



# NATIONAL HEADQUARTERS CIVIL AIR PATROL

## CAP REGULATION 66-1

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& ICL 18-04 14 JUNE 2018

### Aircraft Maintenance

## CIVIL AIR PATROL AIRCRAFT MAINTENANCE MANAGEMENT

This regulation establishes standard aircraft maintenance management procedures for all Civil Air Patrol corporate owned aircraft. Information contained herein is applicable to all personnel who operate and/or maintain CAP corporate aircraft.

### SUMMARY OF CHANGES.

This change adds hyperlinks to the periodic inspections section to both CAP Powered Aircraft Inspection and CAP Glider Aircraft Inspection Checklists in the forms database. It also deletes reference to a deductible charge to a wing for aircraft loss or damage resulting from negligence or mismanagement. **Note: Shaded areas identify new or revised material.**

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**1. Objectives.** All CAP aircraft must meet airworthiness standards established by Federal Aviation Regulations (FARs) and CAP regulations. CAP region and wing commanders are responsible for ensuring that CAP corporate-owned aircraft assigned to their organizations meet these standards and are maintained in a safe, airworthy condition. Region and wing commanders shall be responsible for management level supervision and control of CAP corporate-owned aircraft and associated mission assets.

**2. General.** CAP aircraft shall be maintained and operated in accordance with applicable FARs, including FAR Part 43 and Part 91. Any change in design of an airframe, power plant, propeller, or appliance shall be accomplished in accordance with applicable FARs and acceptable methods, techniques, and practices. A change from the original type certificate constitutes a major alteration and shall be approved prior to alteration by NHQ/LGM and the Federal Aviation Administration (FAA).

### **3. Terms Explained.**

**3.1. Corporate Aircraft.** Aircraft owned and registered with the FAA in the name of Civil Air Patrol. The term "aircraft" includes powered aircraft, non-powered gliders, and balloons. CAP aircraft do not include member-owned, leased or borrowed aircraft.

**3.2. Airworthiness Standards.** FAA mandated standards aircraft must meet in order to be issued an FAA *Standard Certificate of Airworthiness*. All CAP aircraft shall be maintained in accordance with FARs and FAA-approved manufacturer's data to ensure continued airworthiness.

**3.3. Airworthiness Directives (ADs).** Mandatory, legally enforceable rules issued by the FAA to correct an unsafe condition in an aircraft, aircraft engine, propeller or appliance.

**3.4. Service Bulletins (SBs).** Bulletins issued by aircraft and/or aircraft parts manufacturers to alert aircraft owners and operators of maintenance or operational issues.

**3.5. Major Repairs and Alterations.** Repairs and alterations that require an FAA Certified Inspector (IA) or repair station to certify and return aircraft to service. Major repairs and alterations also require that a FAA Form 337, *Major Repair and Alteration*, signed by the individual performing the work be submitted to the FAA. The FAA Form 337 becomes a permanent part of the maintenance record, until the alteration is removed. Major repairs and alterations must be approved in advance by NHQ/LGM.

**3.6. Preventive Maintenance.** Maintenance that may be performed by an individual holding at least a private pilot certificate and who meets the requirements of FAR Part 43.3.

**3.7. Scheduled Maintenance.** Maintenance occurring at specific time intervals and performed by an FAA-certified aircraft mechanic, repair station, or avionics repair facility.

**3.8. Unscheduled Maintenance.** Maintenance occurring without frequency and performed by an FAA-certified aircraft mechanic, repair station or avionics repair facility.

**3.9. Time in Service.** For maintenance purposes, the total operating time on an aircraft's airframe, engine or component as determined by the aircraft tachometer.

**3.10. Supplemental Type Certificate (STC).** A document issued by the FAA approving a modification, repair or enhancement to an aircraft, engine or propeller, from its original design. An STC is supplementary to the original type certificate; it does not change the previously issued type certificate.

**4. Responsibilities.** Regions (with aircraft assigned) and wings are responsible for developing maintenance management programs to ensure the provisions of this regulation are implemented.

This program should focus on centralized responsibility for timely accomplishment of inspections and maintenance of corporate aircraft. Wings with a large number of aircraft, (twenty or more), may find it more effective to delegate maintenance management responsibilities to a level lower than wing. Regions (with aircraft assigned) and wings will publish a supplement to this regulation providing specific guidance on their centralized maintenance management program. Supplements shall be updated biennially. Supplements shall be coordinated through the respective CAP-USAF liaison region and copies provided to NHQ/LGM.

**5. Conflict of Interest.** All professional organizations must avoid real and perceived conflicts of interest. To this end, CAP members who have authority to approve maintenance of CAP aircraft shall not authorize or contract for such maintenance with any business entity where they, or any member of their household, are employed or where they, or any member of their household, maintain any share of ownership. In cases where this type conflict of interest may exist, or be perceived to exist, the wing or region commander shall appoint a knowledgeable person to contract or authorize this maintenance. In all cases, wing and region commanders shall ensure that all decisions regarding contracted maintenance services are based on the most economical and practical considerations.

**6. Aircraft Maintenance Approval Authority.** Duly appointed CAP wing aircraft maintenance officers (AMO) and assistants may approve required aircraft inspections, maintenance and repairs on CAP corporate aircraft or gliders up to \$500 including parts and labor. CAP/LGM is the approval authority for all aircraft inspections, maintenance and repairs that exceed this amount. To obtain approval for maintenance exceeding \$500, forward a thorough description of the needed inspection, maintenance or repairs along with a detailed estimate that includes all parts and labor to CAP/LGM for approval prior to proceeding. If prior approval is not received from CAP/LGM as required by this paragraph, the wing authorizing these repairs may be held responsible for all expenses incurred for this unauthorized transaction.

**7. Scheduled Maintenance.** Quality maintenance programs are based on performing scheduled maintenance at specific intervals and prompt correction of discrepancies discovered during inspections. CAP scheduled maintenance requirements for corporate aircraft include:

**7.1. Mid-cycle.** Between 40 and 60 hours following the last 100-hour/annual inspection or 6 calendar months since the last oil change, whichever occurs first, perform an oil and filter change. Along with the oil and filter change, inspect the engine compartment and surrounding area for leaks, damage or other abnormalities. Corporate aircraft with radial engines, equipped with full-flow filter systems, require only a filter change. (For radial engines, oil and filter change and oil screen cleaning shall be accomplished during the 100-hour/annual inspection). Engine break-in oil changes for new, overhauled or rebuilt engines will be performed in accordance with engine manufacturer's recommendations. Oil samples may be taken at this time; however, oil filters shall be cut open and checked for metal content. (See paragraph 8c for additional information on oil analysis.) CAP aircraft shall not over-fly 60 hours or 6 calendar months since the preceding 100-hour/annual inspection without completing this mid-cycle maintenance action (e.g., if the last 100 hour/annual inspection or oil change was accomplished in January the next oil change would be due no later than 30 June or 60 hours, whichever occurs first). Wing maintenance officers shall ensure that aircraft oil and filter changes are accomplished and engine logbooks annotated accordingly.

