

Dawn Patrol In-Flight Keyboard Controls

ADJUSTING THE IN-FLIGHT VIEW

A. Press the shift key and a function key simultaneously to determine the plane or target being viewed (the 'viewee').
B. Press either a function key or a numeric key to alter the type of view.

NORMAL KEYS

ESC Change viewee to your aircraft
F1 Zoom in (**ALT F1** is zoom out)
F2 Rotate vertically around viewee
F3 Rotate horizontally around viewee
F4 External chase view
F5 Outside view - camera maintains absolute heading and pitch
F6 Track view - camera pitches and turns with the aircraft
F7 External satellite view
F8 View across your aircraft to the viewee (outside lock)
F9 View from your aircraft's cockpit of the viewee (inside lock)
F10 Configuration menus
1 Increase the keyboard flight control sensitivity
2 Decrease the keyboard flight control sensitivity
5 View the rear of your aircraft from the inside
6 View the left of your aircraft from the inside
7 View the front of your aircraft's cockpit from the inside
8 View the right of your aircraft from the inside
9 View the rear of your aircraft from the inside
0 Return to cockpit from an outside viewpoint
- Decrease RPM continuously, in small steps
+ Increase RPM continuously, in small steps
BACKSPACE Inside combat lock - lock onto nearest enemy (see manual)
TAB Speed-up time (toggle - turns off when any key pressed)
Q Toggle between fixed and free viewpoints of viewee
W Wheel brake
R Decrease rate of rotation for F2 & F3 keys
T Auto-gunfire (only if autopilot ON)
U Un-jam machine guns
[..... Look up (see gun sights if looking forward)
] Look down (see instrument panel if looking forward)

Dawn Patrol In-Flight Keyboard Controls

P Pause
ENTER Outside combat lock (lock onto enemy from outside view)
A Autopilot (toggle - indication on instrument panel)
S Sound toggle (off, no engine sounds or with engine sounds)
J Increase rate of gunfire
K Decrease rate of gunfire
; Step back through waypoints
; Step forward through waypoints
Z Impact viewpoint - switch view to target when hit
X Missile viewpoint - switch view to launched bullet
V Video toggle
B Air brake toggle
M Map screen
, Minimum power setting
. Maximum power setting
SPACE Fire

'ALT &' KEYS

ALT F1 Zoom out
ALT F2 Rotate vertically around viewee in opposite direction to F2
ALT F3 Rotate horizontally around viewee in opposite direction to F3
ALT F5 Outside view - looking out from viewee
ALT F6 Track view - looking out from viewee
ALT F7 View below viewee
ALT F8 View looking from in front of your aircraft to the viewee
ALT F9 View from in front of the viewee to your aircraft
ALT F10 Decrease time speed-up
ALT R Increase rate of rotation for F2 and F3 keys
ALT D Automatically select level of detail suitable for machine
ALT F Select the next nearest viewee [fixed mode only]
ALT X Exit flight

'SHIFT &' NUMERIC KEYPAD

SHIFT - Decrease RPM by standard amount
SHIFT + Increase RPM by standard amount
SHIFT 9 View of your wingman
SHIFT 8,4,6,2 View directions

Dawn Patrol In-Flight Keyboard Controls

NUMERIC KEYPAD AND CURSOR CLUSTER

END (1) Full rudder deflection, left
PG Down (3) Full rudder deflection, right
INSERT (0) Gradual rudder deflection, left
DELETE (.) Gradual rudder deflection, right
Cursor up (8) Dive - pull forward on stick
Cursor left (4) Roll to the left
Cursor right (6) Roll to the right
Cursor down (2) Climb - pull back on stick
- Decrease RPM by single, large steps
+ Increase RPM by single, large steps

'CTRL &' KEYS

CTRL F1 Reset zoom
CTRL F2 Reset to default vertical view angle
CTRL F3 Reset to default horizontal view angle
CTRL F8 Lock view from behind the viewee to your aircraft
CTRL F10 Increase time speed-up
CTRL R Reset rate of rotation for F2 and F3 keys and reset view angle
CTRL D Toggle 3D detail (auto detail must be turned off first)
CTRL F Reset fixed viewpoint to current nearest viewee
CTRL V Reset video to start and begin recording

'SHIFT &' KEYS

SHIFT ESC View of player's aircraft, maintaining last viewpoint
SHIFT F2 View of launched missile
SHIFT F3 View of nearest friendly aircraft
SHIFT F4 View of nearest enemy aircraft
SHIFT F5 View of object you have been assigned to attack, according to on-screen messages
SHIFT F7 View of object that last message refers to
SHIFT F8 View of currently assigned ground target
SHIFT F9 View of nearest possible ground target
SHIFT - Decrease RPM in large steps
SHIFT + Increase RPM in large steps
SHIFT TAB Super time speed-up
SHIFT F Toggle between fixed and free viewpoints of viewee
SHIFT ; Position information

Contributed by Dave S.

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Dawn Patrol In-Flight Keys By Subject

VIEWPOINTS

ESC Change viewee to your aircraft
 SHIFT ESC ... View of player's aircraft, maintaining last viewpoint
 F1 Zoom in
 ALT F1 Zoom out
 CTRL F1 Reset zoom
 F2 Rotate vertically around viewee
 ALT F2 Rotate vertically around viewee in opposite direction to F2
 CTRL F2 ... Reset to default vertical view angle
 F3 Rotate horizontally around viewee
 ALT F3 Rotate horizontally around viewee in opposite direction to F3
 CTRL F3 ... Reset to default horizontal view angle
 SHIFT F2 ... View of launched missile
 SHIFT F3 ... View of nearest friendly aircraft
 SHIFT F4 ... View of nearest enemy aircraft
 SHIFT F5 ... View of object you have been assigned to attack, according to on-screen messages
 SHIFT F7 ... View of object that last message refers to
 SHIFT F8 ... View of currently assigned ground target
 SHIFT F9 ... View of nearest possible ground target
 SHIFT 9 ... View of your wingman
 F4 External chase view
 F5 Outside view - camera maintains absolute heading and pitch
 ALT F5 Outside view - looking out from viewee messages
 F6 Track view - camera pitches and turns with the aircraft
 ALT F6 Track view - looking out from viewee
 F7 External satellite view
 ALT F7 View below viewee
 F8 View across your aircraft to the viewee (outside lock)
 ALT F8 View looking from in front of your aircraft to the viewee
 CTRL F8 ... Lock view from behind the viewee to your aircraft
 F9 View from your aircraft's cockpit of the viewee (inside lock)
 ALT F9 View from in front of the viewee to your aircraft
 5 View the rear of your aircraft from the inside
 6 View the left of your aircraft from the inside
 7 View the front of your aircraft's cockpit from the inside
 8 View the right of your aircraft from the inside
 9 View the rear of your aircraft from the inside

Dawn Patrol In-Flight Keys By Subject

0 Return to cockpit from an outside viewpoint.
 BACKSPACE. Inside combat lock - lock onto nearest enemy (see manual)
 Q Toggle between fixed and free viewpoints of viewee
 R Decrease rate of rotation for F2 & F3 keys
 ALT R Increase rate of rotation for F2 & F3 keys
 CTRL R Reset rate of rotation for F2 & F3 keys and reset view angle
 [..... Look up (see gun sights if looking forward)
] Look down (see instrument panel if looking forward)
 ENTER Outside combat lock (lock onto nearest enemy from outside view)
 ALT F Select the next nearest viewee (fixed mode only)
 CTRL F Reset fixed viewpoint to current nearest viewee
 SHIFT F Toggle between fixed and free viewpoints of viewee
 Z Impact viewpoint - switch view to target when hit
 X Missile viewpoint - switch view to launched bullet
 [NUM KEYPAD] SHIFT 8,4,6,2 View directions

