Incorporated, sells only the use of the STC for the Lycoming 160-hp engine conversion for 1968 through 1976 Cessna 172s and Piper PA-28-140s and -150s and Warrior 151s. There is another category of aircraft shops that are called completion centers. These companies take "green" aircraft from the manufacturers, primarily turbine aircraft, and install interiors, avionics systems and exterior finish. Completion centers are not included in this directory.

Prices are, of course, subject to change. Installation charges usually are estimates and may vary depending on aircraft model and condition and type of equipment installed in the aircraft. Applicable taxes and freight charges are additional.

All performance figures were supplied by the companies. Figures may vary depending on aircraft model and piloting techniques.

Ľ	ROSS REF	ERET	ICE
AERO CON	MMANDER		Horton STOLcraft
Jet Commander 1121 Jetwind, Inc.			Isham AirCraft, Inc.
AY	RES		Met-Co-Aire Aircraft Modifications
S2R	Marsh Aviation Co.		Ram Aircraft Modifications, Inc.
BEI	ECH		Robertson Aircraft Corp.
Model 33 Bonanza	Machen, Inc.	Model 175	Avcon Industries, Inc.
	Smith Speed Conversions, Inc.		Bush Conversions
Model T34A and B	Marsh Aviation Co.		Flint Aero
Model 35 Bonanza	Machen, Inc.		Horton STOLcraft
	Met-Co-Aire Aircraft Modifications		Met-Co-Aire Aircraft Modifications
	Robertson Aircraft Corp.	Model 177	Bush Conversions
	Smith Speed Conversions, Inc.		Horton STOLcraft
Model 36 Bonanza	Machen, Inc.		Met-Co-Aire Aircraft Modifications
	Smith Speed Conversions, Inc.		Precise Flight, Inc.
Model 55 Barons	Colemill Enterprises	Model 180	Bush Conversions
Model 99	Aviadesign, Inc.		Flint Aero
0	lexas Aero		Horton STOLcraft
Queen Air	Aviadesign, Inc.		Met-Co-Aire Aircraft Modifications
V: A	Excalibur Aviation		Robertson Aircraft Corp.
King Air	Aviadesign, Inc.	Model 182	Bush Conversions
	Frakes Aviation, Inc.		Flight Bonus, Inc.
Iexas Aero			Flint Aero
Model 140A	Mat Co Airo Airgraft Madifications		Horton STOLcraft
Model 150/152	Aucon Industries Inc.		Met-Co-Aire Aircraft Modifications
Widdel 150/152	Ameromod Corp	Model 19E	Robertson Aircraft Corp.
	Bush Conversions	Model 185	Bush Conversions
	Custom Aircraft Conversions Inc		Fiint Aero
	Elint Aero		Mot Co Airo Airoraft Modifications
	Horton STOL craft		Robertson Aircraft Corn
	Met-Co-Aire Aircraft Modifications		Soloy Conversions Inc.
	Robertson Aircraft Corp	Model 188	Horton STOL croft
Model 170	Avcon Industries Inc	Widdel 188	Robertson Aircraft Corn
model 170	Bush Conversions	Model 205	Horton STOL craft
	Flint Aero	Widdel 200	Robertson Aircraft Corp
	Horton STOL craft	Model 206	Bush Conversions
	Met-Co-Aire Aircraft Modifications	MODEL 200	Flint Aaro
Model 172	Avcon Industries. Inc.		Horton STOL craft
	Bush Conversions		Ram Aircraft Modifications Inc.
	Flint Aero		Robertson Aircraft Corp
	•		continued

	CROSS REFERENCES continued			
	CROSS REFERENCES Commune		DeHAV	ILLAND
		Soloy Conversions, Inc.	DHC-2	Electroaire, Inc.
	Cessna Model 207	Bush Conversions		Frakes Aviation, Inc.
		Ram Aircraft Modifications, Inc.	GRUN	IMAN
		Robertson Aircraft Corp.	AA-1	Ameromod Corp.
		Soloy Conversions, Inc.	AA-5	Ameromod Corp.
	Model 210	Bush Conversions	AgCat	Frakes Aviation, Inc.
		Flint Aero	Mallard	Frakes Aviation, Inc.
		Horton STOLcraft	TR-2	Ameromod Corp.
1		Met-Co-Aire Aircraft Modifications	Widgeon	Frakes Aviation, Inc.
		Precise Flight, Inc.	GULFS	TREAM
		Ram Aircraft Modifications, Inc.	G-164	Marsh Aviation
		Riley Aircraft Corp.	MOO	DNEY
		Robertson Aircraft Corp.	M-20	Miller Air Sports, Inc.
	Model 310	Air America, Inc.		Summa Sales, Inc.
		Colemill Enterprises	NORD A	VIATION
		Ram Aircraft Modifications, Inc.	262A	Frakes Aviation, Inc.
		Robertson Aircraft Corp.	NORTH AMERIC	CAN ROCKWELL
	Model 318	Air America, Inc.	Aero Commander 500, 600	I.W. Miller Aviation, Inc.
	Model 320	Air America Inc	PI	PFR
	Woder 520	Precise Flight Inc	PA-18	Univair Aircraft Corp
		Ram Aircraft Modifications Inc	PA-22	Univair Aircraft Corp
	Model 335	Air America Inc	PA-23	Met-Co-Aire Aircraft Modifications
	Model 336	Air America Inc.	111-40	I W Miller Aviation Inc
	Wodel 550	Bush Conversions		Robertson Aircraft Corp
		Horton STOL craft		Seguin Aviation Inc
	Model 327	Air America Inc	PA-24	Knots 2 II Inc
	Model 337	Buch Conversions	17-24	Met-Co-Aire Aircraft Modifications
		Horton STOL craft		Robertson Aircraft Corp
		Pohertson Aircraft Corn	DA 28	Aucon Industries Inc.
	Madal 240	Air America Inc.	174-20	Bush Conversions
	Model 540	Air America, Inc.		Horton STOL craft
		Rain Aircraft Corp		Joham AirCraft Inc
		Riley Aircraft Corp.		Knote 2 II. Inc.
		Air America Inc.		Mot Co Aire Aircreft Modifications
	Model 401	Air America, Inc.		Ren Aircraft Modifications
	No. 1-1.402	Air America Inc.	PA 20	Kam Aircraft Modifications, Inc.
	Model 402	Air America, Inc.	PA-30	Knots 2 U, Inc.
		Robertson Aircraft Corp.		Met-Co-Aire Aircraft Modifications
	Model 404	Air America, Inc.		J.W. Miller Aviation, Inc.
		Riley Aircraft Corp.	D1 01	Robertson Aircraft Corp.
		Schafer Aircraft Modifications, Inc.	PA-31	Colemill Enterprises
	Model 414	Air America, Inc.	D: 00	Schater Aircraft Modifications, Inc.
		Ram Aircraft Modifications, Inc.	PA-32	Bush Conversions
		Robertson Aircraft Corp.		Robertson Aircraft Corp.
	Model 421	Riley Aircraft Corp.	PA-34	Robertson Aircraft Corp.
		Robertson Aircraft Corp.	PA-39	Knots 2 U, Inc.
	Citation 500	Robertson Aircraft Corp.		Robertson Aircraft Corp.
	Citation I, I/SP	Robertson Aircraft Corp.	PA-60	Machen, Inc.

