



# The International Cessna 170 Association, Inc. (TIC170A)

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### **Association News**

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On the Front Cover:

1948 Cessna 170
N2686V 18196
David Johnson #8500 AR
East of Little Rock, AR
Photo by Bill Bracewell

On the Back Cover:

1954 Cessna 170B
N2856C 26399
Dave Germaine #3573 NJ
Ginny Germaine with N2856C
at Flying "W" NJ 6-2006





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# Association News







This is a reminder note that spring weather brings windstorm disasters to airplane owners. We had a severe frontal system go through Rockcliffe airport with a possible small imbedded tornado, causing extensive damage to 24 aircraft that were tied down. I might add that over 75 aircraft tied down on the same field survived, some with minor damage. Approximately 12 of the severely damaged aircraft were write offs including one beautiful Cessna 170. A second 170 suffered some superficial damage requiring a reskin of some elevator and tail components from flying objects.

This suggests that it is important to check tie downs and install new ropes or ground attachments where there is a risk of detachment or rope failure. Aircraft that took the brunt of the possible tornado would not have a very good chance of survival no matter the quality or superior condition of tie downs, and insurance companies usually agree to settle these cases.

Joe Scoles # C57 ON

### From the Executive Secretary

Jan Billeb

Deadline for the next The 170 News September 15th This issue will arrive in your mailboxes a tad late because, well, partly because of timing due to being gone for the Duluth Convention and all the extra work that involves. But, it's mainly because of lack of enough material to get it done! I know I'm a broken record, BUT, seriously, this publication can only be as good as you make it by providing articles and photos. Please think about what you can contribute. Or, if you have an article idea, contact

someone on the Editorial Board to help make it happen. A very special thanks to George Horn for coming through with more material to get this issue to the printers.

Next issue you'll get a complete report on the Duluth Convention. It was a good time and I particularly enjoyed being in my home state.

Summer is flying by too quickly for me. The first week of August we'll be spending a couple days in Yellowstone - our first real "vacation" in years. It's terrible to live so close to something as fantastic as our first national park and not get there more often. I'm excited about my first time of actually doing more than just driving through. Hope your summer includes something special and lots of time with family and friends.

While attending the Sport Aviation Expo in Sebring this past January, I met Joang Shaeffer and Sue Kempf of Aviation Covers from Arlington, WA. These ladies make a wide variety of cockpit, cowl and wheel covers, sun screens and other products for every imaginable aircraft. I commented to them that no one makes cowl plugs for our old Cessnas, which they took on as a challenge.

I met the ladies again at Sun 'n Fun in Florida, and they presented me with a set of custom-embroidered cowl plugs that fit nicely in my '52 170 I base at Cox Field in Apex, NC. As far as I know, I have the first such set of plugs from Aviation Covers, and since my plane is now the envy of vintage parking, I want to spread the good news to members.

Joang and Sue do terrific work, use excellent quality materials and are especially good at custom work. They can best be reached through their web site www.aviationcovers.com.

Kent Misegades # 7483 NC

Thanks to Aviation Covers for their donation to the Duluth Convention auction!







Cheryl Caldwell grew up in Bunker Hill, IN with two older brothers and one younger sister. After high school, she worked at Delco Electronics, a GM factory, making radio and heater controls. She retired after 30 years there.

Cheryl met Mark in high school and they were married in 1961. They have two sons and five granddaughters. They feel fortunate that their family is nearby making it possible for them to be involved in the girls' activities. Number four granddaughter, Maggie, will be going to Bethel College in the fall and will play volleyball with the "Lady Pilots." Cheryl said, "She couldn't wait to tell her grandpa that she was going to be a Pilot!"

After having two 172s, the Caldewells bought their first 170 in 1988. "Mark also had a 195 that I did not enjoy. It was bigger and I couldn't see very well. When he mentioned flying to conventions I was not happy!" In 1993 they

### Cheryl Caldwell #6257 IN

bought Bob Watters' 170 that he had restored. "We fell in love with it at the Roswell Convention when it won the People's Choice Award. Mark put it in my name. He jokes that it's my plane and he's just the pilot."

Cheryl enjoys flying to the conventions in the 170. They have flown in groups with the Dees, Mocks, Medendorps, and others. Their first convention was Marion, IA in 1992. "The day we got there it was so hot, and being a redhead, I was looking for a place to get out of the sun. That's when I met Genevee Broshar and Eloise Evans. They made me feel at home right away." They stayed only three days before going on to Oshkosh.

When they got home, they decided they definitely wanted to go to the Lancaster convention the next year. "We haven't missed one since then. There is something special and unique about each place, and we have visited parts of the U.S. we may not have otherwise visited. The friends that we have made through the Association have been special to us."

The Kalispell Convention in 1995 stands out for Cheryl. "It was the first time seeing mountains. Since I'm not a pilot, it was intimidating to me and I was scared to death.

Mark teases me about grabbing the strap so hard I pulled the screws out." Cheryl was more relaxed on the trip home and even took pictures.

Mark #4188 joined the Association in 1988, and Cheryl joined in 1997. Mark served on the Board and Cheryl has served on the Scholarship Committee.

"Joining the Association and attending conventions have been great experiences for us. Being members gives us a chance to vote on elections and conventions, and on other issues that come up."

Cheryl was one of the early members of the scholarship committee. "The hard work that Carol Coats, Sybil Bartone and Jack Zimmer did to get the scholarship program going is paying off. It is one of the best things we have done as an association. There is a real need and it's good to see the support the members have given it."

Cheryl and Mark often help at conventions; Cheryl in the registration room and Mark at the wheel of a van. "We love our 170 family and the good times we have together, and pray God keeps us healthy enough to enjoy them for many years to come."

Due to the generous donations of many TIC170A members, the Scholarship Committee was able to award two \$1,000 scholarships in 2009. Next issue will include photos and letters from the recipients.

If you send a donation in memory of someone, please be sure to include their name and the families name and address so the Association can send a card letting them know. Please note if you prefer your donation to be anonymous.

### Give

# To the TIC170A Scholarship Fund Share your love of aviation

Send all donations to association headquarters: 22 Vista View Ln, Cody, WY 82414. Thank you.

The TIC170A is a nonprofit 501(c)7 association. Donations are not deductible as charitable contributions. Check with your tax advisor if you have any questions.



# August 2009 Hangar-Ads

Ads are for members only and are free (except for items that are not 170-related there's a \$5 charge per ad). No business ads are accepted. Ads will be run one time unless notified to place again by the next deadline.

Prices must be included in ads and ads must be in writing. Ads will be edited as space is limited. Mail, fax or email ads to the Executive Secretary. Please put "Flypaper Ad" in the subject and list your member number.

FOR SALE: 1955 170B, 0300 Engine 5760 TTA, 1820 TTE, 234 SMOH. New cams & lifters at overhaul. Carb, generator & starter all OH at Mailor. Factory float kit w corrosion proofing. Great paint, all surfaces in good cond, newer interior incl carpet & headliner, fresh DG & altitude indicator overhaul. Late style Venturia 94 ROS, compression 74/80 to 78/80, Cleveland brakes, Scott tailwheel, 850 tires, Horton Stol, BAS shoulder harness, Rosen visors, EGT/Cylinder temp, 1-pc windshield, all glass excellent cond. MT11 radio & Veatex handheld at .50 w/encoder, 4 pl intercom. \$54,900. OH Jerry (614) 506-5500. Near excellent cond.

FOR SALE: 1950 170A N1259D 19813, TTAF 4708, Eng. Franklin 220 hp 240 since new (2000) with Hartz C/S Prop, Cert. IFR; Int & Ext 9+; white with red/grey trim; full panel w glare shield w lights & post lights; 18 ga. Jav. Aux tank; Elect pre-heat; Strobe on belly; 7:00x6" tires, solid Ax; large Scott Tailwheel; KMA Audio w 3lt MB; 2-KY 197 Com's; Narco Nav 122 w GS; Narco Nav 121; KN 62A DME; KR 86 ADF; Narco AT50A TXP; Garmin 396 GPS; Full modern panel; 2 pl intercom; Cyl Hd Temp; EGT; etc. Hangared since new; 2 owners (father/son). \$80,000 Ralph Neill (641) 322-3481 rjneill@frontiernet.net (old age and poor health).

