Cessna 150-152 Pilot

Official Newsletter of the Cessna 150-152 Club. (805) 461-1958

September / October 2009 Volume 29 Number 5 Electronic Edition www.cessna150152.com



3 Door Catch Solution Hold it Right There Buster

8 *Member Profile* Race Driver Salvador Corona

9 *iFly* Containing the Jellybean

10 An Accidental Education NTSB Reports in Plane English

12 *Club Classifieds* Airplanes & Parts with Photos

14 UPA Product Spotlight New Useful, Practical & Affordable



New Door Catches Page 3



Low and Fast Page 8



A Brighter Light Page 14

Building Sweat Equity by Royson Parsons

For better or worse, I have settled into a predictable routine when it comes to maintaining and upgrading my 150. Each spring, as I begin planning for my annual pilgrimage to the Clinton fly-in, I find a laundry list of things that my airplane "needs" in order to be appropriately equipped for the trip. Over the years I've done everything from replacing avionics to engine instruments, from cowl fasteners to panel lighting, to figuring out how to attach video cameras.

The problem with my springtime routine is that it always costs more than I expected, and invariably puts me in a time crunch. I start seriously working on the airplane around mid May, and am typically putting the final touches together right up to the moment I taxi out for Clinton in mid July.

Like many people, I suffer terribly from good intentions, rarely fulfilled, especially things like New Years resolutions. Every year, I vow to work on the airplane sooner, and with less ambitious goals, hoping to keep the budget and timeframe within reason.

Winter has begun, and I have been struggling to come up with a realistic plan for my 2010 annual inspection and the likely aircraft refurbishment projects that will logically accompany it. Last summer we installed the MVP 50 glass engine suite, one of my most ambitious upgrades ever, a project from which I have not yet financially recuperated. Thanks to the economy, and last year's expensive upgrade, I will need to limit myself to projects on a smaller, less expensive scale.

In thinking about this dilemma, I have arrived at a guiding principle. This years projects need to be things that I can largely do by myself, with minimal guidance from my highly skilled A&P. This means things that I am allowed to do, and am capable of doing, but which take so much time to do that they would be prohibitively expensive if I had to pay by the hour for the work.

My airplane is mechanically quite spectacular, with a recently overhauled engine, new wiring, excellent avionics, and the aforementioned electronic engine suite. It is however, a diamond in the rough cosmetically, the paint is original, about a 3, and both the interior and exterior plastics are brittle, yellow, cracked and ugly.

Repainting the airplane this year is not in the cards. Not only would a paint job itself be bigger than my budget, but it would be foolhardy to repaint the airplane without replacing all the 38 year old exterior plastic and Plexiglas. Windshield and window replacements alone could add 30% to the cost of a paint job.

I have concluded that I should focus on small touch up painting projects, and replacing plastic parts. Replacing all the interior plastics will likely be too big a bite to swallow without my traditional cost and time overruns, so I will not order a full set of cabin plastics. Instead, I'm resolved to identify which plastic parts are the worst, and replace them one at a time or in pairs as required.

If you've ever replaced interior plastics you know how frustrating a job it can be. None of the replacement parts fit right out of the box, and there can be a tremendous amount of Dremel work involved. Woe to the installer who trims off too much too soon, this fitting is more of an art than a science. I have previously attempted unsuccessfully to be guided by geometry and cautious measurement. The secret it seems, is to sneak up on the right fit gradually. You measure, trim, measure, trim, climbing in and out of the cabin dozens of times in the process. On at least one occasion I had to ruin a part on my first attempt before I understood what NOT TO DO.



When it comes to touch up painting, I'm definitely not planning to "fix" bad paint on the general airframe. Instead, I'll pick parts which have corrosion or paint damage that can be completely removed, refurbished, and reinstalled. I have a bead blasting cabinet that makes this process considerably less awful. For example, I expect to remove the gear leg fairings, blast off all the corrosion and paint, and repaint with a self etching primer and white epoxy appliance paint from a rattle can. The goal is not to make the airplane look better, but to completely halt deterioration in these parts until the time when I can afford to repaint the whole airplane.

The value of these refurbishments is hard to measure, but I feel confident will improve both my airplane's long term health and my own pride of ownership. What's more, this seems like a routine that could become a more satisfying and affordable annual tradition. Time will tell.

If I discover any pearls of wisdom in the process, you're sure to hear about it here. Stay warm and dry!

Joyson

Door Catch Solution A Better Way

Cessna 150's and 152's were all factory equipped with a rudimentary and relatively effective door catch that consists of a steel tab with a nipple like profile that mates into a steel tab orifice mounted in the top of the door frame.



Cessna does not differentiate the various parts of the door catch system in their parts book, so for the purposes of illustration, we will refer to the part in the photo above as the "catch stem" and the one in the photo below as the "door catch."



The stock door catch has two primary jobs, the first is to prevent damage that would occur if you open the door too wide, whereupon the bottom edge of the door would strike the wing strut. The second is to hold the door open so that you can embark and disembark or load the airplane without the wind slamming your fingers, torso or legs in the door. There are two basic flaws inherent in the stock door catch system. First, it's metal on metal friction hold design has a limited lifespan. Cessna never anticipated that our airplanes would still be in use decades after they were manufactured. After hundreds of openings, the door catch wears away until eventually, even a mild wind gust can slam the door closed unexpectedly. Another serious problem with the stock catch stem is that it is dangerously positioned so that it is quite possible (even likely) to injure yourself or your passengers by head contact against it's

knifelike point. We know of several door stems that have been removed in anger after some unfortunate person cut themselves. When this happens the reasonable reaction is, "What the heck was Cessna thinking, putting a sharp metal object right at head level next to the entry and exit point !?" What indeed.

For many years, the Club sold a replacement door catch assembly manufactured by Club member Romilly Traves known as the "Sky Catch." The Sky Catch consisted of a high quality brass furniture catch that Romilly cut down to size in his shop. Installing a Sky Catch started with cutting off the sharp end of the stock catch stem and replacing it with a the larger rounded male end of the Sky Catch. The catch in the door frame was replaced with a latch assembly consisting of two spring loaded ball bearings that neatly captured the stem. The Sky Catch was a huge improvement on the stock catch, and widely accepted as **The Answer** to the door catch problem.

Sadly, Mr. Traves passed away after a brief illness in 2007. As the sole proprietor and only employee of the Sky Catch business, Romilly manufactured the Sky Catches in very small batches, and there was no plan in place for any-one to take over Sky Catch manufacturing.

