

Self-Launching Sailplane Pilot's Association

N E W S L E T T E R

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TAKEOFF TECHNIQUE...A plan for success.

Practice makes perfect. All too often, most of us simply put the throttle to the wall and hope for the best. Due to many safety factors, each takeoff should be executed as a short field takeoff to:

1. Get airborne as quickly as possible.
2. Climb as rapidly as possible.
3. Quickly attain a safe altitude that will permit an engine-off return to the field in case of engine failure or reduced engine power output for whatever reason.

Good short field takeoff technique requires precise and positive control of aircraft attitude and airspeed that results in the shortest ground roll possible followed by a steep angle of climb consistent with the recommended climb airspeed as per the pilot's handbook. Variables such as runway slope, density altitude, wind and takeoff surface all have a bearing on performance and must be considered prior to each takeoff.

Here are the elements of a well executed short field takeoff that should be used on every takeoff as a matter of safety. (Remember that tow pilot who climbed real slow as you sweated out the minimum altitude you would accept for a line break or tow plane engine failure? Well, we are talking about the same thing here except YOU are both the tow pilot and the sailplane pilot!)

1. **POSITION** the aircraft on the runway, preferably at the end threshold, so you have ALL or most of the runway ahead.
2. **LINE UP** with the wing you prefer down according to an X-wind or use a wing runner if desired (especially if the low wing is in the rough).
3. **SET FLAPS** per the handbook. Most birds require a negative setting during roll and a positive setting after aileron control is effective.
4. **HOLD THE WHEEL BRAKE ON AND APPLY MAXIMUM ALLOWABLE POWER WHILE RE-**

LEASING THE WHEEL BRAKE. If the spoilers are part of the wheel braking system, lock them down as you add full power. In many birds, the nose will dip toward the ground as full power is applied with the wheel brake set. Just add power and when the nose starts down, release the brake and lock the lever forward as you add the final part of the throttle. The secret here is to get maximum power on ASAP.

5. **ACCELERATE AS FAST AS POSSIBLE** by using a minimum of up elevator and letting the bird's full weight rest on the main wheel. Stick back takeoff technique may be necessary to maintain directional control in a X-wind. However, if at all possible get the bird in a level attitude as quickly as possible for maximum acceleration. This means the tail wheel should come off the ground about the same time as aileron control becomes effective.

6. **AS THE RECOMMENDED CLIMBING AIRSPEED IS ATTAINED**, smoothly and firmly apply back pressure on the stick and lift off. This is the most critical point and continued back pressure may be needed as the airspeed tries to exceed the recommended climbing airspeed. The secret is to "nail" that airspeed and hold it there within 1-2 kts. **DO NOT TRY TO FORCE THE AIRCRAFT INTO THE AIR PREMATURELY**-just go for the recommended airspeed and hold it there. This will give you the steepest angle consistent with safety. In most cases this airspeed will be about 5 kts lower than the recommended landing approach speed, so be aware that should the engine fail, there is an immediate need to lower the nose to attain best approach speed.

7. **WHEN STABILIZED ON CLIMBING AIRSPEED**, check your altitude. (A turn back toward the field at 4-500' agl makes things easier in case of problems and sets you up for a downwind leg. Raise the gear when comfortable.)

Try this a couple of times and you will find it does work. A headwind and a downslope, smooth runway really helps just as a tailwind, upslope and rough runway really hinder things. Be aware of your density altitude. **CHECK YOUR HANDBOOK.** And don't forget that pocket of sink just after liftoff can make you sag a lot. Just nail that airspeed !!!

NIMBUS 3DM CAPTURES TWO WORLD RECORDS

On Friday July 7, 1989 Jerry Wenger and Don Aitken soared Wenger's new motorized 2-place Nimbus 3DM from Douglas County Airport to Price Utah (480 mi.) shot a picture at 16,000 ft. and then proceeded to Grand Junction Colorado to establish a straight line world distance record of 602.6 miles. This flight broke the 1976 multiplace motorglider goal record of 401.66 mi. and the 1980 straight distance record of 591.87 mi. Total elapsed time was 7.5 hr. for an overall speed of 80+ mph. On the return flight (into the wind and wx), the Nimbus was finally forced to land at dark, 50 miles short of Minden. Congratulations and a hearty well done to two determined pilots flying this World Class motorized ship from Schempp-Hirth.

REGION 11 NORTH HOSTS MOTORGLIDER CLASS....