**7.2. 100-Hour Inspection.** Corporate aircraft shall not be operated unless within the preceding 100 hours' time in service it has received an annual or 100-hour inspection and has been approved for return to service in accordance with FAR Part 43 or has received an inspection for issuance of an airworthiness certificate in accordance with FAR Part 21. Up to ten percent (10

hours) over-fly is authorized to allow the aircraft to be flown to the designated place of inspection. This excess time to reach the designated place of inspection will be included in computing the time for the next 100-hour inspection.

**7.3. Annual Inspection.** Corporate aircraft shall not be operated unless within the preceding 12 calendar months in service it has received an annual inspection in accordance with FAR Part 43, performed by an FAA-certified mechanic holding an inspection authorization or a certified repair station certification. Over-fly is not authorized. In addition to repairs, preventive maintenance to maintain airworthiness or to enhance aircraft appearance, such as paint touch-up, shall be accomplished as required. FAA certified mechanics, FAA certified repair stations and fixed base operators are authorized to perform necessary inspections/maintenance runs and check flights as pilot in command in CAP aircraft. The pilot shall be FAA rated and current in the category/type aircraft being flown.

**NOTE:** On occasion, an aircraft may require a Special Airworthiness Certificate (ferry permit) to relocate an aircraft for inspection or maintenance. In this event, the certificate must be acquired from the local Flight Standards District Office prior to the aircraft being flown.

**7.4. Calendar Inspections.** Corporate aircraft shall not be operated unless the following components, if equipped, are inspected and logbooks updated at prescribed intervals in accordance with FAR Part 91:

**7.4.1 Pitot Static/Altimeter.** Required for flight under Instrument Flight Rules (IFR). Within the preceding 24 months, system shall have been tested, inspected and found to comply with Appendix E of FAR Part 43.

**7.4.2 Transponder.** Within the preceding 24 months, shall have been tested, inspected and found to comply with Appendix F of FAR Part 43.

**7.4.3 Very High Frequency Omnidirectional Range (VOR).** Required for flight under IFR. Within the preceding 30 days' system shall have received an operational test check and found to be within the limits contained in FAR Part 91 and recorded in the aircraft log or Tab 3 of the Aircraft Information File.

**7.4.4 Emergency Locator Transmitter (ELT).** Required for all aircraft. Within the preceding 12 months' unit shall have been inspected in accordance with FAR Part 91. ELT battery shall be replaced as specified by the manufacturer and the new battery expiration date shall be entered in the aircraft maintenance record.

**7.4.5 Corrosion Prevention.** Special emphasis on corrosion prevention is required to ensure safety of flight and to extend aircraft service life. Rinse aircraft with clear water after each flight below 200 feet above ground level (AGL) over any body of salt water or dry salt beds, to reduce corrosion. Aircraft shall be washed at least every 6 months to prevent corrosion and enhance the aircraft's appearance. Aircraft assigned to Florida, Hawaii and Puerto Rico shall apply a corrosion preventive compound (i.e., ACF-50 or CorrosionX) annually or at the 100 hr/annual inspection nearest to the actual due date (whether before or after). All other wings shall apply corrosion preventive compounds biennially, or at the 100 hr/annual inspection nearest to the actual due date (whether before or after). New or recently re-painted aircraft shall receive their next corrosion control treatment 2 years (1 year for Florida, Hawaii, and Puerto Rico) after purchase or repaint. Aircraft shall not be re-painted within 2 months of the last corrosion prevention treatment. Transferred aircraft will assume the corrosion control cycle of the assigned wing, calculated from the last application date.

**7.4.6 Periodic Inspections.** Region/wing aircraft maintenance officers or their representatives shall inspect corporate aircraft at least annually to ensure aircraft meet requirements of this regulation. Perform inspections using [CAPF 71](#), *CAP Powered Aircraft Inspection Checklist*, for powered aircraft and [CAPF 71G](#), *CAP Glider Aircraft Inspection Checklist*, for glider aircraft.

**8. Non-Scheduled Maintenance.** Non-scheduled maintenance actions are equally important for a quality maintenance program. Non-scheduled maintenance for corporate aircraft includes:

8.1. **Airworthiness Directives.** Corporate aircraft logbooks shall reflect the current status of all applicable ADs as required by FAR Part 91. Applicable AD numbers and titles are posted on the NHQ/LGM website and copies sent to wings/regions that possess aircraft affected by these ADs.

8.2. **Service Bulletins.** Manufacturer's service bulletins are reviewed by NHQ/LGM for applicability. Bulletins that relate to safety and airworthiness and Cessna Service Bulletins with posted credit dates shall be complied with. These bulletins will be posted on the NHQ/LGM website and copies sent to wings/regions with aircraft affected by these service bulletins.

8.3. **Authorized Preventive Maintenance.** Preventive maintenance includes routine care, such as cleaning, servicing, replacement of minor parts and hardware, and preflight and post-flight inspections. During preflight and post-flight inspections, engine cowling shall be inspected for proper fit, loose, missing or incorrect fasteners, security, and contour. Early detection of loose or missing fasteners can prevent extensive damage to cowling. See Attachment 1 for specific guidance on performing preventive maintenance on CAP aircraft.

8.4. **Pilot/Aircrew Reported Discrepancies.** This maintenance shall be determined from information provided by pilots who discover aircraft discrepancies during the course of day-to-day aircraft operation. Clear and concise discrepancy reporting is essential for a safe aviation maintenance program. All wings will utilize the online eAircraft Discrepancy System located in WMIRS. Instructions for use of the eAircraft Discrepancy System are posted on the WMIRS website.

8.5. **Aircraft Environmental Protection.** When available, aircraft windshield covers shall be installed any time aircraft is outside and not in use to protect aircraft avionics and interiors. Pitot tube covers and engine plugs shall also be installed when aircraft is not in use to preclude bird and insect infestation and damage.

8.6. **Aircraft Security.** Corporate aircraft shall be locked, securely tied down, and wheels chocked when not in use. When available, aircraft avionics locks shall be installed any time aircraft are not in locked or guarded areas. Control locks shall be used on aircraft not equipped with avionics locks.

8.7. **Cannibalization.** Cannibalization involves removal of parts or components from one aircraft to replace defective or damaged items for another aircraft in order to maintain airworthiness. This practice contributes to further damage and mismanagement of valuable CAP assets. Cannibalization of CAP aircraft is prohibited.