WANTED: For 170 A or B Skull cap spinner for 6 hole prop, and upper and lower front cowling. Don (812) 985-2652 donaldk001@aol.com

WANTED: Hanlon Wilson exhaust system for 170 0-300-C145. Mike (303) 828-4639

FOR SALE: 1952 170B, complete airframe & engine rebuild 1999. 48 hrs since major overhaul, Imron paint, Cessna 180 gear, 8:50x6 tires, heavy duty ski axles, ski fittings, pretty much a stock airplane. Apollo AL-40 Com, KT 76A transponder, blind encoder, Garmin GPS 100, RC Allen Electric artificial horizon & directional gyro. Whelen tip strobes, oil filter, d flowscan FS450 digitial fuel flow totalizer, ECI CHT, carb air temp, fuselage insulated w lightweight orocote mylar backed insulation. Extra cabin heater. Light 170-flies perfectly. Life event forces need sell. \$50,000 OBO. Mark (907) 488-3262

msmith@ptialaska.net

FOR SALE: 1955 170B, TT 2860, SMOH 222.6 by G&N Aircraft w/ superior cyl ass., 50a Alt, Cessna oil Filter, Aluminum oil sump, Auto fuel stc, 7555 clip tip prop& 8042 w/stc , 180 gear w/ solid axles, Clevelands 800x6 mains, Scott 3200tw,KX155 w 208, KT76a mode c, Appolo 604 loran,4plc intercom, Narco ELT10, Pilot shoulder harness, Recent Int, Annual 10-09 \$45k, Hangared @BMG. - Barry (812) 824-7004

FOR SALE: 1953 170B, \$36,500. Cont. C145 w/oil filter and Millenium cyl. 3242 TT, 1271 SMOH, 85 TOP. New slick mags & ignition switch on 8/08. McCauley cruise prop. Jasco 60 amp alt. w breakers. Cleveland wheels & brakes on 180 gear & solid axles. New Alaska Bush tailwheel & spring. Wing tip stobes, 4 pl intercom, newly rebuilt T&B, all new tires, new battery. KX 155 NC, MX 11 COMM, NS M1 Loran, KMA 26 AudPan Narco AT 50 Transponder. Fresh annual with sale. Great looking plane in & out. Logs missing prior to 1968. Hangared in New Mexico. Kendall Hoffman (505) 486-0154 or kendall hoffman@hotmail.com

FOR SALE: 1954 170 B, \$32,000 OBO ESTATE SALE N1928C, S/N 26073 TT: 5490, SMOH 875, Paint & Plexiglass 988, Engine Majored 1995, Oil filter, Vacuum pump w STC, Cleveland brakes, Narco Panel w 2 Nay/Coms, VOR w Glide slope, DME, Transponder, ADF, Panel mounted GPS-IFR capable, intercom, shoulder harness front, All logs. Wind damaged wing tip & tail repaired prior to 1968 purchase. Rated 7 out of 10. Hangared La Porte, TX (T41). Phillip Eastabrooks (713) 598-0885-leave message phillip2houston@hotmail.com

**WANTED:** 80 x 42 pitch prop for C-170 - 0300 engine. Chuck (907) 355-5443

FOR SALE: 1950 170A, Cont. C145, SMOH 230. 60 amp alternator. New busbar & circuitNbreakers. Airwolf oil filter. New Millenium cylinders. Oil sump preheater. Recent Airtex interior. Excellent exterior paint. Cleveland wheels & brakes. Scott 3200 tailwheel. Solid axles. Wheel pants. 1 pc windshield. Autogas. One KX170B Navcom plus another KX170B w Mac 1700 conversion. Intercom. Transponder w encoder. ADF. Wingtip strobes. Always hangared. \$45,000. Located Crites Field (UES) Waukesha, WI. George Meade (414) 962-2428 gameade@sbcglobal.net.

**FOR SALE:** 1950 170A 4450 TTSN 250 SMOH Mattituck overhaul, Superior Millenium cylinders, Horton STOL, Scott tail-wheel, 4 pl panel mounted intercom, Radio Master switch, 1 pc windshield, hangared, one owner \$36,500 Larry (716) 627-2772 last 14 yrs, Larry.M.Cobado@verizon.com

**DEADLINE** for Hangar-Ads - 10th of each month

# News & Info

# Sympathies Extended

The entire membership extends sympathies to members Ken and Charlene Skog #3138 CA on the loss of their daughter July 3rd in an automobile accident.

# Sad to Report

Long time member Howard "Pete" Orlebeke #2451 AR pased away at his home in Bull Shoals, AR on July 10th. Our condolences are extended to his wife Marie and their family.

From J. William Gotcher #7100 CA Dear Relatives, Friends, & Associates,

I am sorry to tell you that I have terminal cancer of the liver. I am under the Kaiser Hospice program. Please do not contact me directly. Please forward this message to anyone.

To get an update, call Lorene @ (510) 861-1292. I am glad to have known each one of you.

### Emergency Landing

Speedy recover wishes to Rose Ganim #8257 MA who was injured when she was forced to make an emergency landing in July near a hotel parking lot in northeastern New Jersey.

News reports say she was the only person on board when the plane went down. Further, that Rose Ganim said the Cessna 170-B single-engine, fixed-wing aircraft developed mechanical problems before it went down in a field near the hotel and a busy highway. No one on the ground was injured, and she was soon pulled out by emergency crews.

### Thanks and Update

Dear Friends,

So many of you have given support, and inquired about Mary's continuing battle with breast cancer that we don't know who or where to start thanking you. You cannot begin to know how much that support has meant to us.

Mary will begin a radiation course of seven weeks, five days a week, in Silver City on Monday July 27th. We will be moving our trailer to an RV park near the hospital on Sunday and will live in it weekdays, returning to our home in Columbus for weekends.

Our snail mail and email addresses will remain the same, and we will be checking the telephone recorder from time to time.

Bill Wehner

Best wishes to Mary for continued improvement and health. She looked great at Duluth!

# Fly-Ins

### August

### 8 TX Fajita Fly-in

Lufkin, Angelina County Airport, (LFK) N31-14.04; W094-45.00. The second Saturday of each month, EAA Chapter 1219 in Lufkin flies young eagles up to 10 am, then serves a fabulous fajita lunch. Let's help support their Young Eagle Project by participating. The meal is a \$5 donation. Be at the airport at 11 am and gather inside the terminal building. There will be a room available where we can eat together. Louise Bickford (281) 373-0700 or clebco1@juno.com

# 14-16 WA 50th Annual NW Antique Airplane Fly-In

VUO, Pearson Airport, Vancouver. Northwest Antique Airplane Club. www.NWAAC.com

15-16 ID Cavanaugh Bay Fly-in 66S CTAF Camp out or eat at the Cavanaugh Bay Resort and Marina on Priestly Lake. Marina has cabins to rent (call 208-443-205). Ken Morrow (208) 466-1793 morrowk@msn.com

#### 22 WA

Bremerton International restaurant on the field Practice your short field landing on the 5,000 foot runway. We've had excellent turn out the last couple of times. Let's keep it up. We welcome anything with a propeller to join us (well, we'd welcome jets, too, but we've never had one come). John Rivas johnrivas@mac.com (425) 746-9628

### Fly-In Info?

Please email headquarters@cessna170.org no later than the 10th of the month with information on your upcoming fly-ins. Put "Flypaper Fly-In" in subject line of your email.

# Happy 101st Mort!

Mort Brown will be celebrating his 101st birthday on Wednesday, July 29. A PowerPoint presentation on Mort's website, http://www.mortbrown.info/ will be posted as a tribute to Mort, Cessna, and Cessna's Visual Media Group.

Personal birthday greetings can be emailed to Mort at: ifliplanz2004@aol.com





# **42nd Annual TIC170A Convention**

Benton Harbor / St. Joseph, Michigan NEW DATES July 18 - 24, 2010 (Week Before Oshkosh)

#### **Silver Beach Hotel**

100 Main Street

St. Joseph, Michigan 49085

For Reservations:

Call (269) 983-7341 Tell them you are with the Cessna Convention

Fax: (269) 983- 0650

Email: stjoesilverbeachhotel@comcast.net Website: www.stjoesilverbeachhotel.com

#### Rates:

140 Rooms & 10 Suites

- " The rate for a single is \$109.00
- " The rate for a double is \$119.00.
- " 10 Suites and that will be \$199.00

Breakfast comes with each room: 6-9 am, scrambled eggs, sausage, Belgian waffles, bagels, toast, muffins, yogurt, orange juice, milk, coffee, tea.

There will be a drawing with a cut-off of Valentine's Day February 14, 2010, for a complimentary stay for the individuals attending the convention who are booking early.

75 Rooms are currently blocked; when these are filled an additional block of rooms can be made.

- \* The cut-off date for the block of rooms to be picked up is on June 7th, 2010.
- \* You can cancel your room for that day up till 4:00 pm (weather delay) and still keep the rest of your reservation.
  - \* You can extend your stay at the same rate for up to 4 days.
- \* Due to the Venetian Festival weekend prior we will be unable to give that rate for the 4 days prior.

# Outta Gas

Early author's statement of "moral of this story": Anytime something changes, ....anything at all.... is grounds to re-evaluate everything about the flight. Everything. Especially fuel.

Now.... the story.