(Continued on page 4)

Cessna 150-152 Pilot

(ISSN 0747-4712) is published bimonthly, by The Cessna 150-152 Club, 5130 San Benito Rd. Suite 618, Atascadero, CA 93422. Periodicals Postage paid at Atascadero, CA 93423, USPS 721970.

Annual Postal Subscriptions are \$45, also available as an electronic internet based subscription for \$35. Copyright ©2009. All rights reserved. Reproduction in whole or part without permission is prohibited.

Postmaster, Send change of address to: Cessna 150-152 Club, PO Box 1917, Atascadero, CA 93423-1917

The information presented in this publication is from multiple sources from which The Cessna 150-152 Club cannot warranty or accept responsibility as to it's legality, completeness, or technical accuracy. Readers are reminded that United States Federal Air Regulations part 91 place primary responsibility for ensuring the airworthy condition of an aircraft on the owner and or operator. Any person who maintains, modifies, or otherwise changes an aircraft must do so in accordance with the manufacturer's recommendations and applicable FAA regulations.

Contacts:

Telephone: (805) 461-1958 Website: www.cessna150152.com

Email: Items for publication: editor@cessna150152.com

Email: General Inquiries, Membership, Requests for Technical Materials, Back Issues, etc: membership@cessna150152.com

Door Catch Solution (Continued from page 3)

The Cessna 150-152 Club negotiated with Traves' heirs for the rights to manufacture the Sky Catch, but quickly hit several roadblocks. The Sky Catch was sold as a "install it yourself, minor modification" part. Though it was believed Traves had obtained documentation from the FAA allowing the catches to be installed on that basis, that documentation could not be located. The Sky Catch parts were purchased from a furniture hardware manufacturer, who now insisted we establish a corporate account, and effectively become a stocked dealer for the company's furniture hardware. Though the Sky Catches were held in high esteem by our members, Traves books showed that he had historically sold only a few dozen per year. Because we would have to purchase more inventory than we would likely sell in order to obtain the wholesale price, we simply could not make economic sense of purchasing the rights to the Sky Catch business. Still, an improvement to the stock catches was sorely needed, so we set out to find another solution.

We started with a clean sheet of paper, and decided to design our own door catch, using aircraft specific hardware and materials. We consulted with a design engineer who created the design below:



Our new design was similar in concept to the Sky Catch, using spring loaded ball bearings on the capture end, but was sleeker, more refined, and made of anodized aircraft aluminum. A rapid protype was constructed and tested, we were certain we had created a better mousetrap. Then as so often happens, we faced the realities of manufacturing an intricate machined product in small quantities. We found that our machine shop would likely have to charge us several thousand dollars to get the new door catch to market, the individual parts could only become affordable if we sold several thousand, but not a few hundred. We would have to sell the new catches for more than \$100 a set to break even. Traves was selling a few dozen a year at \$40 per set. Disappointed by the math, we decided to try to find a simpler, less expensive way to solve the problem.

Club member Greg Powell is in the high tech injection molding business near our home base. We began working with Greg, once again with a clean sheet design, making the product primarily out of a high tech thermal rubber material that Powell knew well. Greg's first idea was to use a dime sized super magnet on the door stem and a steel plate mounted where it contacted the door. The magnet system showed initial promise, but the door is effectively a large sail hinged at the front, a small gust of wind creates far more leverage than we expected. The magnet seemed plenty strong, but was ineffective at holding the door open. Greg even tried adding a second magnet to the door frame to double the magnetic grip, but no dice, and he concluded that the magnetic door catch design was not the answer we were looking for.

Next, Greg Powell arrived at an ingenious solution, a elongated ball in cup design made entirely out of thermal PTE rubber. The new catch is absolutely effective, it grips the door so well that when we first tried one, we managed to yank the catch off the doorframe by pulling it's mounting screws through the rubber catch. Greg solved that problem by creating a custom backing washer to prevent the screws from pulling out through the rubber. With that final addition, we at last have an affordable door catch that is both safer and more effective than either the stock catch or the Sky Catch.

The new door catches are called the Blue Sky Latch and are available in the Club store for just \$39.95.

While we were satisfied with the protype of the new catch, we waited for the final retail version before doing an official install, in case there were any unforeseen installation problems.

In this article, we'll document installing Blue Sky Catches on our 1971 A150 Aerobat. We had hopes that this would be a 30 minute "piece of cake" process. Unfortunately, it turned out to be a little more complicated that we expected, though still a relatively simple project. We cover all the details here with the goal of saving future installers from some of our trial and error experience.

There are two things to keep in mind. Like the original Sky Catch, the Blue Sky Latch is designed to be easily installed by the aircraft owner, and is intended to be considered a "minor alteration." If you have any qualms about doing the installation yourself, we absolutely recommend you obtain the services of a licensed airframe mechanic. The caveat of course is that most licensed mechanics will be reluctant to attach parts to any certified airplane without PMA/STC documentation. The Blue Sky Latch is made up of a rubber "tip" that simply pushes onto the end of the catch stem, and it would be easily removed if found unacceptable by authorities. The catch attached to the door dips a little further into the regulatory gray area. The door catch must be held in place with two fasteners. It too is easily removed, but it does require replacement of the original friction door catch, by drilling out the two rivets that secure the original part. If there is any doubt or question about the legality of installing the Blue Sky Catches, we recommend you request a 337 field approval for their installation. If you fail to obtain regulatory approval, and are unwilling to install the catches without it, you may return them for a full refund, no questions asked.

Now, onto the installation itself.

Our first recommendation is that you remove the doors from the airplane to install the catches. While this is not strictly necessary, it makes the installation much easier, and makes scratching the paint or the Plexiglas window far less likely. This is was especially easy for us, as Aerobat doors come off quickly by pulling their hinge pins, but it should be a simple matter of removing the hinge screws on other models. Use a piece of cardboard or a padded blanket to protect the door while you are in working on it to avoid collateral damage.

The first step is to cut off the tip of the catch stem, you'll be removing everything to the right of the dotted line in the illustration below.



The installation instructions call for cutting off the tip with a hacksaw, and while that would certainly work, it's fairly tight quarters, so we elected to use aviation tin snips, which worked fine. A bolt cutter would probably be an



even better tool for the job, and would require less effort. After cutting off the stem tip, you'll need to file the front edge smooth.