**9. Engine Management Program.** The CAP engine management program consists of an engine replacement schedule, engine top overhaul or major repairs, propeller and propeller governor overhaul, engine spectrometric oil analysis program (SOAP), and other preventive maintenance. The program requires proper management to ensure CAP corporate aircraft are maintained in accordance with the highest airworthiness and safety standards. The engine oil pressure switch on all 1997 and later model Cessna aircraft shall be replaced every 3,000 operating hours.

9.1. **Engines.** Engines shall be replaced with new, rebuilt, or overhauled engines on condition or at the manufacturer's recommended **time (calendar or hourly)** between overhaul (TBO). Flying beyond the manufacturer's recommended TBO is not authorized. Engine shock mounts will be replaced on condition or at engine overhaul/replacement, whichever occurs first. Fluid

carrying hoses, from the firewall forward, shall be replaced on condition or at engine change, whichever occurs first.

**9.2. Propellers and Propeller Governors.** Propellers and propeller governors shall be replaced with new, rebuilt or overhauled units at the manufacturer's recommended TBO. Flying beyond the manufacturer's recommended TBO is not authorized.

**9.3. Engine Spectrometric Oil Analysis Program.** Engine oil samples shall be taken at each 100-hour/annual oil and filter change. A copy of the analysis report shall be maintained in the aircraft engine maintenance log and used to monitor for trends in engine wear/breakdown.

**9.4. Restriction for CAP and AFROTC/AFJROTC Cadet Orientation Flights Subsequent to Major Aircraft Maintenance Activity.** To ensure an additional margin of safety for orientation flights, CAP or AFROTC/AFJROTC cadet orientation flights will not be flown in aircraft within 10 hours of tachometer time following any of these maintenance actions: (This shall be annotated in the eAircraft Discrepancy system with the tachometer time at which the aircraft was released.)

9.4.1 Engine change

9.4.2 Major engine overhaul

9.4.3 Any maintenance requiring removal or replacement of one or more cylinders

9.4.4 Replacement of one or more magnetos

## **10. Required Equipment.**

**10.1. Aircraft Shoulder Harness.** All CAP corporate aircraft (except balloons) shall be equipped with shoulder harnesses at the pilot and copilot positions. Shoulder harnesses are strongly recommended in all remaining positions.

**10.2. Aircraft Fire Extinguisher.** A serviceable, appropriate-for-use-in-aircraft, fire extinguisher with a gauge indicating serviceability shall be permanently mounted in the cockpit of all CAP corporate powered aircraft. CAP provides a fire extinguisher in each aircraft for use in case of an emergency. Refer to the [Aircraft Portable Fire Extinguishers Inspection Guide](#) for instruction on determining whether the extinguisher is in serviceable condition.

**10.3. Cargo Tie-Down or Cargo Nets.** Loose items will be properly secured using a safety belt or other tie down method having enough strength to eliminate the possibility of shifting during aircraft operation. Cargo nets are preferred when transporting loose items in the baggage compartment.

**10.4. Carbon Monoxide Detectors.** Disposable carbon monoxide detectors shall be installed in all CAP corporate powered aircraft, including those aircraft equipped with electronic detectors. These detectors will be replaced every 12 months. To assist with compliance, NHQ/LGM will ship replacement disposable detectors to wings and regions for all assigned aircraft each year during the month of December. New detectors shall be installed and dated in January of each year.

**10.5. Survival Kits.** Survival kits shall be carried aboard powered aircraft on all flights. Each wing shall determine appropriate items to be carried in aircraft survival kits. Contents of these kits may be adjusted based on seasonal requirements.

## **11. Painting, Marking and Placards.**

**11.1. Marking.** Corporate aircraft shall be marked in accordance with FAR Part 45 and this regulation. CAP aircraft decals may be ordered through NHQ/LGM. Instructions for decal placement are provided in Attachment 2.

**11.2. Painting.** Aircraft painting will be coordinated with and scheduled by NHQ/LGM. Corporate aircraft in need of complete repaint will be painted in accordance with the approved CAP color scheme located at Attachment 2. Aircraft will not be repainted solely to conform to the current CAP paint/color scheme. Wing logos and tail flashes or other distinctive aircraft markings are not authorized. All existing wing logos and tail flashes, including CAP seals, previously approved for use with nonstandard paint schemes, will be removed when aircraft are repainted. Aircraft being reassigned to another wing shall have all wing-specific logos and tail flash markings, if installed, removed prior to transfer. Aircraft registration numbers shall not be altered without coordination with NHQ/LGM and written approval from the CAP National Commander and CAP-USAF Commander.

**NOTE:** CAP gliders are exempt from the approved CAP color scheme and may be repainted in existing colors and schemes. CAP gliders shall be marked only with the small, 12 inch, CAP emblem centered on the vertical stabilizer.

**11.3. CAP Restrictive Placards.** CAP powered corporate aircraft shall have all required placards installed in accordance with FAA directives, manufacturer's data and CAP regulations. Additionally, placards containing the following statements shall be placed conspicuously in all CAP corporate aircraft:

11.3.1 "THIS AIRCRAFT IS THE PROPERTY OF THE CIVIL AIR PATROL AND WILL NOT BE USED FOR HIRE OR REWARD". This placard will be white, protected and 4 by 6 inches in dimension.

11.3.2 "MAXIMUM CROSSWIND COMPONENT FOR THIS AIRCRAFT IS \_\_\_\_\_." Each aircraft shall be placarded for maximum demonstrated crosswind velocity as published in the aircraft POH.

11.3.3 "SEAT SLIP WARNING—ENSURE AIRCRAFT SEATS ARE POSITIVELY LOCKED BEFORE TAKEOFF AND LANDING." All aircraft shall be placarded for seat slippage warning.

11.3.4 "REMOVE TOWBAR BEFORE ENGINE START." All aircraft shall have a towbar warning placard prominently displayed on the pilot's side instrument panel in a location clearly visible to the pilot when seated.

**NOTE:** CAP glider aircraft require only the "Not for Hire" and "Maximum Crosswind" placards.

**11.4. External Identification Plate.** FAR Part 45 requires that a fireproof plate; etched, stamped, or engraved with the builder's name, model designation, and serial number of the aircraft must be secured to the aircraft fuselage exterior so that it is legible to a person on the ground. The fireproof plate must be either adjacent to and aft of the rear-most entrance door or on the fuselage surface near the tail surfaces. For aircraft manufactured before 7 March 1988, the identification plate may be secured at an accessible exterior or interior location near an entrance, if the model designation and builder's serial number are also displayed on the aircraft fuselage exterior.

