MONTANA DNRC

DNRC 1500 MANUAL

Forestry Division

Fire Protection Bureau

Air Operations

Updated July 2024

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ANNEX LIST - 1500 MANUAL

Reference: PMS.510 (NWCG Standards for Helicopter Operations)
Reference: PMS.513 (NWCG Standards for Aviation Transport of Hazardous Materials)
Reference: Public Law Advisory Circular 00-01.1B Public Aircraft Operations

1510 Aviation Management

Mission--Aviation Management includes all activities associated with providing aircraft support services for natural resource protection and management functions of the Department of Natural Resources and Conservation. Support services incorporate program leadership supervision, cooperation, aviation expertise, and training and safety program management for both fleet and contract aircraft operations.

Authority--Guidelines covering aircraft usage and operations within the Department are contained within the Department's Air Operations Manual. Reimbursement of employees when using own or rented aircraft is contained in DNRC Aircraft Use Management Guidelines (see Annex A).

Objective--Manage aviation functions and activities to achieve the following results:

A. Safe, cost-effective aviation services in support of the Departments mission, goals, and objectives.

B. Coordination of aviation activities and operations with those of otheragencies and cooperators to meet mutually agreed-upon standardized goals and objectives and to achieve program efficiencies.

C. Maintain, manage, and operate a fleet of purchased and Federal Excess Personal Property (FEPP) aircraft within the applicable rules and regulations of the Federal Aviation Regulations' (FARs) State and FEPP guidelines as set forth in this manual.

Policy

Department Flight Operations--Ensure that Department flight operations comply with the FARs applicable to public aircraft engaged in natural resource missions and with Public Law 106.181. Additionally, conduct flight operations in accordance with the following FARs applicable to civil aircraft for all passenger-carrying operations:

A. Public Law 106.181.

B. FAR 39 - Airworthiness Directives (14 CFR Part 39).

C. FAR 43 - Maintenance, Preventative Maintenance, Rebuilding and Alteration (14 CFR Part 43).

D. FAR 61 - Certification: Pilots and Flight Instructors (14 CFRPart 61).

E. FAR 65 - Certification: Airmen Other Than Flight CrewMembers (14 CFR Part 65).

F. FAR 91 - General Operating and Flight rules (14 CFR Part 91).

G. FAR 133 - Rotor Craft External Load Operations (14 CFR Part133).

H. FAR 135 - Air Taxi Operators and Commercial Operators (14CFR Part 135).

I. FAR 137 - Agricultural Aircraft Operations (14 CFR Part 137).

Federal Excess Personal Property (FEPP) Guidelines--States that acquire aircraft through this Federal Excess Personal Property (FEPP)program shall use the aircraft only for fire protection activities or other emergency use activity. The States requesting aircraft must be able to justify FEPP aircraft based on their own needs.

A. Personal use is not to be made of FEPP, including FEPP aircraft. Incidental use of any individual aircraft beyond 10 percent of the total flight time for that aircraft in any one year is prohibited. Document violations in accordance with Section 21 of FSH 3109.12 FEPP may be used during emergency situations in which there is a threat to life orproperty.

B. Renting of FEPP aircraft is not permitted. If incidental use of FEPP aircraft is authorized or assistance is rendered, it is permissible to recover the cost of operating the equipment. Use rates should not include depreciation, amortization, or replacement costs.

C. Government competition with private industry should be avoided. Because of the inherent advantages that government agencies have, including the use of FEPP, it is unfair for state or federal agencies to bid against the private sector or otherwise compete with them. The government should not use FEPP to provide services for others in non-emergency situations when there are commercial services available. (Reference Annex H - Public/Civil Aircraft Utilization Documentation Record for Montana DNRC Aircraft.)

D. Forest Service aircraft (excess property) on loan to state forestry agencies are subject to recall if not used in accordance with excess property regulations (1900 Manual--Federal Excess Personal PropertyDesk Guide, Chapter 40).

Use of Department Aircraft

Department aircraft are used in the normal course of official business. The Air Operations Program Manager/Chief Pilot will ensure that Department aircraft meet all the necessary standards and conditions for the safe transport of Department personnel. Department-owned aircraft will only be piloted with pilots approved through the Air Operations Program Manager.

Priority:

A Priorities for aircraft use are established and changed depending on the goal of the Department; training is a high priority.

B. State emergencies, i.e., fire, floods, or other life-threatening situations, will be given immediate attention with approval through proper Department channels.

C. Fire is a normal Department function.

Passenger Policy--DNRC flights are for official purposes only. Passengers that have official state business and/or essential to the mission are approved for DNRC flights. Passengers are not limited to state employees; they may be:

A. Contractors hired by the state.

B. Contract maintenance personnel.

C. Other state, city and county employees.

D. Volunteer firefighters on state or county fires.

Rental/Charter Aircraft--Aircraft may be rented or chartered with pilots from fixed base operators or cooperators when it is in the best interest of the Department to do so. This may be when there is an emergency, such as a fire or when state-owned aircraft are either not available or not suitable for the specific mission. Rental aircraft and pilots will meet the standards of Part 135 of the Federal Aviation Regulations and applicable Department standards. Rental or charter aircraft will be coordinated through the Aviation Program Managers or the local Interagency Zone Dispatch Centers. Department employees can only fly in chartered/rented aircraft that meet the minimum DNRC pilot and aircraft standards. Aircraft and pilots that are used for fire operations must meet the minimum standards in The State Cooperators Aviation Standards for Interagency Fire

Use of Personal or Rented Aircraft by Department Employee Pilots--Under specific guidelines, Department employees may pilot DNRC or rented aircraft for the conduct of Department business. (See Annex A - DNRC Management Guidelines.)

These guidelines are necessary to ensure the safe conduct of Department affairs. Employees must first receive approval from their respective Administrator prior to any flight and must meet the following requirements:

Employee pilots must meet the following qualifications and be approved by the Air Operations Program Manager/Chief Pilot:

A. Valid FAA Pilot Certificate (private or higher).

B. Appropriate FAA Medical Certificate.

C. Minimum of two hundred hours pilot in command.

D. Maintain currency in type of aircraft in accordance withFederal Aviation Regulations.

E. Flights should be advantageous to the state and be within the capability and experience limitations of the pilot.

F. Flights will not be authorized to carry other employees or Passenger's freight or cargo, or to perform detection, reconnaissance, or similar or specialized missions.

G. All flights will be conducted under FAA regulations, and flight plans will be filed for each flight with the appropriate flight service station.

H. Flights shall be made in daylight hours under visual flight rules.

I. Reimbursement will be in accordance with current DNRC travel guidelines based on nautical point-to-point mileage. (P-DNRC- OP-2) (See MCA 2-18-503(4))

Use of Department Helicopters

Ensure that State helicopter operations comply with applicable requirements in this manual and the applicable interagency guides available from the National Interagency Fire Center (NIFC).

A. Those portions of the NWCG Standards for Helicopter Operations (PMS 510) that are not exempted here in and written over in this manual. Use most recent PMS 510 as reference.

B. Interagency Aerial Ignition Guide.

C. Interagency Helicopter Rappelling Guide.

State helicopter operations are primarily used for initial attack fire suppression activities. It is our goal to provide effective aircraft support to a strong, ground-based initial attack fire suppression program. The State's MT205's are operated as public aircraft in accordance with Public Law 106.181, Sec 702; (Advisory Circular AC 00-1.1B) - PublicAircraft Operations) They will be certificated as DNRC Public Aircraft.

On State, city, county, private and federal lands under State direct fire protection, the State aircraft are allowed to provide fire support as requested by the Incident Commander (IC).

On State, city, county private and federal lands under federal direct fire protection, State aircraft are only allowed to provide fire support to meet an imminent threat if commercial aircraft are not available.

State initial attack aircraft on Federal fires shall be released from an initial attack as soon as practical. If continued aircraft action is needed on an incident, an order shall be placed for a replacement aircraft. When the replacement aircraft arrives at the incident, the State aircraft may be released.

1511 **Scheduling**--Scheduling is the function of the Air Operations Program Manager who schedules aircraft to accomplish departmental missions and or support department operational plans, for use by the Land Offices and other agencies when aircraft are not field positioned. Land Office personnel will schedule wildfire aircraft missions when field positioned at Land Office facilities. Aircraft maintenance and pilot scheduling will be done by the Air Operations Program Manager in coordination with the aviation program manager and Aviation Officers.

1512 **Coordination**--Coordination of aircraft is the function of the Fire Bureau. Any movement of aviation assets or needs for additional aviation support is done by the Bureau Chief or his designee. The Aviation Operations Program Manager and Aviation Program Managers will assist the Fire Bureau Chief in proper use and placement of aircraft and can be delegated the authority to move State aircraft for effective use.

1513 **Dispatch of Aircraft**--Dispatch of aircraft is the function of the dispatch centers at each Interagency Zone Dispatch Center fire missions. Aircraft assigned to the areas can be dispatched for any Fire Mission allowed under this manual. Pre-season and post-season non-fire dispatching will occur at the DNRC Aviation Support Facility (ASF), through the Chief pilot or designee.

1514 Aviation Working Team (AWT)--The Aviation Working Team is responsible for the oversight and constructive flow of information for planning of the Department aviation functions. The team is made up of representatives from the area land offices.

The Aviation Working Team will meet twice a year and when called by either Co-Chair any member or the Chief of the Fire protection Bureau. The AWT reports directly to the Fire Protection Bureau Chief and the Fire Advisory Council (FAC).

1515 Needs Assessment--To best assist the DNRC Fire Management Officers with their aviation needs, the Fire Protection Bureau will monitor what the most efficient level is. This will be determined by assessing and evaluating the Departments ability to keep 95% of all direct protection wildfires at 10 acres or less. This will also be accomplished by monitoring and evaluating fire occurrence, fire danger ratings and preparedness levels across the State. In addition, the Bureau will monitor the aviation costs of both DNRC aircraft and contract aviation resources used for firefighting.

1516 Federal Use of MT-DNRC Aircraft

(Reference – Northern Rockies Interagency Mobilization Guide)

MT-DNRC aircraft are defined as all aircraft owned and/or operated by the State of Montana and all aircraft procured under a MT State contract or agreement. This includes aircraft mobilized for wildfire through the Memorandum of Agreement between the Montana Department of Military Affairs, Montana Army National Guard and the Montana Department of Natural Resources and Conservation, Forestry Division, through the Northwest Wildland Fire Protection Agreement (Northwest Compact), CWN contracts, and through the Emergency Management Assistance Compact (EMAC).

MT-DNRC aircraft are not approved for use by federal agencies. Under emergency circumstances, where human life is immediately at risk by wildfire on federal lands under federal protection, a federal line officer can approve the use of non-federally approved aircraft to address the immediate threat. This exemption must only take place when sufficient federal firefighting aircraft are not readily available to meet the emergency need. The utilization of State of Montana public use aircraft on federal protection is regulated by public law 103-411.

The Cooperator Aircraft Use Validation Form must be completed for each response on federal lands.

DNRC may use aircraft that have not been identified as an "Approved Cooperator Aircraft" on federal lands when and where the State is the protecting agency in a reciprocal or off-set agreement or when State lands are threatened, and the State maintains operational control of the aircraft.

The following conditions apply for MT-DNRC aircraft:

- No federal employees are allowed to ride on the aircraft.

- No federal employee may be assigned to a position that exercises contractual control.
- They are approved to have federal personnel load retardant at federal airtanker bases, regardless of jurisdiction.
- Federal personnel may provide aerial supervision (ATGS, ASM, HLCO, Lead plane) under existing standard procedures and agreements.
- They remain under State operational control regardless of the agency affiliation of the firefighters directing the aircraft on an incident with State jurisdiction.
- They are approved to interact with federal dispatch personnel as long as the aircraft remains under the operational control of the State.
- As exemptions are exercised, they must be documented by the approving federal line officer in accordance with their agencies guidance to include submitting a SAFECOM within 24 hours.

1520 Personnel

1521 Responsibility

Director, Department of Natural Resources and Conservation--The Director is responsible for final approval of aviation plans prior to field operational use, and new aviation equipment and technology which affects aviation operations.

Administrator, Forestry Division (State Forester) --The Forestry Division Administrator reviews and recommends approval or denial of aviation plans and technological changes in the aviation operations and related personnel. He / She may delegate the action to the Chief, Fire Protection Bureau.

Chief, Fire Protection Bureau--The Bureau is responsible for Department-wide functions related to aircraft services and facilities. The Bureau is a unit of the Forestry Division within the Department of Natural Resources and Conservation. The principal aviation functions are delegated to the Aviation Program Managers.

1522 Aviation Personnel

Introduction-- This chapter will establish common duties and responsibilities, qualifications, certification, and training criteria for individuals functioning in aviation positions.

Aviation Program Manager- The Aviation Program Manager serves as the primary point of contact at the Fire Protection Bureau for Land Office Aviation Officers on field aviation operations, technical guidance, special projects, and other air operations related activities. They Coordinate with other agencies and local government to ensure that sufficient levels of aviation resources are available to meet the projected preparedness levels needed to address the fire potential throughout the fire year. This position provides leadership, guidance, and direction to aviation projects and fire suppression activities based on Federal Aviation Administration (FAA) regulations, National Wildland Coordinating Group (NWCG) standards, DNRC policy, and information found within the Fire Program manuals and guides.

Aviation Program Specialist- The Aviation Specialist will assist the Aviation Program Manager (APM) in directing, planning, and developing complex aviation operations, aviation contracting, program goals, policies, and methods to conduct statewide air operations safely, in adherence with state and federal laws and in concert with other DNRC divisions, local government, other state agencies, and federal resource management agencies. The position reports to Aviation Program Manager.

Air Operations

Air Operations Program Manager /Chief Pilot--The Air Operations Program Manager/Chief Pilot is responsible for the general administration, supervision, and

direction of all air operations for the Department. Training, maintenance, and planning are essential for Air Operations to provide this support in a safe and effective manner. The Air Operations Program has direct responsibility over all safety of flight items such as maintenance and budgets to maintain this state of readiness. This position provides the administration, budget/finance accountability, and management of the entire natural resource aviation operation program for the State of Montana. The supervision of this program requires a complete understanding of all aviation issues to create a safe and efficient aviation program. The size and complexity of this program requires an extensive understanding of the in-house maintenance program and aviation maintenance management practices for a wide variety of aircraft and flight missions. The incumbent must stay qualified in all aspects of natural resource aviation. The incumbent must be able to maintain effective working relationships with a wide variety of aviation experts, both within and external to the Department. The incumbent must be knowledgeable of all policies, regulations, guidelines, and laws, both state and federal, which govern air operations. The complexity of position is further enhanced by the control of an inventory program for sensitive and controlled items.

Pilot II/Safety Technician--The Pilot II/Safety Technicians coordinate and supervise Department flight operations and personnel; establish and administer aviation standards; and provides liaison to Land Offices concerning aviation issues. These positions provide supervision for the safety and training functions and everyday support to Department air operations. The size and complexity of air operations requires a detailed safety and training program, developed, and administered by the incumbents. They must remain qualified and current in all phases of aviation operations including flying both fixed and rotary wing aircraft, all regulations, all policies, and any guidelines that govern aircraft use or employment. This is a critical function of the Department aviation program, requiring expertise in the air and on the ground. The assignment is extremely complex, involving a diverse fleet of aircraft with many different missions.

Seasonal Pilot - Fixed Wing-- Conducts fire patrol flights, maintains aircraft records, and performs other department aviation needs when requested. The pilot is assigned to an aircraft on a rotational basis developed by the Air Operations Program. The chief pilot maintains direct supervisory authority over the pilot throughout the entire year to include field positioning for fire response. The pilot will be operationally assigned to perform the following duties:

A. Provides pilot service to the Department while remaining proficient in all aspects of fire aviation in compliance with FAA and Department policy, to fly fixed wing aircraft.

B. Remains current in all aspects of fire aviation to include aerial photo, fire patrol, insect and disease survey, and personnel transportation.

C. Responsible for briefing all personnel and implementing flight and operation plans.

D. Responsible for conforming to the DNRC Air Operations1500 Manual.

E. Flies' routine fire patrol missions, initial attack operations in mountainous terrain, and administrative flights when scheduled.

F. Responsible for maintaining flight/maintenance records in accordance with the DNRC Air Operations 1500 Manual.

G. Responsible for cleaning and washing of the aircraft. Ensures scheduled and other maintenance of the aircraft is brought to the attention of the Department's Aviation Maintenance Supervisor.

H. Responsible for the daily preflight inspection of the aircraft to ensure its airworthiness. Available during an established work schedule or when conditions allow on call by phone. Pilot must respond within a time frame established in accordance with the Land Office Mobilization Plan while assigned to a land office.

Seasonal Pilot - Rotary Wing--performs initial attack flight operations, maintains, aircraft flight/maintenance, and meets other Department aviation needs as requested. The pilot is assigned to an aircraft on a rotational basis developed by the Air Operations Program. The chief pilot maintains direct supervisory authority over the pilot throughout the entire year to include field positioning for fire response. The pilot will be assigned to perform the following aviation duties:

A. Provides pilot service to the Department while remaining proficient in all aspects of fire aviation in compliance with FAA and Department policy, to fly rotary wing aircraft.

B. Remains current in all aspects of fire aviation, to include aerial photo, sling loads, vertical reference long line, water bucket operations and mountain flying.

C. Responsible for briefing all personnel and implementing flight and operation plans. Will utilize personal protective equipment (PPE) in accordance with the DNRC Air Operations 1500 Manual.

D. Responsible for placing/retrieving fire fighters by helicopter.

E. Responsible for dropping water or retardant by helicopter.

F. Performs routine missions for fire patrol, provides initial attack operations in mountainous terrain, and administrative flights when scheduled.

G. Responsible for cargo operations including placing/retrieving internal loads or external loads via slingload including Vertical Reference/long line.

H. Responsible for delivering supplies to line crews.

I. Responsible for maintaining flight records in accordance with the DNRC Air Operations 1500 Manual.

J. Responsible for cleaning and washing of the helicopter.

K. Ensures scheduled and other maintenance of the aircraft is brought to the attention of the Department's Aviation Maintenance Supervisor.

L. Responsible for the daily preflight inspection of the aircraft to ensure its airworthiness.

M. Available by the Department, during an established work schedule or when conditions allow on call by phone. Pilot must respond within a timeframe established in accordance with the fire danger, while assigned to an aircraft, at a specified land office.

N. Pilots will be available for additional aviation-related duties providing all other tasks previously listed have been accomplished. Fire Program Managers or their designee's must carefully consider any additional tasks that may adversely affect the successful accomplishment of the possible missions. If in doubt, contact the Aviation Safety Officer or Chief Pilot.

Aircraft Maintenance Supervisor--The Aircraft Maintenance Supervisor is responsible for the airworthiness of Department and contract aircraft. The incumbent provides maintenance management expertise necessary to ensure aircraft availability, reliability, and control operating costs for the Department's aircraft. It is the Maintenance Supervisor's primary responsibility to provide technical and professional expertise to achieve these goals. The incumbent manages the daily and long-term aspects of the aviation maintenance program while providing the technical and hands-on support necessary to maintain a complex fleet of airplanes and helicopters for the Department. This incumbent is also responsible for maintaining an accurate inventory of sensitive and costly aircraft parts necessary for maintaining Department aircraft. The goal is 100% availability. The goal is met through strict adherence and compliance with Federal Aviation Administration regulation, Department of Agriculture -USFS regulations and guidelines, military and manufacturer guidelines, and service bullet applicability to the Department aircraft.

Aircraft Mechanic -- The Aircraft Mechanic is responsible for the airworthiness of the Department and contract aircraft. The incumbent performs inspection and maintenance tasks necessaryto ensure the Department's aircraft are operated in a safe and airworthy condition. The incumbent performs routine inspections, maintenance, repairs, and alterations in accordance with Federal Aviation Administration (FAA) regulations, the aircraft manufacturer's instructions and Departmental requirements. The Aircraft Mechanic's knowledge and experience level will be utilized when addressing safety of flightissues such as incident/accidents, Airworthiness Directives, and manufacturer

bulletins.

Helicopter Manager -- The Helicopter Manager will be qualified in accordance with NWCG 310-1. Additional guidance for training can be found in the DNRC Helitack Training Guide or the NWCG Standards for Helicopter Operations (PMS 510).

Helicopter Manager hiring, training, supervision, and certification is the responsibility of the Land Office to which the aircraft is assigned.

Flight Qualifications

Only fully qualified pilots will be assigned the responsibility of performing natural resource flight operations. Department pilots in air operations will:

A. Possess a current, valid Federal Aviation Administration commercial certificate with appropriate rating for aircraft and mission.

B. All pilots require a current second-class medical certificate issued by the FAA. Pilots may charge the cost of the medical examination and the travel expenses necessary to obtain such an examination to the Department.

Minimal Experience Level for Initial Employment--The following minimum experience for initial employment or appointment as a natural resource pilot is suggested:

Air Operations Program Manager/Chief Pilot
Must meet the following minimum flight experience:

Total Flying Time	2,000 hours
Pilot in Command	1,500 hours
Rotary Wing Turbine	1,500 hours
Night Flying	100 hours
Instrument Flying under IFR	100 hours
In Category and Class offered	250 hours
Extended Cross-country	200 hours
Typical Terrain-Mountainous	200 hours
Last Twelve Months	100 hours
Last Sixty days	10 hours

Designated Department Check Airmen

Safety/Training Officer/Pilots
Must meet the following flight experience:

Total Flying Time	2,000 hours
Pilot in Command	1,500 hours
Rotary Wing Turbine	1,500 hours
Night Flying	100 hours
Instrument Flying under IFR	100 hours
In Category and Class offered	250 hours
Extended Cross-country	200 hours
Typical Terrain-Mountainous	200 hours
Last Twelve Months	100 hours
Last Sixty days	10 hours

Designated Department Check Airmen

Seasonal Pilot-Rotary Wing
Must meet the following flight experience:

Total Flying Time	1,500 hours
Pilot in Command	1,500 hours
Rotary Wing Turbine	1,500 hours
Night flying	100 hours
In Category and Class offered	100 hours
Extended Cross-country	200 hours
Typical Terrain-Mountainous	200 hours
Last twelve months	100 hours
Last Sixty days	10 hours

Seasonal Pilot-Fixed Wing
Must meet the following flight experience:

Total Flying Time	1,500 hours
Pilot in Command	1500 hours
Single Engine	500 hours
Night flying	100 hours
In Category and Class-last 30 days	5 hours
Extended Cross-country	200hours
Typical Terrain-Mountainous	200 hours
Last twelve months	100hours
Last Sixty days	10 hours

Military Pilots must meet all flight hour requirements listed above for Pilot-in-Command Time.

Flight hour requirements can be waived on an individual basis by the Air Operations Program Manager / Chief Pilot.

Proficiency Requirements for Department Pilots--Performance of flying duties, which involves piloting single-engine airplanes and helicopters during day, under specialized or hazardous conditions, requires well-developed special skills and related judgment, which must be maintained by frequent practice. Department pilots should maintain flight proficiency based on the following minimum requirements, which may be met by actual working missions or practice flight.

Helicopter Flying * - one hour each 30 days, or ten hours within sixty days of working missions.

Aircraft Type * - five takeoffs and landings during each 60-day period in each category class and type of aircraft.

Note: (*) Items which may be waivered or changed at the discretion of the Aviation Operation Program Manager.

Pilot Conduct

Serious violations of Federal Aviation Administration regulations or Department directives will be reported immediately to the Air Operations Program Manager /Chief Pilot, and Safety Pilot. The report will include the individuals name, type of work being performed, and nature of violation.

For serious infractions or safety violations, pilots will appear before a flight evaluation board consisting of selected members of the Aviation Working Team called by the Chief Pilot or Aviation SafetyOfficer. The board will make recommendations to the Fire Protection Bureau Chief and/or the fire advisory council.

A pilot who has allegedly committed a serious violation will be temporarily relieved from agency air operations work, pending investigation and disposition of the case. Pilots may require ground and or flight training by a department check airman and will not resume flying duties prior to being approved and released to perform such duty.

Department pilots must maintain a high degree of flying proficiency and set a high standard of conduct which will reflect confidence in the operation of Department aircraft and bring credit to the Department.

Pilots shall not undertake any flight while suffering the aftereffects of alcohol overindulgence or medicines/drugs that may cause impairment.

Pilots, while on duty, shall use discretion in appearing in places which might reflect discredit to the Department.

It is the pilot's individual responsibility to ascertain that he/she gets the needed amount of rest required for the use of all his/her full capabilities.

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Pilot-in-Command Responsibilities

The pilot is in command of the aircraft, and his decision will take precedence in all affairs having to do with the aircraft and mission as per Federal Aviation Regulations. The Pilot-in-Command is responsible for:

A. Safety of aircraft occupants and cargo.

B. Postponing, changing, or canceling flights when existing or impending conditions make those operations unsafe.

C. Complying with orders of authorized agency officials when those orders will not violate Federal Aviation Regulations, agency directives, or endanger the aircraft, occupants, or cargo.

D. Must be familiar with operating area and special hazards.

E. Provide for the comfort and safety of passengers.

F. Review the plan of operation with air and ground personnel.

G. Thoroughly brief all passengers regarding route of flight and mission details.

H. Ensure proper loading of aircraft.

I. Perform other duties as described in the job description.

1523 Pilot Duty Time

Pilot Flight and Duty Time Limitations--Flight time is not entirely reliable as a gauge of accumulative pilot fatigue and will vary with individuals. Sound judgment is essential in administering air operations to provide maximum safety.

Helicopter and airplane pilots, except those flying military transport aircraft, scheduled aircraft, or aircraft operated under irregular air carrier certification, should be limited to the following flight hours.

A. Flight time will not exceed a total of eight hours per day.

B. Pilots accumulating 36 or more hours of flying in six consecutive days will be off duty the following full calendar day--42 hours maximum in any six-day period.

C. Pilots must have a minimum of ten consecutive hours off duty within 24 hours after the beginning of any duty.

D. Duty includes flight time, ground duty of any kind, and standby or alert status at

any location.

E. During any fourteen consecutive days, pilots will be off duty for two full calendar days. Days off duty need not be consecutive.

F. A duty day is any day a flight is made of 4 hours or more and of other duty performed, except for off-duty time.

Pilots flying airport-to-airport personnel or cargo transport missions will comply with FAR Part 121. Certificated contractors will comply with FAF Part 121 flight time limits.

The Chief Pilot may waive the "consecutive" part of Item C, so that pilot such missions as a real application may have two shorter off duty periods, provided they aggregate 10 hours or more.

1524 Security and Location of Aircraft--The Helena Regional Airport is the home base for DNRC air operations. There is a 30,000 square foot winter maintenance/storage facility for the general maintenance and security of the DNRC aircraft and related FEPP parts. During the harsh winter months, the helicopters are stored and maintained in this facility. The Cessna 182 can be stored in a hangar in Missoula, and the C-185 can be stored in a hangar in Kalispell during the winter months.

During the, 1 June – 30 Sept, aircraft are assigned to land offices for fire support. Below are the typical aircraft assignments. This is subject to change based on aircraft availability, maintenance, and the needs of the Land Office throughout the fire year.

Helena Central Land Office	Cessna 368M
Harsh weather storage/security base - ASF Hanger	MT205 388M
Missoula Southwestern Land Office	Cessna 6312B
Harsh weather storage/security base - At SWLO	MT205 387M
Kalispell Northwestern Land Office	Cessna 391M
Harsh weather storage/security base - Kalispell City	MT205 394M
Billings Southern Land Office	MT205 395M
Harsh weather storage/security base - Billings	
Helena ASF Statewide Fire Suppression	MT205 381M
Helena ASF	Jet Ranger 84M
Helena ASF	Jet Ranger 92M

Any aircraft left unattended, outdoors, shall be secured and locked with proper wind gust and tie-down equipment installed. Engine intake covers shall be installed at the end of the duty day, in a field, overnight environment. The DNRC Chief Pilot/Safety Pilot will determine if the aircraft must be relocated to a more secure area due to the threat level and general security of the aircraft. If security personnel are unavailable, aircraft will be moved to a secure location.

1530 Safety & Training

Objective--The primary objective of the Department's Aviation Safety Program is to provide a system for the identification and reduction of hazards associated with aviation operations.

Aviation Safety Philosophy Strategy--Aviation safety and aircraft accident prevention in the Montana Department of Natural Resources and Conservation is based on the philosophy that all aircraft accidents can be prevented, and that accident prevention is an inherent function of management. Application of approved practices is a fundamental responsibility of managers and supervisors. Aviation Safety Philosophy is an area in which supervisory performance and accountability must be emphasized. The responsibility for aircraft accident prevention lies with every individual involved in an aviation operation. Pilot, flight crew, passengers, maintenance, and ground crew play a role and must apply sound professional judgment. All personnel must perform according to established requirements and operating procedures. The pilot is always in command of the aircraft. The pilot's word will be final as to whether a mission can be conducted. All personnel working in and around helicopters will use the following safety procedures:

Accident Prevention Plan - The Department has developed a training program that trains personnel to specific standards for accomplishing routine and specific mission tasks. In addition, the Department will identify and train for emergencies that might occur while performing mission-related tasks. The Aviation Safety/Training Officer will assist aircraft users to ensure all personnel associated with aircraft operations have received the training necessary for their safety when performing duties related to air operations. The Aviation Safety/Training Officer will maintain files on all accidents and incidents, to detect trends in specific areas of operation.

Safety Hazard Reduction - The success of the Aviation Safety Program requires that hazards be identified and reported prior to that hazard causing an accident. The procedure to be followed once a hazard has been identified is to report it to the Aviation Safety/Training Officer immediately. The Aviation Safety/Training Officer will ensure that the required procedures are provided through training and/or information sharing so that the hazard will not recur. This process will prevent an accident or incident because someone was not informed. If applicable, the identified hazard will be vetted thru the SMS program.

Education and Awareness - The Aviation Safety/Training Officer shall maintain close contact with other aviation organizations (federal, state, and civil) for the purpose of aviation safety information sharing. The Safety Officer will collect and maintain correspondence, safety publications, employee suggestions and input relating to aviation safety. That information will be distributed throughout the organization. The Aviation Safety/Training Officer will at minimum disseminate the above information with the employees directly under the supervision of the Air Operations Program.

Aviation Safety Communique (SAFECOM) – The MT DNRC Air Operations Program has a long history of utilizing and participating in the Interagency SAFECOM system. SAFECOM reporting is a critical component of our safety program. Early identification, correction and reporting of hazards can save time, money, and most importantly, lives.

Categories of reports include incidents, hazards, maintenance, and airspace. The system enables users to report any condition, observation, act, maintenance problem, or circumstance with personnel or the aircraft that has the potential to cause an aviation-related mishap.

Anyone can generate a SAFECOM on the AMD-34/FS-5700-14 website. All SAFECOMs will be reviewed by the Safety pilot and/or Chief Pilot for technical accuracy prior to being published. The Aviation Safety/Training Officer and Fire Bureau Safety Specialist have the final authority to publish the SAFECOM.

The SAFECOM system is **NOT** intended for initiating punitive actions. Submitting a SAFECOM is **NOT** a substitute for "on-the-spot" correction(s) to a safety concern. It is a tool used to identify, document, track, and correct safety related issues.

A SAFECOM **does not** replace the requirement for initiating an accident or incident report when appropriate.

Safety Management System (SMS) - The Air Operations Safety Management System (SMS) is a system designed to manage and control the risks involved with the Air Operations program. See ANNEX L for the complete Air Operation SMS Guide.

NOTE:

The SMS process is not intended to apply to tasks not related to aviation operations

The Air Operations has a long and enviable safety record with a strong “Safety Culture”. The safety program consists of multiple written safety programs and is driven by dedicated safety minded professionals. The SMS enhances the Air Operation Safety Program Strategy by formalizing and further promoting safety as an integral part of the operation.

The core process within the SMS is **Safety Risk Management (SRM).** The SRM component provides a deliberate decision-making process for identifying hazards and mitigating risk. The SRM component is the organization’s way of fulfilling its commitment to consider risk in their operations and to reduce it to an acceptable level.

Safety Risk Management decision-making process must be applied to the following:

- Implementation of new systems.
- Revision of existing systems.
- Development of operational procedures.
- Identification of hazards.
- Identification of ineffective risk controls through the safety assurance processes.
- Need to deviate from normal procedures.
- Any other situation where Goals and Risks are not clearly defined.

Real-Time Risk Management - This level of Risk Management is always associated with Risk Management decisions made in Real-Time during the execution or tactical phase of training and operations where there is normally little or no time to conduct Deliberate Risk Management. Real-time usually entails a cognitive risk assessment that is done on-the-fly using basic Risk Management process steps to identify and mitigate hazards in a new or changing situation. As time is normally constrained or limited in these situations, Deliberate Risk Management is impractical.

Note that "time limited" or "time constrained" does not mean "hasty" or "uninformed."

To aid in Real-Time Risk Management all pilots will receive initial and recurrent training in following areas:

- Air Crew Coordination/Crew Resource Management (ACC/CRM)
- Single Pilot Resource Management (SRM)
- Aeronautical Decision Making (ADM)
- Risk Assessment and Mitigation Concepts – per FAA-H-8083-25B (Pilots Handbook of Aeronautical Knowledge) and PMS 530 (NWCG Standards for Aviation Risk Management)

1531 Personnel Safety

Personnel must be instructed in and follow these safety requirements:

A. Always keep clear of helicopter rotors. Unless work requires being nearer, all personnel out of the safety circle (75 ft. for Type three helicopters, 90ft. for type two, and 110 feet for Type one helicopters). When approaching nearer than these distances, approach from front or the side near front. Do not approach a hovering helicopter from any side.

B. Before taking off, fasten and adjust shoulder harness and safety belt. Keep safety belt fastened until instructed by pilot after landing to leave the aircraft.

C. Helicopter passengers will not approach or leave the helicopter until authorized by the pilot. The passenger should leave or approach the helicopter in a direction that will permit the pilot to see him until clear of the rotors.

D. No person will be carried in a helicopter carrying sling loads, or when operating with any load as a helitanker, sprayer, or duster, except under the following conditions:

Crew members may be allowed on board the helicopter while the Department check airmen are conducting formal training or as approved by the Chief Pilot and or Safety Pilot.

E. Personnel should never be directly under the bucket. Water, retardant, or buckets must not be dropped on people. Personnel should never place themselves directly under the bucket.

F. No extra lines or ropes of any kind should be used to help guide the bucket. This is extremely dangerous and could cause lines to get into the rotors.

G. Unless equipped with eye-protecting goggles or glasses, or at least 100feet from the helicopter, do not watch landing, takeoffs, or hovering operations.

H. Avoid loose headgear; it can easily damage rotors or become a serious safety hazard when persons instinctively try to recover it when it blows away.

I. Watch out for long-handled tools, pipe, poles, or like items; windows and rotors are easily damaged.

J. Flights near the ground along hot fire lines should be made just outside the fire, since rotor blast will then be from outside toward the fire.

K. Helicopters flying over a hot fire line must be at sufficient altitude to prevent the rotor system from fanning the fire itself

Ground Safety

Procedures

A. All personnel engaged in helicopter operations should wear ear protection.

B. Approach or leave helicopter only when authorized by pilot or responsible personnel.

C. Approach the helicopter only from the front or side, and always in such a manner that allows the pilot to see you at all times.

D. Always depart and approach the helicopter at a slight crouch.

E. When on uneven ground, approach the helicopter from the downhill side.

F. When approaching the helicopter with long-handled tools, hold tool handles parallel with the ground and keep them clear of the main rotor path.

G. Loose headgear should be carried in hand, to prevent its being blown off by rotor down wash. Chinstraps will be used on hardhats.

Flight Safety

Procedures

A. Always ensure seat belt is properly fastened.

B. Do not smoke.

C. Keep clear of controls.

D. Hold maps and papers securely while in flight.

E. Wear chin strap when in flight. If chin strap is not available, hold hard hat securely under arm or in hand.

F. Keep oriented at all times.

G. Keep alert for hazards, particularly power and telephone lines. Inform pilot of their presence and, when requested, assist pilot in watching tail rotor clearance during landings at field landing areas.