Next we removed corrosion and any other imperfections from the end of the stem using a sanding sponge.



The next step is to simply tap the new rubber tip onto the stem with a rubber mallet or candy hammer. The tip fits firmly without any fasteners or adhesive, looks to us like you'd probably have to cut it off to remove it. Make sure to position the tip right side up, there is a slant to the tip and it needs to be mounted so that the top edge is closer to the door than the bottom edge.



Voila! One half of one door done!

You can see in the photos that the catch stem on our air-(Continued on page 6)

Door Catch Solution (Continued from page 5)

plane was quite rusty, with flaky paint etc. This project was a perfect excuse to remove the stem from the airplane, bead blast all the crud off and repaint it. We decided to tackle the refurbishment of the catch stem separate from this article in order to keep this as an "easy 30 minute project." Unfortunately, as we wrapped up the project we found that the stems did not properly line up with the new door catches, and had to be re-bent to make the catches work. It's tough to re-bend the stems while they are the airplane, so we ended up removing them anyway, more about that later in this article...



The next step is to drill out the two rivets holding the original catch in the top of the door frame. The trick here is to use a drill bit large enough to take out the center of the rivet without doing any damage to the door or enlarging the original holes. We found that a 9/32 drill bit was a good choice.



You'll want to gently pry the rubber door seal away from the catch in the back side of the door to avoid any damage to the seal. Once you have drilled through both rivets, you should be able to pull the catch off the back side with a pair of needle nose pliers without much leverage. If the catch doesn't come loose easily, resist the urge to pry it off. Try drilling a little extra diameter into the rivets and using a flush cutter to remove the remains of the rivets from the back side first.



The kit is supplied with screws, washers and locknuts to hold the door catch in place, which does not require any special tools, and is easily removable. There is a down side to the supplied fasteners, the nuts make a bulge in the door seal, as seen from above.



The door seal on our airplane is not original, so this may not be an issue for all installers. We considered cutting away part of our door seal to make room for the fasteners, but decided that a cleaner way to do it was to install the catch using 1/8" steel Cherry Max (pop) rivets instead. The rivets made for a tighter, cleaner, and overall less "homemade" installation, but since we replaced solid rivets in the door with pop rivets, potentially make the installation less officially acceptable.

After installing the catch we put the first door back on the airplane, to see how it fit, and were disappointed to see that it did not line up properly. Seen in profile, our catch was out of alignment vertically and the stem did not match the entry angle of the catch. We realized we would have to re-bend the door stem. While it might be possible to re-bend the stem while it is on the airplane, this would require some special tools, and there is a real chance of damaging the wing skin. Fortunately, removing the stem only requires drilling out one rivet, but you must exercise caution, because the attachment rivet is directly under the fuel tank. There is about 3/8" clearance between the tank and the skin, so drilling through the rivet without hitting the tank is not difficult.

Here's an illustration, slightly exaggerated to show the changes in the stem angle we required in order to get good alignment of the catch. We had to flatten the stem overall in order to raise the tip. We did this by placing the stem on an anvil and carefully working position "A" with a hammer, checking our progress after every slight bend. Because the angle of the door did not match the angle of the new catch tip, we also had to flatten position "B" in the same manner, until we got good alignment.



While the stems were off the airplane, we bead blasted off all the old paint and corrosion, and repainted them with zinc chromate and white epoxy appliance paint from a rattle can. See the finished assembly below:



Changing the stem profile and repainting the parts turned this "30 minute project" into about a 3 hour project, most of the time devoted to our trial and error method. The purpose of our install was prove that the Blue Sky Catches were in fact installable with a minimum of hassle. While that proved not entirely true in our case, we feel that we can now recommend a relatively simple and hassle free alternative installation method as follows:

1. Cut off the tip of the catch stem as described in the

original installation instructions, but do not install the Blue Sky tip on the stem yet, you will need to confirm alignment first.

2. Drill out and remove the original door catch and install the Blue Sky Latch in it's place. Confirm that the lock nuts used in the kit will not interfere with the door seal or proper closure of the door. If there is a clearance issue with the door seal, mount the Blue Sky Latch to the door with rivets instead. We used 1/8" steel Cherry Max (pop) rivets, if you wish to conform to aircraft standard practice you should use solid rivets instead, as these are what was removed from the original catch.

3. Check the alignment, as in the drawing below:



If the stem does not line up as in the "Correct" illustration, you will need to remove the stem from the airplane, and re-bend the stem by altering the **A** and/or **B** angles in order to achieve the correct alignment. If stem removal is required, you will need to drill out the original rivet to remove, and replace with a 1/8" Cherry Max (pop) rivet to reinstall.

4. Once you have confirmed correct alignment between the stem and catch, this is a good time to repaint the stem if it is corroded or suffered paint damage from the rebending process.

5. Do not attempt to install the Blue Sky Tip onto the stem while the stem is off the airplane. The tip is a tight fit, and the stem should be securely mounted to the wing first, where the tip can easily be tapped on with a mallet. We managed to break a tip by trying to tap it on while the stem was off the airplane.

6. Confirm alignment and operation.





Salvador Corona and son Edgar. Both men soloed on the same day, and earned their pilot's licenses just nine days apart.

Salvador Corona, of Grants Pass, Oregon has been a Club member for longer than he has been a pilot. His story is both charming and unique.

Corona is no neophyte when it comes to aviation, he spent 28 years as a Boeing engineer, and had key roles in the development of the 727, 737, 747, 757, 767 and 777 models. During his tenure at Boeing, Corona personally developed a patented trade secret CAD/CAM flooring enhancement for the 777 that saved the company more than \$200,000 dollars per airplane.

Though he was a serious aviation enthusiast with a strong technical background, Salvador Corona's first avocation involves "flight" much closer to the ground, in Formula race cars. Corona competes internationally in his own Formula Atlantic, Formula V, and Formula Ford race cars.



Team Salvador's Lotus Formula Ford at PIR (Portland Oregon International Raceway) Corona's current top recorded speed at PIR is 167.37 mph

Salvador was always interested in becoming a pilot, but auto racing took up most of his attention, until he was inspired by a local friend who gave Corona a ride in his recently acquired airplane. Corona knew owning his own airplane would be a sure way to dive in head first, so he joined the Cessna 150-152 Club and began a nationwide search for an ideal Cessna 152. He found exactly what he was looking for with N3255Q, which he immediately christened Preciosa Esperanza (*Precious Esperanza*) after his wife.