DIRECTURY

COMPILED BY JANE TRAMMELL

Air America, Inc. – The Turbocruiser modification to the Cessna 310 through 414 series of aircraft uses 350-hp Lycoming engines, four-blade propellers, enlarged turbochargers and intercoolers, which produce increased rates of climb and higher cruise speeds on reduced fuel consumptions. Price: \$139,000.

Air America also has STCs for the installation of 310-hp Continental engines in Cessna 310 and 320 aircraft. Price: \$28,000 to \$62,000 depending on the condition of the exchanged engine.

Also available from Air America are additional fuel tanks for all Cessna twins except the 337. Kit price per unit: \$2,350 to \$4,900. 54 • AUGUST 1982 Ameromod Corp. – For the Grumman AA-, 1A, B and C and the TR-2, Ameromod offers 125-hp, 150-hp, 160-hp and 180-hp Lycoming engine changes as well as lowercowling cleanup, landing gear modification, addition of a dorsal fin and a larger tail and a 10- or 20-gallon auxiliary fuel system. For the AA-5, A and B, the company offers a 160-hp or 180-hp Lycoming engine change. Also for the AA-5B a Sensenich propeller can be substituted for the McCauley propeller for improved performance and removal of the rpm restriction.

The supplemental type certificate by itself is available for all modifications except the lower cowling and auxiliary fuel systems. Price: STC, up to \$450; modifications, \$5,000 to \$12,000 (depending on the options desired and the engine choice); propeller only for AA-5A, \$1,180.

Also available is an engine conversion for the Cessna 152 upgrading the 115-hp O-235-L2C engine to 125 hp. The Sensenich propeller conversion is available for the 152, as well as a lower-cowling cleanup. Price: \$3,000 to \$4,000; prop only, \$1,000.

Avcon Industries, Inc. – Engine conversions are provided for Cessna and Piper single-engine aircraft.

A Cessna 150 may be converted with a 150- or a 160-hp Lycoming O-320 engine, continued p. 67



which adds 65 pounds to the empty weight. Takeoff distance over a 50-foot obstacle is 400 feet; landing distance is 350 feet. Rate of climb is 1,100 fpm. Service ceiling is 20,600 feet. Prices: kit, \$3,450; engine, \$8,400; propeller, \$825; installation, \$1,300.

Cessna 170, 172 and 175 models may be converted with a 180-hp Lycoming O-360-A1A and a Hartzell constant-speed prop. The conversion adds 40 to 60 pounds to the empty weight. Cruise speed at 75-percent power is 130 knots on 10.6 gph. Takeoff distance over a 50-foot obstacle is 400 feet; landing distance is 500 feet. Rate of climb is 1,100 fpm. Service ceiling is 19,500 feet. Stall speed in landing configuration is 42 knots. Prices: 170 kit, \$3,695; 172 kit, from \$2,025 to \$3,595; 175 (1960 models and later) kit, \$4,500; engine, \$9,000; prop and governor, \$1,650; installation, from \$925 to \$1,250.

Piper PA-28-140, -150, -160 and -151 models may be converted with Lycoming O-360-A1A engines and Hartzell constant-speed props. This modification adds approximately 40 pounds to the empty weight. Cruise at 75-percent power is 130 knots on 10.6 gph. Takeoff distance over a 50-foot obstacle is 550 feet. Rate of climb is 950 fpm. Service ceiling is 17,700 feet. Prices: kit, \$2,325 (except for the -151, which is \$1,650); engine, \$9,000, prop and governor, \$1,650; installation, \$900 to \$1,000.

Aviadesign, Inc. – This modification to all Beech King Airs, Model 99s and some Queen Airs uses the Saunders fail-safe wing spar (a secondary spar) and Aviadesign's hydraulic landing-gear system. This modification increases wing strength and life and gear reliability. Price: \$18,000 to \$29,000 per modification.

Bush Conversions – Engine conversions and STOL kits are offered for Cessna and Piper aircraft.

The Cessna 150 conversion is with a 150or 160-hp Lycoming O-320 engine, which adds approximately 65 pounds to the empty weight. Cruise at 75-percent power is 126 knots on 10 gph. Takeoff distance over a 50foot obstacle is 400 feet; landing distance is 350 feet. Rate of climb is 1,100 fpm. Service ceiling is 20,600 feet. Prices: kit, \$2,650; engine, \$7,550; prop, \$825.

Bush also has a tailwheel conversion for the Cessna 150 with leaf main gear. Prices: kit, \$2,395; installation, \$3,700.

Cessna 170, 172, 175 and 177 conversions include a Lycoming O-360-A1A and a Hartzell constant-speed propeller. The conversion adds 20 to 40 pounds to the empty weight. The aircraft can cruise at 130 knots consuming 10.6 gph. Takeoff distance over a 50-foot obstacle is 400 feet; landing distance is 500 feet. Rate of climb is 1,100 fpm. Service ceiling is 19,500 feet. Prices: kit, \$1,100 to \$2,650; engine, \$8,875; prop and governor, \$1,650 (177 conversions may use fixed-pitch props).

STOL kits for Cessna 150, 170, 172, 175,

177, 177A, 180, 182, 185, 206, 207, 210, 336, 337 models and for Piper PA-28-140, -150, -160, -180, PA-32-260 and -300 models add 16 pounds to the empty weights. Takeoff and landing distances decrease. Stall speeds with gear and flaps down decrease 8.5 to nine knots. Prices: Cessna single-engine kit, \$675; installed \$1,050. Cessna 336 and 337 kit, \$895; installed, \$1,245. Piper kit, \$895; installed, \$1,245.

Bush Conversions now owns STCs for Doyne Engine Conversions, Martin STOL, Mid-America STOL Aircraft Company and Owl STOL. It also provides replacement parts for these modifications.

Colemill Enterprises – Engine conversions for Beech Barons (through the B55 models) Cessna 310s and Piper Navajos and Navajo C/Rs are available.

The President 600 engine change increases the horsepower to 300 for the Beech Baron models and uses three-blade propellers. Single-engine service ceiling is increased by 4,000 feet and cruise speed increases by 17 knots. Price: \$34,500.

The Executive 600 engine for the Cessna 310 increases horsepower to 300 and incorporates three-blade propellers. Noise level is reduced, and climb and cruise performance are increased. Price: \$34,500.

The Century 600 modification is for the Cessna 340 and is the same as the Executive 600. Price: \$36,500.

The Panther Navajo engine change increases horsepower to 350 for both models. The current propeller is changed with a four-blade Q-tip. Also included are wing-tip landing lights, high-altitude fuel pumps, heavy-duty brakes and a Hoskins fuel-management system. Price: \$79,500.

The Panther II modification to both Navajo models uses the 350-hp Lycoming TIO-540 with Hartzell four-blade props and has been designed to meet the Chieftain's performance characteristics. Price: \$78,000.