H. Do not throw objects out of helicopter while in flight.

I. Do not move about the cabin area while in flight.

J. Maintain radio communications at all times.

K. Pilot will approve all missions. Pilot's word is final as to whether the flight can be made.

1532 Crash Landing

A. Keep seat belt (and shoulder harness if available) as tight as possible.

B. Passengers in forward-facing or sideward facing seats should lean forward, chest against knees, with arms clasped under legs.

C. Passengers in rearward-facing seats should sit up straight with back and head braced against the seat back.

D. Know where emergency equipment (first-aid kit, portable extinguishers, ELT, etc.) are located.

E. Know where the exits are and how to open them.

F. Move out in a rapid, orderly manner. Provide assistance to those injured.

1533 Emergency Procedures--In the event of an emergency landing due to engine or mechanical failure, the following steps should be taken by everyone on board to help make the landing as safe as possible and to minimize personal injury:

Front Seat and Rear-Facing Back Seat Occupants

A. If possible, the helicopter manager should send a "may-day" on forest net giving helicopter number and location. Pilot should send "may-day" on air net.

B. Make sure seat belts and shoulder harness are secure.

C. Sit so your back rests against the back of the seat; do not slouch.

D. Remove glasses, if worn.

Rear Seat, Forward and Side-Facing Occupants

A. Keep Make sure seat belts and shoulder harness are secure.

B. Intercom traffic from the back seat to the front seat to a minimum.

C. Remove glasses, if worn.

All Personnel--After crash

A. If aircraft has landed in an unstable condition, do not leave aircraft until rotors have stopped.

B. If possible, before exiting aircraft:

   a. Manager should grab first aid kit.

   b. Designated crewmember should grab fire extinguisher.

   c. Designated crewmember should grab radio bag.

   d. Designated crewmember should grab the ELT.

C. Get clear of aircraft immediately.

D. Take head count and make sure everyone is out of the aircraft.

E. Rescue anyone who cannot leave aircraft alone. Administer first aid.

F. If you are on fire, roll on the ground to put fire out.

G. If radio is available, notify anyone that can be reached. Provide information on extent of damage, injuries, and location.

H. Remove any flight gear that may be soaked with fuel.

I. Make sure that emergency locator transmitter has been activated.

J. Non-Fire mission PPE deviation will require prior approval from Aviation Manager or Safety Pilot.

1534 Protective Clothing and Equipment

Introduction--The proper use and maintenance of equipment utilized in helicopter operations by ground and aircrew personnel is essential to safety. Since most of the equipment is expensive, proper maintenance is crucial.

Personal Protective Equipment (PPE)--Personal protective equipment consists of clothing and equipment that provide protection to an individual in a hazardous environment. If any flight crew member refuses to wear the required PPE, the helicopter manager should terminate the flight and report the incident to the Aviation Safety/Training Officer (Refer to Table on page 29).

Fire and Low-Level Flights - While on a fire status or while participating in low-level flights (continuous flight below 500 feet above the ground level), excluding takeoff and landing, all personnel shall wear personal protective equipment specified in this section, at all times, except as noted. This includes helicopter pilots, helitack crews, and members of fire crews and volunteer firefighters transported by helicopter.

Helmets

The U.S. Army SPH-4 or equivalent flight helmet shall be considered standard for the Department during fire and low-level flight operations.

Helmets/hardhats with chinstraps will be made available to each passenger or crewmember.

Helmets shall be clean and free of defects. Clean with mild soap and water only.

Clothing

Shirt and trousers or flight suits shall be made of polyamide material currently marketed as "NOMEX" or other approved fire-resistant clothing. The shirtsleeves and trouser legs shall have sufficient length to allow overlap of the glove cuffs and boot tops. Shirt cuffs shall be worn down and fastened. When wearing two-piece suits, the shirt shall be tucked into the trousers. Flight suits shall be kept clean.

Gloves shall be made of leather or approved fire-resistant material and shall be free of holes, tears, oils, and grease.

Leather boots must be of sufficient height to cover the ankles and allow the legs of the flight suit or trousers to be fastened over them.

Other Personnel--Personnel not subject to low-level flights are encouraged, but not required, to wear the personal protective equipment listed on the Personal Protective Equipment List (see chart on page 29) while flying in helicopters above 500 feet AGL and landing at approved helispots.

Other Flights--On those flights for other than fire-related activities it is recommended, although not mandatory, that all personnel should wear the protective equipment specified in this section. All personnel participating in low-level flights (below 500 feet) while riding in the front seat of a helicopter shall wear the SPH4/5 flight helmet.

Flight over Water--All Department pilots will wear the personal flotation device provided to them by the Department any time that aircraft is beyond gliding distance from shore. (During all bucket operations reference PMS 510)

All Flights--Please refer to the chart concerning requirements for personal protective equipment.

Cold Weather Operations--Coats, bib pants, overalls, etc., made of “NOMEX” and worn

over the flight suit are recommended, but are not required, during cold weather flight activities. Outerwear garments made of natural fibers (cotton, wool, or wool/cotton blends) are acceptable substitutes. Undergarments which are not made of natural fibers are unacceptable. Footwear such as rubber boots are acceptable during cold weather operations.

Survival Equipment--Survival kits are available for all natural resource missions. Survival kits will be maintained by the Aviation Safety/Training Officer and will be available for all cold weather operations.

First Aid Kits - Aircraft--Each aircraft will have first aid kits installed that are sufficient for the number of personnel on board, and they will be readily accessible to the flight crew and passengers.

Personnel Protective Equipment Requirements	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Flight Mission																		
Point-to Point (One developed airport/heliport to another developed airport/heliport, parking lot, sports field or as approved by Chief Pilot or Safety Pilot)				X														X
High-Level Reconnaissance (Land)	X			X	X	X			X									X
Low-Level Reconnaissance (Land)	X			X		X			X									
Over Water Beyond Gliding Distance from Shore												X						
Over Water - Extended													X					
Firefighter Transport to and From Fireline		X			X		X							X				
Helicopter Crew (Fire or Project) [1]	X			X		X			X									
Operations Where Individual Not Restrained by Seat Belt (Cargo Letdown, Cargo Free Fall, Video, FLIR)	X			X		X												
Snow	X			X		X			X									
Rappel, Short Haul and Cargo Let Down	Requirements are contained in the Applicable Guide																	

KEY

1 - Nomex Flight Suit
2 - Nomex Shirt/Pants
3 - Non-Static Clothing
4 - Aviator Flight Helmet
5 – Hardhat
6 - Nomex Gloves
7–Leather Gloves
8–Rubber Gloves
9–Leather Boots
10–Rubber/Synthetic Boots
11–High-Visibility Vest
12–Personal Floatation Device
13–Raft & Kit
14–Eye Protection
15–Hearing Protection
16–Respirator/Dust Mask
17–Approved Restraint Harness
18–Head Set Optional Non-Fire Mission
19- PPE Optional for Passengers Non-Fire Mission

[1] Due to the extra protection afforded, Nomex flight suits and Nomex gloves should be worn whenever possible by exclusive-use helicopter crew (fire or project). There are situations however, where the individual's flight suit and/or gloves may not always be available, in which case Nomex shirt and pants and leather gloves may be substituted.

1535 Aircraft Crash, Search and Rescue--In order to be ready to render assistance in the event of an emergency, each area office, unit office, base heliport and heliport must have the plan issued by Air Operations. The plan should be posed in a prominent place, and each person on duty should be fully apprised of his or her responsibilities. For fire operations it is always the responsibility of the fire dispatch center to initiate the items in the current DNRC Crash Search and Rescue Guide (See Annex C - DNRC Aircraft Crash, Search and Rescue Guide Example). A new Crash Search and Rescue Guide is updated every year prior to fire season and is distributed to the dispatch centers, Land Offices and Aviation Officers. For Non-Fire Missions it is the responsibility of the Aviation Manager/Chief Pilot or the SafetyPilot to decide who will be responsible for the initiation. This will depend on the user agency and will require prior coordination with that agency.

Time-- is an extremely critical factor in responding to overdue, missing, or crashed aircraft. Personnel responsible for flight following cannot justify any delay in initiating emergency response procedures based on the possibility that a pilot or manager has forgotten to perform a check- in. Immediate positive action is necessary; the longer the delay in locating the overdue or missing aircraft, the less chance the occupants have to survive an accident.

SAFECOM--The SAFECOM process will be the responsibility of the Chief of Fire Protection, who will appoint the appropriate representative to complete the reporting. The DNRC Safety Officer is responsible to compile and submit the SAFECOM through the proper steps to be published.

The procedure to be followed in the event of an accident, incident, or mishap is to report it to the Aviation Safety/Training Officer, Chief Pilot, or the duty officer (use the pilot schedule to determine) by telephone immediately. Also notify the Fire Bureau Training and Safety Program Manager, and the Chief of Fire Protection. The Chief Pilot will assemble and dispatch a team of investigators from the Department. When verbal contact has been made and interviews conducted, the appropriate information on the AMD-34/FS-5700-14 website will be completed and/or written on the FS-5700-14 SAFECOM form, Annex F. The Aviation Safety/Training Officer and/or Fire Bureau Safety Specialist will then ensure the information is placed into the system. Use e-mail, fax, or whatever method is available to ensure the correct information is presented to the Fire Bureau Safety Specialist and/or Aviation Safety/Training Officer in a timely manner.

All SAFECOMs will be reviewed by the Safety pilot and or Chief Pilot for technical accuracy prior to being published.

The Aviation Safety/Training Officer and Fire Bureau Safety Specialist have the final authority to publish the SAFECOM.

Emergency Response Preparedness Plan

Local Unit Responsibility - Each local dispatch or other flight following office should have a copy of the current DNRC Aircraft Crash Search and Rescue Guide. Information in this plan should be pre-completed in the event of a mishap. (i.e., phone numbers, etc.)

Purpose--The purpose of the guide is to establish standard emergency response procedures that the local line officers will follow once an aircraft meets the criteria (overdue, missing, orcrashed).

Applicability--The plan will be used in situations where an aircraft is considered overdue, missing, or crashed.

Contents--The guide is formatted so that the individual making the initial response to an emergency can easily reference the appropriate situation and then follow the checklist of actions to be taken for that situation.

Emergency Response Procedures--A MAYDAY call indicates that the pilot of an aircraft is experiencing an in-flight emergency. The dispatcher or radio operator must listen closely since the pilot may be relaying location information essential to dispatch of rescue services. For this reason, a dispatcher must always be on duty at the radio during mission type flights. Helicopter personnel should also closely and continuously track the aircraft location so that an accurate location can be relayed in anemergency.

Aviation Accident and Incident Reporting

Definitions--These definitions supplement those found in the glossary. These may vary slightly among agencies but are generally applicable to all agencies.

Aviation Hazard--An aviation hazard is any condition, act, or set of circumstances that compromise the safety of personnel engaged in aviation activities. These hazards may address, but are not limited to, such areas as:

A. Deviations from policies, procedures, regulations andinstructions as contained in manuals, handbooks, directives and standard operating procedures, etc.

B. Hazardous materials handling and or transport.

C. Flight following.

D. Deviation from flight plan, planned operations, type of use.

E. Failure to use PPE in accordance with manual policy.

F. Inadequate training or failure to meet training requirements.

G. Failure to utilize load calculations and or manifest correctly.

H. Weather conditions.

I. Ground conditions.

J. Pilot procedures.

K. Fuel contamination.

L. Unsafe actions by pilot, aircrew, passengers, or support personnel.

Maintenance Deficiency--A maintenance deficiency is a defect or failure causing mechanical difficulties encountered in aircraft operations not specifically identified as an incident or aviation hazard.

Aircraft Incident--An aircraft incident is an unplanned event that results in damage which is less than serious aircraft incident criteria, or injury that does not require medical attention. A situation involving an aircraft and or personnel which has the potential of resulting in an accident is also classified as an aircraft incident. Examples are:

Injury to Personnel--Injury requiring first aid.

Damage to Aircraft--Any damage less than significant(and less than accident criteria) when engines/rotors are turning and there is an intent to fly. When in doubt, respond to the occurrence as if it were an accident. The accident investigators will determine whether the occurrence was an accident or an incident.

Forced Landing--A landing necessitated by failure of engines, systems, or components which makes continued flight impossible, and which may or may not result in damage or injury.

Precautionary Landing--A landing necessitated by apparent impending failure of engines, systems, orcomponents or incapacitation of the flight crew, which makes continued flight inadvisable.

Aircraft Ground Mishap--A mishap in which there is no intent to fly; however, the engines and rotors were turning, and damage incurred requiring repair or replacement of rotors, propellers, tires, wheels, wingtips, flaps, etc., or an injury occurs requiring first aid.

Ground Damage to Aircraft--A mishap not specifically addressed as an incident above, where the aircraft or component incurs damage requiring repair or replacement before flight. Power plants and or rotors may or may not be in operation.

Near Mid-Air Collision--When airborne aircraft encroaches within 500 foot of another airborne aircraft, or a pilot or crewmember determines that a collision hazard existed between two or more aircraft.

Accident--An occurrence associated with the operation of an aircraft that takes place between the time any person boards the aircraft with the intentionof flight and the time all such persons have disembarked and in which any person suffers seriousinjury or death or in which the aircraft receives substantial damage.

Responsibility and Requirements for Reporting--It is the responsibility of any individual who observes or who is involved in an aviation accident to report the occurrence immediately through the chain of command to the Chief Pilot or Aviation Program Manager. It is the responsibility of any individual who is involved in an aircraft incident or hazard to report it to the DNRC Safety Officer and the Aviation Safety/Training Officer. The AMD-34/FS-5700-14 (Incident Report) will be made available to the DNRC Safety Officer and the Air Operations Program Manager/Chief Pilot as soon as possible. The DNRC Safety Officer will facilitate a process to ensure the SAFECOM compiled and submit for accuracy and ensure it is published. All maintenance deficiencies will be reported to the Aviation Maintenance Supervisor. Use of the Department crash search and rescue guide will help you to respond quickly and correctly in case of an emergency when time is critical. (See Annex F - Form FS 5700-14 Initial Report of Incident or Accident).

Responsibility for Action--The Department will respond with a team of investigators, as directed by the Air Operations Program Manager/Chief Pilot for all accidents and incidents. If a pilot has a safety of flight incident, that pilot will be grounded until a department check airman releases pilot for flight. If an aircraft experiences a safety of flight malfunction, that aircraft will be grounded until the Aviation Maintenance Supervisor or his designee releases aircraft for flight.

1536 Training

Training--Each pilot must undergo both an initial and recurrent training program. See Annex B for a complete listing of training maneuvers and documentation for training folders.

Initial Training - As minimum, all new pilots will receive training in the following areas:

A. Departmental operations and procedures.

B. Organizational breakdown of the Department.

C. Review of FAA rules and regulations.

D. Briefing on all applicable waivers.

E. Briefing on all Department aircraft including dual time and checkout (to be noted in logbook).

F. Dual demonstration of all flying under the conditions of a waiver (to be noted in logbook).

G. Safety and emergency procedures.

H. Pilot maintenance/preflight/daily responsibility.

I. Flight checks to be given by the Chief Pilot or his designated check pilot on those tasks pertinent to the mission.

Recurrent Training

Annual Department training consisting of a review of, but not limited to:

A. Aircraft Limitations.

B. Emergency Procedures.

C. Safety.

D. Flight Physiology.

E. Pilot maintenance/preflight/daily responsibility.

Annual flight checks by Chief Pilot or his designated check pilot on those tasks defined in DNRC's Aircrew Training Manual (Annex B) pertinent to the mission he or she has been assigned.

Pilot Certification Requirements - for operating with external loads.

Any DNRC pilot engaging in external load operations must have been Qualified and Certified by a DNRC Check Airman. The DNRC pilot will then be issued a DNRC Qualification Card.

An annual flight check/review will be given to each pilot consisting of the following:

A. Takeoffs and landings with loads.

B. Demonstration of directional control while hovering with loads.

C. Acceleration from a hover.

D. Flight at operational airspeeds.

E. Maneuvering of the external load into release position and its release, under probable flight operating conditions, by means of the quick-release controls installed in the helicopter.

Interagency Helicopter Pilot Practical Test Standards will be utilized for all flight checks.

Pilot Conduct

Although low-level flight operations are routine and necessary for Departmental work, no unnecessary risk will be tolerated. Special-purpose privileges granted by the FAA will in no case be abused by unnecessary or irresponsible low-level flight. Such abuses will be dealt with by immediate suspension of flight duties for the pilot involved.

Routine patrol flights and high-altitude scouting are generally performed at 1,000 feet or more above ground level. Low-altitude patrol flights, scouting, lead plane work, air tanker operations or similar activities are conducted to be clear of ground obstructions and personnel.
Any safety of flight incidents will result in immediate grounding of the pilot until released for flight duty by a department check airman or chief pilot.

1540 Aircraft Maintenance

1541 Overview

The Department's Aviation Maintenance Supervisor is responsible for the Department aircraft maintenance program. It is the Aviation Maintenance Supervisor responsibility to decide whichmaintenance regulations are applicable and to establish the standard where Federal Aviation Administration (FAA) compliance is either not applicable, inappropriate or otherwise unclear. The establishment of this manual clarifies the Department's aircraft maintenance operation and provides for continuity and professionalism in the program.

The Department operates its aircraft under two distinct categories: Public Use and FAA, Part 91. The Department is generally considered a public use operator and is therefore exempt from most FAA regulations, including maintenance regulations. Although the Department is technically exempt it has, in the interest of safety, chosen to meet or exceed the scope and intent of applicable FAA regulations regardless of which category a particular aircraft is being operated under.

The Department has both FAA-certificated and DNRC-certificated aircraft. FAA-certificated means that the aircraft is issued a Federal Aviation Administration (FAA) airworthiness certificate and a DNRC-certificated aircraft means that it has an airworthiness certificate issue by the DNRC.

1542 General Guidelines

Note: FAR part 91 stipulates what actions are required including flight rules, maintenance, inspections, and record keeping. FAR part 43 stipulates how those maintenance functions are to be accomplished.

Except as provided in section 1557 below, DNRC aircraft will be maintained as civil aircraft with standard category U.S.airworthiness certificates.

Maintenance is to be performed only by Vendors and personnel approved by the Aviation Maintenance Supervisor.

All replacement and modification parts must meet the approved parts criteria in accordance with FAR part 21 subpart K.

All maintenance operations including inspections, preventive and routine maintenance, major repairs and alterations, and parts purchases must be authorized, coordinated and supervised by the Aviation Maintenance Supervisor or his/her designee.

All maintenance operations shall be performed in accordance with the DNRCAircraft Maintenance Quality Control Manual.

Persons authorized to perform maintenance, preventive maintenance; rebuilding and alterations will do so in accordance with FAR part 43.3.

Maintenance record keeping will be in accordance with FAR 91.417 and 91.421. Content, form, and disposition of the records will be in accordance with the requirements of FAR part 43.

Refer to the appropriate sections herein for specific policiesand requirements.

1543 Required Maintenance

All DNRC aircraft shall meet the maintenance and inspection requirements as stipulated in FAR part 91 subpart C and E and the additional requirements of this manual as follows:

A. Aircraft shall be inspected and repaired in accordance with FAR 91.405 and the appropriate inspection program contained herein. These inspection programs comply with the requirements of FAR91.409.

B. Aircraft shall have discrepancies and inoperative equipment repaired or replaced as per FAR 91.405.

C. No aircraft will be operated in an unairworthy condition in accordancewith FAR 91.7 and will have such conditions repaired before resuming normal operations. Authorization to fly the aircraft to a location where the repairs can be performed maybe granted by the Aviation Maintenance Supervisor or his/her designee.

D. In accordance with FAR 91.403(c), no aircraft will be operated unless the mandatory replacement times, inspection items or related procedures are complied with.

E. The applicable Airworthiness Directives required by FAR part 39 shallbe complied with.

F. In addition, the specific maintenance and inspection requirements for each aircraft model, contained in the appropriate aircraft section of this manual, shall also be complied with.

1544 Responsibilities

General Responsibilities

The Department, as per FAR 91.403, is responsible for maintaining the aircraft in an airworthy condition, including compliance with part 39 of the FAR's (AD notes). The Aviation Maintenance Supervisor is the Department's designee for ensuring compliance with these rules.

Pilots and maintenance personnel shall notify the Aviation Maintenance Supervisor of any discrepancies, planned maintenance and inspections.

No person will operate an aircraft in an un-airworthy condition (FAR 91.7).

Maintenance personnel and pilots will ensure that the maintenance and inspections required by FAR 91.405, and as required herein, are compliedwith.

Operation after maintenance, preventive maintenance, rebuilding or alteration shall be in accordance with FAR 91.407. Pilots and maintenance personnel will ensure the following are complied with:

A. The aircraft has been returned to service and the appropriate recordentry has been made.

B. A maintenance test flight must be performed after any maintenance activity which could have appreciably altered the aircraft's flight characteristics or substantially affected its operation in flight.

Aviation Maintenance Supervisor--It is the Aviation Maintenance Supervisors responsibility to manage all aircraft maintenance activities to include the following:

A. Research, establish and maintain the standards contained within the maintenance section of this manual.

B. Research and provide the means, training, and guidance to comply with the maintenance section of this manual.

C. Establish and maintain an aircraft maintenance quality control program.

D. Select, establish, and maintain an inspection program, as required by FAR 91.409, for each aircraft. Refer to the appropriate aircraft section herein.

E. Ensure maintenance operations comply with the requirements herein.

F. Establish, implement, and maintain the DNRC certificated aircraft program.

G. Establish and approve vendors for maintenance and parts.

Maintenance Personnel Responsibilities -- It is the maintenance personnel responsibility to assist the Aviation Maintenance Supervisor in accomplishing the requirements herein to include the following:

A. Perform the required inspections and repairs.

B. Maintenance functions shall be performed in accordance with the requirements listed herein and it's supporting documents.

Pilot Responsibilities -- It is the pilot's responsibility to assist the Aviation Maintenance Supervisor in accomplishing the requirements herein to include the following:

A. Before the first flight of the day:

1. The airworthiness inspection or preflight will be performed and signed off, in accordance with the appropriate aircraft manual.

2. The flight log discrepancy list will be reviewed after any maintenance action and before the next flight. Ensure that maintenance personnel recorded a brief description of corrective action taken. A reference entry should include the date, tach time, corrective action, name, and work order.

B. Keep the aircraft interior and exterior clean.

C. Helicopter power checks will be conducted each 10 hours of flight time or on the first flight of the day.

D. Notify maintenance personnel of needed inspections or repairs.

E. Notify the Aviation Maintenance Supervisor immediately if the aircraft is deemed un-airworthy.

F. Enter aircraft flight data, discrepancies, power checks etc. in the aircraft's flight log (Annex G) discrepancy list. Entries shall be made in accordance with the instructions contained in the Daily Log.

G. The pilot in command is responsible for determining whether the aircraft is in condition for safe flight. The Aviation Maintenance Supervisor or his/her designee should be contacted to assist in the determination.

1. Flight with a safety of flight discrepancy is prohibited unless authorized by the Aviation Maintenance Supervisor. The Aviation Maintenance Supervisor will be notified as soon as possible of any safety of flight discrepancies encountered during the operation of the aircraft. Repairs will be completed before conducting normal operations. Except as provided in FAR part 91.213, no pilot will operate anaircraft with inoperative instruments or equipment.

2. Placards will be installed for any inoperative instruments or equipment allowed by FAR 91.213(d)(2).

H. Must perform maintenance functions in accordance with the requirements contained herein.

1545 FAA-Certificated Aircraft

Cessna Aircraft

Cessna model 180/182/185 shall be inspected and maintained in accordance with the general requirements of this manual and the following:

A. These aircraft have been issued a FAA Standard Category Airworthiness Certificate. Refer to the appropriate FAA TypeCertificate Data Sheet for certification standards. The aircraft must conform to its Type Certificate at all times or be in a properly altered state.
B. Maintenance will be performed in accordance with the manufacturer's maintenance schedule, instructions, and manuals.

C. These aircraft have been placed on the manufacturer's Progressive Care Inspection Program. Refer to the manufacturer's manual for the schedule and requirements.

D. The aircraft manufacturer's overhaul and retirement schedule will be complied with unless superseded by a FAA part 39 Airworthiness Directive.

E. The aircraft manufacturer's mandatory bulletins will be complied with.

F. Major repairs and alterations will be authorized, performed, approved, and recorded as stipulated in this manual and FAR part43.

G. The manufacturer's current flight manual will be used.

H. Discrepancies and inoperative equipment will be handled in accordance with the 1553 of this manual. The minimum equipment shall be as required by FAR 91.205 for VFR flight.

Bell Helicopter

Bell Helicopter model 206 will be inspected and maintained in accordance with the general requirements of this manual and the following:

A. These aircraft have been issued a FAA Standard Category Airworthiness Certificate. Refer to the appropriate FAA Type Certificate Data Sheet for certification standards. The aircraft must conform to its Type Certificate at all times or be in a properly altered state.

B. Maintenance will be performed in accordance with the manufacturer's maintenance schedule, instructions, and manuals.

C. These aircraft have been placed on the manufacturer's inspection program contained in the maintenance manual. Refer to the manufacturer's manual for the schedule and requirements.

D. The aircraft manufacturer's overhaul and retirement schedule will be complied with unless superseded by a FAA part 39 Airworthiness Directive.

E. The aircraft manufacturer's mandatory bulletins will be complied with.

F. Major repairs and alterations will be authorized, performed, approved, and recorded as stipulated in this manual and FAR part43.

G. The manufacturer's current flight manual will be used.

H. Discrepancies and inoperative equipment will be handled inaccordance with the 1553 of this manual. The minimum equipment shall be as required by FAR 91.205 VFR flight.

1546 DNRC-Certificated Aircraft

DNRC operates former US Army UH-1H helicopters as MT 205. These aircraft are not FAA certificated. DNRC has unofficially assumed the Type Certificate holder responsibilities. As such, DNRCis responsible for the following:

A. Establish and maintain the conformity standard for the MT 205.

1. Maintains the type certificate in support of the continued airworthiness of the aircraft to include:

2. Establish maintenance and inspection standards.

3. Establishes overhaul and inspection intervals.

4. Establish airworthiness limitations.

5. Develop, issue, and maintain appropriate documentation required to identify and correct unsafe conditions.

6. Develop, issue, and maintain other technical data as required.

B. Identify and develop modifications to improve the aircraft's performance, service life and capabilities as follows:

1. Develop and approve data.

2. Develop, issue, and maintain appropriate technical data.

3. Develop and implement procedures for the acceptance and oversight of the production of parts.

Bell Helicopter model UH-1H will be inspected and maintained inaccordance with the general requirements of this manual and the following:

A. The aircraft conforms to the DNRC MT 205 Type Certificate and must conform to the Type certificate at all times or be in a properly altered state.

B. Maintenance will be performed in accordance with the DNRC MT 205 Type Certificate requirements.

C. These aircraft have been placed on the DNRC MT 205 Progressive Inspection Program. This program meets the requirements of FAR 91.409 and has been reviewed and accepted by the FAA. Refer to the manual for the schedule andrequirements.

D. The overhaul and airworthiness limitations contained in theDNRC MT 205 Type Certificate shall be complied with.

E. All Alert Service Bulletins stipulated by the DNRC MT 205 Type Certificate shall be complied with.

F. Major repairs and alterations will be authorized, performed, and approved as stipulated herein. Recording of work performed shall be in accordance with 1557 para 3.

G. The flight manual issued under DNRC MT 205 Type Certificate shall be utilized.

H. Discrepancies and inoperative equipment will be handled inaccordance with the 1553 of this manual. The minimum equipment shall be as required by FAR 91.205 VFR flight.

Since the FAA maintenance regulations do not apply to the MT 205, DNRC will perform maintenance on the MT 205 as follows:

A. Develop, implement, and maintain an FAA Part 145 style Repair Station manual covering the maintenance functions for the MT 205.

B. MT 205 maintenance shall be performed in accordance with the Repair Station Manual.

(Refer to Annex G -- Maintenance Forms)

1550 Flight Operations

The objective of this section is to describe air operations, give guidelines and policies promoting a safe, efficient, and economical means of aircraft use in connection with natural resource protection.

Flight Performance--Flight performance shall be conducted according to FAA operation certificates, manuals and regulations; Montana State laws; and DNRC Policies. USFS Standards will be used when the aircraft is under USFSoperational control. Only qualified personnel, approved by theChief Pilot or his designee, the Safety/Training Officer, will operate aircraft for the purpose of DNRC activities.

Fuel--Only aviation grade fuel will be used in DNRC aircraft as per manufacturer's specifications. Fuel is purchased from vendors at normal airports as listed in the appropriate directories.

DNRC maintains several medium and small fuel tenders.

Fueling operations will follow the DNRC Fuel Servicing & Equipment Requirements (see Annex K).
The Department may use a fuel tender with less than eight hours of fuel, if it is determined that a smaller fuel tender will accomplish the mission.

Night Flying--Extended flight operations at night in single-engine aircraft are considered dangerous and are discouraged. Although such flights are not prohibited outright, pilots are urged to conduct them only for reasons of utmost importance.

Instrument Flying--Single-engine instrument flying is a marginal operation and will not be a normal practice. Actual instrument flying shall be governed by Federal Aviation Regulations, part 91 and/or 135. No instrument flights will be made into hazardous flying conditions, such as moderate or severe icing, thunderstorm, etc. Flights made into high-density air traffic will require a qualified co-pilot.

Landing Areas--An airport classification guide for Montana has been prepared to provide dispatchers and aircraft managers with a reference to determine the types of aircraft that are suitable to operate from specific airfields under normal conditions. This guide will be provided by the Montana Aeronautics Division. DNRC fixed-wing aircraft may land at unapproved sites (i.e., field and roads) if proper permission is obtained and the pilot is approved for such operations.

Prior to using any airfield, the aircraft managers and pilots should check theclassification guide, latest state and federal publications, and NOTAM's to determine current status of the airfields, prior to use. Check weight restrictions on all airports to be used by heavy aircraft. Weather and runwayconditions may limit or preclude the use of these airfields.

Out-of-state aircraft and pilots will not be scheduled into any remote ormountainous airfield unless they are familiar with the airfield and priorapproval has been made with the Chief Pilot.

Flight Routes--Flight routes should be defined and plannedto ensure a safe and efficient operation. For safety of flights, coordination is required with Flight Service facilities regardingtype of operations, intensity, and duration. When possible, flights should be made on federal airways. Special-purpose flights (scouting, patrolling, spraying, etc.) should be planned toavoid controlled airspace, when possible. Patrol routes will be coordinated with all other fire protection agencies.

Congested Areas--Flights over congested areas, such ascities, towns, crowded freeways or highways, ranger stationsand fire camps will be kept to a minimum. Heliports will belocated to provide approaches and climb outs which will be clear of congested areas.

Communications--It will be the responsibility of eachdispatching agency and Area Land Office (i.e., aircraft users) to inform Air Operations of any changes in communication frequencies. This information will be given to the Fire Protection Bureau Safety Officer. Due to terrain and environmental factors, the PIC and or aircrew will determine the most adequate frequencies to establish and maintain positive communications.

Density Altitude Effects--High elevation, high temperature, and high moisture content, all of which contributeto high density altitude conditions, lessen performance. Performance is reduced because the thinner air at high density altitudes reduces blade or wing efficiency.

Emergencies--When a pilot experiences an in-flight difficulty or emergency or believes a situation exists that would create an emergency, he/she will take any action he/she deems appropriate to assure the safety of flight. The pilot will report deviations from directives that may occur because of an emergency, to his/her Chief Pilot or the Safety Pilot.

Flight Following Plans—Normal flight following will be accomplished with AFF. Flight Following through Geographic Zone Dispatch Centers will be done for all fire mission flights (i.e., fire patrol, aerial survey, etc.). For administrative and point-to-point flights, an FAA flight plan may be filed or use DNRC Air Operations internal flight following procedures. When Administrative flights occur during the field position period, the PIC or the Land Office Aviation Duty Officer will notify the impacted dispatch center(s). In addition, a point-to-point flight plan may be filed with the FAA if appropriate and the flight will be tracked on DNRC internal flight following procedures.

Montana DNRC Air Operations performs a variety of different missions for other state agencies throughout the year. Because of this, the most advantageous Flight Following available for non-fire missions will be determined by the Chief Pilot or designee. The Air Operations duty officer will notify the Land Office Aviation officer if such a flight occurs in their area. For administrative flights occurring outside the field position period (Approximately October 1st to May 31st) an FAA flight plan may be filed if

appropriate and flight following will occur with DNRC internal flight following. When Administrative flights occurring during the field position season the PIC or the land office aviation duty officer will notify the dispatch center. In addition, a point-to-point flight plan may be filed with the FAA if appropriate and the flight will be tracked with DNRC internal flight following procedures.

Checklists--An adequate pre-flight checklist and a cockpitchecklist, in accordance with FAR 135 (135.83), will be provided for all aircraft and will be used by all pilots for each flight. A visual pre-flight inspection will be made by the pilotbefore flight, and any deficiency which might affect the safetyof the flight will be corrected prior to commencing that flight.

Seat Belts and Shoulder Harnesses--Pilots will assure thatall occupants have fastened seat belts prior to takeoff and landings. Shoulder harnesses will be installed for each front seat occupant of helicopters. Shoulder harnesses are recommended for crew positions in all DNRC aircraft. Whereinstalled and operable, they will be used for all takeoffs and landings.

Winter Operations—Aircraft use for winter operations will comply with the following special equipment and operating procedure:

A. Sufficient equipment and personal clothing will be carried or worn tosustain personnel in a winter environment for at least 24 hours.

B. Aircraft must be equipped with adequate fully operating cabin heaters.

C. Aircraft must have windshield defrosting capabilities.

D. A pilot can cancel flights in sub-zero temperatures if the personnel oraircraft are not adequately equipped for the flight or any en-route emergencies.

E. Aircraft on overnight flights should be stored in a heated hangar.

F. Aircraft used for winter operation will be properly winterized inaccordance with its operational and maintenance manual.

Passenger Handling

Manifesting--Prior to every flight, the pilot-in-command will ensure a manifest is completed, to include a listing of all crewmembers and passengers on board. A copy of this manifest will remain at the point of departure, where practical. Unit and Land Office personnel will be required to be familiar with the manifest location and educated on the MT DNRC Crash Search and Rescue Guide.

Briefing--Before each takeoff and landing, the pilot-in-command or his designee will brief all passengers on the use of seat belts, smokingregulations and emergency exits. The crew will familiarize all passengers with the location and access to all survival equipment. On pressurized aircraft or non-pressurized aircraft flying above 12,000 feet, passengers will be acquainted with the oxygen source and usage requirements (FARs). For over water flights, special emphasis will beplaced on ditching procedures briefing.

Debriefing--All flights will be conducted in the most efficient, cost- effective manner possible. However, safety is paramount and will never be compromised. The pilot-in-command will lead a post flight debrief to determine if the aircrew thought the mission was performedefficiently and safely. A copy of the minute shall be kept in the Helicopter Manager's daily dairy.

Enplaning/Deplaning Passengers

On single-engine fixed-wing aircraft (except float planes), the engine will not be started until all passengers are aboard and the doors are closed. At the completion of the flight, engine will be shut down, propeller stopped and switches off before cabin doorsare opened for passenger off-loading.

Engines need not be shut down on helicopters during passenger unloading, providing the pilot briefs the passengers before they debark. Passengers must be directed to keep heads and equipment low, proceed away from the rear of the helicopter not to leave the helicopter on the "uphill" side. If the rotors are turning, the passengers will be led toward the helicopter for loading by a qualified ground crew or flight crewmember.

1551 Hazardous Material

Hazardous Material Definition--A substance or material which has beendetermined by the Secretary of Transportation to be capable of posing anunreasonable risk to health, safety and property when transported in commerce, and which has been so designated.

Policy--The Department will use the guidelines set forth in the text entitled USDA - Forest Service Aviation Transport of Hazardous Materials Guide, NFES 1068.This publication will be used as a guide when it is necessary tocarry hazardous materials.

Training--All personnel involved with loading, unloading, packaging and handling hazardous materials must be trained. Training should consist of classification, marking, and labeling in accordance with CFR 48, Parts 171,172, 173 and 175. Use NFES 1068 for guidance on proper handling of hazardous materials.

