



AMERICAN BONANZA SOCIETY NEWSLETTER

Editor: Ralph G. Haesloop
 Publisher: American Bonanza Society, Inc.
 CHEMUNG COUNTY AIRPORT
 Serving Elmira Area
 HORSEHEADS, N.Y. 14845
 Circulation: 5300

October 29, 1974

Volume 74, No. 10

Page 447

BONANZA OF THE MONTH



THIS IS MARY--copilot, navigator and cowl cover seamstress extraordinaire.



Enjoying one's aircraft is the name of the game. Dr. Millard Harmon, ABS #2633, 34 Elsmere Ave., Delmar, NY 12054, tells us how he has personalized his Model 36, N7710R, with numerous convenience and safety features. His interesting description of his various "Harmonizers" follows on the next page.

AMERICAN BONANZA SOCIETY NEWSLETTER is published monthly, except for the month of August. Annual membership dues is \$10.00 of which \$8.00 is the subscription price to the American Bonanza Society Newsletter. Second Class postage paid at Horseheads, N.Y. 14845

BONANZA OF THE MONTH--CONTINUED FROM FRONT PAGE

The ABS encourages members to forward articles and photographs of their aircraft so that different ideas and suggestions can be shared with other Bonanza pilots.

Dr. Millard Harmon writes us as follows:
Dear Ralph:

I would like to suggest N7710R as BONANZA OF THE MONTH. The modifications involved do not run toward additional sophisticated equipment, but rather living with the aircraft until I have evolved those small items of personal preference that give an extra margin of satisfaction when flying.

These personal preference items are also related to safety and include:

1. Dual control was arranged when I bought the plane. From past experience I've learned that it's most helpful for a nonrated wife (who is an excellent navigator) to hold the controls while I'm eating a sandwich. My wife doesn't even drive a car, out of preference, and has even less interest in flying a plane. However, through the sandwich routine, I think she could handle an emergency if I were incapacitated for any reason.

2. At six feet three inches, I always found Bonanzas cramped for leg room. This problem was corrected, at the time of purchase, by installing new seat rails with an extra three inches of leg room (and appropriate notation in log, approval of FAA, etc.). This was for the left front seat only, of course--my wife isn't six feet three inches.

3. I flew the plane a year with the dual yoke in the "up" vee position, but was unhappy with the instrument visibility--particularly the two VOR heads both of which were on the bottom of the panel. Thus, I turned the yoke around and have now flown the plane a year in the "down" position. This has proven unsatisfactory in cross-wind landings, with my knees and the ram's horn colliding. So, last month I once again reversed the yoke to the "up" position, and moved the number one VOR head to just under the "tach."

4. After a couple of years of flying with a hand mike, I had had enough experience with difficult flying situations and the need to communicate, so decided a boom mike was a safety necessity. This was installed in parallel with the hand mike so it could be used in an emergency. This mike is also available for use with the ELT if I lose my alternator--which I did one night ten minutes out of New York City, but that's another story. I was unhappy with the boom mike cord catching on the fuel selector switch and being under foot when I first climb in, so I rigged the wire (with dental floss) to the first window upholstery screw, over the compass light switch, and used the rear window upholstery screw with about six inches of floss to maintain tension. The mike now hangs on the coat hook just above and behind my left ear when not in use, and the cockpit is clear of the wire. Also, the wire doesn't get excessively worn. While the boom mike was equipped with earphones, I disconnected them and prefer to use the cabin speaker as a backup on communications that I may miss (copilots and passengers sometimes provide the missing or garbled communication item). A separate set of earphones are available for the youngsters to use with the ADF without interfering with flying tasks.

5. I got tired of always pulling the check list card out of the pocket and then dropping it on the floor or getting it mixed up with maps, so I typed the check list (used five headings--BEFORE START, START, BEFORE TAKE-OFF, BEFORE LANDING, AND SHUT-DOWN), had them plasticized, and then scotch taped them to the control yoke.

6. Perhaps the most satisfaction has come from my developing what I call a "HARMONIZER COCKPIT ORGANIZER." I've always been unhappy with maps, approach plates, notebook paper, and a number of other things flopping around the cockpit. The leg strap with pad is uncomfortable and spoils the pant crease; an open notebook crowds the cockpit, etc., etc., etc. The "HARMONIZER" has a face plate for paper to carry flight plan information as well as

record new frequencies from Center, new squawk numbers, etc. Just under the face plate is a handy but separate place for approach plates, and the compartment at the back holds my logbook and maps. (I'm presently researching this project out to see if I could make this unit available to fellow pilots, and if this works out, you'll see my ad in the Newsletter.) Incidentally, the "HARMONIZER" attaches to a special platform on the control wheel with velcro.

7. My computer rose is attached by velcro to the right side of the control arm and is barely visible just under the left thumb rest of the copilot's control wheel.

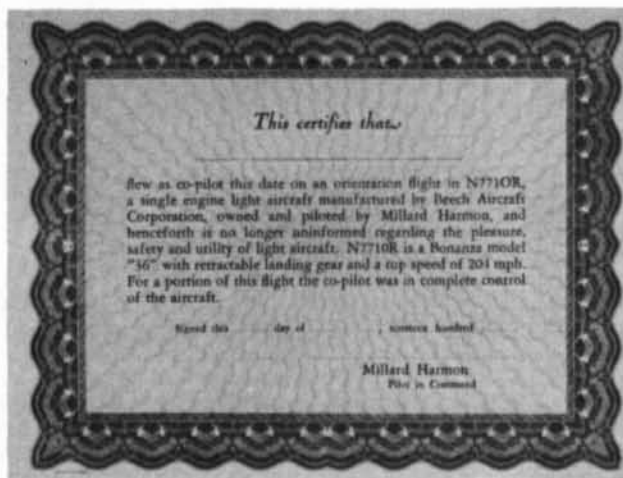
8. After three years of flying with a personal ELT, I finally determined that the permanent location should provide easy access in the event of exiting in the water. Therefore, this is placed on the right side just behind the door opening and is equipped with a third mike. The advantage also of this location is the availability of this equipment in the event of an electrical breakdown as referred to in item four.

9. It also seems that the Kleenex was in the back when needed up front in the pilot area. To solve this problem, a plastic box with velcro was prepared and velcro strips attached to the upholstery just below the door opening and to the right of the copilot seat.