Fifty four contestants including 3 motorgliders flew 3 speed and 2 POST tasks days at Douglas County Airport at Minden NV 1-5 July, 1989. The motorized ships were tasked with the Standard and 15-Meter Classes. This was the first Regional where the new Auxiliary Powered Competition Scoring Rules were used. The essence of these rules provides for engine use enroute but awards distance points only based on an engine use penalty formula if the engine is used after a self-launch to 2,000' agl. Jerry Wenger and Co-Pilot Don Aitken soared Jerry's new Nimbus 3DM to victory followed by Pete Williams and Ken Ferguson both flying DG-400s. The big Nimbi (affectionately nicknamed "Bomber Command") lifted off daily at close to 1,800 lbs. and motored majestically aloft on 60 Rotax horses. Some sight. This potent performer (57:1) promises to continue to break more records.

FOR SALE: DG-400 S/N 91 1984. Low Time. Excellent instrumentation: Sage/S-Nav/Dittel/02/Aerograf Baro/spare parts/All Tns and ADs/ Cobra trailer. Call: Jerry Wenger 1-800-325-8373-days or 507-451-7927 eves.

DG-400 FACTORY REPORTS.....

Aeroquip Hoses: Many pilots have no doubt received a notice in the mail to inspect fuel line hoses manufactured by Aeroquip. Dirks advises only German auto hoses are used on the Rotax 505 and that the Aeroquip hoses are an alternative hose. Dirks also advised that the fuel hoses must be exchanged every 5 years per the handbook. These hoses are available from Glaser Dirks Sailplanes, Inc. (Oliver Dyer-Bennet) as made up kits, cut to the proper lengths and with fittings ready to install.

Grounding of Fuel Pump System: Dirks advises the system is grounded when the sailplanes 12V socket

is used as a power source for the fuel pump. If an external battery is used, Dirks advises the fuel flow is slow thru the pumping system and that the risk of generating static electricity is low. Editor's comment: If fueling direct from a fuel bowser into the main tank, make sure the bowser is properly grounded to the main wheel of the aircraft as fuel flow will be high.

Ignition Box Bolts: Make sure these bolts are torqued to 2.4 daNm (18 ft.lb.) and secure with Loctite 72b. Also mark them with anti-sabotage paint.

Auto Engine Retraction System Retrofit Kit Coming:

As of early 1990, the factory will offer a kit that will permit the engine to retract automatically when the ignition is turned off. An electric brake stops the prop in the proper retract position.

More on Weighing Your Bird: In correction to previous info on weighing. The sailplane must be levelled using a template with a slope of 100:3.67 per page 47 of the handbook. It is also a good idea to double check dimension b. (center of main wheel hub to tailwheel axle hub center) using a plumb bob. This all affects finding the precise C.G. position.

MAINTENANCE TIPS:

DG-400.....

Carburetors:

Several members report improved starting and smoother running after switching to a Mikuni Carb. system. These carbs are available from Oliver Dyer-Bennet.

Have you inspected your Carb Jets Lately?

The Rotax 505 Repair Manual Page 17 specifies .046 and .045 jets for flights below and above 4,500 msl. (Oddly enough, the Pilot's Handbook makes no mention of jet sizes to use) Pilots who rejettied to .045 jets while flying out of high fields such as Minden report easier starting and less black exhaust smoke. When inspecting your jets, you may discover they are marked .035 but have XX marks across the .035. It has been determined that in reality these are sea level .046 jets. Operation out of fields above 4,500 msl using .046 jets is possible but starting will be difficult with a tendency to flood. Throttle response may also be sluggish especially when climbing after an air start. In fact, the engine may not want to run smoothly at less than the full throttle setting. As a rule of thumb, suggest rejettied to .045 jets when operating at any field above 4,000' msl. Also be cautioned that use of the smaller .045 jet at or near sea level will result in excessive cylinder head temperatures resulting in shortened engine life and/or engine failure.

TAILWHEEL AXLE BOLT FAILURE REPORT..

The axle bolt failed near the nut attachment at the wheel



fork forcing a ground loop during taxi. The pilot stood on one rudder to prevent going off an embankment. This caused one of the tailwheel fork springs to shear where it attaches to the rudder horn. Investigation revealed a loose metal bearing tube where it fits into the axle hole of the plastic wheel hub. This looseness permitted the bearing tube to turn inside of the plastic wheel hub. The result was rapid wear of the plastic wheel axle hole and movement of the axle bolt against the tailwheel steering fork hole. Inspection suggested: make sure the axle bearing tube is tight against the steering fork and has no movement within the plastic axle hole. Lube the axle bolt with hi-temp grease and inspect often, especially if you taxi long distances.