**11.5. United States Air Force Auxiliary Graphics.** A United States Air Force Auxiliary graphic has been created to highlight CAP's role as a Total Force partner and Auxiliary of the U.S. Air Force. These graphics shall be installed on both sides of the vertical tail of all powered aircraft in accordance with Attachment 2. For aircraft not painted in the approved CAP paint scheme, for example with no silver stripe, install the graphic on the lower portion of the tail oriented in a manner illustrated in the example for the CAP paint scheme in Attachment 2.

**12. Records.** All aircraft maintenance shall be documented in appropriate aircraft logbooks and maintained in accordance with applicable FARs and CAP regulations. Current aircraft weight and balance documents will be maintained in TAB#5 of the Aircraft Information Folder. STCs are

specific to only aircraft identified in the STC. FARs require that all STCs that change the operating performance of an aircraft be filed for reference with the aircraft's Pilot's Operating Handbook (POH). Commercially produced or locally developed checklists must contain both manufacturer's POH checklist and applicable STC flight manual supplement information specific to make, model, year, and aircraft serial number. All CAP personnel must comply with specific instructions listed in any FAA approved STC applicable to CAP aircraft.

**13. Insurance Requirements.** Maintenance performed on CAP powered aircraft by uninsured A&P mechanics, whether hired or volunteer, is strictly limited to those items listed in Attachment 1. Tasks not listed may only be carried out by FAA-certified A&P mechanics that carry liability insurance with minimum policy limits of \$1 million per occurrence for powered aircraft and \$500,000 per occurrence for gliders. This insurance may be provided by the maintenance facility where the mechanic is employed or may be purchased by an independent operator not affiliated with a maintenance facility. A copy of a current certificate of insurance, identifying the insurer and the amount of liability coverage, explicitly including "products and completed operations," shall be maintained on file with the wing or region and a copy shall be forwarded to NHQ/LGM. Certain situations may require emergency repairs by a mechanic who does not meet minimum insurance requirements. Under these circumstances the wing or region maintenance officer shall be contacted for approval prior to beginning any work on the aircraft. The decision must take into careful consideration the nature of the emergency maintenance and the qualifications of the maintenance provider. Contact NHQ/LGM during normal duty hours or NHQ CAP National Operations Center on weekends or holidays, prior to making these repairs.

**14. Aircraft Major Maintenance.** Wing commanders or maintenance officers must receive approval for any major maintenance prior to authorizing the work. Forward a completed CAPF 176, Aircraft Major Maintenance Request, to NHQ/LGM for approval and assignment of a control number. Once authorized, NHQ LGM will fax, mail or e-mail the control number to the requester. Maintenance shall not be performed prior to issuance of the control number from NHQ/LGM. The control number will be valid for 90 days. After the 90-day period, the control number will be automatically cancelled unless an extension has been requested in writing. The requested maintenance actions shall be accomplished expeditiously and the original invoice mailed, faxed or e-mailed within 15 days to NHQ/LGM for payment.

14.1. NHQ/LGM will fund only the following major maintenance items/actions:

- 14.1.1 Engine changes, engine top-overhauls, and cylinder repair/replacement
- 14.1.2 Propellers and propeller governor overhauls
- 14.1.3 Accident damage repair
- 14.1.4 Avionics/instrument replacements and upgrades (i.e., installation of newer, more capable systems and exchange of unserviceable components)
- 14.1.5 Exterior paint
- 14.1.6 Interior refurbishment

**NOTE:** Photographs detailing the current condition of the aircraft shall accompany CAPF 176 requests for repaint and/or interior refurbishment.

14.2. Payment for Major Maintenance. Direct payment to maintenance facilities is preferred over after-the-fact reimbursement to the wing.

14.3. Items not reimbursed. The following items or maintenance actions will not be reimbursed from major maintenance funds:

14.3.1 Contract, minor or preventive maintenance

14.3.2 Major maintenance performed without prior authorization or approval from NHQ/LGM

14.3.3 Repairs to individual avionics components and instruments unless approved by NHQ/LGM

**15. Aircraft Modifications or Alterations.** All modifications or alterations to CAP aircraft (including temporary installation of fixtures, devices or equipment to the aircraft) must be approved by the CAP/LG prior to commencing work. CAP/LG is the approval authority for all aircraft modifications. To obtain approval, forward a thorough description of the mission need for the modification and the preferred fixture, device or equipment to be installed for the modification. CAP/LG will coordinate all actions with applicable NHQ directorates and external agencies prior to presenting a risk-managed recommendation for approval.

**16. Aircraft Damage.** When a mishap occurs resulting in damage to an aircraft, wings and regions must make every reasonable effort to protect and preserve the aircraft. Any loss due to failure to protect the aircraft will be the responsibility of the wing or region. Reasonable expenses incurred protecting the aircraft are considered part of repair or replacement costs.

16.1. **Reporting.** All aircraft mishaps must be reported in accordance with CAPR 62-2, *Mishap Reporting* and Review. Within 30 days of a mishap resulting in damage to an aircraft, submit photographs and CAPF 176, *Aircraft Major Maintenance Request*, along with repair estimates. Aircraft are considered totally destroyed if the total cost of repair plus salvage cost exceed the current Blue Book value for the aircraft prior to the crash. If it is impossible or impractical to obtain an estimate, NHQ/LGM may certify the aircraft as totally destroyed. Final disposition of salvage will be accomplished in accordance with CAPR 174-1, *Property Management and Accountability*.

16.2. **Insurance.** If the pilot-in-command of the aircraft involved in the accident is covered by non-owner hull insurance, that insurance shall be the primary coverage for the loss. NHQ/LGM will work with the wing, CAP/GC and the individual's insurance company to settle the claim. Amounts recovered in excess of repair costs will be remitted to the wing/region responsible for the aircraft.

**17. Storage and Tie-Down.** Region and wing commanders are responsible for ensuring that all possible preventive measures are taken to safeguard corporate aircraft from wind and weather damage. Aircraft should be kept in a hangar whenever possible. Aircraft parked in the open shall be tied down at the three approved tie-down points (wings and tail) and securely chocked to prevent wind damage. Where applicable, the control lock shall be installed. Aircraft in extended outside storage shall be tied at four points (nose, wings, and tail). Parking brakes shall not be used in excess of 1 hour, as this may result in damage to the aircraft braking system.

17.1. **Tie-Down Anchors.** There are many methods of anchoring tie-downs. Satisfactory tie-down anchors may be constructed as shown in Attachment 3. Variations may be necessary when local conditions dictate.

17.2. **Tie-Down Ropes and Straps.** Tie-down ropes and straps with tensile strength of 3,000 pounds or greater shall be used. Nylon or Dacron tie-down ropes are recommended. When specified tie-downs are not available, crew members shall use ropes/straps appropriate for anticipated environmental conditions. Refer to Attachment 3 for rope specifications.