10. Special painted symbols have been placed just below the pilot's window representing three significant events in Civil Air Patrol service.

11. My talented daughters are preparing a nylon bird cover (without metal fasteners) that will make use of gum-taped hooks and elastic cord.

12. One of my greatest pleasures is introducing nephews, nieces, and children of our friends to the glorious pleasures of flying an aircraft. While it may be illegal (from the FAA viewpoint), a "copilot ticket" has been printed to specialize these learning activities for those for whom it is a first experience. A copy is enclosed.



SO--enough of the "personal taste" business!

N7710R is a Beechcraft 36, serial number E-103, with basic instruments and including, in addition, a Regency Transponder, ADF, two Mark 12's with heads, a King 60C DME, marker beacons, strobe lights, wing leveler, EGT, Hobbs Meter (tied to measure only gear-up time), large fuel tanks, external power plug, SHARC-7 ELT (from ABS with appropriate dollar savings), fire extinguisher, first aid kit, flares, and six life jackets. (We fly over water often and always insist that they be put on when over water. No problem now, but I can remember several years ago when the younger of our five children strongly protested this mandate when we were 5,000 feet above Lake Michigan--in those earlier days I think they were wise enough to understand the implication and were not sure how reliable that fan up there might be.)

Flying in heavy rain, sleet and icing required that the leading edges of the wings be stripped and repainted a year or so ago.

This is an absolute dream of an aircraft, and has proven an excellent platform for CAP work, as well as a great way to keep my five children acquainted with their grandparents in Kansas and LaCrosse, Wisconsin.

Dr. Millard Harmon, ABS #2633
34 Elsmere Avenue
Delmar, NY 12054

1974 LOUISVILLE ABS CONVENTION HIGHLIGHTS

Have you noticed that each year we report that this one is the biggest yet? Yes, it held true in 1974 at Bowman Field and the Galt House, Louisville, Kentucky. Over 400 Beech "birds" came in to roost bringing approximately 1,000 people to participate in the activities.

This is my fourth consecutive convention and it turned out to be the smoothest yet. Arrivals were orderly, parking was well-directed and handled in a professional manner, cars picked up the arrivees at the flight line and transported them to the terminal building where buses operated frequent service to the hotel facility. Check-ins were smooth and the registration desk performed at peak efficiency. Ralph and Betty Haesloop are to be congratulated for their ability to organize and operate the conventions the way they do.

Robert L. Wick, Jr., M.D., ABS #687, of Ohio State University, gave us a good talk on stretching the fuel we use. He stressed the importance of the right understanding and proper use of leaning procedures, more efficient flight planning to eliminate time en route and ideas which eliminate some of the things we do just because we learned it that way. For example, many times it's cheaper (fuel-wise) to go VFR than file IFR simply because the ATC sometimes sends us via the longer airway routes. Also, going direct and VFR on top will save fuel while at the same time staying tuned in with ARTC for effective communications and the good feeling of knowing someone is there if you want to converse with him (or her nowadays). Dr. Wick also suggested eliminating the ground run-up in warmer weather prior to take-off if you have taxied far enough to get the heads warm and the oil temp off the peg. The mags can be checked while taxiing and the prop can be exercised at 1200 to 1300 rpm. Engine run-ups after a fuel stop have always been a waste of fuel and time--not to mention soaking the engine and accessories with heat when you will be depending on them the most during take-off. Heat is the great enemy of engine health. His talk was not only useful in helping to conserve fuel but it likewise keeps the cost down since gas prices have gone up. My feeling was that he was gently prodding us to think a bit more about all these possibilities and in so doing we would be more effective in getting the best performance from our Bonanzas.

John A. "Sandy" Doig, a pilot and CPA with Price Waterhouse, gave us some tips on how to save some tax money. His talk covered many aspects of what to do and how to do it in relation to ownership of an airplane. However, each case is so special that my understanding of his message was that the best way to go about this is to use a good CPA who is knowledgeable on the subject of aircraft ownership and operation. Several of his examples were proof enough that a good professional doesn't cost money--he saves it for you.

Dick Scheffner and Ken Gardner of Teledyne Continental held sessions on the various Continental engines installed in Bonanzas. This proves to be one of the important seminars at each convention because Continental is able to keep us abreast of conditions in the field of engine performance. Many new owners are particularly pleased to attend these sessions and learn more about the best ways to handle their power plants.

J. N. "Norm" Colvin of Beech Aircraft fielded dozens of questions during the sessions he held. "Norm" is so well versed on the Bonanza that it is truly a rare thing to stump him. However, if he can't answer a question, he will make a note of it and write the answer to the questioner after he gets back "home" to Beech and digs it out. "Norm" is a sin-

cere and friendly individual and when he gets through answering your question, you have the feeling that he wants you to get the best possible performance from your Bonanza.

Al Hundere, President of Alcor Aviation held a seminar on fuel economy and exhaust gas temperature (EGT). His session was truly one about not only getting the most out of your fuel dollar but also how to be aware of your engine's performance and health. He paid the ABS a real fine compliment by saying that his latest production item is the result of feedback from Bonanza owners in the ABS who have exchanged ideas among themselves in the newsletter and with him on the subject of cylinder head temperature (CHT) and exhaust gas temperature (EGT) on all six cylinders. He is proud of his latest creation which presents both CHT and EGT simultaneously for any cylinder chosen by use of a selector switch. I have used this dual installation for over 500 hours and have stated several times that I feel that I have the safety of a twin-engined aircraft (barring acts of God) through the use of the information that CHT/EGT provides on all six cylinders. Al explained how to use the EGT and he presented all who stopped by his booth a copy of his latest publication, "EGT AND COMBUSTION ANALYSIS IN A NUTSHELL." It's a 20-page booklet printed in color presenting the CHT/EGT story in a way that is easy to understand. If you didn't get to the convention, or if you did and you failed to receive a copy of this publication, I suggest you write to Al at Alcor Aviation, Inc., 5420 Bandera Road, P. O. Box #28299, San Antonio, Texas 78284, and ask him to send you a copy. This knowledge, properly understood, can lead to airborne peace of mind when you are on top, at night, and over the mountains.

The programs for the ladies were well attended and many folks brought the kids, too, who seemed to enjoy themselves.

