# Grumman Aircraft Checkout

Information in this document has been pulled together from a variety of sources: Grumman specific Flight Schools, government, manufacturers, flight manuals, and Grumman specific CFIs. It is provided in the interest of safety to pilots of Grumman aircraft, and to the preservation of the flying airframes of the line. If you feel there is additional information that would be useful, please get it to us, the GPA, and we will incorporate it into this document.

We would like to thank all who made this information possible. Specifically the flight schools: Hortman Aviation, SkyTrek, and Fletchair.

The general structure and about half of the info came from Fred Koskoka who gave a package of instructional help to a person who had just passed all their CFI, CFII test in 1996 and would only be instructing in Grummans. Fred mentioned it was not all inclusive, but a good starting point. Would like to thank the following CFI(I)s for their information and review: Steve Boyer, Dave Wheeler, Gene Phillips, Gary Westphal, Jim Nelson, Dave Pantera, and Gregg Wilson. Although not CFIs, would like to thank Roscoe Rosche and Ken Blackman for their valuable maintenance advice.

## Instructor Qualifications

- Minimum CFI rating in single engine land aircraft
- 25 hours logged in aircraft type (AA1 or AA5 series)

## Program Course

1. Ground briefing
2. Preflight
3. Startup
4. Maneuvers
5. Takeoffs
6. Landings
7. Options

## Ground Briefing

- Go over recommendations for the AA1/AA5 airframe
- Discuss any modifications of the aircraft (engine mods, STCs, applicable Ads, etc)
- General advice

## Preflight

- Follow the preflight checklist contained in the 'Pilot's Operating Handbook'
- Engine baffle seals and baffle air leaks
- Nose fork cotter pin
- Gear leg rubber fairings (if so equipped)
- Wing root strips
- Fuel system
- Electrical system
- Brake system (differential steering)

- Skin debonding
- Flight control bearings (how to check)
- Trim tab wheel (ease of movement)
- Flap switch positions
- Canopy latch and lock
- Canopy position for possible off airport landing
- Baggage door (possible escape route)

**Startup**

- Follow the checklist in the 'Pilot's Operating Handbook'
- Engine start
- Avionics master (if equipped)
- Grass to ramp tactics
- Taxi procedures
    - Differential braking
    - RPM adjustment
    - Prop blast to give rudder additional authority
    - Taxi speed to prevent brake overheating/wear
- Emergency procedures
    - Electrical
    - Ground fire
    - Fire in flight
    - Engine failure

**Maneuvers**

- Straight and Level
- Climbs and descent with constant airspeed
- Use of trim
- Turns (maintaining airspeed and altitude)
    - Shallow (10 – 20 degrees)
    - Medium (20 – 30 degrees)
    - Steep (30 – 50 degrees)
- Slow flight
    - Constant airspeed, altitude and heading
    - Turns
    - Climbs
    - Descents
    - Minimum controllable airspeed
    - Aircraft control in the stall buffet
- Stalls
    - Imminent (onset of buffet)
    - Full
    - Landing (power off)
    - Departure (power on)

- Slips
- Instrument flying (if rated)
    - Instrument approaches

**Takeoffs**

- Normal takeoff
- Short Field
- Soft field
-

**Landings**

- Slowing for pattern entry (slick airframe – low drag)
- Discuss porpoise and how to recover
- Airspeed control of a slick airframe
- Landing with full flaps
- Landing with partial flaps
- Landings without flaps
- Short/soft field landing
- Crosswind landing
- Landing on the main gear
- Slow approach profile
- Fast approach profile
- Simulated engine out landing

Options

- Flight Review 61.56(b)
- Instrument Competency Check (FAR 61.57 (e)(2))
- FAA Pilot Proficiency Award Program (Wings) AC#: 61-91E
- Avionics Familiarization