Custom Aircraft Conversions, Inc. – The Texas Taildragger is a conversion of the Cessna 150 and 152 from tricycle gear to conventional gear. Installation time, 60 to 80 hours. Kit price: \$1,950 for leaf main gear; \$1,995 for tube main gear. I

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Electroaire, Inc. – In converting the military version of the deHavilland DHC-2 to a civil version on floats, Electroaire enlarges the baggage compartment, refurbishes the interior, updates the avionics and installs appropriate antennas and a Hartzell propeller. Various STCs from Kenmore Air Harbor are used, as well as field approvals when needed. Price: \$70,000, includes a new threecolor urethane paint scheme.

Excalibur Aviation Co. – An engine conversion, to a Lycoming IO-720-A1B, is offered for the Beech Queen Air. The conversion includes new props, accessories, engine

A RELYCLE GUIDE

mounts, exhaust systems, induction systems, full-closure landing-gear doors and modified instrument subpanel overlay.

The Queenaire 800 modifies Models 65, A65, 70 and 80. For the Queen Air 65s and A65s, the gross weight is increased 300 pounds. The 800 cruises at 200 knots on 42 gph at 75-percent power, 190 knots on 37 gph at 65-percent power and 185 knots on 33 gph at 55-percent power. Takeoff distance over a 50-foot obstacle is 1,660 feet, landing distance is 1,500 feet. Rate of climb is 1,535 fpm. Service ceiling is 22,200 feet. Stall speed with gear and flaps down is 68 knots. Price: \$113,250.

The Queenaire 8800 modifies the Beech Queen Air A80 and B80. The 8800 cruises at 200 knots on 42 gph at 75-percent power, 195 knots on 37 gph at 65-percent power and 187 knots on 33 gph at 55-percent power. Takeoff distance over a 50-foot obstacle is 2,485 feet, landing distance is 1,920 feet. Rate of climb is 1,490 fpm. Service ceiling is 20,000 feet. Stall speed with gear and flaps down is 70 knots. Price: \$109,255.

Flight Bonus, Inc. – Aerodynamic cleanups, primarily streamlined gear, are offered for Cessna 182s. The Skylane SG modifications are broken into six kits; five of the kits are used on the 1967 through 1971 Skylanes for a maximum speed increase of 17.6 knots. Only the flap-well and aileron gap seal kit, which provides the least speed increase of 1.3 knots, is available for 1956 through 1961 Skylane models.

The six kits are: C182-1, which streamlines the nose gear for 1972 through 1980 models, increases speed six knots and costs \$1,450; C182-2, which streamlines the nose gear for 1967 through 1971 models, increases speed six knots and costs \$1,190; C182-50, which streamlines the main gear for 1962 through 1971 models, increases speed 6.5 knots and costs \$1,125; C182-61, which is a low-drag wing strut fairing kit, increases speed 1.7 knots and costs \$275; C182-70, which adds cowling and propeller spinner closures for 1965 through 1980 models, increases speed 2.16 knots and costs \$210; C182-80, which is the flap-well and aileron-gap seal kit for all Cessna 182 models, increases speed 1.3 knots and costs \$195.

Prices for all kits applicable by model: 1956 through 1961 models, \$195; 1962 through 1964 models, \$1,595; 1965 and 1966 models, \$1,805; 1967 through 1971 models, \$2,995; 1972 through 1980 models, \$2,130.

Flint Aero – Tip tanks are available for the Cessna 206F and G. They hold 30 gallons total additional fuel. Kit price: \$3,425. For the 210, the tip tanks hold 33 gallons total fuel. Kit price: \$3,750. Internal 24-gallon tanks available for the Cessna 150D through M, 170A and B, 172P, R172E through K, 172 RG, 175C, 210 and 210A, 180 through K, 182 through R, R182, TR 182, 185E, A185E and A185F. Kit price: \$2,050.

Frakes Aviation, Inc. – Modifications are offered on the Grumman Mallard, Widgeon and AgCat, Beech King Air A90 and B90, deHavilland Beaver DHC-2 and Nord Aviation 262A.

The Turbo Mallard modification replaces the G-73's piston engines with P&W PT6A-34 turboprops. Other modifications to the Mallard include long-range fuel tanks and air-conditioning. Base price: \$585,000.

A 17-seat, high-density commuter interior is available for the Mallard. Price: \$50,000 to \$70,000.

The Widgeon modification replaces the engines in the G-44 and G-44A with PT6A-20s. Single-engine conversion base price: \$90,000. Twin-engine conversion base price: \$160,000.

The AgCat G-164A, B and C modification is with PT6A-34 engines. Base price: \$185,000.

Frakes also offers the PT6A-27 or -28 turboprop engines on the King Air A90 and B90. With this conversion, full torque can be used at high altitudes and high temperatures. Base price: \$285,000.

The deHavilland Beaver on amphibious floats also can be retrofitted with the PT6A-34 turboprop engines for use of full torque at high altitudes and high temperatures. Base price: \$181,750.

The engines in Nord Aviation 262As can be replaced with PT6A-45s. Base price: \$800,000.

Frakes Aviation holds the type certificates for the Mallard, Goose and Widgeon and can supply parts for those aircraft.

Horton STOLcraft – The company's STOL modifications to most single-engine Cessnas and the 336 and 337 include a new wing leading-edge cuff, landing light lens and retainer, stall fences on top of the wing, fiber-glass drooped wing tips and aileron gap seals. There are some variations in the kit, depending on the model being modified. The STOL modification also is available for Piper Cherokee PA-28s and PA-28Rs. Kit price: Cessnas, \$349; Pipers, \$495; installed, \$949 (three days downtime).

Isham AirCraft—The engines for Cessna 172s can be rerated; STOL kits for Piper PA-28-140, -150, -160, -180R and -200R models are offered as well as third-window kits for Piper Models PA-28-140 through -235.

In the Super Hawk XP, the 195-hp Continental engine is rerated to 210 hp. Takeoff distance over a 50-foot obstacle is 990 feet, rate of climb is 1,150 fpm. Price: \$695 with an exchange; installation, \$250 to \$300.

Piper PA-28-140, -150 and -160 models are modified with wingspan extensions, Hoerner-design wing tips, stabilator extensions and dorsal fins. The modifications add 21 pounds to the empty weights and increase speeds 0.8 to 1.7 knots. Takeoff distance over a 50-foot obstacle is 1,547 feet. Rate of climb is 810 fpm. Stall speed in landing configuration is 47.5 knots. Wingspan increases 2.2 feet; wing area increases to 169 square feet. Price (without installation): STOL kit, \$1,295; dorsal fin kit, \$150.

Piper PA-28-180 modifications are the same as those listed above for the -140. Speeds increase 0.8 to 2.6 knots. Takeoff distance over a 50-foot obstacle is 1,477 feet; rate of climb is 900 fpm. Stall speed in landing configuration is 49.5 knots. Wingspan increases 2.2 feet; wing area increases to 169 square feet. Price (without installation): STOL kit, \$1,295; dorsal fin kit, \$150.

Piper PA-28-180R and -200R modifications use the wingspan extensions, Hoerner-design wing tips and dorsal fins. The modifications add 14.5 pounds to the empty weights and increases speeds 1.7 to 2.6 knots. Takeoff distance over a 50-foot obstacle is 1,565 feet; rate of climb is 990 fpm. Stall speed with gear and flaps down is 55 knots. Wingspan increases 2.2 feet; wing area increases to 169 square feet. Price (without installation): STOL kit, \$995; dorsal fin kit, \$150.