Mr. Leddy L. Greever, Vice-President, and Mr. Harry Gregory, Manager Customer Service of Beech Aircraft, were in attendance at our daily sessions and banquets.

It never fails to amaze me the way our members dig in at these seminars. The attendance is always heavy and the interest deep. Our speakers invariably comment that they never experienced such intensity of interest and depth of questioning as they find at an ABS convention.

This report only scratches the surface. If you have not been fortunate enough to attend the convention, you are missing out on the information program of the year as it pertains to how and why in relation to your Bonanza plus missing the opportunity to meet the greatest members of any organization in aviation. Hope to see you next year!

Paul R. Morton, ABS #749
244 Cardinal Lane
Delray Beach, FL 33444

LEAD NOSE WEIGHT IN S-35 & LATER MODELS

Dear Norm:

In a recent article on turbocharged Bonanzas (ABS Newsletter page 424), Dr. Sommer mentions a 48-pound lead weight being removed from the nose of his S-35. It has been called to my attention that this figure can hardly be accurate. Could you inform us as to the correct weight of this lead block and on which models it was used? Are there any other occasions when it can be removed?

Ralph G. Haesloop, ABS #115
Executive Director

Dear Mr. Haesloop:

This is in reply to your letter of July 29, 1974, in which you refer to a lead weight located in the nose bug of the Bonanza series S-35 through current production. The standard weight configuration weighs 20 pounds and cannot legally be removed unless by STC which then alters the airplane from the original configuration.

In a very few cases at customer request, heavier weights have been added to offset unusual loading conditions but this is rare and the weight did not exceed 41 pounds.

The Model 36 Bonanza does not use this weight because the wing spar was moved 10 inches aft so the weight is not needed.

J. N. Colvin
Project Service Engineer
Beech Aircraft Corp.

NEWS AND VIEWS

TIPS ON FUEL CELL REMOVAL AND REPLACEMENT

Dear Ralph,

I truly envy those members possessing a vast intimate knowledge of their planes and make every effort to work alongside the mechanics to learn how parts fit together, how systems work, and fail and why. These men have been patient, helpful and glad to explain their work to one who is genuinely interested.

A recent sickening experience occurred upon entering my hangar to find fuel spilling from a leaking fuel tank. The first chore after turning the fuel selector to "Off" and pouring fuel into car, cans, and a garbage can was to go through all the ABS newsletters for advice on how to remove the fuel cell. The scarcity of information there and in the service manual prompts this letter, with my observations, of how knowledgeable professionals removed, repaired, and replaced the un baffled cell from the left wing of my V-35A, and my own suggestions, as not all mechanics have had an opportunity on a Bonanza, and there's no need to learn at our expense.

1. Carefully scratch the paint away from the edges and centers of all screws in the two access panels on the top of the wing around the fill spout and near the wing root. A few minutes here will save you hours of drilling out those Phillips screws that have had six years to set up! A touch of Liquid Wrench on each and time to soak can be a big help. Remove the outboard access hatch on the underside behind the pitot tube and the cover by the jack point at fuselage. A very useful tool is a brace and bit type socket wrench with a couple of different sized Phillips points; and use lots of pressure and a slow start when starting those screws. Make sure the point is the right size.

2. Four safetied fittings must be removed, two of which are fuel gauges which at first try seem too large to withdraw, but they will with careful manipulation. Note orientation before removal. A sheet metal support bracket slightly larger than the inboard access hole must be removed from there--outboard forward corner first. A similar bracket in the outboard hole also comes out.

3. Two vent lines must be released at the fitting behind the pitot tube, using a hose clamp plier. Removal of the rubber tank nipple from the aluminum vent line should not be attempted until the Liquid Wrench has had time to loosen the bond between them. Be careful not to manipulate the rubber nipple as these break off easily, and some repair agencies will not attempt to repair a Goodyear tank with damaged nipples. They sometimes can be repaired at a savings of hundreds of dollars, however, but only if you can find a repairman that will take the time. Reconnecting these vents can be difficult.

4. The quick drain comes out when unclamped--again, reluctantly, so try to lube it first. This is another nipple to the cell and is easily damaged. O-rings cost \$1.30 each, one of aviation's greatest rip-offs, but now is the time to replace them if needed. When reinstalling, a clamp tightened with a screwdriver rather than the bolt type may be easier.

5. The fuel feed is unfastened with two 11/16 inch wrenches, duckbill pliers and an icepick. (This was where my tank let go, at the nipple-to-tank joint.) Be especially careful not to lose parts into the fuselage.

6. Sixteen snaps hold the tank in place to the top of the wing. On reinstallation, note their locations and spacing and keep count as you snap them in. A touch of lube helps.

7. Carefully pull the cell out through the inboard hole and try not to introduce new creases.

8. At this point, good professional tank inspection and repair is needed. I was fortunate to encounter Mr. Dutch Loehr, presently in Miami at (305) 887-6902, though he expects to retire to a semiactive status after many years and thousands of tank and deicer repairs.

Apparently Uniroyal makes a tank superior to Good-year, though both brands may be found in the same plane.

The longevity of the tank is largely determined by the habit of keeping it topped off to prevent drying out of the rubber, as described in the owner's manual. Leaks usually occur at nipples, corners, edges, over the landing gear bolt guard, and in the upper portion of tanks not kept full. Cracks in the outside plastic coating of the cell are relatively unimportant as it is the interior rubber face that does the sealing, and this must be perfect. A professional can decide if a tank can be expected to last if repaired, as handling of a marginal cell during repair can create more leaks than practical to repair. If a patch or new nipple is required, two types of adhesive can be used. Mr. Loehr uses chemically activated cements that give a much stronger connection than contact cements, though it takes about 3 1/2 days to complete the job due to long waiting periods while the activators are drying before sealing. He built three nipples for me that were superior to the original installation. They were made from fabric-reinforced rubber tubing and special cemented fabric shaped to form the mushroom. Old nipples were carefully measured, ground out, tank hole edges chamfered, presealed, new nipples installed, resealed, and pressure tested.