1552 Flight Limitations

Wind Restrictions--The capability of successful helicopter flights in extreme wind conditions is dependent upon the weight class of the helicopter being flown, as well as the pilot's experience with this type of flying. Helicopter operations will be shut down if the wind exceeds those limitations established in the operator's flight manual or manufacturer's recommendations. If no wind limitation has been prescribed by the manufacturer, helicopter operations will be terminated when wind speed exceeds the following conditions:

For low-level operations (below 500 feet): Small helicopters and single engine fixed-wing 30 knots, or a maximum gust spread of 15knots; for medium/transport category helicopters 40 knots, or a maximum gust spread of 15 knots.

For cross-country flights (500 feet above ground level), 50-knot winds;not applicable for twin engine aircraft.

Snow Operations--Helicopter flights in falling snow maybe accomplished, provided the following criteria are met:

A. VFR conditions can be maintained.

B. Turbine helicopters will be equipped with snow kits as prescribed by the approval flight manual. Helicopters requiring particle separators aspart of their snow kit will be inspected for ice accumulation in accordance with the flight manual. Under conditions of wet, very large snowflakes, a visual inspection of the aircraft's particle separatorwill be conducted after ten minutes of flight. Should a buildup of snow be noted in either the snow kit or particle separator, further flightis prohibited. The aircraft's intake and exhaust covers will be installedduring shutdown periods when the aircraft is subjected to falling or blowing snow.

C. Approaches must be made to landing without a planned hover. A maximum performance takeoff to clear an obstacle should be used to minimize blowing snow. Caution should be exercised to avoid whiteout conditions where a snow-covered surface cannot be detecteddue to the lack of the normal color contrast. This condition can be expected when the light is such that the surface is void of shadows andconsists of unbroken snow. Whiteout can also be induced by rotor wash.

External Load Operations

External loads are defined as cargo protruding from the helicopter, cargo carried in external cargo racks, cargo carried on a jettison ablesling, retardant bucket and fixed tank operation, and towing and stringing wire. Pilots must possess a current DNRC Pilot Qualification Card authorizing external load operations.

The pilot-in-command is responsible for ensuring that:

A. The weight capacity of the cargo hook is not exceeded.

B. The weight capacity of the cargo rack is not exceeded.

C. For jettisonable loads, the maximum allowable external load gross weight is not exceeded.

D. For non-jettisonable external loads, such as cargo on cargo racks, the internal gross weight limitation of the helicopter is not exceeded.

Passengers will not be carried aboard helicopters when dropping retardant, foam, or water on fires.

With certain types of helicopters, such as the Bell 206B and 205A, an observer may be necessary to provide information to the pilot while dipping water from ponds or streams. In these instances, when a qualified observer is assisting the pilot in water dipping, the observer will not be allowed to remain in the helicopter during the dropping procedure, or the dipping procedure, but will observe from a safe distance.

Cold Weather Operations-- Planned or continuous operations into surface temperatures below -40 degrees will not be permitted, unless the aircraft is otherwise allowed by the approved flight manual.

Drugs and Alcohol--The basic directives of FAR, Part 91 apply.

Weight and Balance--Weight and balance information including passenger configuration, cargo distribution, center of gravity limits, maximum takeoff and landing weights, and chartsfor computing center of gravity location will be in the aircraft flight manual and/or weight and balance book for each aircraft operated by DNRC. Weight and balance will be completed, and a copy will be left at the point of departure for every flight in transport aircraft with a maximum gross takeoff weight exceeding 12,500 pounds.

Personnel at Controls--Personnel on DNRC aircraftwho do not hold a DNRC Pilot Qualification Card will not beallowed to manipulate the flight controls without prior DNRC approval.

Oxygen Requirement--The requirements in FAR 91 will apply.

Fuel Handling - Procedures--Detailed procedures for handling aviation fuel for DNRC aircraft are outlined in the DNRC Fuel Servicing & Equipment Requirements (see Annex K).

Airport and Heliport Facilities Management

Airport--Each airport will be surveyed to establish their suitability for certain

types of aircraft. The types of aircraft to be serviced at an airport or heliport facility will be determined by the length of runways, width of taxiways, strength of paving or other surface condition (aircraft footprint), parking room, and turning clearances.

Management Guidelines--The Air Operations Program will ensure that when operating airplanes out of operated airports or heliports that the following guidelines are used:

A. Safety guidelines are established and enforced.

B. Procedures for ground marshaling will be established if applicable. The Interagency Helicopter Training Guide may be used.

C. Equipment, such as power units, batter carts, maintenance stands,and fire extinguishers will be maintained and controlled.

D. Plans will be established for taxi and parking areas, the loading and unloading of personnel and cargo, and tie down areas.

E. Vehicular traffic controls will be posted and enforced.

F. Liaison procedures will be established for agencies using facilities.

Heliport

Heliport Construction and Closures:

A. The "Heliport Installation Handbook" is used for the evaluation,design, construction, and closures of heliports. The Air Operations Program will determine guidelines.

B. Distribution of the handbook is made to DNRC aircraft managersand users by the OAS Headquarters Office, P.O. Box 15428, Boise Idaho 83715-9998 (see Field Reference Guide for AviationUsers). Revisions and amendments will be prepared for approvaland issuance by the Director-OAS.

C. Link: https://www.iat.gov/docs/FRGAU_2013.pdf

Restricting Air Space over Forest Fires--When responding to any fire always assume a Fire Traffic Area (FTA) has already been established and act appropriately per the current FTA Guidelines when approaching the fire.

When forest fire suppression activities require that air space congestion be minimized, aircraft not involved in the suppression activities may be temporarily restricted from the

vicinity of the fire. Flight restrictions are provided by the Federal Aviation Agency(FAA) in the form of a TFR (Temporary Flight Restriction) when requested by fire personnel.

The NRCC is responsible for requesting a TFR through the flight servicestation at 1-800-WXB-RIEF (992-7433).

Flight Hazard Maps--Each area will maintain a ½-inch to one mile scale map showing flight hazards as accurately aspossible, including those hazards in the approach or take-off patterns of heliports and helispots.

Use standard map legend in red for potentially dangerous transmission or telephone lines. Particular emphasis should be placed on wires and cables that cross drainages or draws. TV translators, microwave stations and othertowers shall be indicated. Show special hazards with a red cross at the maplocation, connected to marginal descriptive data by red arrow. Omit naturalhazards such as tall timber, peaks, rock bluffs, etc. Do not include buildings.
The map shall be reviewed and brought up to date annually and prior to initiating projects involving low-flight operation such as spray projects, mine surveys or water bucket operations. Hazard maps of the area involvedshall be available at each air base and helitack base.

1553 Fixed-Wing Operations

Cargo Operations--No cargo shall be carried on or in any aircraft unless it is:

A. Secured in an approved cargo rack, bin or compartment installed on or in the aircraft.

B. Secured by an approved means.

C. Carried in accordance with each of the following:

1. Cargo is properly secured by a safety belt or other tie-down having sufficient strength to eliminate the possibility of shiftingunder all normally anticipated flight and ground conditions.

2. Cargo is packaged or covered to avoid possible injuries to occupants.

3. Cargo does not impose excessive loads on seats or floor of structure.

4. Cargo must not obstruct access to, or use of, any required emergency or regular exit, or the use of an aisle way.

5. Cargo must not be carried above occupied seats.

D. Loaded to allow physical entry for crewmembers to all parts of cargo compartments to extinguish any fire that may occur during flight.

Pilot-in-Command

The assigned pilot-in-command is directly responsible and is the finalauthority for the safe operation of that aircraft. In addition, the PIC has the authority to relocate the aircraft to facilitate proper rest or maintenance of the aircraft in coordination with Land Office personnel scheduling wildfire missions.

It is the responsibility of the pilot-in-command to be aware of and conform to DNRC policies, Federal Aviation Regulations, Bureau directives, and the regulations and directives of other applicable authority, including those relating to use for official purposes only andthe transportation of unofficial passengers.

When two-pilot crews are used, the pilot-in-command for the missionwill be specifically designated. The pilot-in-command will exercise command authority over all assigned crewmembers from the time of reporting for the flight until the mission is completed. The pilot is responsible for the safe and successful completion of the mission. He/she will delegate duties to other members of the crew. The pilot will also ensure that all passengers are dressed appropriately for the flight condition to be encountered.
At the completion of a flight, the pilot is responsible for adequatesecurity and tie-down of the aircraft. Fueling will be done in accordance with the DNRC Fuel Servicing & Equipment Requirements (see Annex K).

Co-Pilots

The co-pilot is responsible to the pilot-in-command. When an assigned co-pilot is fully qualified in an aircraft, pilot duties (flying "left seat" on alternate legs, etc.) may be shared at the discretion of thepilot-in-command when passengers are carried. On a flight where no passengers are carried, pilots not fully qualified in the aircraft may occupy the left seat at the discretion of the pilot-in-command when thepilot-in-command is an OAS check pilot or holds current instructor's rating and full dual controls are available. A co-pilot will not assume pilot-in-command authority except in emergency situations due to incapacitation of the pilot.

Co-pilot time will not be logged unless there is a functioning set ofdual or "throw-over" controls installed in the aircraft.

1554 Helicopter Operations

Helicopter Operations

The helicopter has become a familiar multi-use aircraft in resource management. In recent years, the Department has increased speed and payload by the use of better helicopters. To utilize this capability efficiently, we must realize that helicopters are potentially as dangerous as they are valuable. They are also expensive. They must be integrated within the Resource Management Organization and closely managed by trained personnel. Success of efficient helicopteruse depends on trained and qualified personnel and key overhead that have working knowledge of helicopter operations. It is essential that all aviation operations be planned with the utmost consideration given to safety. Missions can be accomplished safely, provided that a highdegree of preplanning, risk management and analysis is applied.

Objective--The objective of this chapter is to provide specific operational procedures to providers and users of helicopter services. Itwill be used by specialists and technicians as a detailed outline in planning and carrying out helicopter operations. This handbook may be used for orientation and familiarization for personnel new to the helicopter program.

Policy
Rotary wing aircraft will be used in those functions contributing to more effective and economical operation. Helicopters are one of the single most versatile and flexible tools in natural resources work today. However, they are expensive, and careful planning for their use is essential.

Only fully qualified personnel meeting the list of qualifications outlined in Section 1520 will operate helicopters.

All direction in this handbook will be given for the purpose of ensuring safety and efficiency in helicopter operations.

Dispatch Procedures--Dispatch procedures for fire operations: The helicopter manager will be responsible for receiving all mission-specific information from the dispatching agency. That information will then be relayed to the pilot. The pilot will be responsible for determining if the mission can be accomplished.

A. The minimum information for Initial Attack fire operations will be latitude/longitude (degrees decimal minutes), geographic location of incident, frequencies, and ground contact if available. DNRC helicopters may be dispatched to an initial incident with information provided via NWCG Aircraft Dispatch/Kneeboard form (PMS 250).

B. The minimum crew for all Initial Attack Fire operations will be a Pilot and a qualified Helicopter Manager.

Aerial Supervision Guidelines Reference – Northern Rockies Interagency Mobilization Guide)

Definitions: Reference – PMS 505 NWCG Standards for Aerial Supervision

> Required – Aerial supervisory resources(s) shall be over the incident when specified air tactical operations are being conducted.
>
> Ordered – Aerial supervisors shall be ordered by the unit maintaining operational control (operations may be continued while the aerial supervisor is en route to the incident. Operations can be continued if the resource is not available and assigned resource are notified).

To facilitate safe and efficient use of aviation assets that are operating on State and/or County protection or under the operational control of the DNRC which includes responses to boundary fires, the following will occur:

1. When multiple DNRC helicopters are operating on the same incident, a DNRC pilot will assume the responsibilities as a Flight Lead, coordinate with the Incident Commander (IC) and assist in the control of the rotary wing resources. The Flight Lead is typically the most experienced DNRC Pilot in charge on scene. This Flight Lead platform will continue tactical operations on the incident with the other aircraft to facilitate and maintain safe air operations.

2. When fixed wing airtankers are ordered, an air attack or leadplane/ASM resource will be ordered for the incident.

3. Army National Guard helicopters require aerial supervision for all operations on staffed fire line. This requirement may be met by operating in tandem with DNRC helicopters or through the use of a helicopter coordinator (HLCO) and/or air attack. Army National Guard helicopters may operate on unstaffed fire line without aerial supervision

Two Aircraft and One Manager-- Two MT DNRC helicopters can be managed by one qualified Helicopter Manager. Management and Dispatch of the second aircraft can occur in two ways.

A. In conjunction with the first aircraft and its manager. Both aircraft can respond as a flight of two with the second aircraft being operated with a single pilot. Positive communication will be maintained between the two aircraft.

B. The second aircraft is flown to the incident, single pilot, and tied in with the Helicopter Manager on scene. The pilot will be responsible for establishing and maintaining communication with dispatch while enroute, until local flight following is established.

Typically, the two aircraft will be operating on the same incident. However, the second aircraft can be utilized on an additional nearby incident as long as the helicopter

manager and pilot can establish and maintain positive communication throughout the mission.

Hot refueling is not permitted in DNRC aircraft.

Aircraft Response Times--The helicopter manager will be responsible for informing the pilot of the response time at the beginning of the duty day, and as to any changes that may occur throughout the day. The pilot will be responsible for adhering to the response time. At no time will safety be compromised so that a response time can be achieved.

Base Operations--The helicopter manager shall be responsible for informing dispatch when the aircraft is in or out of service. Maintenance personnel shall inform the manager when the aircraft will be out of service due to maintenance. The responsibility for standby orders shall lie with the dispatching agency. All base operations, toinclude equipment, shall follow the guidelines in the NWCG Standards for Helicopter Operations (PMS 510).

Helicopter Landing Area Specifications--The proper selection andconstruction of landing areas is essential to both the safety and efficiency of helicopter operations. Landing areas that are poorly constructed or located improperly may contribute to the cause of anaccident. At a minimum, inadequate landing areas heighten risk, increase pilot workload and result in inefficient operations.

The NWCG Standards for Helicopter Operations (PMS 510) will be utilized forspecific information in the construction of, dimensions of, and terminology of landing areas.

Planning - The most important aspect in planning for helicopter operations is the selection of areas on which to land the helicopter. The types of activity and volume of traffic will affectselection and development of these landing areas. The site should lend itself to expansion, which will accommodate the typeof helicopter and volume of traffic expected. Planners should look well into the future to ensure that heliports will be adequatein location and size to meet future needs and will not become obsolete within a few years.

If the heliport is to be on land that is not owned by the State government or on government land adjacent to private property,a careful study of the community's local laws, rules and regulations for the establishment of a heliport must be made. Site elections should be made to properly provide for takeoff andlanding approaches which adequately clear both federal and private housing areas, schools, churches and any other community complexes which would be disturbed by low-flying helicopters. Landing areas should be located so that takeoffs andlandings may be made into prevailing wind, if possible. Areas on exposed knobs and ridges could permit approaches and departures from all directions. When moderate-to-strong winds are common to a locality, it is important to choose landing sites that will be relatively free from air turbulence generated from large trees, buildings and terrain features in the vicinity.

Passenger Transportation--The safety transport of passengers in helicopters is extremely important. Utilizing the following standard procedures for transport will ensure the safety of everyone involved in the operation:

A. **Passenger Brief** - All passengers will be briefed on the proper use of equipment for the particular aircraft they will be transported on. The safety briefing may be given by the pilot or as delegated by the pilot to qualified personnel. The briefing willfollow the format of the safety briefing at the end of this chapter.The briefing shall be clear and must be understood. In-flight emergency procedures will also be briefed.

B. **Loading Procedures** - Personal gear may be carried on board, and passengers must maintain control of all personal items. Priorto approaching the helicopter, remove gear such as canteens that will impede fastening of the seat belt. Stay in a safe area until instructed by trained personnel as to the direction to go. Wear a flight helmet or hard hat with a chinstrap or carry it in hand. Thefirst person into the helicopter passenger compartment should move to the center seat or seat assigned by the pilot or helicoptermanager. Fasten and adjust seat belt. Ensure PPE is properly worn. Large gear will be stored in the cargo compartment.

C. **In-Flight Precautions** - No smoking during flight. Keep clearof the flight controls at all times. Keep control of gear and be aware of emergency exits. If in doubt, ask questions.

D. **Unloading Procedures** - Wait for pilot or other trained personnel to give okay to unload. Door should be opened by trained personnel or at the direction of the pilot when no one is available at the landing site. Remove seat belt and lay it back onthe seat. If possible, refasten and lay on seat. Maintain tight control of personal gear and exit the helicopter slowly using the departure path indicated by the pilot or trained personnel. After leaving the helicopter, move to an area which is not in the flight path of the helicopter.

Aerial Photo--Aerial photo missions for the helicopter will be flown incommensurate with all applicable FAR regulations and Department policies. No unnecessary risks will be taken during these missions.

Aerial Survey--The helicopter is a good tool for viewing may Department functions from the air such as preliminary EIS requests,gravel operations, drilling inspections and many more. For these operations all the policies in this manual will provide guidance in safety of operations for these projects.

Fire Operation--Helicopter initial attack is a normal function of the Department. Guidelines/safety procedures will be covered in DNRC's training program.

External Load Operations-- External load operations include water bucket operations and sling loads, using either normally configured lead line/swivel/cargo hook or the remote

electric hook and long line. When planning an operation which will involve external loads, it is imperative that proper pre-mission planning be performed.

Flight Routes and Maps--Flight routes and maps shall be discussedand briefed between the pilot and the user prior to departure on any flight.

Congested Areas--Flights over congested areas, such as cities, towns,crowded freeways or highways, ranger stations and fire camps will be kept to a minimum. Heliports will be located to provide approaches and climb outs which will be clear of congested areas.

Helicopter Pilot Equipment--Helicopter pilots involved in any DNRD fire activity shall wear, while in flight, leather boots, fire resistant clothing and an appropriate approved flight helmet. For those flights that are not fire-related but are considered to be in a hazardous flight regime, i.e., those flights conducted routinely in a low-level flight mode, pilots shall wear, as a minimum, an appropriate approved flighthelmet. Deviation will require prior approval from the Chief Pilot or Safety Pilot.

1555 Helicopter Performance

Introduction--It is essential that non-pilot users of helicopters gain some working knowledge of helicopters' capabilities and limitations. This chapter will provide language and terminology concerning capabilities, performance, and load calculations. Users are also encouraged to engage in conversations with the subject matter expert, the pilot.

Helicopter Performance and Selection--In order to complete the mission safely and successfully, the helicopter must be capable of meeting the performance required. Payload, hover ceiling, airspeed and fuel requirements need to be considered inselecting the proper aircraft. Other factors include the number of passenger seats, dimensions of the rotor disk, etc.

Load Calculations--The load calculation is the primary toolfor determining if the helicopter is capable of lifting the load at agiven temperature and altitude. All load calculations shall be completed for all flights to ensurethat the helicopter will perform within the limitations established by the helicopter manufacturer, without exceeding the gross weight for the environmental conditions where the helicopter will be used. When usingmilitary helicopters, a similar load calculation can be used such as the performance planning card.

All helicopters have a maximum computed gross weight limitation. Theseweight limitations are based on pressure altitude, air temperature, and configuration of the helicopter. Use the helicopter load calculation form 5700-17, RI 5700-17, or OAS-67. This form will ensure a margin of safety in helicopter loading while obtaining optimum use of the helicopter.

The pilot is responsible for the completion of the load calculation form. He will be responsible for completing items 1 through 13 of the form. The pilot must use the applicable performance charts from the helicopter operators flight manual and none other to complete his/her portion of the form. The helicopter manager must complete items 14 through 16. Retain completed load calculation forms with the project or flight records.

For repetitive flights, one calculation is valid between the same departure and destination base provided the original computed gross weights are not exceeded and the atmospheric conditions are approximately the same.

Recalculate the load calculation when the pressure altitude changes + or - 5 degrees centigrade, + or - 1,000 ft. altitude, or any increase of the payload to be carried, including more than five gallons of fuel load (a decrease in fuel load will increase the allowable payload); a new load calculation form may be completed to reflect increased capability.

A. **Determining Pressure Altitude**--Set aircraft altimeter kolsman window to 29.92 inches of mercury and then read pressure altitude directly off the altimeter, or altitude can be estimated by using a map,benchmarks, signs, etc. Temperature can be read directly off the outside air temperature gauge or for destinations by using the 2 degrees Celsius per 1,000 ft. or 3 degrees Fahrenheit method.
B. **Determining Flight Crew Weight**--This is the weight of the pilot pluspersonal flight gear.

C. **Determine Helicopter Equipped Weight**--The helicopter equippedweight is obtained from the aircraft weight and balance form in theaircraft flight manual.
D. **Determine Fuel Weight**--The actual weight of a gallon of aircraft fuelmay vary slightly. For computation purposes, the following weights should be used. If the pilot can determine the exact weight, he may usethat weight.

   AVGAS = 6.0 Pounds per Gallon
   JET FUEL = 7.0 Pounds per Gallon

   Utilizing the weight of fuel burned off en-route to the landing or hoversite is an acceptable method of calculating a helicopter's ability to hover or land at the destination.

E. **Operating Weight**--This is the sum of the helicopter's equippedweight, flight crew weight, and fuel weight.

F. **Maximum Computed Gross Weight**--This weight is obtained from theappropriate performance charts (HIGE, HOGE) from the helicopter's flight manual.

G. **Weight Reduction**--Except for external, jettisonable loads with pilot approval, the helicopter maximum computed gross weight for both HIGE and HOGE calculations shall be reduced by the weight listed in the weight reduction chart on the load calculation instructions.

H. **Alternatives When Conditions Are Different**--Occasionally, the actual environmental conditions at the destination are more severe than that which was estimated for the load calculation, resulting in an over grossweight condition. Examples include higher temperature, higher altitude, or encountering a HOGE, instead of a HIGE landing site, etc. In these situations, a different landing site at a lower elevation or an HOGE landing site can be selected, with a new load calculation completed to determine if the actual load is within the allowable load limits. For initial attack missions, this is the acceptable method of determining loads where the destination helispot is usually unknown.

   The HOGE allowable weight may be utilized on a standard basis for internal loads when the destination is known to be, or has been designated, as a HOGE landing site, or when experience has proven that landing sites in certain areas are usually HOGE sites.

I. **Manifests**--A listing of all passengers and cargo being transported is required. This listing of passengers and cargo may be accomplished on the load calculation form or the interagency helicopter passenger/cargo manifest.

   Listing will include: full name of each passenger, employer information, weight of each passenger with personal gear, weight of additional cargo, and destination. A copy of the passenger manifest must remain at the departure base. Base personnel must be educated on the purpose of the manifest and proper guidelines per the MT DNRC Crash Search and Rescue Guide.

Helicopter Loading--Consideration of center of gravity limitations is important in the loading of all aircraft but is particularly important in helicopters. In fixed-wing aircraft, the center of gravity is balanced over a horizontal wing area and has a comparatively wide range. In a helicopter, it is carried under a single point, like a pendulum; therefore,very little loading out of the center of gravity can greatly affect the controllability of the helicopter.

It is also important to properly secure all materials loaded on or in a helicopter. Careful attention must be given to small/heavy parcels loaded into helicopters to ensure that the pound per square inch maximum is not exceeded. Small heavy objects can punch holes in theflooring or collapse decking and the supporting stringers.

Standard Power Trend Checks--Turbine engine power checks, whenconducted on a regular basis, can be a good indicator of the health of the engine. Helicopter power checks will be conducted each 10 hours of flight time or on the first flight of the day.

Each make and model helicopter may have a different power check procedure with different charts. Sample power checks with discussionsof the elements involved are included for models most often used power check procedures are outlined in the individual aircraft flight manual.

Definitions and abbreviations:

EGT/TGT - Exhaust gas temperature/Turbine gas Temp.

HG - Inches of mercury.

ITT - Inter turbine or inter stage turbine temperature.

NF - Rotational speed of the power turbine in a free turbineengine. this speed may be expressed in percent. (N2)

NG - Rotational speed of the power turbine in a free turbineengine. (N1)

NR - Rotational speed of the main rotor.

NZ - Same as NF (sometimes referred to as N II).

OAT - Outside air temperature.

PA - Pressure altitude.

POWER - As used in this section, is the same as torque.

1556 Helicopter Cargo Transport

Introduction--The safe, efficient transport of cargo utilizing helicopters is a high priority. If performed incorrectly, there is the potential for dropped external loads, spillage of hazardous materials in the helicopter, over gross weight condition, cargo interference with the rotor systems, and other serious safety hazards. Incorrect methods of rigging and transporting cargo can result in catastrophic accidents.

Use of procedures in this chapter will ensure the safe transportation ofcargo.

Qualified Personnel

Ground Personnel--Helicopter and helibase personnel must be trained and qualified to perform or supervise the transport of cargo. Trained personnel should be provided at all loading and unloading sites. Any exceptions to this requirement (for example, longline with remote hook) are noted in this chapter.

Pilot Qualification--The pilot must be qualified for carriage of external loads and, if applicable, for longline with remote hook operation.

Load Calculations and Manifesting--During cargo transport operations, load calculations shall be performed prior to any flight activity. Weight of cargo is usually indicated on the load calculation form or if manifesting multiple trips, under one

load calculation, on the manifestform.

Air Crew Member on Board During External Load Missions--An air crew member is allowed on board during external load operations for formal training when authorized by the Chief Pilot and or the Safety Pilot, and when the capabilityof the aircraft is not significantly reduced.

An air crew member is allowed on board during external load operations, when the safety of the fire mission can be substantially enhanced, and the capability of the aircraft is not significantly reduced. Mission examples are listed in the PMS 510. This mission will require mutual agreement between the pilot and manager. In addition, a thorough debriefing to the Chief Pilot, Safety pilot and Land Office Fire Manager must occur upon completion of the mission. The pilot has final authority regarding carrying an aircrew member during external load operations but must still obtain prior approval from the Chief Pilot or Safety Pilot.

Hazardous Materials Transport and Handling--A complete list of hazardous materials is contained in CFR 172.11, Department of Transportation, Hazardous MaterialsTable. This guide will reference which materials can be transported via aircraft.

Cargo Preparation--Correct cargo preparation is essential to safe completion of the mission.

Pilot Approval--Obtain pilot approval of all cargo to be transported. Loadmasters and other personnel loading cargo must always inform the pilot of:

A. Hazardous material(s) being transported.

B. Packaging of the hazardous material and its placement in the helicopter, which must comply with the requirements specified in the hazardous materials handbook.

Weighing--Weigh cargo and inform the pilot of actual weights. Portable scales can easily be set up at remote helibases and helispots. Do not exceed allowable payload. If possible, have the cargo weighed, packaged, and marked prior to the arrival of the helicopter.

Equipment Inspection--Prior to the beginning of the operation, the helicopter manager or other person responsible for the cargo transport should inspect all equipment (i.e., lead lines, swivels, nets, tie-down straps, etc.) to ensure equipmentis in good working condition and is being used properly.

Cargo Inspection--Prior to commencing operations, the helicopter manager or other person responsible for the transportshould inspect all cargo. Inspection should include, as applicable, the following:

A. Liquid containers should be secured in an upright position.

B. Boxes should be taped shut and all items tied down or secured.

C. Cargo should be secured by restraining straps or nets constructed of synthetic webbing; straps or nets should be attached to cargo rings or attachment points specifically designed for restraining purposes.

D. Hazardous materials should be marked, and the pilot made aware ofitems being transported.

E. Sharp edges of tools should be protected by tool guards or tape to protect the cargo net.

Loading Procedures--All internal cargo shall be properly stored and secured, regardless of whether passengers are being transported with cargo.

Soft packs may be carried by passengers in the passenger compartmentof the helicopter. An initial attack pack is not considered a soft pack and must be secured in the cargo compartment or transported via sling.

External Cargo Rigging--The importance of inspecting equipment prior to rigging cannot be over-emphasized. Look and check for damage. If in doubt as to the equipment integrity, tag it as unusable or inoperable. On the tag, state the reason for the equipment being declared inoperable so that another individual will not use it.
The aerodynamic configuration of a load may cause it to spin or oscillate, which in turn may cause the pilot to experience control problems with the helicopter. The degree of the control problem maybe small, easily handled by minor control inputs. On the other hand, the pilot may experience extreme difficulty in controlling the helicopter, usually caused by improperly rigged cargo coupled with winds and turbulence. The load may have to be re-rigged, or under extreme conditions, the pilot may be forced to release the load, either intentionally or inadvertently.

Cargo Rigging Techniques--The NWCG Standards for Helicopter Operations (PMS 510) shall be used to determine the proper method for rigging a specific type of cargo. While it does not cover every type of load that can be carried, it is an excellent reference for most load types.

Hookup Methods--The four methods of hooking up loads to the helicopter for transport are as follows:

A. Hookup while the aircraft is on the ground.

B. Hover hookup, attaching the rigged load directly to the cargo hook (nolead line).

C. Hover hookup utilizing a lead line.

D. Hover hookup using a longline with a remote electric hook.

Preparation for the Hookup - Basic tasks that should beperformed prior to any external load operation include:

A. Prepare by removing any items from the helicopter that are not essential.

B. If requested, remove any or all doors and store in a safelocation as directed by the pilot.

C. Check both the rigging of the load and the external loadequipment according to the requirements and guidelinespreviously discussed in this chapter.

D. Attach the load to a swivel (the swivel must have a rating equal to or greater than the load being carried, with an ultimate strength of three times the weight of the load). Useof a swivel is required in most cases. Always attach the swivel to the cargo hook or, if using the longline with remote electric hook configuration, to the remote electric hook.

Hookup with Helicopter on the Ground - This method is usually utilized with the helicopter shut down and involves the least amount of risk to those involved. It should be used when the considerations outlined for the other two methods do not apply.

The pilot should be present when hooking the load to the aircraft. Once the load is ready, perform a three-point check:

A. Pilot checks manual release on the cargo hook.

B. Pilot checks the electric release on the cargo hook.

C. Check the electrical function of the mission equipment (water bucket release, remote electric hook release, etc.).

D. Run the lead line and swivel from the load to the cargo hook, ensuring that the line is not near or looped over anyskid.

Hover Hookup with No Lead line - This method involves attaching the load (for example, a cargo net with swivel) directlyto the cargo hook. This method of hookup without a lead line has disadvantages. There may not be enough slack in the net perimeter lines to allow the hookup person to attach the load to the cargo hook. In extreme cases, the helicopter may have to descend almost on top of the load itself. This procedure is not recommended unless there is enough line for the hookup personto stand almost upright below the helicopter.

Hover Hookup with Lead line/Longline - Hover hookups with lead line are effective as follows:

A. When multiple loads need to be transported in a short period of time.

B. When the load destination involves terrain on which the helicopter is unable to land.

To determine when and how to use a lead line/long line, consider:
1. Pilot preference.
2. Cargo to be transported.
3. Terrain and surrounding vegetation at the takeoffpoint and destination.

Hover Hookup with Long Line and Remote Electric Hook -Hover hookups with longline and remote electric hook are effective as follows:

A. When multiple loads need to be transported in a short period of time, and when the load is on terrain on which thehelicopter is unable to land or take off, and the surroundingvegetation is such that the helicopter is unable to perform ahover hookup with a standard length of lead line.

B. When ground personnel are not at the site.

<u>Required Personnel</u>

Hookup with Helicopter on the Ground--Only one person is necessary for this type of operation.

Hover Hookup--It is recommended that two individuals perform this type of operation, one qualified person hooking up the load and one person maintaining communications.

A. **Briefing** - A safety briefing should be completed prior to performing hover hookups.

B. **Helicopter Hand Signals** - In the event radio communications are not sufficient, then standard hand signals shall be used.

Emergency Procedures

Prior to hover hookup operations, emergency procedures should be discussed with the pilot and ground crew. The pilot should discuss procedures in the event of a mechanical failure and the steps that should be followed should a failure occur.
The pilot should indicate the intent will be to move the helicopter away from ground personnel, generally to the pilot's side of the helicopter, and the ground person should move in the opposite direction or fall flat next to the load to attempt as much protection as possible.

Radio Communications - For operations where radio communications are recommended or required, ensure frequencies are established, radios checked, and ground contacts identified. The pilot shall receive radio communications from only one person.

Hover Hookup With or Without Lead line - For hover hookup operations it is recommended that an additional person or hookup person maintain communications with the pilot.

Hover Hookup with Long Line and Remote Electric Hook - Radio communications between pilot and ground personnel must be established to ensure the safety of the person making the hookup.

Procedures for Hover Hookups

General--There are standard procedures for any hover hookup, regardless of whether a lead line or a long line is used. These include:

A. The cargo load itself should be placed in front of the helicopter skids, with no potential for the lead lines to become snagged overthe skids.

B. The cargo nets perimeter lines should be drawn over the top ofthe load and laid so that the lines and lead lines are prevented from becoming entangled in the net during takeoff.

C. Ground personnel should direct the pilot by radio or standard hand signals. Placement of loads carried by long line and remote electric hook may be done independently by the pilot if no ground personnel are available.

D. Ground personnel should be far enough back of the load to always remain visible to the pilot; personnel should establish this position by anticipating the length of the lead line or long line attached to the load or helicopter; the longer the line, the farther back from the load ground personnel should be.

E. This position should be slightly to the side of the load so that the ground personnel can maintain visual contact with the pilot from the pilot's position in

the cockpit.

F. This ground person should wear a non-flammable, high-visibilityvest or shirt to distinguish himself from other ground personnel.

G. Mutually agreeable measures to prevent static electric shock maybe taken by the ground person making the hookup and the pilot.

H. When the hookup person is clear of the helicopter, ground personnel may signal the pilot to begin movement of the load.

I. Ground personnel must pay close attention as the helicopter lifts up and tension is applied to the line; an improperly rigged or placed load can become snagged at any time.

J. Always keep the load between you and the helicopter.

Long Line with Remote Hook Procedures--Considerations and requirements for long line with remote electrical hook operationsinclude:

A. The sling load should be placed on the ground in the center of the loading area.

B. On approach, the signalman should advise the pilot on load clearance from trees, load height above the ground, and any problems that might arise in the pickup or drop zones.

C. For safety purposes, the hook should be landed next to the load. The hookup person should not be in the vicinity of the load at the time the pilot is placing the hook.

D. Once the hook is placed on the ground, the pilot should them move the helicopter to the side, so the hookup person is not directly beneath the hovering helicopter.

E. When attaching a load to the remote electric hook, the hookup person should allow the hook to contact the ground before touching it. This will ground the hook and reduce the possibility of electric shock from static electricity.

F. The hookup person will hook the load and leave the area.

G. The helicopter is then positioned above the load. The load is then lifted from the ground and flown out.

H. When receiving a load, stay clear of the landing area. Let the pilot set the load on the ground and release it from the remotehook before entering the area.

Cargo Letdown--Cargo letdown is a system that allows controlled descent of lighter cargo loads from a hovering position into areas that are not conducive to delivery by the internal cargo method, or which do not contain equipment to make a normal external load delivery.

Cargo Free Fall--The free fall of cargo from a helicopter is an additional method of delivering cargo to an area where conventional methods will not work, and a landing is impossible.

Use of Cargo Free Fall—cargo free fall should only be done after these conditions are met:

A. The pilot and crewmembers have been trained in cargo free fall.

B. The helicopter cannot be landed safely, and the mission is essential.

C. Other methods have been considered, and free fall has been determined to be the optimal method.

D. A load calculation form has been completed for hover out ofground effect.

E. There is adequate clearance from obstructions in the flight path of the helicopter and the drop zone.

F. All flight crew members and ground personnel have been thoroughly briefed.

G. Positive air-to-ground communications has been established.

Drop Procedure--The following procedures for cargo free fall must be followed:

A. Communications established.

B. Drop zone is identified.

C. Reconnaissance to determine if drop zone is feasible.

D. Ground personnel have been moved a safe distance from drop zone.

E. Determine wind condition and direction.

F. Determine ground and aerial hazards.

G. Establish flight path in and out of drop zone.

H. When over the drop zone, ensure prior conditions are met.

I. Drop cargo out and away from the aircraft.

J. Anticipate the forward airspeed of the aircraft

1560 Finance

1561 Introduction--The Department of Natural Resources (DNRC) directs most of its fire protection efforts towards keeping wildland fires as small as possible. The Department has established the primary goal of controlling 95% of all direct protection fires at 10 acres or less, so all fire management plans emphasize early detection and rapid initial attack to meet this goal. Analysis of suppression expenditures shows that the smaller the wildfire, the smaller the suppression expenditures. The cost of resources damaged and/or lost is also minimized.

