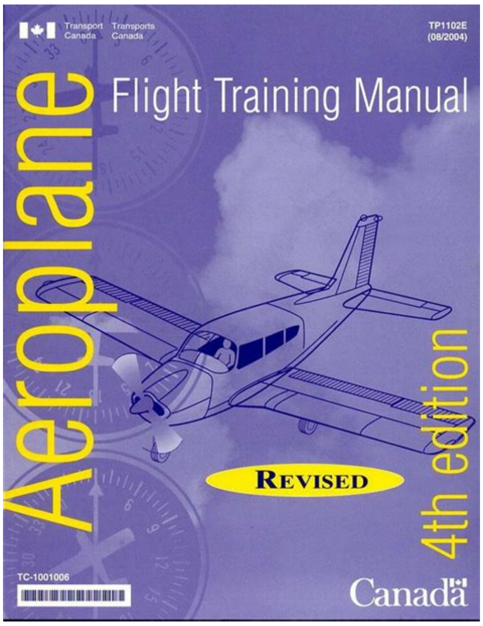
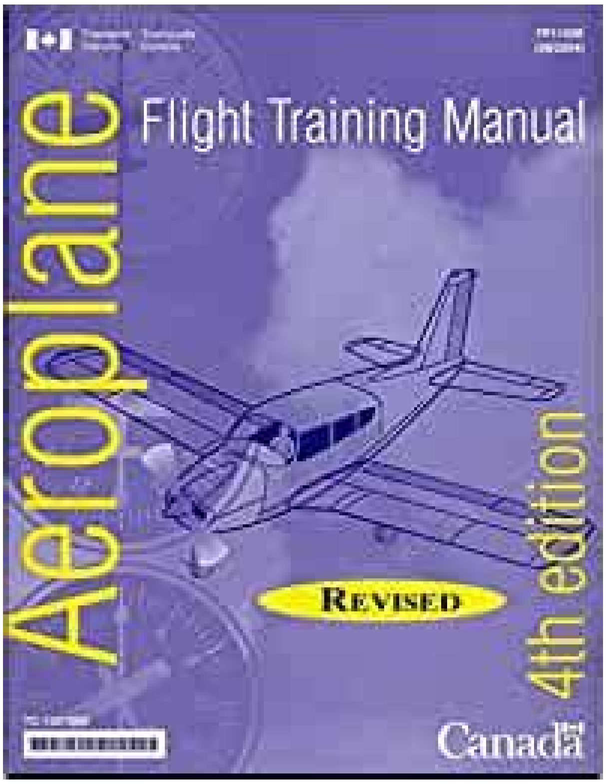

Transport Canada
Transports Canada
TP1102E
(08/2004)
Aeroplane
Flight Training Manual
Revised
4th edition
TC-1001006
Canada

**Book Descriptions:**

# Canadian flight training manual




Perhaps the item you chose is sold out. It includes information on training manoeuvres, such as climbing, descending, and turns, and basic aerodynamics, such as th It includes information on training manoeuvres, such as climbing, descending, and turns, and basic aerodynamics, such as those of weight and balance, as well as covering aircraft documentation and airport operations. Should interest student pilots, those wishing to review their knowledge, and flight instructors. In response, we have issued some transportationrelated measures and guidance. Please check if any of these measures apply to you. If you cannot get through, please contact us by email. Helicopter External Load OperationsGround Crew Safety EnglishFrench Where Is it Going Runway Incursions Are Real! Be Sure! Runway Incursions Are Real! Be Alert! Runway Incursions are Real! February 23. Used Very GoodPages are intact and are not marred by notes or highlighting. The spine remains undamaged but may have spine creases from reading.Please try again.Please try again.Then you can start reading Kindle books on your smartphone, tablet, or computer no Kindle device required. In order to navigate out of this carousel please use your heading shortcut key to navigate to the next or previous heading. In order to navigate out of this carousel please use your heading shortcut key to navigate to the next or previous heading. Register a free business account If you are a seller for this product, would you like to suggest updates through seller support To calculate the overall star rating and percentage breakdown by star, we don't use a simple average. Instead, our system considers things like how recent a review is and if the reviewer bought the item on Amazon. It also analyzes reviews to verify trustworthiness. Sorry, we failed to record your vote. Please try again Sorry, we failed to record your vote. Please try again.[http://x-column.com/medien/dish-remote-manual-6_3.xml](http://x-column.com/medien/dish-remote-manual-6_3.xml)