**17.3. Tie-Down Chains.** Chains shall not be used directly from aircraft mooring points to an anchor point because of excessive impact loads on wing spars. When chain tie-downs are used, they shall be attached to wire rope anchors as depicted in Attachment 3. Wire rope anchors are constructed of two continuous lengths of parallel wire rope passed through the anchor points. Tie-down chains shall be attached to the wire rope with round pin galvanized anchor shackles. This allows the chains to float along the wire rope to reduce impact loads. Chain links used for tie-down must be at least 5/16-inch steel and a proof load of 2,720 pounds and breaking load of 5,440 pounds. All fittings must be equally strong and chains should be secured without slack.

**17.4. Spoilers.** In high wind conditions, the use of sandbags or spoiler boards, as described in FAA advisory circular 20-35C, is recommended.

**18. Transfers and Disposal of Aircraft.** Wing commanders, region commander, or NHQ may reassign or dispose of aircraft (reference CAPR 174-1, *Property Management and Accountability*). Prior to sale or disposal, CAP radios, DF units, and other CAP-specific components will be removed from the aircraft along with all wing-funded equipment, tie-downs, and survival equipment. CAP logos will be masked off and neatly painted over with black spray paint. Do not allow black paint to exceed the border of the decals.

**19. Automotive Fuel.** Use of automotive fuel is prohibited in corporate aircraft.

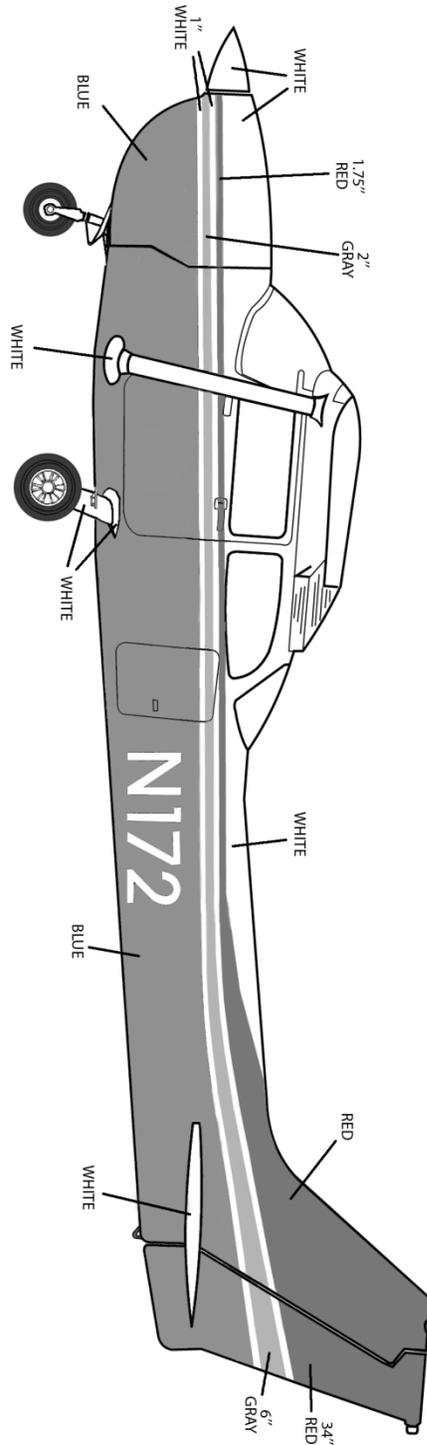
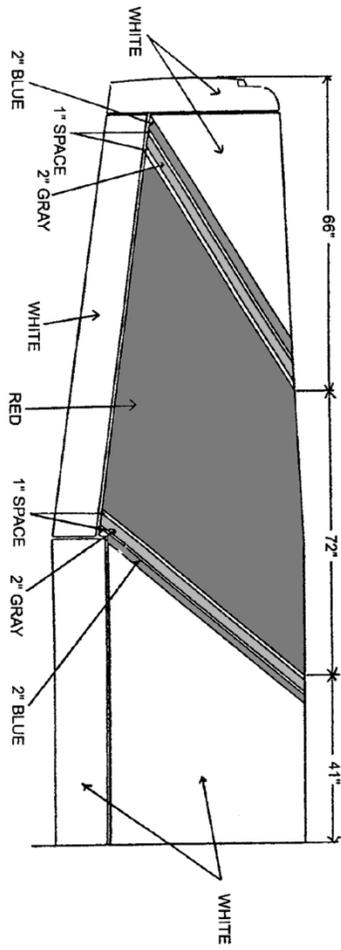
JOSEPH R. VAZQUEZ  
Major General, CAP  
Commander

**Attachment 1 Maintenance that May Be Performed by CAP Pilots and Uninsured Mechanics**

This list identifies maintenance tasks that may be performed on CAP aircraft by CAP pilots and uninsured A&P mechanics:

1. Replacing defective cotter pins only. A licensed FAA mechanic must perform any maintenance operation requiring replacement of safety wire.
2. Lubrication not requiring removal of items such as cover plates, cowling and fairings.
3. Replenishing hydraulic fluid in hydraulic reservoirs.
4. Repairing upholstery and decorative furnishings of the cabin or cockpit interior when such repair does not require disassembly of any operating system and does not interfere with an operating system or affect the primary structure of the aircraft.
5. Replacement of bulbs, reflectors and lenses of position or landing lights when removing the cowling is not required.
6. Servicing aircraft batteries when opening the cowling is not required.
7. Replacement/adjustment of nonstructural standard fasteners incidental to operations.
8. Tire inflation.
9. All preventive service must be recorded in the aircraft and/or engine log book showing the service/work performed, date it was performed and name and certificate number of the person performing the task whether it be a pilot or mechanic.