The National Fire Management Analysis (NFMAS) evaluations for DNRC indicate improved efficiency by employing aircraft in firefighting. These studies also indicate maximum efficiency is gained by stationing a fixed-wing patrol plane and a medium helicopter in each of the State's direct protection areas for ready response from the middle of June to the end of September, or approximately120 days of availability. The Department continually uses the NFMAS to reevaluate its needs for firefighting resources, and it also assesses the best way to acquire the necessary aviation services. We strive to get the best aviation services for firefighting at the most reasonable cost to the taxpayer. The Federal Excess Personal Property (FEPP) program is the program that affords the State the opportunity to achieve this goal.

1562 Accounting--The Department Air Operations Program is funded by an internal service account (proprietary account).

The internal service account (Responsibility Centers 52001 through 52020) was established to maintain money to pay for the day-to-day operating expenses of the Department aircraft and also hold some money in reserve for major repairs or overhauls from year to year, so the aircraft are always maintained in a safe and cost-efficient manner.

Direct operating costs such as fuel, oil, radio repairs, annual inspections, 100-hour inspections, normal airframe repairs, engine overhauls, and other maintenance needs are all financed by the internal service account. Funding for this account is derived from a user's fee based on an hourly rate. The hourly rate is recalculated each year for all the aircraft and issued as a change to this part of the manual, if necessary.

The hourly rate structure was established by averaging direct costs for the operation of Department aircraft recorded in SABHRS and by reviewing operational cost data by aircraft manufacturers' recommendations.

General Fund Transfer

The administrative part of the internal service account is related to flying operations for personal services, facilities rent, insurance, etc., which are budgeted and shown in responsibility center 52010. This is general fund and assessment money which represents the State's share to the aviation program. The funds in the administrative account are constant except for inflation and additional increases necessary to

administer the aviation operations program for the Department.

1563 **Flight Log**--The Department of Natural Resources and Conservation directs the Air Operation Program/Chief Pilot to monitor the hourly operating cost of each Department aircraft and make the appropriate changes in the hourly rate for each aircraft. See Annex E for Aircraft Billing Form.

Aircraft rates are changed to maintain adequate funds in the aircraft internal service account.

Current rates are:

Fixed wing	$210.00/hour
Jet Ranger	$525.00/hour
MT-205 Huey	$1860.00/hour

These rates will be reviewed each year and changed as necessary to maintain adequate funds in the internal service account to maintain the aircraft in a safestate.

A billing format (Annex E) is used that facilitates the accumulation of hours flown per aircraft and initiates the billing process; this is the aircraft use record and is a three-copy form. The DNRC Record of Aircraft Use is a record of all flight activity conducted by the Department using DNRC aircraft. DNRC aircraft are used primarily for fire management missions but are also used for other administrative purposes. The mission is usually ordered by a dispatch center in support of DNRC or cooperating agency (USFS, BLM, BIA, county) operations. Each flight must be assigned a billing code responsibility center number from the DNRC Financial Code Generator. ALL FLIGHTS MUST BE ASSIGNED TO A RESPONSIBILITY CENTER.

A manager is assigned to each aircraft operating in a dispatch zone. It is the responsibility of this manager to collect flight information for each mission flown in the zone by a DNRC aircraft. This data is forwarded to the Fire and Aviation Management Bureau for consolidation and review, to the DNRC Chief Pilot for further review and approval, and to Central Services Division for accounting.

Fire, passenger, cargo, and retardant information is also collected for fire missions and is used for a variety of aircraft usage analyses.

The approved data base/electronic billing program, Fire Protection Bureau - Flight Log System, is used for all cost and flight accounting.

ANNEX LIST – 1500 MANUAL

Annex A DNRC Aircraft Use Management Guidelines

Annex B Aircrew Training Manual

Annex C DNRC Crash Search and Rescue Guide

Annex D Reserved

Annex E DNRC Aircraft Billing Form

Annex F Form 5700 -14 Initial Report of Incident or Accident / Incident report

Annex G Maintenance Form / Daily Log Instructions

Annex H FAA Public/ Civil Aircraft Utilization Dispatch Worksheet

Annex I DNRC Guard Operations Guide

Annex J DNRC Line Officer Aviation Transition Checklist

Annex K DNRC Fuel Servicing & Equipment Requirements

Annex L DNRC Air Operations SMS Program Guide

Annex M Organization Charts

Reference - NWCG Standards for Helicopter Operations (PMS 510)

Reference - USFS Transport of Hazardous Materials

Reference - Public Law Advisory Circular 00-1.1B

ANNEX A

DNRC AIRCRAFT USE MANAGEMENT GUIDELINES

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DNRC Policy # 3-0619
Name: USAGE OF AIRCRAFT BY DEPARTMENT PERSONNEL
Reference MOM Vol. I 1-97-3-4 Airplane Mileage Rates
Reference Other 2-18-503, 504 MCA
DNRC Air Operations Manual
Approval:
Signature \S\ Bud Clinch
Effective Date 8-27-98

USAGE OF AIRCRAFT BY DEPARTMENT PERSONNEL

I. AUTHORITY

Guidelines covering aircraft usage and operations within the Department are the responsibility of the Air Operations Chief Pilot. State aircraft usage is further defined within the Department's Air Operations Manual. Reimbursement of employees when using own or rented aircraft is contained within 2-18-503 and 2-18-504 M.C.A.

II. PURPOSE

The purpose of this policy is to govern the usage of aircraft (excluding commercial airlines) to transport Department personnel while on official business.

III. PROCEDURES

Usage of Department Aircraft and Pilots

Department aircraft and pilots will be used in the normal course of business. The Air Operations Chief Pilot will ensure that Department aircraft and pilots meet all necessary standards and conditions for the safe transport of Department personnel. All requests for normal non-fire usage of Department aircraft will be coordinated through the Air Operations Chief Pilot. Department aircraft and seasonal pilots may be assigned to specific Land Offices during specific periods of the year, as during the normal fire season. Usage of these aircraft for other than fire use during the fire season must be coordinated by the Air Operations Chief Pilot through the appropriate fire dispatch center. Requests by employees for non-fire usage of Department aircraft must be first approved by the Administrator or Bureau Chief/Area Manager. All billing and documentation requirements will be as specified in the DNRC Air Operations Manual. Department owned aircraft will only be piloted with pilots approved through the Air Operations Chief Pilot.

Usage of Rented aircraft with a Pilot from an Approved Fixed Base Operator

The Department may rent aircraft with pilots from fixed base operators when it is in the best interest of the Department to do so. This may be when there is an emergency, such as a fire, or when state-owned aircraft are either not available or suitable for the specific mission. In non-

emergency situations the request for non-Department aircraft will be made through the Air Operations Section unless other specific arrangements have been approved by the Air OperationsSection. The Air Operations Section will then contract with an approved fixed base operator.
Requests to rent aircraft must be approved by the Administrator or Bureau Chief/Area Managerbefore forwarding to the Air Operations Section.

Usage of Personal or Rented Aircraft by Department Employee Pilots

Under specific guidelines Department employees may pilot their own or rented aircraft for theconduct of Department business. These guidelines are necessary to ensure the safe conduct ofDepartment affairs. Employees must first receive written approval from their respective Administrator prior to any flight and must meet the following requirements:

1. Employee pilots must possess the following qualifications and be approved by the AirOperations Chief Pilot:

    a. Valid FAA pilot certificate (private or higher);

    b. Appropriate FAA medical Certificate.

    c. Minimum of two hundred hours pilot in command.

    d. Maintain recent flight experience in accordance with Federal AviationRegulations Part 61.57.

2. Flights shall be advantageous to the state and be within the capability and experiencelimitations of the pilot.

3. Flights will not be authorized to carry other employees or passengers, freight, or cargo; orto perform detection, fire patrol, reconnaissance, or other similar or specialized missions.

4. All flights will be conducted under FAA regulations and flight plans will be filed for eachflight with the appropriate flight service station.

5. Flights shall be made in daylight hours under visual flight rules.

6. Reimbursement will be based on the rate currently defined in state law, rule or management memo. Current reimbursement is based on a nautical point to point mileageat a rate twice the “high” automobile rate.

ANNEX B

AIRCREW TRAINING MANUAL

MT DNRC AIR CREW TRAINING MANUAL

TABLE OF CONTENTS

PREFACE

This publication is intended as a guide for establishing aviator qualification, refresher, mission, and continuation training programs. The DNRC Aircrew Training Program is designed to aid DNRC Air Operation Bureau at all levels in improving its readiness, safety, and professionalism.

Basic helicopter qualification will be considered complete when all 1000 series tasks and task 4011 are completed satisfactorily. Basic airplane qualification will be considered complete when all 3000 series tasks and task 4011 are completed satisfactorily.

Helicopter mission training will be considered complete when all 2000 series tasks are completed satisfactorily.

Refresher training will be accomplished when an aviator has been away from the controls for 60 days or greater. Refresher training will consist of 1000, 2000 series tasks for helicopter pilots and 3000 series tasks for airplane pilots as determined by the evaluator.

Continuation training will occur on an annual basis where all previously trained tasks can be evaluated.

During training or evaluations those tasks that are not performed satisfactorily will be retrained and re-evaluated.

Documentation of all training will be annotated in the aviators personal training record.

The ATM standardizes the aviator training program and flight evaluation procedures. The standardization of requirements, procedures, and practices ensures that standard techniques and procedures will be used in everyday flying. By using the ATM, the Chief pilot can ensure that individual aviator proficiency is matched with the mission.

The aircraft operator's manual contains aircraft operating procedures. If differences exist between the maneuver descriptions in the operator's manual and this publication, this publication is considered the governing authority for training and flight evaluation purposes. The Chief pilot must provide specific guidance for implementing the training outlined in this publication.

Unless otherwise stated, whenever the masculine gender is used, both men and women are included.

Chapter 1

QUALIFICATION TRAINING

This chapter prescribes minimum academic and flight qualification training. A qualified evaluator must monitor all instruction. Basic qualification training for aviators is conducted at Helena Regional Airport.

Section I. BASIC AND SERIES QUALIFICATION TRAINING REQUIREMENTS

2-1. ACADEMIC TRAINING

When possible, academic training should be completed before corresponding flight training. The subjects may be presented in any order. However, the introduction should be first, and the aircraft operator's manual written examination should be last. Systems instruction includes training in operation, capabilities, limitations, and malfunction analysis.

Academic training should include:

1. Instruction in the appropriate provisions of the Montana DNRC 1500 flight operations manual.
2. Appropriate provisions of FAR Part 91, 133 and 137.
3. For the type of aircraft to be flown by the pilot; the aircraft power plant, major components and system, performance, and operating limitations, standard and emergency operating procedures, the contents of the approved aircraft flight manual or equivalent, the method of determining compliance with weight and balance limitations for takeoff, landing and en route operations.
4. Navigation and use of air navigation aids appropriate for flight operations and when applicable, the use of instrument approach facilities and procedures.
5. Air traffic control procedures, including IFR procedures when applicable.
6. Meteorology in general, including the principles of frontal system, fog, thunderstorms, and windshear, ridge top wind limitations, and, if appropriate, for the operation of the company and high-altitude weather.
7. Procedures for avoiding severe weather situations and for operating in or near thunderstorms, turbulent air, icing, hail, and other potentially hazardous meteorological conditions.
8. Normal and emergency communication procedures use of NAT and Technisonic FM radios.
9. Load calculation form OAS-67/FS 5700-17.
10. Organizational breakdown of the Department.
11. Flight Physiology.
12. Safety/Safety Management System (SMS).
13. Air Crew Coordination/Crew Resource Management.
14. Radio operation procedures.
15. Sling load equipment review.

16. Accident and incident reports review.

17. Water bucket/foam operation.

2-2. FLIGHT TRAINING

1. During flight training, the aviator is trained to proficiency in the tasks identified in Chapter 2.

2. Realism is important in qualification flight training. To achieve it, the instructor pilot must ensure that training includes operation of the aircraft at or near maximum gross weight.

3. All qualification, mission, refresher, and continuation training completion as well as any other significant actions will be annotated in the flight records folder.

Required Publications

- DNRC Manuals
- 1500 Air Operations Manual
- USFS 5700 - Aviation Management http://www.fs.fed.us/cgi-bin/Directives/get_dirs/fsm?5700
- PMS 510 NWCG Standards for Helicopter Operations
- FM 3-04.203 (Fundamentals of Flight)
- All Applicable Federal Aviation Regulations (FAR's)
- Aeronautical Information Manual (AIM)
- ATC Handbook 7110.65U www.faa.gov/documentlibrary/media/order/atc.pdf
- United States Standard for Terminal Instrument Procedures (TERPS)
- OAS-67/FS 5700-17 (Load Calculation)
- Appropriate Aircraft Operators Manuals

Chapter 2

TRAINING TASKS

TASK: 1001

Plan a VFR flight.

CONDITIONS:

Prior to flight in a DNRC aircraft and given access to weather information; NOTAMs; flight planning aids;necessary charts, forms, and publications; and weight and balance information.

STANDARDS:

1. Determine if the aircrew and aircraft are capable of completing the assigned mission.

2. Determine if the flight can be performed under VFR according to DNRC Air Operations Manual.

3. Check applicable publications and determine, without error, if there are any restrictions on departure, en route, and at destination.

4. Select course(s) and altitude(s) which best ensure mission completion, and correctly compute magnetic heading(s) within ±5 degrees.

5. Determine distance ±1 nautical mile, ground speed ±5 knots, and ETE ±3 minutes for each leg of the flight.

6. Determine fuel requirement from takeoff to destination, plus fuel reserve.

7. Without error, verify that the aircraft will remain within weight and CG limitations for the duration of the flight.

8. Complete and file the flight plan according to guidelines set forth in the DNRC flight following procedures.

DESCRIPTION:

In planning a VFR flight, first ensure that all crewmembers are current and are qualified to accomplish the mission. Then ascertain that the aircraft is capable of completing the mission. Using FAA weather facilities, obtain information about the weather. After ensuring that the flight can be completed under VFR, check NOTAMs. Obtain charts that cover the entire flight area and allow for changes in routing that may be required because of the weather or terrain. Ensure weight and balance forms kept in the aircraft logbook apply to aircraft load and CG limitations. Verify that aircraft weight and CG will remain within allowable limits for the entire flight.

REFERENCES:

DNRC Air Operations Manual
All Applicable Federal Aviation Regulations
Aircraft Operators Manuals

TASK: 1002

Plan an IFR flight.

CONDITIONS:

Prior to IFR flight in a DNRC aircraft and given access to weather information; NOTAMs; flight planningaids; necessary charts, forms, and publications; and weight and balance information.

STANDARDS:

1. Determine if the aircrew and aircraft are capable of completing the assigned mission.

2. Check applicable publications and determine, without error, if there are any restrictions on departure, en route, and at destination.

3. Select route(s) which avoid severe weather hazards, conform to know preferred routing, and are within the capability of aircraft equipment. If off-airway, determine course(s) within ±5 degrees.

4. Select altitude(s) which avoid icing level and turbulence, are above minimum altitudes, conform to the semicircular rule (when applicable), and do not exceed aircraft or equipment limitations.

5. Select an approach, which is compatible with the weather, approach facilities, and aircraft equipment, and determine if an alternate airfield is required.

6. Determine distance ±1 nautical mile, true airspeed ±3 knots, ground speed ±5 knots, and ETE ±3 minutes for each leg of the flight.

7. Determine fuel requirement from takeoff to reach the destination and alternate airfield (if required), plus fuel reserve, ±25 pounds.

8. Without error, verify that the aircraft will remain within weight and CG limitations for the duration of the flight.

9. Complete and file the flight plan according to FAA.

DESCRIPTION:

In planning an IFR flight, first ensure that all crewmembers are current and qualified to accomplish the mission. Then ascertain that the aircraft is capable of completing the mission. Using FAA, obtain information about the weather. Compare destination forecast and approach minimums to determine if an alternate airfield is required. Check NOTAMs for any restrictions applicable to the flight. Obtain charts that cover the entire flight area and allow for changes in routing or destination that may be required because of the weather. Select the route(s) and course(s) and altitude(s) that will best facilitate mission accomplishment. When possible, select preferred routing. Use a CPU-26A/P computer/Weems plotter (or equivalent) to plot the flight, and determine magnetic heading, ground speed, and ETE for each leg, including flight to the alternate airfield if required. Compute total distance and flight time and calculate required fuel using the appropriate charts in the aircraft operator's manual. Ensure weight and balance forms kept in the aircraft logbook apply to aircraft load and CG limitations are within limits. Verify that aircraft weight and CG will remain within allowable limits for the entire flight. File the flight plan with the appropriate agency.

REFERENCES:

DNRC Air Operations Manual
All applicable Federal Aviation Regulations
Aircraft Operators Manuals

TASK: 1003

Prepare Helicopter Load Calculation Form.

CONDITIONS:

Given cargo weight and dimensions, crew weights, aircraft configuration, aircraft weight and balance information, aircraft operator's manual, and a blank copy of the appropriate helicopter load form calculation.

STANDARDS:

1. Correctly compute the allowable payload.

2. Correctly compute the actual payload.

3. Determine if aircraft gross weight imposes limitations on the proposed flight.

DESCRIPTION:

Complete FS-5700-17 or OAS-67 according to the listed references. Also verify that the aircraft will remain within allowable limits for the entire flight.

REFERENCES:

Aircraft Operator's Manual
FS-5700-17
OAS-67

TASK: 1004

Perform pre-flight inspection

CONDITIONS:

Given a DNRC aircraft, aircraft operator's manual, and checklist.

STANDARDS:

Without error, perform the pre-flight inspection according to the checklist.

DESCRIPTION:

Using the checklist, verify all pre-flight checks. Perform the crew briefing as outlined in the aircraftoperator's manual.

NOTE:

The aircraft operator's manual contains details about procedures outlined in the checklist.

REFERENCES:

Aircraft Logbook
Aircraft Operator's Manual
DNRC Air Operations Manual

TASK: 1005

Perform engine-start, run-up, and before-takeoff checks.

CONDITIONS:

In a DNRC aircraft with the checklist.

STANDARDS:

Without error, perform procedures and checks according to the checklist.

DESCRIPTION:

Start the engine according to the checklist and accomplish aircraft system checks in the appropriate sequence. Record required information on applicable aircraft logbook forms.

NOTE:

The aircraft operator's manual contains details about procedures outlined in the checklist.

REFERENCES:

Aircraft Operator's Manual
Engine PAC Log
Operator's and Crewmember's Checklist
DNRC Air Operations Manual

TASK: 1006

Perform confined area operations.

CONDITIONS:

In a DNRC helicopter with before landing check completed.

STANDARDS:

Prior to the approach

a. Establish desired altitude ±100 feet.
b. Establish desired airspeed ±10 KIAS.
c. Properly perform a landing area reconnaissance.

2. During the approach

a. Maintain ground track alignment with the selected approach path with minimum drift.
b. Maintain a constant approach angle.
c. Maintain an appropriate rate of closure.
d. Properly perform a low reconnaissance.
e. Execute a smooth and controlled termination in the forward one-third of the landing area.

3. Prior to takeoff

a. Properly complete the ground reconnaissance and select a suitable takeoff path.
b. Perform a hover power check if required and complete the before-takeoff check without error.
c. Properly clear the aircraft.

4. Prior to clearing obstacles

a. Maintain heading ±10 degrees.
b. Maintain ground track alignment with minimum drift.
c. Use power as required to clear obstacles safely while not exceeding aircraft limitations.

5. After clearing obstacles

a. Establish climb airspeed ±10 KIAS.
b. Maintain rate of climb ±100 FPM.
c. Maintain aircraft in trim.
d. Maintain ground track alignment with the selected takeoff path with minimum drift.

DESCRIPTION:

1. Upon approaching the area, evaluate the overall suitability of the terrain. Select a flight path, airspeed, and an altitude that afford best observation. If approaching the area in the terrain flight mode, it is not necessary to increase altitude to perform the landing area reconnaissance. If landing is intended, determine if the landing area is suitable, identify obstacles, and estimate the effects of the wind. Select a touchdown point and a tentative flight path for the approach and departure.

2. On final approach, perform a low reconnaissance and confirm the suitability of the selected landing area. Evaluate obstacles, which constitute a possible hazard, and confirm the suitability of the departure path selected during the landing area reconnaissance. If a successful landing is doubtful, initiate a go-around before reducing airspeed below ETL or before descending below obstacles. Maintain the aircraft in trim above obstacles and maintain landing area alignment below obstacles. If instability is detected during the landing, reposition the aircraft. After landing and before takeoff or movement in the landing area, perform a ground reconnaissance to determine the suitability of the area for ground operations or to formulate the takeoff plan. (The ground reconnaissance may be performed from the cockpit.) Formulate the takeoff plan by evaluating the wind, obstacles, and shape of the area. Select the route to the takeoff point and ensure adequate main and tail rotor clearance while maneuvering. For takeoff over an obstacle, it may be necessary to move the aircraft as far downwind from the obstacle as possible. Complete the before-takeoff check and perform a hover power check if required. During takeoff, clear the aircraft. Use power as necessary to clear the obstacle safely while maintaining a constant ground track and climb angle.

NOTE:

Hover OGE power is required for confined area operations.

REFERENCES:

Aircraft Operator's Manual
DNRC Air Operations Manual

TASK: 1007

Perform slope operations.

CONDITIONS:

In a DNRC helicopter with aircraft cleared.

STANDARDS:

Maintain heading perpendicular to slope ±5 degrees.

1. Do not exceed a 1-foot drift prior to and no drift after skid contact with the ground.

2. Execute a smooth and controlled descent and touchdown.

3. Execute a smooth and controlled ascent.

DESCRIPTION:

Select a suitable area for slope operations. If possible, orient the aircraft into the wind. The degree of slope chosen should not be so great as to create a need for large cyclic inputs to accomplish the landing. After selecting the area, establish the aircraft perpendicular to the slope. Reduce the collective until the upslope skid contacts the ground. Continue reducing the collective and simultaneously apply lateral cyclic into the slope to maintain the position of the upslope skid until both skids are firmly on the ground. When the collective is fully down, neutralize the pedals and cyclic. For takeoff, apply lateral cyclic into the slope to maintain the position of the upslope skid. Increase collective to raise the down slope skid, maintain heading with the pedals, and coordinate the cyclic until the aircraft is level. Ascend slowly to a hover.

NOTE:

Before conducting slope operations, the aviator must understand dynamic rollover characteristics.

NIGHT OCONSIDERATIONS:

When conducting slope operations, select reference points to determine slope angles. References will probably be limited and difficult to ascertain. If, at any time, successful completion of the landing is doubtful, abort the maneuver.

REFERENCES:

FM 3-04.203
Aircraft Operator's Manual

TASK: 1008

Perform hovering autorotation.

CONDITIONS:

In a DNRC helicopter with an IP; aircraft heading into the wind; in a locally approved touchdown area; with aircraft cleared.

STANDARDS:

1. Prior to entry

   Establish a stationary 3-foot over, ±1 foot.

2. After entry

   a. Maintain heading ±10 degrees.
   b. Maintain position over the ground ±1 foot.
   c. Execute a smooth and controlled descent and touchdown with no lateral or rearward drift.

DESCRIPTION:

From a stationary 3-foot hover, retard the throttle to engine idle stop. Simultaneously apply right pedal to maintain heading and adjust the cyclic to maintain position over the ground. (While retarding the throttle, do not raise or lower the collective.) As the helicopter settles, apply sufficient collective to make a smooth descent and touchdown. Do not stop the descent by overapplying the collective and be alert for lateral or rearward drift. When the helicopter is resting firmly on the ground, smoothly lower the collective to the full-down position while neutralizing the pedals and cyclic.

REFERENCES:

FM 3-04.203
Aircraft Operator's Manual

TASK: 1009

Perform simulated engine failure at altitude.

CONDITIONS:

In a DNRC helicopter with an IP and termination as directed.

STANDARDS:

Recognize the emergency, determine the appropriate corrective action, and perform or simulate (asrequired), from memory, all immediate action procedures described in the aircraft checklist.

1. Select a suitable landing area.

2. Correctly terminate the maneuver as directed by the IP.

DESCRIPTION:

Upon detecting engine failure, lower the collective to maintain rotor RPM within limits while adjusting the pedals to trim the aircraft. Select a suitable landing area. Use turns and vary the airspeed (between minimum rate of descent and maximum glide) as necessary to maneuver the aircraft for a safe landing at the intended landing area. The final approach should generally be into the wind. Call out rotor RPM, gas producer, and aircraft in trim. Simulate setting the emergency governor switch to EMER, setting the transponder to EMER, and transmitting a Mayday call on the "guard" frequency. Complete or simulate emergency procedures outlined in the aircraft checklist; if time permits, verify the procedures. You should plan each forced landing as continuing to the ground. Before reaching 400 feet AGL with the aircraft in a safe autorotative profile, the IP will state one of three commands: "Power recovery," "Terminate with power," or "Touchdown."

a. Power recovery.

Upon receiving the command, "Power recovery," immediately establish normal operating RPM by smoothly applying the throttle to full open. Adjust the collective as necessary while maintaining trim with the pedals. When operating RPM has been regained, apply sufficient collective to establish a normal climb. Complete the recovery prior to reaching 200 feet AGL.

b. Terminate with power.

Upon receiving the command, "Terminate with power," continue the autorotative descent. Before reaching 100 feet, establish normal operating RPM, adjust the collective as necessary, trim the aircraft with the pedals, and maintain autorotation. At approximately100 feet AGL, apply aft cyclic to initiate a smooth and progressive deceleration. Maintain aircraft alignment with the touchdown area by properly applying pedals and cyclic. Adjust the collective, if required, to prevent excessive rotor RPM. At approximately 15 feet AGL, apply sufficient collective to control the rate of descent and ground speed such that they are zero at 3 to 5 feet AGL with the aircraft in a landing attitude.

NOTE:

Normal engine RPM must be established before passing through 100 feet AGL.

c. Touchdown.

Upon receiving the command, "Touchdown," continue the autorotative descent. At approximately 100 feet AGL, apply aft cyclic to initiate a smooth and progressive deceleration. Maintain aircraft alignment with the touchdown area by properly applying pedals and cyclic. Adjust the collective, if required, to prevent excessive rotor RPM. At approximately 15 feet AGL, apply sufficient collective to control the rate of descent and ground speed. (The amount of collective applied and rate of application will depend on the rate of descent and ground speed.) Adjust the cyclic to attain a landing attitude. Apply collective as necessary just before touchdown to cushion the landing. After touchdown, maintain ground track alignment with the pedals. When the aircraft has come to a complete stop, lower the collective and neutralize the pedals and cyclic.

REFERENCES:

FM 3-04.203
Aircraft Operator's Manual
Operator's and Crewmember's Checklist

TASK: 1010

Perform manual throttle operation, emergency governor mode

CONDITIONS:

In a DNRC MT 205 helicopter with an IP and aircraft cleared.

STANDARDS:

Without error, perform the procedure to change the governor to the emergency mode according tothe description below.

1. Maintain 97% RPM, ±3% RPM.

2. Smoothly coordinate throttle and collective controls.

3. Maintain altitude ±1 foot.

4. Maintain a constant rate of turn, not to exceed 90 degrees in four seconds.

5. Without error, perform the procedure to change the governor to the automatic mode according to the description below.

CAUTION
To prevent overspeed, overtemperature, compressor stall, or engine failure, make smooth throttle and collective adjustments. Closely monitor N1, Torque, N2, and EGT.

DESCRIPTION:

While on the ground with RPM stabilized at 100% RPM and collective full down, retard the throttle to engine-idle stop. After noting a decrease in engine RPM, move the governor switch to the emergency position. Smoothly adjust the throttle to 97% RPM. Increase the collective and manipulate the throttle carefully to maintain 97% RPM until the aircraft is stabilized at a 3-foot hover. Apply cyclic and pedals as necessary to remain stationary and to maintain a constant heading. Clear the aircraft and perform a left hovering turn and a right hovering turn. Upon completion of both turns, adjust the collective and throttle to maintain 97% RPM and land the aircraft. Reduce the throttle to engine-idle stop. After noting a decrease in engine RPM, move the governor switch to the automatic position. Slowly increase the throttle to the full-open position and adjust RPM to 100%. Ensure fuel control is operating properly.

NOTE:

In case of an actual in-flight emergency that requires emergency governor operations, use the procedures outlined in the aircraft operator's manual.

REFERENCES:

Aircraft Operator's Manual
Operator's and Crewmember's Checklist

TASK: 1011

Perform or describe emergency procedures

CONDITIONS:

In a DNRC aircraft in a classroom environment; given a specific emergency condition.

STANDARDS:

Without error, perform or describe the appropriate emergency procedures.

DESCRIPTION:

Perform or describe the appropriate emergency procedures as outlined in the aircraft operator's manual.

NOTE:

Those emergency procedures that cannot be practiced in the aircraft will be discussed orally.

REFERENCES:

Aircraft Operator's Manual
Operator's and Crewmember's Checklist

TASK: 1012

Perform pinnacle or ridgeline operation.

CONDITIONS:

In a DNRC helicopter with before-landing check completed.

STANDARDS:

Reconnaissance.

a. Establish desired altitude ±100 feet.
b. Establish desired airspeed ±10 KIAS.
c. Properly perform a continuous reconnaissance.

2. Approach.

a. Maintain ground track alignment with the selected approach path with a minimum drift.
b. Maintain a constant approach angle.
c. Maintain an appropriate rate of closure.
d. Execute a smooth and controlled termination in the forward one-third of the landing area.

3. Takeoff.

a. Perform a hover power check if required, and complete a before-takeoff check without error.
b. Properly clear the aircraft.
c. Perform an airspeed-over-altitude takeoff while maintaining heading ±10 degrees.
d. Maintain appropriate airspeed ±10 KIAS.

DESCRIPTION:

1. Start the reconnaissance on the windward side of the pinnacle or ridgeline when practical. Upon approaching the area, evaluate the overall suitability of the landing site. Select a flight path, an airspeed, and an altitude that will provide the best observation. Determine if the landing site is suitable, locate obstacles, and estimate the effects of the wind. Plan the approach to the forward one-third of the landing area. Depending on the wind, density altitude, load, and forced landing areas, the approach angle can vary from a shallow to a steep angle. Continue the reconnaissance on final approach to confirm information previously gained. When surface conditions permit, land to the ground. Execute a go-around prior to going below ETL if the reconnaissance reveals that a safe landing cannot be accomplished.

2. After touchdown, check aircraft stability by slowly moving the cyclic and pedals as the collective is lowered to the full-down position. If aircraft movement is detected, reposition the aircraft. Clear the aircraft and execute an airspeed-over-altitude takeoff. If the takeoff requires clearing obstacles, do not use an angle of climb, which is greater than that required to clear them. Use power as necessary to clear the obstacles while maintaining a constant angle of climb and ground track. After clearing the obstacles, adjust attitude to gain forward airspeed.

REFERENCES:

FM 3-04.203
Aircraft Operator's Manual
Operator's and Crewmember's Checklist

TASK: 2001

Perform external load operations.

CONDITIONS:

In a DNRC helicopter with an operational cargo hook; required briefings and checks completed; andaircraft cleared.

STANDARDS:

Hookup and Hover.

a. Maintain vertical ascent heading ±10 degrees.
b. Maintain altitude of load 5 feet AGL, ±1 foot.
c. Do not allow drift to exceed 5 feet.

2. Takeoff (Below 100 Feet AGL).

a. Maintain takeoff heading ±10 degrees.
b. Maintain ground track alignment with takeoff direction.
c. Maintain power as required to clear obstacles safely.

3. Takeoff (Above 100 Feet AGL).

a. Maintain aircraft in trim.
b. Maintain airspeed ±10 KIAS.
c. Maintain rate of climb ±100 feet.

4. En Route.

a. Maintain aircraft in trim.
b. Maintain airspeed ±10 KIAS.
c. Maintain safe load obstacle clearance (minimum 50 feet AHO).

5. Approach and Load Release.

a. Maintain a constant approach angle to ensure the load safely clears obstacles.
b. Maintain ground track alignment with the selected approach path.
c. Execute a smooth and controlled termination over the intended point of landing.
d. Maintain vertical descent heading ±10 degrees.

DESCRIPTION:

1. Hookup and Hover:

Place the cargo release switch in the ARM position. Follow hand signals from the signalman to hover over the load. Apply cyclic, collective, and pedals as required to maintain vertically clear of and centered over the load. When the signalman indicates the load is hooked up, slowly apply collective until all slack is taken out of the sling. Make necessary corrections with the cyclic to remain centered over the load. Maintain heading with the pedals. Apply additional collective to raise the load vertically to 5 feet AGL. Monitor aircraft instruments to ensure aircraft limitations are not exceeded.

2. Takeoff:

a. After receiving the signal for takeoff, smoothly apply forward cyclic while increasing collective pitch to begin a coordinated acceleration and climb. Adjust pedals as necessary to maintain desired heading. Adjust cyclic and collective as necessary to attaina constant

angle of climb that will permit safe obstacle clearance. Continue the climb out at that attitude and power until obstacles are cleared.

b. Above 100 feet or obstacle clearance, adjust attitude and power as required to establish the desired rate of climb and airspeed. Make small control movements to prevent load oscillation.

NOTE:

Ensure the cargo switch is in the ARM position.

3. En Route:

Maintain desired altitude with the collective and desired flight path and airspeed with the cyclic. Maintain aircraft in trim with the pedals. Make smooth control applications to prevent load oscillation. If a lateral load oscillation occurs, reduce airspeed. If a fore-and-aft oscillation occurs, begin a shallow bank while reducing airspeed.

4. Approach and Load Release:

When the approach angle is intercepted, decrease the collective to establish the descent. Maintain entry airspeed until apparent ground speed and rate of closure appear to be increasing. Progressively decrease the rate of descent and forward airspeed until a stationary hover is attained with the load 5 feet above the intended release point. (A go-around should be made before descending below obstacles or decelerating below ETL.) Slowly reduce the collective until the load rests completely on the ground, and then release it. If ground personnel are not available, confirm load release by hovering to a point that is higher than the sling length.

NOTES:

1. Avoid flight overpopulated areas.

2. Before the mission, the pilot will ensure that all crew members are familiar with the hand-and-arm signals and forced landing procedures.

REFERENCES:

FM 3-04.203
Aircraft Operator's Manual
DNRC Air Operation Manual

TASK: 2002

Perform vertical reference longline operations.

CONDITIONS:

In a DNRC helicopter with an operational remote hook on a 50', 100' or 150' longline; required briefingsand checks completed; and aircraft cleared.

STANDARDS:

DESCRIPTION:

Preflight.

a. Check aircraft cargo hook and remote hook for proper electrical and manual operation.
b. Inspect cables and all rigging equipment for serviceability.
c. Brief the ground crew.
d. Safety briefing for the customer.

2. Take-off.

When picking up the empty hook or load keep your eyes on the hook/load until all obstacles have been cleared and the aircraft is safely flying the load. (Minimum of 100' clearance from the tallest obstacle before returning your attention to the cockpit.)

3. Approach.

a. After establishing the final approach and not less than 300' AGL the pilot will start visually monitoring the load to ensure control.
b. The pilot will, as in the take-off phase, maintain visual contact with the load, briefly looking at the landing zone. The landing zone will be kept in sight with the pilot's peripheral vision while his main attention is directed to the load.
c. All vertical reference approaches (long line) require a power on approach. Waiting too long to bring the power in could result in an over torque or settling with power.
d. When using an electrical release remote hook, release the load with the long line directly above the load, as the long line could swing and injure ground personnel.
e. Pilot must be able to place the load within a circle of a 10' radius routinely in order to be carded for his task.

4. Landing.

When landing the hook, always place the hook in front of the helicopter.

5. Passengers.

It is advised that passengers should not be carried while the long line is attached. This is to guard against the possibility of making a normal passenger operation take-off and dragging the long line.

The above is normal safety precaution during long line operations.

REFERENCES:

FM 3-04.203
Aircraft Operator's Manual
DNRC Air Operation Manual

WATER BUCKET OPERATIONS

PURPOSE:

Use for externally hauling water for firefighting during state or federal fire duty.

DESCRIPTION:

Trade name (Bambi Bucket) a portable bucket weighing 154 lbs. empty.