ANYONE who ever runs an airplane out of gas should have their pilot's license permanently revoked. *I used to think that*. That was over 35 years ago, when I had many ideals and ideas I no longer embrace. I've changed some of my thinking since then.

I've quit smoking, for example.

I flew pipeline patrol in the early 70's, as you know. It was a means to an end, at first. I was building flight time. (What I didn't realize then was that flight time is not the same as flight experience. I now realize I was actually building flight experience.) Flight time (experience) was, and still is, the primary criteria of the aviation industry to determine whether a pilot is qualified to perform tasks demanding higher pilot skills. It's a double-edged sword. Either a pilot learns by experience or he doesn't. Or he simply passes the "luck" test. Either way, it's a measure of one's successful completion of flying experiences. (Napoleon was said to have once stated that he'd rather have generals who were lucky than generals who were skilled. If true, then if I'd flown for Napoleon (imagine that!) he would have promoted me to First Admiralty of the Air. I trust this tale doesn't destroy what little respect the dear reader might have once graciously allowed me.) ;b

**1972: Far-West Texas: Altitude-100 A.G.L.:** Westbound on the Shell 30-inch crude line from Deer Park (East Houston) to McCamey, Texas



It 's 10:00 AM and I've been racing (at 87 knots) along the right-of-way (ROW) in this Cessna 140A "Patroller" since dawn. Forty-two gallons of 80/87 will last seven (7) hours and this leg will take five and one-half. I was in "comfort" mode. I'd done this trip dozens of times.

Passing the Bergstrom A.F.B. southern boundary I say good-bye to the military controllers and check my time to verify that only two-hours have passed. If it had

taken longer I would pull off the ROW and drop in at Austin Mueller Field to Browning Aerial Service for fuel due to surface head winds. But this morning it's smooth and calm and so far it's even cool. That will change, I know, when another 100 miles have passed. The Chihuahuan desert will see to that.

As I cruise past the city of Austin to my north, I begin to enjoy the scenery of the Texas "hill country". As in this decade the city has yet to sprawl this far south. (Little did I realize that only fourteen years later I would live in a compact neighborhood called Tanglewood directly at my present shadow in the scrub-oak and junipers. But not for long, as soon thereafter I'd move out of town to Lake Travis, just west of Austin.)

For now, however, it's only the occasional hunting lodge or sprawling ranch among the hills and valleys and ever-increasing rocky ledges of the Balcones fault line. Ahead lay the high desert. Two more hours find me viewing the faint trail of the triple-line ROW created by the Shell 30-inch line, alongside the route shared with Phillips and Enco (now Exxon-Mobil) lines. Near-level sands stretch far away marked by the occasional mesa,

with ocotillo, prickly pear, sage, and century. And fences. Long lines of 15 and 20-section ranch fences. Cows are rarely actually seen out here. Although counted by the hundreds and thousands by each rancher, they only number about one to every 10 acres, as the sparsely vegetated land will only support that bovine density. An occasional windmill and its water tank and trough slide beneath my wings. I was in "boring" mode. I want a smoke.

Pulling out my trusty "Zippo"© lighter, deftly flicking its cover open, my thumb flicked against the spark-wheel. Nothing but a flash of sparks. Again I flicked. Still...nothing but spark flashes.

(Nowadays, a genuine "Zippo" has attained collector status. But in 1972 it's only just begun its slide into history with the introduction of the newly-popular, butane, Bic© . If you aren't old enough to know intimately the workings of a genuine "Zippo," then you now fall into the category of an inexperienced pilot. To rank among the present-day "old-timers" you must have experienced the skin-burns at your right hip-bone of a Zippo that has leaked lighter fluid through the small watch-pocket of your Levi's@. If you've ever spilt gasoline onto yourself underneath some article of clothing and enjoyed the "roasted" skin-burn a few minutes later you have an idea of what this is like. Sitting for hours in a small airplane with your hip on fire becomes a testimonial to your dedication to the fine art of smoking. Such is the true nature of cigarette addicts. This is not entirely a digression, as you'll

The "Zippo" was housed in a metal, flip-top case and, when it was pulled from the housing it revealed it's lower, open end which was filled with cotton packing that

comprised a storage area to absorb and hold the lighter fluid. This fluid was similar, if not identical to, charcoal lighter fluid. Lighter fluid was usu-



ally sold in small metal cans with pinhole-sized spouts that could direct the fluid onto/into the cotton packing-filled storage chamber of the Zippo. The Zippo must have been pulled from its case and held upside down to accept the fluid, and then the lighter must be returned to its case to be safely ignited with a file-type rotary striker which spun against a small cylindrical flint (similar to the ignition system of the more "modern" Bic©.)

In case you haven't got the concept yet, just think of a Zippo as being the flintlock musket of the smoking set from World War I through the early Seventies. At Pontotoc, Texas my Zippo wasn't worth "zip". It wouldn't light for lack of fluid. Disgustedly I tossed the lighter into my shirt pocket and ripped the cigarette from my lips. (This is another joy of the art of smoking. Holding a filter-tipped cigarette in one's mouth sufficiently long will soak the glue of the rolled paper filter-tip with saliva and allow it to attach itself to one's mucous membranes. Absentmindedly (or frustratingly) removing that cigarette rapidly from one's mouth will also rapidly pull the skin off one's lips.

Ouch.

Twenty miles later, somewhere northeast of Junction, Texas I had an epiphany. Avgas!

Flipping open the pilot's window and holding the Zippo upside down against the spring-loaded wingtank fuel sump-valve, produced a deluge of red 80/87 into the storage chamber of my Zippo and a freezing cold sensation to my hand. Joyfully I pulled my Zippo back inside the little Cessna and closed the window.

Flick. Flick. Flash. Fire! (Smell of burning hair. It looked like a refinery flare.) Happily I lit up. Even my cigarette got enflamed. The nicotine rush soon followed and nothing else mattered.

Back on patrol. Another hour of bumping along the ROW, mile after boring mile of desert and occasional glimpses of ghost towns and ghost ranch houses and the occasional oil well pump-jack. What was that?

Something just flew by only 100 feet below on the desert floor that caught my eye. Looking for leaks, etc. on the ROW had become the backdrop for my flight, and now something caused me to glance over my left shoulder at the ROW below. Oh. That was nothing. Just an old abandoned, rusted-out car, abandoned years ago out here in nowhere.

But then, just as I was relaxing from the sight of the rusty hulk, something else caught my eye just above my head. Movement. What the ...hey! Fuel!! Fuel splattering out the wing sump! The wing-tank fuel sump-valve had been stuck in the open-position ever-since I'd filled my Zippo! Fuel was draining out of my wing tanks. Throwing the window open I desperately pressed by thumb against the

# Not only have I stupidly thrown away my fuel, I have no idea where I am!

valve and snapped it back off, thereby causing the stuck valve to snap shut. The fuel stopped flowing out of the tank!

Panic-stricken I shot a glance at the mechanical fuel gauges up in the headliner, one left and one right, just above my head. The two 21 gallon tanks were interconnected and therefore usually held fuel equally. The left gauge was solidly on empty. The right gauge's needle occasionally showed almost imperceptible movement away from the big "E"! I kicked the rudder to yaw the airplane and again, the left needle stayed put on "E" and the right only barely moved. I was out of GAS!

Now, when flying pipeline patrol, it's usual to have a regular route. That route is a known length in terms of distance and time required, and after a pilot has flown that particular route for many months, it becomes a habit. He (or she) flies 5 hours in a

seven-hour airplane; he lands, refuels, eats a burger, and flies another section of pipeline. He doesn't need to re-think and replan a flight that's been made dozens or even hundreds of times. So he or she thinks. Or doesn't.

I shifted into "survival" mode. Pulling the airplane up from the desert floor for a wider view of the horizon, I looked for a suitable place for a precautionary landing. Strange how flying a pipeline route for months on end never reveals to a pilot the surrounding area more than a few miles from the ROW. Where am I? As far as the eye can see, "the lone and level sands stretch far away." Ozymandias is no longer feeling very royal. He's feeing panic. Not only have I stupidly thrown away my fuel, I have no idea where I am! I climb still further up until almost a thousand feet above the desert I can see a highway about ten miles to my north.

At least I THINK there's a highway over there. I see a tiny image of a car racing along and no dust cloud being raised behind it. That must mean it's on a paved roadway. Right? Oh. Yeah. There's a small group of single-story dwellings and buildings about two miles ahead of the car. Maybe there's a place to land there! (Maybe there's a gas station there. Maybe I can buy some auto gas and put it in this thing and finish the day's flight and no one be the wiser. Especially no one like my boss!) (Note: this is 1972. Nothing exists like an STC for auto gas in an airplane. Auto gas costs 30 cents, avgas 45 cents, and the 1973 Arab oil embargo is next year.)