**Attachment 2 Approved CAP Aircraft Markings and Paint Scheme**



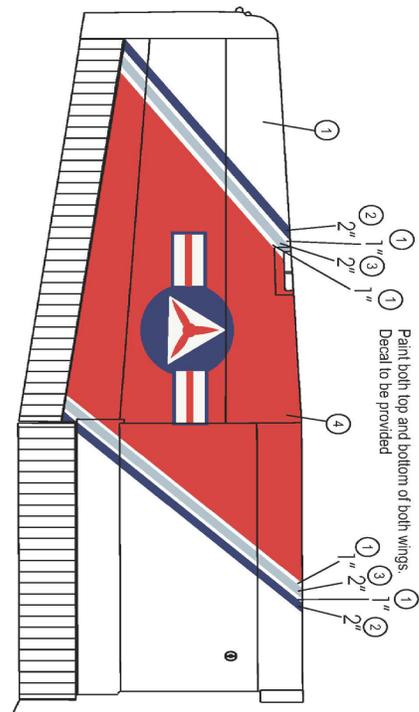
**Sherwin Williams**

- CM050535 Jet Glo Matterhorn White
- A07290 Acry Glo 24160 Blue
- A07025 Acry Glo Medium Gray
- A07313 Acry Glo CAP Red

**NOTES**

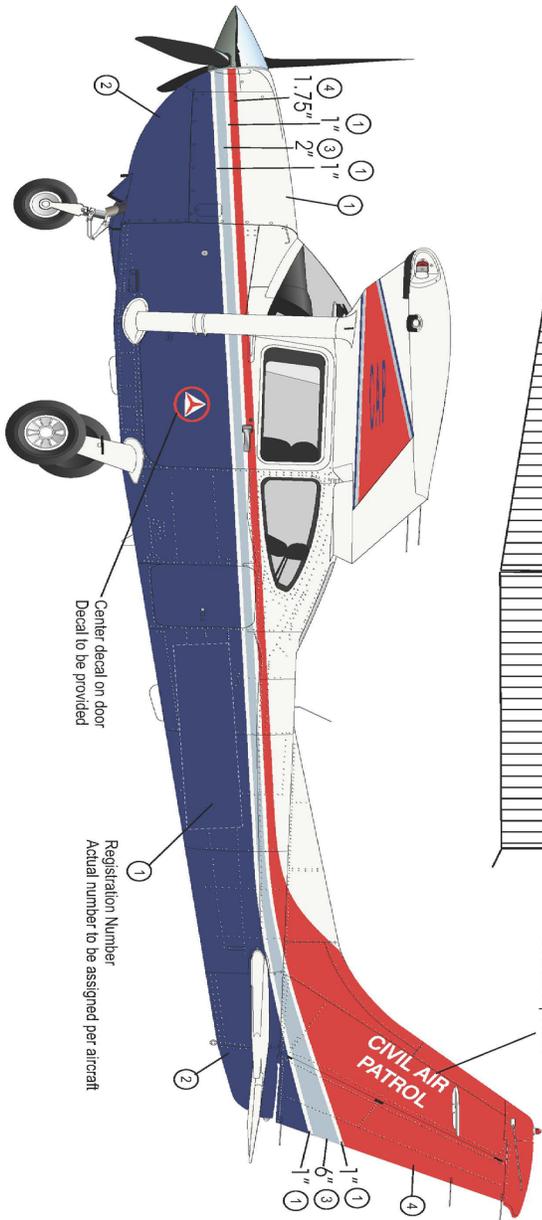
**LINE DRAWING: A**

**ALL DECALS PROVIDED BY CAP**



**CAP**

CIVIL AIR PATROL  
Decal to be provided



**REGISTRATION NUMBER**

**PAINT COLORS**

**SIZE/STYLE: 12" Vertical Block**  
**COLOR: White**

① Matterhorn White  