ACCELERATION CONTROLS

TAB Speed-up time (turns off when any key pressed or mission event occurs)
 SHIFT TAB .. Uninterrupted time speed-up
 ALT F10 Decrease time speed-up
 CTRL F10 ... Increase time speed-up

GEAR

W Wheel brake

WEAPON CONTROLS

SPACE Fire
 T Auto-gunfire (only if autopilot ON)
 U Unjam machine gun
 J Increase rate of gunfire
 K Decrease rate of gunfire

Dawn Patrol In-Flight Keys By Subject

FLIGHT CONTROLS

A Autopilot (toggle - indication on instrument panel)
 1 Increase the keyboard flight control sensitivity
 2 Decrease the keyboard flight control sensitivity
 [NUM KEYPAD] END Full rudder deflection, left
 [NUM KEYPAD] PG DN .. Full rudder deflection, right
 [NUM KEYPAD] INS Gradual rudder deflection, left
 [NUM KEYPAD] DEL Gradual rudder deflection, right
 [NUM KEYPAD](8, 4, 6, 2) Flight directions
 CURSOR Right, Left, Up, Down .. Flight directions
 B Air brake toggle

ENGINE CONTROLS

..... Minimum power setting
 Maximum power setting
 [NUM KEYPAD] - ... Decrease RPM by single, large steps
 [NUM KEYPAD] + ... Increase RPM by single, large steps
 SHIFT - Decrease RPM in large steps
 SHIFT + Increase RPM in large steps
 [NUM KEYPAD] SHIFT - Decrease RPM by standard amount
 [NUM KEYPAD] SHIFT + Increase RPM by standard amount
 - Decrease RPM continuously, in small steps
 + Increase RPM continuously, in small steps

GENERAL CONTROLS

F10 Configuration menus
 ALT X Exit flight
 P Pause
 S Sound toggle (off, no engine sounds or with engine sounds)
 V Video toggle
 CTRL V Reset video to start and begin recording
 ALT D Automatically select level of detail suitable for machine
 CTRL D Toggle 3D detail (auto detail must be turned off first)

MAPS AND WAYPOINTS

M Map screen (ESC to return to flight)
 ; Step back through waypoints
 ; Step forward through waypoints
 SHIFT ; Cycle through position information

Credits

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Introduction

The system used to create Dawn Patrol has taken quite a few man years to develop and involved many members of our team. We believe that we have brought you some of the best flight technology available.

But Dawn Patrol is more than simply a technological tour *de force*. It deals with one of the most exciting theatres in the whole of aviation history - the first use of aircraft in warfare. Our remit was to produce a simulator dealing with the First World War; to highlight the pilots and their aircraft as well as the rush to achieve air superiority. It soon became very clear to us that this was a very large story indeed. As the war progressed, so the fortunes of both sides in the air fluctuated. This was an intensely personal battle between individual flyers, sometimes employing quite unorthodox tactics in a wide range of aircraft. Many accounts of their experiences have been described in print.

That's why we decided to base Dawn Patrol around an interactive 'book' of the air war. It means that we've been

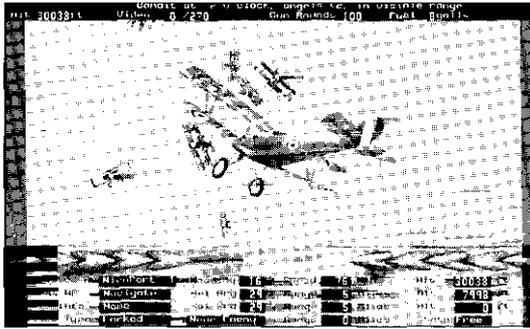
able to provide chapters on the history of the air war, the most famous aces and the aircraft they flew. That has allowed us to deal with many of the most interesting aspects of the conflict. Thanks to contemporary accounts, we can let you take part in recreated aerial battles and missions which are very close to those actually flown by the, men on both sides of the conflict.

Our preoccupation with pre-jet flight simulators is based on the observation that early aerial battles were a lot more exciting than those employing modern technology. In the first air war there were no heat-guided missiles to aim in the general direction of the enemy. The aircraft approached each other at speeds that were slower than the fluttering of an eyelid. In the midst of battle it was possible, to imagine that you could see the whites of your opponent's eyes. That's why we are sure you will enjoy Dawn Patrol.

Rowan Software

Section 1

About Dawn Patrol



Instructions to RFC crew, 1915

[1] The 'go-as-you-please' methods have been abandoned definitely, both by the French and ourselves, in favour of attacks carried out by swarms of aeroplanes. It is now an accepted principle that attacks on all important objectives should be carried out by as many aeroplanes as possible.

[2] All machines flying in line ahead at the same height is a formation above all to be avoided, as being the most vulnerable against attack by Anti-Aircraft guns.

[3] The French attack downwind. [We have tried] a downwind attack only once by the III Wing in the attack against Hervilly aerodrome on the 14th December. The majority of the bombs fell short.

[4] The growing importance of bombing operations cannot be too fully impressed upon pilots. There are still pilots who belittle the importance and utility of these operations. Skill in bomb-dropping can only be achieved by constant practice.

*Notes On Bombing Attacks,
by Major Evelyn B. Gordon,
HQ, RFC, 21 December 1915*

Dawn Patrol is really an interactive book devoted to flying in the First World War the first ever air war. This book has over a hundred pages devoted to subjects like the first flying aces and the aircraft of the era. Like any good book, it's possible to read it sequentially or to dip into it at any point you like. Each page is devoted to a particular aspect of the aerial war, and includes an individually tailored aerial battle or mission. Normally, you will be allowed to alter the number of aircraft involved in the mission, and often you will be able to choose whether you wish to fly on the side of the "Allies" or on the side of the "Central Powers". Hence the game provides a great deal of variety and will, hopefully, give you hundreds of hours of enjoyable playing time.

An extra chapter lets you create your own personalised pilot record by undertaking all sorts of suggested missions under a persona of your own choosing. This is your chance to become a flying ace.

Finally, there is a "Video Editing Suite" where you can edit videos of your aerial adventures. During any mission you can start filming the action, and after the battle has finished you can sit back and replay the recorded action in the comfort of your armchair. The editing suite lets you manipulate the action with more flexibility than any real-life post-production unit. So, not only will you be able to show your friends how to win an aerial mission, but you'll be able to show off your talent as a film director.

About this User Guide

The Dawn Patrol User Guide deals with all of the major aspects of the game. To install the software on your machine, refer to the TECHNICAL REFERENCE SUPPLEMENT supplied separately from this guide. The supplement is tailored for your particular computer. Although this guide is intended for all Dawn Patrol users, it has been written from the perspective of an IBM PC compatible owner. If you use a different type of computer, and you are in doubt about any machine specific instructions such as key presses, then you should consult your technical supplement.