9. Before reinstalling the cell, the interior aluminum wing skin should be wiped with ordinary oil to prevent corrosion as the shock of cold gas in a hot wing in the sun will cause quite a lot of condensation within the wing that can only be eliminated by slow breathing of the wing. Talcum powder should not be used as it will simply form a moisture-retaining sludge, and moisture is an enemy of aluminum. Oil the inside of all nipples before hooking up. Vacuum the inside of the tank, hook up the gauges and verify fuel readings, lubricate the four gaskets with either zinc chromate paste or Tite-Seal, and replace the safetied fittings. Recheck that the gas cap still fits tightly or you'll be streaming gas when you flight test. (See Norm Colvin's excellent letter in 1/29/72 ABS.)

10. Always be especially careful not to twist or bend rubber fittings unnecessarily. Most of the problems will involve screw removal, fitting disconnects and re-connects. It took two of us 2 1/2 hours to remove and it would have been half that time except for painted-up screws with damaged edges. The repair portion cost me \$90, quite a lot less than the price of a new tank, which was the alternative when told by another outfit that nipples could not be repaired. I expect the repaired cell to last at least three more years.

If there are technical errors or omissions in this report, which is intended to be of benefit to those who have never seen this operation performed, I ask your forgiveness.

Alan L. Fitzgerald, ABS #5493
1771 S. E. 10th Street
Ft. Lauderdale, FL 33310

FLYING IN ENGLAND AND PORTUGAL

Gentlemen:

Please find enclosed a cheque for dues. I have recently bought a villa in Portugal, so have changed for a B-95. Having to cross the Bay of Biscay and the Pyrenees every time, it feels safer with 2 engines. But gasoline is \$2.40 a gallon in Portugal. Duty Free is available only at the Porte of Lisbon and there is a \$25 customs attendance fee. It makes me cry. Went down in a bad one a couple of weeks ago, after taking a rough time for an hour at 7,000; finally went out over the water and came down underneath. Came out at 350 feet and had 2 1/2 hours like that in really heavy rain.

Here in Blackpool we have the Air Touring Club which is a bunch of private owners with 3 Bonanzas, 1 Debonair, 1 Travelair and 1 Baron. If it goes on, we will be 100% Beech.

Harold Southern, ABS #3515
45 Oldfield Carr Lane
Poulton Le Fylde
Blackpool,
Lancs, United Kingdom

WINCHING BONANZAS

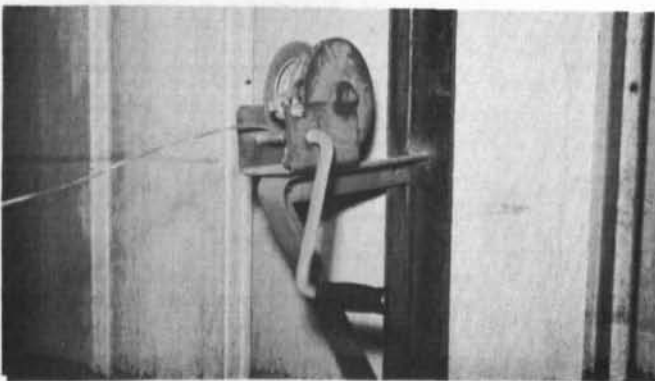
Bonanzas get heavier with age (mine).

Here's a picture of a simple installation of a boat winch mounted on a bracket welded to the back wall of our T hangar.

When we bought the winch at a surplus store some ten years ago, it cost five dollars complete with cable. It has a locking ratchet and dog which can be flipped into place to lock the winch and prevent the load from slipping downhill.

We maneuver the Bonanza by hand until it is more or less lined up, then run back to the winch and crank it into the hangar. We have an asphalt paved floor and paved ramp.

If one doesn't have a helper to steer the nosewheel, one must take care that the tail is tracking into the T straight. One may have to run back and adjust the nose-wheel until the plane is moving in a straight line into the hangar. Usually it will enter the hangar with only one or two adjustments if it is lined up to start.



If the plane is more than ten feet out from the hangar entry, with the cable attached to the tie-down ring, hang something conspicuous on the cable to prevent someone trying to drive behind the plane while you are getting set to operate the winch.

We experience considerable floor heaving from frost, making it almost impossible to hand push the Bonanza over the sill and back into the hangar in winter.

Be sure and disconnect the cable after winching in. If a slack cable is left hooked to the tail, next time you pull the plane out over the sill, the locked winch and hooked cable will stop the plane with a jerk that might do damage to the fuselage.

A. F. Edwards, Jr., ABS #4866
17901 East Warren Avenue
Detroit, MI 48224

IF YOU THINK YOU'RE HEAVILY TAXED

One of our ABS charter members, Vincent F. Garofalo, M.D., ABS #730, P. O. Box 33, Kabul, Afghanistan, is an Italian medical doctor working in Afghanistan for the World Health Organization, a function of the United Nations. Vince owns an A-35 Bonanza of Italian registry (see ABS Bonanza of the Month, Nov. 29, 1972, page 279). In a recent letter, he has reported as follows a new Italian government tax on General Aviation aircraft:

"I had some troubles with my Alpha Victor. I was obliged to pay to the Italian Government a tax (they call it 'una tantum') which is new for private planes and has been issued because of the Italian bankrupt economy--just a little extortion of 1,500 bucks!!! I figure that only 5 Hp more on my engine cost me \$750 extra. In fact, it was \$750 up to 180 Hp and \$1,500 up to 250 Hp. I believe that if this economic crisis progresses any more, General Aviation is destined to succumb.

Vincent F. Garofalo, M.D., ABS #730
P. O. Box 33
Kabul, Afghanistan

CORRECTION OF MISSTATEMENTS REGARDING FUEL VALVES AND UPLOCK ROLLER FITTINGS

Dear Ralph:

On June 20, 1973, we wrote a letter to you regarding lubrication of the fuel selector valves for Bonanzas (see ABS Newsletter page 369).

We have had an occasion to review this information and have found two errors. We stated that fuel selector valves from the Model 35 through the G-35 are cone shaped in design; this should include the 35 through the H-35. We also stated that the valve was electrofilm coated for lubricant purposes. This special lubricant coating was not used on the early valves but became available on spares starting in 1958 and after.

During this year's Bonanza Society Convention, I mentioned the availability of a flush type grease fitting for uplock roller bolts on Bonanzas and Barons. More recent information has determined that the flush grease fitting is not required on Bonanzas and applies only to recent production Barons which incorporate a newly designed landing gear down lock so Bonanza and Baron owners need not be concerned with the need for this change since the change was made only on Barons with the redesigned down lock system.