The bucket can be adjusted for load capacity with a cinch strap on the inside of the bucket that works like a girdle to reduce the actual volume of the bucket.

Capacity:

100%	324 gals. Maximum	2843 lbs.
90%	292 gals. Maximum	2578 lbs.
80%	259 gals. Maximum	2304 lbs.

Externally hauled with its own electrical water release mechanism.

Another feature of the bucket is its conical shape. This design allows the capacity of the bucket to vary according to operating procedures. As the bucket is lifted upward through the water, a water or head pressure is generated inside the bucket which is greater than the water pressure outside the bucket. The pilot can vary the capacity by the rate at which he lifts it from the water. A slow lift gives minimum fill, a faster lift, more fill, and a quick lift, maximum fill. This means that the pilot can determine the precise bucket load best suited to prevailing conditions.

The bucket dumps downward, producing a concentrated column of water. To dump, the support line to the valve is released by a single solenoid mechanism in the control head and the weight of the water forces the dump valve to turn inside out through the bottom of the bucket. This results in an extremely quick exit in addition to the concentrated flow. The bucket empties in about two to three seconds.

The bucket has exceptional flying characteristics even when flying empty. Airspeed, when full, is recommended at 0 to 80 knots; When empty, the bucket acts as a drogue chute and caution must be taken with high airspeeds; trailing near the tail boom and tail rotor.

PRE-FLIGHT AND INSTALLATION:

The control head is attached to the aircraft cargo hook or remote hook attached to a longline and power to operate the solenoid in the control head is wired separate from the cargo hook. The switch will be mounted on the pilots collective and arming of aircraft cargo hook is used only for emergencies to drop the complete bucket with control head.

The bucket is laid out in front of the aircraft on the ground and should be electrically checked prior to use.

FLIGHT:

Aircraft performance for out-of-ground effect must be computed for desired conditions prior to flight.

Hovering over water is recommended near shoreline for proper depth perception

Lowering the bucket into the water causes the bucket to tip to the side. With built-in counterweights the water will enter the bucket, submerge, and fill to the top.

Increasing power to pull bucket from water should be monitored by co-pilot, not to exceed limits. Once the bucket has cleared the surface of the water (5 to 10 feet), flight may begin.

NOTE:

The first load of the day should be tested prior to forward flight, i.e., dump at a hover.

Airspeed during flight may vary; high airspeeds tend to suck water out of the bucket. Recommend 0 to 80 knots in forward flight.

Arriving at the desired drop area, airspeed may vary from a hover to 30 knots, depending on conditions. Altitude may vary also but care must be taken not to fly low enough to snag a tree or drag on the ground; recommend 15 to 30 feet above drop area.

LANDING WITH EMPTY BUCKET:

Hover OGE until bucket touches ground, then hover back while descending to place the bucket in front of the aircraft.

PILOTS SAFETY CONSIDERATIONS:

Check for wires around water pick-up point, recon area where water is to be picked up and delivered, check for cables in mirror for twists, check mirror alignment after landing or work on bucket, check cable clearance from wire strike protective probes while landing and pick-up from hover, and never over-fly personnel or equipment. Attempt to have radio contact with ground prior to water drops.

TASK: 2003

Perform Water Bucket Operations

CONDITIONS:

In a DNRC helicopter with an operational cargo hook or remote hook with a longline; required briefings and checks completed; and aircraft cleared.

STANDARDS:

1. Hookup and Hover:

   a. Maintain vertical ascent heading ±10 degrees.
   b. Maintain altitude of load 5 feet AGL, ±1 foot.
   c. Do not allow drift to exceed 5 feet.

2. Takeoff (Below 100 feet AGL):

   a. Maintain takeoff heading ±10 degrees.
   b. Maintain ground track alignment with takeoff direction.
   c. Maintain power as required to clear obstacles safely.

3. Takeoff (Above 100 feet AGL):

   a. Maintain aircraft in trim.
   b. Maintain airspeed ±10 KIAS.
   c. Maintain rate of climb ±100 feet.

4. En Route:

   a. Maintain aircraft in trim.
   b. Maintain airspeed ±10 KIAS.
   c. Maintain safe load obstacle clearance (minimum 50 feet AHO).

5. Approach and Load Release:

   a. Maintain a constant approach angle to ensure the load safely clears obstacles.
   b. Maintain ground track alignment with the selected approach path.
   c. Execute a smooth and controlled termination over the intended point of landing.
   d. Maintain vertical descent heading ±10 degrees.

DESCRIPTION:

1. Hookup and Hover: Place the cargo release switch in the ARM position. Apply cyclic, collective, and pedals as required to remain vertically clear of and centered over the load. Slowly apply collective until all slack is taken out of the sling. Make necessary corrections with the cyclic to remain centered over the load. Maintain heading with the pedals. Apply additional collective to raise the load vertically to 5 feet AGL. Monitor aircraft instruments to ensure aircraft limitations are not exceeded. Monitor aircraft instruments to ensure aircraft limitations are not exceeded. Monitor aircraft mirror to ensure cables are not twisted or caught on airframe.

2. Takeoff:

   a. After takeoff, smoothly apply forward cyclic while increasing collective pitch to begin a coordinated acceleration and climb. Adjust pedals as necessary to maintain desired heading. Adjust cyclic and collective as necessary to attain constant angle of climb that will permit safe obstacle clearance. Continue the climb out at that attitude and power until

obstacles are cleared.

b. Above 100 feet or obstacle clearance, adjust attitude and power as required to establish the desired rate of climb and airspeed. Make small control movements to prevent load oscillation.

3. En route: Maintain desired altitude with the collective and desired flight path and airspeed with the cyclic. Maintain aircraft in trim with the pedals. Make smooth control applications to prevent load oscillation. If a lateral load oscillation occurs, reduce airspeed. If a fore-and-aft oscillation occurs, begin shallow bank while reducing airspeed.

4. Approach and Load Release: When the approach angle is intercepted, decrease the collective to establish the descent. Maintain entry airspeed until apparent ground speed and rate of closure appear to be increasing. Progressively decrease the rate of descent and forward airspeed until a stationary hover is attained with the load 5 feet above the intended release point. (A go-around should be made before descending below obstacles rests completely on the ground and then release it. If ground personnel are not available, confirm load release by hovering to a point that ishigher than the sling length.

NOTES:

1. Avoid flight overpopulated areas.

2. Hover OGE power is required for water bucket operations.

REFERENCES:

FM 3-04.203
Aircraft Operator's Manual
DNRC Air Operation Manual

TASK: 2004

Perform water bucket operations with a 50', 100', or 150' vertical reference longline.

CONDITIONS:

In a DNRC helicopter with an operational remote hook on a 50', 100', or 150' longline; required briefings completed; and aircraft cleared.

STANDARDS:

1. Preflight.

   a. Check cargo hook for proper electrical and manual operation.
   b. Inspect cables and all rigging equipment for serviceability.
   c. Brief the Co-Pilot.
   d. Safety briefing for the customer.

2. Take-off.

   When picking up the water bucket attached to the longline, keep your eyes on the hook/load until all obstacles have been cleared and the aircraft is safely flying the load. (Minimum of 100' clearance from the tallest obstacle before returning your attention to the cockpit.)

3. Approach.

   a. After establishing the final approach and not less than 300' AGL the pilot will start visually monitoring the load to ensure control.
   b. The pilot will, as in the take-off phase, maintain visual contact with the load, briefly looking at the drop zone. The drop zone will be kept in sight with the pilot's peripheral vision while his main attention is directed to the water bucket.
   c. All vertical reference approaches (longline) require a power on approach. Waiting too long to bring the power in could result in an over torque or settling with power.

4. Landing.

   When landing the water bucket attached to the longline, always place the hook in front of the helicopter.

5. Passengers.

   It is advised that passengers should not be carried while the longline is attached. This is to guard against the possibility of making a normal passenger operation take-off and dragging the longline.

The above is normal safety precaution during longline operations.

DESCRIPTION:

REFERENCES:

FM 3-04.203
Aircraft Operator's Manual
DNRC Air Operation Manual

TASK: 3001

Perform aircraft taxi.

CONDITIONS:

In a utility airplane.

STANDARDS:

1. Complete before-taxiing procedure IAW the operator's manual.
2. Complete taxiing procedure IAW the operator's manual.
3. Remain within approved taxi area.
4. Use proper power and brakes as necessary to maintain safe taxi speed.

DESCRIPTION:

1. Complete the before-taxiing procedure IAW checklist.
2. Complete the taxiing procedure IAW checklist.
3. Remain within approved taxi areas.
4. Follow taxi lines when applicable.
5. Maintain a safe taxi speed compatible with airfield conditions and other obstacles.
6. Use proper power and brakes. Avoid excessive use of brakes.
7. Comply with taxi clearance.
8. Use controls as required for wind condition.
9. Maintain proper power settings when aircraft is stopped.

REFERENCES:

Checklist
DNRC Air Operations Manual
FM 3-04.203
Local SOP
Operator's Manual

TASK: 3002

Perform normal takeoff and climb/obstacle clearance climb.

CONDITIONS:

In a utility airplane, VMC.

STANDARDS:

1. Perform before-takeoff, lineup, and after-takeoff procedures IAW the operator's manual.

2. Maintain a predetermined track (normally runway centerline) between the main landing gear and the takeoff roll.

3. Obtain computed takeoff power before reaching 50 percent rotation speed.

4. Do not exceed any limits prescribed by the operator's manual.

5. Lift off at recommended lift-off speed (Vlof) +5, -0 KIAS.

6. Perform initial climb after lift-off at the appropriate airspeed (best rate or best angle of climb) +5, -0 KIAS.

REFERENCES:

A/C Checklist
DNRC Air Operations Manual
Operator's Manual

TASK: 3003

Perform straight-and-level flight.

CONDITIONS:

In a utility airplane, VMC.

STANDARDS:

1. Maintain heading ±10 degrees.
2. Maintain altitude ±100 feet.
3. Maintain airspeed ±10 KIAS.
4. Maintain coordinated flight (ball ¼ out maximum).
5. Set mixture control, if applicable, IAW operator's manual.

DESCRIPTION:

Approaching the desired altitude, adjust pitch attitude as necessary to intercept and maintain that altitude. If leveling off from a climb at normal cruise airspeed, maintain climb power after level-off until cruise speed is attained, then adjust power as required. (Use cruise charts, power computers, or predetermined training power setting.) When leveling off at cruise climb airspeed, adjust power as necessary to maintain desired airspeed. If leveling off from a descent, adjust pitch attitude and power simultaneously when approaching the desired altitude so as to level off at cruise airspeed. Cross-check all flight instruments to ensure that the desired heading, altitude, and airspeed are being maintained. Correct heading and adjust pitch attitude and power as required to maintain straight-and-level flight. Trim as required throughout the maneuver. Complete the cruise-check procedure, if applicable.

REFERENCES:

DNRC Air Operations Manual
FM 3-04.203
Operator's Manual

TASK: 3004

Perform climbs and descents.

CONDITIONS:

In a utility airplane, VMC.

STANDARDS:

1. Maintain heading ±10 degrees (unless turning).
2. Maintain airspeed ±10 KIAS.
3. Maintain power within prescribed limits.
4. Maintain coordinated flight (ball ¼ out maximum).
5. Adjust mixture control, if applicable, for altitude IAW operator's manual.

DESCRIPTION:

1. Climbs:

   Establish the climb by adjusting power (RPM/manifold pressure) and pitch attitude to obtain the airspeed prescribed in the operator's manual for the desired climb, such as best rate-of- climb and cruise climb. Monitor instruments to ensure operating limitations are not exceeded. Adjust mixture as necessary, if applicable. Trim as required throughout the maneuver.

2. Descents:

   a. En Route Descents: Establish the descent by reducing power and adjusting pitch attitude to maintain desired airspeed (normally cruise airspeed) and the desired rate of descent. During the descent, control airspeed by adjusting pitch attitude. The rate of descent will depend on the amount of power reduced. Adjust mixture as necessary, if applicable. Trim as required throughout the maneuver.

   b. Slow Cruise Descents: Reduce power to a setting below that required for level flight at slow cruise. Maintain altitude while decelerating to slow cruise. Approach slow cruise airspeed, adjust pitch attitude and power to maintain slow cruise airspeed and the desired rate of descent. During the descent, control airspeed by adjusting pitch attitude. The rate of descent will depend on the amount of power reduced. Trim as required throughout the maneuver.

   c. Maximum Rate Descents: Establish the descent by reducing the power to idle (or minimum allowable) and configure the aircraft as recommended in the operator's manual.Adjust pitch attitude to maintain maximum operating speed -10 KIAS. In order to maintain positive G-forces and for proper clearing of altitudes below, a 25-degree to 45- degree bank should be established in the initial descent for at least a 90-degree heading change. During the descent, control airspeed by adjusting pitch attitude. Trim as required throughout the maneuver. Unless an actual emergency exists, the maneuver should only be performed during daylight under VMC.

   d. Glides: Establish the glide by reducing the power to idle (or to the minimum prescribed in the operator's manual for RPM and airspeed) and adjusting pitch attitude to maintain maximum glide airspeed as listed in the operator's manual. During the descent, control airspeed by adjusting pitch attitude. To recover to level flight, set power as required to

maintain desired airspeed and stop descent. Retract landing gear and flaps.

NOTE:

During training in aircraft with piston-driven engines, the maneuver should be terminated as soon asthe prescribed procedures are completed. A prolonged descent in these aircraft may cause engine damage due to rapid cooling of the cylinders.

REFERENCES:

DNRC Air Operations Manual
Checklist
FM 3-04.203
Operator's Manual

TASK: 3005

Perform turns.

CONDITIONS:

In a utility airplane, VMC.

STANDARDS:

1. Maintain altitude ±100 feet.

2. Establish/maintain angle of bank, ±5 degrees for steep. Do not exceed bank limitation as published in the operator's manual.

3. Roll out on desired heading ±5 degrees for shallow, ±10 degrees for medium and steep.

4. Maintain airspeed ±10 KIAS.

5. Maintain coordinated flight (ball ¼ out maximum).

DESCRIPTION:

Turns are classified as shallow (up to 25-degree bank angle), medium (25-degree to 45-degree bank angle), and steep (45-degree to 60-degree bank angle). The maneuver should be performed using maximum outside visual reference and minimum reference to instruments. To enter a turn, apply control pressures, which will result in a smooth and uniform rate of change in the banking attitude until the desired angle of bank is established. As the angle of bank increases, adjust pitch attitude and power as necessary to maintain airspeed and altitude. During the turn, rudder, elevator, aileron and power must be used as required to correct for torque, overbanking tendency, and to maintain airspeed and altitude. Plan the rollout to the desired heading using a smooth and uniform reduction of bank at the same rate as roll-in. Coordinate pitch attitude and power as required during the rollout. Use trim as required throughout the maneuver.

REFERENCES:

DNRC Air Operations Manual
FM 3-04.203
Operator's Manual

TASK: 3006

Perform flight at minimum controllable airspeed (slow flight)

CONDITIONS:

In a utility airplane, VMC.STANDARDS:

1. Maintain heading ±10 degrees (unless turning).

2. Maintain altitude ±100 feet.

3. Maintain airspeed within +5, -0 KIAS of minimum controllable airspeed.

DESCRIPTION:

1. This is a training maneuver used to demonstrate and practice the degree of controllability available while close to the pre stall buffet. It provides practice of control techniques and shows the capabilities and limitations of the aircraft in the low-speed regimes. Recommended propeller setting for this task is as specified in the operator's manual for climbs. The maneuver should be performed using maximum outside visual references and minimum reference to instruments.

2. While maintaining heading and altitude, set propeller RPM, reduce power, slowing the aircraft to minimum controllable airspeed. As airspeed is reduced, adjust pitch attitude as necessary to maintain altitude. At the point where pitch attitude alone does not increase, lift sufficiently to maintain altitude (area of reverse command), add power to maintain altitude. Maneuver the airplane in cruise and landing configuration, in straight-and-level flight, in climbs and descents, and in turns to obtain maximum training value. The following items should be demonstrated and practiced as applicable:

    a. Airplane attitude during the maneuver.
    b. Power required as airspeed is changed.
    c. Control effectiveness.
    d. Rate of turn versus degree of bank.
    e. Increase in stall speed with increase in bank angle.
    f. Adverse aileron yaw.
    g. Effect of flap extension and retraction.
    h. Operation in the area of reverse command.
    i. Complete the maneuver by performing a simulated go-around. Maintain altitude during recovery or climb to a predetermined altitude. Complete the go-around procedure and level off at desired altitude and airspeed. Trim as required throughout the maneuver.

REFERENCES:

DNRC Air Operation ManualFARs
FM 3-04.203
Operator's Manual

TASK: 3007

Perform stalls and recoveries.

CONDITIONS:

In a utility airplane, VMC.

STANDARDS:

1. Correctly recognize stall characteristics and impending and full stall indications.
2. Correctly recover from a stall.
3. Recover with a minimum loss of altitude no lower than 1500 feet AGL.
4. Remain within engine and aircraft limitations prescribed in the operator's manual.
5. Maintain heading within ±10 degrees and bank within ±10 degrees.
6. Maintain coordinated flight (ball ¼ out maximum).

DESCRIPTION:

Practice in both power-on and power-off stalls is important because it simulates stall conditions that could occur during normal flight maneuvers.

1. Power Off: To set up the entry for a straight-ahead power-off stall, airplanes equipped with flaps or retractable landing gear should be in the landing configuration. After extending the landing gear, applying the carburetor heat (if applicable) and retarding the throttle to idle (or normal approach power), hold the airplane at a constant altitude in level flight until the airspeed decelerates to normal approach speed. The airplane should then be smoothly pitched down to normal approach attitude to maintain that airspeed. Wing flaps should be extended, and pitch attitude adjusted to maintain the airspeed.

   When the approach attitude and airspeed have stabilized, the pilot should smoothly raise the airplanes nose to an attitude that induces a stall.

2. Power On: To set up the entry for power on stalls, establish the airplane in the takeoff or climb configuration. Slow the airplane to normal lift off speed while continuing to clear the area of other traffic. Upon reaching the desired speed, set take off power or the recommended climb power for the power on stall (often referred to the departure stall) while establishing a climb attitude. The purpose of reducing the airspeed to lift-off airspeed before the throttle is advanced to the recommended setting is to avoid an excessively steep nose-up attitude for a long period before the airplane stalls.

   After establishing the climb attitude, smoothly raise the nose to increase the Angle of Attack (AOA) and hold that attitude until the full stall occurs.

3. Accelerated Stalls: Stalls encountered any time the G-load exceeds 1 G are called “accelerated maneuver stalls”. The most common accelerated stall procedure starts from straight and level flight at an airspeed at or below Va Roll the airplane into a coordinated, level flight 45°turn and then smoothly

REFERENCES:

DNRC Air Operations Manual
FARs
FM 3-04.203
Operator's Manuals

TASK: 3008

Perform normal landing

CONDITIONS:

In a utility airplane, VMC

STANDARDS:

1. Maintain required altitudes ±100 feet.
2. Maintain appropriate airspeeds ±10 KIAS.
3. Maintain required ground track.
4. Complete before-landing and landing checks no later than designated points during the approach.
5. Attain landing approach speed (Vref plus one-half wind gust speed) ±5 KIAS.
6. Execute touchdown on the predetermined touchdown point minus 0, plus 200 feet with the desired runway track between the main gear during landing to rollout.

DESCRIPTION:

Complete descent-arrival check before entering the traffic pattern. Maneuver aircraft into position to enter the downwind leg at midfield at a 45-degree angle, at traffic pattern altitude, and at the proper airspeed. Straight-in or base-leg entry may be used, if approved by air-traffic control. Complete the before-landing check on downwind leg prior to turning base leg (prior to 2 miles on straight-in or extended base leg). Reduce power as required to adjust airspeed and begin descent. If using a straight-in or base-leg entry, reduce power at a point that will result in a flight path comparable with that of the 180-degree approach. Turn base leg when appropriate to maintain the desired ground track. Extend flaps as required. Adjust pitch and power to maintain the required airspeed and descent angle. Trim as required. Turn final so as to complete the turn at or above 500 feet AGL. When established on final approach, select landing flaps and start reducing airspeed gradually so as to arrive at Vref plus one-half the wind gust speed at approximately 50 feet above the landing area. Complete the landing check. As the aircraft nears the runway, coordinate pitch and power as necessary to control rate of descent and airspeed for a smooth touchdown. Depending on the type of aircraft and conditions, reduce power to idle and touch down on main gear or touch down on the main gear as power is smoothly reduced to idle. After touchdown, gently lower the nosewheel to the runway and use brakes if applicable, as necessary to slow the aircraft. Maintain directional control during the landing roll with rudder and/or nosewheel steering. Perform the after-landing procedure when clear of the runway. During crosswind conditions, use the crab-into-the-wind method to correct for drift on all legs of the traffic pattern until short final. The crab-into-the-wind is changed to a slip-into-the-wind for roundout and touchdown. During the after-landing roll, use normal rudder or nosewheel steering for directional control and position ailerons as required to correct for crosswind effect.

NOTES:

1. **Although designated points are given for completing the before-landing and landing checks throughout the approach, this does not preclude the aviator from performing these procedures earlier than the designated points. If performing the before-landing procedure early, maintain airspeed at Vref +30 KIAS until turning base leg.**

2. **If Vref or approach speed is not listed, use 1.3 times power-off stall speed in the landing configuration (Vso).**

3. **When performing circling approach during instrument flight, maintain circling approach altitude until normal approach can be made to the runway.**

4. **Normal landings are made with full flaps. However, in gusty winds or strong crosswinds, a lesser flap setting may be used.**

REFERENCES:

DNRC Air Operations Manual
Checklist
FM 3-04.203
Operator's Manual

TASK: 3009

Perform go-around

CONDITIONS:

In a utility airplane, VMC.

STANDARDS:

1. Perform go-around IAW operator's manual.

2. Maintain heading ±10 degrees.

DESCRIPTION:

When it becomes doubtful that a safe landing can be accomplished, apply maximum allowable power. The airplane executing a go around must be maintained in an attitude that permits a buildup of airspeed well beyond the stall point before any effort is made to gain altitude or execute a turn. After the descent has been stopped, the landing flaps are partially retracted or placed in the takeoff position as recommended by the manufacture. Accelerate to best rate-of-climb speed. Complete the go-around procedure.

REFERENCES:

DNRC Air Operations Manual
Checklist
Operator's Manual

TASK: 3010

Describe or perform emergency procedures.

CONDITIONS:

In a utility airplane or conference; given a specific emergency.

STANDARD:

Simulate performing or stating the appropriate emergency procedure IAW the operator's manual.

DESCRIPTION:

All emergency procedures which cannot be practiced in the aircraft will be discussed.

REFERENCES:

DNRC Air Operations Manual
Checklist
Operator's Manual

TASK: 4001

Perform instrument climb, descent, and straight-and-level flight.

CONDITIONS:

In a Helicopter or utility airplane, IMC or simulated IMC.

STANDARDS:

1. Constant airspeed, constant power climbs:

    a. Maintain heading ±10 degrees.
    b. Maintain airspeed ±10 KIAS.
    c. Maintain power IAW the operator's manual or assigned training power setting.
    d. Maintain coordinated flight (ball ¼ out maximum).
    e. Adjust mixture for pressure altitude, if applicable.

2. Constant airspeed, constant rate of climb/descent:

    a. Maintain heading ±10 degrees.
    b. Maintain airspeed ±10 KIAS.
    c. Maintain desired rate of climb/descent within ±10 feet per minute.
    d. Maintain coordinated flight (ball ¼ out maximum).
    e. Adjust mixture for pressure altitude, if applicable.

3. Straight-and-level flight:

    a. Maintain heading ±10 degrees.
    b. Maintain airspeed ±10 KIAS.
    c. Maintain altitude ±100 feet.
    d. Maintain cruise power (normal cruise, maximum range) IAW the operator's manual or assigned training power settings.
    e. Maintain coordinated flight (ball ¼ out maximum).
    f. Adjust mixture for pressure altitude, if applicable.

REFERENCES:

DNRC Air operations manual
Operator's manual

TASK: 4002

Perform instrument turns.

CONDITIONS:

In a Helicopter or utility airplane, IMC or simulated IMC.

STANDARDS:

1. Half-standard rate (1.5 degrees per second):

    a. Establish desired bank attitude ±5 degrees.
    b. Maintain altitude ±100 feet (unless climbing or descending).
    c. Maintain airspeed ±10 KIAS.
    d. Maintain coordinated flight (ball ¼ out maximum).
    e. Recover to assigned heading ±5 degrees.

2. Standard rate (3 degrees per second):

    a. Establish desired bank attitude ±5 degrees.
    b. Maintain altitude ±100 feet (unless climbing or descending).
    c. Maintain airspeed ±10 KIAS.
    d. Maintain coordinated flight (ball ¼ out maximum).
    e. Recover to assigned heading ±10 degrees.

3. Steep turn (any turn greater than standard rate or exceeding a 30-degree bank):

    a. Establish desired bank attitude ±5 degrees.
    b. Maintain altitude ±100 feet (unless climbing or descending).
    c. Maintain airspeed ±10 KIAS.
    d. Maintain coordinated flight (ball ¼ out maximum).
    e. Recover to assigned heading ±10 degrees.

4. Timed turns:

    a. Establish desired bank attitude ±5 degrees.
    b. Maintain altitude ± 100 feet.
    c. Maintain airspeed ±10 KIAS.
    d. Recover to assigned heading ±10 degrees.
    e. Maintain coordinated flight (ball ¼ out maximum).

5. Compass turns.

    a. Establish desired bank attitude ±5 degrees.
    b. Maintain altitude ±100 feet.
    c. Maintain airspeed ±10 KIAS.
    d. Recover to assigned heading ±10 degrees.
    e. Maintain coordinated flight (ball ¼ out maximum).

DESCRIPTION:

Refer to FM 1-5 for description of basic instrument turns.

REFERENCES:

DNRC Air Operations Manual
Operator's Manual

TASK: 4003

Perform radio navigation.

CONDITIONS:

In a Helicopter or utility airplane.

STANDARDS:

Perform the following elements of radio navigation as needed to navigate the intended route and reach the desired destination:

1. Navigational radio turning.
2. Station identification.
3. Orientation.
4. Course interception.
5. Tracking.
6. Position fixing.
7. Identification of station passage.

DESCRIPTION: Perform the following:

1. Equipment Check.

   Check all radio navigational equipment to be used during the mission. Needed equipment must be operable and within accuracy tolerances specified.

2. Station Identification.

   Obtain correct frequency for desired navigational station and tune equipment. Make positive identification of the station.

3. Aircraft Position.

   Determine the position of aircraft with respect to a specified navigational ground station IAW procedures in FM 1-5.

4. Course Interception.

   After identifying the desired station, turn the aircraft to parallel the desired course. Determine the aircraft's location in relation to the desired course. Turn 45 degrees toward the course (90 degrees to expedite). Maintain intercept heading until approaching an on-course indication, then turn to maintain course.

5. Course Tracking.

   Maintain desired heading until navigation instrument shows an off-course condition. Turn 20 degrees toward the course to re intercept. If navigation instruments do not indicate movement toward the course in a reasonable period of time, turn 45 degrees toward the course to compensate for unusually strong winds. When the course is re intercepted, use bracketing heading changes of progressively lessening magnitude to maintain the course.

6. Intersection Arrival.

   Determine arrival at radio intersections.

7. Station Passage.
   Identify VOR station passage by observing reversal of the TO-FROM indicator or reversal of the RMI needle. Identify NDB station passage by observing reversal of the indicator needle. Identify TACAN station passage by DME mileage reversal.

REFERENCES:

DNRC Air Operations Manual
Operator's Manual

TASK: 4004

Perform holding procedures.

CONDITIONS:

In a Helicopter or utility airplane, IMC, or simulated IMC.

STANDARDS:

1. Maintain assigned altitude ±100 feet.
2. Maintain holding airspeed ±10 KIAS.
3. Properly tune and identify NAVAIDS.
4. Correctly enter holding pattern.
5. Fly correct holding pattern.
6. Use correct tracking procedures.

DESCRIPTION:

1. Timed Holding.

   Before arrival at the holding fix, analyze holding instructions to determine holding pattern and entry. Upon arrival at the holding fix, turn, if required, to the predetermined outbound heading. Check navigation instruments to confirm the aircraft's location in relation to the inbound course. When using time, the outbound heading should be maintained IAW DOD FLIP or as directed by ATC. Adjust subsequent outbound leg elapsed time to obtain the desired inbound leg time. Apply normal tracking procedures to maintain inbound course. Note the time required to fly the inbound leg. Begin outbound time when abeam the station if holding at a navigational aid. When holding at an intersection, begin outbound time upon establishing outbound heading.

2. DME Holding.

   Before arrival at the holding fix (normally a radial and DME from a VORTAC or TACAN station) determine holding pattern and entry. Upon arrival at the holding fix, turn, if required, to the predetermined outbound heading. Check navigation instruments to confirm the aircraft's location in relation to the inbound course. The length of the outbound leg will be attained as specified IAW DOD FLIP or as directed by ATC. Begin inbound turn at the appropriate DME point and apply normal tracking procedures to maintain inbound course.

REFERENCE:

DNRC Air Operations Manual

TASK: 4005

Perform unusual attitude recovery.

CONDITIONS:

In a Helicopter or utility airplane, with CFI or CFII simulated IMC with an emergency or full-panel configuration.

STANDARDS:

Correctly identify the unusual attitude.

1. Use the correct recovery sequence without exceeding the operating limits of the aircraft.

DESCRIPTION:

Recognize and recover from unusual attitudes.

REFERENCE:

DNRC Air Operations Manual

TASK: 4006

Perform radio communication procedures.

CONDITIONS:

1. Use correct radio procedures IAW DOD FLIP during all applicable radio transmissions.

2. Operate all onboard aircraft communication equipment IAW operator's manual.

DESCRIPTION:

Not applicable.

REFERENCES:

DNRC Air Operations Manual
Operator's Manual

TASK: 4007

Perform non precision approach.

CONDITIONS:

In a utility airplane, IMC, or simulated IMC.

STANDARDS:

1. Execute approach, approved instrument procedure.

2. Maintain prescribed altitudes ±100 feet. Complete before-landing check prior to final descent inbound.

3. Maintain required airspeed ±10 KIAS.

4. Maintain prescribed courses as follows:

   a. NDB courses--±5 degrees.
   b. VOR, VOR/DME, RNAV, SDF, and TACAN courses--within ½ scale deflection using the course indicator or ±5 degrees using the RMI.
   c. LOC, LDA courses--remain within full-scale deflection of the CDI.

5. Do not descend below the published minimum descent altitude during approaches or circling.

REFERENCES:

DNRC Air Operations Manual
Operators Manual

TASK: 4008

Perform procedures for two-way radio failure

CONDITIONS:

In a Helicopter or utility airplane; conference.

STANDARD:

Comply with two-way radio failure procedures.

DESCRIPTION:

Attempt to re-establish radio communications. If unable to re-establish radio communications, comply with lost communication procedures.

REFERENCES:

DNRC Air Operations Manual
Operator's Manual

TASK: 4009

Perform precision approach.

CONDITIONS:

In a Helicopter or utility airplane, IMC, or simulated IMC.

STANDARDS:

1. Maintain headings ±5 degrees.

2. Maintain altitudes ±100 feet.

3. ILS remain within full scale deflection of CDI. On final approach, maintain glide-slope indicator within full-scale deflection.

4. Perform before-landing check prior to final-approach descent.

5. Make immediate heading and altitude corrections as issued by ATC.

6. Do not continue the approach below DH.

7. Complete landing check and adjust airspeed to Vref plus ½ wind gust speed.

NOTE:

Final approach speed is Vref + 20 KIAS.

REFERENCES:

DNRC Air Operations Manual
DOD FLIP
FAR, Part 91
Operator's Manual
TERPS

TASK: 4010

Perform missed approach.

CONDITIONS:

In a Helicopter or utility airplane, IMC, or simulated IMC.

STANDARDS:

1. Comply with ATC or published missed approach procedures at missed-approach point.

2. Maintain prescribed course or heading ±5 degrees.

DESCRIPTION:

1. Airplane: When it is determined that a missed approach is necessary, advance power to maximum allowable and simultaneously increase pitch attitude to stop the descent with minimum loss of altitude. Establish a positive climb-pitch attitude. Retract flaps and trim the aircraft as necessary. Accelerate to best rate-of-climb speed. Maintain Vy and trim as required. Maneuver the aircraft so as to follow the missed-approach path shown on the approach plate or the alternate route assigned by ATC. If the approach is terminated while circling for a landing, make a climbing turn toward the runway unless otherwise specified. Remain within the circling obstruction clearance area before turning to intercept the published missed approach course. As soon as practical, inform ATC of the missed approach and state intentions for additional ATC clearance. Do not sacrifice aircraft control for the sake of communicating with ATC. Complete go-around procedure.
2. Helicopter: When it is determined that a missed approach is necessary, advance power to maximum allowable and simultaneously increase pitch attitude to stop the descent with minimum loss of altitude. Establish a positive climb-pitch attitude. Maneuver the aircraft so as to follow the missed-approach path shown on the approach plate or the alternate route assigned by ATC. If the approach is terminated while circling for a landing, make a climbing turn toward the runway unless otherwise specified. Remain within the circling obstruction clearance area before turning to intercept the published missed approach course. As soon as practical, inform ATC of the missed approach and state intentions for additional ATC clearance. Do not sacrifice aircraft control for the sake of communicating with ATC. Complete go-around procedure.

REFERENCES:

DNRC Air Operations Manual
Checklist
FAR, Part 91
Operations Manual

TASK: 4011

Instrument Recovery Procedure.

CONDITIONS:

In a Helicopter or utility airplane, IMC, or simulated IMC.

STANDARDS:

1. At your position recover to an altitude for IFR operations.
2. Comply with ATC clearance.
3. Request clearance to recovery airfield.

DESCRIPTION:

At first sign of inadvertent IMC:

1. Level your wings.
2. Maintain heading, turn only to avoid known obstacles.
3. Adjust power for maximum climb.
4. Adjust airspeed for maximum climb.
5. Contact ATC on emergency frequency.
6. Request a clearance to the nearest suitable recovery airfield.

REFERENCES:

DNRC Air Operations Manual
Checklist
FAR, Part 91
Operations Manual

MONTANA
DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

2024

AIRCRAFT CRASH, SEARCH, AND RESCUE GUIDE

GENERAL INFORMATION

This guide establishes the actions to take in the event of:

- **Overdue Aircraft**
- **Downed Aircraft**

The scope of this guide outlines the basic procedures necessary to activate all emergency, crash, search, rescue and associated support services as rapidly and orderly as possible.

Each category lists priorities and actions to follow.

- **This guide should be posted in a manner / place that is accessible to whoever might need it.**
- **The names / phone numbers should be posted in pencil and updated periodically.**

SOMEONE'S LIFE MAY DEPEND ON YOUR ACTIONS.

GENERAL INFORMATION

OVERDUE AIRCRAFT

Note: Aircraft may be considered overdue after 30 minutes have elapsed beyond Estimated Time of Arrival (ETA). Refer to Automatic Flight Following (AFF), check airstrips / airports, FAA Control Towers, etc. along the flight route before a report of an overdue aircraft is turned in to any agency outside of the Department of Natural Resources and Conservation.

Although one or two items in the sequence may be unknown at the time, START THE ACTION. Keep an accurate written log or fill in the blanks as best you can.

As much as possible obtain the following information on the overdue aircraft:
1. Name of pilots:
2. Name of passenger(s), How many?
3. Aircraft registration number "N"
4. Type of aircraft
5. Color of aircraft
6. Type of mission
7. Point of takeoff and time
8. Last known location, time, latitude and longitude
9. Date and time aircraft due at destination
10. Amount of fuel on board or the maximum flight time for aircraft
11. Was flight plan filed, with FAA or someone else?
Caution: Do not announce over the radio the names of individuals in overdue aircraft.

(Continue Next Page)

OVERDUE AIRCRAFT

OVERDUE AIRCRAFT

Contact Dispatch request they notify the following individuals.