Salvador, 62, and his 20 year old son Edgar began flight lessons in a friendly race to see who would become a pilot first. Both soloed on the same day, and passed their check rides 14 months later, just nine days apart. For the record, Edgar soloed first, and earned his license first. According to his proud father, "When Edgar returned from his check ride, I saw a different son, a glow in him, an ACHIEVER." Edgar, now in college, hopes to pursue a career as an airline pilot.

And Salvador Corona? He's going full steam ahead, flying his 152 to outings with other Club members in Oregon, and actively participating in the Club internet forum. He still races his formula cars, and is now retired from Boeing. As if that weren't plenty to keep a fellow busy, Salvador has begun constructing a Van's RV12 kit plane, which he hopes will provide a new entrepreneurial career. Corona already has reservations for another eight RV12 kits, so if there's and RV12 in your future, Salvador Corona would be a good man to talk to !



Esperanza Corona LOVES flying with her husband in her aluminum namesake. There's a lesson here gentlemen.



If you already use an iPhone, this may be old news, if you're planning on getting an one, here's something you need to know.

In spite of it's fabulous functionality, the Apple iPhone has one major drawback, it is undoubtedly the slipperiest, hardest to stay put handheld computer ever made. There, I said it, and I'm not sorry!

The iPhone is a very smooth device, shiny, with rounded corners. It's jellybeanesque profile means that the iPhone may "squirt" out of your hand when you least expect it. I have personally dropped my iPhone literally dozens of times, and to it's credit, it has survived falling onto linoleum, carpet, hardwood, asphalt and even concrete with no physical damage.

Believe it or not, dropping the iPhone from your hand is not the biggest containment issue, since you always know when it happens, and can at least attempt a recovery. No, the bigger problem is that the iPhone likes to squirt out of any belt mounted holster you carry it in. This most commonly happens when your bend over or climb in or out of a vehicle.

My iPhone has memorably escaped thusly more times than I can count, at best it ends up on the floor behind the driver's seat. On three occasions my iPhone has been left solo in parking lots and driveways, until I noticed it missing. Miraculously, it was still sitting there unharmed when I returned chagrined to retrieve it. I have a friend who is an avid boater, his family has lost FOUR iPhones that squirted overboard.

This is not an entirely hopeless situation, but surprisingly, for such a popular device, the solutions are much more difficult to resolve than they should be. There are literally hundreds of iPhone cases on the market, one would assume that many of them would effectively secure the iPhone on a belt. Unfortunately, I have not found that to be the case, pun intended.

The saddest thing, is that compared to the cost of the iPhone itself, the myriad of holsters on the market are obscenely overpriced. I paid \$200 for my iPhone, the typical holster sells for about \$30-\$40. I have purchased and ultimately thrown away no fewer than ten iPhone holsters, you do the math.

Some of the holsters I have tried have broken or worn out in record time (days not weeks!) Some end up being better at automatically ejecting the iPhone than containing it. Others refuse to stay attached to a belt. There's no feeling quite like reaching for your iPhone and discovering that the entire holster you had "securely" attached is simply GONE.

Many of the holsters that seemed secure weren't because they attached to the belt with a clip that is open at the bottom, mimics a clothes pin, or uses a sort of snap in button that snaps out just as easily. The best possible arrangement is a closed loop that requires you to thread your belt through it. Apparently, the vast majority of phone holster makers consider belt loop holsters to be inconvenient. Believe me, when your phone holster leaves your side on it's own accord, convenience is not be served.

So what IS the answer to this slippery dilemma? There are two things you can do. First, you can put an aftermarket silicone sleeve on your iPhone, infamously known as an "iPhone condom." This gives the iPhone a grippy rubber skin which will make it unlikely to squirt out of your hand or it's holster. As an additional benefit, the phone condom gives your iPhone an extra protective cushion in case you drop it anyway.

Second, of all the holsters I have tried, I have only found one that is 100% effective. It is manufactured by "Ripoffs". *(Is that a lousy business moniker or what?)* This company makes a large variety of holsters for everything from handheld radios to cameras. The Ripoff holster that best fits the iPhone is the model CO-IQ which costs just \$16 + \$6 shipping @ www.holster-depot.com.



Be sure to specify you want the model CO-IQ with the "BL" (*belt loop*) attachment, not the standard "A" clip-on (*under the X in the photo above.*) The Ripoff holster is nearly perfect in all respects, except it muffles the ring-tone volume about 75%, a minor inconvenience compared to losing an iPhone.

9

May / June 2009 Accidents

Important: The Cessna 150-152 club publishes these accident reports in the hope that readers will consider the role that each pilot's decisions played in the outcome and learn from the experiences of others. These reports are solely based on preliminary NTSB reports which may contain errors. They have been edited for clarity. They are not intended to judge or reach any definitive conclusion about the ability or capacity of any person, aircraft, or accessory.

May/June 2009 Statistics: 13 Airplanes, 19 Persons, 11 Uninjured, 3 Minor Injuries, 2 Serious Injuries, 3 Fatalities.

Sunday, May 3, 2009 in Opelousas, LA Cessna 152, N4590K 2 Uniniured

The commercial pilot was at 500 feet above ground level on approach to his destination airport when the single engine airplane lost power. The pilot made a forced landing to a rain soaked field approximately 8 miles north of the runway. On touchdown the nose gear sank into the muddy terrain and collapsed. According to the pilot the airplane had approximately 8 gallons of fuel on board upon departure. An on scene inspection of the fuel tanks indicated 2 1/2 gallons in the left tank and 1 gallon in the right tank. The aircraft manual states $1\frac{1}{2}$ gallons of fuel is unusable in the tanks. The airplane sustained substantial damage to the firewall.

Friday, May 15, 2009 in Memphis, TN Cessna 152, N6529M 2 Uninjured

The private pilot reported that he rented the airplane in order to re-familiarize himself with flying from the right seat. He invited a CFI acquaintance to accompany him on the personal flight. After practicing some emergency landings at the departure airport, the pilots proceeded to a rural area for additional emergency landing practice. The CFI then demonstrated an engine-out approach to an open field, and shortly after she applied power to begin a climb-out, both pilots heard and felt something strike the airplane. They determined that the airplane was still flyable, and returned to the departure airport, where the airplane was landed uneventfully. The CFI stated that during the subject approach, the airplane did not descend any lower than 50 feet above the ground, while the other pilot stated that the airplane did not descend any lower than 100 feet. Neither pilot saw anything that could account for the impact. Inspection of the airplane indicated that the vertical stabilizer incurred substantial damage, most likely due to a wire strike. Efforts to locate the wire were unsuccessful.

