

Bluenose Soaring Club

Stanley Airport, Nova Scotia, Canada

Operations Manual

Field Manual

Aircraft Operation Instruction

Latest Update: 1999

Foreword

Preamble

The *Bluenose Soaring Club*, here-in-after referred to as the *Club*, is incorporated as an Association under the Societies 'Act of the Province of Nova Scotia. The Club holds at least two meetings each year to elect officers and to set budgets and fees. The Club adheres to stipulated operational guidelines and regulations for flying safety which incorporate:

- 1) pilot training
- 2) rules for passenger carrying
- 3) cross-country flying
- 4) winch operation
- 5) retrieve activities, and
- 6) launch procedures.

Club Safety Statement

The Club's primary mission is to ensure safety both in the air and on the ground. Activities at the Club reflect community effort and all members are required to perceive themselves as part of this community. All members must remain vigilant in ensuring that their own actions and general performance, as well as the actions and performance of others, remain consistent with guaranteeing that **Safety Comes First**. A safety problem is likely to arise it is the responsibility of all members to take action to circumvent such a possibility. This is best done by politely

questioning the rationale for any given activity. New club members also share this responsibility and should not hesitate to question procedure even if they are not completely sure there is a problem. Should a problem exist, the senior pilot should accept the challenge as part of a continuing learning process. Should there not be a problem, the situation presents an opportunity for learning about procedure on the part of the student.

Purpose of Operations and Field Manual

This manual was written to describe the day-to-day operations of the Club as well as field procedures to be followed by all members (e.g., flying priorities, time limits for Club aircraft, procedures to follow in the case of an accident). It is important that all Club members incorporate these regulations and standard procedures in their daily thinking while at the field, and, when in doubt about appropriate procedure, refer to the manual without hesitation. There are obvious practical reasons why it is important that standard operational procedures become second nature to Club members. Unnecessary delays resulting from failure to follow procedure cause frustration and may result in a pilot missing that last thermal of the day. Additionally, lost flights equals lost revenue for the club. More important, is the increased margin of safety that is ensured when everyone adheres to standard procedure.

TABLE OF CONTENTS page

Foreword	1
Duties of the Officers	3
The Chief Flying Instructor	3
The Chief Winch Operator	3
The Safety Officer	3
The President	3
The Vice President	3
The Secretary	4
The Treasurer	4
Director of Aircraft Maintenance	4
The Senior Official Observer	5
The Entertainment Director	5
The Communications Director	5
The Director: House and Grounds	5
Requirements for Flying Privileges	7
Currency Requirements	7
Type Conversion Procedures	8
Cross-country Qualifications	10
FIELD OPERATIONS MANUAL	12
A QUICK OVERVIEW	12
FLAGGING & SIGNALLING	13
RADIO LAUNCH PROCEDURES	14
RETRIEVE DRIVING	15
HANDLING THE CABLE AFTER A CABLE BREAK	16
FIELD MANAGING	17
THE TOW PRIORITY LIST	19
WINCH DRIVING	21
ACCIDENT REPORTING	28
SPLICING STRANDED CABLE	28
SPLICING PIANO WIRE CABLE	28
Aircraft Operation Instructions	30
SAILPLANES	30
Flying Operations	31

Operations Manual

Duties of the Officers of the Bluenose Soaring Club

The Chief Flying Instructor (CFI) of the Bluenose Soaring Club is responsible for:

- I** Oversees the instruction of new students:
 - a. directs the flying week activities;
 - b. monitors student progress,
 - c. checks student performance before major transitions (first solo, licensing, etc.)
 - d. reviews student documentation with student and “authorized person” as required;
- II** Directs the teaching duties of other instructors and chairs meetings of the instructors committee.
- III** Monitors the performance of other instructors and ensures that a standard syllabus is followed.
- IV** With one other instructor, recommends new instructors and processes the recommendations to MOT and SAC.
- V** Liaises with the S.A.C. National Office and the Chairman of the Flight Training and Safety Committee to ensure that the Club is conforming to national standards.

VI Must be a Category II or a Category I instructor.

The Chief Winch Operator (CWO) assumes responsibilities similar to the CFI in relation to the maintenance and safe operation of the winch.

The Safety Officer must be a Category II or a Category I instructor who is responsible for the establishment of safety programs and the initiation of periodic safety seminars for all Club members.

The Safety Officer monitors the flying practices of members to ensure compliance with Transport Canada regulations, SAC policy and practice, and any other procedures in place that promote safe flying conduct at Stanley and other sites where Club flying occurs.

In conjunction with the CFI, the Safety Officer initiates disciplinary sanctions or remedial measures for Club members whose flying places persons or property at risk due to unsafe flying or field operations. The Safety Officer meets with the Club Aircraft Maintenance engineer regarding the safe condition of Club and private aircraft. In case of accident, the Safety Officer ensures that Transportation Safety Board officials are informed and that SAC Accident/Incident reports are submitted to SAC and to the Insurer.

Finally, the Safety Officer meets with the Stanley Sport Aviation Safety Officer to resolve any problems that may arise from time to time regarding glider/power interaction at Stanley and other sites.

The President

I will preside at all General and Directors’ meetings of the club;

II is responsible for the general supervision of Club activities;

III co-ordinates Club activities with other organizations;

a. All non-routine agreements shall be entered into by, or with at least the prior knowledge of the President,

b. in matters of Club policy, the President should be the sole spokesperson for the Club.

IV and one other director, may execute contracts, leases, bills of exchange and other instruments on behalf of the Club.

The Vice President

I will during the absence of the President, preside over General and Directors’

Bluenose Soaring Club - Manuals

meetings of the Club;

II and one other director, may execute contracts, leases, bills of exchange and other instruments on behalf of the Club;

III will be one of the two Club representatives on the Stanley Utilization and Safety Committee; and

IV will undertake other duties and projects as mutually agreeable with the President.

The Secretary

I Takes and distributes the minutes of annual, general and Directors meetings;

II Maintains records of all meetings and, in co-operation with the Club Treasurer, maintains a current list of Club members and addresses;

III Controls the correspondence to and from the Club:

- a. retains and checks the Club mail box.
- b. distributes mail as required.
- c. prepares correspondence as directed by the President or Board of Directors.

IV Provides the Nova Scotia Registrar of Joint Stock Companies with a current list of Directors and the minutes of the annual general meeting.

V Other duties or projects as mutually agreeable with the President.

The Treasurer

I In consultation with other members of the executive, prepares an annual budget and recommends the fees for:

- A. Membership
- B. Launch and flying
- C. Hangar rental
- D. Daily memberships/Intros
- E. Other Club services and goods

II Prepares bills for club members for Annual membership (prior to 15 Mar.) And for other services at approximately six-week intervals during the flying season. Bill hangar rentals as directed by House and Grounds Director. Final Statement for year will be sent in Nov./Dec.

III Pays utility and fuel bills routinely and other bills when approved by the appropriate Director.

IV Deals with the Soaring Association of Canada for the following:

- A. Accurate membership list
- B. SAC fees have been collected and each member who has paid SAC fees is insured prior to flying solo.
- C. Insurance on Club aircraft is calculated and paid, and insurance on private aircraft is calculated, collected and paid prior to the start of flying.

V Ensures that the Secretary is advised of any changes to Club membership throughout the year.

VI Manages the Club ledgers and bank accounts and advises the President of the Club's financial situation regularly.

VII Manages the capital and loan records and calculates and credits interests to members' accounts.

NOTE: The Treasurer is not a purchasing agent. Each Director is expected to carry out his/her responsibilities within the confines of the assigned budget or come to the executive if there is a problem. The Treasurer will pay bills which are approved by the appropriate Director and are within that budget.

Director of Aircraft Maintenance

I Organizes the overhaul and repair of Club aircraft during the inactive winter period.

Bluenose Soaring Club - Manuals

II Organizes the breakdown and storage of Club aircraft at the end of the flying season with due regard for the work planned in I (above)

III Arranges for C of A / 100-hr inspections at the beginning of the flying season and as required throughout the year.

IV Co-ordinates ongoing aircraft maintenance throughout the year and, with the Communications Director, maintains aircraft radios and instruments.

V Arranges for and/or directs the repair of damage to Club aircraft.

VI Maintains the following aircraft documentation and organizes aircraft logs for all inspections.

- A. C of A/Bluesheet
- B. C of Registration
- C. Weight and Balance

VII Monitors Club aircraft log books for continuity and times to inspection, and;

VIII Prepares both capital and operating budgets for the coming year.

The Senior Official Observer

I Represents SAC and FAI interests in the processing of FAI Badge and award flights which involve the Club and its members.

II Will supervise all other Club Official Observers (OOs) and will ensure that current editions of the FAI Sporting Code and the SAC Procedures booklet are used.

III Will recruit, train and upgrade all Club OOs and will ensure that FA and SAC standards are rigorously maintained.

IV Will liaise with the FAI Awards Chairperson and OO qualifications and badge and award claims, and;

V Will review and, if correct, will certify all claims originating in the Club and will forward the completed claim to the FAI Awards Chairperson for filing.

The Entertainment Director

I Arranges social events for the Club as agreed by the Executive.

II Meets the social obligations of the Club in the form of letters/cards of condolence, congratulations, get-well, etc.

III Prepares a budget for the following year.

The Communications Director

I Is responsible for overseeing the maintenance of all Club radio communications equipment.

II Recommends modifications, new equipment and techniques to the executive and/or general membership.

III Oversees the installation, testing and setting up of new equipment and modifications.

IV Arranges for training in correct radio procedures and on specific Club-operated ground and air communications equipment.

V Assists the Aircraft Maintenance Director with the installation and maintenance of other electronic equipment.

VI Maintains all communication licenses; and

VII Will prepare a budget for recommended capital acquisitions and routine maintenance.

The Director: House and Grounds

Bluenose Soaring Club - Manuals

I Is responsible for overseeing the general maintenance of Club leased and controlled real property located at Stanley.

II Will prepare estimates for major repairs and improvements and will submit a budget for annual routine maintenance.

III Will secure that water and other systems are activated correctly in the Spring and are protected against freezing in the Fall.