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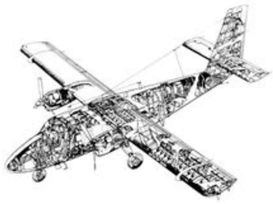
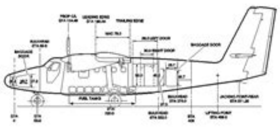
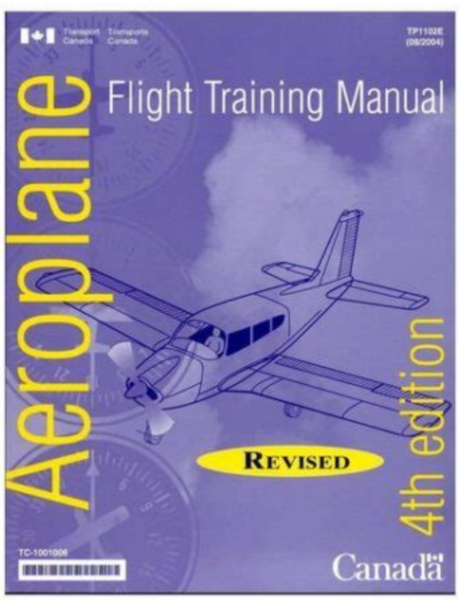




It also provides information and direction in the performance of flight manoeuvres, and basic information on aerodynamics and other flight training topics. Please check if any of these measures apply to you. If you cannot get through, please contact us by email. The Manual has been prepared for the use of student pilots learning to fly, pilots improving their qualifications, and flight instructors in the conduct of instruction for student pilots. It provides information and direction in the introduction and performance of flight training manoeuvres as well as basic information related to flight training courses.A working knowledge of the information contained in this manual will enable the student to receive maximum benefit from the air exercises.This flight will begin to accustom you to the sensation of flying, and to the appearance of the country from the air. However, it is the flight instructor’s prerogative to take a more positive approach to instruction at this time, and may also include some part of Exercise 3 “Effects of Controls”.The arrangement shown is the most common but you may well find that the helicopter you are flying is slightly different.It may indicate speed in miles per hour or knots. The customary procedure is to set the instrument so that it indicates height above sea level ASL. When used this way the indication on the altimeter will be that of the elevation of the airport when the helicopter is on the ground. The needle portion of this instrument indicates whether the helicopter is turning, together with the direction and rate of turn. The ball portion of the instrument is fundamentally a reference for coordination of controls. In coordinated flight the ball will be centred in its curved glass tube. Instead of a turn and bank indicator the helicopter may be equipped with a turn coordinator, which provides basically the same information with a different display.[http://www.kompita.ru/files/upload/dish-tv-722k-dvr-manual.xml](http://www.kompita.ru/files/upload/dish-tv-722k-dvr-manual.xml)




The compass correction card indicates the corrected heading to steer to allow for compass deviation.

Its main asset is that it provides a stable directional reference, and unlike the compass is relatively free from error during turns, acceleration, and deceleration in normal flight manoeuvres. It provides the pilot with an artificial horizon, which together with a miniature aircraft superimposed on its face enables the pilot to determine the aircraft's attitude relative to the real horizon. This is a pressure sensitive instrument, which indicates the rate at which the helicopter is climbing or descending in feet per minute. This is not a flight instrument, but is a valuable aid to flight safety since its indications can help the pilot assess the possibility of icing conditions. The instrument usually registers outside air temperature OAT in both degrees Celsius and Fahrenheit. A separate needle is provided for each. In autorotation the needles are split. A turbineengined helicopter's dual tachometer is expressed as a percentage with 100% being the normal operating speed. Fig 12. This instrument is calibrated in inches of mercury and indicates the pressure in the intake manifold of the engine. Stated more simply, it indicates the amount of work the engine is doing; the higher the manifold pressure MP the more work the engine is doing, and vice versa. This instrument will only be found on pistonengined helicopters. All of these gauges indicate the temperatures and pressures T's and P's of the engine at any given time. There is a common method of marking the instruments with colour coding, but you should memorize the limitations for the helicopter you are flying. Refer to the helicopter flight manual for the limitations during any phase of engine operation.The instructor will emphasise that only small, smooth movements are required to control the helicopter, and will briefly discuss procedures to be followed in future flight training exercises.