Wednesday, May 20, 2009 in Baton Rouge, LA Cessna 150L, N17214 2 Minor Injuries

The pilots were conducting a night, cross country training

flight. They stated to investigators they were about seven miles from HZR when the engine experienced an unexplained drop in RPM from 2,450 to 2,200 RPM. The student pilot suggested to the CFI to turn on the carburetor heat, but the CFI elected not to turn the carburetor heat on and to turn around and return to BTR, about 16 miles away. En route to BTR the engine performance continued to decay until the airplane could not continue in level flight. The airplane landed in a field approximately four miles from BTR. During landing the airplane nosed over and came to rest inverted. Examination of the airplane showed impact damage to the vertical tail and both horizontal stabilizers, the empennage was cracked, and the engine was separated from the airplane. No evidence of an engine mechanical failure was found and the fuel was found to be free of contaminants. Meteorological readings for BTR at 2053 indicated the temperature was 26 degrees Celsius and the dew point was 16 degrees Celsius. The carburetor icing chart found in FAA - P - 8740-24, Tips on Winter Flying, shows the airplane operating in an area of potential "Light Icing – glide or cruise power." The carburetor icing chart from DOT/FAA/CT-82/44 Publication indicated the airplane was operating in an area of "icing glide and cruise power," and "serious icing at glide power." The NTSB determined the probable cause of this accident was the partial loss of engine power due to the instructor pilot's failure to use carburetor heat while operating in conditions conducive to carburetor icing. Contributing to the accident was the instructor pilot's decision to attempt a return to the departure airport with degraded engine performance

Monday, May 25, 2009 in Lumberton, NJ Cessna 152, N49396 1 Minor Injury

The pilot reported that he was performing a soft field takeoff. He stated the winds were variable at 3 knots. He lowered 10 degrees of wing flaps, applied full back pressure on the control column, and applied full engine power. The airplane became airborne, went out of ground effect, and stalled. The airplane spun to the left, descended, and impacted the ground. The pilot reported he had no mechanical malfunctions with the airplane. Examination of the airplane revealed structural damage to both wings, and to the engine firewall.

Saturday, May 30, 2009 in Zebulon, NC Cessna 150M, N7614U 1 Uninjured

The pilot stated that during landing, he "experienced a prodigious bounce" and lost control. During the landing sequence the airplane landed hard, which resulted in the collapse of the main landing gear, damage to the fuselage, propeller, and wing. He reported the wind as calm at the time of the accident. The pilot stated there were no mechanical failures or malfunctions to the airplane or any of its systems prior to the accident.

Friday, June 12, 2009 in Nampa, ID Cessna 150, N5504E 2 Uninjured

The commercial pilot was practicing touch-and-go landings in the tailwheel equipped airplane. He reported that the wind direction changed to a quartering tailwind after the airplane touched down. The pilot stated that he then lost directional control of the airplane and did not believe he had sufficient engine power to recover. During the accident sequence the left main landing gear failed and the airplane ground looped, resulting in substantial damage to the left wing and horizontal stabilizer. The pilot stated that the airplane and engine had no mechanical failures or malfunctions prior to the accident.

Saturday, June 13, 2009 in Lawrenceville, VA Cessna 150H, N22075 **1** Uninjured

According to the student pilot, this was his third takeoff for the day and he climbed to 700 feet mean sea level (MSL) and "experienced an engine problem and the prop stopped working." The airspeed dropped and he re-established the airspeed by "pitching down just a little, [and] all I saw was a lumber factory and aimed for the driveway. I touched down and while I was rolling I hit a light pole on the right side of the wingtip. The airplane went left and [was] stopped by a tree impact." Examination of the airplane by an FAA inspector found both wings substantially damaged by impact forces with a light pole and trees. Both wings leading edges were crushed aft bending the spars.

Monday, June 15, 2009 in Urmantany, Russia Cessna 150, RA-0848G

2 Fatalities, 1 Serious Injury

On June 15, 2009, at approximately 0605 universal time coordinated, a Cessna 150L, Russian registration RA-0848G, impacted terrain during a force landing shortly after takeoff. The accident location was approximately 1 kilometer east of Urmantany, in the region of Respublika Bashkortostan, Russia. The 2 passengers were killed and the pilot was seriously injured. The airplane incurred substantial damage. The investigation is under the jurisdiction of the Government of Russia.

Tuesday, June 16, 2009 in Terrell, TX Cessna 150L, N66016 1 Fatality

The aircraft was destroyed when it impacted terrain at the Phillips Flying Ranch Airport, Terrell, Texas. Conditions were VFR. The commercial pilot died. The flight was originating at the time of the accident and was en route to Terrell Municipal Airport (KTRL), Terrell, Texas. According to friends and family, the pilot had scheduled a night flight lesson with a student at KTRL to start at 2100. The pilot contacted a family member around 2000 and stated he was preparing to depart for the lesson. The pilot did not arrive at KTRL. Family members became aware of his absence the next morning and a search was initiated. The wreckage was located approximately 100 yards east of the departure end of runway 13. The airplane impacted terrain in a nose low attitude and cart wheeled over a short distance before coming to rest inverted.

Thursday, June 18, 2009 in Fort Collins, CO Cessna 152, N95144 1 Uninjured

The accident happened on the first flight of the day. The pilot primed the engine using the mixture and setting the throttle at a "half" position. The pilot placed his feet on the brakes. The pilot reported that during the engine start the engine rpm went to 2,400 rpm immediately and the airplane started moving forward. The pilot applied the brakes and reduced the throttle; however, the airplane continued to accelerate forward. The airplane impacted a parked Cessna 206, resulting in the partial separation of the right wing. An examination of the airplane engine, carburetor, throttle assembly, and brakes revealed no anomalies. The NTSB determined the probable cause of this accident was the pilot's failure to control the airplane after engine startup, resulting in a ground collision with a nearby airplane.