IV Will call for, and organize, work parties when major cleanups and maintenance are required; and

V Will execute, hold and maintain all real property leases on behalf of the Club.

VI Will manage hangar space and sublets to Club members and others and will advise Treasurer of amounts to be billed.

Bluenose Soaring Club Requirements for Flying Privileges

Solo Pilot

- First solo authorized by CFI
- Each subsequent flight authorized by CFI or his/her delegate
- Soaring Association of Canada (SAC)

Membership

- ✓ Valid Medical Certificate (Minimum of Category 4)
- ✓ Completion of pre-solo test
- ✓ Student Pilot Permit issued by the CFI (and in possession of solo pilot)
- ✓ Minimum of 15 years of age

Licensed Pilot

- Six (6) hours of accumulated time in a glider including a minimum of one (1) hour dual,
- Two (2) hours solo, and twenty (20) solo takeoffs and landings.
- fifteen (15) hours of ground school
- Pass Transport Canada Glider Pilot exam
- Pass flight test with CFI or his/her delegate
- Minimum 16 years of age
- Valid Medical Certificate

Passenger Carrying Pilots

- Possession of Glider License
- 10 hours as P1
- Five (5) takeoffs and landings as P1 within the preceding 6 months
- Check-flight with CFI

- Aerobatics and extreme attitudes are not permissible when carrying passengers.

Documents Required on All Flights

Solo Student

- student pilot permit
- radio license
- aircraft documents

Licensed Pilots

- Glider pilot license
- License Validation Certificate
- Radio license
- aircraft documents

Aircraft Documents

- ✓ Journey log
- ✓ manual
- ✓ Intercept orders
- ✓ Certificate of Air worthiness (C of A)
- ✓ Proof of Insurance

Currency Requirements - Bluenose Soaring

All pilots at all times must meet the Club's currency requirements described below. It is also imperative that members go beyond these requirements and make constant assessments of their currency and experience. If you are in doubt that you meet Club standards or your own standards, you must discuss the situation with an instructor so that the concerns can be allayed through check-flights or other appropriate action.

Level	Experience	Time Period which may elapse before losing currency	Action upon loss of currency
RED	Solo Student	5 days	Dual Flight Required
GREEN	Licensed Pilot w/ less than 200 flights OR less than 50 flights during last 12 months	14 days	Return to RED
BLUE	Licensed Pilot with more than 200 flights but less than 30 flights during the past 12 months	30 days	Return to GREEN
SILVER	Licensed Pilot with more than 1000 flights	30 days	Return to BLUE

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Type Conversion Procedures

Any first flight in a type of glider not previously piloted represents a unique challenge, and ultimately greater risk, to the pilot due to his/her unfamiliarity with different handling and performance characteristics. This increased risk is gradually diminished over time, but it is essential that the pilot follow certain procedures to ensure that this transition period occurs without mishap. In all instances, the inexperienced pilot should always discuss performance characteristics (and peculiarities) of the new type glider with a pilot experienced with that particular type.

The first formal procedural step for conversation is to carefully review the Aircraft Flight Manual for the aircraft. The pilot must become extremely knowledgeable with the contents of the manual particularly with regard to:

- 1) **Aircraft Rigging** - Remember that only moderate force is required to insert the wings and tail and in placing the remaining pins in their required location. Be sure to follow the step-by-step directions provided in the manual and review your work with the help of your assistant, item by item, after you finish. It is important that you rig the glider yourself and obtain "hands off" advice only if necessary. When finished, do a positive control check and a walk-around with your helper/companion.
- 2) **Loading and Centre of Gravity Requirements** - Check the allowable weight for a glider to ascertain the match to your body weight. If you weigh more than the maximum allowable then you can not fly the glider. If ballast is required you must make sure that it is properly secured.
- 3) **Parachute Function and Seating Position** - Put on the parachute (if available) and position yourself in the seat from which the glider will be

piloted. Adjust the seat and rudder pedals so that all controls can be easily reached. Remember that attitude will be quite extreme on winch launch and that you will be unable to regain control of the pedals if you slide back due to improper adjustments (seat back too far, soft cushions). Among a possible multitude of other problems, will be an inability to signal to reduce speed.

4) **Attitude on Horizon and Controls** - Wheel the glider into position to provide a clear view of a level distant horizon and take time to sit on the cockpit to familiarize yourself with this scenario. Examine the horizon and scan to both sides so that you are able to imagine the view over the nose at touchdown. Remember that the most important feature that will make takeoffs and landings safe is the view of the horizon when the glider is at rest. Operate all controls to ensure that full, unrestricted motion is available while remembering that there will be air pressure against them when moving.

5) **Glide-Path Controls** - Review glide-path controls with an experienced pilot and question her/him regarding any unusual features. Remember that aircraft with high-angle flaps for landing require special care because when flaps are reduced both lift and drag decrease. This obviously increases the possibility of "on-fence" (short) landings. Additionally, gliders with drogue chutes usually have moderate or no spoilers. The use of these chutes during landing require extra practice to reduce landing roll. Practice on a long field is essential to assess the effect the extra drag has on the glide slope.

6) **The First Flights** - Converting from 1950's gliders with a forward centre of gravity to newer fiberglass gliders usually requires some dual flight practice with an experienced pilot. This is easy when the glider is a two-seater, and the experienced pilot should demonstrate takeoffs and landings with correct trim setting, speeds and attitude. The new pilot should initially sit in the front seat, noticing the speed required to land

with tailwind and main wheel touching down simultaneously.

Excess speed is particularly embarrassing on landing since the glider will “roar” down the field with its tail in the air and little directional stability. Conversely, too low a speed on touchdown will result in a “thumping” drop of the main wheel onto the ground. It is important to be aware that modern glass gliders are less tolerant of incorrect speeds on landings and that it is easy to drag a wing and ground-loop at low speeds due to wing-tips that are lower to the ground. In the case of a single-seater, dual flight practice is still a good idea. Speed control can be duplicated by the check-out pilot and practised by the candidate in a two-seater.

After the pilot has reviewed all matters reviewed in the manual with the experienced pilot, the first flight in the new type glider may be undertaken. The field manager must make contact with winch or tow plane to make it clear to everyone involved in the launch that this is a first flight. There should be no traffic in the circuit during this first launch so that distractions are minimized. A fresh walk-around and pre-flight critical functions check should be conducted before launching. During launch, the pilot should release should any perceived irregularities occur (as in the case with all launches).

Once aloft, it is important to remember to raise the wheel, as many wheel-up landings are the result of an uncorrected wheel-down flight (which may be brought to the pilot’s attention by a warning horn). Remember to be vigilant in comparing the view out of the window with what you have been previously accustomed to and be prepared to modify your “look-around” process if necessary. Follow a pre-flight plan of pitch-control, roll-rate and speed/altitude tests. Keep speeds well within placard limits for the first flight and fly a consecutive circuit at the correct speed for the “type” and existing conditions. The final approach to the aiming pilot should be conservative allowing plenty of clearance over all obstructions followed by a

landing well into the field. It is advisable to use the longest runway available when considering that these initial long landing will be accompanied by a longer landing roll. Initial flights should be followed by a careful debriefing with the experienced pilot including a comparison of your notes to the procedures and specifications outlined in the manual.

It is important to remember that it may not be advisable to conduct spin entry and recovery practice until some hours have been accumulated to the new type glider. When undertaking these manoeuvres, it is essential to achieve necessary altitude before beginning stall entries and in incipient spins. You should enter a spin in our favourite direction of rotation and then recover at once. If still at sufficient altitude, you should repeat this procedure to gain greater familiarity with the pre-stall characteristics of the glider. You may consider yourself competent when you can complete three turns and come out of the spin on your chosen heading. Remember that recognition of the pre-stall characteristics when distracted and at a lower altitude may save your life. Finally, you should conduct an extreme attitudes regime every few flights to remain current and keep your reactions carefully honed.

As you become increasingly familiar with the new glider, your confidence will grow. You will come to recognize that your expertise with a more advanced glider will provide new opportunities for greater adventure (such as a necessary out landing or conflict with commercial traffic at altitude). Enjoy while staying safe!

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Cross-country Qualifications

Cross-country flights are those that take you beyond the glide range of the home field. This distance can be surprisingly short in the face of a strong head wind or substantial sink! Should you find yourself in this position, you may need to conduct an out landing which requires knowledge and skills beyond that required for safe home field landings. Habitually good circuit procedure, utilizing correct entry height and track, is the greatest single aid for safe out landings. Although the circuit entry point for an unfamiliar field will seem unusual, it is important to remember that distances and angles remain exactly the same if the circuit is performed correctly. It is important to bear additional considerations in mind when choosing an outfield. For example, electric fences are usually impossible to see from the air, being indicated only by changes in colour and texture on the field they border. A narrow strip of tall weeds or uncut grass may also indicate a fence. Your height above ground (AGL) may be an estimate rather than a reading from the altimeter, but this need not present a problem if you remain consistent in your method of calculation. Minor corrections may then be made during the actual landing process. It is even more important than it is at your home field. Any inconvenience occasioned by an outfield landing is minor compared to a stall/spin nose-down arrival to the field. The higher level of stress you are bound to be experiencing during an outfield landing procedure makes it a particularly bad time to explore the sink side of a low level thermal!

Field Section

The safest field to land in is one which you have scouted and walked in previously. The availability of a map which has been marked with usable fields for out landings will minimize risks during cross-country flights. To do this, obtain large scale topographical 1:50,000 maps

of the area around your home field. From the master outlining field map in the clubhouse, copy the indicated fields onto your own maps using the same system of denotation. You must visit these fields by car and check them on foot! When aloft, review these fields from the air and try to recognize slope and surface cues. Remember that you will have to estimate slope and wind direction later when you attempt the real thing far from home. The more time you spend looking at fields in preparation, the more safe and less stressful will be the actual experience!