Your approach to this game will probably be to play it before reading any of the documentation. Inevitably, though, there will come a time when you'll need to uncover more information about Dawn Patrol. Hopefully it is all here in the User Guide. You can either read through the guide from the beginning, or look up the relevant topic in the Table of Contents at the start.

The next section, called First Mission, assumes that you are straining at the leash to get on your goggles and leather hat. It guides you from the first page of the Dawn Patrol book into the skies and on to the completion of your first aerial mission.

After First Mission, section 3 of the guide details all of the major chapters of the Dawn Patrol interactive book, from beginning to end. Section 4 goes through the basic controls of the in-flight section of the game. Section 5 describes some of the basic principles of flying, shooting, and tips for surviving the air war. Finally, section 6 describes all of the features of the video editing suite. Two appendices deal with keyboard commands and joystick controls.

Note:

Input Devices

The interactive book in Dawn Patrol can be controlled using your mouse and/or keyboard the joystick is not available as an option. The flight simulation section of the game can be controlled by keyboard and/or joystick the mouse is not available as an option. The specific keys to use on your keyboard are printed on the keyboard reference card provided with the package, and in appendix A of this guide. The specific control of the joystick is detailed in appendix B of the guide.

Selection

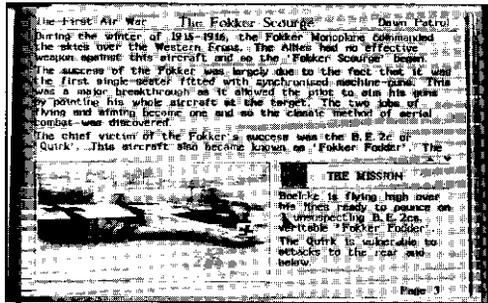
The generic term “select” is used when you are required to click on the left mouse or press ENTER on the keyboard. Items are selected in the interactive book by moving the on-screen pointer over a selectable item (which is normally displayed in red) and “selecting” it using either the mouse or keyboard. The on-screen pointer can be positioned by moving the mouse or pressing the TAB key on the keyboard (this will cycle the pointer around all of the “selectable” items on the screen).

Fighting it out: the RFC and RNAS

When, in 1912, the Royal Flying Corps was established, it consisted of a Military Wing, a Naval Wing, and a Central Flying School. But rivalry between the army and navy spilled over into the RFC. The Naval Wing eventually dubbed itself the Royal Naval Air Service, and the Military Wing continued to be known as the Royal Flying Corps. Each Wing had a different view of its own role and loyalties. The Military Wing saw itself as the reconnaissance eyes of ground troops; the Naval Wing emphasised the need for aerial home defence, and also looked ahead to anti-submarine patrols and strategic bombing missions. So, when war broke out, the RNAS and the RFC were already rivals: for the best aeroplanes, the best pilots, and the best flying records. As a result, it was sometimes unclear which flying service should defend Britain against air attacks, or which should bomb German Zeppelin and aeroplane factories. A wounded pilot, Pemberton Billing, won an independent seat in Parliament on the issue. Finally, it was recognised that the times demanded an air force which was independent of both the army and the navy. Marriage between the two air arms was attempted a second time, when, on 1 April 1918, the two branches were united in the Royal Air Force. Yet by 1924 the navy had its own air force again the Fleet Air Arm

Section 2

First Mission



If you've hurriedly opened this package and now wish to get straight into a First World War dogfight, then these instructions will lead you through your first mission. A more detailed explanation of the game's features begins in section 3. If you have not already done so, read the instructions in the Technical Reference Supplement and follow the game installation and loading procedure.

Dawn Patrol starts on the first page of an interactive book. A list of contents details all of the chapters, whose opening pages are highlighted in red. We now wish to go to the first chapter, 'The First Air War', which starts on page two. Position the screen pointer over the First Air War page number (2), and select it. (If you have trouble selecting the page number then read the two paragraphs on 'input devices' in section 1 of this guide.) Page two lists the contents of the 'First Air War' chapter, from which you should select page three, entitled The Fokker Scourge.

Page three is the first interactive page of Dawn Patrol, and it contains information about the early days of the air war, as well as providing a playable mission. The top half of the page displays text through which you can scroll downwards by selecting the red down arrow positioned half way down the screen on the right hand side. After selecting the down arrow twice the photograph of a Fokker Monoplane in the bottom left corner of the page will be replaced by an animation. This animation shows a British BE2c reconnaissance biplane in flight.

The page three mission is described in the bottom right corner. You take the role of Oswald Boelcke, an early German ace, flying a Fokker monoplane in an attack on two 'unsuspecting' BE2c's. If you are feeling very brave you can make the mission more difficult by altering the number of opponents highlighted in the mission profile. When you have read all of this page, select the Iron Cross to the left of the mission headline and your mission will have begun.

Your first flight in Dawn Patrol may take you by surprise. When you start you are already in the air, at the controls of a Fokker monoplane. There is no need to fire up your engines, take off and engage the enemy. Your opponents are probably not very far away! Since this is your first flight you might wish to press the pause button P at this point, and take a closer look at the screen. It shows an upper view of the cockpit with the double gunsights of your Fokker monoplane. Press the right square bracket key] for a lower cockpit view that includes your instrument panel. The dials display your rev count, compass bearing and speed. The number at the top left of the screen shows that you are at a height of a few thousand feet.

'I know that I shall meet my fate Somewhere in the clouds above..'

- W. B. Yeats, 'An Irish Airman Foresees his Death'

A pilot's life expectancy was short. Superior enemy machines and pilots were a great threat. Unreliable aircraft, inadequate training and ground-tire shortened the odds further. Moreover, official policy such as the RFC order banning fighter escorts for reconnaissance aircraft could sometimes make the odds sacrificial. Among British pilots, life expectancy at the Front declined to eight days at one stage, and three weeks at another. In 'Bloody April', 1917, the RFC lost 316 airmen, while during the second half of 1917, between 153 and 214 RFC air crew were either killed or missing in action, each month. During the two-week Battle of Cambrai in November 1917, losses among those RFC pilots detailed to strafe troops and transport were 30%, *per day*. Ground-raiding was also used during the German offensive of March 1918: 'Bomb and shoot up everything. All risks to be taken.' Of 1,300 British aircraft flying in support of their troops during the German offensive of March 1918, only 200 were left a few weeks later. Statistically, the survival rate was much higher in the trenches than among airmen. In the air, the chance of being killed was almost as great as the chance of being wounded, whereas on the ground, despite overwhelmingly high losses, troops were actually much more likely to be wounded than killed outright.

Now that you are in pause mode, you can take a little time to familiarise yourself with the game controls. You will find that many of the keys detailed by the 'in-flight keyboard' reference still work in pause mode, especially those which alter the views on the screen. Since Dawn Patrol provides immense flexibility of view types, it is worth getting a flavour of what is available. For instance, press the 5,6 and 8 keys to see, respectively, views of the rear, left and right of your aircraft.

Press the F6 key and you will change to a 'track' view of your Fokker taken from a camera just behind the rear of the aircraft. You will notice that the bottom part of your screen changes to a panel once the view is from outside the cockpit. This panel contains information about your mission. For now, just note the top line that displays the name of your aircraft, as well as your beating, speed and altitude. If you press the SHIFT and F4 keys simultaneously then you will see a track view of your nearest enemy craft. Now you know what you're up against.