Tuesday, June 23, 2009 in Mineola, TX Cessna 150G, N2719S **1 Serious Injury**

The pilot had just purchased the airplane. He told FAA inspectors that his intention was to fast-taxi the airplane but it became airborne. He made three landing attempts. On the last attempt, witnesses said the airplane appeared to stall and impacted marshy terrain short of the runway, becoming partially submerged. The pilot, the sole occupant on board, was seriously injured. A grazing cow was struck and killed. FAA found that the pilot did not have pilot's license or medical certificate.

Wednesday, June 24, 2009 in Oklahoma City, OK Cessna 152. N67797 1 Uninjured

The student pilot was practicing a slip when she misjudged the airplane's approach speed to the runway, landed long, and bounced. The student pilot did not attempt to abort the landing and applied braking when the airplane again touched down on the runway. The airplane subsequently went off the end of the 5,001 foot asphalt runway, through a fence and onto a road, which resulted in substantial damage to the engine mount. The NTSB determined the probable cause of this accident was the pilot's failure to maintain control of the airplane during landing.

Sunday, June 28, 2009 in Mt. Pleasant, SC Cessna 152, N49897 1 Uninjured

The pilot was flying solo in the traffic pattern for runway 35. As he approached the runway, he reduced power and added flaps to decrease the airspeed. The airplane bounced upon touchdown and the pilot added a "small amount" of power. The airplane bounced a second time, and then settled onto the runway. The third time the airplane contacted, the runway the nose gear collapsed, substantially damaging the wing spar. The winds reported at the airport about the time of the accident were from 090 degrees at 5 knots. The pilot did not report any mechanical anomalies with the airplane. The NTSB determined the probable cause of this accident was the pilot's improper recovery from a bounced landing.





Parts: Child seat for C152. Includes all mounting hardware and seat belt. Red vinyl and fabric. Excellent condition. Douglas Cole <u>douglascole7@comcast.net</u> \$450.00 (Club Member)

Parts: Set of C-150 mufflers with shrouds - \$250. Engine mount – \$175. Rotating beacon - \$100. New leather handholds and mounting hardware - \$25. Throttle lock (by Airlock) - \$10. Glove box door with hinge, knob and fuse holder - \$25. Yoke bushings - \$10. Kohler fuel primer - \$25. Set Scott fuel gauges (float type) - \$60. Genave Radio Alpha 600 and Nav indicator THETA400 - \$150. Pictures available. Durval Freitas (559) 679-8117 <u>durval@sbcglobal.net</u> offers accepted

Misc: Complete cover set for Cessna 150. It includes everything to cover the entire aircraft. Made by Bruce's custom covers. Original cost \$1,550.00 Never used. Tex Mantell (585) 223-3220 wb2ssj@frontiernet.net (Club Member)

Misc: Canvas cover for a C-152 made by Ground Tech. \$150.00 plus shipping cost. Carolyn Mullaney (804) 436-7282 cjmpix@yahoo.com



For Sale: California 1976-150M 7,770TT 580SMOH Paid \$20K, then spent \$45K+ on upgrades and repairs that prior owners had neglected. Custom hand-made powder-coated and silk-screened metal panels, UMA instruments back-lighting, new airspeed (kts/mph), new turn coordinator, new directional gyro w/heading bug, new altimeter, new encoder, KMA-28 audio panel, KMD-550 MFD interfaced to GPS, KLN-94 IFR GPS (enroute, approach approved), KT-76C Mode C transponder, #1 KX-155A Nav / Com (with G/S), #2 KX-155A Nav / Com (no G/S), KI-209A VOR / LOC / GS / GPS indica-

tor, KI-208 VOR / LOC indicator, Mid-Continent Nav / GPS switch/annunciator, annunciator test switch, high / low voltage annunciator lights, Electronics Intl. EGT gauge, Electronics Intl. volt / amp gauge, avionics master switch, pitot heat, suction gauge, Davtron 803 clock / timer / volts / OAT gauge, avionics cooling fan, pull-style breakers for all equipment, metal toggle switches, dual 28V buses and voltage converters (one per Nav / Com), new clear windshield and windows, Met-co-Aire wingtips for better climb and speed, Whelen Comet-Flash strobe system (44 Joules/side), pilot / copilot PTT leather yoke covers, Rosen visors, new throttle and mixture cables, new Nav / Com antennas, hobbs meter, marker beacon, center console pilot / copilot jacks, handheld mic. All new plastics and fairings. Panel upgrade done in 2005 by Avionics West, Santa Maria, CA. Paint and interior are average condition. Compressions 78, 75, 80, 78. Complete logs available. All AD's complied. Last annual Jan 2009. Too many details to list. Marco (650) 329-0434 N8304U@aviolease.com \$49,000 Make offer



For Sale: Georgia 1971-150L 2,680TT 2SMOH TT Prop 2, 150 horsepower conversion, Tailwheel conversion. New custom paint job. Everything Firewall forward new or overhauled. New leather interior. New plastic inside and new fairings outside. New glass. New powder coated metal panel, All new wiring throughout. Wing tip landing lights w/3 point strobes. King 24 audio panel w/marker beacons, King 155 N/C w/209 GS, Narco 12D N/C w/OBS, King 76C digital transponder, Northstar M3 GPS, King ADF, Yoke mounted Garmin 295 color GPS, 2-place intercom, Yokes have leather covered push-to-talk. IFR certified. Pitot-Static check completed. New Insight Engine Monitor. New tach & cable. Ron Wilson (478) 232-0918 \$45,500



For Sale: Illinois 1982-152 5,608TT 1,608SMOH June Annual. King KMA24 audio panel. Dual MX385 navcoms. Glideslope Cessna 300 transponder. Electronics Intl Fuel Flow Computer. Wheel pants. Refueling steps and handles. Pilot/Copilot push to talks. Rick Bodee (630) 728-9651 \$24,900 (Club Member)

For Sale: Montana 1979-152 Sparrow Hawk 4,640TT 465SMOH Engine TT-2868, STOH-10. Beautiful restoration

Cessna 150-152 Pilot - September/October 2009

completed in 2008. Complete 125 HP Sparrow Hawk conversion. New paint: Jet-Glo matterhorn white. New leather seats. New interior. New avionics: Icom IA-200, Garmin GTX 320A transponder, AirGizmos Garmin panel dock, Hoerner wing tips. Sonya Boltz (406) 291-5278 (406) 295-1809 obriencreekfarm@yahoo.com \$44,500 (Club Member)