Additionally, you will want to make observations of fences and of wires that bring power to farm houses from the ground and aloft. A particularly useful preparatory activity is to compare the appearance of the surface and crops viewed from aloft to the appearance of the same features on the ground. A field which appears green from the ground may be a new crop that looks brown from the air and fields near water courses are often sloped down toward the stream. Any irregularity in the surface which is discernible at 2,000 feet is significant enough to make landing difficult.

When to Land

All planned cross-country flights begin with the usual climb to altitude over the home field. A decision to leave the home field is taken when there is a reasonable chance to maintain altitude, and even more importantly, when altitude is sufficient to make the next satisfactory field. It is never appropriate to deviate from this and risk landing a glider in the trees. As tempting as it might be to try to reach home, it is essential that the pilot choose to land in an outfield rather than to hope to find lift.

Most inexperienced cross-country pilots do not approach the best glide performance characteristics of the glider when at height; it is typically easier to stretch these limits when "scratching" to maintain altitude over some swamp in the backwoods. Depending on type and wind, an altitude of 3,000 feet will generally

provide a 10 mile range of safety. Nonetheless, this provides no guarantee and a safe outfield landing should always remain the top priority. When you have dropped to 2,000 feet you should consider an outfield landing as probable and you should position yourself towards landable fields. At 1,500 AGL you will have chosen the best of three possible fields; at 1,000 AGL you should be committed to a field after a final consideration of alternatives; at 800 feet AGL you should enter the circuit and land. Accurate flying at safe circuit speeds and bank angles is essential at this point.

Special Terrain

Although it is much safer to venture away from home across our Country's prairies than it is over the more treacherous terrain of Nova Scotia, it is possible to commit deadly errors anywhere. When flying in mountainous terrain, different judgement and additional skills in height reduction are needed. The pilot needs constant briefing in wave and rotor influences when in mountainous areas, and dual flights may be preferable to solo flights under these circumstances. When flying over ridge sites, it is desirable to explore lift patterns on the slope prior to each flight to see whether it is safe to continue. When ridge flying, potential outlandings are never more than two minutes away!

Soaring clubs operating in isolated areas face additional challenge in that there is little opportunity to cross reference flying procedures with members from other clubs who may be more experienced. Any pilot who visits a new site should make a special effort to compare procedures, standards, and flying conditions between the home club and the club being visited.

Cross-country Qualifications

- 1.** Conduct short-field landing practice on an unusual part of the home field or at some field close to home that is well known to the pilot. When up to standard, the pilot's performance should be checked by a qualified cross-country pilot.
- 2.** Ensure that your cross-country map(s) has been prepared and checked by a qualified cross-country pilot.
- 3.** Conduct a dual flight with the CFI away from the field with a return close to best glide for the prevailing conditions (within the limits discussed above).
- 4.** Practice approaches to landable and unsafe fields in a powered aircraft to the lowest safe height.
- 5.** Discuss your cross-country plans with the CFI and obtain his/her signature approving your cross country performance.
- 6.** Ensure knowledge of basic navigation.
- 7.** Ensure proficiency with basic rigging and de-rigging procedures.

**FIELD OPERATIONS MANUAL
OF THE
BLUENOSE SOAR**

1994 Edit

George Graham, Dick Vine, Dan Morrison

A QUICK OVERVIEW

The Field Manager (FM) is the pivotal person in the start-up of the flying day. The Field Manager knows that people come to Stanley wanting to get value for their time and money, thus the Field Manager constantly organizes things so that every member gets the most bang for the buck.

Everyone should think in terms of spending time-bucks, and work to provide the best buy they can for each other.

The day starts with getting the winch and Retrieve Vehicle (RV) out of the garage. The keyboard is retrieved from the clubhouse and used to open the gate and the garage. All other keys should be left in the respective vehicles. THIS SAVES TIME. Vehicles are fuelled up as necessary. The keys for the fuel drums are on the keyboard.

Every other member present becomes a member of the Equipment Setup Crew. The FM will decide which gliders to get out (normally all club gliders). To make removal of the gliders simple and ding-less, let the people handling the tail of the glider have control of the operation. Once the gliders are at the launch site, students and members can do the Daily Inspection (DI) and cleaning of the gliders, moving other equipment out to the flight line, etc. As a member finished a DI, he/she should inform the Field Manager. By the time the first glider is ready to fly, the Field Manager will have the launch priority sorted out. Members can then check their position. Those near the top of the list should start preparing for their flights. Others should tell the Field Manager that they are available for duty work. It's often busy for the FM at the start, and having someone volunteer certainly brightens their day.

New students can ask one of the Team Instructors to show them the basics of the operation. See the particulars on Flagging, Cable Retrieving, and such further along.

To make sure everyone gets a fair deal, crews must be in the glider ready to take off when the cable arrives. This SAVES TIME. The ground crew will hold the wings level and hook up the glider. Once all is clear, the pilot "thumbs up" that s/he's ready to launch. The Flagger, having previously searched the airfield and sky for traffic, will promptly raise the flag and hold it aloft to give the "take up slack" signal. (Details in the "Flagger" section.) The winch driver will wave a short time as a "ready" signal. Then he will take up slack. When the cable tightens, the Flagger starts waving. The winch driver then launches the glider. As soon as the glider takes off, the Retrieve Vehicle starts following the glider down the field.

Flying has begun! Students and members will help get the next glider ready and be ready to assist to get the landing glider back to the launch point.

In short order the cable will be back again and the next glider will be on its way.

The launch cycle works quickly and smoothly if everyone takes on a task and does it. The more efficient the launch operation, the safer it is for everyone, the more flying everybody gets, the better time deal they get, and the less tired everyone is at the end of the day.

Should anyone have to leave an assigned task, they should have someone committed to fill in. In any event, after 12 launches or so, trade tasks with someone else if you wish. Keep the Field Manager updated.

Once the Field Manager has decreed that the next cycle of flights will be the "hanger flights" to end

the day, members can start shutting down by putting away unneeded equipment. When putting the gliders away in the hanger, remember to let the tail holders control the direction while the wing holder controls the wing angle to clear gliders and roof trusses.

Once the equipment is put away, members can gather in the clubhouse to fill in personal and aircraft log books, and finish updating their progress books if need be. Feel free to join in the après-soar chatter. This will consist of infamous puns, stories of 10 kts lift, flirtations with high-skirted clouds, team flying with the local hawks and eagles, and of fighting off the Dash-8's et al that try to invade "our" airspace.

If you plan to stay at the "Stanley Hilton", then claim your bunk early. Do whatever dishes you use. Take a few moments to watch the moon come up or observe the local fauna quietly reclaiming the airstrip for the night. There are always satellites showing off their Diamond altitude badges, and shooting stars showing off their dive-brakes.

Get to bed early; it'll be even more fun tomorrow.

FLAGGING & SIGNALLING

The purpose of the launching flags (or radio, or any other form of communication) is to provide the following information:

1. To tell the Winch Driver that a pilot is ready to fly and that the Winch Driver can now take up slack.
2. To confirm to the pilot that the Winch Driver is about to take up slack.
3. To signal the launch to start.
4. To tell other aircraft on or about the airport that a glider launch is in progress and that a wire is in the air.
5. To stop the launch in an emergency.

FLAGGING PROCEDURES

When the pilot gives a thumbs up signal, saying that s/he is ready to fly, the Flagger will do a final check for conflicting traffic, and if all is well, hold up a steady flag. This tells the Winch Driver that the pilot is ready, and so that s/he is clear to take up slack.

Also, at this time the Flagger does a final check on the launching aircraft to make sure that the dive brakes are in, that control locks and tail dollies have been removed, and that no one is in the way of the launch. The Winch Driver will confirm that s/he's ready by briefly waving the Winch /flag.

When the cable comes tight, the Flagger starts waving his flag. The Winch Driver will commence the launch as soon as s/he has given a final check for traffic in his area.

If launching from the South end of the runway on a day busy with power traffic, the Winch Driver needs a Flagger to ensure that all runways are clear of traffic. The Flagger may have to get up on the tower to check all runways.

Flagging Note: Keep the flag visible. To ensure this, wave the flag through a 90 degree arc overhead, that is, 45 degrees each side of vertical. To keep the flag from "wrapping up" on windless days, it helps to wave it in a flat figure-eight manoeuvre.

Whenever the glider starts to move, full attention should be directed towards it and its crew. If the glider overruns the cable for any reason, call "STOP!" and THROW DOWN THE FLAG. This shout will warn the crew not to allow the glider to become airborne; the throwing down of the flag will tell the Winch Driver to stop the launch. If the cable comes free of the glider after ground roll has started, or if the cable comes free at an altitude requiring the glider to land straight ahead, THROW DOWN THE FLAG to stop the winch, so the parachute will not snag the glider from behind. If the cable comes free of the glider

at an altitude such that the glider enters a normal, but abbreviated circuit, continue to wave the flag until the 'chute is on the ground (as in the case of a normal launch). Remember to watch the glider in case it may have to land in the flagging area.

The great majority of flights are normal, so extra diligence is needed to be on top of that rare departure from the routine. One must take care not to be so surprised and taken up with the drama of an unusual launch that one continues to wave the flag in a situation where it should be stopped. The way to prevent this is to be keep imagining a problem launch, then working through the appropriate reaction. Keep alert.

Remember that the flag is a vital signalling device; it should never be made visible from either end unless a signal is meant to be given. For this reason do not allow the flag to be handled by anyone (children love flags) unless they are trained in its use.

When the Flagger at the launch end lifts his flag to signal "take up slack," the winch Flagger should do a quick check of sky and runways, and if all is clear, then so advise the Winch Driver. When the Winch Driver answers with a thumbs up, and if the launch flag is still up, the winch Flagger shall commence waving. Remember at this time, the Winch Driver's eyes are on the launch point and its flag, and the flag at the winch is warning power traffic that a glider and its cable will soon be in the air.

Once the launch starts, watch the launch Flagger, and mimic his signals until the glider becomes visible over the horizon. Keep waving all through the launch until the parachute returns to the ground. Remember, power pilots report that our flags are often more visible than the launching glider itself. Flags are certainly more visible than the wire.

If, because of some freak of wind or thermal behaviour, the parachute appears to be coming towards you, drop the flag and get clear.