Beech Aircraft Corporation
J. N. Colvin
Project Service Engineer

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1. TITLE OF PUBLICATION American Bonanza Society Newsletter		2. DATE OF FILING
3. FREQUENCY OF ISSUE Monthly except August		
4. LOCATION OF KNOWN OFFICE OF PUBLICATION (Street, city, county, state, ZIP code) (Not printers)		
Chemung County Airport, Horseheads, Chemung County, New York 14845		
5. LOCATION OF THE HEADQUARTERS OR GENERAL BUSINESS OFFICES OF THE PUBLISHERS (Not printers)		
6. NAMES AND ADDRESSES OF PUBLISHER, EDITOR, AND MANAGING EDITOR		
PUBLISHER (Name and address) American Bonanza Society, Inc. Chemung County Airport, Horseheads, N.Y. 14845		
EDITOR (Name and address) Ralph G. Haselborg, RD 1 Rock Stream, N.Y. 14878		
MANAGING EDITOR (Name and address) None		
7. OWNER (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding 1 percent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a partnership or other unincorporated firm, its name and address, as well as that of each individual must be given.)		
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2. MAIL SUBSCRIPTIONS		5180
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ABS REGIONAL CHAPTER NEWS

NORTH CENTRAL CHAPTER--Need an excuse to fly south this winter to get warm? Well, now you've got one. Your chapter and the Southeast Chapter are planning a joint fly-in at Marco Island, Florida, January 17 through the 19. Those are firm dates so you can mark it on your calendar as the weekend for your "Fun in the Sun." For more details, contact John Frank, Jr., 2800 S. Clement Ave., Milwaukee, Wisconsin 53207.

SOUTHEASTERN CHAPTER--Reserve the dates of January 17-19, 1975, on your schedule for a spectacular weekend on Florida's Gulf Coast. It is on those dates that the Southeastern and North Central Chapters are sponsoring a joint fly-in at Marco Island, Florida. The airport there is 1 mile southwest of the city and has a 4,000-foot paved runway, 15/33. Make sure you're there to meet the migration from the North. For further details, contact David Barton, P. O. Box 80649, Atlanta, GA 30341.

EDITOR'S NOTE ON MARCO ISLAND MEETING: The participating chapters have asked us to note that all Society members are invited to the fly-in at Marco Island, Florida. Contact the Southeastern or North Central chapter head for more details.

BEECH

Airworthiness Directive
Volume I

74-32 Beech. Amdt. 36-1777. Applies to Model F33A (Serial Numbers CE-436 thru CE-483 except CE-439 and CE-462); Model V35B (Serial Numbers D-9469 thru D-9536 except D-9481, D-9532 and D-9533); Model A36 (Serial Numbers E-425 thru E-475 except E-431); Models 95-B55 and 95-B55A (Serial Numbers TC-1552 thru TC-1607 except TC-1557, TC-1558, TC-1599 and TC-1604); Models E55 and E55A (Serial Numbers TC-914 thru TC-940 except TC-919, TE-920 and TE-938); and Models 58 and 58A (Serial Numbers TH-325 thru TH-383 except TH-336, TH-337, TH-363 and TH-382) airplanes.

Compliance: Required as indicated, unless already accomplished per Beechcraft Service Instructions 0612-200 or later FAA-approved revisions.

To check landing gear shock strut pistons for proper hardness, within the next 100 hours' time in service after the effective date of this AD, accomplish the following:

A) Using a portable hardness tester, measure the hardness of the nose gear shock strut piston in an area from 1 inch to 4 inches above the nose wheel fork. The allowable hardness range is from Rockwell Scale C38

to C46 1/2. If during the hardness measuring process a reading appears unreliable, make additional measurements at other spots but within the 1 inch to 4 inch area specified herein until an accurate measurement is obtained.

B) Using a portable hardness tester, measure the hardness of both main gear shock strut pistons in an area 1 inch to 4 inches above the axle socket. The allowable hardness range is from Rockwell Scale C43 1/2 to C50 1/2. If during the hardness measuring process a reading appears unreliable, make additional measurements at other spots but within the 1 inch to 4 inch area specified herein until an accurate measurement is obtained.

C) If a hardness measurement is outside of the hardness range specified in Paragraphs A and/or B of this AD, prior to further flight, replace any defective landing gear shock strut piston with an airworthy piston, except that the airplane may be flown in accordance with FAR 21.197 to a base where the replacement can be performed, provided the landing gear remains down and locked.

This amendment becomes effective February 5, 1974.

APC PROGRAM FOR BEECH ELECTRIC PROP SOLD BY FLIGHT RESEARCH, THE ORIGINAL DEVELOPERS AND MANUFACTURERS

Dear Mr. Haesloop:

On September 1, 1974, Flight Research sold the Automatic Propeller Control Program complete to Aladden Electronics, Inc., Box 203A, Route #1, Sandston, VA 23150, (804) 737-0550.

The person to be contacted is Mr. Robert Jenkins, President.

Since the manufacture of this unit was discontinued in 1956, Flight Research has maintained an FAA Repair Station for the service to the APC as well as a spare parts inventory. Due to the increase in demand for our other products, it has become increasingly difficult to service the control units within a short period of time.

We feel confident that Aladden Electronics, Inc. will be able to continue to assist all Bonanza owners requiring assistance regarding their Automatic Propeller Controls. They are also an FAA Licensed Repair Station for this instrument.

We sincerely appreciate the contacts we have had over the years with all Beech Dealers and Bonanza owners.

William J. Waymack, Plant Mgr.
Flight Research, Inc.
Richmond, VA 23201

Beechcraft SERVICE INSTRUCTIONS

CLASS I

33, 35, 36, 55, 58, 60, 70, 80,
90, 99, 100, 200No. 0655-362
ATA Code 33-40

SUBJECT: ELECTRICAL - STROBE LIGHTS - INSTALLATION OF BONDING STRAPS ON STROBE LIGHTS

EFFECTIVITY:

NOTE

These Service Instructions are to be accomplished only on those aircraft serials listed below which are equipped with Grimes P/N 30-0467-1 strobe light assemblies.