As I approach the small crossroads town I am shocked to see a dirt strip just to the west of the crossroads, the southern end of which stops at a barbed-wire fence. (Bob-War to locals.) Across the fence stood a small Mobil grocery-service station. As I rolled to a stop followed by a cloud of dust, the rancher working on the "Bob-War" fence put down his fencing pliers and pulled his handkerchief from a rear pocket, removed his hat and wiped his brow. The little Continental C-90 rattled to a stop, and as I stepped out (hoping I wasn't making the

fellow angry by landing on his dirt runway without permission) he said to me, "Waal....Gaaahhh----Leeee! Yo're the fust wun to land heer since the WAR!"

"Really!", I said. "I hope you don't mind!"

"Waal, heck NO! Ah'm glad to see

"Fillin' 'er up?", he inquired. "Yes sir", I said with happy confidence.

"Well, see if you can make it non-stop this time, OK?", he replied with a

smirk.

"Wha ... ??? "I There's a second moral was dumb-founded. Did he know something? He pulled a small rolled-up

> newspaper from his hip pocket and handed it to me. There, to my horror, on the front page of a small west-Texas weekly newspaper was the leading headline "FIRST AIR-PLANE LANDING SINCE 1944!"

Besides owning the dirt strip, and the grocery-service station, it seems the rancher's cousin also was a part-time publisher of the local news. I had made the headlines.

"Have a safe trip", Mr. Stevens cheerfully waved, as he strolled back towards the little wood-frame office. My job was intact. Only my pride was destroyed...

Oh yeah. There's a second moral to this story. If you smoke......quit.

ya!" He was very helpful, and even loaned me his gas can and took me over to introduce me to the

gas station owner (who turned out

to this story.

to be his cousin).

Five gallons of Mobil's best cost me \$1.65 and after pouring it into the wings, and determining I was only 40 miles from my destination in the desert, I thanked the rancher and roared off with a cloud of dust. At least a dozen cars and trucks had stopped along the road to watch the most excitement they'd had there since the war.

Twenty-five minutes later I landed at McCamey, Texas and (shudder-shudder) drained the remainder of the auto gas onto the sand at the nearly abandoned airport. (EPA: statute of limitations ran out on this years ago. And anyways, remember, this is only a story. Right?)

The hamburger joint across the street had my burger and shake ready ever since they saw me land, as was their custom. I refueled from the patrol companyowned fuel pump, and lifted off, headed for Wichita Falls via the Texas Pipeline route. Business as usual. Eat my sandwich while trying to keep the tomato slice inside it through the horrific low-level turbulence of afternoon west-Texas desert heat. Full of burger, and full of fuel, left me satisfied I'd gotten away with good luck. I was in hot and happy mode.

Five more hours found me at 5,500 ASL in the cool 80-degree air on my way to my home base at Russell Field, just south of Ft. Worth.

The following Monday, while preparing for my departure from the home field near Houston, my boss, Mr. Stevens, strolled out to my plane as I was refueling it for the weekly patrol of the Shell 30inch crude line to McCamey.

# Thoughts on Flying During The **Twenties**

By Charles Lindbergh

Science, freedom, beauty, adventure, what more could you ask of life?

Aviation combined all the elements I loved. There was science in each curve of an airfoil. In each angle between strut and wire, in the gap of a spark plug or the color of an exhaust flame. There was freedom in the unlimited horizon, or the open fields where one landed. A pilot was surrounded by beauty of earth and sky. He brushed tree tops with the birds, leaped valleys and rivers, explored the cloud canyons he gazed at as a child. Adventure lav in each puff of the wind. I began to feel that I lived on a higher plane than the skeptics on the ground, one that was richer because it was freer of the earth to which they were bound. In flying I tasted a wine of the gods of which they could know nothing. Who valued life more highly, the aviators who spent it on the art they loved, or those misers who doled it out like pennies through their antlike days? I decided if I could fly for ten years before I was killed in a crash, it would be a worthwhile trade for an ordinary life.

### Library of Historical Documents

### Copies of 337s/STCs and Miscellaneous Available to Members

The following copies of One Time Field Approvals (337s) and Supplementary Type Certificates (STC)s are available to association members for informational purposes. The asterisk()\* indicates STCs included with 337s. Parenthesis () indicate model shown on paperwork. Important note: These are copies of the paperwork used as supportive documentation on representative member aircraft. They are not approvals to utilize said modifications. STCs must be purchased directly from the owner of that STC. You are responsible for obtaining approval of any/all such modifications to your aircraft. Prices listed are to cover the association's cost for copying and nostage.

| your aircraft. | Prices listed are to cover the association's cost for copying ar | nd postage. |                                                                                  |
|----------------|------------------------------------------------------------------|-------------|----------------------------------------------------------------------------------|
| 001            | 0-300a to 0-300b (170) \$ 5.00                                   | 064         | Exhaust Stack Fairing (170A)                                                     |
| 002            | 0-300a to 0-300d (170A-B)                                        | 065         | Exhaust, Laminar Flow System (170B) 5.00                                         |
| 003            | 0-300a to Maule (170B)8.00                                       | 066         | Exhaust System, Aeroshell Welding (170)6.00                                      |
| 004            | 0-300d, Install (170A)*                                          | 067         | Exterior Lettering Graph                                                         |
| 005            | C145 to 0-300c (170A-B)                                          | 068         | Fishing Rod Tube (170)                                                           |
| 006            | C145 to 0-300d (170B)                                            | 069         | Flap Handle (170B)                                                               |
| 007            | A.D. List                                                        | 070         | Flap, Reinforce (170)                                                            |
| 008            | 20 Amp Gen to 60 Amp Alt (170B) 5.00                             | 071         | Flaps, Remove & Reskin (170A)                                                    |
| 009            | 35 Amp Gen to 60 Amp Alt (170A-B) 8.00                           | 072<br>073  | Flight Manual 170                                                                |
| 010<br>011     | 50 Amp Alt, Jasco (170-A-B)*                                     | 073         | Flight Manual 170B                                                               |
| 012            | 60 Amp Alt (170-A-B)                                             | 074         | Franklin 6a-335-b (170A)                                                         |
| 013            | Aileron Gap Seals (170A-B)                                       | 075         | Fuel Pump, Electric (170)                                                        |
| 014            | Air Filter, Brackett (170B, 172)*                                | 077         | Fuel System, Gravity Flow (170B)5.00                                             |
| 015            | Air/Oil Separator, Walker (170A)*7.00                            | 201         | Fuel Cap Modification 180 (170)                                                  |
| 016            | Aircraft Specifications (170A)                                   | 078         | Fuel Tank, Aux 12.5 Gal Bag Comp (170B)5.00                                      |
| 017            | T3 Alclad Doubler (170B)                                         | 079         | Fuel Tank, Aux 12.5 Gal Left Wing (170)*12.00                                    |
| 018            | Alternator Charging Sys, Uni Tow-all (170A) 11.00                | 080         | Fuel Tank, C172 Long Range (170B) 5.00                                           |
| 019            | Altimeter/Altitude Digitizer, United                             | 081         | Fuel Tank, C175 26.5 Gal (170B) 8.00                                             |
|                | Instruments/Terr (170A)                                          | 082         | Fuel Tank, Dual Sys Left Wing (170) 5.00                                         |
| 020            | Antenna Vert Stab (170A)7.00                                     | 083         | Fuel Tank, Javelin Aux 18 Gal (170A-B)8.00                                       |
| 021            | Auto Fuel (170B)                                                 | 084         | Fuel Tank Vent, Replace (170)                                                    |
| 022            | Avcon Drawing List                                               | 085         | Fuel Vent, 172 Service Kit                                                       |
| 023            | Avionics (170B)                                                  | 086         | Fuel Vent; move from cabin to wing (170A) .6.00                                  |
| 024            | Avionics, Apollo (170)                                           | 087         | Fuselage, Replace (170B)                                                         |
| 025            | Axles, Solid Alum (170)                                          | 088         | Gascolator, Relocate (170B)                                                      |
| 026            | Baffles & Cowling (170)                                          | 089         | Gear Legs, C180 (170-B)                                                          |
| 027<br>028     | Baggage Compartment, Extended (170B) 5.00                        | 090<br>091  | Gear, P. Ponk Attachment (170B) 6.00<br>Gen to Alt W/drawings (170-A-B)          |
| 028            | Baggage Door, C172 (170B)                                        | 091         | Glare Shield (170B)*                                                             |
| 030            | Battery Box, Relocate (170)6.00                                  | 092         | Heat Valve, 3" (170)                                                             |
| 031            | Battery, Concorde Rg-25 (170A)* 6.00                             | 094         | Horiz Stab Leading Edge Boot (170B) 5.00                                         |
| 032            | Battery, Odyssey Lightweight (170B) 8.00                         | 095         | Inspection Hole Enlarged, Remove                                                 |
| 033            | Beacon, Grimes Rotating; Fire Ext (170A-B) .6.00                 |             | Venturi-gyro (170A)                                                              |
| 034            | Boot Cowl Hand Holds, L & R (170B)5.00                           | 096         | Inspection Hole, Rudder Cables (170A) 5.00                                       |
| 035            | Boot Cowl Steps, L & R (170B) 5.00                               | 097         | Inspection Report                                                                |
| 036            | Brake Cylinders (170A)                                           | 098         | Instrument Panel, Avion Research (170B) 5.00                                     |
| 037            | Brake Fairings 180/185 (170A)6.00                                | 099         | Instrument Panel, Center Stack (170-A-B)7.00                                     |
| 038            | Brake, Speed Fairings (170B)6.00                                 | 100         | Instrument Panel, Cntr Stack,                                                    |
| 039            | Brakes, Cleveland (170A)6.00                                     |             | Alum Panel (170)                                                                 |
| 040            | Brakes, McCauley Dual Piston (170B) 5.00                         | 101         | Instrument Panel, Modified C172 (170B)5.00                                       |
| 041            | Cabin Heat Control (170B)                                        | 202         | Instrument Panel, Modified (170) 7.00                                            |
| 042            | Camera Port (170B)                                               | 102         | Instrument Panel, Replace Cover Assem                                            |
| 043            | Camera, Off-Center Install Instr (170-A-B) .11.00                | 102         | blies/plexiglas Plate (170)                                                      |
| 044<br>045     | Carb Ice Detector Flight Manual Supp (170A) 5.00                 | 103<br>104  | Instrument Panel, T Configuration (170A-B) .6.00                                 |
| 045<br>046     | Cargo Area, Extended (170)                                       | 104         | Insulation Replacement (170B)7.00<br>Landing Gear Support Replacement (170A)7.00 |
| 040            | Compass, Remote Mag (170B)                                       | 105         | Leading Edge Landing Light (170)5.00                                             |
| 048            | Compass, Vertical Card Mag (170B) 5.00                           | 107         | Loran, Apollo (170A-B)                                                           |
| 049            | Door Latches, 150 (170B)                                         | 108         | Lycoming Eng 0-360, Hartzell Prop (170A-B)* 8.00                                 |
| 050            | Door, Engine Oil Access (170B) 5.00                              | 109         | Lyc 0-360 Installation Instructions (170A-B) .5.00                               |
| 051            | Egt (170A-B)                                                     | 110         | Lyc 0-340-a1a, Hartzell Prop (170B)* 5.00                                        |
| 052            | Egt, Cht (170B)*                                                 | 111         | Magneto Replacement (170B) 6.00                                                  |
| 053            | Electrical System Loads (170B)5.00                               | 112         | Magneto, Slick 664 to 6264*                                                      |
| 054            | Electrical System Monitor (170A)*6.00                            | 113         | Navcom, Genave to Bendix Xpdr, Loran,                                            |
| 055            | Electrical Wiring, Replace (170B)6.00                            |             | Terra Enc (170A)                                                                 |
| 056            | Elt (170A)6.00                                                   | 114         | Oil Filter Adaptor Kit (170A-B)18.00                                             |
| 057            | Elt, Ack (170A)                                                  | 115         | Pitot, Heated (170A-B)                                                           |
| 058            | Elt, Narco; Remote Compass Xpdr (170A-B) .6.00                   | 116         | Pitot Tube from 172H (170)                                                       |
| 059            | Engine Air Filter (170B)*                                        | 117         | Priming System, 6 Cylinder (170A) 8.00                                           |
| 060            | Engine Analyzer, Digital Automatic (170B)*6.00                   | 118         | Prop. Macaulay (170A B) 10.00                                                    |
| 061            | Equipment List 170A                                              | 119         | Prop. Sonsonich M74dr Flight Man                                                 |
| 062<br>063     | Equipment List 170B                                              | 120         | Prop, Sensenich M74dr Flight Man Supl (170-A-B)                                  |
| 003            | LAHaust Pipe Extensions (1/0A-D)14.00                            |             | Supi (1/0-A-D)                                                                   |