To save time, the Flagger at the winch end may hook the parachute onto the Retrieve Vehicle. If the Flagger is signalling from the tower, then some one else will handle the hook up chores.

The job of flagging is one of the first responsibilities taught to new members. Because people learn best what they learn first, old hands must take care to teach the right way the first time, and to instil the respect that this critical job demands.

If anyone is in doubt, check with the Safety Officer or the CFI to resolve any inconsistencies.

RADIO LAUNCH PROCEDURES

For launching, the winch and glider radios will be tuned to 122.8Mhz.

The wing-runner will look around for aircraft in circuit airspace. If all is clear and no aircraft can reach the launch path before the parachute is on the ground; a call of "All Clear Above and Behind, Check Spoilers Closed and Locked" will be made.

The pilot will broadcast "Glider x x x ready for launch on Runway 02 (or 20)", then "Take up slack"; when the slack is seen to be out with no overrun the wing-runner will call "All Out", and the pilot will broadcast "All Out" to the Winch Driver. Should any fault occur, the wing-runner will call STOP STOP STOP. The Pilot will release, deploy full spoiler and Call STOP STOP STOP on the radio.

During a radio-controlled launch, the flag will continue to be waved until the Flight Supplement is amended.

When power aircraft are using runway 33, a member will monitor from the tower and relay "All Clear" to the wing runner.

Contact will be established, and maintained between gliders and the field operation after the launch at all times for safety and efficiency

reasons on 123.4 MHz. When pilots on Air Traffic Control frequencies wish to contact gliders nearby, permission to depart the ATC frequency is to be obtained and 123.4 Mhz used.

For parachute retrieves in the woods, the handheld radio is to be in the retrieve for this purpose and radios in the retrieve, the old winch and diesel winch are to be available on 123.4 Mhz. The winch driver or the field manager shall establish contact on this frequency so as to clear the unicom channel.

At daily start-up radios in gliders and vehicles are to be checked.

RETRIEVE DRIVING

The Retrieve Driver is responsible for getting the cable back to the launch point. The day starts off with the fuelling up the Retrieve Vehicle (RV) in the morning, and checking its radiator and oil levels. The transmission fluid should be checked once the engine warms up to full operating temperature.

Make sure that needed equipment for daily work, such as cable fixing tools, the shackle for inspecting the cable, and the extra quick-links, are in the RV. Check the RV's radio with the base station.

RETRIEVING THE CABLE

To SAVE TIME, the RV should be at the launch end when a glider is launched. As soon as the glider moves away, the RV should follow it down the runway, always staying far enough behind to keep the glider in sight. During the early part of the launch, be ready to get out of the way in case a premature release or cable break requires an emergency landing. In any case, keep behind the parachute until it returns to the ground.

Sometimes, due to a snag in operations at the Launch Site, there will be a delay long enough to allow the Retrieve Driver to proceed to the

Winch end in the interests of recovering some of the time lost in the snag. Occasionally, there may be such a small crew that the RV driver will be needed to do some chore. Likewise, the RV driver may be needed to do the flagging at the South end of the runway when the winch is set up there. But the normal procedure is for the RV driver to follow the departing glider.

In a normal launch the RV driver follows the parachute to the winch. Position the RV so that the lead strap can be attached directly to the hook on the boom of the RV. NEVER PUT ANY PART OF THE LEAD-STRAP, PARACHUTE, OR CABLE IN THE PASSENGER COMPARTMENT.

A snag in the cable would result in the lead-strap being violently pulled from the vehicle, possibly causing injury. Unhook the tow-bar from its shock-cord retainer and swing out, then hook on the small Tost ring.

Once the cable is hooked on, the RV driver, after checking to see that no one is in a dangerous position relative to the cable, should ease forward gently, taking care to avoid a snatch start. Once the cable is taut, accelerate to about 25 kph. Once retrieve speed is reached, keep it constant. Constant is more important than keeping an exact target speed. If one over speeds, slow down VERY gradually to the target speed. The mirrors should be monitored often, in case the winch driver wants the retrieve stopped. The cable should be kept in the grass as much as possible, while keeping the Retrieve Vehicle on the best travelling surface.

Runway 33-15, the grass strip to the east of BSC's launch path, is often used by power aircraft when the wind is favourable. When approaching the intersection of the retrieve path with this runway from either direction, always check this runway and both approaches. Check things out early so that a gentle stop can be made if needed. Once the retrieve reaches the mud track south of runway 33, the RV driver should

take care not to hug the west side, otherwise the mud track will grow into the take off area.

If an emergency requires a sudden stop by the RV, do not start pulling the cable until the Winch

Driver signals that all is okay. If unsure about the signals received, unhook the cable and GO BACK TO THE WINCH.

Assuming that the retrieve has proceeded normally, start slowing down the RV about 150' from the glider. Stopping so that you are opposite the tail of the glider will ensure that the lead-strap will reach the glider hook. This SAVES TIME, as a cable that is not hauled back far enough means a delay as well as hard work for the hook-up crew. As soon as the cable is unhooked, swing in the tow-bar and attach the shock-cord retainer, and if no glider is on final, position the RV behind and to the outboard side of the glider next to launch. But if more than one glider is in the circuit to land, move the RV to the inboard side so as to not block any more of the runway than necessary. If a number of gliders are "stacked up" in the circuit waiting to land, wait until all is safe before taking up position.

Should a takeoff "hiccough," or be aborted for any reason, check with the winch driver before retrieving the cable back to the launch site. If you can not reach the winch driver by radio, DRIVE BACK TO THE WINCH.

The Field Manager should advise the RV driver when his/her turn to fly is getting close. Because Field Managers have a lot on their plates, it's good to regularly check your place anyway. Take time to brief your replacement driver of any irregularities or special considerations.

When launching from the North end, remember that the Retrieve Vehicle is a critical part of the flying system. Extra trips for taxiing people may occasionally be justified, such as with elderly or special guests, but mainly, there should be only one round trip per launch. Reducing extra trips

saves time and gasoline. Fuel cost is one of our biggest variable expenditures, and the RV uses more than the winch.

The RV driver will soon be asked on to help with repairs to the cable. In preparation, ensure that the grey repair tool-kit is in the Retrieve. Take time to read the instructions regarding repairing the cable (at the end of this manual), and take the opportunity to watch any experienced person fix the cable. The job of the Retrieve Driver is one of the first tasks that a new member can do. Done well, it means more flights by more members with less hassle. It is thus a contribution of prime importance to a successful and fun day of flying gliders.

HANDLING THE CABLE AFTER A CABLE BREAK

Occasionally, a cable break or release under tension requires special treatment of the cable.

If the 'chute goes into the woods in such a manner that the cable stays reasonably straight, then the RV driver should send a minimum of two people to follow the cable to the end, with instructions to carefully remove any curls or coils. One person will untie the 'chute and replace it with a section of tire kept in the Retrieve Vehicle for this purpose.

The RV driver takes up a position so that h/she can pass necessary signals to the winch driver by radio on 123.4 Mhz, or by flag if the radio is not available. Once the chute has been replaced by the tire section, the signal is given via the RV driver to the Winch Driver to start hauling in the cable. The crew should follow the cable out during the retrieve to watch for snags or hang-ups. If a snag appears imminent, the crew calls for a halt via the RV driver. When all is well, the haul in continues until the cable is back to the RV or back to the winch. The cable is then fixed and/or attached to the RV. Usually, this will require a slower than normal retrieve as the

Bluenose Soaring Club - Manuals

cable might be under twisting torque loads, and may not be tightly wound on the drum.

In the event that the chute falls in the trees on the field while drifting erratically so as to cause many helixes and coils to develop, a different and more delicate procedure is needed.

In this case one needs 3 to 6 bodies in addition to the Winch and RV drivers, because the cable needs to be repositioned in very large taut loops across the airfield, taking care to work all the coils out of the cable. Once this has been done, the crew can pick up the cable and move it sideways to the normal retrieve path. This requires about one person per 300' of cable.

If the "free" part of the cable is too long for this, then the cable can be distributed by means of switch backs to a condition free of coils. The Winch Driver can then slowly haul the cable in to a more manageable length.

These snag procedures are much more tedious in description than in actuality. Actually, these procedures are rarely called upon, and they usually occur because of something being missed in the Daily Inspection of the cable, or of difficulties in the winch driving resulting from either lack of experience or lack of currency.

Driving is the easy part -- concentrating on the task is the hard thing. Judgement, alertness, and care make for a good retrieve driver. An alert retrieve driver SAVES TIME, adding greatly to the smooth flying operation of the Bluenose Soaring Club.

FIELD MANAGING

A. BASICS

When it comes to BSc members getting their money's worth, their time's worth, and being treated fairly, the Field Manager (FM) is the person that makes it happen. The Field Manager is seen by the BSc is so critical to safety, fairness, and efficiency, that club policy states

that no flying can start until a Field Manager has been appointed.

Over the years, we've found four pointers critical in this job. If these four simple tasks are done well, the Field Manager will SAVE TIME and have people going home satisfied with their day.

#1. Get there early.

Get to the field early enough to get control over the start up, at least by 8:30am. Otherwise, things may be incompletely done, and the Field Manager will lose time chasing after some missing critical piece of equipment, or fixing some missed detail.

#2. Keep a good Tow Priority List.

Get the Tow Priority slot list going immediately (see the section below on assigning Tow Priority numbers). Be strict about keeping it updated. Keep the tow slot numbers in place even if shortcuts such as counters for student flights are used. The Field Manager will then be ready when soaring starts and private ships start pulling into the line. The Tow Priority List could be called a Satisfaction List, as it ensures that everyone is treated properly and fairly.

#3. Appoint your first ground crew team immediately. The ground crew team consists of Retrieve Driver, a Wing-runner, a Hook-up person, a Flagger, and a team to pull back landed gliders. If jobs are not assigned, critical tasks may not get done. Just as bad, non-tasked members will hang around the desk -- bothering the Field Manager -- when there's a job that needs to be done. As to who does what, it's more the team that counts: crew members can trade tasks among themselves.

#4. Organize three flights in advance.