For Sale: New Jersey 1978-152 4,508TT 55SMOH on 0 time 150HP 0320-E2D. Long range tanks, aileron gap seals, Cleveland wheels & brakes, Horner wing tips, observer door, Garmin GNC300XL GPS/COM, KMA 24 audio panel, EGT/ CHT, MX-300 RADI, New Micro Dynamics vortex generators, New RG-24-11 battery, carpet & cockpit cover one year old. Bernie Goldberg (609) 624-3357 <u>bgoldbergnj@msn.com</u> \$35,00 (Club Member)



For Sale: New York 1976-15077903 3,402TT 1,487SMOH Annual completed: March 2009. IFR completed March 2009. Avionics:: 1 King KMA 24 Audio panel with 3 light marker beacon, 2 ARC RT 328T NavCom, 1 ARC IN525A Indicator, 1 ARC IN514A Indicator, 1 ARC 359A transponder, 1 ARC 543B Glideslope receiver, 1 ACK A-30 Encoder, 1 RAMI AV569 Marker beacon antenna, 1 RAMI AV22 Transponder antenna, 1 Comant CI121 Com antenna, 1 Pointer 4000 ELT, Interior: Excellent, Headliner & all plastic panels in near-new condition, carpet very good. Exterior: Freshly painted in 2007 using the original paint scheme, with bright white background and flame red accent. Bob Dispenza (716) 694-3155 Bob@secondchanceaviation.com \$23,900 (Club Member)

For Sale: Oklahoma 1975-150M 4,055TT 601SMOH Engine & Prop. New Limits Overhaul with new Millennium assemblies, new mounts, exhaust system, vacuum pump, spark plugs, oil and fuel lines and baffles and overhauled mags, starter clutches 2000 and new carb 2006. King KX170b VOR/ LOC, Narco AT150 transponder with encoder, PM1000 intercom, 2 PTTs. 1991 new paint, 2000 seats, carpet, & new windshield, 2006 new cam-loc cowl fasteners, wing tip strobes, battery, ELT, and brake pads. 2006: all new interior



plastic, painted to match, all other windows, New seat tracks, vernier mixture control and EGT gage installed, seatbelt webbing replaced. Annual: 12-30-08. Complete logbooks since new. Dennis Raddant (918) 230-9528 cell 02Victor@02Victor. com \$24,995 (Club Member)



For Sale: Utah 1964-150D 3,419.6TT 716.2SMOH Fresh annual 8/2009. TSTOH: 141.8 (574.4) New ECI Titan Cylinder complete assemblies (retimed to 28) F&M spin-on oil filter. Carburetor rebuilt @ 536.8 - all advisories complied. Mags 500 hour service and retiming @ 655.2. Aerobat style breather. Chrome rocker covers. McCauley Static RPM 2525 -Cruise RPM 2750. All Ads complied with. Auto fuel STC -Standard 13 gallon tanks. Complete Corrosion X treatment @ 601.3. Newer tires and tubes. New Gill G25 battery. Cowling inserts with solar battery charger. Interior: new 12/99 - 7/10. Red/grey cloth seats, door panels, headliner, hat rack (9/10). AFRC Visors. Vernier mixture cable. Vernier throttle cable. Metal panel. ICOM ICA-200 VHF Transceiver. Narco AT150 Transponder, Narco AR850 Altitude encoder, II Morrow GX55 Panel GPS, Sigtronics SPA400 ICS, EDO 5000B-9 Gvro Horizon. Aeritalia 31101C DG. Narco 110 VOR. EBC 102A ELT. Davtron HOBBS. Airframe: Paint 5/93 - Dupont Chromaguard - Air Force replica theme - 7.5/10. Good glass. Micro VG's wings and vertical stabilizer. Met-Co-Aire Wingtips. New wing fuel drains. Brackett air filter. Belly drain. New style vented gas caps. Skybolt cowl fasteners. Custom forced air vents. Skycatch door catches. Stephen Haggerty (435) 586-1446 cctve@qwestoffice.net \$23,900 (Club Member)

For Sale: Virginia (Photo next page) 1969-150J 6,700TT 1,700SMOH STOH 500. Strong running IFR 150. July 2009 extensive annual and IFR recertification. Nov. 2008 new carpet, tires & brake rotors. 2001 new Imron paint & all new windows. ALL cylinders are mid 70s over 80. No oil leaks. July 2009 the following all new: Carburetor, airbox, mags, wire harness, alternator, battery, regulator, fuel lines, scat hose, vacuum pump. Belly strobe is new and is being installed next week. She is a 9 in & out. 4.5 GPH. Located in Newport

(Continued on page 14)

Classified Ads (Continued from page 13)



News / Williamsburg airport Jim Kent (757) 788-9907 Jrkent11@cox.net \$26,000 firm (Club Member)



For Sale: Wisconsin 1963-150C 4,702TT 865SMOH Annual 10/09 Comp. upper 70's, newer slick mags, wires, harness & plugs. New tires, tubes, brake pads & rotors. New interior, windshield & door glass, seats rebuilt & upholstered, belly drain STC. Valcom 760 TSO, No transponder, manual flaps. STC for auto fuel. Lowrance GPS. All logs.Jerry Carncross (608) 592-5070 jcarncross1@verizon.net \$14,500 Will con-



sider trading plus cash for a 172 or Cherokee (Club Member)

For Sale: Wyoming 1960-150 4,174.9TT 490.8SMOH Oil Filter; Air Oil Separator, New Glass; Sky Catch Door Holders; VG's; New Upholstery, Carpet, Door Panels, Baggage Compartment, Headliner, Whelen Comet Flash Strobes Belly, Fuselage Top, Wingtip and Tail; Pulsar light flasher, MX 300V Nav Com; King KY-97A Transceiver; Narco Transponder & AT-50 Encoder; PTT; Sigtronics Intercom; Narco ELT 10; JPI FS 450 Fuel Scanner; Belly Drain; Metco Wing Tips. Air Filter 500 Hours AD Complied With About 10 Hours Ago; Halon Fire Extinguisher; Winterization Kit; Rebuilt Mufflers & Exhaust System Changed To Eliminate AD, Precision Compass Single Point EGT & CHT Gauges, Shoulder Harnesses and Seatbelts, Climb Prop, Tinted Sun Visors.

UPA Products Spotlight

Here at Cessna 150-152 Club Headquarters, we are always on the lookout for new and notable products that enhance our flying and aircraft ownership experience. There are dozens of new aviation products introduced every year, nearly all can be found at Sportys, Aircraft Spruce, or other pilot supply stores. Take a few dozen aircraft accessories each year and multiply that by decade after decade of general aviation, and you end up with a bewildering array of literally thousands of products to choose from. Many of these products are great, some merely good, others as Borat says, "not so much."