Resist this temptation as strongly as possible and attempt to become "one with the helicopter".The function of other instruments may also be explained.The person flying the helicopter will ensure that the other is on the controls before saying "You have control"; the person assuming control will then respond "I have control" and fly the helicopter.Do not hesitate to ask questions. The instructor's voice must be completely audible and clearly understandable; if it is not, tell him so.Proper preflight preparation plays a fundamental part in flight safety, and will reduce the possibility of accidents, or incidents.This will include the checking of weather reports and forecasts to extract information appropriate to the intended flight and the destination. Selecting the route, the checking of NOTAMs, preparing a flight log, and the filing of a Transport Canada Flight Plan or Flight Itinerary are also components of flight planning.Check that the nationality and registration marks are the same as the aircraft, and the name and address of the owner are properly inscribed. Check that the nationality and registration marks are the same as the aircraft, and it is in force. Airworthiness is determined by checking that required maintenance has been completed. Check that it is the correct one and that the appropriate airworthiness entries and certifications have been made. Your instructor will explain under what circumstances this can be left at base. Each period between a takeoff and a landing is generally considered a flight requiring a separate log entry.Improper balance of a helicopter's load can result in serious control problems. The centre of gravity has quite a limited range of movement. The range of movement of the cyclic control system sets this limit Fig 22.With a taillow attitude, you need even greater forward displacement of the cyclic while hovering into the wind. If the helicopter exceeds aft CG limits, hovering is not possible.

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Takeoff and landing in the strong headwind conditions may be critical, because you need greater forward cyclic to hover as well as levelling off afterWith a noselow attitude, you need excessive rearward displacement of the cyclic control to maintain a hover in a nowind condition. You should not continue flight in this condition, since you could rapidly run out of rearward cyclic control as you consume fuel. In the event of engine failure and the resulting autorotation, you may not have enough cyclic control to flare properly for the landing.This is more noticeable if litters are being used.The preflight external inspection determines, from the pilot’s point of view, that the aircraft is serviceable and that it has sufficient fuel and oil for the intended flight. Your preflight inspection should follow a set pattern and sequence. In this way, no items will be forgotten and your sequence will be similar no matter what type of helicopter you fly in the future. Most manufacturers recommend that you begin at the nose, on the right hand side to finish at the point you started. Fig 23. Having completed the external inspection in this fashion you are ready to enter the cockpit. A recommended method of conducting this inspection is found in most helicopter flight manuals.It is discourteous and may be hazardous to start a helicopter close to buildings or vehicles, as damage may be caused by the rotor downwash as the helicopter lifts into a hover. Light aircraft parked nearby may suffer substantial damage to their control surfaces.If during this inspection you discover an unserviceability, or have any doubts about the helicopter’s airworthiness, then it should not be flown. All schools have a system of reporting defects. It could well be just to inform your own instructor, but do not be afraid to express your doubts to an engineer.