Title	Cell Phone	Office Number
Dispatch		
DNRC Air Operations Chief Pilot	**Tal Williams (406) 461-5590**	**Tal Williams (406) 444-4766**
DNRC Aviation and Safety Training Pilot	**Chris Bryce (406) 459-7465**	**Chris Bryce (406) 444-0741**
DNRC Aviation and Safety Training Pilot	**Dave Bebich (406) 461-0141**	**Dave Bebich (406) 444-0780**
DNRC Land Office Fire Program Manager		

OVERDUE AIRCRAFT

DOWNED AIRCRAFT

Although one or two items in the sequence may be unknown at the time, START THE ACTION. Keep an accurate log and fill in the blanks as best you can.

1. Name of pilots:
2. Name of passenger(s), How many?
3. Aircraft registration number "N"
4. Type of aircraft
5. Color of aircraft
6. Type of mission
7. Location of accident. Give latitude and longitude, if known. a. Locate on forest map. b. Locate on aviation sectional map. Plot direction and distance from very high frequency omnidirectional-range (VOR). Take radials from at least two VOR stations.
8. Date and time of accident
9. Injuries of fatalities, if known. If information is given via radio, the names of deceased and or seriously injured will not be stated. Express the need for Coroner if there are fatalities.
10. Name, address and telephone number of person reporting accident.
11. Assistance that is at or on the way to the accident site.
12. See emergency medical services portion of this guide, if applicable.

(Continued Next Page)

DOWNED AIRCRAFT

DOWNED AIRCRAFT

Call Area Interagency Dispatcher. Inform the dispatcher if there are injuries or fatalities. If there are injuries do your best to describe the type and seriousness of the injury and requirement for patient transportation.

	Cell Phone	Office Number
Dispatcher will notify:		
DNRC Air Operations Chief Pilot	**Tal Williams (406) 461-5590**	**Tal Williams (406) 444-4766**
DNRC Aviation and Safety Training Pilot	**Chris Bryce (406) 459-7465**	**Chris Bryce (406) 444-0741**
DNRC Aviation and Safety Training Pilot	**Dave Bebich (406) 461-0141**	**Dave Bebich (406) 444-0780**
DNRC Training and Safety Program Manager	**Heath Gerber (406) 366-5738**	**Heath Gerber (406) 247-4454**
DNRC Land Office Fire Program Manager		
Local Law Enforcement Officials. Inform them of injuries or fatalities and the requirement for security if needed		

DNRC Air Operations Chief Pilot will notify the Director of the Department of Natural Resources and Conservation. If the Chief Pilot is not available, the DNRC Aviation and Safety Training Pilot will notify the Director.

Director, Department of Natural Resources and Conservation		**Amanda Kaster (406) 444-1948**

DOWNED AIRCRAFT

DOWNED AIRCRAFT ACTION CHECKLIST

NOTE: This checklist is to be used for action that may need to be taken. It may require immediate action, or it may not be a priority.

1. **Provide first aid to injured and prepare for transport as soon as possible.**
2. **Request an ambulance:** a. **Ambulance helicopter** b. **Ground Ambulance** c. **Ambulance fixed-wing**
3. **Secure accident site:** a. **Use local Law Enforcement or DNRC provided officials.** b. **Allow only authorized personnel on crash site.** c. **Do not disturb wreckage.** d. **Prepare a helibase. Assign qualified personnel to manage.**
4. **Identify all witnesses:** a. **Name** b. **Address** c. **Telephone number** d. **Record or write down witnesses' statements.**
5. **Establish communications with rescue personnel.**
6. **Arrange for services of a qualified photographer.**
7. **Keep a record of all actions and times completed and give to accident investigation team.**

DOWNED AIRCRAFT ACTION CHECKLIST

Emergency Medical Services (EMS) Helicopter Ambulance Request Information

Date _____

Time _____

Although one or two items in the sequence may be unknown at the time, START THE ACTION.

1. Call 911
2. Number of patients
3. Type or extent of injuries, are they conscious or bleeding
4. Type of medical personnel on scene
5. Latitude / Longitude
6. Location / Elevation
7. Landmark / Distance
8. Helicopter landing area and condition
9. Weather conditions
10. Ground contact name / telephone number
11. Radio frequency on scene
12. Other aircraft in the area

EMERGENCY MEDICAL SERVICES

Crash search and rescue planning includes good prevention programs. The following is a recommended checklist to be used.

1. **Aircraft Crash Search and Rescue guide**
   a. **Posted and visible**
   b. **Telephone numbers current**
2. **Hazard map**
   a. **Posted and visible**
   b. **Current information**
   c. **Available to all aviation personnel**
3. **Photo and diagram of airport and helibase**
4. **Hospital with helipad**
   a. **Latitude / Longitude**
   b. **Flight routes, all headings will be magnetic and distance in nautical miles**
   c. **Hazards**
   d. **Telephone number**
   e. **Radio frequencies used**
5. **Fixed wing and helicopter parking areas will be marked**
6. **Fire extinguishers**
   a. **Proper type**
   b. **Proper size for operations**
   c. **Inspected and operational**
   d. **Ready, available and visible**
7. **First Aid kit**
   a. **Available and visible**
   b. **Complete and up to date**
   c. **Litter available**
8. **Signs posted**
   a. **Flammable**
   b. **No Smoking**
   c. **Authorized Personnel only**
   d. **Vehicle parking**
9. **Cleanliness of airport ramp and helibase**

CRASH SEARCH AND RESCUE PLAN CHECKLIST

Title	Cell Phone	Office Number
Dispatch		
DNRC Air Operations Chief Pilot	**Tal Williams (406) 461-5590**	**Tal Williams (406) 444-4766**
DNRC Aviation and Safety Training Pilot	**Chris Bryce (406) 459-7465**	**Chris Bryce (406) 444-0741**
DNRC Aviation and Safety Training Pilot	**Dave Bebich (406) 461-0141**	**Dave Bebich (406) 444-0780**
DNRC Air Operations, Maintenance Officer	**Nick Keilman (406) 431-0780**	**Nick Keilman (406) 444-0789**
DNRC Headquarters		**(406) 444-2074**
DNRC Director		**Amanda Kaster (406) 444-1948**
DNRC Training and Safety Program Manager	**Heath Gerber (406) 366-5738**	**Heath Gerber (406) 247-4454**
Local FAA Tower		
Crash / Rescue at Airport		
FAA Flight Service Station		**(800) 992-7433**
Local FBO		
Local Sheriff's Office		
Montana Highway Patrol		**(855) 647-3777**
Local Hospital		
Additional Phone Numbers		

TELEPHONE NUMBERS

Invoice Number 8601 | *Tail #* | *Aircraft Make*

Invoice Date | *Aircraft Model*

Ed Martin
444-0789

Montana Department of Natural
Resources & Conservation
PO Box 201601
Helena, MT 59620-1601

Chuck Brenton
444-0747

Location/Dispatch

Logged By:

Aircraft Billing Log

Line	Date	RC#	Fire#	Begin Tach	End Tach	Hours	Rate	Cost	Miss. Code	Agency	Log #	Fire Name	Pilot	Pass. #	Cargo Lbs	Ret / H_2O

I Certify that the above record of flight activity is correct.

Name: _____

Date: _____

Remarks - Specify Line # as Needed

INVOICE DATA

Invoice #
Sequential unique number assigned toeach paper, flight use record. This number is pre-assigned on the Recordof Aircraft Use.

Invoice Date
Date of flight activity for the firstmission of the form: mm/dd/yy

Tail #
Aircraft Identifier

Aircraft Make
Self-explanatory: ie. Bell

Location/Dispatch
The aircraft was obtained from this fire Dispatch Center or Organization.Aircraft are ordered through the ZoneDispatch Center.

Logged By
Name of person recording and logging flight invoice and missioninformation.

MISSION DATA

Line #
Sequential Number for each missionrecorded on an invoice record.

Date
Mission date in the form: mm/dd/yy

RC #
Statewide Budgeting and accounting number: ie 506602. This number mustbe obtained for billing aircraft time.

Assist #
Number consisting of tail # andsequential log number.

Fire #
The number assigned to the fire for billing purposes. Usually the same asthe RC # for current billing practices.

Fire Name
Name given to the fire or incident.

Begin Hobbs
Meter reading on the aircraft at thebeginning of the mission.

End Hobbs
Meter reading on the aircraft at the end of mission. End Hobbs becomes the Begin Hobbs for the next mission.

Pilot
Name of the Pilot in Command forthe mission.

Hours
Hours calculated as the differencebetween Begin Hobbs and End Hobbs.

Rate
Billing Rate for the Aircraft.

Cost
Cost for the mission is the billing ratetimes the hours.

Mission Code
Code identifying type of mission. See

MISSION CODES.

Agency
Agency for whom this mission was flown. The Agency identified will befiscally responsible for the mission.

Passengers
Number of passengers carried on thismission.

Retardant/H2O
Gallons of Water or retardant delivered on this mission. Number oftrips times bucket capacity.

Cargo
Weight in pounds carried on thismission. Number of trips times average cargo weight.

LOCATION/DISPATCH LIST

FDC Flathead Dispatch
KDC Kootenai Dispatch
MCC Miles City Dispatch
MDC Missoula Dispatch
HDC Helena Dispatch
DDC Dillon Dispatch
GDC Great Falls Dispatch
BDC Billings Dispatch
NRCC Northern Rockies Coordination Center
AIROPS DNRC Air Operations

MISSION CODES

A—Fire Suppression IA
B—Fed Fire Suppression IA
C— Fire Use, Command &Control
D—Fire Detection/Surveillance
E—Fed Fire Detection/Surveillance
F—Fire Use, Helitorch/Burning
G—Fire Use, Display
H—Fire Use, Mapping
I—Fire Use, Pilot Proficiency
J—Aircraft Maintenance
K—Fire Use, Admin
L— False Alarm
M—Non-Fire related Emergency
N—Training
O—Fire, Other
P—Non-Fire Aircraft Use
Q—Longline
QT- Longline Training

OAS-34
(12/12)

Safety Communiqué Form

OAS-34 / FS 5700-14

SAFECOM
Aviation Safety Communiqué

REPORTED BY: (optional)

Name:
E-Mail:
Phone:
Cell Phone:
Pager:
Organization:
Organization Other:
Date Submitted: mm/dd/yyyy

EVENT

Date: mm/dd/yyyy	**Local Time:** hhmm	**Injuries:** Y/N	**Damage:** Y/N
State:	**Location:** (Airport, City. Lat/Long or Fire Name)		

Operational Control:
Agency:
Region:
Unit:

MISSION (* see look-up tables)

Type: *	Other:	
Procurement: *	Other:	
Persons Onboard:	Special Use: Y/N	Hazardous Materials: Y/N
Departure Point:	Destination	

AIRCRAFT (* see look-up tables)

Type: *	Tail #	Manufacturer: *	Model:
Owner/Operator:	Pilot:	Manager:	

NARRATIVE: (A brief explanation of the event)

CORRECTIVE ACTION: (What was done to correct the problem)

SAFECOM LOOK-UP TABLES

MISSION TYPE

Accident Investigation
Aerial Photography
Air Quality Monitoring
Cargo Letdown (Non-Fire)
Cargo Transport (Internal) (Non-Fire)
External Load (Longline) (Non-Fire)
Ferry/Repositioning Flight (Non-Fire)
Fire, Aerial Ignition
Fire, Aerial Ignition (Prescribed)
Fire, Air Attack
Fire, Air-Attack (Prescribed)
Fire, Cargo Letdown
Fire, Cargo Transport (Internal)
Fire, Detection
Fire, External Load (Belly Hook)
Fire, External Load (Longline)
Fire, Ferry/Repositioning Flight
Fire, Helitack
Fire, Helitorch
Fire, Infrared Imagery
Fire, Initial Attack
Fire, Leadplane
Fire, Leadplane (Prescribed)
Fire, Medivac
Fire, Other
Fire, Paracargo
Fire, Passenger Transport
Fire, Ping-Pong Ball
Fire, Rappel
Fire, Reconnaissance
Fire, Retardant
Fire, Retardant Drop (Airtanker)
Fire, Retardant Drop (Helicopter)
Fire, Retardant Drop (SEAT)
Fire, Smokejumper
Fire, Water Drop (Fixed Wing)
Fire, Water Drop (Helicopter Bucket)
Fire, Water Drop (Helicopter Fixed-Tank)
Inspection (Aircraft)
Inspection (Pilot Evaluation)
Inspection (Unit)
Law Enforcement
Maintenance Test Flight
Medevac
Offshore
Other
Paracargo (Non-Fire)
Passenger Transport (Non-Fire)
Pipeline Patrol
Powerline Patrol
Proficiency, Pilot
Proficiency, Rappel
Proficiency, Smokejumper
Rappel (Non-Fire)
Reconnaissance (Non-Fire)
Research
Search/Rescue
Seeding/Fertilization
Short Haul
Spraying
Survey/Forest Health Protection (Non-Fire)
Survey/Observation (Non-Fire)
Training, Aircrew
Training, Helitack
Training, Law Enforcement
Training, Other
Training, Pilot
Training, Rappel
Training, Smokejumper
Wildlife, Animal Capturing
Wildlife, Animal Counting
Wildlife, Animal Eradication
Wildlife, Animal Herding
Wildlife, Animal Survey
Wildlife, Animal Tagging
Wildlife, Animal Tracking

MISSION PROCUREMENT

Cooperator
CWN (call when needed)
End product contract
Exclusive use contract
Fleet
Lease
Military
Rental
Other/Unknown
None

AIRCRAFT TYPE

Airplane
Airtanker (SEAT)
Airtanker (Multi Engine)
Helicopter
Helitanker
Unmanned Aircraft System (UAS)
N/A

AIRCRAFT MANUFACTURER

Aero Commander
Aeronca
Aerospatiale
Arava
Artic
Atlantic
Ayres
BAC
Banderanti
Beechcraft
Bell
Bellanca
BN-Islander
BN-Trislander
Britannia
Britten-Norman
Boeing
Boeing Vertol
British Aerospace
Brooklands
Canadair
Casa
Cessna
Champion
Christen
Consolidated
Convair
Corvette
Curtis
Dassault
DeHavilland
Dornier
Douglas
Dromader
Enstrom
Ercoupe
Eurocopter
Fairchild
Falcon
Fokker
Gates
General Dynamics
Glasair
Great Lakes
Grumman
Gulfstream
Hawker-Siddeley
Helio
Hiller
Hughes
Hustler
Israel
Kaman
Lake
Lear
Lockheed
Luscombe
Martin
Maule
McDonnell Douglas
Mitsubishi
MBB
MBB-Kawasaki
Mooney
Normad-GAF
North American
Partenavia
Piper
Republic
Riley
Robinson
Rockwell
Saab
Schweitzer
Scottish
Shorts
Sikorsky
Stinson
Swearingen
Taylorcraft
Teal
Trident
Unknown
Varga
Volpar
Vought
Weatherly
(Other)

Daily Log Instructions

This form is to be used to record the aircraft's daily activity report. .The form provides the means for pilots and maintenance personnel to document compliance with Federal Aviation Administration rules and the DNRC AirOperations manual.

A. The form is to be completed each day there is flight activity.

B. Before the first flight of the day:
   1. Review the Deferred Maintenance records.
   2. Review the previous Daily Logs. Those which haven't been reviewed by maintenance. Carry forward any 0 or - items.
   3. Perform the airworthiness inspection.
   4. Record any faults as per D below.

C. Post flight:
   1. Enter a brief narrative of the days activity and the primary charge number thatthe flight is to be charged to.
   2. Record the power check results if required.
   3. Record the fuel, oil, start and torque event data. *(see paragraph H. below)*
   4. Record any faults as per D below.
   5. Certify the entry with name and signature.

1. Fault/Remarks discovered are to be recorded as follows:
   1. If the fault creates an unairworthy condition the aircraft is not to be flown. Place an X inthe status box. Tag the control or cyclic stick in accordance with the DNRC AirOps Lockout/Tagoutprogramandnotifymaintenance personnel.
   2. Faults which cause an operational restriction on the aircraft and inoperative instrumentsand equipment permitted by FAR 91.405, must be placarded INOP and recorded as an 0in the status box. Example: FM radio is inop, fire activity is restricted.
      a. Faults which cause any operational restrictions must be carried forward each dayuntil corrected.
   3. A minor Fault/Remark and inoperative instruments and equipment which donot impose an operational restriction or safety of flight concern are recorded as a /.
   4. Overdue inspections or items are listed as a -. They must be carried forward until cleared.

E. FAR 43 requires the pilot to record any preventative maintenance or test flight performed. .Enter as a fault/remark and enter the appropriate corrective action, signature and certificate number.

F. Phone in status report or FAX a copy of the daily log to maintenance perso1U1el.

G. Maintenance Personnel:
   1. Pilots shall ensure that maintenance personnel review, record corrective actions or deferany maintenance items.
   2. Maintenance personnel shall review the daily log for recorded faults on a periodic basisand shall initial each entry as being reviewed.
   3. Reference information for any corrective actions shall be recorded for each fault/remarks. Example FM repaired by Avionics Shop under WO 1234 on 8AUG96 A/C tach 3309 Etc.
   4. Any allowable deferred maintenance items will be placed on the Deferred Maintenanceforms until corrected.

H. Recording Torque Event Information
   1. In the STARTS block, record the total number of engine starts for the day. Each start orattempted start counts as one START.
   2. In the TAKEOFFS block, record the total number of takeoffs for the day. Each takeoff,with it's corresponding landing, counts as one TAKEOFF.
   3. In the TQ EVENTS block, record the total number of TQ Events for the day. Each external load, with it's corresponding drop, counts as one event. In addition, each additional NI speed increase of 10% or more, with it's corresponding decrease, counts as an additional event
   4. In the MAX NI block, record the maximum NI speed attained during the day.

N

Aircraft Daily Log

Control # 68101

Date: Ending Tach: Starting Tach: Hours Today:	I certify that the daily airworthiness Inspection was completed and that the discrepancy records have been reviewed. Initial:	**Power Check** OAT ALT N1 TQ EGT Results:
Activity Report: PRI SBAS		

Starts:	Takeoffs:	TQ Events:	Max NI:	Fuel:	Oil:

Status	Faults/Remarks: Corrective Action: Date: Tach: WO: By: Initials:	MEL **M** or **O** Action/Status:
Status	Faults/Remarks: Corrective Action: Date: Tach: WO: By: Initials:	MEL **M** or **O** Action/Status:
Status	Faults/Remarks: Corrective Action: Date: Tach: WO: By: Initials:	MEL **M** or **O** Action/Status:

Pilot: Reviewed by Maintenance Personnel:

Signature: Date: Initials:

MAINTENANCE COPY

Instruction Sheet
Public/Civil Aircraft Utilization
Dispatch Work Sheet/Documentation Record

If it is necessary to utilize a State, or County aircraft for a Federal incident or a Federal aircraft for a state incident or mission you must complete this from to remain within compliance of public law 103-411. This form must be filled out by the Agency representative (Dispatcher) every time a State aircraft is dispatched to a Federal incident, certifying that a civil operator was not available.

1. Determine if there is a need to utilize another government's aircraft for the mission or incident.
    a. If the answer is **yes** fill in the blocks stating the Date/Time of request, Incident Name, Jurisdictional Agency, Incident #, Resource Requested, and the Date Time needed.

2. Determine if a Significant or Imminent Threat Exists. This must be a **yes.**
   Next determine what that threat is, a Threat to Life, a Threat to human Health or a Threat to Property or Natural Resources.

3. Next identify whether a civil commercial aircraft operator is **unavailable** to meet the request. If the answer is **yes** continue. If the answer is **yes** then state the reasons why the civil operator was not utilized. This would include an Aircraft not available in a timely Manner an Aircraft not capable of meeting the operational needs, or an Aircraft not Available (within ordering area of influence.)

Paragraphs 2 and 3 above must be identified with a **yes response or the flight will not meet the guidelines of public law 103-411**

4. Write any significant information in the Remarks section.

5. Sign and date the form with your name, the dispatch office, and the date and time the dispatch was made.

Failure to certify can result in an $1,100.00 fine per incident, for the using agency.

Public/Civil Aircraft Utilization
Dispatch Work Sheet/Documentation Record

(To be completed by the Dispatcher that is representing the user agency.)

The intent of this work sheet is to accomplish the essential documentation required by the Public Safety act amendments pertaining to Public Aircraft 14 CFR part 1 definitions, not to delay the dispatch of initialAttack aircraft resources requested.

1. Utilization of Non – federal aircraft (State, County, etc) for a Federal incident/mission (or vice versa) where reimbursement will be required and a common treasury does not exist:
   Yes:_____No:_____

   a If yes was identified; the following elements MUST be completed. (Additional clarification and information is identified in the Public/Civil Aircraft Dispatch matrix or Agency Policy onthe Definition of public Aircraft 14 CFR Part 1 Definitions.)

   Date/ time of request: _____Incident Name: _____

   Jurisdictional Agency: _____Incident #:_____

   Resource Requested: _____Date / Time needed:_____

2.* **Significant or Imminent Threat Exists**: YES_____NO_____
   a. Threat to Life _____
   b. Threat to human Health _____
   c. Threat to Property or Natural Resources_____

3.* **Commercial Civil Aircraft Operator unavailable to meet flight request**: YES___NO___
   a. Aircraft not available in a timely Manner _____
   b. Aircraft not capable of meeting needs _____
   c. Aircraft not Available (within ordering area of influence) _____

- Items 2 and 3 need to be identified with a "yes" response or the flight will not meet the guidelinesof Public Law 103-411.

4. REMARKS: _____

_____

_____

_____

_____

5. Certifying Dispatcher:

Name:_____Date:_____
Dispatching Office:_____Time:_____

01/26/2004

2024

MONTANA ARMY AVIATION
ARNG OPERATIONS PLAN

COOPERATING AGENCIES:

MONTANA DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION
MONTANA NATIONAL GUARD

MONTANA INTERAGENCY NATIONAL GUARD
HELICOPTER FIREFIGHTING PROGRAM

APPENDICES:

MONTANA INTERAGENCY MILITARY HELICOPTER FIRE FIGHTING PROGRAM

OPERATING PLAN

I. INTRODUCTION

This operating plan (OPLAN) implements the agreements documented in the "Cooperative Agreement", among the Montana Department of Emergency Services (DES); the Montana Department of Natural Resources and Conservation (DNRC); and the Montana National Guard (MTNG). Nothing in this OPLAN conflicts with the cooperative agreement, the Department of Defense policy, or National Guard service related regulations, directives or instructions.

II. OBJECTIVES

The DNRC, USFS routinely employ helicopters for fire suppression when fighting wild fires. MTNG helicopters are tasked to support these agencies in fire suppression operations during emergency support conditions as authorized per National Guard Regulation, 500-Afl 10-8101, Military Support to Civil Authorities.

This OPLAN is a single source document that identifies the mutual duties, responsibilities, and expectations of the various firefighting agencies, and the units of MTNG, when tasked to support wild fire operations. This OPLAN standardizes MTNG helicopter firefighting equipment and aircrew training, evaluations, and currency requirements. It specifies the process to activate MTNG units and provides firefighting managers with detailed information about aircraft, and staffing capabilities. It also outlines the responsibilities and training requirements of the firefighting agency personnel.

III. POLICY

MTNG aircraft and resources will normally be activated after all state agency, federal and contract call when needed (CWN) helicopters, by type, have been employed. The MTNG helicopter firefighting capability is a supplemental emergency resource employed when suitable civilian contract helicopters are not available

IV. SAFETY

Historically during critical emergency activity, agencies within the state of Montana look to the MTNG. This military organization has vital rotor wing aircraft that provide a wide range of services. During activation of the MTNG, safety shall be the utmost priority. All agencies have their own standard operating plans integrating safety and risk management. Caution will be exercised to ensure that the most restrictive policies are adhered to. Activation team members have the responsibility to identify the agency specific policies to be followed. If conflicts are evident, flight activity will cease until a clear resolution is attained. The intent of all agencies involved shall be to provide safe and effective resource utilization during activation of MTNG assets. The final authority for the safe operation of the aircraft is always the responsibility of the pilot in command (PIC).

A. Incident and Accident Reporting

Should an aviation incident or accident occur, the MTNG and the Agency controlling the incident must follow their respective reporting procedures. All aviation incidents and accidents will be reported immediately to the state and or federal officials as applicable.

Upon arriving at a fire incident, it shall be the responsibility of the Agency Aviation Military Liaison (AAML) or the Military Helicopter Manager (MHEM) to ensure that the crash /rescue plan, medivac procedures and notification procedures are in place prior to allowing any MTNG aircraft to operate on the incident. In the case of dispatch to an initial attack (IA) incident the AAAML/MHEM must be aware and plan for safety, advising MTNG crews when unsafe situations or activities are occurring. The AAML/MHEM may, at any time, cease MTNG operations when they feel that it is unsafe. It is the responsibility of the AAML/MHEM to initiate all firefighting agency incident reports and to ensure that all incident and accident reports are accurate.

B. Safety Equipment

1. MTNG crews shall adhere to applicable military regulations governing the wearing, use, and maintenance of aviation life support equipment (ALSE).

2. AAML/MHEM shall wear the following clothing and equipment during flight.

    a. Authorized flight helmets.
    b. Authorized Nomex flight suit or wild land firefighting Nomex.
    c. Leather or Nomex gloves.
    d. Leather boots.
    e. Crew tether harness when appropriate.
    f. ID Tags.
    g. Cotton underwear.

3. In addition to the above equipment, all crewmembers shall be required to wear approved personal flotation devises (PFD) during over water operations.

V. RESPONSIBILITIES

A. Command and Control

All assigned MTNG crewmembers and attached firefighting agency personnel will comply with all operating procedures established in this OPLAN.

All MTNG aircraft flying on an Agency wildland incident shall have a copy of the most recent authorization letters.

Only trained and qualified firefighting personnel will fly on MTNG military aircraft to, from, and on operational flights. The IC can authorize Aerial Observation missions for the Adjutant General and his staff to ensure interagency cooperation and information sharing.

All agencies that are part of the Cooperative agreement will maintain aircrews and equipment capable of responding to an emergency activation during the fire season in accordance with this OPLAN.

B. MTNG Support Facility

The MTNG will supply helicopters from the following facility:

Helena; Army Aviation Support Facility (AASF) -
UH-60A+/L HH-60M CH-47F UH-72 C-12

C. Support Facility Working Group

The DNRC will maintain a Support Facility Working Group in conjunction with the MTNG flight facility.

Prior to the start of the season, this working group will be responsible to insure that:

1. The firefighting equipment at the facility is inventoried, tagged, inspected and ready for deployment.
2. MTNG aircrew and agency personnel are trained to OPLAN standards and that it is properly validated and documented.
3. Coordination between the MTNG facility personnel, aircrews and agency personnel is maintained.

D. MTNG Maintenance and Support

Additional MTNG maintenance and support elements can be expected to be deployed in conjunction with aircraft and crews. The exact number of personnel is dependent on agreements separate of this OPLAN but generally the types of support are as follows:

1. Each Incident Site

Maintenance personnel can be expected to vary depending on the number of aircraft and type assigned. Maintenance requirements for MTNG aircraft in the field are generally parallel to the civilian equivalent with 1-3 additional mechanics needed to conduct daily and periodic maintenance. Aircrews should not be expected to perform maintenance on aircraft in violation of crew rest requirements. The ordering agency should plan for the support of additional maintenance support personnel.

When more than one aircraft is deployed to an incident the MTNG will normally activate a Military Liaison Officer (LNO) and when necessary additional administrative support staff. This staff will work with the agency AAML on the incident.

2. Support Facility

When the MTNG activates aircraft, the Aviation Battalion will also activate additional operations staff to provide a communications link and coordinator for aircraft and flight crew records. These MTNG personnel may remain at the facility and may or may not deploy to the incident.

E. Rules and Regulations

MTNG aircraft operate under procedures contained in Department of Defense Flight Information Publications and flight rules contained in Army and Air National Guard and State regulations. Specific paragraphs in Federal Aviation Regulations Part 91, that do not exempt military aircraft or flight crewmembers, apply to flights in the National Airspace System. Other applicable regulations or procedures may be more restrictive but under no circumstances may they be less restrictive.

This OPLAN establishes operating procedures that MTNG aircrews, and DNRC personnel will operate under when activated to support this plan. Nothing in this plan, or communicated by other means, authorizes MTNG aircrews to violate existing Army or Air Force rules, regulations, instructions, or guidance.

F. Crew Endurance

1. National Guard flight crews will operate shifts of 14 hours on duty and 10 hours off duty. Flight crews are limited to eight hours of flight time in one duty day.

2. Pilots and crewmembers accumulating 36 hours in any six consecutive days shall be off duty the following day, with a 42-hour maximum in any 6-day period.

3. Pilots or crewmembers shall not work more than 12 consecutive days without 2 days off. (Note: these two days off are with pay.)

4. Duty time includes flight time, ground time of any kind, and standby or alert status at any location.

5. A day off must not be less than 24 hours and the pilot or crewmember shall not be subjected to call-up for duty during this period.

G. Military Staffing

The Officer in Charge (OIC) is the individual designated by the MTNG as the overall commander of the aviation assets regardless of the number of aircraft. The OIC will normally be an aviator with flying duties but will have at a minimum the following responsibilities while assigned to an incident:

Has overall responsibility for all operations of MTNG aviation assets on an incident.

1. Supervises aircraft and aircrew scheduling.

2. Supervises maintenance operations/logistical support.

3. Enforces crew endurance policies Coordinates with the agency AAML.

4. Manages Personnel Assignments.

5. Coordinates with MTNG higher headquarters.

An Air Mission Commander (AMC) is designated when two or more aircraft are tasked to perform a single mission on an incident. The AMC has overall responsibility for planning and completion of the assigned mission from the initial air mission brief to the back brief or debrief upon mission completion. The AMC makes the determination whether or not the mission can be completed as briefed and briefs the aircrews on the assigned mission. There may be times when the AMC and OIC may be the same individual.

A MTNG Military Liaison Officer (LNO) will be dispatched when two or more aircraft are sent to the same incident. The LNO will be responsible for the coordination between MTNG and agencies on all issues. The LNO answers to the OIC.

H. Aircrew Staffing

AVIATION MISSION SUPPORT PACKAGE	
Airframe	Personnel
UH-60	Pilot in Command (PC) Pilot (PI) Crew (CE) (15T) X 2 Aviation Mechanic (15T) Technical Inspector (TI) HEMMT Fueler (92F) X2 Aviation Operations (15P)
TOTAL PERSONNEL: 9	
CH-47	Pilot in Command (PC) Pilot (PI) Flight Engineer (FE) Crew (CE) Aviation Mechanic (15U) Technical Inspector (TI) HEMMT Fueler (92F) X2 Aviation Operations (15P)
TOTAL PERSONNEL: 9	

AVIATION MISSION SUPPORT PACKAGE	
Airframe	Personnel
UH-60M	Pilot in Command (PC) Pilot (PI) Crew (CE) (15T) Crew (CE/MO) (15T/68W1F) Aviation Mechanic (15T) Technical Inspector (TI) HEMMT Fueler (92F) X2 Aviation Operations (15P)
TOTAL PERSONNEL: 9	
LUH-72	Pilot in Command (PC) Pilot (PI) Crew Chief (CE) (15T) Aviation Mechanic (15T) HEMMT Fueler (92F) X2 Aviation Operations (15P)
TOTAL PERSONNEL: 9	

AVIATION SUPPORT MISSION SUPPORT PACKAGE*
OIC
NCOIC
Aviation Operations (15P)
Supply NCO (92Y)
HEMMT Fueler (92F) X2
ADMIN (42A)
TOTAL PERSONNEL: 7
* One package supports up to 3 AFP's

MEDEVAC Mission Support Packages.

The manning for the MEDEVAC package is based upon operation and support of one aircraft to conduct medical evacuations in conjunction with the MT DNRC aviation resources. Under the DoDI 6000.11, May 4, 2012**,** the Montana National Guard is able to assist in movement of patients, medicine, or medical equipment to alleviate the effects of a life-threatening disaster in the United States. Under National Guard Pamphlet 95-5, Use of Army National Guard Aircraft, Section II, Operational Mission Support, 7-5 National Guard domestic Operations: *b. National Guard Civil Support (NGCS)* – for which the NG normally serves in a supporting role to other primary State or Federal agencies by providing assistance to U.S. civil authorities at the federal, state, tribal, and local levels. NG Soldiers conduct NGCS missions in their State role supporting local, State, and Federal civil authorities. Almost all NGCS is provided in Title 32 duty status, or in State Active Duty (**SAD)** status under the command and control of the Governor. The focus of these missions is usually on providing humanitarian support where no threat or hostility is normally anticipated.

AVIATION MEDEVAC MISSION SUPPORT PACKAGE	
Airframe	Personnel
UH-60M	Pilot in Command (PC) Pilot (PI) Crew Chief (CE) (15T) Flight Medic (CE/MO) (15T/68W1F) Aviation Mechanic (15T) Technical Inspector (TI) HEMMT Fueler (92F) X2 Aviation Operations (15P)
TOTAL PERSONNEL: 9	

I. Time schedule for Deployment

To complete all the necessary preparations to configure the aircraft and notify the flight crews, 48 hours notice will normally be required prior to deploying for wildfire fighting operations. Deployment prior to 48 hours will depend on pre-warning time. The AAML or MHEM will, in conjunction with the OIC, use the Incident Mobilization Checklist. The following is the normal sequence of events that occur prior to MTNG unit deployment to an incident.

1. **Army National Guard**

   a. Flight crews identified, called in briefed and flight planning completed.
   b. Firefighting agency AAML/MHEM identified, and linkup established.
   c. Radios installed, frequencies assigned and checks completed.
   d. Water buckets checked and loaded.
   e. Maintenance support kit loaded.
   f. Identification number painted on aircraft.
   g. Hoist installed (if required).
   h. Aircraft preflight by flight crew.

VI. ORDERING

A. Montana Department of Natural Resources (DNRC) request for Montana National Guard (MTNG) assistance are placed through the Department of Emergency Services (DES) per the provisions specified in the cooperative agreement.

B. The USFS, Northern Region (USFS/Region 1) and the United States Department of Interior, shall make all requests for MTNG assistance through the DNRC, who then places the request with DES and then DES assigns.

C. Payment

MTNG aircraft are paid on an hourly basis. The most current rates are published in the Interagency Incident Management Handbook in Chapter 50, Cooperative Relations, NRCG Supplement. Payment will be recorded on the USDA Forest Service, Flight Use Report, FS-6500-122. The white copy will go to DNRC FMB via the AAML, pink copy will stay with the fire and the yellow copy will go to the AAML. The 6500-122's will be turned into the Finance Unit, who in turn will forward the copies to the Department of Military Affairs. Military Affairs will bill to DNRC. The Department of Natural Resources and Conservation will then bill the Federal partners for applicable charges.

VII. AIRCRAFT

A. MTNG Aircraft numbering and Painting

All MTNG aircraft will be painted in accordance with the numbering sequence and high visibility schemes as depicted in this operations plan prior to deployment

to an incident. If for some reason an aircraft is deployed without being painted it will not be allowed to engage in flight operations on the incident until it is properly marked. The number painted on the aircraft will be the aircraft tail number with the type aircraft prior. (UH-72 will use U, UH-60 will use B, and CH-47 will use C.) (Example, UH-60 Aircraft 26136 will be B136)

Aircraft will retain the same number until released from all fire activity. When an aircraft is released from an incident and is no longer available for assignment, the paint shall be removed as quickly as possible. It will be the joint responsibility of the requesting agency and MTNG facility to ensure the aircraft are cleaned. If necessary this may entail hiring of contractor services to remove the painted markings. Cleaning of aircraft is chargeable to the incident.

B. UH-60A Blackhawk

1. General Description

The Army National Guard UH-60A+/L Blackhawk is a twin turbine engine, single rotor helicopter. The primary mission for fire suppression activities are the transport of firefighters, supplies and equipment, and water bucket operations. The aircraft has an external hook for sling load operations. the aircraft has a maximum seating capacity for 17 personnel but normally come configured with three seats for the crew, one for the helicopter manager and 11 seats for passengers. The aircraft may be configured for search and rescue operations with a rescue and /or medical transport kit capable of carrying six litters with the passenger seats removed. During personnel transport one crewmember may remain on the ground, providing one additional passenger seat. Aircraft is deployed with a 660-gallon collapsible Bambi bucket.