The message line at the top of the screen should shortly reveal the location of your enemy with a comment like "My opponent is moving at 4 o'clock". We can't tell you where YOUR opponent is, because each combat plays differently every time it is loaded. Think of a watch face aligned so that 12 o'clock is pointing straight ahead in the direction of your aircraft. If the enemy is at 4 o'clock, that means an enemy aircraft is in the direction of four o'clock on the clock face, in other words 120 degrees to the right. Unless the aircraft is in sight, though, you don't know whether it is above you or below you. You can get a good idea of your relative positions by pressing the ENTER key, which takes you into 'Outside Combat Lock' mode. This is just fancy jargon for a camera angle that maintains a lock on the nearest enemy from a position that also has your aircraft in the foreground. It may be that the enemy is obscured by the view of your aircraft, but it reveals your relative positions. For instance, if the enemy is above and in front of you, you'll get a view from beneath your aircraft, pointing forward and upwards towards the enemy aircraft. This is the direction you should be heading, so why not switch back to a cockpit view by pressing the right square bracket] key, and get flying.

Press the P key again to get out of pause mode, and start manoeuvring with the cursor keys or your joystick. If you find the controls too sensitive then press the 2 key a couple of times to decrease the flight sensitivity to the minimum level. Your aim should be to get behind the pair of BE2c's. because they will then be very easy to pick off. You can use the key to reduce the engine revs and so match your speed more closely to your intended victims. When they get within range, press the space bar to fire your machine guns, and see what damage you can inflict. If you succeed in making hits you will see puffs of smoke. Fatal damage after a number of hits will be obvious, and you will then have taken your first step to becoming an ace in your own right. If you fail to get a good run on both aircraft, then you should try successive attacks.

The paint pot

In the first few weeks of the war, friendly fire caused the **British and French to paint their national colours on their aircraft.** Initially, the British used a rectangular Union Jack, but troops firing from below tended to confuse it with the German Iron Cross. So, at the end of 1914, Britain adopted the roundel, similar to that used by the French, but with the colours reversed. Other Allied air forces Belgian, Italian and Russian also used roundels in their national colours.

Other smoke exploding around the enemy will be flak from ground attacks make sure you get in there before your artillery does the work for you! With a bit of skill on your part, the enemy should suffer a disastrous mission. You will then have four main options.

[1] If you have managed to complete your main mission objective, you can leave the scene of battle by pressing the F10 key. This leads to a 'configuration' screen where you can select END MISSION, giving you a post mission summing up with details of your performance. Select the RESET PAGE option, and you will return to the third page of the book. Press the cursor right key to proceed to page four.

[2] If you have found the mission too hard for you at this stage then you should leave the flight simulator by pressing F10, and then alter some of the settings on the configuration screen. If you select 'vulnerability', 'arms', 'targets' and 'skill level' in turn, and set them to off, off, soft and low respectively, then you will now be invulnerable to damage, have an infinite amount of machine gun bullets, easier target volumes to hit and below average skill enemies. You can then repeat your flight by selecting END MISSION, followed by RESET PAGE and then re-entering from page three. Hopefully this time you will find it easier. When you have begun to master Dawn Patrol, remember to increase the difficulty of some of these settings if you want a greater challenge.

[3] If the mission was too easy for you then press F10 to exit the flight and on the configuration screen set 'vulnerability', 'arms', 'targets' and 'skill level' to on, on, hard and high respectively. This should make things rather more challenging. Alternatively, you could progress to some further missions before making these changes!

[4] If you have disposed of your enemy and are still waiting for more to do, then you could try and fly back to your 'home base', land there and fully complete your mission. On the third line of the control panel (the bottom portion of the screen on an external view), you will see the position information for your Home Base (if it is not being displayed, hit the keys SHIFT and ; simultaneously until it IS displayed). Set a heading back to base, and see if you can make a successful landing there. If the journey is more than a few miles then you can always speed up time when you have set an exact course by hitting the TAB key. Hit any key to get back to normal time progress. Once your home airfield is in sight, set a landing course, decrease your engine revs, and when you touch the ground put on the wheel brakes (press W) and turn off your engine (press the, key). Exit by pressing F10 (or ALT and X together), bask in the approval of your post-mission summing up, and head off for a good shower, a mug of warm soup and an early night. There will be a lot of difficult missions out there tomorrow.

Pilots in peace-time

Two years before the war, France's enthusiasm for flying far outpaced that of the rest of the world. Out of 2,480 qualified pilots world-wide, 966 were from France. Great Britain and Germany trailed, with 382 and 345 respectively. Despite the exploits of the Wright brothers, air flight had failed to catch the imagination of the American public: the US possessed only 193 qualified pilots. Italy followed close behind, with 186. Russia had 162 pilots, and Austria 84.

Section **3**

Dawn Patrol -The Book

List of Contents

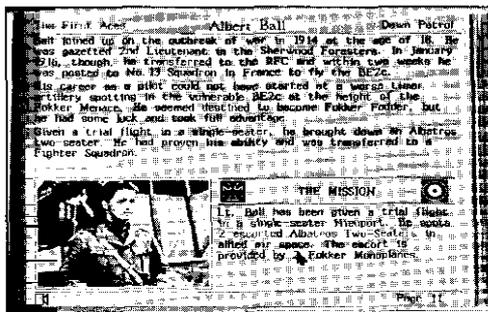
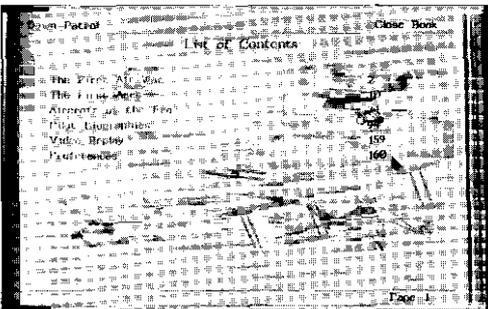
Page one of the interactive Dawn Patrol book contains a list of six chapters, any one of which can be accessed directly.

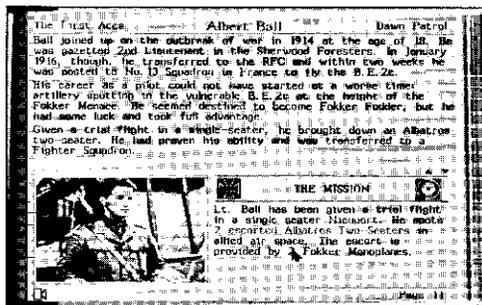
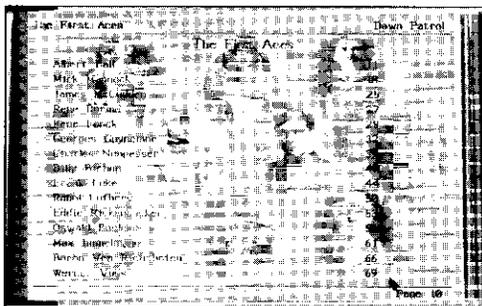
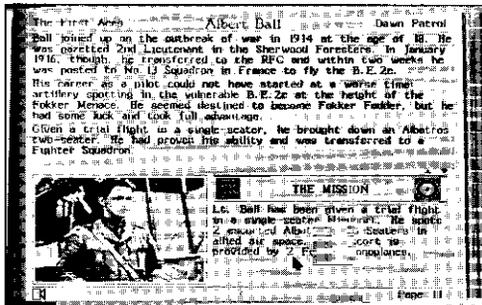
The first three chapters, named The First Air War, The First Aces and Aircraft of the Era, deal with various aspects of the air war between 1915 and 1918. They contain ninety pages of information, and each one is linked to a specially tailored mission for you to fly. Chapter four, Pilot Biographies, allows you to assume the identity of a fictional flying character from one of the four major nations involved in the air war. You will be able to undertake special missions, from which a personal biography will be created. The fifth chapter, Video Replay, enables you to view and post-produce film of your experiences as an air ace. The last chapter provides a single page of your 'preferences' for the settings of the variable options relating to the game and its control.