| **Model** | AA1 | AA1A | AA1B | AA1C | AA5 | AA5 | AA5A | AA5A | AA5B | AA5B |
|---|---|---|---|---|---|---|---|---|---|---|
| **Year** | All | All | All | 77 to 78 | 72 to 74 | 75 | 76 to 77 | 77 to 79 | 75 to 77 | 77 to 79 |
| **Takeoff** | | | | | | | | | | |
| Normal Climbout | 100 | 95 | 95 | 80 | 100 | 100 | 98 | 85 | 105 | 90 |
| Maximum Performance Takeoff, Speed at 50 feet AGL | 78 | 73 | 75 | 66 | 78 | 73 | 73 | 63 | 76 | 65 |
| **Enroute Climb: Flaps UP** | | | | | | | | | | |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Normal | 95 | 95 | 95 | 80 | 100 | 100 | 98 | 85 | 105 | 90 |
| Best Rate of Climb, Sea Level | 89 | 89 | 89 | 78 | 91 | 91 | 91 | 79 | 104 | 90 |
| Best Rate of Climb, 10,000 Feet MSL | | 84 | 84 | 73 | 85 | 85 | 85 | 74 | 90 | 79 |
| Best Angle of Climb, Sea Level | 78 | 75 | 75 | 64 | 78 | 78 | 78 | 68 | 81 | 70 |
| Best Angle of Climb, 10,000 Feet MSL | | 80 | 80 | 70 | 81 | 81 | 81 | 71 | 83 | 72 |
| **Landing Approach** | | | | | | | | | | |
| Normal Approach, Flaps UP | 85 | 75 | 75 | 77 | 80 | 80 | 81 | 70 | 75 | 72 |
| Normal Approach, Flaps Down | 85 | 75 | 75 | 70 | 75 | 75 | 75 | 65 | 75 | 69 |
| Short Field Approach, Flaps Down | 78 | 70 | 72 | 65 | 70 | 70 | 70 | 61 | 73 | 63 |
| **Balked Landing** | | | | | | | | | | |
| During Transition to Max Power, Full Flaps | 95 | 75 | 75 | 68 | 80 | 83 | 75 | 65 | 105 | 70 |
| **Maximum Recommended Turbulent Air** | | | | | | | | | | |
| Normal Category | 125 | 120 | | | 122 | 122 | 119 | 103 | 130 | 112 |
| Utility Category | 132 | 127 | 135 | 117 | 122 | 122 | 119 | 103 | 130 | 112 |
| **Maximum Demonstrated Crosswind** | | | | 16kt | | | 16kt | 16kt | 16kt | 16kt |
| Engine Failure After Takeoff | 85 | 85 | 89 | 70 | 80 | 93 | 75 | 65 | 83 | 65 |
| Manuevering Speed | 125 | 120 | 135 | 117 | 122 | 122 | 121 | 105 | 130 | 112 |
| Maximum Glide | 85 | 85 | 89 | 77 | 80 | 83 | 83 | 72 | 83 | 72 |
| Precautionary Landing with Engine Power | 85 | 85 | 89 | 70 | 80 | 83 | 75 | 65 | 83 | 65 |
| Landing without Engine Power | 85 | 85 | 81 | 70 | 80 | 83 | 75 | 65 | 83 | 65 |
| **Gross Weight** | | | | | | | | | | |
| Normal Category | 1500 | 1500 | | | 2200 | 2200 | 2200 | 2200 | 2400 | 2400 |
| Utility Category | 1430 | 1430 | 1560 | 1600 | 1850 | 1850 | 1850 | 1850 | 2050 | 2050 |
| **Stall Speeds** | | | | | | | | | | |
| VSO | 66 | 61 | 53 | 61 | 58 | 58 | 61 | 53 | 61 | 53 |
| VS1 | 69 | 64 | 57 | 63 | 62 | 62 | 63 | 55 | 65 | 56 |

**NOTE:** Speed are from the manuals of the listed aircraft. If your manual has a different speed, use it instead. All speed are in MPH except AA1C, AA5A, AA5B (1977 to 1979) in knots.