② Blue  
③ Gray

**CODE**

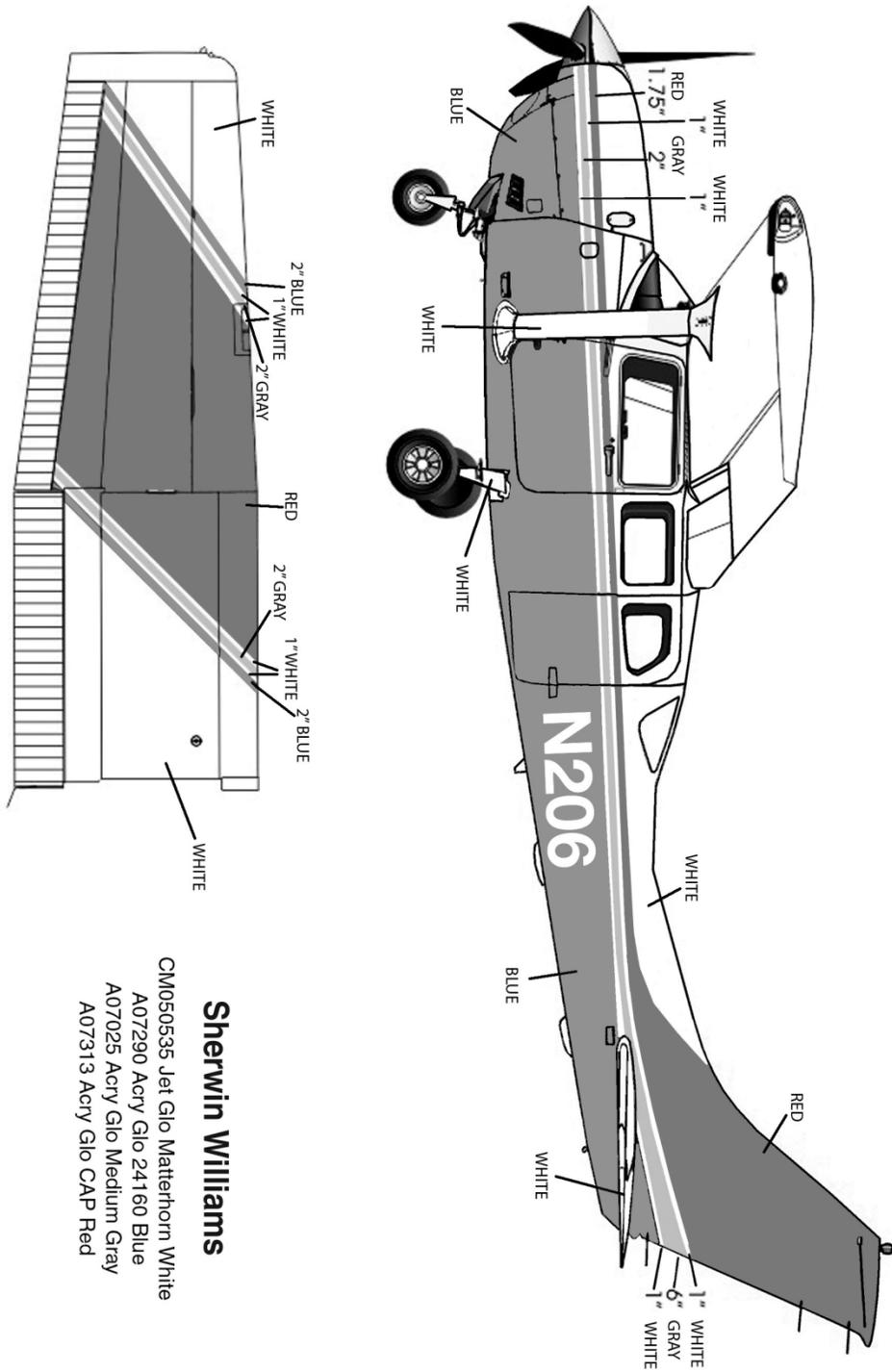
**SKYLANE**

**CAP**

**DATE: 2/16/2011**  
**DESIGNER: R K**

AF3102  
753046  
753048

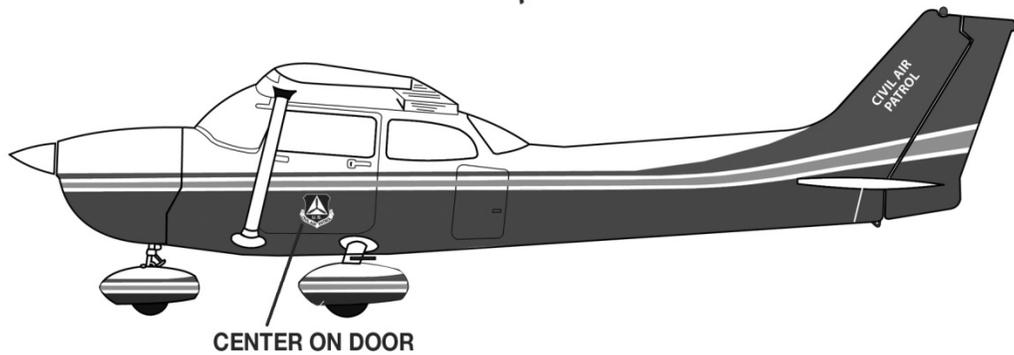
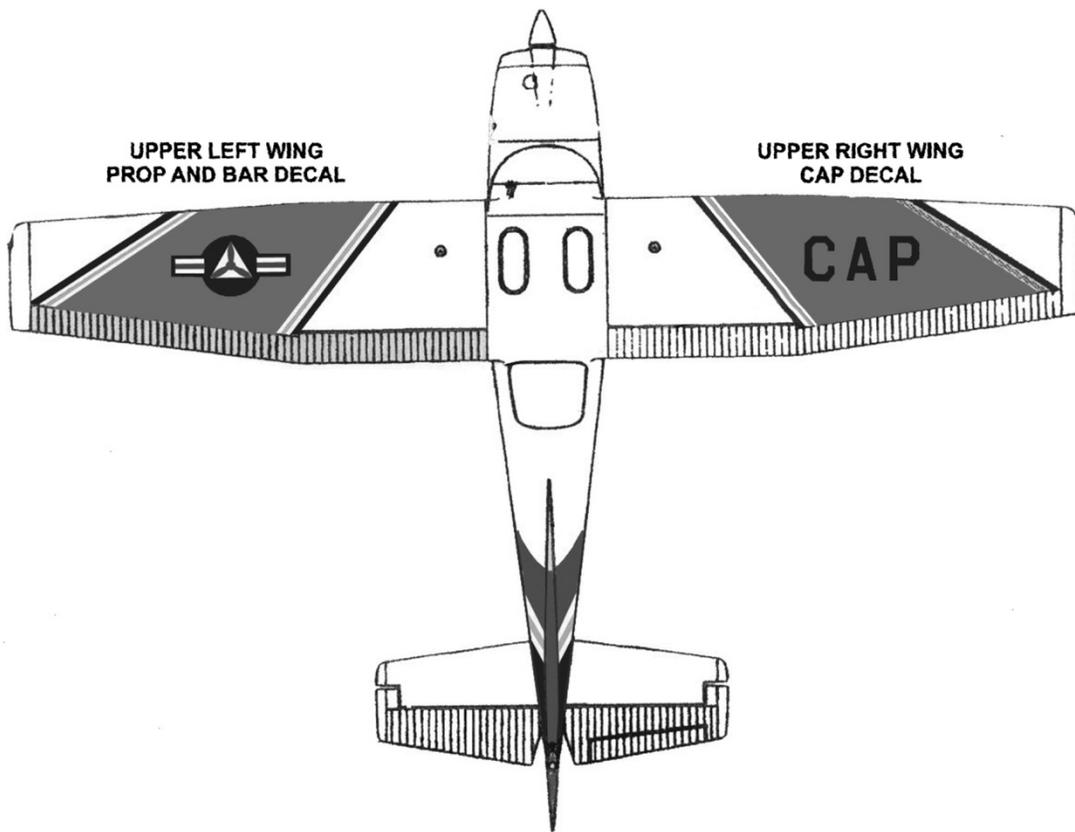
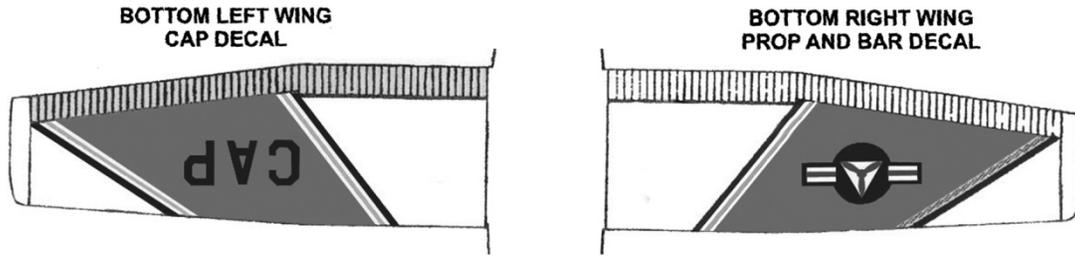
**LAYOUT**



**Sherwin Williams**

- CM050535 Jet Glo Matherhorn White
- A07290 Acry Glo 24160 Blue
- A07025 Acry Glo Medium Gray
- A07313 Acry Glo CAP Red