Each item highlighted in red on the List of Contents page acts as a hotspot. If the screen pointer is selected while it is over a hotspot then an action will be taken. Selecting CLOSE BOOK on the top right corner of the screen is the method of quitting from Dawn Patrol back to the DOS prompt. Any chapter can be accessed by selecting the opening page number that is highlighted opposite the chapter name. In the bottom right corner of the page, the current page number is highlighted. If it is selected, then a small box is opened with an editing position represented by a vertical bar. This will accept any page number, to which the book turns when the box is selected again. If you wish to exit from the box without making a new page choice then press the **ESC** key.

If you are playing the CD-ROM version of Dawn Patrol you will note that some pages have a small loudspeaker symbol in the bottom left hand corner. If it is selected (or the **V** key is pressed) then you will hear a recorded commentary that deals with some relevant subject matter. There is a total of 36 pages with recorded information.

To turn forward through the book, select the right edge of the page. Select the left edge to turn backwards. Alternatively, press the **cursor right** or **cursor left** keys, respectively. These are two examples of hotkeys, which provide a shortcut for any commonly used action. Table 1 lists all of the standard hotkeys in the book section of Dawn Patrol.





The mission description briefly sets out the important details of the engagement, and will often allow you to specify some of the mission details. If any of the text is highlighted then it can be altered by you before you take part. For instance, in the screenshot opposite, the number of escorting Fokker monoplanes has been selected. A small text box gives the player a choice of 2, 3 or 4 escorting Fokkers. The desired option should be selected as appropriate.

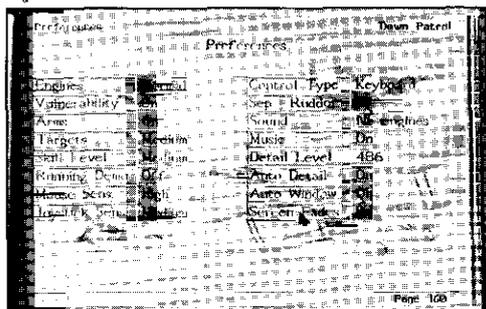
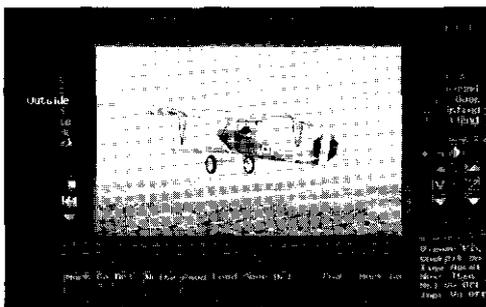
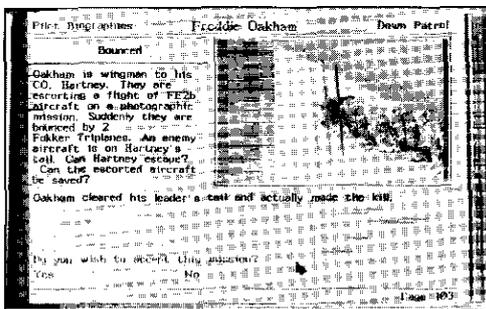
When details have been altered to your satisfaction the mission can commence. If an RFC roundel is displayed to the right of the mission heading, then you can take part on the side of the Allies. If an Iron Cross is displayed on the left of the mission heading, then you can take part on the side of the Central Powers. Often, both the RFC and Iron Cross symbols will be displayed, and this means that you have a choice of sides. Whichever symbol is outlined in pink is the side for which the mission has been designed. If you choose this side, then you should try and achieve the mission objectives as outlined. If you choose the opposing side, then your mission will be essentially a spoiling one. Your aim should be to ensure that the mission objectives of the other side are not achieved. In general it is instructive and fun to play the game from both perspectives. However, the fundamental aim for the player should be to try and achieve all of the mission objectives detailed in each page of the book.

Selection of the mission will immediately put you at the controls of an aircraft in flight. The In-Flight Manual (section 4) of this guide provides all of the basic information about controlling your aircraft in Dawn Patrol. The next parts of this section provide information about the rest of the interactive book.

The First Aces

The second chapter of the book deals with fifteen of the most famous flying aces of the First World War. Many of their stories are astounding, some virtually unbelievable. There was Albert Ball, the British pilot who would issue challenges to the enemy by dropping messages over their bases. Or Oswald Boelcke, whose 'play chicken' strategy was to head straight for the enemy's aircraft. And Eddie Rickenbacker, the former Indianapolis driver, who would damage an opponent's aircraft and then let a novice colleague make the final kill.

This is your chance to take part in some of these pilot's most exciting missions. For instance, the screenshot shows a page detailing Albert Ball's trial flight as a pilot, where he is pitted against two escorted Albatros two-seaters. Quite a few parameters of this mission are highlighted, and can be tailored as you wish. You can choose to pilot one of six different aircraft. Or you could make the mission very hard indeed by putting Ball up against four Albatros reconnaissance aircraft escorted by four Fokker monoplanes. A victory at the hardest level would be a very impressive feat!



Whatever the outcome of your flight, you should exit in the usual manner (by pressing F10 or ALT and X simultaneously). The post-mission briefing will sum up your flight, and you will be asked whether or not you wish the mission to be accepted into your biographical history. If accepted, then the summary will be pasted into one of the pages left free for your pilot, and will remain as part of his biographical history. You will then be free to return to the main Pilot Biographies chapter page, and complete further missions under the guise of this pilot. The next time you choose the same pilot you will be asked whether you wish to r-start (clear the biography), view (look at the biography) or continue (complete further missions: a new set of missions will appear when you continue). If you accept a mission in which your pilot is killed, then his biography will be deemed complete. You have the opportunity, at any time, to restart the pilot's career, and begin all over again. If only real life was so simple. You may take part in other pilot's biographies whenever you wish.

The pilot biography files are stored in the 'savegame' subdirectory. It is possible to delete all biographies by running the 'delete.bat' batch file in that directory.

Video Replay

Video replay is a separate feature of Dawn Patrol and can be accessed from the List of Contents page, where it is listed as a chapter heading at page 159 of the book. Alternatively you can access video replay from the post-mission briefing screen after a flight. Video replay provides access to a comprehensive video editing suite, and allows post-production of in-flight videos.

Of course, the facility is only of use if you have taken an in-flight video. To do this you must set the video camera rolling during a flight by pressing the V key. Since a mission needs to have been flown before video is available, we have left full discussion of the video editing suite until section 6 of the guide.