BEECHCRAFT Bonanza F33A, serials CE-436 through CE-520;
V35B, serials D-9468 through D-9654;
A36, serials E-424 through E-581;
Baron 95-B55 and 95-B55A, serials TC-1526 through TC-1729;
E55 and E55A, serials TE-904 through TE-992;
58 and 58A, serials TH-303 through TH-500;
Duke A40 and B60, serials P-223 through P-288;
Queen Air 70, serial LB-35;
B80, serials LD-441 through LD-488;
King Air C90, serials LJ-507 through LJ-644;
E90, serials LW-1 through LW-127;
B99 Airliner, serials U-152 through U-161;
King Air 100 and A100, serials B-52 through B-209;
Super King Air 200, serials BB-1 through BB-30.

REASON: To reduce the possibility of electrical arcing between the strobe light assemblies and the aircraft structure.

COMPLIANCE: As soon as practical after receipt of these Service Instructions, but no later than the next scheduled inspection.

DESCRIPTION: A bonding strap is to be installed between Grimes P/N 30-0467-1 strobe light assemblies and the airframe ground.

APPROVAL: FAA Approved - DOA C3.

MANPOWER: The following information is for planning purposes only:

Estimated man-hours: 3 hours.

Suggested number of men: 1 man.

MATERIAL: The following parts required for this modification are available through your BEECHCRAFT Parts and Service Outlet.

PART NUMBER	DESCRIPTION	QUANTITY	PRICE*
MS35206-243	Screw	2 each req. on 33,35,36,55,58,60,70,80,90,99 and 100 serials noted; 3 each req. on 200 serials noted.	To be advised
AN960DRL	Washer		To be advised
MS21042L08	Nut		\$.10 each
MS35206-214	Screw		To be advised
AN936B4	Washer		To be advised
MS25083-2AB6	Bonding Strap	2 each req. on 33,35,36,55,58,60,99 and 100 serials noted; 3 each req. on 70,80,90 and 200 serials noted.	To be advised
MS35206-263	Screw	1 each req. on 70, 80 and 90 serials noted.	To be advised
AN960D10L	Washer		To be advised
MS21042L3	Nut		\$.08 each

*Estimated suggested selling price. (Subject to change without notice.)

WARRANTY: BEECHCRAFT Warranty on a new airplane is 180 days from delivery or 180 days from the date shown on the Owner Warranty Card. Labor noted herein will be allowed for grounding the strobe lights only on BEECHCRAFTS within warranty at the time these Service Instructions are released.

SPECIAL TOOLS: None.

WEIGHT AND BALANCE: None.

REFERENCES: None.

PUBLICATIONS AFFECTED: It is recommended that a note to "See Service Instructions No. 0655-362" be made in the logbook.

F33A Parts Catalog copies, P/N 33-590010-7C or subsequent, figure 362;
V35B Parts Catalog copies, P/N 35-590102-5B or subsequent, figure 362;
A36 Parts Catalog copies, P/N 36-590001-1C or subsequent, figure 362;
55 through D55 Parts Catalog copies, P/N 55-590000-1SD or subsequent, figure 97;
E55 and 58 Parts Catalog copies, P/N 58-590000-3 or subsequent, figure 362;

ACCOMPLISHMENT INSTRUCTIONS:

Bonding straps may be installed between each Grimes P/N 30-0467-1 strobe light assembly and the airframe ground as follows:

1. Remove the lenses and the P/N 30-0467-1 strobe light assemblies as required to provide access for installing the bonding straps.
2. On the existing 30-0467-1 strobe light assemblies, remove one of the existing No. 4 counterbore, rounded head screws from the top or bottom of the light assembly and discard the screw.
3. Clean the area around the screw hole to bare metal and install the MS25083-2AB6 bonding straps on each 30-0467-1 light assembly with one MS35206-214 screw and one AN936B4 washer.
4. Drill one .165/174-inch diameter hole in the wing strobe light assembly support former 90-inch forward and 1.10-inch below the center of the wiring plug hole in the former.
5. Clean the area around the hole drilled in step 4 to bare metal and attach the bonding strap from the strobe light assembly to the mounting bracket with one each MS35206-243 screw, AN960DRL washer and MS21042L08 nut.
6. Reinstall the 30-0467-1 strobe light assemblies and lenses on the wings.
7. On the Super King Air 200 only, drill one .165/174-inch diameter hole in the tail strobe light mounting surface 3.6-inches to the right of the aircraft center line and centered vertically on the mounting surface.
8. Clean the area around the hole drilled in step 7 on the 200; on the existing mounting hole located in the same general area on the 70, B80, C90 or E90 to bare metal and attach the bonding strap from the strobe light assembly to the mounting surface with the following parts: for the 200, one each MS35206-214 screw, AN936B4 washer and MS21042L08 nut; for the 70, B80, C90 or E90, one each MS35206-263 screw, AN960D10L washer and MS21042L3 nut.
9. Reinstall the 30-0467-1 strobe light assemblies and lenses on the aircraft tail cone.
10. Check the strobe light system for proper operation.

RECORD COMPLIANCE: Upon completion of these Service Instructions, make an appropriate maintenance record entry.

MORE ABOUT OIL AND YOUR AIRCRAFT ENGINE--cont'd from Sept.

In the previous article, we listed the two basic types of oil used in general aviation aircraft piston engines as straight mineral and ashless dispersant (AD). We also stressed the importance of clean oil in achieving good engine life, and oil consumption as an indication of engine health was another important item discussed.

Continuing our consideration of the oil and your aircraft engine, the primary purpose of a lubricant is to reduce friction between moving parts. Another additional responsibility of the oil is to help cool the engine. As it circulates through the engine, the oil absorbs heat from the parts. Pistons and cylinder walls are especially dependent on the oil for cooling. In addition to reducing friction, the oil acts as a cushion between metal parts. The oil also aids in forming a seal between the piston and the cylinder wall to prevent leakage of gases from the combustion chamber. Oils help reduce wear by picking up foreign particles and carrying them to a filter where they are removed.