CANOPY HINGE SUPPORT CRACKS...

This is the hinged mounting plate to which the canopy is attached with the quick release "T" bolt. One pilot reported the front end of the canopy opened slightly at high speed. Inspection revealed bending and cracks on the canopy attachment plate where the "T" bolt enters and locks. Suggest inspect this area prior to next flight by "popping" the canopy emerg. release. Look for any bending and cracks around the plate opening thru which the "T" bolt protrudes. Removal of this hinge involves grinding out the gel coat "plugs" on the nose to loosen and remove the hinge bolt. Grind out cracks and heli-arc weld. Better yet, replace the hinge PN R-48. Cause of this failure was most likely due to allowing the canopy to swing in the wind without adequate support and/or taxiing with the canopy open and unsupported. This is a LONG fulcrum and tremendous lateral pressure is brought to bear on this attachment as the wind blows the canopy sideways.

PROPELLER SUPPORT TOWER AFT ATTACHMENT BOLTS FAIL:

A recent failure involved both of the aft mounting bolts allowing the prop to move forward and sever the drive belt. The pilot shut the engine down and landed safely with the engine extended. Inspection revealed the mounting bolts failed just under the heads of the bolts in the vicinity of the split lock washers. Both new bolts (4M31) and positioning blocks (4M5) installed. Suggest careful preflight inspection by applying forward pressure on the prop and checking for any movement in both the aft and forward mounting bolt areas where they enter the blocks and the engine case.

ROTAX TECH. BULL. 505-04: This bulletin involves inspecting the starter gear for cracks in the 505 and 505A engines. Send self addressed stamped (50cents) envelope to SLSPA for a copy.

PIK-20E...

Takeoff Power Lost- One pilot reports engine lost down to 3,000 rpm during takeoff run. Aborted takeoff and checked all systems. Engine attained takeoff power and uneventful takeoff made. Carbs adjusted and new breaker points installed after the flight. No problems since. *This engine could have been running on one cylinder only due to several reasons: Plugs loaded after taxi, plugs with over 12 hours running time. I have found that the plugs must be changed after at least 50 starts or 12 hrs*

running time. After these milestones, hard starting always seems to occur and is solved immediately upon new plug installation. Ed.

DG-400 ACTIVITY AT MINDEN..

During the first week of July at Minden ^{SIX} ~~seven~~ DG-400s were observed flying from the field for a variety of reasons:

Ken Ferguson-Region 11 Contestant

Don Hurd-Record Flights

Andy Johnson-Laird-Loran system test flights.

David Volkmann-Familiarization Flights.

Karl Tulp-White Mountains flights.

Pete Williams-Region 11 Contestant

These pilots and Don Aitken, Jerry Wenger, John Ellis, Tipper Robinson and their wives and friends had an informal SLSPA supper get together on the 6 of July in Gardnerville, NV.

ANTI-RUST MAINTENANCE...

Jim Culp advises this product really works on cleaning up rust and protecting ferrous metal surfaces. It's called RUST REFORMER and is available from Rust-O-Leum Corp. 312-367-7770. Culp says he uses it on his control stick, engine nuts and bolts or anywhere a neat black protective coating is needed on metals. Just apply with a paint or toothbrush in one step. Looks like bluing or paint when dry. Requires no washing off. It can be purchased at Ace Hardware for under \$5.00.

SPOILER/AILERON PUSH ROD BALL CONNECTION INSPECTION..

1. Inspect the ball or roundness.
2. Any wear that tends to make the ball slightly flat on the sides may affect the integrity of the connection resulting in increased wear even while connected. Flight turbulence and engine vibration are wear factors.
3. Regular lubrication (a light film is enough) of the ball is necessary. DO NOT lube the connection latch, just the ball.
4. If the ball is not perfectly round (use a micrometer), replace both ball on the connector.

2ND U.S. NATIONAL AUXILIARY POWERED SAILPLANE CHAMPIONSHIP.. 18-28 JULY/HUTCHINSON KN

This contest is currently underway and results will be in the next newsletter. The nine contestants are:

Don Pollard-Ventus CM

Bud Schurmeier-PIK-20E

Oliver Suddard-DG-400

Don Aitken-DG-400

Ken Ferguson-DG-400

Alan Greer-Ventus BT

Roger Buchanan-Ventus BT

Ken Shea-Nimbus 3T

Jerry Wenger-Nimbus 3DM