| 121       Push Rod Tube, Real Gasket (170B)       .8.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Tip)5.005.006.007.005.00                                                   |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|
| 123       Rudder Pedal (170B)       .5.00       (170B)          124       Seat Belt, Rear Installation (170B)       .5.00       196       Wing, Right Repair (170A-B)*          125       Seat Belts, Rupert (170A)        .5.00       197       Wing, Recover w/Ceconite (170)          126       Seat Stop, Pilot Secondary (170B)       .5.00       198       Wings, 172 (170B)          127       Seat, Front Installation (170A)       .5.00       199       Wings, 175 (170B)          128       Seat, Front Installation (170B)       .6.00       200       Yoke, Y Style Control (170A-B)          129       Seat, Jump C180/185 (170-B)       .7.00         130       Seat, C206 Rear Installation (170B)       .5.00       Other information available:         131       Seats, F. Atlee Dodge Folding Jump (170B)       .9.00       Items overlooked during annual          133       Seats, C172 (170B)        .5.00       301       Hammock to replace rear bench                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                            |
| 125                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 6.00<br>7.00<br>5.00                                                       |
| 125                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 6.00<br>7.00<br>5.00                                                       |
| 126                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 7.00<br>5.00                                                               |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | 5.00                                                                       |
| 128       Seat, Front Installation (170B)       6.00       200       Yoke, Y Style Control (170A-B)       170A-B)         129       Seat, Jump C180/185 (170-B)       7.00       7.00         130       Seat Lock, "Stay Put" (182)       6.00       6.00       Other information available:         131       Seat, C206 Rear Installation (170B)       5.00       300       Annual checklist/         132       Seats, F. Atlee Dodge Folding Jump (170B)       9.00       1tems overlooked during annual         133       Seats, C172 (170B)       301       Hammock to replace rear bench                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                            |
| 129                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 7.00                                                                       |
| 130                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                            |
| 130                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                            |
| 131 Seat, C206 Rear Installation (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                            |
| 132 Seats, F. Atlee Dodge Folding Jump (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                            |
| 133 Seats, C172 (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 6.75                                                                       |
| 133 Seats, C172 (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                            |
| 134 Soats Stowable R A A (170R) 6.00 drawings (170R)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 8.00                                                                       |
| 134 Seats, Stowable, B.A.A. (170B) drawings (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                                                            |
| 135 Shoulder Harness & Seat Belt, Aero (170-A-B)8.00 302 Set of 3-view drawing to plan paint                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                            |
| 100 DI 11 11 DI 11 | 7.00                                                                       |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                            |
| 137 Shoulder Harness, FAA Regs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                            |
| 138 Skin, New Fuselage (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 5.00                                                                       |
| 139 Skin, New Wing (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | ftware                                                                     |
| 140 Skis, Airglas (170A-B)*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                            |
| 141 Skis, Fluidyne C2200 (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                            |
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| 142 Skis, Schneider (170A-B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                            |
| 143 Starter Sky-lec (150)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 13.00                                                                      |
| 144                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 18.00                                                                      |
| 145 Stol, Mid-America (170A) 6.00 309 Cessna Drawing 05511051 for heated                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                            |
| 146 Stol, Sportsman (170A)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                            |
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| 147 Strobe, Aeroflash Wing Tip (150, 170A) 7.00 310 Operator's Manual, Avco Lycoming                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                            |
| 148 Strobe, Grimes Wing Tip (170-A)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 22.00                                                                      |
| 149 Strobe, Rudder Tip (170B)5.00 Check the members' only section on the website                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | for copies of                                                              |
| 150 Strobe, Whelen Anti-Collision (170B)* 6.00 different owners' manuals.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | •                                                                          |
| 151 Sun Visors, Rosen (170A)*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                            |
| 152 Tach, P-1000 Horizon Digital (Lyc 0-360,                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                            |
| 180hp, C/s Prop) (170A-B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                            |
| 153 Tail Lift Tube Assy (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                            |
| 154 Tail Pull Handles (170-A-B)*                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                            |
| 155 Tail Wheel, Gar Aero (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                            |
| 156 Tail Wheel, Scott (170A)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                            |
| 150 Idii Wilcel, Scott (170/t) 111111111111100                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                                            |
| 157 Tail Wheel, Scott, Install Instructions 5.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                            |
| 158 Tail Wheel Mount (170A)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                            |
| 159 Tail Wheel Mount, 140 to Alligator Service Kit 8.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                            |
| 160                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                            |
| 163 Tiro 7 00 V 6 6 Ply (170P) F 00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                            |
| 162 Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                            |
| 162                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                            |
| 162                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                            |
| 162                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                            |
| 162                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                            |
| 162                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                            |
| 162                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                            |
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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                            |
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | ids Only)                                                                  |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | nds Only)                                                                  |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | nds Only)                                                                  |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | nds Only)  n CD) arked above                                               |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | nds Only)  n CD) arked above                                               |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | nds Only) n CD) arked above cannot be                                      |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | nds Only) n CD) arked above cannot be                                      |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | nds Only) n CD) arked above cannot be                                      |
| — 162       Tire, 7.00 X 6 6 Ply (170B)       .5.00         — 163       Tire, 8.00 X 6 6 Ply (170B)       .5.00         — 164       Tire, 8.50 X 6 (170-B)       .6.00         — 165       Tire, Alaskan Bushwheel, 29x13x6 (170B)       .5.00         — 166       Tire, Goodyear 26x10 5 x 6 (170B)       .6.00         — 167       Tow Hitch Release Handle (170A)       .7.00         — 168       Trailling Edge, Air Metal Fabricators (170A)*       .6.00         — 169       Transceiver/xpdr, Bendix/king (170B)*       .6.00         — 170       V Brace, F.A. Dodge Seaplane (170B)       .6.00         — 171       Vac Pump, Engine Driven (170B)       .5.00         — 172       Vac Pump, Engine Driven (170B)       .5.00         — 173       Vac System, Emergency (170B)       .5.00         — 174       Vac System, Standby (170B)       .5.00         — 175       Venturi (170B)       .5.00         — 176       Venturi (170B)       .5.00         — 177       Wheel Pants, 172 & Speed Brake Fairings (170B)       .5.00         — 177       Wheel Pants, 172 & Speed Brake Fairings (170B)       .5.00                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | nds Only) n CD) arked above cannot be                                      |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | nds Only) n CD) arked above cannot be are too many                         |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | nds Only) n CD) arked above cannot be are too many                         |
| 162   Tire, 7.00 x 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | nds Only) n CD) arked above cannot be are too many                         |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | nds Only) n CD) arked above cannot be are too many                         |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | nds Only) n CD) arked above cannot be are too many                         |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ads Only)  n CD) arked above  cannot be are too many                       |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | ads Only)  n CD) arked above  cannot be are too many                       |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | nds Only)  n CD) arked above cannot be are too many                        |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | nds Only)  n CD) arked above cannot be are too many                        |
| 162   Tire, 7.00 X 6 6 Ply (170B)   .5.00   .163   Tire, 8.50 X 6 6 Ply (170B)   .5.00   .164   Tire, 8.50 X 6 (170-B)   .5.00   .165   Tire, Alaskan Bushwheel, 29x13x6 (170B)   .5.00   .166   Tire, Goodyear 26x10 5 x 6 (170B)   .6.00   .167   Tow Hitch Release Handle (170A)   .7.00   .168   Trailing Edge, Air Metal Fabricators (170A)   .6.00   .169   Transceiver/xpdr, Bendix/king (170B)   .6.00   .170   V Brace, F.A. Dodge Seaplane (170B)   .6.00   .171   Vac Pump (170B)   .6.00   .172   Vac Pump, Engine Driven (170B)   .5.00   .173   Vac System, Standby (170B)   .5.00   .174   Vac System, Standby (170B)   .5.00   .175   Vents, Fresh Air (170-A-B)*   .12.00   .176   Venturi (170B)   .5.00   .177   Wheel Pants, 172 & Speed Brake Fairings (170B)   .5.00   .178   Wheel, Control-C180 (170A)   .5.00   .180   Wheel, Control Installation (170B)   .5.00   .181   Wheels/brakes, Goodyear to Adams (170-B)   .5.00   .183   Wheels/brakes, Goodyear to Adams (170-B)   .5.00   .184   Wheels/brakes, Goodyear to Cessna (170B)   .5.00   .185   Wheels/brakes, Goodyear to Cessna (170B)   .5.00   .186   Wheels/brakes, McCauley (170A)   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00   .5.00     | nds Only)  n CD) arked above cannot be are too many                        |
| 162   Tire, 7.00 X 6 6 Ply (170B)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | nds Only)  n CD) arked above cannot be are too many                        |
| 162   Tire, 7.00 X 6 6 Ply (170B)   .5.00     163   Tire, 8.50 X 6 (170-B)   .5.00     164   Tire, 8.50 X 6 (170-B)   .5.00     165   Tire, Alaskan Bushwheel, 29x13x6 (170B)   .5.00     166   Tire, Goodyear 26x10 5 x 6 (170B)   .6.00     167   Tow Hitch Release Handle (170A)   .7.00     168   Trailing Edge, Air Metal Fabricators (170A)   .6.00     169   Transceiver/xpdr, Bendix/king (170B)   .6.00     170   V Brace, F.A. Dodge Seaplane (170B)   .6.00     171   Vac Pump (170B)   .6.00     172   Vac Pump, Engine Driven (170B)   .5.00     173   Vac System, Standby (170B)   .5.00     174   Vac System, Standby (170B)   .5.00     175   Vents, Fresh Air (170-A-B)*   .12.00     176   Venturi (170B)   .5.00     177   Wheel Pants, 172 & Speed Brake   Fairings (170B)   .5.00     180   Wheel, Control-C180 (170A)   .5.00     181   Wheel Fairings, Stolp Starduster (170A)   .6.00     182   Wheels, Cleveland & Brakes (170-A-B)*   .11.00     183   Wheels/brakes, Goodyear to Adams (170-B)   .5.00     184   Wheels/brakes, Goodyear to Cessna (170B)   .5.00     185   Wheels/brakes, Goodyear to Cessna (170B)   .5.00     186   Wheels/brakes, McCauley (170A)   .5.00     187   Wheel Pant Backing Plate Pattern   .5.00     188   Wheels/brakes, McCauley (170A)   .5.00     189   Wheels/brakes, McCauley (170A)   .5.00     180   Wheels/brakes, Goodyear to Cessna (170B)   .5.00     180   Wheels/brakes, McCauley (170A)   .5.00     181   Wheels/brakes, Goodyear to Cessna (170B)   .5.00     181   Wheels/brakes, Goodyear to Cessna (170B)   .5.00     181   Wheels/brakes, Goodyear to Cessna (170B)   .5.00     182   Wheels/brakes, Goodyear to Cessna (170B)   .5.00     183   Wheels/brakes, Goodyear to Cessna (170B)   .5.00     184   Wheels/brakes, Goodyear to Cessna (170B)   .5.00     185   Wheels/brakes, Goodyear to Cessna (170B)   .5.00     186     | ads Only)  n CD) arked above cannot be are too many                        |
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| 162                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | ads Only)  n CD) arked above cannot be are too many                        |
| 162                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | rids Only)  n CD) arked above  cannot be are too many  Y 82414 ssna170.org |
| 162                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | rids Only)  n CD) arked above  cannot be are too many  Y 82414 ssna170.org |
| 162                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | rids Only)  n CD) arked above  cannot be are too many  Y 82414 ssna170.org |