Using a direct drive, wet sump powerplant as an example, we can simply describe the lubrication system of these less complex aircraft engines. A more detailed description may be found in the Overhaul Manual or the Engine Operator's Manual. In a wet sump engine, the oil is contained in the engine sump, as opposed to a dry sump powerplant where the oil is in an external oil tank located perhaps in the wheel well or the rear of the aircraft engine nacelle. In a dry sump engine, the oil is drawn from the oil tank by the pressure section of the oil pump throughout the engine, and then returned to the oil tank by the scavenge section of the oil pump. The other basic parts of the oil system are very similar to those used in the direct drive, wet sump powerplants.

In the wet sump engine, the oil pump draws oil from the rear of the sump through the suction screen, and sends it to the oil pressure screen. A by-pass valve in some models is located between the pressure side of the oil sump and the oil screen. It permits unfiltered oil to bypass the screen and enter the engine when the oil filter is clogged, or during a cold start. The spring loading on the bypass valve allows the valve to open before the oil pressure collapses the screen, or in the case of cold congealed oil, it provides a low-resistance path around the screen. It is felt that dirty oil in an engine is better than no lubrication at all. Most oil systems offer as optional or standard, a thermostatic by-pass valve in the same location which also contains a pressure relief feature to by-pass the cooler in case it is clogged. As the name implies, this unit regulates the temperature of the oil by either running it through the oil cooler if it exceeds a preset temperature, or by-passing the oil cooler if the oil temperature is lower than the thermostatic by-pass setting.

Continuing its travel, the oil next encounters a pressure relief valve. The latter regulates the engine oil pressure by allowing excessive oil to return to the sump. The oil continues to travel through drilled passageways throughout the system and finally returns by gravity to the oil sump where it brings the journey all over again.

Thus the principal units in the typical wet sump engines are--a sump of sufficient size to contain the necessary amount of oil, an engine oil pump, oil cooler and by-pass valve, pressure screen and by pass valve, pressure regulating valve, oil pressure and temperature instruments in the cockpit, an oil sump drain, a filler neck to put oil in the engine, a dipstick to measure the amount of oil, and a suction oil screen. The full flow oil filter is optional on the four-cylinder powerplants, but recommended for higher powered engines.

We need screens and filters in the oil system to keep the oil clean as it circulates through the engine as blood does through the human body. If either are contaminated, they carry that contamination as they circulate. We also need an oil cooler for most engines so that the oil temperature may be kept within prescribed limits and able to per-

form its function efficiently. Of course, there is more to an oil system than this brief description. But for the operator who need not be a mechanic, this basic information can be helpful.

The oil companies tell us the basics about their product. Viscosity of oil is resistance to flow. An oil which flows slowly has a high viscosity. If oil flows freely, it has a low viscosity. Unfortunately, viscosity of oil is affected by high or low temperatures. At below freezing temperatures, some high viscosity oils become virtually solid, which makes circulation and lubrication impossible. But no matter what viscosity oil is used, when the outside temperature is 10° F or lower, preheat of the Lycoming engine must be accomplished before attempting to start the engine, or damage to the powerplant will result. Avco Lycoming does not approve the use of oil dilution for cold weather operation of its engines. It is extremely important that only oil in the grade recommended by Lycoming be used.

To simplify the selection of oils, they are classified under an SAE (Society of Automotive Engineers) systems, which divides all oils into groups as follows:

Commercial Aviation No.	Commercial SAE No.	Army & Navy Spec. No.
65	30	1065
80	40	1080
100	50	1100

If you are looking for a can of 30 weight aviation oil and it has the number 65 on it, then it is 30 and also 1065 under the Army & Navy Spec. If it has a more complete designation with the letter "W" added, then 30W indicates the viscosity (grade) of oil; it does not indicate quality or other essential characteristics. But any FAA approved aviation oil on the market today does a good job--and without using any additives by the owners in the field.

Before we conclude our discussion, we want to remind our readers of a couple of miscellaneous but important related items. On multiengine aircraft each engine is supplied with oil from its own complete and independent system. Another reminder--every engine has a breather which can be considered a part of the oil system. If that engine does not have special provisions for aerobatic flight and is flown inverted, the oil will be lost out the breather and a serious engine failure can result. We definitely recommend that engines not built for aerobatic flight should not be flown inverted.

In summing up this brief supplement consideration of oil and your engine, it was not intended as instruction as detailed for the knowledge required to be a mechanic. But we think you will agree that the typical pilot should know more about his aircraft engine than Mr. Typical Driver knows about his automobile engine--the penalty for not knowing the basic is greater in aviation.

--Courtesy of The AVCO LYCOMING FLYER

REPORT ON ABS PETITION TO FAA ON USE OF SINGLE CONTROL WHEELS

Your ABS has checked on the progress of the petition to amend FAR Sections 61.25 and 91.21. An FAA project manager, Mr. Frank Jamison, has been assigned and he is currently researching the project and answering many of the letters and inquiries from ABS members and their congressmen. The response from the membership has been terrific. However, it is now probably best if we reserve our strength until the project reaches the Notice of Proposed Rulemaking stage. Comments to the FAA at that time will be most effective.

For those who are perhaps waiting to take IFR instruction or a flight test, it appears that a change in the FARs normally takes a considerable length of time going through the required FAA offices. So please don't hold back anticipating an early change in the regulations.

Our whole-hearted thanks go to our many members who have supported this project. We'll try to keep everyone posted as new developments occur.

BEECH COMMENTS ON RECENT SERVICE INSTRUCTION AND SAFETY COMMUNIQUE

Dear Ralph,

Enclosed are two items that might be of interest to ABS members.

Service Instruction 0663-600 reminds owners that maintenance of the owner's aircraft is the responsibility of the owner. However, in all fairness to the airplane owner, he has to rely on his service facility or mechanic to comply with the overhaul periods or lubrication periods.

If the maintenance facility or mechanic does not have the Beech manuals, chances are parts do not receive overhaul or proper lubrication at the prescribed periods or never, for that matter. Fortunately, components in Bonanzas are tough, so will tolerate considerable mistreatment. In most cases, lubricant of items such as flap actuators or the landing gear gearbox require attention at 1000 to 2000 hour periods. Items such as electric motors may require attention at more frequent intervals. What this amounts to is that it is a good policy to ask the service facility or mechanic if required service periods have been adhered to during periodic inspections.