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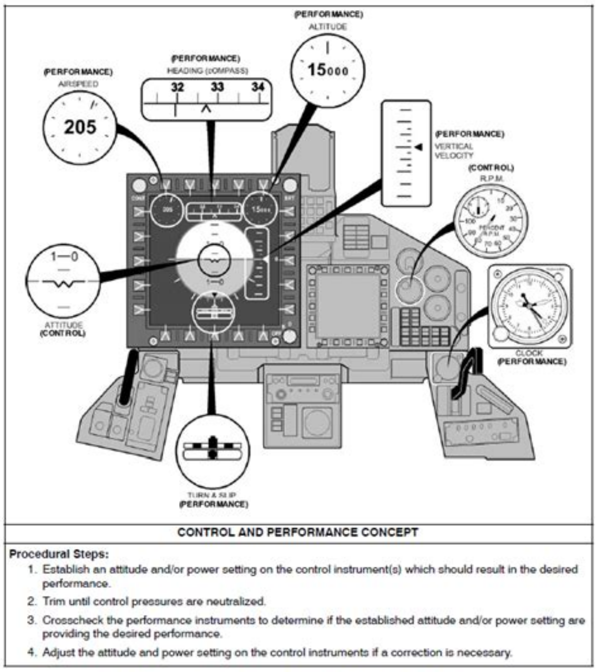
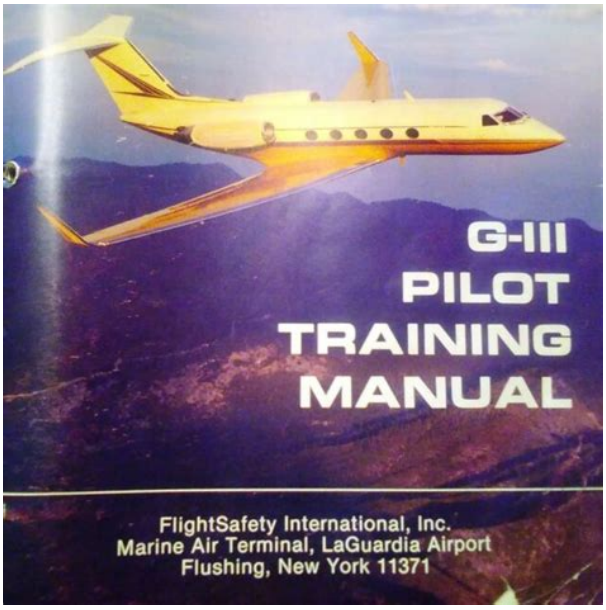


Figure 17-5. Position, Control, and Performance Instrument Groupings

Completion of these checks using the checklist is very important, and should be conducted in accordance with the recommended procedures contained in the helicopter flight manual. This preflight check will ensure that components are not damaged through incorrect starting procedures. Using the appropriate checklist, all further checks, such as starting, warmup and runup, if applicable, should likewise be performed in accordance with the manufacturer's recommendations.Your instructor will demonstrate the correct starting and shutdown procedures during this exercise. As your course progresses you will learn to perform these procedures on your own, using the checklists that should be provided by your school.The skills learned in this exercise form the basis for all future helicopter air exercises.For safety in flight, keep alert for other aircraft. Look out continually. Realise that there are blind spots behind and beneath your helicopter, and never assume that others have seen you. Be especially alert during noseup attitudes of the helicopter when the blind spot enlarges due to a decrease in forward visibility.It is commonly believed that the eye sees everything in its field with equal clarity. This is not so. Fix your gaze about 5 degrees to one side of this page, and you will no longer be able to read the printed material. Studies have revealed that the eye perceives very poorly when it is in motion. Wide sweeping eye excursions are almost futile and may be a hazard, since they give the impression that large areas of sky have been examined. A series of short, regularly spaced eye movements is recommended for maximum efficiency in searching the sky.Ensure that the pedals are adjusted so that you are sitting in a comfortable position, or you may find yourself becoming fatigued very quickly.




Remembering that the total lift reaction is always perpendicular to the rotor disc, when the disc is tilted from the lift vertical component, the thrust horizontal component will cause the helicopter to move in the direction of rotor tilt. See Figure 31. After the helicopter has been started your instructor will demonstrate how the disc reacts to cyclic control movements. Observe that the disc tilts in a direction corresponding to the direction in which you have moved the cyclic.To begin with, you should note the helicopter attitude by reference to the horizon, and your instructor will also point out the instrument indications in response to cyclic inputs. The cyclic stick controls the aircraft attitude and therefore the airspeed, which in turn affects altitude.The amount and rate of attitude change varies with the amount and rate of cyclic movement. Lateral movements of the cyclic will produce and controlrolling motion to establish and maintain desired angles of bank, or to restore the helicopter to a level attitude. Once again the amount and rate of roll varies with the amount and rate of cyclic movement.Be aware that abrupt control movements can reduce the life of components, and may even damage them.Raising the collective increases all main rotor blade angles of attack, resulting in an increase in the total lift. Fig 32The primary effect of moving collective will be a change in height, and the secondary effect is a change in yaw.It is used to set the engine and rotor RPM to the normal operating range on piston engine helicopters. Your instructor will demonstrate that in addition to increasing RPM, applying throttle will also cause the manifold pressure to increase, and the helicopter to yaw to the right. Reducing throttle, while causing a decrease in RPM and manifold pressure, will again cause yaw, this time to the left.