# 170 Technical

# SAB-090326, Flap Failure - Flap Lever Latch Rod, Pn:0510169

by George Horn, Parts / Maintenance Advisor TIC170A

Status: URGENT

**Models Affected:** 170-B only (Suggest inspection of corresponding 170, 170-A systems, despite their differences.)

**History:** On final approach, the pilot was unable to extend flaps. Pilot continued approach and made flapless landing.

Preliminary Finding: After landing, the Flap lever Release-Button Pn: 0510182 was found disappeared beyond reach into the flap lever handle. No movement of the flaps from their current position is possible when this failure occurs.

Description of Defect: The Release Button has swaged into its lower end a long operating-rod (Latch Rod Pn:0510169) which is a large-gauge wire rod about 18inches long. When the releasebutton is depressed, the rod is forced downward into the hollow flap lever. The lower end of the rod makes a 90-degree bend and passes about 4-inch thru a hole in the "latch" Pn:0510167. The rodend is mechanically "upset" (flattened) after it passes through the hole such that its upset-end should not pull loose from within the latch's hole. Years of operation had allowed the upset-end of the rod and/or hole in the latch to wear due to vibration which diminished its upset and which, coupled with associated wear of the hole, had elongated the hole, allowing the rod to become detached from the latch. After detachment, the rod and button fell down inside the flap lever handle beyond reach of the pilot. Even if retrieved, the pilot would be unable to reattach the assembly in flight.

**Hazard:** Flaps will remain wherever currently deployed should this defect occur in flight, and it will be impossible to move them to any other position. This could be very dangerous should it occur on a missed approach, go-around, or stall with flaps deployed, as it would prevent flap retraction and cause reduced performance.



Here's what things looked like with the seats, carpet, fuel-selector panel, and flap-lever removed.



View from beneath flap lever of rodend, passed thru the latch. Looks good, heh? It FAILED.



Operating rod and button, removed from the flap lever. The rod is swagged into the release button. The left end of the rod has a short 90-degree bend in it.