The addition of a third window to any PA-28-140 through -235 models adds two pounds to the empty weight with no change in performance—for aesthetic improvement only. Price: \$195, plus installation.

Jetwind, Inc.—An update of the Jet Commander 1121, the Jetwind B modification includes new wheels, brakes and main tires, a new antiskid system, 165-gallon increase in fuel capacity and zero-time since overhaul engines. Gross weight increases 1,000 pounds, and 340 pounds are added to zerofuel weight. A 100-pound increase in thrust is realized, as well as a higher service ceiling of 45,000 feet. The modification adds 50 pounds to the empty weight.

The Jetwind B will cruise at 400 knots on 235 gph at long-range cruise settings and 440 knots on 295 gph at high-speed cruise settings. Takeoff distance over a 50-foot obstacle is 5,450 feet, landing distance is 3,400 feet. Rate of climb is 4,040 fpm. Stall speed with gear and flaps down is 88 knots. Price: \$600,000 to \$800,000.

Knots 2 U, Inc.—Aileron, flap and stabilator gap seals are used on Piper PA-28 models for a speed increase of 5.5 to seven knots with a one to two gallon per hour fuel savings. Empty weight is increased 3.5 pounds. Stall speed is reduced two knots. Price: \$850 to \$1,250.

Modifications to the Piper PA-24, PA-30 and PA-39 series include aileron, flap, stabilator and rudder gap seals, wing-root fairings and a dorsal fin with integrated antennas. Empty weight is increased 1.5 to 8.5 pounds. Cruise speeds are increased seven to 8.5 knots, and fuel consumption is decreased one to two gallons per hour. Stall speed with gear and flaps down is reduced by two knots. Price: \$1,395 to \$3,595.

Machen, Inc .- An engine change is pro-

vided for Beech Bonanza Models F33, S35, V35, V35A, V35B, 36, A36 and A36TC, and the current engine on Piper Aerostar 600, 601, 601P and 602P models can be upgraded or changed.

The Turbo 350 Bonanza uses the Lycoming TIO-540-J2BD (MB) engine rated at 350 hp. The empty weight is increased by 100 pounds. The Turbo 350 cruises at 223 knots on 22 gph at 75-percent power, 209 knots on 17 gph at 65-percent power, 193 knots on 14 gph at 55-percent power. Takeoff distance over a 50-foot obstacle is 20percent less than the unmodified Bonanzas. Rate of climb is 1,750 fpm; service ceiling is 25,000 feet. The modification also provides a three-dBa reduction in noise. Price: \$53,000.

The 650 Aerostar primarily is a top overhaul, upgrading the engines to 325 hp each. The empty weight is increased 10 pounds. Cruise at 75-percent power is 245 knots on 36 gph; at 65-percent power, it is 235 knots on 32 gph; and at 55-percent power, it is 225 knots on 30 gph. Takeoff distance over a 50foot obstacle is 1,850 feet. Rate of climb is 2,000 fpm; service ceiling is 25,000 feet. Single-engine rate of climb is increased 150 fpm. There is also a three-dBa reduction in noise for the Aerostar 601 and 601P models. Price: \$45,000.

The Superstar replaces the engines in the Aerostar 600, 601, 601P and 602P with Lycoming TIO-540-J2BD(MA) engines. The control surfaces are relocated for minimum drag. Soundproofing is added to the fuselage. Empty weight is increased by 75 pounds. The Superstar cruises at 273 knots on 42 gph at 75-percent power. It cruises at 258 knots on 37 gph at 65-percent power and 236 knots on 30 gph at 55-percent power. Takeoff distance over a 50-foot obstacle is 1,775 feet. Rate of climb is 2,342 fpm, service ceiling is 25,000 feet. The engine is designed for high-altitude cruise with an induction-air intercooler and is not susceptible to detonation in cruise at any altitude. Also, there is a six-dBa noise reduction for the 601P. Price: \$200,000.

Marsh Aviation Co.—Engine changes are provided for the Ayres S2R, Beech T34A and T34B and the Gulfstream G-164

The Marsh Turbo Thrush modification changes the engine to a Garrett TPE331-1-101-Z turboprop, with Hartzell full-feathering, reversible propeller. The fuel and electrical systems are modified as necessary. There is extensive modification from the firewall forward, and the airframe is strengthened as necessary. Gross weight is increased to 9,200 pounds, empty weight is decreased by 600 pounds. The Turbo Thrush modification enables the airplane to cruise at 127 knots on 27 gph at long-range cruise settings and 138 knots on 41 gph at highspeed cruise settings. Takeoff distance over a 50-foot obstacle is 491 feet; landing distance is 430 feet. Rate of climb is 3,000 fpm; service ceiling is 25,000 feet. Stall speed in landing

configuration is 37 knots. Price: \$165,000.

The Marsh Turbo T34 modification replaces the engine with the Garrett TPE331-1-101 turboprop and includes a Hartzell fullfeathering, reversible propeller. The fuselage is strengthened as necessary, the nose is extended seven inches. The fuel and electrical systems are modified as necessary. Gross weight is increased 400 pounds and empty weight is up 100 pounds. The Turbo T34 cruises at 170 knots on 26 gph at longrange cruise settings and 234 knots on 42 gph at high-speed cruise settings. Takeoff over a 50-foot obstacle is 491 feet; landing distance is 482 feet. Rate of climb is 2,700 fpm; service ceiling is 25,000 feet. Stall speed in landing configuration is 47 knots. Price: \$175,000.

The Marsh Turbo Cat uses the Garrett TPE331-1-101-Z turboprop engine and a Hartzell full-feathering, reversible prop. There is extensive modification from the firewall forward, with airframe strengthening as necessary. The fuel and electrical systems are modified as necessary. The Turbo Cat gross weight is increased to 9,000 pounds with a 600-pound reduction in the empty weight. Long-range cruise is 105 knots on 26 gph and high-speed cruise is 121 knots on 46 gph. Takeoff distance over a 50-foot obstacle is 518 feet, landing distance is 455 feet. Rate of climb is 3,000 fpm, service ceiling is 25,000 feet. Stall speed in landing configuration is 57 knots. Price: \$165,000.

Met-Co-Aire Aircraft Modifications — Hoerner-design, high-performance wing tips are offered for single-engine Cessnas, Piper Models PA-23 Aztecs and Apaches, PA-24, PA-28 and PA-30 and Beech Bonanza 35s, and wing-tip fuel tanks are offered for Piper Aztecs and Apaches.

The wing-tip modification increases the rate of climb 60 fpm. Stall is reduced 4.3 knots, and cruise speed is increased about five knots. Price: \$120 for the single-engine airplanes; \$425 for Apaches and Aztecs.

The wing-tip fuel tanks for the PA-23 Aztec and Apache add 25 pounds to the empty weight. The tip tanks offer the same advantages as the wing-tip modification above, as well as holding a total of 48 gallons additional fuel. Price. \$1,850.

Miller Air Sports, Inc.—A large spinner, fiberglass cowling and new engine baffles are available for the Mooney M-20E. Price: \$3,850, installed.