Your instructor will also demonstrate proper coordination of throttle, and collective movements, to maintain both manifold pressures, engine and rotor RPM in the correct operating ranges.Once set correctly, RPM will remain relatively constant regardless of collective movement. It is worth mentioning that some helicopters do not have a collective mounted throttle; some have the throttle on the floor, others on a roof console.It is not, however, used to control the heading while in cruise flight, but only to compensate for torque. This puts the helicopter in longitudinal trim so as to maintain coordinated flight Figure 33 refers. This is a simple spirit level device, if the ball is deflected to the right, apply right pedal until the ball centres and vice versa.The result of pressure on one pedal will be a yaw in the corresponding direction, i.e.; pressure on the left pedal will cause the nose to yaw left, and vice versa. An increase in pitch will require an increase in power, a decrease in pitch a decrease in power. On North American helicopters the left pedal is the “power” pedal. In other words when you apply left pedal you will require more power.In fact, any change in collective or cyclic position will require you to adjust the pedals in order to maintain coordinated flight.Depending on helicopter type, ancillary controls may include carburettor heat, mixture control, engine antiicing, windshield defogging, rotor brake and heater. Your instructor will demonstrate the correct use of the particular ancillary controls that equip the type of helicopter on which you will be training.It is also due in part to the high expansion of air through the carburettor venturi. As a result of the latter two influences, the temperature in the venturi may drop as much as 21 degrees Celsius below the temperature of the incoming air. If this air contains a large amount of moisture, the cooling process can cause ice to form.



This may build up to such an extent that a drop in power output results, and if not corrected may cause complete engine stoppage. Indications of icing to the pilot are a loss of manifold pressure together with engine roughness. To prevent the formation of carburettor ice piston engine helicopters not using fuel injection are equipped with a controllable system for preheating the air before it enters the carburettor. They are also equipped with a gauge, which aids in the prevention of carburettor ice.Using full heat will initially cause a loss of power and possible engine roughness. Heated air directed in the induction system will melt the ice, which goes through the engine as water, causing some of the roughness and more power loss. Despite this temporary roughness and attendant moderate power loss, a pilot is not damaging the engine at a cruise power setting of 75 per cent or less with any amount of heat.The engine loses an average of 9 per cent of its power when heat is applied. This is due to the reduced volumetric efficiency of heated air and loss of the ram air feature. Carburettor heat also creates a richer mixture, which may cause the engine to run rough, particularly at full heat. Increase power to the former setting until the engine runs smoothly again.In general, carburettor heat should not be used while hovering because of increased power requirement. An exception to this might be in very low temperature areas, which call for special procedures. Remember that the relative humidity approaches 100% close to the base of clouds. Watch for a power loss to indicate the presence of carburettor heat, then an increase in power as ice melts. The possibility of carburettor ice decreasesIt should be remembered that if the intake air does contain ice crystals, carburettor heat might actually cause carburettor icing by melting the crystals, and raising the moistureladen air to the icing temperature. This is a general rule for many helicopters.



Consult the flight manual for the procedures in a specific helicopter type. If this were true, engine manufacturers would design their engines so that heated air was constantly directed through the carburettor air intake system to completely eradicate the problem of carburettor icing. But they don’t because the application of carburettor heat in standard atmospheric conditions willLight helicopter engines, operated at extremely low winter ambient temperatures, may require the warming influence of carburettor heat to ensure adequate response to throttle application.As an aircraft gains altitude, the surrounding air becomes less dense. At altitude, the engine draws a lesser weight of air into its cylinders than it does on the ground. If the weight of the fuel drawn into the cylinders remained the same, regardless of altitude, the mixture would become too rich at altitude.This adjustment, often referred to as “leaning the mixture”, varies from one aircraft to another. Refer to the Approved Rotorcraft Flight Manual RFM to determine specific procedures for your helicopter. Note that most manufactures do not recommend leaning helicopters in flight. Generally, the accepted procedure for leaning the mixture is to move the mixture control slowly toward the “lean” position until maximum RPM is obtained with a fixed power setting. Then, move the mixture control toward “rich” until a decrease in RPM is just perceptible. This produces optimum power for the throttle setting, with a slightly rich mixture to prevent overheating, since sustained operations with the mixture too lean can damage the engine high engine temperatures can cause excessive engine wear or even failure. The best way to avoid this type of situation is to monitor the engine temperature gauges regularly and follow the manufacturer’s guidelines for maintaining the proper mixture.Under no circumstances attempt a takeoff with a fogged or partially fogged windshield.