Lower rivet should be replaced with MS screw. (Aluminum rivet wears in steel lever and steel latch and allows lever to become loose and develop "wobble" which can lead to jammed flaps.)



Here's a close-up of the operating-rod end. The only thing that keeps it retained in the latch is that small amount of material that is "upset" at the end. It's hard to imagine that little upset metal is all which keeps us from stalling on a go-around with flaps deployed. THIS is the actual rod which FAILED and fell out of the latch, causing failed flaps.



Here is the Latch, removed from the flap lever and showing the MS screw in lieu of aluminum rivet. The hole that operating rod passes thru is on the right. When that hole elongates, or the rod's upset-end loses material due to years of vibration, the rod can disconnect and the flaps will be locked in whatever position they presently are. You will NOT be able to change them in flight. The "trap-spring" is the only spring inside the flap lever and provides all the "feedback" to the release-hutton.



Here's the operating rod re-installed thru the latch. The "upset" had to be hammered out/removed to re-insert it after the latch hole was peened back into being round. Next, we'll place washers over the end of the rod. (The latch can only be seen in this position with the latch-rivet or MS screw removed. After the repair, the latch is placed into position and held with the MS screw.)



operating rod, the outer washer will be welded onto the rod with a "bead" of steel from a wire-feed MIG welder and buffed. The result will be a smooth finish, and a more permanently captured operating rod. The washer on bottom will behave as a shim and guarantee smooth, rotating operation (as well as provide assurance the welding operation will not solidify the rod to the latch.) The needle-nose pliers are holding the operating-rod in position during the operation.



The assembly is going back into the tunnel. The flap lever is in the full-flap position. Note the MS screw and nut have replaced the aluminum rivet.

#### **Subsequent Action and**

Repair: The flap lever was removed from the aircraft and the operating rod was re-inserted through the latch. Two, thin steel washers (AN960-8L) were placed over the end of the rod and the outer washer was MIG welded to the end of the rod, to prevent future disengagement of the rod from the lever. The aluminum rivet (no Pn) holding the steel latch to the steel flap lever was replaced with a steel MS 27039-10 screw and MS 20365 nut. The entire assembly was painted, lubricated, and re-installed.

Additional Notes: It has been noted previously that the latch Pn:0510167 is held in the flap lever and operates upon an aluminum rivet (no Pn) which is softer than the steel flap lever has a tendency to wear and allow the latch to "wobble". This can also lead to flap failure. NTSB reported at least one fatality (reported in the Forums) when the Cessna 180 (identical flap system) attempted a go-around and the flaps failed to retract due to this worn rivet. The rivet wear is hidden from ordinary view by its "head" and a washer. The wear can only be detected when an attempt to place lateral movement upon the latch while the flaps are released and the latch is not engaged with the sector.

**Recommended Action:** Inspect the flap lever release button and operating rod, latch, and latchrivet and modify in accordance with the above description. (Minor alteration) To inspect the rod, with flaps fully deployed, use a screwdriver or pliers to attempt to dislodge the rod-end from the hole within the latch. Alteration is recommended at first possible opportunity regardless of result of this test. If the rod can be removed from the latch, repair/modify before further flight. To inspect the latch, with flaps fully deployed and with release button depressed, attempt to "rock" or otherwise "wobble" the latch while observing movement of the aluminum rivet within the flap lever. Rivet movement indicates a worn rivet which should be replaced, preferably with an MS screw and lock nut.

# On Landing a 170 at Teterboro

by Barry Field #5403 MA

In the light mist I cannot see it

Follow the silvery river

"Maintain one thousand, report the Tap"

Entering the air of very quick metal

"Right to two six zero, you're on a five mile base for one nine."

From among the houses two strips of asphalt

"You'll be following a Falcon 50 on onemile final"

"Keep it square, report the turn"

Stick the wing into the swimming pools

"Keep your speed up, contact the tower"

Diving toward the threshold

"Cleared to land, I have a Gulfstream on two-mile final"

Forget the flaps, drive it on

"Is that a 170?"

"Right on Delta, contact ground"

"Left on Lima" face to face with a Lear

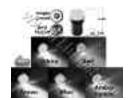
"Right on golf, the Lear will hold

You hold for six"

"Cleared to the ramp, nice looking aircraft."

## Replacing Interior Lights with LEDs

by George Horn, Parts / Maintenance Advisor TIC170A



I've completely converted my interior lights to LED, which is legal.

Here's a link to the LED (9-led) replacement for the GE-67. You will want the "single circuit" 1156-base unit.

http://www.ledlight.com/9-led-light.aspx

My instrument lighting system is original, and uses the Grimes "torpedo" light fixtures. They have red lenses and are controlled by a rheostat beneath the panel. There is also a pilot's "map" light on the left/fwd doorpost that has a red lens, contolled by a slide-switch on the doorpost. (see page 116 of the B-model IPC)

116 MODEL 150B ILLUSTRATED PARTS CATALOG (ii) FUSELAGE ELECTRICAL EQUIPMENT AND WINNING INSTALLATION

I had previously added a second map-light and switch to the copilot's side fwd doorpost, removing the red lens, so that there'd be a white, reading/map light in that position. Additionally, I'd previously added two more lights/switches on the rear doorposts for pax reading lights. These all used GE-67 lamps per the IPC, and that made a total of six lamps, drawing approximately 3.5 Amps.

I converted them all to LED lights, keeping the original instrument lights red LED, and the others all white. This makes a total amperage-draw of .66 for all of them and, even with all six ON... is undetectable on the ammeter, having saved about 3A. Another distinct advantage of the LED lights is that they generate virtually NO HEAT. They barely become warm. Anyone who has accidental-Ily grabbed one of those original lamps fixtures after it's been on a few days and blistered their hand will appreciate this!

The problem I ran into was that the Grimes "torpedo" fixtures utilize the GE-67 bulb's side-illumination capability....yet the #67 replacement-LED's only provide forward-firing capability.

In my fooling around I came to realize that I had plenty of ordinary plastic plumbing parts leftover from when we remodeled the house, and that a common 1/2' butt-splice is a perfect fit when the bakelite "torpedo" is snapped off the Grimes fixture. Now the fixture can be rotated upon its ball-andsocket to aim directly at the object or instrument panel. I painted them flat black. (In reality, I did find a bit of interference internally between the LED and the "rib" which is inside the butt-splice (intended to accomodate the ends of the plumbing pipe when it's glued), so I removed the rib with a 3/4" drill in my drill-press. It could also be done with a Dremel rototool, die-grinder/sander or similar tool.) I also discovered that instrument panel lights needed to be shielded internally black...or the glare can be distracting. So I painted the shields (butt-splices)

such that their interior surfaces would also be black. The pax reading lights I kept white interiors for greater illumination. (I used a length of ordinary 1/2" pipe stuck into the end while I spray painted the splice.)

I discovered that LED's are infinitely controllable by the rheostat and yet they offer MUCH more light and MUCH wider angle-of-



Original Grimes Torpedo (PN-0713017)



Grimes Torpedo separated (w GE-67)



Ordinary butt-splice (note interior rib to be removed.



Removing the rib

departure (broader panel illumination) than the original Grimes. Bottom line: MORE LIGHT for almost NO electrical draw. A "AA" penlight battery could power the entire airplane except for landing/taxi lights. (That's a BRAG, that bluEldr will appreciate!)

One final note: The overhead instrument panel Grimes fixtures had to be mounted upon angles in



CoPilot Map Light (after modification)



CoPilot Map Light Completed



Original Map Light (red) after modification



Install Panel Light modifications (notice angle mounts)

order to reposition them so as to directly aim at the instrument panel. You can see how I did that in the photo that shows the backside of that overhead panel.

Here's a few pics:



Install Panel Lights dimmed



Passenger reading light (left, same as right)



LED Tail light ON



Closeup of tail Nav light (LED)

### Wild Rides

Cleo Bickford #C42 TX

Most well planned cross country flights proceed smoothly as planned without too many unpleasant surprises. The dangers inherent in operations in or near thunderstorm activity have been hammered into our heads from the time we started flying. We usually give them a wide berth. Occasionally, however, we encounter atmospheric conditions that get the adrenalin pumping and stimulates the growth of gray hair.

Summertime flying, especially in the western part of the country, can be interesting. One of the phenomena often observed is the dust devil, or whirlwind. These are miniature tornadoes frequently seen over plowed fields. They can be present on completely cloud free days and can keep you on your toes when making take offs and landings. Generally, the only notice you wll have of their presence while in cross country flight will be a few good bumps. There is, however, one phenomenom which manifests itself as a vortex tube emanating from a squall line or nearby thunderstorm. The only evidence of its existence would be where the tube touches the ground where it will appear as an ordinairy dust devil. The rest of the activity may not be visible, but it's there.