A quarter-inch thick, one-piece windshield, as on a 201, is available for the Mooney M-20 through M-20E models. Price: \$950, installed.

J.W. Miller Aviation, Inc.—The Piper PA-23 Aztec is modified with an extended nose, square wings, wet nacelles and a dorsal fin for a small increase in speed. Aesthetic appearance is improved and adverse yaw is 70 • AUGUST 1982 reduced. Price \$24,000 for complete modification, but they are available separately.

The modification to the North American Rockwell Aero Commander 500 and 600 series aircraft is a streamlined radar nosecone. Aesthetic appearance is improved, and the changes allow better radar antenna installation. Price: \$7,000.

Miller also has many modifications for the Twin Comanche. Some are available in kits and some must be installed at Miller. These modifications include: extending the nose with a baggage locker-kit price, \$2,870; new nacelle with baggage locker-kit price, \$3.050; dual brakes-kit price, \$595; onepiece windshield-kit price, \$410 to \$492; and square wings-kit price, \$480. The change to 200-hp engines must be done at Miller. Price: \$41,500 for normally aspirated, \$45,100 for turbocharged. Integral fuel tanks, which add about two hours worth of fuel, are available as well. Price, installed at Miller: \$7,875. Aesthetic appearance is improved, and speed and range are increased if all the modifications are used.

Precise Flight, Inc.—A descent-rate control is offered for Cessna 177 and 210 series aircraft. It uses throttle valve-actuated wing spoiler/speed brakes for better economy and to help the pilot make more accurate glideslope approaches and landings. Kit price: \$6,545 for Cessna 177 models; \$6,995 for 210 models. Installation is about \$1,700.

Ram Aircraft Modifications, Inc.—Engine changes are available for Piper Cherokee PA-28-140s and Warrior PA-28-151s, and Cessna Models 172, T206, T207, T210, T310, T320, 340, 340A, 414 and 414A.

The RAM 160-161 updates the Cherokee 140 and Warrior 151 with a 160-hp Lycoming O-320-D3G engine. Cruise at 65-percent power is increased by 8.7 knots, and fuel consumption is reduced by 0.2 gph. Rate of climb is approximately 700 fpm. This engine has a 2,000-hour TBO warranty. Price: \$7,750, installed.

The RAM Series 172 updates the Cessna 172D through N series with the 160-hp Lycoming O-320-D2G engine. Cruise is 122 knots on eight gallons per hour at 75-percent power. Rate of climb is 775 fpm. A 2,000-hour TBO warranty is included. Price, installed: 172D through H, \$12,650; 172I through M, \$7,450; 172N, \$8,250.

RAM Series T206 updates the Cessna T206 (1966 through 1976 models) with the 310-hp Continental TSIO-520-M engine. Performance is equivalent to that of 1977 and later models. Hartzell Q-tip propellers are available as an option. RAM also offers a firewall-forward remanufactured engine for 1977 and later T206s. Both modifications have a TBO warranty. Price: \$16,200, installed.

RAM has a firewall-forward remanufactured engine for 1977 and later T207s. The Continental TSIO-520 is remanufactured, and the package also includes "Sure Stand Baffles," Alcor direct-reading exhaust gas temperature system (which reads absolute temperature), soundproofing, Hoskins fuelflow system and a TBO warranty. Price: \$16,600, installed.

RAM Series T210 updates the Cessna T210 (1966 through 1976 models) with the 310-hp Continental TSIO-520-R engine. Performance is equivalent to that of 1977 and later models. Hartzell Q-tip props are available as an option. A firewall-forward remanufactured engine also is available for 1977 and later T210s. Both modifications have a TBO warranty. Price: \$16,200, installed.

RAM Series T310-320 updates the Cessna T310 and T320 (1966 models and later) with the 300-hp Continental TSIO-520-E engine. Cruise is 231 knots at 75-percent power, 205 knots at 55-percent. Rate of climb is 2,150 fpm, service ceiling is 29,500 feet. Singleengine ROC is 485 fpm, and single-engine service ceiling is 19,500 feet. The modification includes RAM Sure Stand Baffles, Hoskins CFS-2000 computerized fuel system, updated exhaust system with slip-joint configuration, Alcor direct-reading EGT and a TBO warranty. Price: \$35,300, installed.

RAM Series Super T310-320 also updates the Cessna T310 and T320 with the 310-hp Continental TSIO-520-N engine. Cruise at 75-percent power is 253 knots; at 55-percent power, 225 knots. Rate of climb is 2,600 fpm, service ceiling is 34,500 feet. Single-engine ROC is 550 fpm, and single-engine service ceiling is 22,500 feet. The modification includes Alcor direct-reading EGT, updated props to 414A configuration, pressurized magnetos, updated exhaust system with slipjoint configuration and a TBO warranty. Price: \$64,500, installed.

The RAM 340 updates the Cessna 340 and 340A (1972 through 1982 models) with the 310-hp Continental TSIO-520-N/NB. This modification updates the 1972 through 1982 Model 340s' performance to that of the 340A. It includes RAM Sure Stand Baffles, Alcor direct-reading EGT, updated exhaust system, Hoskins CFS-2000 fuel-flow system, pressurized magnetos and a TBO warranty. Hartzell Q-tip propellers are available. Price: TSIO-520-K through -M, \$47,000; TSIO-520-J, -N, -NB through -N/NB, \$37,600.

The RAM Super 340 replaces the engines in the Cessna 1972 through 1982 Model 340 and 340A series with the 325-hp Continental TSIO-520-NBR engine. Cruise is 263 knots at 75-percent power, 220 knots at 55-percent power. Rate of climb is 2,000 fpm. The package includes RAM Sure Stand Baffles, Alcor direct-reading EGT, updated exhaust system, Hoskins CFS-2000 fuel-flow system, pressurized magnetos, heavy-duty crankcase, crankshaft and pistons, modified cylinders, Hartzell Q-tip props, Woodward Type II Synchrophase system and a TBO warranty. Price: S56,500, installed.

The RAM 414 updates the Cessna 414 (1970 through 1979 models) with the 310-hp Continental TSIO-520-N engine. Perfor-

mance is updated to 1976 and 1977 Model 414 specifications. Included are: props, governors, RAM Sure Stand Baffles, Alcor direct-reading EGT, updated exhaust system, Hoskins CFS-2000 fuel-flow system, pressurized magnetos and a TBO warranty. Price: \$37,600, installed.

The RAM Super 414 replaces the engine in the Cessna 414 (1970 through 1977 models) with the 325-hp Continental TSIO-520-NBR engine. Cruise is 260 knots at 75percent power, 215 knots at 55-percent power. Rate of climb is 1,850 fpm. The package includes RAM Sure Stand Baffles, Alcor direct-reading EGT, updated exhaust system, Hoskins CFS-2000 fuel-flow system, pressurized magnetos, heavy-duty crankcase, crankshaft and pistons, modified cylinders, Hartzell Q-tip props, Woodward Type II Synchrophase system and a TBO warranty. Price: \$56,500, installed.