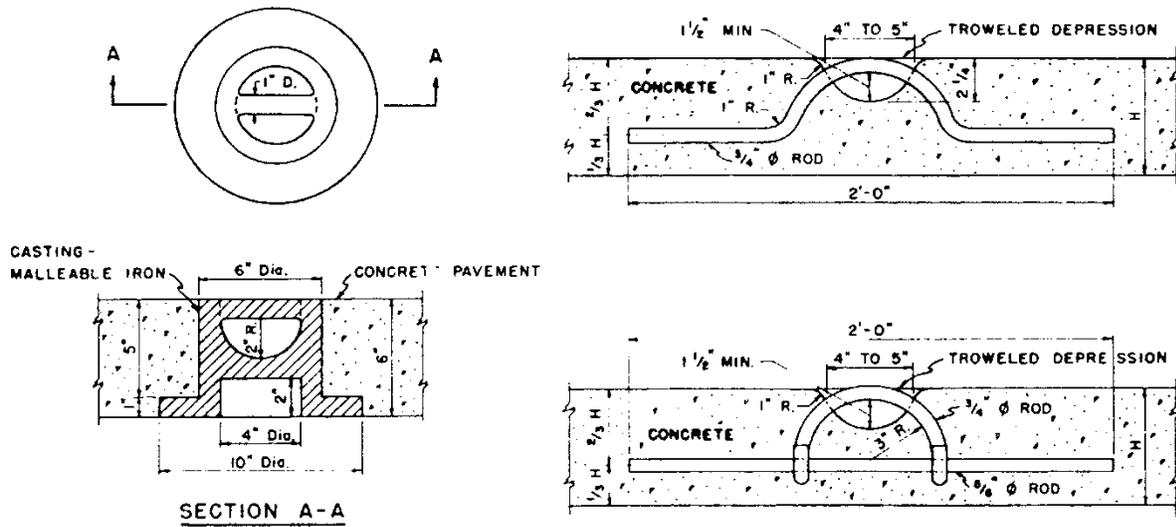
# Decal Placement



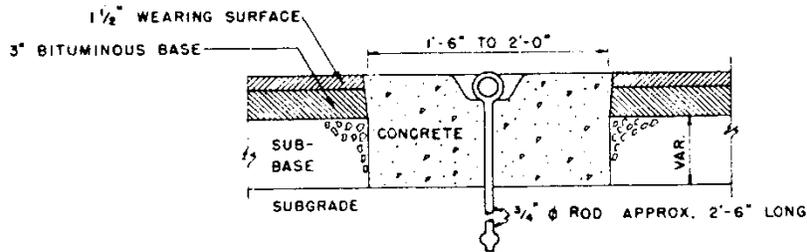


Attachment 3 Tie-Down Rope and Chain Illustration

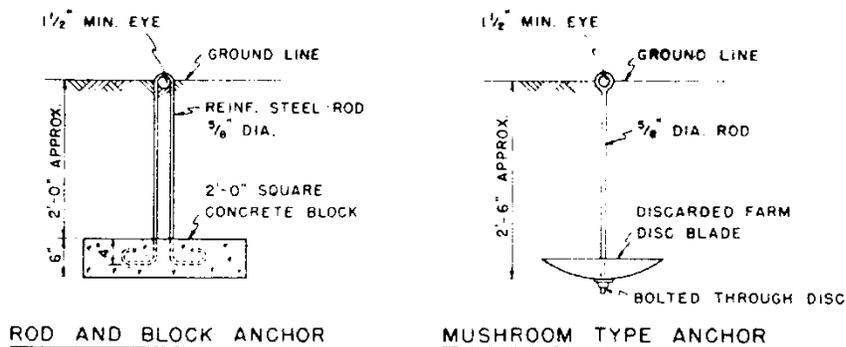
**AIRCRAFT TIE-DOWN ANCHORS FOR CONCRETE PAVED AREAS**



**AIRCRAFT TIE-DOWN ANCHOR FOR BITUMINOUS PAVED AREAS**



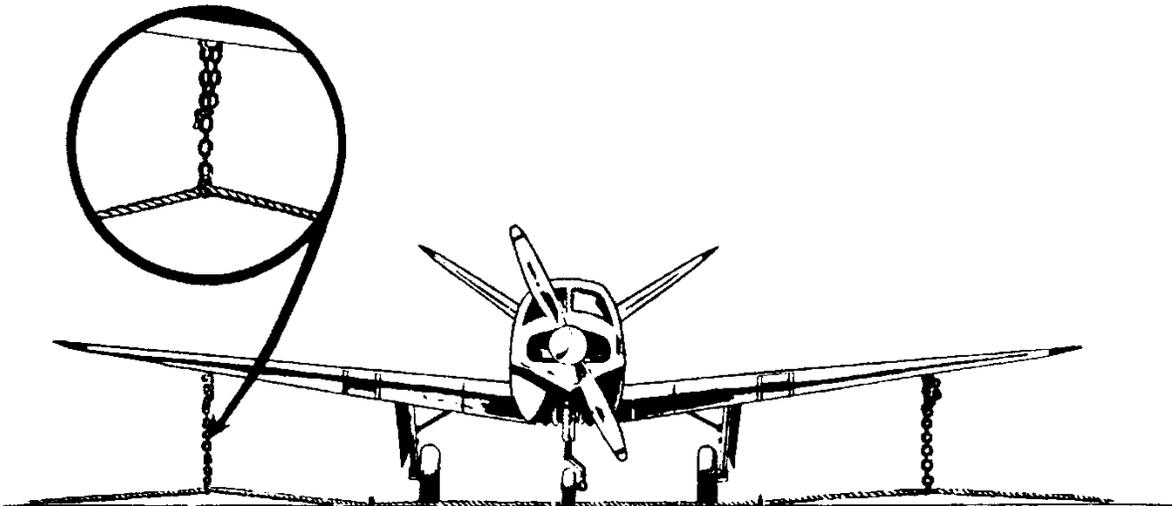
**AIRCRAFT TIE-DOWN ANCHORS FOR TURFED AREAS**



## Attachment 4 Comparison of Tie-Down Ropes

## COMPARISON OF TIE-DOWN ROPES

| Size<br>in<br>Inches | Manila                         | Nylon                          | Dacron                                    |   | Yellow Polypropylene                      |   |
|----------------------|--------------------------------|--------------------------------|---|---|---|---|
|                      | Minimum<br>Tensile<br>Strength | Minimum<br>Tensile<br>Strength | (Twist)<br>Minimum<br>Tensile<br>Strength | (Braid)<br>Minimum<br>Tensile<br>Strength | (Twist)<br>Minimum<br>Tensile<br>Strength | (Braid)<br>Minimum<br>Tensile<br>Strength |
| 3/16                 | -                              | 960                            | 850                                       | 730                                       | 800                                       | 600                                       |
| 1/4                  | 600                            | 1500                           | 1440                                      | 980                                       | 1300                                      | 1100                                      |
| 5/16                 | 1000                           | 2400                           | 2220                                      | 1650                                      | 1900                                      | 1375                                      |
| 3/8                  | 1350                           | 3400                           | 3120                                      | 2300                                      | 2750                                      | 2025                                      |
| 7/16                 | 1750                           | 4800                           | 4500                                      | 2900                                      | -   | -   |
| 1/2                  | 2650                           | 6200                           | 5500                                      | 3800                                      | 4200                                      | 3800                                      |
| 5/8                  | 4400                           | 10,000                         | -   | -   | -   | -   |
| 3/4                  | 5400                           | -                              | -   | -   | -   | -   |
| 1                    | 9000                           | -                              | -   | -   | -   | -   |



The diagram shows a vertical anchor using straight link coil chain for connection between the wire rope and aircraft wing. One link on the free end is then passed through a link of the taut portion and a safety snap is used to keep the link from passing back through. Any load on the chain is borne by the chain itself instead of the snap.