The windshield defogging system will generally keep the windshield clear of interior fogging when the helicopter is in flight. However, while hovering or waiting for takeoff, windshield fogging may occur. On these occasions, opening the vents or windows to improve interior air circulation may control fogging.This system is controlled by an electrically operated valve, and directs hot bleed air to the intake of the compressor, to prevent ice accumulation on the front frame. This system does not have a deice capability and should be activated whenever the temperature is 4 degrees Celsius or less in visible moisture to prevent ice accumulation. Details regarding the correct operation of the system used on your particular helicopter will be found in the helicopter flight manual.If the type you are training on is so equipped you will be taught how the system operates and emergency procedures associated with a failure. Most medium and light helicopters can be flown without hydraulic assistance but the controls become quite heavy. Heavy helicopters cannot be flown without hydraulic assistance so they are equipped with multiple systems for backup.The hydraulic system for the rotor brake is most often selfcontained and not a part of the helicopter flight control hydraulic system. This type of system will have rotor RPM limits above or below which you should not apply the brake due to the possibility of damaging the drive train. This information will be found in the helicopter flight manual and is normally placarded in the aircraft and clearly marked on the rotor tachometer.Your instructor will demonstrate the operation of the type of heater that is installed in your helicopter and brief you on the safety precautions regarding its use. Once again the helicopter flight manual will contain information on the operation of the heater.

You can also begin to coordinate control movements in order to maintain balanced flight as airspeed and power changes take place, with all control movements concentrated on developing a smooth and accurate touch.Avoid looking at the instruments for a long period of time.To reduce speed from cruise to a specific airspeed for example, from 80 mph to 60 mph, ease the cyclic aft to select the attitude, hold the attitude, and finally adjust the attitude for accuracy. You will notice that the speed begins to decrease and the altitude increase. Concentrate for the moment onThroughout these manoeuvres ensure that you maintain coordinated flight by preventing yaw with the tail rotor pedals.This will increase the airspeed and the altitude will decrease. Pause to let the airspeed stabilize, anticipate the desired airspeed, and then adjust cyclic as necessary to maintain that airspeed. Once again prevent yaw through the use of the tail rotor pedals.Attempt to make cyclic changes small and smooth, avoiding large or abrupt control movements.You will note that any change in power causes the helicopter to yaw as a result of the changing torque. The greater is the change in power, the greater the torque effect. You must anticipate this torque reaction whenever changing power and make the appropriate pedal adjustment to maintain coordinated flight.To increase the manifold pressure, you must raise the collective. This will increase the pitch on the main rotor blades. It will also cause a decrease in RPM due to increased drag. To prevent this undesired decrease in RPM, always lead with throttle. This action will now result in an increase in manifold pressure while maintaining RPM. Remember that these power changes will cause the helicopter to yaw unless you simultaneously apply corrections to the appropriate tail rotor pedal. On most European helicopters the right pedal is the power pedal.You will lower the collective.