The RAM Super 414A replaces the engine in 1978 through 1982 Cessna 414As with the 325-hp Continental TSIO-520-NBR. Cruise is 258 knots at 75-percent power, 224 knots at 55-percent. Rate of climb is 1,850 fpm. The package includes RAM Sure Stand Baffles, direct-reading Alcor EGT, updated exhaust system, a Hoskins CFS-2000 fuel-flow system, pressurized magnetos, heavy-duty crankcase, crankshaft and pistons, modified cylinders, Hartzell Q-tip propellers. Woodward Type II Synchro-phase system and a TBO warranty. Price: \$56,500, installed.

Riley Aircraft Manufacturing Co.—The Riley Turbine P210 replaces the piston engine in the Cessna P210 series with a Pratt & Whitney PT6A-112 turboprop and includes a Hartzell Q-tip propeller. Rate of climb is increased to 3,000 fpm and cruise speed above 20,000 feet is 260 knots. Price: \$250,000.

The Riley Turbine 404 replaces the piston engines in the Cessna 404 Titan with 750shp P&W PT6A-34 turboprop engines, resulting in a 3,280 fpm rate of climb and a cruise speed at 27,000 feet of 290 knots. Price: \$500,000.

The Riley Turbine Rocket 421 replaces the piston engines in the Cessna 421 series with Avco Lycoming LTP 101-A1A turboprop engines, installs new nacelles and three-blade Q-tip props, resulting in a 3,000-fpm climb rate. Price: \$485,000.

The Riley Turbine Eagle 421 replaces piston engines in the Cessna 421C with P&W PT6A-135 turboprop engines. Rate of climb is 4,500 fpm, takeoff and landing distances are reduced, cruise speed is 310 knots, service ceiling and single-engine service ceiling are increased. Price: \$515,000.

Riley also offers a conversion for the Cessna 340, changing the 285-hp engines to 310-hp Continental TSIO-520-J engines. This change results in a cruise of 238 knots on 34 gph of fuel. Rate of climb increases to 1,800 fpm, single-engine rate of climb is 350 fpm. Single-engine service ceiling is 16,000 feet.

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A RECYCLE GUIDE

Price: \$9,850 for conversion of existing aircraft engine.

Robertson Aircraft Corp.—STOL systems are offered for Beech V35A and V35B Bonanzas, most Cessnas and Piper PA-24-180, -250, -260, PA-23-250 Aztec, PA-30 and -39 Twin Comanche, PA-34 Seneca I and II and PA-32 models; a wing modification is offered for the Cessna Citation.

The Robertson Hi-Lift System for the Beech V35A and V35B Bonanzas uses fullspan Fowler flaps, stall strips and spoilers. The empty weight is increased by 20 pounds. Takeoff distance over a 50-foot obstacle is 1,377 feet, landing distance is 914 feet. Stall speed with gear and flaps down is 70 knots. Price: \$14,500, installed.

The Robertson Hi-Lift System for the Cessna 100 series aircraft almost without exception includes: a re-contoured wing leading edge, conical-cambered wing tips, stall fences, drooped ailerons and gap seals. The exceptions are noted with each model.

The 150 modification applies to 1964 through 1974 models. The empty weight is 990 pounds. Stall speed is 26 knots, and maximum cruise speed is 105 knots. Price: \$7,500, installed.

Not all 172 modifications receive the recontoured leading edge, just through the L model. Empty weight is increased 13 pounds. Takeoff distance over a 50-foot obstacle is 900 feet, landing distance is 995 feet. Stall speed with flaps down is 46 knots. Price, installed: pre-1973 models, \$7,500; later models, \$6,200.

The early Cessna 180s (through the H model) receive re-contoured wing leading edges. Empty weight on all models is increased by 13 pounds. Takeoff distance over a 50-foot obstacle is 710 feet, landing distance is 688 feet. Stall speed with flaps down is 56 knots. Price, installed: pre-1973 models, \$7,500; all other models, \$6,200.

The Robertson Hi-Lift System for the Cessna 182, which includes the turbocharged, the retractable-gear and the turbo-RG models, re-contours the leading edge of the wing through the N model, and includes an automatic elevator trim control. Empty weight is increased by 13 pounds. Takeoff distance over a 50-foot obstacle is 915 feet, landing distance is 777 feet. Stall speed with flaps down is 47 knots. Price, installed: pre-1972 models, \$7,500; all other models, \$6,200.

The Robertson Hi-Lift System for the Cessna 185 re-contours the wing leading edge through the A185E models. The empty weight is increased by 13 pounds. Takeoff distance over a 50-foot obstacle is 763 feet, landing distance is 755 feet. Stall speed with flaps down is 58 knots. Price, installed: pre-1973 models, \$7,500; all others, \$6,200.

The Cessna 188 agricultural models, except the turbocharged versions, have a strut bearing included in the modification package and an optional automatic trim control. Depending on model, empty weight is 1,844 to 1,859 pounds, stall speed is between 38.5 and 40 knots, and maximum rate of climb is between 805 and 990 fpm. Price, installed: pre-1972 models, \$7,800; all others, \$6,400.

The Robertson Hi-Lift System for the Cessna 206 and T206 re-contours the leading edge of the wing (through the E model) and includes stall fences, drooped ailerons and automatic trim control (through 1974 models). The empty weight is increased by 15 pounds. Takeoff distance over a 50-foot obstacle is 890 feet, landing distance is 740 feet. Stall speed with flaps down is 63 knots. Price, installed: pre-1972 models, \$7,800; all others, \$6,400.

The Robertson Hi-Lift System for the Cessna 207 and T207 re-contours the leading edge of the wing and includes stall fences, drooped ailerons and automatic trim control (through 1974 models). Empty weight is increased 20 pounds. Takeoff distance over a 50-foot obstacle is 1,090 feet, landing distance is 800 feet. Stall speed with flaps down is 49 knots. Price, installed: \$7,950.

The Robertson Hi-Lift System for the 205, 210 through 210M and T210 through T210M re-contours the leading edge of the wing and includes stall fences, drooped ailerons and automatic trim control (through the J model). Empty weight is increased by 22 pounds. The only change in performance is that the stall speed in landing configuration is 53 knots. Price, installed: \$7,950.

For the 210N, T210N and P210N, Robertson uses stall fences, stall strips and drooped ailerons. This special high-differential aileron appears only on the 210N models and is constructed to provide better roll control when the flaps are down. Empty weight increases 22 pounds. Takeoff distance over a 50-foot obstacle is 1,025 feet, landing distance is 960 feet. Stall speed with gear and flaps down is 53 knots. Price, installed: \$7,950 (\$8,500 for P210).

The Robertson Hi-Lift System for the Cessna 337, T337 and P337 re-contours the leading edge of the wing and provides stall fences, conical-cambered wing tips, drooped ailerons, vortex generators, dorsal fairings and automatic trim control (through 1972 models). The empty weight is increased by 22 pounds. Takeoff distance over a 50-foot obstacle is 756 feet, landing distance is 731 feet. Stall speed with gear and flaps down is 63 knots. Price, installed: \$12,750.