CASA (www.casa.gov.au) Australia developed performance charts multipliers for takeoff and landings to allow for the very generous book numbers given on various aircraft. When in doubt of actual aircraft performance, these factor provide a good safety margin.

| **Takeoff** | |
|---|---|
| Safety factor for aircraft < 2000 kg (4405 lbs) | 1.15 |
| 10% increase in weight | 1.2 |
| 1,000 increase in density altitude | 1.1 |
| 10 C degree increase in temperature ( 18 F) | 1.1 |
| Dry Grass on firm soil ( < 7.87 inches) 20 cm | 1.2 |
| Wet Grass on firm soil (< 7.87 inches) 20 cm | 1.3 |
| Soft ground or snow | 1.25+ |
| 2% uphill slope | 1.1 |
| Tailwind component (10% of lift-off speed) | 1.2 |
| **Landing** | |
| Safety factor for aircraft < 2000 kg (4405 lbs) | 1.15 |
| 10% increase in weight | 1.1 |
| 1,000 increase in density altitude | 1.05 |
| 10 C degree increase in temperature ( 18 F) | 1.05 |
| Dry Grass on firm soil ( < 7.87 inches) 20 cm | 1.2 |
| Wet Grass on firm soil (< 7.87 inches) 20 cm | 1.3+ |
| Wet Grass (short and slippery) | 1.6 (max) |
| Soft ground or snow | 1.25+ |
| 2% uphill slope | 1.1 |
| Tailwind component (10% of lift-off speed) | 1.2 |

## AA1 Series - Recommended Techniques

### Ground Operations:

1. When maneuvering the aircraft on the ground, use the propeller or a tow bar. When using the propeller, hold it as near the hub as possible without placing any pressure on the spinner.
2. It is recommended that a towbar be used to push the aircraft backwards. Pressure on the nose fairing will damage it. Practice makes perfect. The nose wheel will want to cant to either side if unequal pressure is made off centerline. Someone trying to help by pushing on the wing root will cause the nose wheel to cant rapidly.
3. Grummans by their very nature will weathervane since the nose wheel is free castering. Chock both mains (front and back) to prevent this. If you only have one set of chocks, then cant the nose wheel to one side (parallel to the prop) and then chock the nose.
4. The dome light switch is wired directly to the battery, so be sure it is off when leaving the aircraft, so as not to discharge the battery.
5. Leave the rotating beacon switch on all the time. This way, as you leave the aircraft, if you have left the master switch on, you will see the beacon flashing.
6. Always try and stop the aircraft with the nose wheel straight. This way you prevent the situation of having to use a large amount of power to taxi directly ahead while applying braking . You may fix a cocked nose wheel by pushing the wingtip forward on the side the nose wheel points to.
7. Our aircraft use differential braking to steer the aircraft. Therefore, proper brake system operation is critical. New brake pads require a break-in to provide proper operation. Check with your mechanic for the proper method of breaking them in. This is usually accomplished by building up a good taxi speed (30 mph) and then hitting the brakes hard. Doing this three times will set even organic brake pads. Save your brake pads by coasting to a slow speed after landing and taking a distant turnoff.
8. Most 2-seaters have about 350 pounds useful load with full fuel, therefore it is easy to overload the aircraft. Takeoff and climb will performance suffer dramatically in this condition. Aft CG situitations are especially dangerous. Proper Weigh and Balance (W&B) computations are critical. An online W&B calculator is available online at:

http://www.yankee-aviation.com/w&b/weightnbalance.htm and
http://grummanpilotsassociation.com/info/ These were written by an experienced Grumman mechanic who used the information form the aircraft Type Certificate Data Sheet (TCDS). They are provided via the web and are downloadable to an appropriate device so that if you are ramp-checked, you always have your W&B information for a flight available.

9. In dual radio installations, one antenna is on the top and one is on the belly. Use the top antenna (usually Com 2) for ground operations and the bottom antenna (Com 1) for flight communications.
10. It is recommended that you have your mechanic install a external antenna with a length of cable that terminates in a connector that matches your handheld portable radio (King KX99 or other). Using a handheld in the cabin has about a 1.5 mile range on the flexible (rubber duck) as opposed to a plus 10 mile range with an external antenna. Your mileage may vary.