Do this, and the Field Manager stays in control. The Field Manager can tell the crew retrieving a landing glider where to put it in the line-up. Then, when the Field Manager leaves for their flight, s/he can turn over an organized schedule to the interim replacement.

Just do these four things reasonably well, and the day will run smoothly, fairly, with little waste of anyone's time, with the club making money for that new glider.

Jobs to give others:

1. Getting out the Retrieve Vehicle and gliders.
2. Getting out and setting up needed equipment: the flight sheets, base radio, batteries, etc.
3. Calling ATIS. Phone # 1-800-463-6377.
4. Open CYA-753, "the Bluenose Block" at 1-506-867-7179.
5. Daily Inspecting (DI.) and washing the gliders.
6. Conduct a radio check for all vehicles and gliders.
7. Maintaining the Flight Sheets. (Field Manager maintains the Tow Priority list.)

No one is looking for perfection. The Field Manager need only do an adequate job to provide an enjoyable day to flyers.

An appointed Field Manager should go to the field almost regardless of the weather. If Field Managers cannot come due to other commitments, they should arrange a substitute.

Make sure someone calls ATIS. This information is vital to Air Traffic Control, and important to us too, as Boeing and DeHavilland sheet metal is bigger than we are.

Remember that the job of Field Manager is that of a manager, and resist doing anything else. If help is needed, do a task of short duration, such as hooking up or holding the wing.

The Field Manager may occasionally have to remind glider crews that they are taking tow opportunities from others if they are not ready to go when the cable returns. Sometimes there are good reasons for this, but many can be organized away. Make sure that the ground crew people are aware of their tow slot priority in time for them to be ready to fly when "their" tow arrives.

Because the Winch Driver is "stuck" at the end of the field, and the Retrieve Driver is busy retrieving the cable, the Field Manager should keep these two people informed as to when their flights are coming up.

If so many members are up flying that the ground crew is getting thin around dinner time, don't hesitate to declare a "lunch break" cycle of flights: launch each aircraft left in the line-up ready to fly, then shut down. Otherwise, when people get hungry they'll leave on their own, and the operation staggers to a halt anyway, perhaps at an unbecoming time.

If visitors come on the field, generally it is the Field Manager's job to represent the club as the field officer in charge. Find out if the visitors have come with the intention of getting an intro flight, or have come at the invitation of a club member. It is not the Field Manager's job to entertain them, but common courtesy dictates that the FM assign someone talk to them if no one takes the opportunity to be courteous. If they do take an intro flight, the Field Manager collects the daily membership dues from them.

SHIFTING ENDS

If the wind seems to be shifting, talk to the Winch Driver with the aim of air-shuttling as many gliders as possible. But this is the winch driver's decision - s/he best knows the conditions from the profile of the winch speeds during the launch. Inform any Instructor-student combo, or any other pilot that may be interested, in case they may want to launch. However, if the Winch Driver says that the tailwind is too high, he has the final word. In this case, shut down the launching until the operations are turned around. If the change is done decisively, the turn around can take less than twenty minutes.

The shuttling of gliders in advance of a suspected change in wind direction is one situation where pilots can take flights, with the tow priorities remaining unchanged following

the shuttle flights. If the shuttles all land in less than 15 minutes of takeoff, the pilots are charged for the flight, but their tow-slot number does not change. If the pilot that is taking the shuttle flight remains in the air for more than 15 minutes, the flight is treated as a normal flight.

C. ENDING THE DAY

When it becomes apparent that flying is coming to an end, offer flights to pilots to even out the number of flight per member. Once flying stops, organize the put-away to streamline and simplify the start-up of the next day. This may mean picketing the glider out at the side of the runway. In any event, check the tie-down knots for security and have a knot expert fix them if necessary.

The Field Manager is responsible to see that the Log Books of the club aircraft are filled in. Again, this is a task that can be delegated. Remember, the Field Manager is a manager, right to the end. Delegate.

So ends a Field Manager's day. Written descriptions are often laborious; the job itself is easier. If members follow the basic four pointers above, they'll find the job of Field Manager almost enjoyable to do.

THE TOW PRIORITY LIST

A. BASICS OF ASSIGNING TOW PRIORITY

Keeping a strict tow priority list is the only way to make sure that fairness and efficiency delight the flight line. The tow priority list should be kept on a separate clipboard from the Flight Sheets. Only the Field Manager or her/his delegate can make entries to it.

The Field Manager opens the flight priority for the day by putting the two Duty members in the first two slots as follows:

- Field Manager -- 1.
- Winch Driver -- 2.

If either are late (after 8:30), they take up the priority position appropriate to the time they arrive. The substitute(s) take the earlier tow slot(s). Other than debriefing, the substitute's obligations end when the scheduled field manager arrives.

All following tow slot numbers are given out on a "next to the table" basis. If people stay overnight, or get there early, they should be consulted to get a fair list started. Except for such practical considerations, tow numbers are given out to members when they get to the Field Manager and ask for them.

Member names are simply jotted down in a vertical column (normally in order of priority), and the tow priority number is put beside each name. The gliders preferred should also be noted beside each tow slot number, as this helps the field Manager to lay out the flight line queue. As pilots take flights, their names and numbers are crossed off the list (but kept readable for further reference).

Landing pilots should ask to be put back on the tow priority list if they want another tow. Occasionally, a landing pilot will be grabbed away to do some necessary duty, and in such a case, the Field Manager may assign the next available tow slot number. Normally, members are responsible for requesting their tow slot numbers.

B. STUDENT TRAINING

Instructional flying has to be treated with special consideration to dovetail it in with the tow slot priorities of solo members, especially when soaring starts. To ensure that this happens, we recognize two levels of instructional flying in BSC:

1. Ab initio training of new members,
2. Advanced soaring and check-out training of solo pilots.

Bluenose Soaring Club - Manuals

Except for advanced flying lessons that need extra altitude, ab initio training is done only in smooth air. Such training stops when the air gets bouncy

To help handle ab initio training, make up a separate list for ab initio students, recording the chosen Ka-7 against student names. The Field Manager simply crosses off the tow slot number when used, and applies a counting stroke beside the student's name to keep track of the number of training flights per student.

Although it is an effective training method for instructor-student teams to have a number of training flights ~n sequence, this method seriously disrupts the tow priority list. Because we do our training during the best part of the soaring season, such a disruption can seriously interfere with the transition to the soaring side of our operations. To ensure this does not happen, ab initio training stops when the air gets too rough, whether or not the number of morning student flights have been equalized. Field Managers and Instructors should therefore try and select a number of flights per cycle that would give all students an equal number of flights before the air gets rough.

The air is deemed to be too rough when convection activity reaches the top of the launch, or allows any glider to stay up more than 50 per cent longer than normal gliding circuit flight. For example, if gliding flights mostly last six minutes, and the duration increases to 10 minutes, then soaring has begun.

Once soaring starts, the Field Manager reassigns the Ka-7's to solo pilots for check-outs, advanced soaring training, guest flights, etc. Pilots are launched as they choose to "cash in" their tow slot number. If no one wants to fly yet, ab initio flying may continue, but on a one-flight-at-a-time basis.

Since two flights in stable air are worth more than four flights in bouncy air to the ab initio student, ab initio training is encouraged to begin

early in the day. In any event, ab initio training resumes when stable conditions return, normally in the evening. At this point the Field Manager can try to equalize the number of flights per student.

Recognizing its training value, and the disruption it creates, the club only imposes cycles of successive instructor-student flights on operations during the official Training Period (typically a May week and two weekends thereafter). After that, it must be negotiated each day with the Field Manager.

C. EXCEPTIONS

There are three exceptions to the Tow Slot Priorities.

- 1 A first solo flight declared by a Senior Instructor gets an immediate top priority.
2. Badge flights declared to the Field Manager by an Official Observer can launch as soon as they are ready.
3. Gliders shuttled due to a wind shift are flown by whatever pilot is willing and able to fly the glider needing shuttling. The Tow Priority remains unchanged unless the pilot gets a flight Lasting more than 15 minutes.

Remember that the tow priority list organizes the flight line and keeps it fair. Things may dissolve into a mean-spirited shambles unless the list is strictly kept all day long. The Field Manager must carefully brief any replacement to make sure this happens.

D. SCHEDULING AIRCRAFT TIMES

The Field Manager assigns club aircraft for a time period set out in the table below. Times may be extended by the Field Manager, but only if radio communication can be maintained with regular radio checks. Once someone appears at the table deserving a glider that is on an extended time flight, it must be called down immediately.

Glider	Weekends*	Midweek	Flying Weeks
K-7s	1/2 hour	1 hour	1 hour

Bluenose Soaring Club - Manuals

K-8s 2 hours 2 hours** 2 hours**

* - includes "long" weekends

** - up to all day for cross-country and badge flights on request.

These are the time limits that pilots abide by when flying club aircraft. Overdue costs apply unless clearance for extended flight is written on the flight sheets by the FM, and treasurers charge overdue costs unless provided written authorization to the contrary by the Field Manager. In this matter, it's the pilot's responsibility to make sure that extensions are noted on the flight sheets.

WINCH DRIVING

The winch is BSC's tow plane. It has to be treated with the same respect afforded aviation hardware. As with flying itself, the job of launching a glider must be approached with care and caution, but it's a job that every pilot can be trained to do.

A. GENERAL

The Winch Driver wants to be at the flying field early enough to get the winch out, and to Daily Inspect (DI.) both it and the cable by the time members are ready to fly. This SAVES TIME. Generally this means arriving at the field by 8:00am.

The Winch Driver is responsible for the repairing of the cable when necessary, although the actual task may be delegated.

We are fortunate to have two winches at BSC, thus some can fly at Stanley while other members go adventuring. Either way, the Winch Driver starts by Inspecting the winch of choice. Check the fluids: fuel, oil, water, and transmission fluid. Be careful to use only engine oil approved for use in a diesel engine in the case of the new winch.

B. DIESEL (NEW) WINCH

1. STARTING

To start the winch, place the gearshift lever in Park, press on the brake pedal (to prevent the drum rotating in case the launching axle is left in the drum-active position), and turn the key until you activate the glow plug light. When it goes out, turn the key further to the ignition position to start the winch.