The Robertson Hi-Lift System for the Cessna 310G and R and T310P, Q and R incorporates Fowler flaps and an improved pitch-trim system. The aircraft's empty weight is increased by 44 pounds. Takeoff distance over a 50-foot obstacle is 1,470 feet, landing distance is 1,165 feet. Stall speed with gear and flaps down is 85 knots. Price, installed: \$22,000.

The Robertson Hi-Lift System for the Cessna Model 340 uses Fowler flaps. Empty weight is increased by 44 pounds. Takeoff distance over a 50-foot obstacle is 1,610 feet, landing distance is 1,360 feet. Stall speed with gear and flaps down is 76 knots. Price, installed: \$25,000.

A RELYCLE GUIDE

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The modification system for the Cessna 401, 402A and B, 414 and 421A and B uses Fowler flaps, drooped ailerons, anti-servo rudder and automatic trim control. The empty weight is increased by 54 pounds. Stall speed with gear and flaps down is 69 knots. Price, installed: \$27,000.

The system for the Cessna 402C, 414A and 421C uses Fowler flaps, strakes and automatic pitch trim control. Empty weight is increased by 45 pounds. Stall speed with gear and flaps down is 65 knots. Price, installed: 402C, \$29,900; 414A, \$31,500; 421C, \$33,000.

The Robertson Eagle (formerly Astec Eagle) modification of the Cessna Citation 500. Citation I and Citation I/SP includes a redesigned airfoil in-board, a wing-tip extension and a new paint job. Gross weight is increased by 650 pounds, empty weight by 200 pounds. The Eagle cruises at 322 knots on 116 gph at long-range cruise settings; 331 knots on 131 gph at high-speed cruise. Takeoff distance over a 50-foot obstacle is 2,491 feet, landing distance is 2,370 feet. Rate of climb is 2,300 fpm. Service ceiling is 41,000 feet. Stall speed with gear and flaps down is 78 knots. Wing area is increased to 280 square feet. Price: \$250,000, installed.

The system for the Piper PA-24-180, -250 and -260 models re-contours the leading edge of the wing and provides new wing tips, stall fences and drooped ailerons and automatic pitch trim control. Empty weight is increased by 22 pounds. Takeoff distance over a 50-foot obstacle is 1,110 feet, landing distance is 880 feet. Stall speed in landing configuration is 60 knots. Price, installed: \$8,500.

The Robertson Hi-Lift System for the Piper PA-23-250 and -235 Aztecs uses conical-cambered wing tips, stall fences, leading edge in-board wing modification, drooped ailerons and anti-servo rudder. Dual hydraulic pumps also are included. The empty weight is increased by 20 pounds. Takeoff distance over a 50-foot obstacle is 985 feet, landing distance is 1,270 feet. Stall speed in landing configuration is 69 knots. Price, installed: \$12,000 to \$13,350.

The system for the PA-30 and -39 Twin Comanches re-contours the leading edge of the wing and provides stall fences, conicalcambered wing tips, drooped ailerons, a dorsal fin and automatic trim control. Gross weight is increased by 200 pounds. Empty weight is reduced 25 pounds. Takeoff distance over a 50-foot obstacle is 1,120 feet, landing distance is 920 feet. Stall speed in landing configuration is 69 knots. Price, installed: \$9,000.

The Robertson system for the Piper PA-34 Seneca I and II uses full-span Fowler flaps, spoilers and anti-servo rudder on the Seneca I model. Tip tanks are optional. Takeoff distance over a 50-foot obstacle is 1,090 feet, landing distance is 1,880 feet. Stall speed with gear and flaps down is 76 knots. Price, installed: \$17,000.

The Robertson system for the Piper PA-32 (through 1979 models) uses full-span Fowler flaps, a re-contoured wing leading-edge, spoilers and conical-cambered wing tips. Takeoff distance over a 50-foot obstacle is 1,050 feet, landing distance is 850 feet. Stall speed with gear and flaps down is 69 knots. Price: \$16,000, installed.

Schafer Aircraft Modifications—Engine changes are available for the Piper PA-31P, -31T and -31-350, and for the Cessna 404.

The Comanchero modifies the Pressurized Navajo with P&W PT6A-135 turboprop engines and optional 70-gallon tip tanks. The gross weight is increased to 8,300 pounds, empty weight decreases to 5,200 pounds. The Comanchero cruises at 260 knots on 60 gph at long-range cruise settings and 280 knots on 70 gph at high-speed cruise settings. Takeoff distance over a 50-foot obstacle is 1,750 feet, landing distance is 1,850 feet. Rate of climb is 3,500 fpm, service ceiling is about 37,000 feet. Stall speed with gear and flaps down is 73 knots. The Comanchero conversion provides a new aircraft warranty. Price: \$520,000.

The Comanchero 750 replaces the engines on the Cheyenne with 750-shp P&W PT6A-135 engines. Long-range cruise at 25,000 feet is 230 knots on 58 gph, high-speed cruise at 25,000 feet is 282 knots on 75 gph. Takeoff distance over a 50-foot obstacle is 1,980 feet, landing distance is 1,860 feet. Rate of climb is 2,800 fpm, service ceiling is 35,000 feet. Stall speed with gear and flaps down is 75 knots. Price: \$349,000.

The Comanchero 500A and 500B replaces the existing engines on the Chieftain with P&W PT6A-20 or, if hot-day/high-altitude performance is required, with the PT6A-20-27 engines. Gross weight is increased to 8,000 pounds, empty weight to 4,450. Longrange cruise is 200 knots on 58 gph, highspeed cruise is 242 knots on 75 gph. Takeoff distance over a 50-foot obstacle is 2,490 feet, landing distance is 2,375 feet. Rate of climb is 2,800 fpm, service ceiling is 29,000 feet. Stall speed with gear and flaps down is 72 knots. This conversion provides a new aircraft warranty. Price: \$350,000 to \$450,000.

The Condor will use P&W PT6A-27 turboprop engines in place of the piston engines on the Cessna 404 Titan. This modification should be available early in 1983. New nacelles, with integral fuel tanks and baggage lockers and a new electrical system will be installed. The Condor modification increases ceiling and range and provides better takeoff, landing and climb performance with lower noise levels. Price: \$355,000.

Seguin Aviation, Inc.—Engine changes and aerodynamic and aesthetic improvements are available for the Piper PA-23 Apache.

The Geronimo conversion includes square

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Smith Speed Conversions, Inc.-Aerodynamic drag reductions and rerigging for Bonanza Models 33, 35 and 36 are available. The complete conversion includes flap and aileron gap seals, complete rerigging and removal of all parasite drag, with particular attention paid to wing angle of incidence. A new tailcone fairing is fabricated to streamline the elevator and tailcone junction. Cruise at 75-percent power is 192 knots; at 65-percent power, it is 180 knots; and at 55percent power, 174 knots. Rate of climb is increased 200 fpm, service ceiling is increased 2,000 feet. Stall speed with gear and flaps down is decreased four knots. Downtime: two weeks. Price: \$13,000, installed.

Flap and aileron gap seals increase cruise speed by four knots, with shorter takeoff and landing distances and improved stall and handling characteristics. Downtime: one day. Price: kit, \$575; installed, \$1,200.

The new fiberglass engine cowling includes spinner fairing, divergent duct, cylinder air inlet reduced by 50 percent and induction ram air. This modification provides better air distribution over the engine for more efficient cooling with a reduction in drag and results in a five knot increase in cruise speed. Price: \$2,500, installed.