**Flight Operations**

1. The Grumman wing is a higher performance wing that a Cessna and therefore has a smaller sweet spot on Lift/Drag (L/D). In other words, bad airspeed control equals poor approaches and landings. This higher performance wing also responds much better to high performance aircraft techniques (power approaches, airspeed control) than Piper Cub techniques of a bygone era.
2. Do not allow the flap selector switch to spring back to neutral following flap deployment. It will may overshoot, enter the retract position, and retract the flaps.
3. Braking effectiveness is increased by raising flaps after touchdown. However, do not let your attention be diverted from aircraft directional control while landing, maintain aircraft control. The flap switch is right by the pilots right knee, learn where it is so you may use it without looking for it. Additionally, leaving the flaps down and holding the nose up during rollout provides significant aerodynamic braking and reduces brake and tire wear.
4. Flaps are of little use except to change pitch attitude and increase drag on the 2-seaters, and to improve short field landing performance. Slipping the aircraft, however, with or without flaps, has been found to be very effective for losing altitude without increasing airspeed. The use of full flaps on all landings is recommended by the POH except in the most extreme wind conditions. Failure to use full flaps increases the chance of "dragging" the tail on landing.
5. Airspeed control is of utmost importance, especially in the original AA-1 with the "slick" wing.
6. If you need flaps, set them as needed on a stabilized final approach. Until you are familiar with your aircraft, **DO NOT TURN FINAL WITH FULL FLAPS**!
7. The AA-1 wing stalls sooner and at a higher speed, and more aggressively, and with less warning than the AA-1A/B/C's cuffed wing. If you have been flying the 1A's, 1B's, or 1C's, it is highly recommended you get some transition training.
8. It is extremely important to keep the nose wheel off the ground as long as possible and control the lowering of the nose wheel to the runway during landings. Landing nose wheel first, or even on all three wheels at the same time, is virtually guaranteed to cause a porpoise situation, from which recovery is very difficult. A go-around is the only sure cure for porpoising. Proper airspeed control on final approach is highly recommended.
9. The stock 108 HP models should be allowed to fly themselves off the ground and into the air, forcing the issue causes the aircraft to get behind the power curve. This is how accidents happen.

**Maintenance:**

1. During preflight, check the cotter pins in the elevator trim linkage and nose strut nut. The nose strut nut cotter pin prevents the whole fork assembly from falling off the aircraft. Also, make sure the elevator rollers are free and rotate freely and that all the rivets in the elevator trim tab are not loose. This prevents the rollers from separating from the mechanism.
2. Brake discs should not be allowed to become rusted and pitted. This will cause poor braking and premature wearing out of the pads.
3. If the elevator trim wheel seems difficult to turn, try removing the tail cone and lubricating the trim jackscrew. The jackscrew must first be cleaned by spraying a cleaner on it while rotating the trim mechanism. Electrical contact cleaner works well for this. After cleaning, apply a special lubricant "Lubriplate No 630." This can be purchased from Aviall or other suppliers and is superior to regular grease and is the recommended lubricant by the manufacturer.

4. Fuel gauges (glass tubes) should have red float balls installed and the upper and lower packings checked.
5. When removing the nose wheel assembly, remove the nose wheel first, the fairing/fork assembly second, and then separate the fork from the fairing. If you follow the service manual procedure, you will gouge the V shaped aerodynamic fairing at the rear on the nose strut.
6. It is possible for the bolt holes in the elevator torque tube to elongate, allowing the left and right elevators to become misaligned with each other. Check this periodically by having one individual hold one elevator firmly while you try to move the other. If it moves, you have an elongated bolt hole in the torque tube, and must have it repaired using the proper oversized bolt installed. Repairs must be accomplished before the hole is worn beyond repair limits.
7. Do not use Windex or furniture polish to clean the plastic windows. Use a good plastic polish for Plexiglas and as a plus it costs about the same.
8. Access to the lower spark plugs is available without removing the lower cowl is facilitated by removing all of the machine screws on both aft sides of the lower cowl, and an equal number on the forward sides. This allows the sides of the cowl to fold out, giving ready access to the lower plugs.
9. Fuel spilled around the filler caps should drain out through the bottom of the wingtops via the scupper drains. If it does not, you should clean the drains with a small wire so they work properly. These “scupper drains” are connected to the drain outlet on the bottom of the wingtip via a rubber hose.
10. To keep the canopy sliding easily (one finger effort) the tracks need to be kept clean. Only a small amount (one drop) of silicon is need each year to keep them lubricated.
11. Split nosebowl STC's are available that allow easier access to the alternator without having to remove the propeller. Any mechanic can do it via a Form 337. If so desired, contact the usual sources listed here: http://grummanpilotsassociation.com/lynx-links/.
12. As soon as practical after landing, the oil access door should be opened and (if applicable) the cowl latches released (wind conditions notwithstanding) to allow heat to escape the engine compartment and prevent heat soaking of the engine components. This prolongs the life of wiring and hoses in the engine compartment and reduces the chance of vapor lock on a “quick turn,” especially for aircraft using auto fuel.
13. The engine compartment baffle seals (the black (original), orange, or blue fabric like material under the cowl doors) are very important for engine and oil cooling. Experience has shown that many A&P's do not fully understand their significance. Be sure YOU do. The seals should point inward, and should be flexible. They are intended to force incoming cooling air down through the cylinders. Any air that escapes this 90 degree turn also avoids cooling your engine. Also check for any holes near wiring or spark plugs leads that allow air to escape.
14. Mitchell gauges can be installed to replace the originals via STC and a form 337. This removed high pressure fuel and oil lines from the cockpit side of the firewall. Also consider installing a Engine Management System (JPT 730 or equivalent) to provide reliable engine operation readings.
15. REM 37 BY long-reach spark plugs are approved for all of the engines in our two-seat aircraft except for the O 235 C,F,G and J models. These plugs are considerably less prone to lead fouling than the others.
16. The fuel tanks are inside the spar and the ends are sealed with a large "O" ring. When the inboard seal leaks, fuel runs down to the center of the spar where it exits a small drain hole under the console inside the cabin. If fuel smell is detected in the cabin, this is most likely the