On a flight north out of Albuquerque in company with three other airplanes, we observed dust devil activity ahead and to our left. We were at 8,500 feet with mountains to our right and desert to our left. There was a squall line next to the mountains with a shelf of clouds extending overhead. We had about 3,000 feet of running room beneath these clouds. The air was perfectly smooth. I was leading with one aircraft directly behind me and the other two staggered to the right closer to the squall line. Suddenly, without any preliminary bumps, we were catapulted upward at a rate that pegged the ROC instrument. This was accompanied by turbulence that took all the ability that I could muster to keep the airplane upright. It seemed as if we were in the turbulence for ten minutes,

but it was probably more like ten seconds, then it was over and we were about 1,000 feet higher. The airplane following me had the same experience, but the other two aircraft never had a bobble. It appears that we had run through the vortex tube decending from the squall line and producing the dust devil on the surface. I guarantee you, that was an attention getter.

Another interesting form of activity in the mountainous areas is the mountain wave. Mountain waves can form when the wind across the mountain tops gets up to 30-40 mph. The airflow down the mountain forms a series of waves downwind that may extend as far as one hundred miles. Depending upon the amount of moisture in the air, the presence of the wave may be distinguished by the presence of lenticular or lens shaped couds above each of the wave segments. The rising side of the wave produces tremendous lift and is used by sailplanes to stay up for hours. There is one real problem area in a mountain wave, the roll area. Directly under the lenticular cloud is an area of turbulent air rotation. There may or not be a roll cloud in this location, but it is a dandy area to stay away from, as I can tell you from experience.

We were on a trip to the Pacific Northwest in a 250 Comanche and were proceeding up the eastern slope of the Rocky Mountains at 10,500 feet. The lenticular clouds had been visible in the distance for about half an hour, but there was no indication of the roll activity. The air was smooth, and we had been getting a good ride for most of the trip; so we proceed-

ed along fat, dumb and happy, blundering directly into the area under the lenticular where the roll cloud was supposed to be. The cloud wasn't there but the turbulence sure was. It felt as if a very large dog had grabbed the Comanche by the tail and was trying to shake the wings off. I immediately pulled the power and went into a right turn. I'm not sure why I turned right other than it was in the direction of flatland. Anyway it had the desired result; we got out of the turbulence. We reassessed our position and moved over to the lifting side of the wave and used the help that Mother Nature was providing. Since this incident, I have flown this route many times and I have a healthy respect for mountain waves. I also have great respect for the sturdiness of that Comanche.

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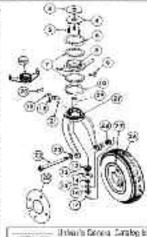
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# Scott 3200 Tailwheel Spindle Failure

John Renwick #7680 MN

From the Forums:

Fri May 15, 2009 8:06 pm TIC170A member Dennis Hoffman asked me to post about an incident that happened to him last weekend. Fortunately it happened on the ground at our home airport, just as he began to taxi out of parking, and there was plenty of help around to get the airplane back to his hangar. He had spare parts available to get the problem fixed the same afternoon.

The failure was in the spindle part of the Scott 3200 Bracket





Assembly, The spindle cracked in half, which allowed most of the tailwheel to become detached from the airplane

This part has a grease fitting on the wide end, which has been removed. It's drilled axially down from the fitting, and transversely where the crack occurred. It also had a groove machined around its circumference, to help distribute grease to the working parts located between the bracked assembly and the fork:



The transverse passage and the circumferential groove seem to have created a weak area in the spindle where the crack occurred. Dennis noticed that the spare part he had did not have the groove, and the transverse

passage was smaller in diameter than on the part that broke. We guessed that his replacement part might have been a later revision than the one that broke, engineered to prevent this problem.

This might be something to be sure to inspect the next time you disassemble your tailwheel.

**Join or Renew** You don't have to be an airplane owner to join the TIC170A - just someone who appreciates the 170s, classic aircrafts, and the comradery of sharing information and experiences in the air or in the hangar with friends and family. You will receive a membership card, a decal, the monthly newsletter, the quarterly magazine, access to members' only section at www.cessna170.org, the membership directory, and other information.

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# 170s in the Air

# Third Annual Cannon Creek Fly-in - March 28, 2009

Harley Pickett #3524 FL

Well, the weather really went sour for us, even in sunny Florida! There were solid thunderstorms, tornado warnings to the north of us, and thunderstoms with high winds and large hail to the south of us!

Our local EAA Chapter co-sponsored this event with the TIC170A group, providing a great Bar-B-Q lunch. There was a total of twelve aircraft that made it in, and one hundred twenty-five people in attendance for lunch. They also performed a missing man formation flyover with three RV's and a T-34 doing the turn out, for one of our dear departed friends from Cannon Creek Airport.

After lunch, we adjourned to our house for an afternoon of hangar flying and refreshments. There were ten members in attenance: Sharon and Dottie Trembly from Lakeland, Leonard and Cel Sowell from Glen St. Mary, Richard Flotemesch and Lyn Lyndall of Lake City, Jerry and Mary Fowler from Hernando, plus Barb and I. We also had a couple guests. Bill Doty of Ocala flew a C170A in, and Ed Dearwent from Little River Airpark, Talkeenta, AK who is looking for a 170. I gave them all applications to join our club, and encouraged them to join us.

Richard did a show and tell on his award winning 170B, and I did on my 170A (The Other Woman). Sharon and Dottie stayed overnight with us, and headed home after breakfast on Sunday morning.

Ed and Mary Booth and Bob and Carol Coats came the following Saturday (rain date) and spent the afternoon hangar flying.



Bill Doty's C170A Prospective member from Ocala, FL





Bill & Bill Jr. Doty



Dottie and Sharon Trembley, Harley Pickett and guest



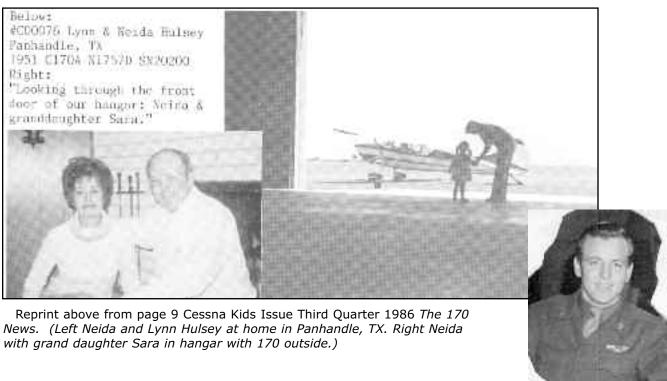
Top (Left to right); Harley Pickett, Bob and Carol Coats Front: Barb Pickett and Mary Booth (Photo by Ed Booth)



The gang with Ed Booth (Photo by Mary Booth)

# Looking Back

Sharing some memories with members Lynn and Neida Hulsey C76 TX



Doctors visits, weddings, several funerals, reunions, no stimulus check, and a real Texas hail storm, did not keep Lynn Hulsey from taking the time to share some information with me about his Cessna family and flying life. After serving in the army air corp 1942-1946, Lynn was a public school

teacher and coach for 30 years. During the summers for 20 years he flew A.G. Husky (Sunray, TX) planes. And after retiring from teaching, he continued to fly - full time for 10 years.



Lynn has enjoyed restoring his 1942 Ford (GPW) jeep. "It's just about as original as you can get." His army serial number is painted on the hood - USAAC 18183561. 2007 Veteran's Day parade in Amarillo saw Lynn sporting 1st place in the parade!

Neida and Lynn with "The Stearman" 1942 Navy 253. They have ownd this "Boeing" from Tyler, TX since February 1989. Picture is in front of their north hangar in August 1989. The Stearman was in storage from 1946 to 1980. It was restored by an A&E from San Antonio from fuselage up. Restoration took 3 years to complete. It includes a 225 hp Lycoming, automobile brakes, electrical system, radios, intercom, metal prop. For two years a retired Braniff pilot flew it to air shows before it was sold to the Tyler, TX owner.



Reprint above from page 9 Cessna Kids Issue Third Quarter 1989 *The 170 News.*Top right: Grandchildren Bryan, Sara and John beside the Hulsey's Cessna 170A. Bottom: Granddaddy with John and Bryan on the wing of Cessna AG Husky. Grandchildren are children of Glenn and Lynna Hulsey Armstrong.

"Grandkids are all grown, out of college, married -- with families and work and live in the Dallas area."

N1757D 1951 Cessna 170A was purchased new in 1951 by a flying club in Bellville, IL. The Hulsey's bought it in 1963 - now owning it 46 years! Chrome, major and a new paint job were completed a few years ago. 100 hrs on the engine since the major. He joined the Association in 1969 as a Charter member

Lynn says he flies "it very little."





### The International Cessna 170 Association

Jan Billeb, Executive Secretary 22 Vista View Ln Cody, WY 82414-9606 USA

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