Like most pilots, we get several dozen aviation catalogs a year, and subscribe to numerous aviation magazines filled with advertising. In addition, we attend 2-3 of the big annual aviation conventions, where we fill our goodie bags with brochures and price lists. Question is, how much of this stuff is really useful? The Cessna 150-152 is about the most "practical" airplane in existence, certainly the most affordable. Our publishing philosophy as a type club is to stick to technical information that is as useful, practical, and affordable as our airplanes. As we begin our fourth decade in January 2010, we will be digging deeper into the well of aviation related products, shining a spotlight on those that we believe are truly useful, practical, and affordable (UPA).

If you visit our Club internet store, you will find that all the aviation products we carry meet our basic requirement of being UPA. Things like fuel dipsticks, belly drains, and luggage scales. In the coming year we will be adding several additional items to our inventory that meet our UPA philosophy. Though most of our inventory is available elsewhere, our store is a unique one stop shop. Each item in our inventory has been tested in C150-152's and found to be UPA compliant. On page 3 of this issue we cover the installation of the "Blue Sky Door Latch" an example of a true Cessna 150-152 enhancement that is fully UPA. Here are some additional items now available in the club store:

The Cig Pen



If you're like us, you use your C150-152 ashtray as holder for spare change, it's too small and awkwardly shaped to hold much else. A shame really, as the location of the ashtray is perfect for holding something more useful. Club member Greg Powell has developed an accessory he calls the "Cig Pen" a plastic insert that replaces your metal ashtray so that you can store pens and a small flashlight there. Like Powell's Blue Sky Door Catch, the Cig Pen is an elegantly simple idea, one you might not fully appreciate until you need a pen or a flashlight in a hurry. How many times have you needed a pen or flashlight, and had to reach behind the seat, and fumble for one in your flight bag? The Cig Pen SOLVES that problem, is fully UPA, and it's simple and quick to install. The Cig Pen cost just \$19.95 a pair in the Club Store

The Pilot Light Pro and Map Light Pro



Cessna's overhead red instrument light does not give adequate coverage to distant parts of the panel, and relies on a single incandescent bulb. Lose that light bulb, and you are working in the dark, period.

We were exceptionally pleased to discover the Pilot Light Pro, a new portable LED based instrument lighting pod that effectively lights up the panel yet has no installation hassles. The Pilot Light Pro mounts overhead near the stock light using industrial Velcro like strips. It works much better than the stock light because it has an adjustable array of six LED lights that are both brighter and give better coverage. The LED array brightness is fully adjustable with a built in dimmer, and the Pilot Light Pro is available equipped with Red, Blue, or Green LED's.

In addition to it's adjustable LED that you aim at the panel, the Pilot Light Pro has two tiny aimable white LED map spotlights that light up about a six inch circle for each seat. The map lights, though bright, are directional with no spillover, exactly the right type of light to read a chart or your kneeboard, without messing up your night vision. After using a Pilot Light Pro, we concluded that it is more than just useful, it is an essential aid to night flying. After using a Pilot Light Pro, night flying without one is like wearing sunglasses at night.

The Map Light Pro is simply a smaller Pilot Light Pro with the map lights only. Smaller and less expensive, it's just the ticket if you wish to add effective map lighting with no installation hassle.



Clinton Fly-In DVD's UPA Stuff Description Quan Subtotal Price ea \$19 95* Clinton 2009 Fly-In DVD 50th Anniversary Celebration Blue Sky Door Latch Kit (Pair) \$44.95* Cig-Pen Pen& Flashlight Holder \$24.95* Pilot Light Pro (Circle Desired Color) \$129.95* Red, Green, Blue Map Light Pro \$79.95* Luggage Scale with tape measure \$12.95* LED Finger Light, (Batteries Included) \$6.55* Book: Owning Buying or Flying the \$31.90* Cessna 150/152 By Mike Arman MT101 STC Belly Drain \$52.45* For 1966-1985 C150-152's MT101-1 STC Belly Drain \$52.45* For 1959 - 1965 C150's Fuel Dipstik for C150 with 13 gal tanks \$31.45* Free Personalization. Available for Liters Fuel Dipstik for C150 with 19 gal tanks \$31 45* Free Personalization. Available for Liters Fuel Dipstik for C152 with 13 gal tanks \$31.45* Free Personalization. Available for Liters Fuel Dipstik for C152 with 19 gal tanks \$31.45* Free Personalization. Available for Liters

Order Total:

* prices include shipping in the USA. For all other countries email sales@cessna150152.com or see club online store for rates.

See color photos of these and additional C150-152 items at <u>www.cessna150-152.com</u>

(805) 461-1035 fax or see store at <u>www.cessna150-152.com</u>

A Blast From The Past 1943

To a young lady who's *All Alone* these days

We know how you feel with so many of the boys going away these days. And there are so few places that you can go yourself without gas for the car. But cheer up. There are lots of things to do that will help hing the boys back sconer, things that will make you forget you're all alow. Here's one of them.



You can keep busy and happy by taking up bome narring. It's easy to learn in a short time in your own home town. Then, wich doctors and nurses so busy right now you can be a teal help to your family, your friends and to the war effort. Call your local Red Cross Headquarets or Civilian Defense Office about it now.

2 There's a Silver Lining in the war clouds. When this war's over you'll be going places, on trips all over the country, in hours instead of days. Yes, you'll be flying as sure as you're born, cruising sunlit skyways in your own Cessna Family Car of the Air. An easy afternoon's ride will take you from New York to Cincinnati. And you'll find that flying your Cessna is as easy as driving an automobile. Today, of course, we're busy day and night building planes for Uncle Sam. But remember, if you can't go places now, you'll more than make up for it after the war in your Cessna Family Car of the Air.



Priority Delivery by Buying War Bonds New... You can be one of the first to own a Cessna Family Car of the Air after the war. Orders are bound to exceed production. But you can get a preferred listing for early postwar delivery. No postwar obligation to buy. Costs you noching. Write us today for the simple priority plan. CESSNA AIRCRAFT COMPANY, Box 1616-C, Wichita, Kan.



SYMBOL OF AIRCRAFTSMANSHIP FOR THIRTY-TWO YEARS