cause.

**AA5 Series - Recommended Techniques**

## Ground Operations

1. When loading all seats in the four place aircraft, make sure the front seats are loaded first. If you load both back seats first, the aircraft will probably tip back onto the tail tie down. This may damage the elevator trim tab.
2. Move the aircraft with a towbar or by gripping the propeller near the hub. Avoid putting any strain on the spinner during these operations. Never push on the nose wheel fairing to get the nose tire facing in the correct direction as this will damage it.
3. Grummans by their very nature will weathervane since the nose wheel is free castering. Chock both mains (front and back) to prevent this. If you only have one set of chocks, then cant the nose wheel to one side (parallel to the prop) and then chock the nose.
4. The dome light switch is wired directly to the battery, so be sure it is off when leaving the aircraft, so as not to discharge the battery.
5. Leave the rotating beacon switch on all the time. This way, as you leave the aircraft, if you have left the master switch on, you will see the beacon flashing.
6. Always try and stop the aircraft with the nose wheel straight. This way you prevent the situation of having to use a large amount of power to taxi directly ahead while applying braking . You may fix a cocked nose wheel by pushing the wingtip forward on the side the nose wheel points to.
7. he baggage compartment door is restrained by a small chain that can break in a strong gust of wind. Keep the door latched when not using it. Leaving keys in the baggage door will scratch the paint in that area if the wind is blowing.
8. Our aircraft use differential braking to steer the aircraft. Therefore, proper brake system operation is critical. New brake pads require a break-in to provide proper operation. Check with your mechanic for the proper method of breaking them in. This is usually accomplished by building up a good taxi speed (30 mph) and then hitting the brakes hard. Doing this three times will set even organic brake pads. Save your brake pads by coasting to a slow speed after landing and taking a distant turnoff.
9. In dual radio installations, one antenna is on the top and one is on the belly. Use the top antenna (usually Com 2) for ground operations and the bottom antenna (Com 1) for flight communications.
10. It is recommended that you have your mechanic install a external antenna with a length of cable that terminates in a connector that matches your handheld portable radio (King KX99 or other). Using a handheld in the cabin has about a 1.5 mile range on the flexible (rubber duck) as opposed to a plus 10 mile range with an external antenna. Your mileage may vary.
11. Slamming the canopy shut with the lock in the locked position will trap you inside the plane. You can open the lock with the red tab located on the pilots side of the latch cover. Failing that, you may climb out the baggage door.
12. AA-5-series aircraft (especially the Tiger) are easily loaded beyond the aft c.g. limit when rear-seat passengers are carried even if the aircraft is still within maximum gross weight limits. Pitch stability is dangerously decreased very quickly after the aft c.g. limit is exceeded. Also, AA-5 and AA-5A aircraft are easily overloaded with four adult occupants aboard. Takeoff and climb performance suffer substantially in any over-gross situation. Proper W&B computations should be performed. An online W&B calculator is available online at:

http://www.yankee-aviation.com/w&b/weightnbalance.htm and http://grummanpilotsassociation.com/info/ These were written by an experienced Grumman mechanic who used the information form the aircraft Type Certificate Data Sheet (TCDS). They are provided via the web and are downloadable to an appropriate device so that if you are ramp-checked, you always have your W&B information for a flight available.