C. ENGINEERING THE NEW WINCH

The new winch has been engineered to be self-mobile, and that requires knowledge of its special controls. There are two levers actuating the transfer case:

-the WHITE lever is the DRIVE AXLE. It's the one furthest away from the driver. It puts the drive wheels in gear (forward) and out of gear (backward).

- the GREEN lever is the LAUNCHING AXLE lever. It's closest to the driver. Pushing it forward puts the launching drum axle in gear. Pulling in backward puts it out of gear.
- the ORANGE lever is the retrieve brake (being designed). It sets the retrieve drag which prevents an uncontrolled roll-off of cable should the retrieve vehicle stop suddenly.
- the Red one is the guillotine lever. It is used to cut the cable in the event that the glider cannot release.

To move the winch, place the DRIVE AXLE LEVER (White -- furthest from the driver) into the forward position.

Make sure that the LAUNCHING AXLE lever (Green - closest to the driver) is in the back position (Neutral).

With this combination of lever positions, the winch is ready to be moved.

If gears do not engage when a full stroke of the needed lever is done, then it may be necessary to unlock the petcocks and stroke the levers to recharge them with fluid to fully engage the gears. This process is best explained by being shown how to do it. In any event, best results are obtained with the engine off and the transmission in Park.

Drive the winch truck to the upwind end of the field. If there is no wind, drive to the North end to make flying more convenient. If in doubt, confer with an instructor or the Field Manager.

D. READYING THE NEW WINCH FOR LAUNCHING

1. To set up the winch for launching, pull the DRIVE AXLE out of gear by pulling the WHITE lever backwards.
2. Lock the winch in place by setting the brakes. Set the front wheel brakes by depressing the brake pedal, then moving the blue-knobbed lever on floor by drivers door to the position.
3. Tramp down on the emergency brake foot lever to lock up the back drive wheels.
4. Put transmission lever into the park position and let the engine warm up to full operating temperature of 180 degrees F or to normal hot operating temperature. The diesel engine will not develop full power unless it's up to full operating temperature.

Warning: If starting the winch after it has cooled down, The Winch Driver must ensure that the LAUNCHING AXLE LEVER (GREEN -- closest to driver) is in the backward position so that the drum does not move inadvertently. Additionally, push on the regular brake pedal. Otherwise, with the engine going the drum might start rolling because of the fluid drive effect of cold oil in the transmission and transfer case. This might pull the parachute violently out of someone's hands, or jam it in the pulleys if the parachute is close to the winch.

E.

INSPECTING THE WIRE

Set the GREEN LAUNCHING AXLE LEVER out of gear (pull it back). Set the ORANGE retrieve brake mechanism into the recommended

setting or to a position that a practice try suggests is a good one.

Join the Retrieve Driver and have him/her pull the cable out to the Launch site. Attach the special wire checking shackle to the cable and then have the RV driver return slowly beside the cable. Hold the shackle rope so that a snag can easily pull the shackle out of your hands. Watch for frayed spots and stop to check all Nicropress joins or frayed areas. Fix as required, following the directions contained in the pertinent appendix in this manual. To SAVE TIME, fix any doubtful spots, as the job will take only a few minutes here, whereas a cable-break could cause a long delay later, perhaps during the best soaring conditions.

After arriving back at the winch, assess the wind conditions and set the speedometer pointer to the max revs suggested by your assessment. Take a moment to run a launch in your imagination. Repeat the process, this time imagining a cable break or other emergency. Once satisfied that you are ready to go, tell the Launch site, by radio or simply by putting up your flag, that you are ready to start launching gliders.

F. LAUNCHING -- NEW WINCH

1. When the take-up slack signal is given, check for traffic at your end, and if clear, signal the launch end that you are commencing your launch.
2. Check that both front wheel and back wheel brakes are set.
3. Push the GREEN LAUNCHING LEVER fully forward to engage the LAUNCHING AXLE.
4. Get out and rock the drum to ensure that it's engaged. Close both the main side window and quarter-panel window to prevent dust or cable particles, or the cable itself, from

coming into the cab in case of an unusual happening.

5. With one foot on the ordinary brake pedal, and the throttle at idle, pull the gear lever over to Drive. In strong head winds, second gear may be better, but if you decide to use it, take care not to select Low gear, as this will result in a dangerously slow launch.
6. When the pilot calls "Take up slack" release the foot brake gently and let the drum slowly take up slack. Watch the signal flag at the launch end closely. When the pilot calls "All Out" on 122.8, or the flag starts waving, apply throttle smoothly to the spot where experience or instruction has told you should provide the power necessary. With the Ka-7's, Austria, Cirrus, and ASW-15, the throttle should go to the floor. With the Ka-8's, less power is needed. From start to "pedal on the metal," the movement should take a count of four, (i.e. One thousand, two thousand, three thousand, on the floor).

Because of the stretch of the cable, and the much lower resistance once the glider lifts up from the ground, the winch engine revs may tend to flare up when the glider leaves the ground. Do not reduce throttle at this critical stage. Instead, wait until the glider has reached a safe height and has adopted its steep climb attitude. Normally, by this time, the speed will be down near the target speed. If the glider then gives a slow down signal, reduce speed smoothly. Do not reduce speed abruptly, or you may back-release the glider, leaving the pilot in a dangerous position.

If the launch proceeds normally, the glider will appear against the sky by the time the speed is up to the pointer. To ask for more speed, the pilot will roll the wings. To request a slower speed, the pilot will wag the tail of the glider. Speedups can be done briskly, but slowdowns should be done with care to prevent premature back-release as mentioned above. Slow is bad on winch launch, so if there are doubts, add power.

The pilot should make any “speed up” signals before he reaches a vertical angle of 45 degrees as viewed from the winch, because at higher angles, the wing rolling (speed up signal) is hard to see.

Once the glider reaches an angle of 45 degrees up from the winch, the vectors change so that the glider is being pulled forward rather than upward. This causes the glider’s speed to increase, so about this time you can begin to gradually reduce power.

When the angle between the horizontal and the glider is about 70 degrees, cut power fully to signal the glider to release. Normally, the drag on the cable will back-release the glider. If there is a suspected tailwind component aloft, drop the glider off before it reaches the 70 degree angle, partly because the glider is less likely to back-release, and partly because the cable may blow back over top of you, resulting in a time-consuming snag.

With Tost hooks the release usually happens automatically but on a windy day, the Ka-8’s may be slow to release. In case you launch any Schweizer product, take care to cut power abruptly at the top and then wait for the pilot to let go. The crude Schweizer hooks require that the pilot release.

As soon as the parachute drops away, floor the throttle quickly to speed up the drum so it picks up any slack in the cable.

Quickly and steadily pull the cable in against the drag of the parachute. Avoid the trees. This will typically mean that spool-in speeds will have to be faster on crosswind days. The higher the crosswind, the faster the required spool-in speed.

When the parachute is about 200 feet from the winch, start applying the foot brake. Completely stop the chute about 100 to 50 feet from the winch. Do not allow let the chute to go into the rollers, as removing it takes a long time.

Remember that the chute connection assembly is 20 feet closer to you than the parachute canopy.

Because of the stretch of the cable, and the much lower resistance once the glider lifts up from the ground, the winch engine revs may tend to flare up when the glider leaves the ground. Do not reduce throttle at this critical stage. Instead, wait until the glider has reached a safe height and has adopted its steep climb attitude. Normally, by this time, the speed will be down near the target speed. If the glider then gives a slow down signal, reduce speed smoothly. Do not reduce speed abruptly, or you may back-release the glider, Leaving the pilot in a dangerous position.

If the launch proceeds normally, the glider will appear against the sky by the time the speed is up to the pointer. To ask for more speed, the pilot will roll the wings. To request a slower speed, the pilot will wag the tail of the glider. Speedups can be done briskly, but slowdowns should be done with care to prevent premature back-release as mentioned above. Slow is bad on winch launch, so if there are doubts, add power.

The pilot should make any “speed up” signals before he reaches a vertical angle of 45 degrees as viewed from the winch, because at higher angles, the wing rolling (speed up signal) is hard to see.

Once the glider reaches an angle of 45 degrees up from the winch, the vectors change so that the glider is being pulled forward rather than upward. This causes the glider’s speed to increase, so about this time you can begin to gradually reduce power.

When the angle between the horizontal and the glider is about 70 degrees, cut power fully to signal the glider to release. Normally, the drag on the cable will back-release the glider. If there is a suspected tailwind component aloft, drop the glider off before it reaches the 70 degree angle, partly because the glider is less likely to back-release, and partly because the cable may

blow back over top of you, resulting in a time-consuming snag.

With Tost hooks the release usually happens automatically but on a windy day, the Ka-8's may be slow to release. In case you launch any Schweitzer product, take care to cut power abruptly at the top and then wait for the pilot to let go. The crude Schweitzer hooks require that the pilot release.

As soon as the parachute drops away, floor the throttle quickly to speed up the drum so it picks up any slack in the cable.

Quickly and steadily pull the cable in against the drag of the parachute. Avoid the trees. This will typically mean that spool-in speeds will have to be faster on crosswind days. The higher the crosswind, the faster the required spool-in speed.

When the parachute is about 200 feet from the winch, start applying the foot brake. Completely stop the chute about 100 to 50 feet from the winch. Do not allow let the chute to go into the rollers, as removing it takes a long time. Remember that the chute connection assembly is 20 feet closer to you than the parachute canopy.

Once the chute is stopped on the ground, put the gearshift lever gently into Park. Normally the engine should be left idling to cool down, but occasionally the Parking pin may clatter in the transmission because the output shaft of the transmission is still turning. If this happens, shut off the engine then pull the transmission lever into Park.

Before getting out of the cab, pull back the GREEN LAUNCHING LEVER to disengage it. Then set the recommended tension with the Orange coloured Retrieve Brake lever.

To ready the cable for RV hook-up, untangle the weak-strap if necessary. Pull out any slack in the parachute shrouds and residual cable.