This reduction of blade pitch, with the resulting reduction in drag, will cause the RPM to increase. To prevent this increase you must reduce the throttle setting. This in turn will cause a decrease in manifold pressure, while maintaining RPM. Once again you must anticipate the need for an adjustment of the tail rotor pedals to prevent unwanted yaw.To reduce the RPM you will close the throttle slightly and raise the collective to maintain a constant manifold pressure.But since one influences the other you must analyze both the dual tachometer to determine the RPM, and the manifold pressure gauge to determine the power, to decide which control to apply and by how much to get the expected results. For example if the RPM were low and the manifold pressure low, you would increase the throttle, maintaining the collective setting. The result would be an increase in both RPM and manifold pressure.Small, smooth, coordinated control movements achieve this condition.Your instructor will point out to you the visual cues representative of straight and level flight at cruise airspeed and various other speeds. You should note the position of the disc, in relation to the horizon, as this is one of the important cues in cruise flight. Note also, the power settings used for cruise speed.Moving the cyclic aft will raise the nose of the helicopter and decrease the airspeed. Moving it forward lowers the nose and increases the airspeed. To maintain forward flight, the disc must be tilted forward to obtain the necessary horizontal thrust component; a noselow attitude will result as the fuselage aligns itself with the drive axis and the airspeed increases. The lower the nose, the greater the power required maintaining level flight, and the greater the resulting airspeed. Conversely, the greater the power setting the lower the nose must be to maintain level flight.The opposite is also true. Decreasing the collective while maintaining airspeed with cyclic will result in a descent.

Remember that these collective changes will require you to make pedal adjustments to maintain the helicopter in coordinated flight. To increase the airspeed in forward flight, you must apply forward cyclic, and raise the collective to prevent the helicopter from descending. To decrease the airspeed, apply aft cyclic, and decrease the collective to prevent the helicopter from climbing. We can examine a reduction in airspeed step by stepYou will learn to anticipate the required control movements to achieve certain desired airspeeds so as to avoid overcontrolling. Making all your control inputs as smooth and precise as possible will assist in avoiding this pitfall.From Exercise 4 onward, although it still applies, the above statement has been omitted to save repetition.Your instructor will review with you the recommended climb and descent airspeeds and power settings for your helicopter type. In the case of most helicopters the recommended speeds are specified in the flight manual. Your instructor will emphasize accurate control of the helicopter, as this is vital to success in future air exercises.If it is important to reach a given altitude in the shortest possible time, this is the airspeed to use. The helicopter can be climbed at any airspeed within its operating limits, but the best rate of climb is obtained at the airspeed where power required for flight is at a minimum, and power available is near the maximum. Refer to the accompanying chart Fig 51.Remember that it may be difficult for an aircraft above to see you.This action tends to cause the nose to pitch up; In many light helicopters the airspeeds for both manoeuvres will be similar and therefore the attitude change, if any, will be small. Prior to proceeding from a descent to a climb, once again ensure that the area ahead and above is clear of other aircraft.An accurate level turn may be described as a change of direction, maintaining a desired angle of bank, altitude and airspeed with no slip or skid.

This is also the description of a coordinated turn.The object of applying bank during a turn is to incline the lift so that, in addition to supporting the helicopter, it can provide the necessary centripetal force towards the centre of the turn to oppose centrifugal force, which is endeavouring to pull the helicopter away from the centre of the turn.Therefore, it must be greater than during straight and level flight. This additional lift can be acquired by increasing power or by sacrificing some airspeed to maintain your altitude.See Figure 61. Load factor may be described as the total load imposed on the helicopter, divided by the weight of the helicopter, and is expressed in G units. Load factor during a turn will vary with the angle of bank. Airspeed during the turn does not affect load factor, because for a given bank angle the rate of turn decreases with increased airspeed, resulting in no change of centrifugal force. Note that for a 60 degrees bank turn, the load factor for any helicopter is 2 G regardless of its airspeed Figure 62 refers. This means that a 3000 lb helicopter in a 60 degrees bank turn will, in effect, exert 6000 lbs of force on the helicopter structure. Bank angles of up to 30 degrees will produce only moderate increases in load factor that are acceptable under most flight conditions that you will encounter. The load factor rises at an increasing rate at bank angles over 30 degrees, and may produce unacceptable disk load depending upon the helicopter gross weight and the prevailing flight conditions.All helicopters have a maximum permissible load limit that must not be exceeded. As a responsible pilot you should be aware of the limitations of your particular helicopter, and avoid situations that may cause the load factor to approach the maximum. Practically what this means is to avoid doing turns over 30 degrees when you are heavily loaded, especially in gusty or turbulent winds.