13. The parking brake on 1977 and older aircraft cannot be set or released from the co-pilot's side.

**Flight Operations**

1. The Grumman wing is a higher performance wing that a Cessna and therefore has a smaller sweet spot on Lift/Drag (L/D). In other words, bad airspeed control equals poor approaches and landings. This higher performance wing also responds much better to high performance aircraft techniques (power approaches, airspeed control) than Piper Cub techniques of a bygone era.
2. Do not allow the flap selector switch to spring back to neutral following flap deployment. It will may overshoot, enter the retract position, and retract the flaps.
3. Braking effectiveness is increased by raising flaps after touchdown. However, do not let your attention be diverted from aircraft directional control while landing, maintain aircraft control. The flap switch is right by the pilots right knee, learn where it is so you may use it without looking for it. Additionally, leaving the flaps down and holding the nose up during rollout provides significant aerodynamic braking and reduces brake and tire wear.
4. Flaps are of little use except to change pitch attitude and increase drag on the 2-seaters, and to improve short field landing performance. Slipping the aircraft, however, with or without flaps, has been found to be very effective for losing altitude without increasing airspeed. The use of full flaps on all landings is recommended by the POH except in the most extreme wind conditions.
5. When powering back to 1700 to start approach decent (abeam on visual approach) add 1/3 flaps or so and let power and trim alone for now. Let the airplane settle into its new configuration without touching any trim or power. It will slow down some but stay on that 600 fpm decent. As you work around on base and final, milk the rest of the flaps in 1/3 at a time. When you roll out on final, you will find the airplane is now at approach speed plus about 10 with full flaps in a nice power approach configuration. In the pattern, you are only using two power settings to start. As you get more familiar with the airplane, your technique will refine. On final the only variable you will work is the power to change descent rate for runway conditions.
6. 2200 rpm is also great for instrument approach speed. Fly approaches at 2200, fly glideslope and non-precision descents at 1700-1800 just as you do the decent in visual pattern. 100 rpm very roughly equates to 100 fpm decent. When you break out on an instrument approach....guess what, you can put full flaps down and know that the airplane will settle at approach +10. (85 mph for the Cheetah) You do not have to fight the airplane at a critical time.
7. Airspeed control is of utmost importance to prevent 'floating' down even a long runway. Do not force the aircraft down, instead, go around and try again with proper airspeed.
8. Do Not Slip as a normal method of approach descent control, it makes learning to fly accurate approach speeds impossible. Without accurate approach speeds, accurate landings are impossible...especially in a Grumman. Instead learn to manage power and drag devices starting from a base power setting, like 2200 rpm and 1700 rpm on the Cheetah. If you need flaps, set them as needed on a stabilized final approach.

9. Crosswinds: Always use coordinated flight in the pattern with crab on final technique. This give the best environment for airspeed control which translates into good landings. Transition to slip in flare. Do not use slip down final technique, it will make airspeed control more challenging and introduce spin entry control input all the way down final.
10. In the earlier AA-5x's without the ALT warning light, the alternator can fail with no easily discernible ammeter indication. This can be checked periodically by loading the system (turn on lights, pitot heat, etc.) and turning the alternator side of the master switch off. After a few seconds, a heavy discharge should register. Turning the alternator back on should result in an initial heavy charge indication followed by a return to normal within a few seconds.