2. Performance Data

The following data is based on a fuel load of 1300 pounds, Aircraft Torque Factor (ATF) of 1.0 The power available and was computed using the UH-60/A+/L Operators manual.

The Aircraft will be configured and performance calculated with the following:

3 crewmembers (600 lb.)
Fuel burn rate (950 lb./hr)
1300 lbs. of fuel on board = 1 hr of flight time + 20 minutes of reserve
Average take off gross weight of 13,650 pounds
OGE hover
10 seats available
A firefighter is calculated at 200 lb., with equipment

Pressure altitude/temp	Cargo load	Passengers
5000/25C	4793	10
5000/30C	4593	10
5000/35C	3801	10
6000/25C	4168	10
6000/30C	3893	10
6000/35C	3191	10
7000/25C	3523	10
7000/30C	3054	10
7000/35C	2555	10

C. CH-47F Chinook

The Chinook is a twin turbine engine, tandem rotor helicopter. The primary mission is the transport of firefighters, supplies, equipment and bucket operations. The aircraft has three external hooks for sling load operations. The aircraft has a maximum seating capacity for 36 personnel. Normal configuration is four seats for the crew, one for the helicopter manager, two seats removed for equipment storage, leaving 29 seats for the passengers. The aircraft is deployed with either 2000 or 1300 gallon collapsible buckets.

The Aircraft will be configured, and performance calculated with the following:

4 crewmembers (800 lb.)
Fuel burn rate (2000 lb./hr)
6500 lbs. of fuel on board = 2.5 hrs + 20 minutes of reserve
Average take off gross weight of 31,000 pounds
OGE hover
34 seats available
A firefighter is calculated at 200 lb., with equipment

1. Performance data

The following planning data is based on a full load of fuel (6600 lbs), a maximum passenger capacity of 32 seats available and Out of ground Effect (OGE) hover power. A firefighter is calculated at 200 lbs.

Pressure Altitude/Temp	Cargo load	Passengers
5000 ft/25C	18,000 OGE / 18,000 IGE	32
5000 ft/30C	17,000 OGE / 18,000 IGE	32
5000 ft/35C	15,800 OGE / 18,000 IGE	32

6000 ft/25C	16,200 OGE / 18,000 IGE	32
6000 ft/30C	15,000 OGE / 18,000 IGE	32
6000 ft/35C	13,800 OGE / 18,000 IGE	32
7000 ft/25C	14,200 OGE / 18,000 IGE	32
7000 ft/30C	13,000 OGE / 17,800 IGE	32
7000 ft/35C	11,800 OGE / 16,400 IGE	32

D. UH-72 Lakota

The Lakota is a twin engine, single rotor system helicopter. The maximum gross weight is 7900 pounds The primary mission for fire suppression activities are the transport of fire fighters, supplies and equipment, IR mapping. The aircraft has an external hook for sling load operations. The aircraft has a maximum seating capacity for 7 personnel but normally configured with 5 seats for the passengers. During personnel transport one crewmember may remain on the ground, providing one additional passenger seat. Aircraft is deployed with a 180-gallon collapsible Bambi bucket.

1. Performance Data

The following data is based on a fuel load of 800 pounds. The power available and was computed using the Operators manual.

The Aircraft will be configured, and performance calculated with the following:

2 crewmembers (400 lb.).
Fuel burn rate (600 lb./hr).
800 lbs of fuel on board = 1 hr of flight time + 20 minutes of reserve
6000 LBS empty weight
Average take off gross weight of 7200 pounds
OGE hover
5 seats available
A firefighter is calculated at 200 lb., with equipment

Pressure Altitude/Temp	Cargo Load	Passengers
4000/25C	1000	5
4000/30C	600	3
5000/25C	600	3
5000/30C	300	1
6000/25C	400	2

VIII. AGENCY STAFFING

The cooperating firefighting agencies have established two positions for the purposes of this program: the Agency Aviation Military Liaison (AAML) and the Military Helicopter Manager (MHEM). These positions are based on agency management personnel recommended in the National Interagency Fire Center's, Military use Handbook dated April 1996.

The AAML/MHEM will use the Montana Department of Natural Resources and Conservation 1500 Aviation manual, or the NWCG Standards for Helicopter Operations (PMS 510) as a directive and be knowledgeable of this OPLAN pertinent to the assigned mission. They will also ensure that the MTNG helicopters, personnel, and equipment assigned will be utilized in the safest, most effective and suitable manner. The AAML/MHEM shall be assigned as appropriate by the MAC group in order to manage the mission. A CWN qualified Helicopter Manager or Helicopter Boss (type IV, IC or arduous physical fitness level not required) can be assigned to perform the AAML/MHEM duties and responsibilities when directed to do so.

A. Agency Aviation Military Liaison (AAML) role and responsibilities:

1. The AAML is directly responsible for supervising the agency aviation personnel assigned to the military aircraft.
2. Lead person to make contact with the assigned Guard facility to obtain the aircraft tail numbers and ensure that the aircraft, paint scheme, and crews are equipped and ready to respond to the incident.
3. Insures that MHEMs are assigned to helicopters prior to arriving at an incident.
4. Obtains and provides fire order information relative to the incident to the assigned MHEM, National guard crews and support personnel.
5. Insures that the necessary fuel, transportation, communication, lodging, and all other logistical support required to perform the mission is ordered using the proper incident logistical support chain of command.
6. Establishes the communications link between the Helibase Manager, and MTNG aircrews.
7. Facilitates and coordinates with the MTNG liaison, and monitors any support requirements necessary to maintain MTNG personnel and/or aircraft mission readiness.
8. Facilitates the scheduling, of maintenance personnel requirements with MTNG Liaison, and Helibase Manager for the maintenance of the MTNG helicopters as necessary.

9. Attends all meetings and briefings regarding the operation of the MTNG helicopters as necessary.

10. Coordinates with appropriate agency safety officer to investigate and complete the paper work regarding an accident or incident on helicopters, equipment, and personnel.

11. When necessary, conducts briefings, debriefings relative to operations and activity of the MTNG helicopters, personnel, and required equipment.

12. Upon release of the MTNG assets, completes evaluations of assigned MTNG Military Helicopter(s), MTNG crew(s), and assigned agency staff. Maintains a suitable file of all documentation associated to assignment to include the ICS 214 form.

13. Insure that the initial inventory checklist is completed and all equipment is brought up to initial attack standards prior to responding to the incident.

14. Insures the Daily Operation Debriefing (Appendix documents are completed by the AAML and submits to the appropriate agency.

15. In the absence of the MHEM, performs the MHEM duties.

16. The AAML will remain at the AASF and act as a direct liaison with the Military. The Chief Pilot DNRC and or the Region 1 Aviation Officer can assign the AAML to an alternate location if it will benefit the incident.

17. The AAML will assist the MTNG and make arrangements for transportation at the fire I.E. rental vehicles etc. The vehicles will be charged to the incident. The MTNG will provide the driver. The guard will attempt to obtain GSA vehicles first.

B. Military Helicopter Manager (MHEM) role and responsibilities:

1. The MHEM reports to the AAML and is an active member of the MTNG flight crew.

2. The MHEM will insure that the MTNG personnel, aircraft, and equipment assigned are configured in accordance with this OPLAN and suitable for the assigned mission.

3. Obtains and provides information pertaining to the incident to their assigned MTNG personnel.

4. Insure that the assigned AAML is informed of any issues or changes in MTNG personnel, aircraft or equipment.

5. Maintains records of daily flight hours, crew duty hours, and accumulated totals and route copies to the Helibase Manager and AAML.

6. Coordinates with the AAML on support requirements for MTNG flight crews and aircraft.

7. When the AAML assigned to the incident is unavailable, the MHEM will insure MTNG personnel, aircraft and equipment needs are addressed through the Helibase Manager.

8. Insures that an inventory checklist is completed and damaged equipment is repaired or replaced prior to leaving the incident and charged to the incident.

9. Flies as part of the helicopter crew for the purposes of coordination and wild land fire expertise.

10. Completes the daily Operations Debriefing document and submits to AAML.

IX. MISSION SUPPORT REQUIREMENTS

A. Personnel

MTNG aircraft assigned to an initial attack incident will be accompanied by either an AAML or MHEM prior to conducting any operation in support of an incident. Typically, agency personnel deployed with multiple aircraft will be deployed as a team headed by a Agency Aviation Military Liaison (AAML), who may, but more will likely not, fly as a member of an aircrew.

MTNG helicopters will be allowed to operate on wildland fire incidents without an assigned civilian Helicopter Manager, using the Military Crew Chief as the Pilot in command's representative as the Chief of Party, for the following mission profiles:

1. Montana National Guard helicopters transporting personnel.

2. Montana National Guard helicopters moving supplies in support of personnel (excluding longline remote hook use).

3. If pre-designated and trained, Montana National Guard helicopters dropping retardant or water using buckets or fixed tanks. *

   * TRAINING WILL BE DETERMINED BY THE MONTANA INTERAGENCY NATIONAL GUARD HELICOPTER FIREFIGHTING PROGRAM OPERATIONS PLAN.

The following conditions must be met:

1. The helicopter must be moving troops from one established/ managed Helibase/ helispot, to another established/managed Helibase/helispot.

2. The helicopter must be assigned to an incident, managed by a Type I or II Incident Management Team with aerial supervision on scene, i.e. an assigned Air Tactical Group Supervisor.

3. A Helibase Manager must be assigned.

4. Necessary communication equipment (radios) must be installed in all helicopters to allow for adequate communication with all other resources on the assigned incident.

5. Montana National Guard helicopters and pilots will carry a letter of approval issued by the Region One Helicopter Inspector Pilot and the Mt. Department of Natural Resources, Check Airman.

6. Assign a Military Liaison to accompany the assigned Montana National Guard Unit for the duration of the assignment. (See section V paragraph G responsibilities).

7. Compliance with all aspects of the Montana Interagency National Guard Helicopter Firefighting Program.

When MTNG helicopters are working directly with a DNRC agency helicopter that has a qualified helicopter manager the above criteria will have been met. The HEMG will provide management and oversight over both the Guard and Military helicopters.

1. **Helicopter Firefighting Program Operations Plan**.

   The following overview and condensed fire-training curriculum will be provided by a compliment of Regional/State Helicopter Inspector Pilots, Aviation Technical Specialists, Helicopter Operations Specialists, Incident Air Operations personnel, and experienced fire suppression specialists from the Natural Resource Agencies involved (approximate training time 1-2 days).

   a. Firefighter Training (condensed)
   b. Intro Fire Behavior (condensed)
   c. ICS
   d. Agency Aviation Policy/Chief of Party Training
   e. Incident Air Operations Organization and Requirements
   f. Communications within the Fire Environment
   g. Airspace Integrity and Coordination

h. Mountain Flying Techniques.

B. Aircraft Utilization

Safe, efficient and economical utilization of MTNG aircraft will establish the priorities for deciding aircraft missions. Once MTNG aviation assets have been assigned to the incident, and the mission designation identified, there will be no delineation in the use of military or civilian aircraft. The most suitable aircraft shall be used for each mission.

MTNG helicopters assigned to an incident should be used to their fullest potential. Heli-mopping is not approved as it exposes ground and aircrews to unnecessary risks without corresponding benefit.

MTNG helicopters are considered standard category aircraft and can be used for the transportation of passengers and external loads including water bucket operations. UH-60 and CH-47 helicopters are classified as type l; UH-72 are type ll.

C. Communications

1. Receiving Incident Orders

Prior to departure from the flight facility the AAML/MHEM shall contact the Helena fire desk (449 5475) and obtain or relay the following information:

a. Incident Order Number
b. DES Mission Number
c. Incident Name
d. Incident Location (Legal, Lat, Long., Geographic)
e. Reporting location and contact.
f. Estimated time of departure
g. Estimated time of arrival
h. Assigned helicopter call sign/identification
i. Names of flight crew; AAML/MHEM and MTNG personnel.

2. Flight Following

Flight following in route to the incident shall be done with the Forest or State Dispatch center in that geographic location, in compliance with agency flight following procedures. The MTNG shall also open and close flight plans with the appropriate MTNG or FAA facility as per their unit standard operating procedures until such time as the aircraft is on an incident. Aircraft call signs shall be used for FAA flight following.

3. **Communications Equipment**

MTNG helicopters come with an array of avionics that provide for communications on VHF, UHF and FM frequencies.

Army National Guard

Technosonic VHF-FM	138.000-174.000 Mhz
UHF-AM	225.000-399.975 Mhz
VHF-FM	030.000-087.975 Mhz
VHF-AM	116.000-151.975 Mhz

As a means of improving MTNG communications with firefighting ground and air assets, each helicopter must have an operational Technosonic VHF - FM radio in each operational aircraft assigned to an incident. The flight crews and agency personnel must also be proficient in its use. Interagency frequencies are normally pre-loaded in each radio.

Use of the Technosonic with State and Federal frequencies is only authorized for firefighting, search and rescue or other emergency operations missions.

D. Fueling

1. **Credit card or Identiplate**

Each MTNG helicopter has a commercial fuel credit card that can be used at general aviation airports that carry jet fuel. Because of the higher cost per gallon than contract fuel, this method of payment for fuel should only be used when deploying or when contract fuel is not available.

The Identiplate is a military type credit card that can be used at a military base or DOD contractor for fuel.

Both of these options can be used and are coded the same as if it was a state card to the incident. It is forwarded along with the billing package from the MTNG to the DNRC. The MTNG will bill the state and/or the USFS a wet rate including the cost for fuel when computing the hourly cost of the aircraft.

2. **Fueling from MTNG fuel trucks.**

MTNG fueling trucks (HEMTTS) should be ordered as soon as possible. If the need is mobile in nature i.e., various incidents, then a HEMTT must be ordered. This unit will come with 2000 gallons of fuel and two operators who will conduct and manage the fueling. The HEMMTT will be refilled with at the most cost-effective fuel vendor available. The state can assist in finding the most economical, local vendor, it will be topped off with fuel and billed to

the incident. This HEMMTT will normally come with a fire-extinguishing unit that will be placed at the fueling site. Personnel assigned to this unit will be treated as any other personnel assigned to the incident.

3. **Commercial Vender Fuel**

   It is the responsibility of the MTNG to supply fuel, fueling utilities and fueling personnel in support of its operation.

4. **Fuel Requirements**

   a. UH-60/A burn rate is approximately 140 gallons (950 lb.) per hour. Burn rate will vary depending on power requirements.

      Fuel Types: Jet A-1 (JP-8); Jet A (JP-5) (with Prist)

      Total Capacity-360 gallons

   b. UH-72 BURN RATE IS APPROXIMATEELY 88 gallons (600 lbs per hour. Burn rate will vary depending on power requirements.

      Fuel Types: Jet A (JP-5)

   c. CH-47F BURN RATE IS APPROXIMATELY 384 gallons (2500 lbs. per hour)

      Burn rate will vary depending on power requirements.

      Fuel Types: Jet A-1 (JP-8); Jet A (JP-5) (JP-4) (with Prist)

      Total Capacity: 1028 gallons

E. Water Bucket Operations

MTNG Type 1 helicopter, CH-47F, UH-60A+/L/M Type l helicopters; come equipped with variable fill buckets and rigging with a capacity commensurate with the maximum lifting capabilities of the aircraft. Prior to deployment the bucket and aircraft need to have functional checks completed and maintenance conducted if necessary.

X. RELEASE AND DEACTIVIZATION

A. MTNG aircraft will be released from an incident as soon as sufficient commercial CWN or other aircraft become available and are assigned to the incident.

B. Aircraft released from an incident shall not be re-deployed to another incident unless a DES mission number has been assigned and the supporting military facility has assigned that specific aircraft and crew.

C. AAML/MHEM are not authorized to release or deactivate any MTNG aircraft. Prior to being released from any incident MTNG aircraft and personnel must obtain approval from the incident commander.

XI. TRAINING AND QUALIFICATIONS

A. Military Flight Crews

1. Montana National Guard personnel are trained with the joint DNRC/USFS approved training program. The training program is comprised of classroom training, practical exercises, and applicable flight training. National Guard PIC flight time requirements will be 1500 hours total time for fire operations.

    a. Classroom training address the following subject matter:

        Fire behavior
        Tactics and bucket operations
        Preparation and pre-flight of bucket
        Incident Command System (ICS)
        Communications within the fire theater area of operations.
        Aircraft performance considerations and planning.
        Aircraft preparation and high visibility identification paint scheme application.
        Aircrew communications and coordination.
        Aircrew training and currency requirements.
        Fire shelter deployment.
        Standards for Survival
        Fire Traffic Area

    b. Practical exercises include preparation, helicopter connection, operational checks and preflight of bucket.

    c. Flight training and evaluation will focus on water drops in mountainous terrain; up/down slope and cross slope conditions as well as water bucket pickup maneuvers over running streams, irrigation canals, ponds and lakes whenever possible.

B. Firefighting Personnel

Listings of qualified fire agency personnel will be maintained by the MTNG and DNRC. AAMLs will provide appropriate agency training staff with verification of

attendance of MHEMs at annual MHEM training.

1. Minimum Qualifications for Agency Aviation Military Liaison (AAML)

    a. All Qualifications for MHEM.
    b. Two years as a MHEM.

2. Minimum Qualifications for Military Helicopter Manager (MHEM)

    a. One year as Helitack Foreman, Helicopter Coordinator, or Fire Helicopter Manager as defined by NWCG Standards for Helicopter Operations (PMS 510) or Helicopter boss as defined in the 1500 manual or 310-1.

    b. Strong knowledge of helicopter operations, tactics, basic, maintenance concepts, record keeping, and air program.

    c. Previous verifiable experience as a CWN Helicopter Manager or Helicopter Boss.

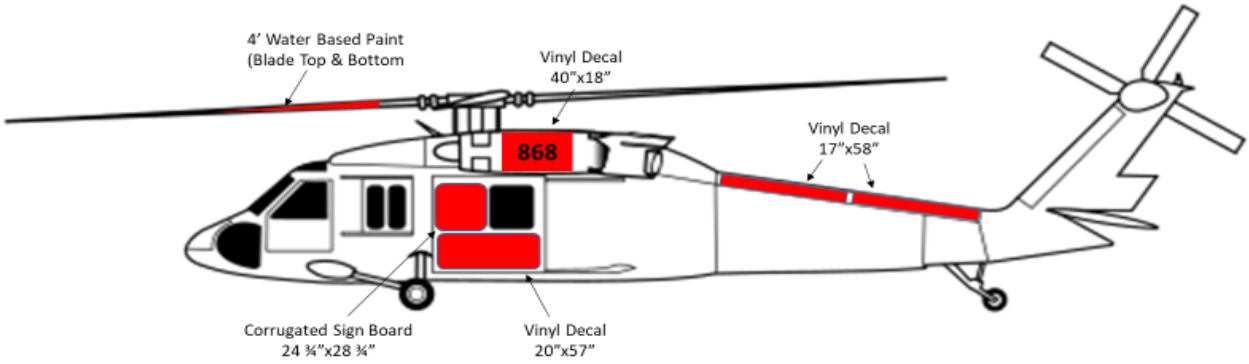
    d. Has a working knowledge of 1500 Aviation manual and NWCG Standards for Helicopter Operations (PMS 510)

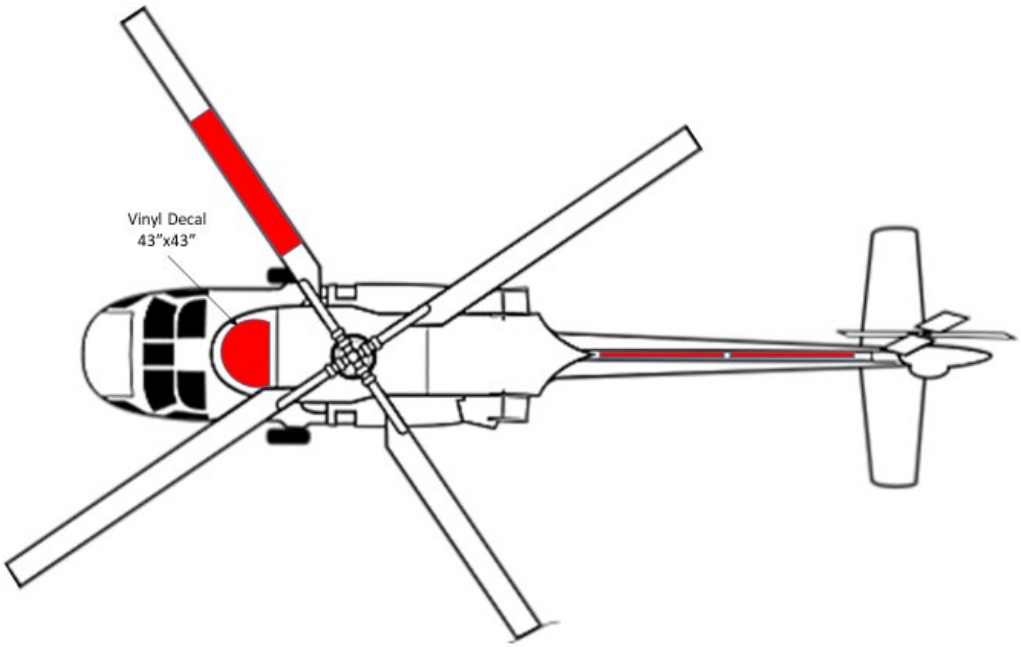
    e. Helispot manager qualified.

    f. Currently listed in agency resource Directory or current Red card Certified or any qualifying position.

Appendix A: Helicopter High Visibility Diagrams

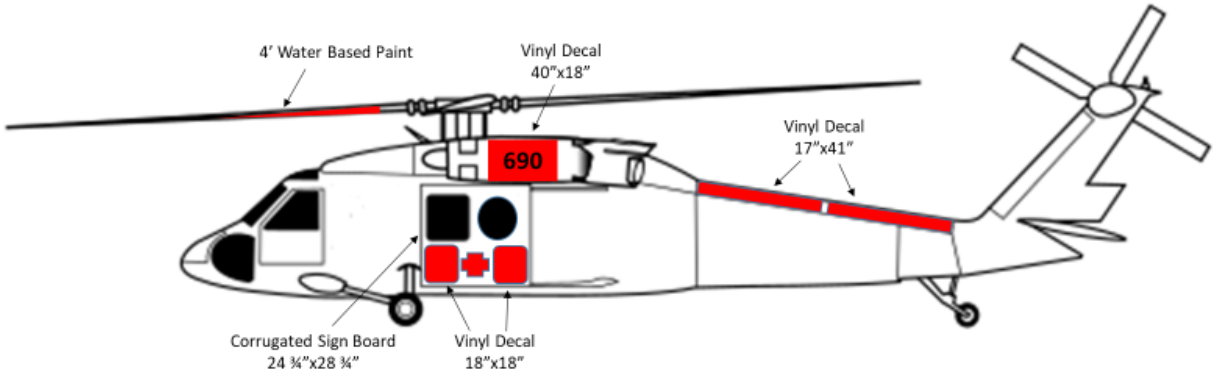
UH-60A/L






Vinyl Decal
16”x16”

HH-60M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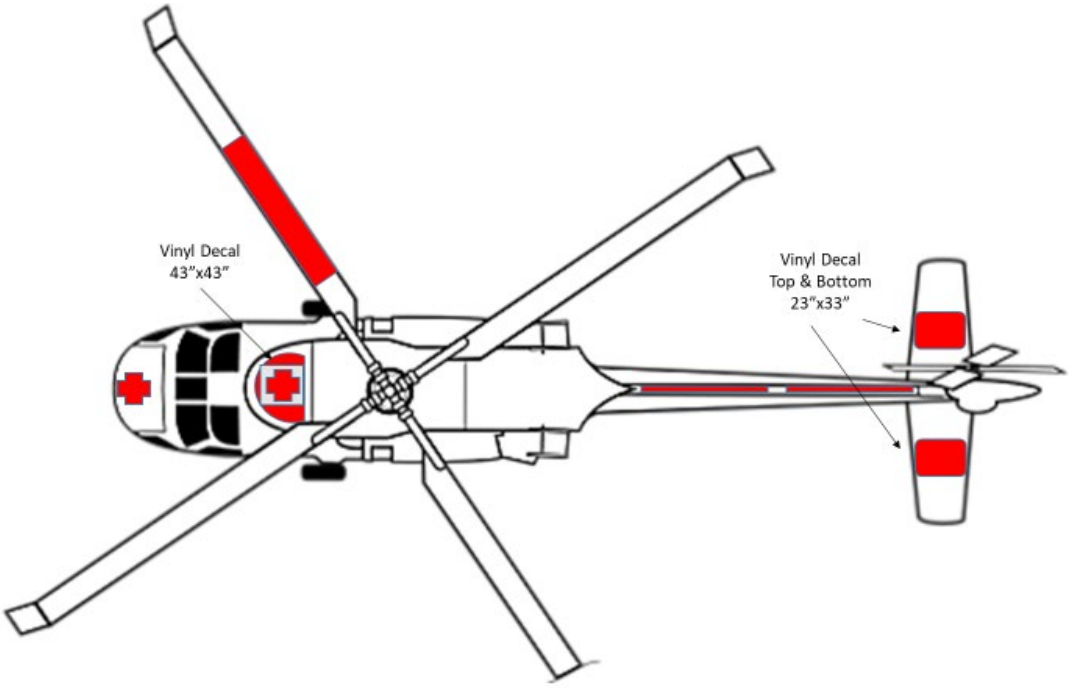
Vinyl Decal
40"x18"
690
Vinyl Decal
17"x41"
Corrugated Sign Board
24 ¾"x28 ¾"
Vinyl Decal
18"x18"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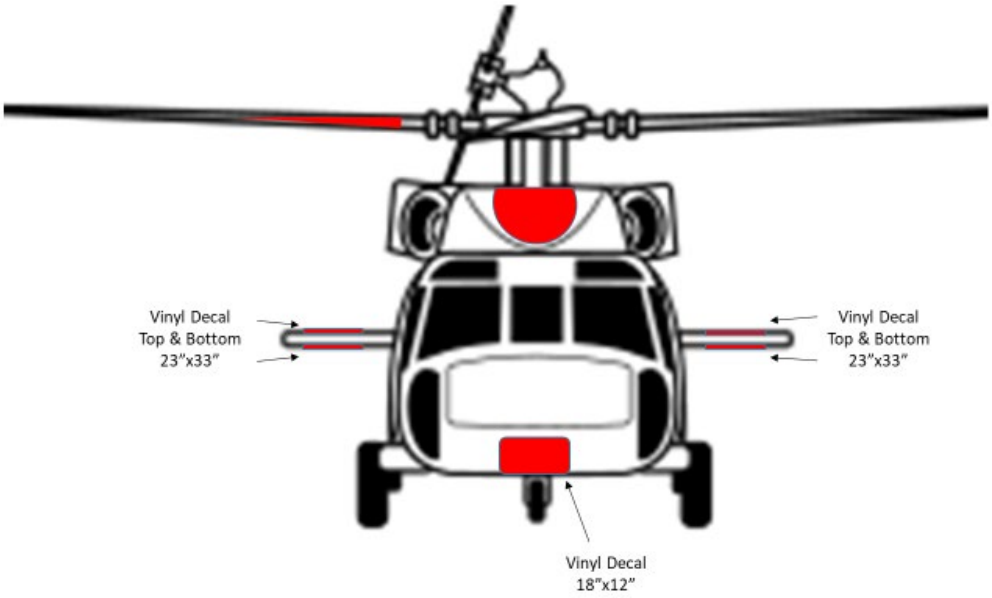
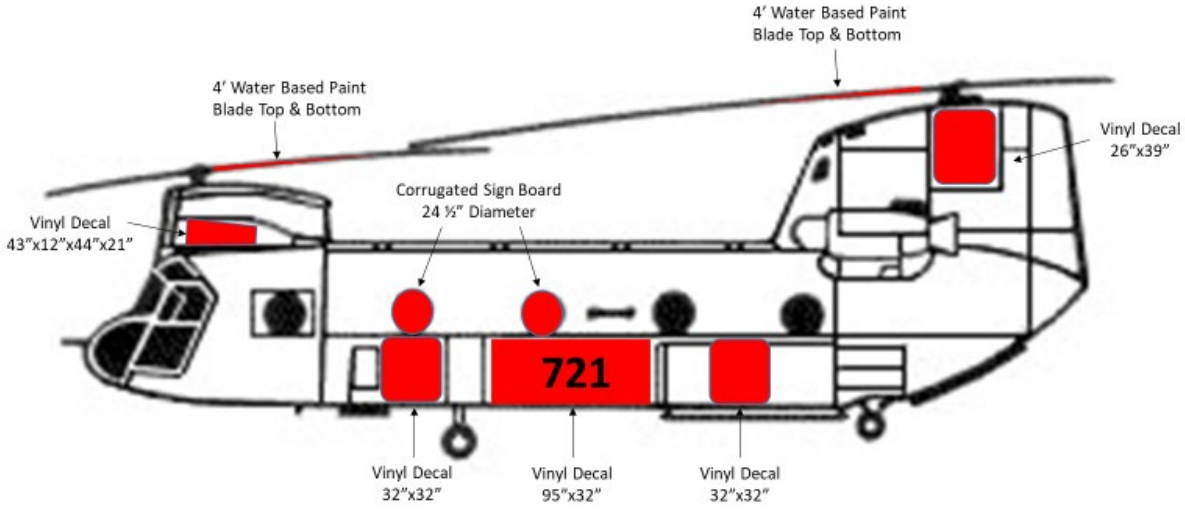
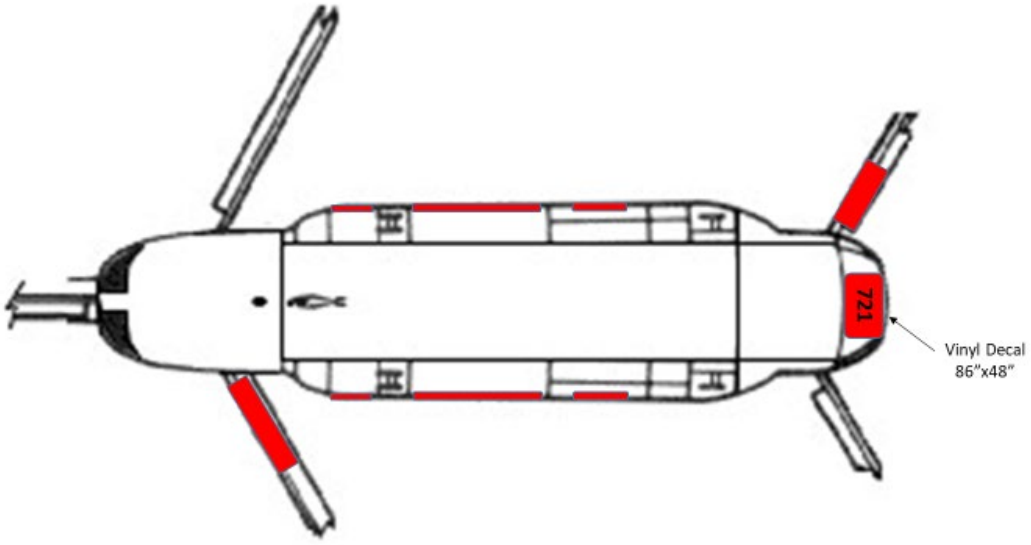
43"x43"
Vinyl Decal
Top & Bottom
23"x33"


Vinyl Decal
Top & Bottom
23"x33"
Vinyl Decal
Top & Bottom
23"x33"
Vinyl Decal
18"x12"

CH-47


4' Water Based Paint
Blade Top & Bottom
4' Water Based Paint
Blade Top & Bottom
Vinyl Decal
26"x39"
Corrugated Sign Board
24 ½" Diameter
Vinyl Decal
43"x12"x44"x21"
721
Vinyl Decal
32"x32"
Vinyl Decal
95"x32"
Vinyl Decal
32"x32"


721
Vinyl Decal
86"x48"

LINE OFFICER TRANSITION CHECKLIST

As a Line Officer for DNRC, you have a responsibility to ensure a smooth transitionas a Type I or II team takes over a fire. One of the more complex aspects of the transition is the Aviation component. This checklist was prepared to assist you in dealing with the complexities. Remember, the DNRC aviation assets you commit to the team for extended attack during this transition might be the only initial attack assets you have for other incidents. Initial attack trained and qualified aviation resources are a valuable commodity. That said, these might be the only assets available until the team can secure extended attack aviation assets.

All DNRC, Guard and DNRC contract aircraft have the primary mission of initialattack. Ensuring this initial attack capability is your priority during the transition.Several issues must be considered regarding how the initial attack priority is maintained, these include:

Aircraft Location—The aircraft will most likely be located away from the helibase established for the incident. Doing so allows for a more timely and effective response to an initial attack call. The geographic area assigned for initial attack must be considered. The DNRC Helicopter Manager(s) must be consulted before assets are committed to a helibase. Managers will be responsible for ensuring adequate information is passed between whatever location is selected and the incident helibase to allow safe integration of DNRC assets into the incident.

Reports—The Helicopter Daily Use and Summary Report will not be provided to the helibase. Interagency agreements allow for the direct billingof flight time. The number of aircraft, hours flown and the amount of water delivered from the previous day will be given at the daily brief.

Longline—The use of the longline is per pilots discretion based on the incident and mission. The longline will not be employed unless needed.

Fuel Truck/Support Personnel—The fuel truck, driver and support personnel will be held in the same fashion as the aircraft, to provide a rapid response to an initial attack call. This will probably mean these assets will belocated away from the incident helibase.

Aircraft Scheduling—The Helicopter Manager will be pro-active in the scheduling of aircraft during the transition. Until team aviation resources arrive, the aircraft should be actively involved in fire suppression activities for the incident, unless an initial attack need arises. Holding the assets at the incident without effective utilization serves no purpose.

DNRC Fuel Servicing & Equipment Requirements

1. General

a. The fuel servicing vehicle must be inspected and approved annually and must be stationed as assigned by the requesting agency.

b. The fuel servicing vehicle must be capable of transporting fuel over typical local terrain to include unmaintained roads and grades of up to 9%. Fuel tank/chassis combinations must meet DOT requirements.

c. Fuel tank/chassis combinations that are not compatible and/or that exceed the gross vehicle weight rating (GVWR) when tank(s) are full are not permitted.

d. Fuel servicing vehicles must be properly maintained, cleaned, and reliable. Tanks, plumbing, filters, and other required equipment must be free of leaks, rust, scale, dirt, and other contaminants. Trailers used for the storage and transport of fuel must have an effective wheel braking system.

e. Spare filters, seals, and other components of the fuel servicing vehicle filtering system must be stored in a clean, dry area in the fuel servicing vehicle. A minimum of one set is required to be with the vehicle.

f. The fuel servicing vehicle tank capacity must be sufficient to sustain 8 hours of flight (14 hours of flight when the aircraft is doubled crewed and required in the Schedule of Items). Note that the aircrafts fuel load, at the start of the day, may be considered part of the sustained flight time requirement. Barrels are not acceptable. The fuel servicing vehicle manufacturers' gross vehicle weight (GVW), with a full fuel tank, must not be exceeded.

g. All tanks will be securely fastened to the vehicle frame in accordance with DOT regulations and must have a sump or sediment settling area of adequate capacity to provide uncontaminated fuel to the filter.

h. A 10 gallon per minute filter and pump is the minimum size acceptable. Filter and pump systems sizes must be compatible with the aircraft being serviced.

i. The filter manufacturer's Operating, Installation, and Service Manual must be with the fuel servicing vehicle. Filters must be changed in accordance with the filter manufacturer’s manual, at a minimum of every 12 months, whichever is less, and documented. The filter vessel must be placarded indicating filter change date and documented in the service vehicle log.

j. Gasoline engine-driven pumps must be designed to pump fuel, have a shielded ignition system, Forest Service approved spark arrestor muffler, and a metal shield between the engine and pump. Other exposed terminal connections must be insulated to prevent sparking in the event of contact with conductive material.