Preferences

The last page of the Dawn Patrol book (page 160) is a list of selectable 'preferences' that the player can alter during the game. These preferences relate to general aspects of the game such as skill levels, sound effects and joystick controls. A full discussion of preferences is given at the end of section 4.

Section 4

In-Flight Manual

This section of the User Guide deals with all of the features of the in-flight section of Dawn Patrol. A glance at the keyboard reference card will make it clear that you have a wide range of controls at your command.

After you have selected a mission you will find yourself in the cockpit of an aircraft. It will probably be flying at an altitude of a few thousand feet and charging forward at a hundred miles per hour! All of the Dawn Patrol missions have been designed so that they commence in the air at a stage close to the beginning of the engagement described in the mission profile. This enables us to set up the action in as realistic a manner as possible, and it saves you from undertaking a long journey before you get a crack at the enemy.

The four basic flight directions are controlled by your cursor keys or your joystick. Both emulate the characteristics of an aircraft's joystick.

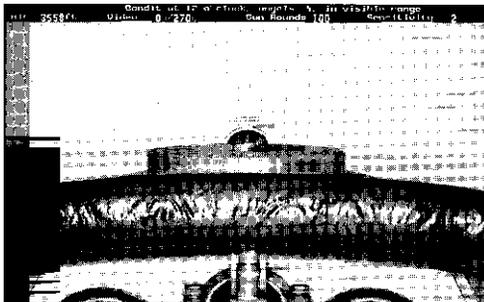
Cockpit Layout

Your first view will be of the upper cockpit of your aircraft, looking forwards. If there are forward mounted guns you will see one or two gunsights in the foreground. This view lets you concentrate on centering an enemy aircraft in your sights, and affords a panorama of the aerial battlefield.

Press the right square bracket `]` key for a downward perspective of the cockpit. This view includes the instrument panel, which gives the most basic details about your aircraft's flight parameters. The on-board instrumentation comprises three dials.

On the left is a simplified rev counter, which displays the engine revs in revolutions per minute (RPM). The rev count corresponds closely to the thrust being delivered by the engine, which can be reduced or increased by pressing the `-` and `+` keys, respectively. The in-flight keyboard reference details other keys that can be used to vary the engine thrust. (Note that you cannot alter your basic engine or flight controls in pause mode.)

In the middle lies a compass, which gives the exact bearing of your aircraft. The standard convention for a compass is observed: a bearing of 0 degrees points to magnetic north.



The rightmost instrument is the **airspeed** indicator. This displays your aircraft's airspeed in miles per hour. An observant pilot will keep a close eye on the airspeed, since an aircraft will often stall when this speed falls below a certain value.

Below the compass are two switches that indicate the status of the auto-pilot (left switch) and the auto-trigger (right switch). These two functions are controlled by the A and T keys, and when they are switched ON the switches point downwards. If you are having difficulty with strategy, then the auto-pilot should give you some ideas.

At the top of the screen, above the outline of the view outside the cockpit, there are two lines of information. These are present on all of the in-flight screens. At the very top is a message line, which lets you know of any significant information. In particular, you will be regularly informed of the position of the enemy, if they are within range. These messages will be similar to: "Enemy kite at 8 o'clock". Consider a clockface aligned so that 12 o'clock points in the direction you are travelling. 3 o'clock will be 90 degrees to the right and 6 o'clock will be directly behind you. An enemy at 8 o'clock will be 120 degrees to the left.

Below the message line, directly abutting the cockpit view, four parameters are permanently displayed.

- * To the left, ALT is your altitude above the ground, measured in feet.
- * VIDEO displays your current use of the in-flight video facility. The first number shows the quantity of video taken and the second shows the total amount of space available for video storage. You can start to operate the video camera by pressing the V key, and when you do so the first number should start increasing. The video is turned off by pressing the V key again. The amount of available video storage depends on the free expanded memory on your computer.
- * GUN ROUNDS shows the number of bullets remaining in your firing drums. This number will not decrease if you have set the ARMS option on the preferences screen to OFF. In that case you have an infinite supply of bullets.
- * SENSITIVITY shows the current responsiveness of your aircraft to the keyboard flight controls. Initially the sensitivity is set to a value of 2, out of a possible range of 0 through 3. Press the 1 key to increase the sensitivity, or the 2 key to decrease it.

Gun Sights

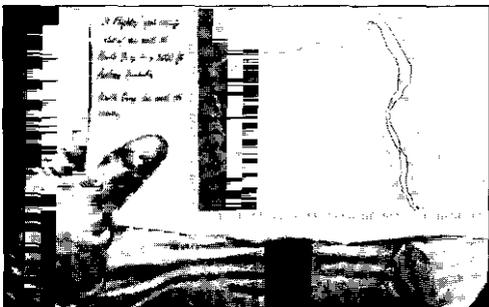
Press the left square bracket [key to return to the upper cockpit view. This will show the aircraft's gunsights, if the machine gun is mounted in front of the cockpit. Most aircraft in Dawn Patrol have this arrangement. The NieuPort is an exception, with a machine gun mounted above the pilot on the top wing.



America arrives at the Front
'Lafayette, we are here.'

- Col. Charles Stanton, address on behalf of the
American Expeditionary Force, at the tomb of the
Marquis de Lafayette, 4 July 1917.

America renounced its neutrality in April 1917, and began to mobilise. It was the signal for the air arm to begin preparing in earnest. An Aviation Section (Signal Corps) of the US army had been founded in 1914, numbering 60 officers and 260 men. But the 1916 battle of Verdun where the Escadrille Lafayette saw its baptism of fire had alerted Congress to the growing importance of aircraft in wartime. It allocated \$13,000,000 to the infant air service and to the air industry, a figure which was dwarfed by a further vote of \$640,000,000 after the declaration of war. When America declared for the Allies, it still only had one combat squadron, 1,228 officers and men, and 250 uncompetitive aeroplanes. Its readiness compared unfavourably with that of France, Germany and Britain in 1914, three years and a whole era before. However, by the time of the Armistice a year and a half later, the US air arm had grown to 195,024 personnel, to Britain's 291,175 and France's 90,000. Beginning with the 1st Aero Squadron, which reached France in September 1917, forty-five American squadrons arrived to do battle all told. It was well short of the 263 due by mid-1918, but enough to make a difference. In the last two months of the war alone, 353 confirmed victories were attributed to American flyers.



You tire your machine gun by pressing the space bar (or joystick button). You will see your direction of fire from the tracer that is displayed. The gun operates in an authentic manner, since it will jam if you keep tiring for too long a burst. To unjam the firing drums you must first level off the flight of your aircraft (to indicate that you are flying hands off, with your hands available to unjam the drums), and then press U. You will have to go through the same procedure when a drum has emptied and needs replacing. This happens whenever a multiple of hundreds of rounds is left, because each firing drum contains one hundred bullets.

You are not restricted to firing from the gunsight view. The space bar operates your aircraft's machine gun irrespective of the on-screen view.

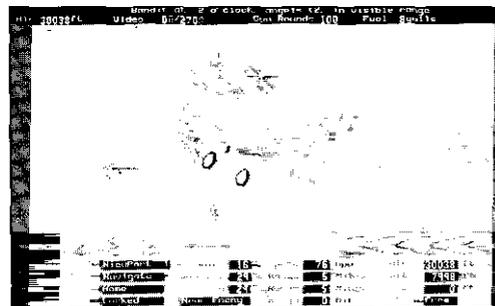
Map Screen

The map screen shows the area relevant to your mission, and covers a region of some hundred miles square. It can be called up in-flight by pressing the M key. The action in Dawn Patrol is centered on the battlefields of north-eastern France, an area which stretches from the Oise, south of Amiens, to Dunkerque and Oostende in the north. All of the major rivers, roads and forests are marked on the map.