**Maintenance**

1. During preflight, check the cotter pins in the elevator trim linkage and nose strut nut. The nose strut nut cotter pin prevents the whole fork assembly from falling off the aircraft. Also, make sure the elevator rollers are free and rotate freely and that all the rivets in the elevator trim tab are not loose. This prevents the rollers from separating from the mechanism.
2. Brake discs should not be allowed to become rusted and pitted. This will cause poor braking and premature wearing out of the pads.
3. If the elevator trim wheel seems difficult to turn, try removing the tail cone and lubricating the trim jackscrew. The jackscrew must first be cleaned by spraying a cleaner on it while rotating the trim mechanism. Electrical contact cleaner works well for this. After cleaning, apply a special lubricant "Lubriplate No 630." This can be purchased from Aviall or other suppliers and is superior to regular grease and is the recommended lubricant by the manufacturer.
4. Some Tiger owners have reported cracking of the alternator bracket. There is a heavy duty version available (Part Number P523 from Fletchair, #07A21443 from others) that prevents this from happening again. This problem does not happen on the Travelers (AA5) or the Cheetahs (AA5A).
5. When removing the nose wheel assembly, remove the nose wheel first, the fairing/fork assembly second, and then separate the fork from the fairing. If you follow the service manual procedure, you will gouge the V shaped aerodynamic fairing at the rear on the nose strut.
6. It is possible for the bolt holes in the elevator torque tube to elongate, allowing the left and right elevators to become misaligned with each other. Check this periodically by having one individual hold one elevator firmly while you try to move the other. If it moves, you have an elongated bolt hole in the torque tube, and must have it repaired using the proper oversized bolt installed. Repairs must be accomplished before the hole is worn beyond repair limits.
7. The rubber gear fairings on the main gear legs will sometimes come unglued which can cause a strumming in flight shaking the entire airframe. These may be re-glued with an appropriate glue (3M 1300).
8. It is important that proper tension be put on all the wheel bearing to prevent them from rotating during flight. This can cause a low frequency vibration that feel like a rough engine.
9. To keep the canopy sliding easily (one finger effort) the tracks need to be kept clean. Only a small amount (one drop) of silicon is need each year to keep them lubricated.
10. Do not use Windex or furniture polish to clean the plastic windows. Use a good plastic polish for Plexiglas and as a plus it costs about the same.
11. McGuires cleaner wax is a great product for removing stains in the paint and adding a nice smooth finish to the paint. This is especially important for coastal environment aircraft.

12. Access to the lower spark plugs is available without removing the lower cowl is facilitated by removing all of the machine screws on both aft sides of the lower cowl, and an equal number on the forward sides. This allows the sides of the cowl to fold out, giving ready access to the lower plugs.
13. The latch pins on the engine cowl doors should be adjusted so that the doors can be pushed gently into the latched position. Having to slam the doors, or strike them with a fist or open hand to close the latches means the latch pins are misadjusted. Sometimes, squeezing the upper and lower cowl in the front will work. Then thumb pressure on the lower 1/2 inch of the rear latch while squeezing the cowls together will do the trick.
14. Be sure to lean aggressively on the ground to reduce lead fouling. REM 37 BY long reach spark plugs are approved for all of the engines in our four seat aircraft. These plugs are considerably less prone to lead fouling than are others. If you still have fouling problems, you can try the more expensive “fine wire” plugs, but these should not be necessary.
15. All four seat aircraft made prior to 1979 have fuel scupper installed around the fuel caps. These go through the tank and out the bottom. These lines are clear plastic and as they age and develop a crack, this will allow rain water will get into the fuel tank.
16. Each fuel tank has a vent in the outer wing panel on the bottom. It is important to make sure that insects do not block these vents which will cause the fuel tank to collapse and may even crush a rib. Use of Rainbird filters or even a bend pipe cleaner will keep the little beasties at bay.
17. Each fuel tank has 4 oval inspection covers on the wing bottom. A fuel leak will be evident by the blue stain at the edge.
18. Split nose bowl STC's are available that allow easier access to the alternator without having to remove the propeller. Any mechanic can do it via a Form 337. If so desired, contact the usual sources listed here: http://grummanpilotsassociation.com/lynx-links/.
19. Canopies on our planes should slide easily. This can be done by periodic cleaning og the teflon tracks with a Q-tip dipped in alcohol and lubricate after with a single drop of silicon. This allow the canopy to move with a single finger.
20. As soon as practical after landing, the oil access door should be opened and (if applicable) the cowl latches released (wind conditions notwithstanding) to allow heat to escape the engine compartment and prevent heat soaking of the engine components. This prolongs the life of wiring and hoses in the engine compartment and reduces the chance of vapor lock on a “quick turn,” especially for aircraft using auto fuel.
21. The engine compartment baffle seals (the black (original), orange, or blue fabric like material under the cowl doors) are very important for engine and oil cooling. Experience has shown that many A&P's do not fully understand their significance. Be sure YOU do. The seals should point inward, and should be flexible. They are intended to force incoming cooling air down through the cylinders. Any air that escapes this 90 degree turn also avoids cooling your engine. Also check for any holes near wiring or spark plugs leads that allow air to escape.
22. There is a alternate means of AD compliance for AD 79-22-04. Using SI 61-01 will cancel the repetitive 100 hour AD inspection.
23. Make sure the air intake duct does not become crushed as this will restrict air flow to the carburetor and rob your engine of some performance. This only applies to the AA5B Tigers.
24. Mitchell gauges can be installed to replace the originals via STC and a form 337. This removed high pressure fuel and oil lines from the cockpit side of the firewall. Also consider installing a Engine Management System (JPT 730 or equivalent) to provide reliable engine operation