Once the retrieve starts pulling, do not touch the pulley assembly. If you must move the pulleys, use the back end of the flag. Stay away from the cable, the cable drum, the pulleys, or anything that is rotating as the cable is being pulled out. If in the winch, keep the driver's windows closed. If not in the winch, do not enter the winch on the driver's side if the cable is moving or about to move, as you will be right below the cable if it throws a slack loop. Treat this area of the winch operation with the respect due a spinning aeroplane propeller. If anything goes wrong, stop the RV by radio or by waving the flag.

G. EMERGENCIES

In any emergency, except in the case where you see the dive brakes of the launching glider have popped open on the ground run, the key reactions are:

1. Cut the power.
2. Brake fully and immediately; pull the gearshift into neutral.
3. Shut off the ignition.

In the case of dive-brakes opening on a launching glider, add power. The higher you get it, the safer it is for the pilot. In any case, Winch Drivers should practice the emergency responses until their reactions are automatic and immediate.

Examples of conditions requiring emergency action are:

1. Unusual hesitation during acceleration.
2. The Pilot calls STOP STOP STOP, or the launching flag disappears (is thrown down).
3. Early Release - glider rolling ahead on the ground; the parachute should billow out ahead of it.
4. Any unusual action of the glider while still on the ground, such as a wing going down, or the glider being hauled to one side, etc.

5. Cable Break at any altitude.
6. Parachute landing in the trees as it's being wound in.
7. Again, remember that exception -- the glider taking off with the dive brakes open. In this case, add power.

One of our greatest risks is that the glider may be yanked ahead of the parachute, with the cable or parachute then getting caught up in the wheel. The glider will then be pulled into the air with the cable hooked so far back on the glider that a violent and overly steep pitch-up occurs. Although we at BSC have prevented this problem for the most part by designing proper modifications, an alert winch driver can help ensure that no such accident occurs by closely monitoring the early acceleration of the glider.

If a hesitation in power occurs during acceleration while the glider is on the ground, hit the brakes. In such a case, a completely new hook-up and signal sequence must be done.

If an early release happens, but at an altitude such that the glider can be clearly seen to enter a normal, but abbreviated circuit, then continue to spool in the chute providing that it does not fall into the trees or descends in a manner to endanger others. Because human binocular vision stops at a distance of about 400 yards, it is often difficult to judge the position of the parachute relative to the distant trees or people. If in doubt, cut the power.

If the parachute falls in the trees, proceed using the procedures outlined in the "Flagger" section.

After all this reading, it may be hard to believe that 99% of launches are simple and routine, so much so that Winch Drivers have to work at keeping vigilant.

H. THE GAS-POWERED (OLD) WINCH

Most of the basic job of driving the gas-powered winch is described above, with the biggest differences in the controls. Nevertheless, the differences regarding throttle use, gear selection, and drag brake management are quite easily mastered.

First check the water and oil levels. To move the old winch, it is necessary to start the GMC truck. If it's the first flight for a week or longer, first drain off a tablespoon of gasoline from the bottom of the fuel filter and pour it into the carburetor. Put the gearshift in Neutral, depress the clutch, and pull the choke out halfway. Turn on the ignition key and depress the starter button on the floor to the right of the throttle. Once the engine fires, pump the throttle gently to keep it going. Let it warm up for a couple of minutes. Put it in gear, and drive away slowly. Note that only the front brakes work, and they have no power assist. Because the two-speed axle is locked in low, it tends to "buck" on light throttle. Shift into Second gear as soon as you are rolling.

Drive the winch truck to the launch end, put the gearshift in reverse, and shut off the engine.

Back

at the winch end, check the radiator and oil levels of the winch engine. Add fluid(s) if required. Before starting the winch engine, make sure the gear lever is back against the sliding bolt stop. Move the hand throttle forward and back to set the automatic choke. Press down on the foot brake and start the winch engine with the hand ignition on the dash. Since cold transmission fluid may transmit motion to the axle, take your foot off the brake pedal gently, checking that the drum does not move.

This winch has a hand throttle which allows fine adjustments, and comes in handy, because the engine has excess power. It's easy to violently snatch the glider on early takeoff. When converting to the gas-powered winch, ask for feedback on this critical phase of the launch.

In the gas-powered winch, all launches are made in second gear, instead of in Drive as in the diesel-powered winch. In the gas-powered winch

it is necessary to physically hold the gearshift lever forward against the dash board to hold second gear.

Because we can not by-pass the transmission on the gas-powered winch during retrieve, the transmission throws off fluid. This fluid level must be checked in the morning as soon as the engine is hot. To do this, slide the bolt back, and pull the gearshift down into Park, keeping your foot on the brake to prevent motion as the gear goes through Reverse. The transmission level can now be checked. Add Ford type transmission fluid as required.

To set the guillotine, push it up and lock it into place with the restraining rod that pulls out near the junction of the roof and the firewall. Chock the back dual wheels with the block of wood used to park the guillotine.

The actual launching itself is much the same with both winches, other than the excess power of the old winch allows Winch Drivers to more easily over-speed the gliders.

To supply retrieve drag, the old winch uses a simple pole brake on the wheel-rim opposite to the winch drum. During retrieves, simply set the pole under the drum. Remember to brace it under the frame clear of the rim for the launch.

I. SHIFTING WINDS

Keep a careful lookout for a change in the wind direction. Tailwind operations are only allowed in the following conditions:

1. Flying when local experience suggests that early light tailwinds (less than 5 knots) will soon shift to the actual "wind of the"
2. Flying when temporary light to moderate tailwinds are caused by thermals.
3. For shuttling gliders once it becomes clear that the wind is going to shift (but before a strong tailwind gets established).

Since downwind launches make winch driving tricky, the Winch Driver has the final word about changing ends. If the Winch Driver is in doubt, s/he may consult with the duty instructors or safety officer. However, the Winch Driver should give the field manager as much warning as possible.

If this decision is made in good time, then TIME CAN BE SAVED, the gliders shuttled safely, and the operation turned around with little more time than it takes to do a normal retrieve. If one delays making a decision, and the tailwind gets too strong, then a more time-consuming turnaround must be made by moving the gliders on the ground.

Once the decision is made to change the launch direction, be advised that those gliders that have higher stall speeds, such as the Austria, the Cirrus or the ASW- 15 will need full-out speeds in the diesel winch, and high revs in the gas-powered winch. The diesel engine is rev-limited, and so it can only provide safe launches in light tailwinds, and they must be done with the transmission in Drive. The gasoline-engined winch is not rev-limited, and so can handle higher tailwinds. To prevent engine damage, we should use engine revs above 5,000 rpm only for short periods.

On release, the tailwind will tend to blow the parachute toward the winch, so it is best to let the gliders off early. High retrieve speeds will also be necessary to keep up with the chute. Because slack may develop in the cable on spool-in, it is vital to keep the spool-in speed constant once it is obtained.

Well over ninety per cent of our launches are into wind, and the winch driver soon gets to recognize "the look" of gliders going up at a healthy angle and safe speed. In any event, the speed signals from the gliders will soon allow the winch driver to find a good speed profile for the launch. Remember to use the VHF radio on frequency 123.4, preferred, or 122.8, if necessary, to get feedback from the pilots.

FINALLY

Giving a good launch is vital to safe flying at Stanley. Again, this written description makes the job of winching seem complicated, but once a person has been trained, giving good launches requires only three easy things: keeping alert, keeping current, and being determined to give the best launch one can.

ACCIDENT REPORTING

Aircraft accidents are investigated by the Transportation Safety Board of Canada (TSBC). An accident is any event resulting in injury to persons or damage to an aircraft. All accidents must be reported to the TSBC by law.

Procedure to be followed in the case of an accident:

1. **If there is an injury: Phone 911**
 2. Make note of any movement of aircraft parts, controls or equipment needed to remove the injured.
- In all cases**
3. **Phone the TSBC 1-506-867-7175 24 hrs**
 4. Do not move the wreck until TSBC has been notified and they have given their DIRECT PERMISSION. Permission will only be given if the accident is of a minor nature, and there are no serious injuries or when an active runway has been obstructed putting other traffic at risk.
 5. Take photographs of the wreck from the four major compass points, and close-ups of special points of interest.
 6. Prepare an Insurance Claim in the case of damage and/or injury with copies of the above photographs to the SAC Insurance underwriter.
 7. Fill in an Accident/Incident Report on the form provided in the Club-house and supplied by the Flight Training and Safety Committee. Submit this to the CFI or Safety Officer.

Signature _____

License Number _____

Initials of CFI or Safety Officer _____

SPLICING STRANDED CABLE

1. Retrieve the ends of the broken cable. Check that all kinks have been removed, since the recoil tendencies of the cable tend to throw kinks into the cable following a cable break. Also check to see if an older break or thin spot can be cut out. Then fix as follows:
2. Cut the broken ends off clean.
3. Pull about two feet or so of cable through three Nicopresses of the appropriate size. Adjust Nicopresses to give 3 to 5" of cable overlap between them.
4. Crimp the centre of the centre Knickers sleeve to "tack" cables in place. Now crimp it three more times.
5. Move to one of the end Nicopresses, twisting one cable around the other one complete twist. Then, when positioned so that cut end of cable barely protrudes beyond the Knickers, crimp as above. Finish crimping (total of four times per Knickers).
6. Do the remaining Knickers the same way.

The splice is complete. Retrieve the cable as before, taking care that no coils or curls exist or develop as the cable slack is being taken up.

SPLICING PIANO WIRE CABLE

1. Retrieve the ends of the broken wire, checking that all kinks have been removed, as the recoil tendencies of the cable make it throw kinks following a cable break. Also check to see if an older break or thin spot can be cut out.
2. Cut the broken ends off clean.
3. Overlap two feet of cable through three Nicopresses of the appropriate size. Put new cable end in the vice on the Retrieve Vehicle,

keeping it parallel with the vice jaws and about halfway down. Clamp the vice tightly with 1/2 inch of wire sticking out.