The position of your aircraft is displayed by a flashing dot on the map. Light blue dots are Allied aircraft (from England, France or America), whereas pink dots refer to Central Powers aircraft (Germany and Austro-Hungary). The position of ground vehicles is also displayed, with dark blue and red dots representing Allied and Central Powers vehicles respectively. Since the action of some aerial dogfights is at close range you may find that a number of coloured dots are displayed very close together.

External View

You needn't watch your mission just from the point of view of your aircraft's cockpit. An important feature of Dawn Patrol is the wide variety of external viewpoints from which the on-screen action can be displayed. If you press ESC followed by F5, then you will see a view of your aircraft from a camera locked just outside your aircraft. Like all external views, the bottom part of this screen displays an information panel. This panel contains a lot of information about your mission.



The top line of the panel has the words Piloted AC (piloted aircraft) to the left hand side, and it provides details about your aircraft. As well as the now familiar details of heading, speed and altitude, the leftmost of the top four boxes gives the name of your aircraft. In the example shown a NieuPort is being flown, and it is called NieuPort 1 because there is at least one other NieuPort in this mission.

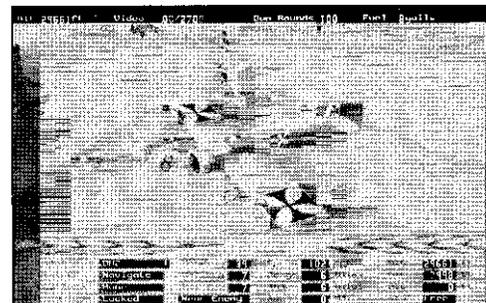
The second line is headlined Next WP, which stands for next waypoint. A waypoint is the location of a particular mission objective. In the example shown, the pilot is expected to NAVIGATE to the next waypoint, which is at the location specified by the three further boxes. These display the relative bearing, range and height of the waypoint, and to reach it the bearing should be set to 0 degrees, and the aircraft set to reach the desired altitude.

There may be more than one waypoint specified for the mission, and it's possible to step forward through them by pressing the `]` key. (You can step back by pressing the `[` key.) In Dawn Patrol it is not essential for you to achieve any of the waypoint objectives. At the start of the mission it is better to concentrate on the details of the preassigned mission objective, although the first waypoint sometimes gives information about the expected intercept of enemy aircraft. In missions where you are assigned to escort a group of bombers, further waypoints might relate to the planned bombing route. Such information could prove very useful if you become detached from your charges, and need to reestablish contact.

Once the mission objectives are achieved, a player of stamina can concentrate on further waypoint objectives. The waypoints are predetermined at the start of the mission, and are displayed purely for your information. It is not possible to change the mission profile by displaying a particular waypoint. Further waypoint types include 'attack', which locates a target to attack, and 'land' which displays the location of your homebase, where you can choose to land at the end of the mission.

The third line displays the position of a variety of predetermined aircraft or locations. They can be cycled by pressing the `SHIFT` and `;` keys together. In this example the information relates to the location of the pilot's Home Base. Further information can be obtained on 'opposition' (the currently assigned enemy aircraft), 'escorte' (the bomber being escorted) and 'buddy' (the pilot's wingman), depending on the actual mission.

The bottom line gives details of the particular view being displayed on the main part of the screen. The first two boxes display the current view type and the current 'viewee'. The 'viewee' is the particular aircraft or object being viewed. In the example shown, the view is an 'outside locked' shot, and the 'viewee' is the nearest enemy. Dawn Patrol has a broad and flexible range of possible views of the action, and it is crucial to your success as a flyer that you can swiftly turn to the most suitable view at any given moment. The next sub-section, 'The View Matrix', is devoted to helping you master the on-screen view.



Flying for France: The American Squadron

After the outbreak of war, some adventurous Americans eschewed US neutrality, and went abroad to join the Allied forces. In all, about two hundred Americans flew for France, fifty or so being members of the Escadrille Lafayette. The Lafayette squadron grew from a group of American volunteers who'd enlisted in the French Foreign Legion, and were keen to fly. After intensive lobbying by the Legionnaires and by Americans in Paris, Escadrille N. 124 soon re-titled the Escadrille americaine was formed. After a formal protest from Germany, on the grounds that such a name gave the lie to America's neutrality, the squadron was renamed the Escadrille Lafayette. The name of the Marquis de Lafayette, a hero of both the American and the French revolutions, only intensified the aura of romantic, idealistic valour which surrounded the squadron.

The third box on the bottom line informs you that the object being viewed is at a range of 0 miles within observation range, as can be seen! The final box details whether the view is 'fixed' or 'free'. In this case the view is 'fixed', which means that if another enemy craft came even closer than the one on display, the view would remain tracking the original aircraft. If the view had been altered to a 'free' view (by pressing the Q toggle key). then if the viewee was 'nearest enemy' it would change if another enemy aircraft came closer. It could be very disconcerting to have a view suddenly alter, especially in the middle of a dogfight. On the other hand, in 'fixed' mode an unseen aircraft could get very close to you without your knowledge. To some extent you can reduce the chance of this happening in fixed mode by occasionally pressing CTRL and F simultaneously. This resets the view to the current nearest enemy, even when you are in 'fixed' mode.

Mastering The View - The View Matrix

In Dawn Patrol it is possible to create virtually any view of the most important objects associated with your mission by pressing just two sets of keys:

- [1] Press either a function key or a numeric key to alter the type of view.
- [2] Press the shift key and a function key simultaneously to determine the aircraft or target being viewed the 'viewee'.

Conceptually it is very simple, but there are so many combinations of key presses available that it takes a little practice to get the best out of it. The viewing system is called a viewing matrix because each pair of key presses leads to a separate view. All the possible combinations can be written out in the form a grid, rather like a matrix. The various key combinations can be inferred from the keyboard reference, and they are shown as a grid in table 2.

VIEW TYPE

VIEWEE	CHASE	OUTSIDE	TRACK	SATELLITE	OUTSIDE LOCK	INSIDE LOCK
	F4	F5	F6	F7	F8	F9
MISSILE	SHIFT F2					
NEAREST FRIEND	SHIFT F3					
NEAREST ENEMY	SHIFT F4				ENTER	BACKSPACE
CURRENT ENEMY	SHIFT F5					
MESSAGE ABOUT	SHIFT F7					
GROUND TARGET	SHIFT F8					
NEAREST TARGET	SHIFT F9					
PILOTED AIRCRAFT	SHIFT ESC				ILLEGAL	ILLEGAL

TABLE 2

From 'le chevalier seul' to 'these hand of brothers'

By early 1917, the solitary pilot of the early war years was giving way to the formation. The lonely hunter of the skies became prey to the close-knit unit, thinking and acting in concert. In September 1917, when Jagdstaffel 10's Werner Voss ('the Flying Hussar') was caught hunting over the British lines by seven SE5s from No. 56 Squadron, led by James McCudden, their epic battle signalled the demise of the 'chevalier seul'. The new breed of aces such as James McCudden and Edward 'Mick' Mannock won renown as much for their leadership as their fighting prowess. Even the remote, solitary Manfred von Richthofen was a gifted team leader. Ironically, his nemesis came in April 1918, when he dived away from his IS-strong formation, in lone pursuit of a Camel heading for the British lines.