A second item is our new safety communique. This copy announces a new and improved fuel selector valve handle for Bonanzas from the Model C35 through the Model H35. This is an attractive handle that allows good leverage to turn the selector valve. Beech will offer this new handle at an attractive price. Parts are not yet available, however, so as soon as they are available we will issue a Service Instruction and send you a copy.

J. N. Colvin
Project Service Engr.
Beech Aircraft Corp.

SAFETY TIP CORNER--BROKEN ELECTRIC PRIMER FUEL LINE CAN CAUSE A FORCED LANDING

Dear Mr. Haesloop:

It is extremely important that owners of Bonanzas with "E" series engines equipped with electric primer solenoid inspect or replace the metal line which runs from the carburetor to the electric primer solenoid. Ours broke and caused a sudden depletion of our remaining fuel and a forced landing which resulted in a broken bird. The solenoid is hung from the intake manifold near the carburetor and is connected by a metal fuel line. In some cases, this can cause a vibration which will fracture or break this line. I recommend replacing it with an approved rubber fuel line of the same I. D.

Robert G. Riggs, ABS #7061
The James Dryer Co.
Military Road
Lexington, KY 40504

Dear Mr. Haesloop:

This is in response to your letter of September 18, 1974, regarding metal primer lines.

Metal lines have been used for some time to carry fluids and vapors in aircraft systems. When installed in accordance with FAR 23 and when they are maintained per Chapter 10 and Chapter 14, Section 2 of AC 43.13-1, metal tubing can be and is satisfactorily used in the various systems. The tube materials used in the system are to meet the specifications set forth in FAR 37.

The use of 37 degree flared tubing secured with AN 818 B nuts and AN 819 sleeves has replaced the older practice of using beaded tubing, hose and hose clamps in systems which direct fluids and vapors under pressure. Flexible type hose is required in applications when movement between two units is involved, such as fire wall to engine and/or brake lines between landing gear upper shock strut and lower piston assembly.

Whether or not metal lines should have ever been used requires consideration for circumstances at that time, such as past performance, cost, weight, material availability and ease of field maintenance. With consideration for FAR's and good or preventative maintenance in service, the use of metal tubing in this location was satisfactory.

L. M. Aldrich
Service Engr.
Beech Aircraft Corp.

Executive Airplane Safety Communique

September 10, 1974

To: All Owners of BEECHCRAFT Bonanza C35, D35, E35, F35, G35 and H35, serials D-2901 through D-5330, except D-5062, and owners of earlier Bonanzas with Kit No. 35-576 S or 35-924030 pump installed.

All BEECHCRAFT Aviation Centers, Approved Support Centers, Aero Centers and International Distributors and Dealers.

SUBJECT: FUEL SELECTOR VALVE HANDLE

Periodic reports indicate that the fuel selector valve in the 35-924230 fuel unit assembly will sometimes stick due to lack of use. Once the valve has been moved, however, it will turn freely until the next period of non-use. This assembly was factory installed on Bonanza C35 through H35, serials D-2901 through D-5330, except D-5062, and was also available in Kit No. 35-576 S for earlier Bonanzas, serials D-1 through D-2900.

For more efficient operation a newly redesigned handle has been developed to provide an improved hand grip area and improved visual pointer capability. The new handle, part number 35-924287-1, replaces part number 35-924251, which was used on the factory installed valve and in Kit No. 35-576 S.

The new valve handle, which is FAA Approved, has an estimated suggested selling price of \$5.00 each. For the improved service provided it is hoped that many owners will retrofit their aircraft with the redesigned handle. You may place your order for the improved valve handle with your Beechcraft Parts and Service outlet.

As always, you should follow standard preflight procedures.

- 1) Before takeoff, activate the selector valve several times by rotating the handle from "tank" to "tank" to insure that the selector valve is free.
- 2) By final check, before takeoff, be certain that the selector indicator is positioned to a proper tank for takeoff.

The installation of the handle, and the parts required, will be referenced in Service Instructions No. 0670-289 which will be released soon.

CLASS I SERVICE INSTRUCTIONS

ALL

No. 0663-600
ATA Code 5-10

SUBJECT: MISCELLANEOUS - TIME LIMITS - OBSERVING INITIAL TIME BETWEEN OVERHAUL

EFFECTIVITY: All BEECHCRAFT airplanes in service.

REASON: To stress importance of adherence to time between overhaul requirements for the overhaul periods, lubrication periods, inspection schedules and time limits requirements. The Federal Aviation Regulations place the responsibility for the maintenance of your aircraft on you, and you should assure yourself that all maintenance is done by qualified mechanics in conformity with all airworthiness requirements established for your aircraft.

COMPLIANCE: As noted in the appropriate Shop/Maintenance Manuals and Pilot's Operating Manuals, required overhaul and replacement schedule, lubrication schedules, inspection schedules and time limits sections, compliance for first period is considered mandatory. If the operator has an approved monitoring system he may reduce or extend schedules based on experience.

DESCRIPTION: Check the overhaul and replacement schedules for the initial required time between overhaul. Check lubrication schedule, inspection schedule and time limits in appropriate manuals.

APPROVAL: FAA Approved - DOA CE-2.

MANPOWER: None.

MATERIAL: None.

WARRANTY: None.

SPECIAL TOOLS: None.

WEIGHT AND BALANCE: None.

REFERENCES: None.

PUBLICATIONS AFFECTED: The required overhaul and replacement schedule and time limit sections of Shop/Maintenance Manuals, and servicing section of Pilot's Operating Manual.

ACCOMPLISHMENT INSTRUCTIONS: The first overhaul or replacement should be performed not later than the required period. The condition of the item at the end of the first period can be used as a criteria for determining subsequent periods applicable to the individual aircraft or fleet operation providing the operator has an approved monitoring system.

The time periods for inspections noted in the manuals are based on average usage and average environmental conditions.

SPECIAL CONDITIONS CAUTIONARY NOTICE

Aircraft operated for Air Taxi or other than normal operation and airplanes operated in humid tropics or cold and damp climates, etc., may need more frequent inspections for wear, corrosion and/or lack of lubrication. In these areas periodic inspections should be performed until the operator can set his own inspection periods based on experience.

NOTE

The required periods do not constitute a guarantee the item will reach the period without malfunction as the aforementioned factors cannot be controlled by the manufacturer.

RECORD COMPLIANCE: None.