2. Equipment

a. Each aircraft fuel servicing tank vehicle must have two fire extinguishers, each having a rating of at least 40-B:C with one extinguisher mounted on each side of the vehicle. Extinguishers must comply with NFPA 10 Standards for Portable Fire Extinguishers. Fire extinguishers with an A rating will not be acceptable.

b. Fuel tanks must be designed to allow contaminants to be removed from the sediment settling area.

c. Fuel hoses must be compatible with the fuel being dispensed. Hoses must be kept in good repair. The fueling hose length must be a minimum of ½ the rotor diameter plus 20 feet for rapid refueling. Aircraft fueling hose shall be removed from service after 10 years from date of manufacture. Aircraft fueling hose not placed into service within 2 years of the date of manufacture shall not be used. (NFPA 407)

d. Fuel nozzle must include a 100-mesh or finer screen, a dust protective device, and a bonding cable with a clip or plug. Except for closed-circuit systems, no hold-open devices will be permitted.

e. An accurate fuel metering device for registering quantities in U.S. gallons of fuel pumped must be provided. The meter must be positioned in full view of the fuel handler while fueling the aircraft.

f. Fuel servicing vehicles must have adequate bonding cables.

g. Fuel servicing vehicles must comply with DOT and EPA requirements for transportation and storage of fuel and must carry sufficient petroleum product absorbent pads or materials to absorb or contain up to a five-gallon petroleum product spill. The cooperator is responsible for proper disposal of all products used in the cleanup of a spill in accordance with the EPA, 40 CFR 261, and 262.

h. All tank inlet ports, drains, and the fuel nozzle must be locked closed or stored inside locked compartments when not in use to preclude tampering, contamination, or improper drainage of the fuel supply.

i. A deadman flow control must be installed in the fuel system in accordance with NFPA 407.

3. Markings

a. Each fuel servicing vehicle must have no smoking signs with minimum three-inch letters visible from both sides and rear of the vehicle.

b. Each vehicle must also be conspicuously and legibly marked to indicate the nature of the fuel. The marking must be on each side and the rear in letters at least three inches high on a background of sharply contrasting color such as Avgas by grade or jet fuel by type. Example: Jet-A, white on black background.

c. All fuel servicing vehicles must be placarded in accordance with 49 CFR 172.

4. Filtering System (Three-Stage or Single-Stage is acceptable)

a. The first and third-stage elements of a three-stage system and the elements of a single-stage system must be new and installed by the cooperator during the annual inspection.

b. The separator element (Teflon screen) of the three-stage system must be inspected and tested as prescribed by the manufacturer during the inspection. The filter assembly must be placarded with that data.

c. If equipped with a drain, the bottom of the filter assembly must be mounted to allow for draining and pressure flushing into a container. If the unit is drained overboard, the fuel must not come in contact with the exhaust system or the vehicle's wheels. If the unit is equipped with a water sight gauge, the balls must be visible.

d. Three-Stage (filter, water separator, monitor) System: Fueling systems must utilize a three-stage system such as a Facet Part Number 050970-M2 for 20 Gallon Per Minute (gpm) pump, or equal. A Facet Part Number 050971-M2 for a 10 gallon per minute pump, or equal. An acceptable third-stage (monitor) unit is Velcon CDF220 Series for 20-gpm flow or Velcon CDF-210E for 10-gpm systems.

e. Single-Stage System or Three-in-One Filter Canister: Fueling systems must utilize a single element system such as a Velcon. filter canister with Aquacon cartridge of a size compatible with pumps flow rate. Example: Velcon VF-61 canister with an ACO-51201C cartridge.

f. Differential pressure gauge(s) must be installed and readable.

5. Fuel Servicing

a. General

i. The cooperator must supply all aircraft fuel unless the government exercises the option of providing fuel. All fuel provided by the cooperator will be commercial-grade aviation fuel. Only fuels meeting the specifications contained in the aircraft’s flight manual must be used.

ii. Fueling operations, including storage, and handling, must comply with the airframe and engine manufacturer's recommendations and all applicable FAA standards. NFPA Standard No. 407, Aircraft Fuel Servicing, must be followed except that no passengers may be on board during fueling operations.

iii. The cooperator must ensure that they are in compliance with 40 CFR Part 112: Oil Pollution Prevention; Spill Prevention, Control, and Countermeasure Plan Requirements (SPCC).

iv. Fuel must pass through a filtering system in accordance with the filter manufacturer's recommendations.

b. Rapid Refueling

i. There are two approved methods (Closed-Circuit Refueling (CCR) and Open Port) for fueling helicopters with the engine(s) running. (1) CCR. This method of refueling uses a

CCR system designed to prevent spills, minimized fuel contamination, and prevent the escape of flammable fuel vapors. (2) Open Port. This method of refueling allows flammable fuel vapors to escape.

6. Fuel Quality Control Procedures

Compliance with fuel quality control requirements is the responsibility of the cooperator. NFPA 407 must be followed for Aircraft Fuel Servicing. Note 1: Cooperators must advise an appropriate inspector if consecutive contaminated samples are collected from any port.

a. Daily

i. Check for and remove any water from fuel tanks. A water check will be performed each morning before the vehicle is moved, after every reloading of fuel, washing of equipment, and after a heavy rain or snowstorm.

ii. Drain all filter/separator drain valves and check for water and other contaminants. raw off any accumulation of water.

iii. Draw off a sample from the fuel nozzle. Sample must be collected in a clean, clear lass jar, and examined visually. Any visual water, dirt, or filter fibers are not acceptable.

b. During Aircraft Fueling Process

i. Check sight gauge for water, if equipped.

ii. Visually inspect fuel system for leaks. Repair as necessary.

iii. Monitor differential pressure reading.

c. Weekly

i. With pump operating, pressure flush filter assembly. Continue flush operation until the sample is clear, clean, and bright.

ii. Sample from closed-circuit nozzle for contaminants.

iii. Check the condition of covers, gaskets, and vents.

iv. Inspect all fire extinguishers for broken seals, proper pressure, and recharge date. Recharge as necessary.

v. Inspect hoses for abrasions, separations, or soft spots. Weak hoses will be replaced.

d. Record Keeping. The fuel handler must keep a daily record containing the following information: (as a minimum)

i. Condition (clean, clear, bright, etc.) of fuel sample at:

(1) Nozzle Sample

(2) Filter Sump Sample

(3) Tank Sump Sample

ii. Filter change (reason & date)

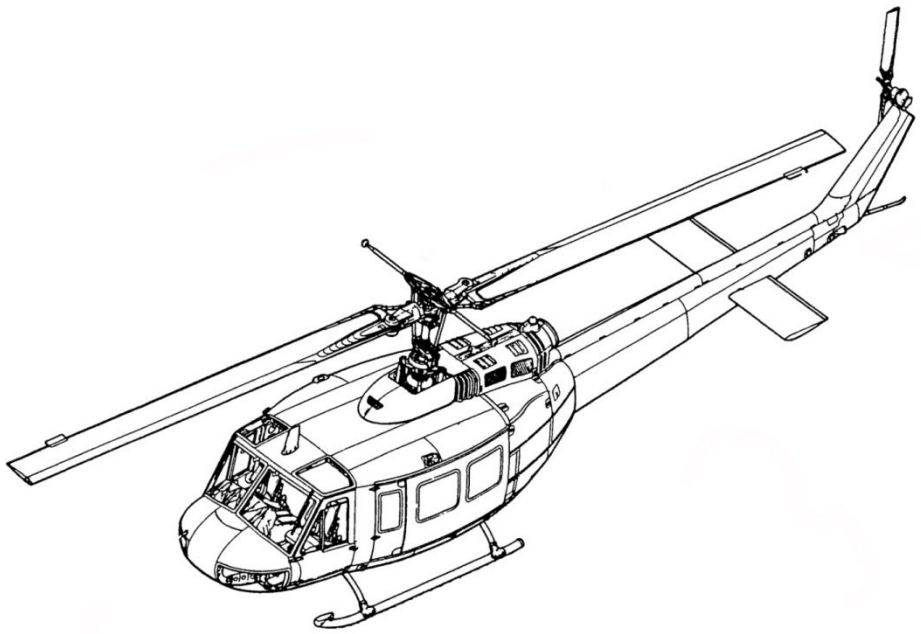
iii. Record of source, location, when, and quantity of fuel loaded into the fuel servicing vehicle.

iv. Fuel servicing vehicle tank ports will be secured and locked to prevent access by unauthorized individuals.

MT DNRC

Air Operations

Safety Management System Guide



MT Dept. of Natural Resources and Conservation
P. O. Box 201601
Helena, MT 59620
(406) 444-0747

INSERT SIGNED LETTER
SEE APPENDIX A FOR DRAFT LETTER

DEPARTMENT OF NATURAL RESOURCES
AND CONSERVATION

Forestry Division • Fire Protection Bureau
2705 Spurgin Road, Missoula, MT 59804-3199 Phone: (406) 542-4300 Fax: (406) 542-4217

GREG GIANFORTE, GOVERNOR

1539 ELEVENTH AVENUE

STATE OF MONTANA

DIRECTOR'S OFFICE: (406) 444-2074
FAX: (406) 444-2684

PO BOX 201601
HELENA, MONTANA 59620-1601

Date: October 14, 2021

To: Air Operations Personnel

The 2021 Air Operations Safety Management System Guide is approved, and all content is now in effect.

This guide is designed to further a strong aviation safety culture within the Air Operations program.

The 2021 Air Operations Safety Management System Guide documents the Air Operations leadership's intent and describes authority, roles and responsibilities, and procedures for the implementation and maintenance of the Air Operations Safety Management System.

Chuck Brenton
Aviation Section Supervisor
406-444-0747

List of Effective Pages

Insert Latest revision pages; dispose of superseded pages.

On a revised page the portion of the text and illustration affected by the latest technical revision is indicated by a black vertical line. Revised pages without a black vertical line are because of text shifting from page to page or non-technical corrections.

Revision #	Date	Status	Subject	Pages Affected
Basic Issue	10-14-21	Active	Initial Release	All

Table of Contents

CHAPTER 1

INTRODUCTION

1-0. General.

The purpose of this guide is to document the Safety Management System developed by the Montana Department of Natural Resources and Conservation, Air Operations Section (Air Ops).

1-1. Scope.

The Air Operations Safety Management System (SMS) is a system designed to manage and control the risks involved with the Air Operations program.

The Air Operations has a long and enviable safety record with a strong “Safety Culture”. The safety program consists of multiple written safety programs and is driven by dedicated safety minded professionals. The SMS enhances the Air Operation Safety Program by formalizing and further promoting safety as an integral part of the operation.

The following are a few of the programs supplemented with the SMS program:

1. Air Operation 1500 Safety Standards.
2. Air Operations Maintenance Safety Program
3. FAA Safety Procedures and Compliance
4. Air Operations Lockout Tagout Program
5. Air Operations Hazardous Communications Program
6. Montana Safety Culture Act
7. Department’s Safety Program

1-2. Applicability.

The SMS covers all aviation related operations conducted by Air Operations personnel. This guide is to be used by all Air Operations personnel in compliance with the SMS requirements.

Note the SMS process is not intended to apply to tasks not related to aviation operations.

1-3. SMS Fundamentals.

The Federal Aviation Administration (FAA) mandates airlines, operating under a FAA Part 121 certificate, to develop and implement an SMS. These programs are not required for small operators but may be voluntarily implemented. The FAA has published Advisory Circular AC 120-92B for guidance with implementing a SMS program. Reference: https://www.faa.gov/regulations_policies/advisory_circulars/index.cfm/go/document.information/documentid/1026670 Note the advisory circular is not regulatory in nature and explicitly states it is not the only means of compliance. It should also be noted, a small operator or Public Use operator cannot fully meet the FAA Part 5 rules because of the technical issues with not operating under a Part 121 Certificate. As stated in the Advisory Circular, the intent is for the SMS to be tailored to each unique operator while complying with the core principals of Part 5. The Air Operations SMS program meets the intent of the FAA rule.

1. The SMS is primarily a decision-making process designed to proactively identify and address safety concerns within aviation operations. It is structured around four components: safety policy, safety risk management (SRM), safety assurance (SA), and safety promotion. A brief description of these components is provided below.

2. **Safety Policy.** Safety policy is where the objectives, responsibilities, and standards are set and assigned. It is also where management conveys its commitment to the program.

3. **Safety Risk Management (SRM).** The SRM component provides a decision-making process for identifying hazards and mitigating risk. The SRM component is the organization's way of fulfilling its commitment to consider risk in their operations and to reduce it to an acceptable level.

4. **Safety Assurance (SA)**. The SA provides the necessary processes to ensure the organization's system is meeting its safety objectives and that mitigations, or risk controls, developed under the SRM are working.

5. **Safety Promotion.** The last component, safety promotion, is designed to ensure that employees have a solid foundation regarding their safety responsibilities, the organization's safety policies and expectations, reporting procedures, and a familiarity with risk controls. Training and communication are the two key areas of safety promotion.

1-4. Definitions.

1. *Hazard* means a condition that could foreseeably cause or contribute to an aircraft accident as defined in 49 CFR 830.2.
2. *Risk* means the composite of predicted severity and likelihood of the potential effect of a hazard.
3. *Risk control* means a means to reduce or eliminate the effects of hazards.

4. *Safety assurance* means processes within the SMS that function systematically to ensure the performance and effectiveness of safety risk controls and that the organization meets or exceeds its safety objectives through the collection, analysis, and assessment of information.
5. *Safety Management System (SMS)* means the formal, top-down, organization-wide approach to managing safety risk and assuring the effectiveness of safety risk controls. It includes systematic procedures, practices, and policies for the management of safety risk.
6. *Safety objective* means a measurable goal or desirable outcome related to safety.
7. *Safety performance* means realized or actual safety accomplishment relative to the organization's safety objectives.
8. *Safety policy* means the certificate holder's documented commitment to safety, which defines its safety objectives and the accountabilities and responsibilities of its employees regarding safety.
9. *Safety promotion* is a combination of training and the communication of safety information to support the implementation and operation of an SMS within an organization.
10. *Safety Risk Management* means a process within the SMS composed of describing the system, identifying hazards, and the analyzing, assessing and controlling of risk.
11. *System* means an integrated set of constituent elements that are combined in an operational or support environment to accomplish a defined objective. These elements include people, hardware, software, firmware, information, procedures, facilities, services, and other support facets.

1-5. Contact Information.

For information on the Air Operations SMS, contact the Departments Aviation Program Manager at (406) 444-0747.

CHAPTER 2

SAFETY POLICY

2-0. General.

As stated in the introduction, the Safety Management System, is a system designed to manage and control the risks involved with the Air Operations program. This chapter defines the safety performance objectives, assigns roles and responsibilities, allocates resources and defines management's commitment to managing safety throughout the program.

2-1. Document Control and Maintenance.

1. The Safety Management System Guide master copy will be kept in the Accountable Executive's office and made available to all personnel. Electronic copies will also be made available to all personnel.

2. The Accountable Executive has the overall responsibility for the maintenance of the SMS Guide and shall routinely review the document to ensure it remains relevant.

3. It is the Accountable Executive's responsibility, or designee, to affect any changes to this guide and to record those changes in the revision status log. The log must contain the revision history, and each revision must contain the revision number, status, subject, section or page# affected by the revision. Further, an updated approval letter must be signed and inserted into the document.

4. The Accountable Executive shall notify all Air Operations employees of any changes to the document.

2-2. Safety Policy Statement.

Management of the Air Operations program recognizes the benefit of incorporating a SMS program into the existing safety programs and are committed to its success. The following lists the driving principles behind the SMS program:

1. Proactively manage the risks involved and to reduce those risks to a level as low as reasonably practical.
2. Commit to developing, implementing, improving, and maintaining the SMS program.
3. Commit the necessary time and resources to ensure its success.
4. Clearly define the roles and responsibilities.
5. Promote a healthy safety culture with leadership, training, and support.
6. Encourage reporting of hazards and issues.
7. Discourage unacceptable behavior, activities, and conditions.
8. Comply with all applicable regulatory and agency specific requirements.
9. Develop and maintain an emergency response plan for emergency situations.
10. Document and communicate the program throughout the organization.

2-3. Roles and Responsibilities.

The roles and responsibilities of Air Operations personnel are defined in the following paragraphs and are further defined throughout this guide as necessary.

1. Accountable Executive.

The Air Operations Section Supervisor (Chief Pilot) is the designated Accountable Executive for the SMS program. Responsibilities of the Accountable Executive are as follows:

a. Has the ultimate responsibility for safety management within the organization.
b. Ensure that the SMS is properly implemented and performing in all areas of the organization.
c. Develop and sign the safety policy.
d. Designate sufficient management personnel and define their roles and responsibilities.
e. Communicate the safety policy throughout the organization.
f. Regularly review the safety policy to ensure it remains relevant and appropriate to organization.
g. Regularly review the safety performance of the organization and direct actions necessary to address substandard safety performance.

2. Members of Management.

The following personnel have been designated as managers under the SMS program:

a. Air Operations Rotory-Wing Supervisor (Helicopter Safety Pilot)
b. Air Operations Fixed-Wing Supervisor (Fixed-Wing Safety Pilot)
c. Air Operations Maintenance Supervisor

All managers must use the SMS processes in managing their area of operational responsibility, to include the following:

a. Coordinate implementation, maintenance, and integration of the SMS throughout the organization.
b. Facilitate hazard identification and safety risk analysis.
c. Monitor the effectiveness of safety risk controls.
d. Ensure safety promotion throughout the organization.
e. Regularly report to the accountable executive on the performance of the SMS and on any need for improvement.

3. Employees.

All employees have the following responsibilities:

a. Make themselves aware of the company's safety policies, as well as the processes, procedures, and tools relevant to their responsibilities.
b. Report safety hazards.
c. Have a duty and responsibility to follow the organization's processes and procedures.

2-4. Designation and Responsibilities of Required Safety Management Personnel.

In the event of an emergency, the Accountable Executive may delegate authorities as necessary. In the event the Accountable Executive is unavailable, the Air Operations Rotory-Wing Supervisor (Helicopter Safety Pilot) may assume the Accountable Executive's responsibilities if necessary.

In the event of an aircraft accident or incident the agency Aircraft Crash, Search and Rescue Guide should be consulted. Members of management should assist where their area of operational responsibility is involved.

CHAPTER 3

SAFETY RISK MANAGEMENT

3-1. Safety Risk Management Overview.

Safety Risk Management (SRM) is the core process within the SMS. This section defines the decision-making process required to assess tasks performed by Air Operations personnel. The goal is to utilize the process in identifying any risks involved with the performance of the task and, if necessary, to act appropriately to reduce or mitigate those risks down to an acceptable level, thereby reducing the risk of an incident or accident.

The significant concepts regarding safety risk management discussed throughout this section can be summarized as follows:

1. Make identifying and addressing safety concerns a deliberate and conscious act.
2. There is no such thing as absolute safety, particularly in aviation where it is not possible to eliminate all safety risks.
3. Safety risks must be managed to a level as low as reasonably practicable.
4. Safety risk mitigation must be balanced against:
    a. Time;
    b. Cost;
    c. Difficulty of taking measures to reduce or eliminate the safety risk.

The following is a list of the essential steps in the risk management process:

1. Analyze the system.
2. Identify hazards.
3. Assess hazards.
4. Implement controls for any hazards with unacceptable risk.

3-2. Applicability.

Safety Risk Management decision-making process must be applied to the following:

1. Implementation of new systems.
2. Revision of existing systems.
3. Development of operational procedures.
4. Identification of hazards.
5. Identification of ineffective risk controls through the safety assurance processes.
6. Need to deviate from normal procedures.
7. Any other situation where Goals and Risks are not clearly defined.

Once a system or task has been assessed through the SRM process and incorporated into normal procedures, the requirements of the SRM are no longer applicable on a routine basis. However, if one of the requirements listed above becomes applicable the process must be repeated.

3-3 Emergencies.

When a person experiences an emergency, or believes a situation exists that would create an emergency, he/she may take any action he/she deems appropriate to assure the safety of those involved. The incident must be reported to the appropriate manager or to the Accountable Executive.

3-4 Organizational Decision Making.

The SRM decision-making process must be applied at all levels of the organization for the SMS to function properly. It is essential that all employees participate in the decision-making process at the level appropriate to their roles and responsibilities to include the following:

1. Ensure tasks are conducted within the limits of the programs level of acceptable risk.
2. Recognize risk and changing conditions which may cause operations outside of normal procedures.
3. Exercising judgment on how to eliminate or reduce hazards to lessen the overall risk.
4. Accept no unnecessary risk.
5. Recognize and act upon extreme risk situations with a NO – GO decision.

6. Recognize when the process requires managements involvement and acceptance of risk. Making risk decisions at the appropriate level establishes clear accountability. Even High-risk tasks may be undertaken when there is a clear understanding of the benefit to the operation.
7. These basic decision-making principles must be applied before any anticipated job, task, or mission is performed for the first time.
8. Those accountable for the success or failure of a mission must be included in the risk decision process.
9. Supervisors at all levels must ensure subordinates know how much risk they can accept and when they must elevate the decision to a higher level.

3-5 System Analysis and Hazard Identification.

The System Analysis and Hazard Identification is simply the process of learning as much as possible about a given system, or task, with the goal of identifying potential safety concerns with the task. In its simplest terms, the goal with this process is for experienced personnel, subject matter experts (SME) and appropriate levels of management to learn as much as possible about the task being performed to identify what can go wrong under normal and abnormal conditions.

This process must adapt to the situation but need only be as complicated as is necessary to identify potential hazards of the task being analyzed. For example: When introducing a new aircraft to the fleet, a detailed in-depth review will be required to identify concerns of many different systems such as operations, maintenance, training etc. However, only the elements of the systems involved need be addressed when a change in procedures is required or when a need to operate outside of existing normal procedures is required. For example: When an unusual mission is requested, such as hauling concrete for a construction project, only those specific factors involved with the mission need be part of the analysis such as a description and intent of the mission, terrain, local weather, potential effects on the aircraft, rigging, support crews etc.

Using the worksheet contained in Appendix B will assist with, and document, the analysis process. Refer to Chapter 6 for the documentation requirements.

3-6 Deleted.

3-7 Risk Assessment and Mitigation.

Risk Assessment is the process of determining what the potential impacts are when conducting a task while exposed to an identified hazard. The results of this assessment are used in determining whether a task may be conducted or not. If not, implementation of procedures, to reduce the risk to an acceptable level, may be possible. Where mitigation of risk isn't possible, the task may still be performed, when in the best interest of the department, if the identified risk is accepted by personnel at the appropriate levels.

The intent of this process is to use the information learned, in the previous analysis and identification steps, to make an informed speculation as to what could happen and how severe the impacts could be if the task was conducted with the known risk. This is the assessment part of the equation. A matrix is then applied to determine if the risk is acceptable or whether the risk is severe enough to warrant mitigation or approval by management to operate or perform the task.

For each identified risk, perform the following steps:

1. The assessment process. Using information gained by personnel in the previous System Analysis and Hazard Identification steps, employees and/or managers involved must answer the following questions for each identified hazard:

    a. If you operate with the identified hazard, what is the likelihood of an accident occurring? Where:
        i. **Remote**, means an accident is unlikely to occur.
        ii. **Potential**, means there is an elevated chance an accident could occur.
        iii. **Probable**, means an accident is likely to occur.

    b. If an accident does occur, what is the potential severity of any resulting injuries or damage? Where:
        i. **Minor,** means that the results of an accident are not likely to be significant or serious.
        ii. **Significant,** means an accident would probably cause significant damage or injuries.
        iii. **Catastrophic,** means an accident would likely result in a momentous tragic event potentially with a loss of life.

c. Use the following matrix to determine the level of the risk (Risk Level):

Likelihood	Severity		
	Minor	Significant	Catastrophic
Remote	Low	Low	Medium
Potential	Low	Medium	Medium
Probable	Low	Medium	High

2. The mitigation and acceptance of risk process. Depending on the classification of the Risk Level, mitigation, or acceptance of risk by management, may be required as follows:

a. **Low**. For risks classified as Low, no action is required.
b. **Medium and High.** For risks classified as Medium or High, mitigation of the risk must be attempted by at least performing the following:
    i. Pursue ways to minimize the risk, such as a different flight path, delaying flight for better weather, downloading weight, using a different aircraft or tool, etc.
    ii. Implement procedures designed to reduce the risk if necessary.
    iii. If necessary, seek suggestions or input from management or other experienced employees.
c. **Medium**. For operations with risks classified as Medium which cannot be mitigated, employees may conduct the mission or task but must be performed with a heightened sense of caution.
d. **High**. Operations with risks classified as High must be approved by the Accountable Executive or the Rotory-Wing Supervisor, if the risks cannot be mitigated to a lower risk level.

Example situations where a Risk Assessment Worksheet should be completed:

1. For a deviation from normal procedures, an unusual mission, maintenance ferry flight, recovery of an aircraft using a crane or other unusual equipment or procedures, etc.
2. Implementation of a new system or process, a new aircraft model added to the fleet, night operations, a new aircraft wash system or Heli-cart, etc.
3. Implementing a change to an existing procedure, a change to a training procedure, or a change to equipment as in the external load connectors, etc.

CHAPTER 4

SAFETY ASSURANCE

4-0. Safety Assurance Overview.

The Safety Assurance process ensures the safety program is functioning properly and effectively. The assurance process is designed to monitor and assess the performance of the system while providing continuous improvements as necessary.

4-1. Safety Performance Monitoring, Measurement and Assessment.

Monitoring, measuring and assessment of the performance of the safety program is essential to the overall performance of the safety program.

The managers identified in Chapter 2 are responsible for accomplishing the following procedures pertinent to managing their area of operational responsibility.

1. Monitoring of the operational processes and environmental conditions is performed by the managers as they perform their duties and is simply the act of continually reviewing the operational processes looking for anything of safety significance. Managers should monitor and accomplish the following as they perform their duties:
    a. Monitor, analyze, assess, evaluate, and audit existing operational processes for compliance with safety protocols, effectiveness of the processes, changes in the working environment and for indications of new or changing hazards or other safety concerns.
    b. Continually monitor and evaluate the effectiveness of risk controls previously established and identify and ineffective measures.
    c. Monitor, review, and analyze internal Air Operations forms and documents, Federal Aviation Administration data, U.S. Forest Service data, and any other relative safety documents for safety concerns that may be relevant to the Air Operations program.
    d. Investigate incidents and accidents that occur and determine if corrective actions are required.
    e. Investigate reports of non-compliance with established safety protocols.
    f. Maintain a list of potential issues and hazards to monitor for as long as they remain relevant.

4-2. Employee Reporting Procedures.

Employees are encouraged to report any safety concerns to their immediate supervisor or directly to the Accountable Executive. However, an employee may report the safety concern confidentially to the department's safety representative.

4-3. SMS Assessment and Audits.

The Accountable Executive must routinely require an audit and assessment of the SMS program to determine if the safety program performance is meeting the Air Operation's safety objectives. The audit and assessment of the SMS program should:

1. Be performed jointly by the accountable managers and include other knowledgeable personnel as deemed necessary.
2. Evaluate the SMS program to ensure the requirements of paragraph 4-1 are being complied with.
3. The Accountable Executive must:
    a. Generate, or delegate, a report of the results of the audit and assessment.
    b. Review the report.

4-4. Performance Corrections and Continuous Improvements.

The SMS program is designed to be continuously updated by implementing improvements as necessary. When addressing any safety concerns resulting from the monitoring, assessment or audit process, the following must be performed:

1. The Accountable Executive must review the reported safety concerns and recommendations and initiate corrective actions as necessary.
2. The Safety Risk Management procedures contained herein must be utilized when making corrections and improvements.

CHAPTER 5

SAFETY TRAINING AND PROMOTION

5-0. Overview.

Proper training and promotion of the SMS program is necessary for the SMS program to function properly and efficiently.

5-1. Training, Competencies and Communication.

Using in person or online training, email or website communications, or other appropriate methods, managers identified in Chapter 2 are responsible for meeting the following requirements pertinent to managing their area of operational responsibilities.

1. Ensure employees are aware of the SMS policies, processes, and tools that are relevant to their responsibilities.
2. Provide training to ensure employees attain and maintain the competencies necessary to perform their duties relevant to the operation and performance of the SMS.
3. Convey hazard information relevant to the employee's responsibilities.
4. Explain why safety procedures have been introduced or changed.

CHAPTER 6

DOCUMENTATION

6-0. Overview.

The documentation requirements for the SMS program includes this guide, described in Chapter 1, and the record requirements listed below.

6-1. Safety Risk Management.

1. The Risk Assessment Worksheet is to be used to document the assessments required by the Risk Management procedure.
2. The managers, identified in Chapter 2, are responsible for retaining the forms pertinent to managing their area of operational responsibility.
3. Such records must be retained for as long as the control or mitigation remains relevant to the operation.

6-2. Training and Communication.

1. A record of all training provided each employee must be retained for as long as the individual is employed by the department.
2. All communications required, per Chapter 5, must be retained for a minimum of 24 consecutive calendar months.

6-3. Safety Assurance and Audits.

1. The results of the safety assurance processes must be retained for a minimum of 5 years.

APPENDIX A

Approval Letter

A letter, containing the following, or similarly worded statement, is to be signed by the Accountable Executive in accordance with FAR Part 5.21 and placed into the guide following the document cover. This procedure is to be repeated following any revision to the guide.

Date: October 14, 2021

To: Air Operations Personnel

The 2021 Air Operations Safety Management System Guide is approved, and all content is now in effect.

This guide is designed to further a strong aviation safety culture within the Air Operations program.

The 2021 Air Operations Safety Management System Guide documents the Air Operations leadership's intent and describes authority, roles and responsibilities, and procedures for the implementation and maintenance of the Air Operations Safety Management System.

Chuck Brenton
Aviation Section Supervisor
406-444-0747

APPENDIX B

Risk Assessment Worksheet

The Risk Assessment Worksheet is to be used to document the risk assessments performed in accordance with paragraph 3-2. Refer to Chapter 6 for document retention requirements.

Complete the worksheet as follows:

1. Enter the date, name and title of the person preparing the worksheet.
2. Enter a description of the mission, project, or system.
3. Perform the following steps for each identified hazard:
    a. Enter a description of the hazard.
    b. Enter the initial Risk Level determined in accordance with paragraph 3-7. See the excerpt from para 3-7 below.
    c. Enter a description of any mitigation efforts taken.
    d. Re-establish the Risk Level after applying the mitigation efforts and enter the results.
4. Enter additional notes as necessary.
5. Form is to be signed and dated by the person approving the mission or system.

For each identified risk, perform the following steps:

1. The assessment processes. Using information gained by personnel in the previous System Analysis and Hazard Identification steps, employees and/or managers involved must answer the following questions for each identified hazard:

    a. If you operate with the identified hazard, what is the likelihood of an accident occurring? Where:
        i. **Remote**, means an accident is unlikely to occur.
        ii. **Potential**, means there is an elevated chance an accident could occur.
        iii. **Probable**, means an accident is likely to occur.

    b. If an accident does occur, what is the potential severity of any resulting injuries or damage? Where:

i. **Minor,** means that the results of an accident are not likely to be significant or serious.
ii. **Significant,** means an accident would probably cause significant damage or injuries.
iii. **Catastrophic,** means an accident would likely result in a momentous tragic event potentially with a loss of life.

Use the following matrix to determine the level of the risk (Risk Level):

Likelihood	**Severity**		
	Minor	Significant	Catastrophic
Remote	Low	Low	Medium
Potential	Low	Medium	Medium
Probable	Low	Medium	High

2. The mitigation and acceptance of risk process. Depending on the classification of the Risk Level, mitigation, or acceptance of risk by management, may be required as follows:

a. **Low**. For risks classified as Low, no action is required.
b. **Medium and High.** For risks classified as Medium or High, mitigation of the risk must be attempted by at least performing the following:
    i. Pursue ways to minimize the risk, such as a different flight path, delaying flight for better weather, downloading weight, using a different aircraft or tool, etc.
    ii. Implement procedures designed to reduce the risk if necessary.
    iii. If necessary, seek suggestions or input from management or other experienced employees.
c. **Medium**. For operations with risks classified as Medium which cannot be mitigated, employees may conduct the mission or task but must be performed with a heightened sense of caution.
d. **High**. Operations with risks classified as High must be approved by the Accountable Executive or the Rotory-Wing Supervisor if the risks cannot be mitigated to a lower risk level.

Risk Assessment Worksheet

Date:	Prepared By:	Title:
System or Project Description / Mission Objective		

Hazard	**Mitigation**
Initial Risk Level:	Mitigated Risk Level:
Initial Risk Level:	Mitigated Risk Level:
Initial Risk Level:	Mitigated Risk Level:
Initial Risk Level:	Mitigated Risk Level:
Additional Notes:	

Date:	Approved by / Name and Title:	Signature:
Use additional pages if necessary.		Page _____ of _____

Fire Protection Bureau Chief, 57660040
Matt Hall

Deputy Fire Protection Bureau Chief, 57660957
Cory Calnan

- **Equipment Development & Communications Program Manager** 57660230 — **A.J. Angelo**
- **County Co-Op Program Manager** 57660555 — **David Hamilton**
- **Logistic Support Specialist** 57635239 — **Roy Robinson**
- **Fire Program Specialist** 57665124 — ***Vacant***
- **Training, Safety, Workforce Development Program Manager** 57660360 — **Heath Gerber**
  - **Westside Training/ Safety Specialist** 57660660 — **Ryan Rettinghouse**
  - **Eastside Training/ Safety Specialist** 57660375 — ***Vacant***

FEPP/FFP Program Specialist 57660980 — **Eugene Shepard**

Fire Equipment Program Specialist 57665116 — **Rose Kirschenheiter**

Fire Equipment Technician 57660690 — **Eric Pallas**

EDCC Shop Foreman 57660560 — **Brian Hall**

Mechanics & Machinists
- 57660954 — **Kelly Copeland**
- 57660953 — **Mitch Washington**
- 57660955 — **Zack Henry**
- 57660556 — **Dan Simons**
- 57660630 — **Taylor Summers**

Communications Supervisor 57660910 — **Sean Gallagher**

- **Communications Technologist** 57665009 — **Dylan Dickinson**
- **Communications Technologist** 57660220 — ***Vacant***

Aviation Program Manager 57660218 — **Jay Lindgren**

- **Aviation Specialist** 57635240 — **Mason Quick**
- **Aviation Specialist** 57635241 — **Steve Hancock**
- **Aircraft Manager** 57635242 — ***Vacant***
- **Aircraft Manager** 57635243 — ***Vacant***
- **Aircraft Manager** 57635244 — ***Vacant***

Chief Pilot 57666029 — **Tal Williams**

Maintenance Inspector 57666105 — **Nick Keilman**

- **Aircraft Mechanic Floor/Team Lead** 57666189 — **Brad Garber**
- **Aircraft Mechanics**
  - 57666132 — **Ray Clum**
  - 57666192 — **Robert Evans**
  - 57666190 — **Greg Reeves**
  - 57666191 — **Isaac Wirtz**
- **Aircraft Mechanic** Position # HB4 Fund — **Tom Jandron**
- **Aircraft Mechanic** Position # HB4 Fund — ***Vacant***

Safety Pilot - Rotor Wing 57666525 — **Vic Vincent**

Helicopter Pilots
- 57666528 — **Garth Scott**
- 57666524 — **Orville Skogen**
- **Relief Pilot**
- **Relief Pilot**
- **Relief Pilot**

Safety Pilot - Rotor Wing 57666130 — **Chris Bryce**

Helicopter Pilots
- 57666521 — **Kevin Gilman**
- 57666523 — **Samuel Eidt**
- 57666529 — **Vacant**
- **Relief Pilot**
- **Relief Pilot**
- **Relief Pilot**

Safety Pilot - Fixed Wing 57666522 — **Dave Bebich**

Fixed Wing Pilots
- 57696613 — **John Borra**
- 57696613 — **Harold Hopler**
- 57696613 — **Thomas Nagorski**
- 57696613 — **Shawn Zimmerman**
- **Relief Pilot**

NRCC Assistant Center Manager 57660936 — **Holly Carr**

NRCC Dispatcher 57610212 — **Cade Bragonier**

Fire Planning & Intelligence Program Manager 57660110 — **Don Copple**

FPA & Planning Specialist 57660670 — **Kate Tran**

Community Preparedness & Prevention Program Manager 57660585 — **Julia Berkey**

- **Fire Adapted Communities Specialist** 57635161 — ***Vacant***
- **Community Preparedness Outreach Coord.** — **Jessamyn Hise**
- **Wildfire Resilience Specialist** 57635174 — **Sarah Kleinhanzl**
- **Prescribed Fire Specialist** 57635188 — **Jack Rinck**

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