The stabilizer stub spar fitting is available for all Beech C35 through V35V Bonanza aircraft. It adds structural integrity to the stabilizer leading edge overhang, giving a larger safety margin in the event of turbulence, overspeed or excessive G loads. Downtime: one and one-half days. Price: kit, \$725; installed, \$1,795.

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Soloy Conversions, Ltd.—The Turbine Pac modification to the Cessna 185, 206 and 207 series replaces the piston engines with Allison 250-C20B turboprops and a Soloy gearbox. This will result in shorter takeoff and landing distances and improved altitude performance.

The Turbine Pac replaces everything on the aircraft from propeller hub to firewall as well as adding a turbine instrument panel. Kit price: \$135,000.

A RELYCLE GUIDE

Summa Sales, Inc.—Updates of older Mooney M-20s with 201 changes are available. The Jacob-Luck 201 Windshield Mod replaces the windshield in Mooney M-20 series (pre-201J and 231 models) with the 201 (M-20J) one-piece windshield. This increases cruise speed two to three knots, reduces cabin noise, enhances visibility and eliminates the inspection panels that were in front of the windshield. Price: \$100 for STC; \$800 for parts; \$400 to \$800 for labor.

The Jacob 201 Instrument Panel Modification for all pre-201 Mooney M-20 series aircraft retrofits the instrument panel with the 201 design. This results in more room for avionics and instruments—with better organization for safer IFR operations—and better accessibility for maintenance. Price: \$100 for STC; \$1,000 to \$2,000 for parts; and \$400 to \$800 for labor.

The Jacob 201 Cowling Conversion for all 200-hp M-20 series Mooneys replaces the older cowling with the 201 cowling. This modification results in a six to seven knot increase in speed. The takeoff distance over a 50-foot obstacle decreases 50 feet. This also results in lower oil temperatures, better accessibility to the avionics for maintenance and more effective cowl flaps. This installation can be performed on 180-hp models as well, with additional modifications. Price: \$100 for STC, \$3,000 for parts, plus labor.

Texas Aero—The P&W PT6A-28 turboprop installation on the Beech 99 results in a shorter balanced field length. Texas Aero also installs the Beech superspar, which increases the spar's lifetime from 10,000 to 20,000 hours, and offers a gross weight increase of 500 pounds. All the above modifications to the Beech 99 result in a zero-time airframe. Price: \$325,000.

The PT6A-28 turboprop engines also are available for the King Air A90 and C90. Price: \$281,500.

Univair Aircraft Corp.—In converting the Piper PA-22 Tri-Pacer -108, -125, -135, -150 and -160 to a PA-20 conventional-gear aircraft, the empty weight is reduced 25 pounds. The forward lower cowling is reworked, and new dual brakes or heavy-duty brakes can be installed on the aircraft. Kit price: \$850 to \$2,300.

Univair has another conversion for the PA-22 that incorporates the above conversion plus changes the engine to a 180-hp Lycoming. Kit price (without engine): \$950; use of STC only, \$350.

In the engine change for the Piper PA-18 J-3 Cub, which has the Reed wing conversion, the Continental O-200 100-hp engine is used, and 18-gallon wing tanks are added. Climb rate is increased by 200 fpm; empty weight increases by 45 pounds. Use of STC only: \$75.

DIRECTORY continued

ADDRESSES

Air America, Inc. Wilkes-Barre/Scranton Airport Avoca, Pa. 18641 717/343-1228

Ameromod Corp. Paine Field, Bldg. C64 Everett, Wash. 98204 206/353-3559

Avcon Industries, Inc. P.O. Box 654 Udall, Kan. 67146 316/782-3317

Aviadesign, Inc. P.O. Box 6339 Ventura, Calif. 93006 805/646-6477

Bush Conversions P.O. Box 431 Udall, Kan. 67146 316/782-3851

Colemill Enterprises P.O. Box 60627 Nashville, Tenn. 37206

615/226-4256

Custom Aircraft Conversions, Inc. 234 W. Turbo Dr. San Antonio, Texas 78216 512/349-6347

Electroaire, Inc. Cleveland-Hopkins Int'l Airport P.O. Box 81100 AMF Cleveland, Ohio 44181 216/267-0120

Excalibur Aviation Co. P.O. Box 32007 San Antonio, Texas 78216 512/927-6201

Flight Bonus, Inc. P.O. Box 120773 Arlington, Texas 76012 817/465-7290

Flint Aero 8665 Mission Gorge Rd. Bldg. D-1 Santee, Calif. 92071 714/448-1551 Frakes Aviation, Inc. Route 3 Cleburne, Texas 76031 817/645-9136

Horton STOLcraft Wellington Municipal Airport Wellington, Kan. 67152 800/835-2051 (in Kan., 316/326-2241)

Isham AirCraft, Inc. P.O. Box 12172 Wichita, Kan. 67277 316/755-0640

Jetwind, Inc. Subsidiary of Air Center, Inc. P.O. Box 32168 Oklahoma City, Okla. 73123 405/495-1202

Knots 2 U, Inc. 1941 Highland Ave. Wilmette, Ill. 60091 312/256-4807, 608/756-1234

Machen, Inc. S. 3608 Davison Blvd. Spokane, Wash. 99204 509/838-5326

Marsh Aviation Co. 5060 E. Falcon Dr. Mesa, Ariz. 85205 602/832-3770

Met-Co-Aire Aircraft Modifications P.O. Box 2216 Fullerton, Calif. 92633 714/870-4610

Miller Air Sports, Inc. San Marcos Municipal Airport Route 2, Box 356D San Marcos, Texas 78666 512/353-7422

J.W. Miller Aviation, Inc. P.O. Box 7757 Marble Falls, Texas 78654 512/598-2556

Pearce Aeronautics, Inc. 120 N. Old Manor Rd. Wichita, Kan. 67208 316/686-6703 Precise Flight, Inc. P.O. Box 3375 Sun River, Ore. 97701 503/382-8684, 593-1484

Ram Aircraft Modifications, Inc. P.O. Box 5219 Waco, Texas 76708 817/752-8381

Riley Aircraft Corp. 2016 Palomar Airport Rd. Carlsbad, Calif. 92008 714/438-0660

Robertson Aircraft Corp. Snohomish Cnty. Airport N. Complex C-72 Everett, Wash. 98204 206/355-8702

Schafer Aircraft Modifications, Inc. P.O. Box 547 Clifton, Texas 76634 817/675-8333

Seguin Aviation, Inc.

2075 Hwy. 46 Seguin, Texas 78155 512/379-3278

Smith Speed Conversions, Inc. P.O. Box 430 Johnson, Kan. 67855 316/492-6254

Soloy Conversions, Inc. P.O. Box 80 Chehalis, Wash. 98532 206/748-0067

Summa Sales, Inc. 1788 Little Brennan Rd. High Ridge, Mo. 63049 314/677-3324

Texas Aero P.O. Box 5337 Waco, Texas 76708 817/752-9731

Univair Aircraft Corp. Route 3, Box 59 Aurora, Colo. 80011 303/364-7661