readings.

25. Cracking dorsal fins can be replaced with a new fiberglass version. This will last much longer than the original, plastic one.
26. Travelers and Cheetahs with the original 10-5009 carburetor should be updated to the 10-5009N design which has the pepper box nozzle which reduces the Grumman Bump when you first reduce power after takeoff. Lycoming SB 1305A addresses the legal (and recommended) conversion of the 10-5009 to the 10-5009N and that all 10-5009N carburetors should be overhauled with the parts kit from the 10-5135 (since they are now effectively 10-5135 carburetors). The 10-5135 is now superseded by the 10-5217.
27. Fuel tank leaks on the 4-seat aircraft (AA5, AA5A, AA5B, AG5B) will happen. This job is best left to a grumman shop but if you want to tackle this messy job, contact one of these shops for help: http://grummanpilotsassociation.com/lynx-links/

# One Instructors AA5 Series Checkout

Ground:

- You can spin the aircraft by pushing aft on the wingtip, will spin in place. Afterwards, straighten nose wheel by pressing down on horizontal stab (only on secure section) and having someone straighten it manually.
- "Clunks" in the nose strut are bad.
- Always start with the nose wheel straight.

Taxiing:

- Move forward a little, then use differential braking to move nose Left or Right.
- Try not to lock a wheel up with differential braking.

Takeoff:

- Semi-soft field takeoff technique; keep the nose wheel light with elevator.
- Let the plane lift off on its own.

Climb (with cruise prop):

- Use 90 KIAS only for true obstacles. Normally 100-120 KIAS climb out. This is for forward speed and warm weather engine cooling.

Cruise:

- Give 15-30 sec to stabilize. Notice how many turns of trim wheel. (2?) Good for IMC.
- 3 Fuels: Aux pump off, lean mixture, switch tanks every hour. (~4.5 hours fuel)
- Note regarding wx/ice: at higher altitude (7k+), will lose a lot of speed/climb. Plan for this and don't depend on climbing up out of icing conditions from this altitude.
- Engine is ok at full throttle/RPM.
- 2500 RPM, leaned is 10 gallon per hour and 135 knots, average.

Descent:

- 3 Fuels: Aux pump / Fuel tank selector / Mixture
- Get down early!

Pattern:

- Plane is hard to slow down! Pull throttle all the way to idle when needed. Idle at the 180.
- Notice how many turns of trim wheel. (5?) Good for IMC.
- Use slips regularly, plane slips well. Rudders are excellent.
- Be on speed on final. <u>70 KIAS.</u> Be on your speed before turning final to avoid being fast on final.
- If you're fast, go around. BIGGEST CAUSE OF CRASHES IN TIGERS.
- If you porpoise, go around.
- If you hit nose first, go around.
- "Soft field" landing; keep the nose light. Hold nose wheel off (or "light") on rollout like space shuttle.
- Crosswind landings: easy to land on one wheel. Do after nose wheel is above mains. Bank into upwind wing, then hold with rudder.

General

- Canopy can be open in flight to mark for photography. Air pressure will want to close the canopy. If open a lot, will put a lot of drag on plane.

# Pattern Diagram