4. Use the propane torch to heat the end of the wire cherry red and peen the end with a hammer to make a mushroom of about 1/4 inch diameter. Take care not to bend it.
5. Repeat for the other end of the cable.
6. When cool, draw excess cable through the Nicopresses until all are touching each other but with a 3/8 inch gap between the underside of the mushrooms and the outside ends of the chain of three Nicopresses.
7. Crimp the sleeves 4 times per sleeve, starting with the middle of the middle one and working outwards. Take care not to damage the mushroom with the crimpers.

The fix is done. Retrieve the cable as before, taking care that no coils or curls exist or develop as the cable slack is being taken up.

A FINAL WORD

This completes the field operations manual of the Bluenose Soaring Club. We at BSC consider ourselves a research and development operation, with our forays into the exciting world of ridge soaring being one of our latest adventures. As a result of such endeavours and experiences at BSC, things will change, and this manual will eventually come out in a new revision. Even though such changes wait in the future, this document provides a general review of our current operations at Stanley. Please remember that this documentation is done to one purpose: So that you can safely explore the exciting ocean of air.

Aircraft Operation Instructions

SCHLEICHER TYPE Ka 7, Ka 8, & Ka 8b
SAILPLANES

- A) Main Data
- B) Minimum Equipment
- C) Wing & Tail Setting
- D) Assembly & Disassembly
- E) Flight Operations
- F) Maintenance
- G) CofGData

- 3 - Pressure Altimeter
- 4 - Seat Pad, 4 inch Filling
- 5 - Placard
- 6 - Compass
- 7 - Clock
- S - Document Pak:
 - CofA
 - CofR
 - AAIR
 - Insurance
 - Radio Stn. License
 - Intercept Orders
 - Aircraft Operating Instructions

Attachments:

- 1) Three Sides View
- 2) Weight & Balance
- 3) Elevator Unit Assembly

C) Wing & Tail Setting:

(Ref Three Sides View)

Main Data

The incidence & wash-out angles as well as deflection of surface may be gathered from three sides view.

Weights:

	Ka-8	Ka-7
Empty Weight	420 lbs	615 lbs.
Max Useful Load	265 lbs	440 lbs.
Max All Up Weight	685 lbs	1055 lbs.
Max Weight of Non-supporting Structure	440 lbs	700 lbs.

The position of the ailerons is influenced by the elevator control due to a special kinematic of the control system. The ailerons have a slightly drooped position with the controls in normal or forward position. With the controls to the rear, the ailerons are raised slightly.

Speeds:

V _{so}	28 kts	32 kts.
V _{ms}	33 kts	37 kts.
V _{bg}	41 kts	46 kts.
Auto/Winch	52 kts	55 kts.
Aero Tow	70 kts	70 kts.
V _a	70 kts	70 kts.
V _{ne}	102 kts	92kts.

Rudder - Stopped in the rear on the lower rudder hinge fitting.

Ailerons - Stopped by hardwood blocks on the seat supporting tubes.

Elevator - Rearward by controls striking the fwd seat edge. Forward by the lower sides of the elevator push-pull tube striking the control stick.

Aerobatics: None

Rearward by adjustable stopper on the horizontal push rod striking against a frame tube. Forward by shift level striking a stopper on the frame. The angle range of the lever will be regulated by this stop device. The lever mvmt. To the front may not exceed the top centre point about .4" measured from the ball bearing to the forked vertical push rod.

Stress Classifications:

Class II, German Glider Stress Specifications (BVS)

Dive Brake - Deflection Limiting:

- B) Minimum Equipment
 - 1 - Four Harness Safety Belt
 - 2 - ASI, Range 0-125 kts.

D) Assembly & Disassembly

Assembly:

- Clean & lube bolts and holes.
- Connect L wing sideways to the fuselage, put in the nose bolt. Do not tilt the fuselage.
- Repeat with the right wing. Connect the main spar fittings, lower bolt first. Tighten while gently moving the wings up & down. Safety the main bolts, connect aileron & spoiler fittings & safety as well.
- Set up the stabilizer/elevator by suspending the rear eyebolts on the fuselage pins and tighten the front bolt. Safety the bolt. Ensure the elevator control level is positioned correctly. (See sketch) Connect the flettner push rod to the elevator control lever by means of a split pin.
- Check clearance and correct operation of controls, dive brakes, and release to the front and rear. Make a general inspection including checking the tire pressure. (35 lb/sq in.) Attach fairings.

Disassembly:

Disassembly is essentially the reverse of assembly. Lubricate all attachment fittings to prevent corrosion. It is advisable to tie the flettner push rod.

Flying Operations

Trimming:

The a/c may be flown with pilot weights between 132 lbs to 220 lbs (Ka8) and 140 lbs to 220 lbs. solo (Ka 7). Pilots of lesser weight must use approved ballast.

The trim lever controlling the flettner balance (trini tab) acts as it operates, forward = nose lower, rearward = nose higher.

Adjustment of Rudder Pedals:

Draw back the pedals with heels and lock the side click stop devices of the control cable into the desired position.

Auto/Winch Towing:

Max speed: Ka 8 - 50 kts.
Ka 7 - 55 kts.

- Best climbing attitude will be with the stick in the normal position.
- Auto and Winch operations to be done with C. of G. coupling.

Aero Tow

Max speed:
Ka 8 - 70 kts.
Ka 7 - 70 kts.

Rope Ka 8 - mm 661 lbs. max 992 lbs.
Ka 7 - mm 1100 lbs. max 1300 lbs.

Aero tow operations to be done with the nose coupling.

Note: Always recheck canopy locked and spoilers locked prior to take-off.

Free Flight:

The values specified as follows are design values. They relate to the equivalent air-speed (EAS) - dynamic pressure. Attention must be given to the deviation of the IAS which depends on the location of the pitot tube, and static vents.

The diagram Fig 1 shows the deviation of IAS versus EAS provided that a normal pitot tube 3,5 on the nose of the fuselage is installed.

Stalling Speed (Vso): Ka 8 - 28 kts.
(At a gross weight of 595 lbs.)
Ka 7 - 29 / 32 kts.
(At a gross weight of 800 / 1000 lbs.)

Bluenose Soaring Club - Manuals

Minimum Sinking Speed (V_{ms}): Ka 8 - 33 kts.
(horizontal flight) Ka 7 - 32 kts. single
37 kts. dual

Best Gliding Angle (V_{bg}):
Ka 8 - 41 kts.
Ka 7 - 40 kts. single
46 kts. dual

Landing:

Approaches are flown at $1.3 \times V_{so} + \text{wind}$. The glide slope will mainly be controlled with the dive brakes. Touch down with the dive brakes not fully extended. Deceleration may be aided by sliding on the nose skid although this may drastically increase skid wear.

Spins:

The sailplane may be held in the stalled attitude with the stick fully back while still maintaining some rudder authority. Input of full rudder may induce a spin. Standard spin recovery procedure will result in rapid recovery from any spin.

High Speed Flight

Placarded speed limits are to be observed at all times. When the speed exceeds 70 kts. the dive brakes shall be slowly extended. At high speeds the lever force of the dive brakes acts in the opening direction.

Rain & Icing:

Raindrops, rime and icing will deteriorate the wing surface so much as to change the flight performance. Therefore be cautious when operating in rain and or icing conditions.

F) Maintenance:

Basic:

Moisture is the most serious trouble with wooden planes. Always ensure that no water seeps into inner wing compartments. If penetration is suspected keep the affected parts

in a dry room turning daily until drying is assured. The sailplane is especially vulnerable on an open trailer. Always cover the wing roots so that no water can enter. Moisture may also be caused by condensation from dampness.

Strong sun irradiation affects the finish. Do not expose the a/c to the sun more than necessary. Care of the surface by good provisions increases the durability of the finish, improves the surface, and consequently flight performance. It is not important to get the surface finely polished but to remove dust, dirt, and similar contaminations.

Sealing of joints and slots by means of adhesive tapes is also recommended for improving performance. Sealing of the canopy is not advised.

Clean the plexiglass canopy with a suitable polish, or if need be water. Use only a soft clean cloth taking care not to scratch the canopy surface.

Seat harnesses must be inspected daily and replaced if showing signs of tears, abrasion, damp stains or rust spots, etc.

Tire pressure is maintained at 35.5 lbs/sq inch.

Lubrication of Bearings:

The ball bearings are sealed and do not normally require lubrication for long periods. The wing root bearings which are not sufficiently protected are to be cleaned and lubricated regularly. The grease fittings on the pedal bearings and on the swing lever of the fin which is connected to the push-pull tube of the elevator control must be lubricated after each 25 hour period of flight time. The attachments of the control surfaces and all other hinge bearings are to be disassembled, cleaned and lubricated when carrying out the annual overhaul.

The C of G release coupling is especially exposed to contamination and requires frequent

cleaning and lubrication. If the sailplane is to be operated often on stones, or asphalt it is advisable to secure the lower side of the skid by fastening a steel plate of about 0.04 inches thickness.

planes get heavier in time and thereby tail-heavier.

It is advisable to carry out a new weight and balance in connection with the annual inspection / overhaul.

The sailskid plate must be reinforced if abrasion is observed. Remove the skid and weld on a plate of 0.08 thick steel.

Repairs:

Repairs must be carried out by qualified personnel or under the supervision of an AME. Repairs of the steel tube fuselage by approved welders only. Inform the manufacturer if major repairs are required and seek advice.

G) Centre of Gravity:

The location of the centre of gravity has an important influence on the flight performance. Observe exactly the admissible limits.

A displacement of the C of G too far aft will cause abnormal stall and spin recoveries, in some cases leading to the possibility of a flat spin. As the C of G moves aft the elevator sensitivity increases, and flight performance decreases.

C of G Limits:

Ka 8:

Forward - 9.7 inches aft of datum

Rearward - 15.4 inches aft of the datum

The datum is defined as the leading edge of the wing at the station of rib 1.

Ka 7:

Forward - 2.0 inches aft of datum

Rearward - 11.0 inches aft of datum

The datum is defined as the leading edge of the wing at the station of rib 2.

Check the location of the C of G if additional equipment is installed or if repair or refinishing have taken place. One may take as a rule that