Along the top of table 2 are the six different 'view types':

* CHASE	Camera behind viewee, as if in a chasing aircraft
* OUTSIDE	Camera behind viewee, with absolute heading and pitch maintained
* TRACK	Camera behind viewee, following its pitch and heading
* SATELLITE	Camera above viewee, looking downwards
* OUTSIDE LOCK	Camera view across player's aircraft, maintaining viewee in centre of picture
* INSIDE LOCK	Camera inside player's cockpit, maintaining viewee in centre of picture

The eight 'viewees' down the first column of table 2 are:

* MISSILE	Current bullet, if one has been fired
* NEAREST FRIEND	Nearest friendly aircraft; normally a wingman or bomber
* NEAREST ENEMY	Nearest enemy aircraft, if within range (20 miles)
* CURRENT ENEMY	Enemy currently engaged against your aircraft
* MESSAGE ABOUT	Aircraft or vehicle referred to in last message
* GROUND TARGET	Ground target specified by mission
* NEAREST TARGET	Ground target nearest to player's aircraft
* PILOTED AIRCRAFT	Player's aircraft

To get any particular view type of any viewee press the relevant key from the view type row followed by the relevant key from the viewee column. The best way to feel comfortable with the viewing matrix is to get practical experience altering the viewing parameters. Select a mission such as page 29 of the interactive book, where there are a lot of combat aircraft in the sky. Once in the air, press the P pause button (so that you can inspect the view matrix at your leisure), and systematically feel your way about the grid of table 2.

Note that virtually any combination of view type and viewee is possible. For instance, if you want to see a satellite view of your nearest friend, then press F7 followed by the SHIFT and F3 keys together. Since the keypresses for view type and viewee are independent, the order in which you press the keys is not important.

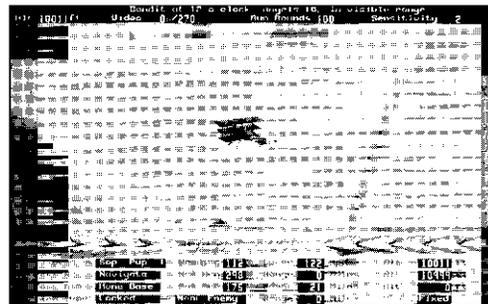
Press SHIFT and F4 together, followed by F8, to see a view of the nearest enemy aircraft from an 'outside lock' view. If you are taking part in the mission on page 29,

The air war between Italy and Austria-Hungary

Despite a pre-war alliance with the Central Powers, Italy remained neutral for the first ten months of the war, before declaring for the Allies. Italy's war was chiefly a territorial one, waged against Austria-Hungary. Much of the fighting took place in mountainous terrain, and so Italian and Austro-Hungarian pilots had to contend with the Alps. The Alps had first been crossed by air in 1910. Italy had been swift to recognise the potential of aircraft for waging war, dropping the first bombs of a military campaign as long ago as 1911. Since 1913 the designer Count Caproni had been developing long-range bombers, well-armed and with a heavy bomb-load. Caproni Bombers dominated the Italian Air Force. Using their seven-hour range, they bombed Austrian supply lines through the Alps, and hit Austrian cities and bases. They were a terrifying sight: one triplane version spanned 98 feet, approaching the size of a WWII British Lancaster bomber.

Aces of Britain and the Empire

Britain, pursuing the most active offensive air policy, and with an empire to draw on, produced 784 aces. Irishman Edward ('Mick') Mannock (73) led narrowly from Canada's William Bishop (72), who was followed by his compatriot Raymond Collishaw (60), England's James Mcdudden (57) was close behind. The South African, A. Beauchamp-Proctor (54), was the fifth-highest scoring ace.



this view should give you pause for thought the screen is full of enemy aircraft, and they all appear to be chasing you! If you refer to the view matrix, you will see that the ENTER key has been marked at the intersection between nearest enemy and outside lock. This is a special hotkey we have created for the SHIFT F4, F8 combination. In combat this view can be very helpful to you, and we call it the 'outside combat lock' view. Similarly, the matrix shows that the BACKSPACE key is a shortcut for SHIFT F4, F9 the inside lock view of the nearest enemy. This is the 'inside combat lock' view. Both combat lock views are discussed later in this section.

As you explore the view matrix you should keep an eye on the bottom line of the information panel. The leftmost box displays the view type, and the next one displays the current viewee. Hence these two boxes register your location within the viewing matrix. As you play the game you will sometimes find that some key combinations do not register. This will be because the requested viewee does not actually exist. A common instance is when you have no nearest enemy either because all enemy aircraft have been shot down, or because the nearest enemy is more than 20 miles away. As noted in table 2, inside and outside lock views of your own aircraft are not valid.

The Third Battle of Ypres, 1917, and a new era

The battle of Messines a curtain-raiser for Third Ypres (Passchendaele) -restored the RFC's confidence after 'Bloody April'. New aeroplanes had arrived in time for the June battle. As at the beginning of the year, the RFC outnumbered the enemy by **two** to one. But this time, the RFC had better aircraft, and won control of the air. However, much of the advantage was lost when the weather closed down early. at the end of July. British troops had secured Messines Ridge; now they pushed on, in torrential rain and mud, towards Passchendaele village. The RFC was virtually grounded by bad weather throughout August and again in October, unable to support British troops by artillery spotting, or reconnaissance, or strafing. By the time Canadian troops secured the village of Passchendaele, the five-mile advance had cost 250,000 British casualties (and a similar number of German), and had taken three months. The closing battle of the year the two-week assault at Cambrai saw a new stage in mechanised air and ground war. Britain launched 378 tanks at enemy positions, in the first massed tank attack of the war. Meanwhile, fourteen RFC squadrons were deployed, many of them strafing enemy troops and transport in low-level flying attacks. German pilots replied in kind. Despite the tanks' initial breakthrough, German forces counter-attacked and the two-week battle ended inconclusively. with losses of 45,000 on both sides.

Fine Tuning Your View

Once you have surveyed the view matrix a few times you will become more accustomed to the manipulation of the on-screen views. Although it is not essential to use extra features, the viewing system in Dawn Patrol has even more flexibility than so far discussed.

For instance, you can rotate the view of the viewee about horizontal and vertical axes by pressing the F2 and F3 keys. Note that this means the camera itself moves vertically and horizontally, respectively! (Rotation is not possible within a chase view.) The view can be roomed in and out using the F1 and ALT F1 keys. If you rotate and zoom a view, then the camera will maintain its new relative position for all subsequent views of the same view type. The default zoom and viewing angles can be reset individually with the CTRL F1, CTRL F2 and CTRL F3 keys, or all together by pressing CTRL R.

The view matrix as described will only display the nearest enemy or friendly aircraft, but if there are other aircraft nearby it is possible to transfer the view to them as well. This is performed by using the ALT F key combination, which will transfer you to the next viewee nearest to the one you are currently looking at. This can only be done in 'fixed' mode, because 'free' mode will always choose the nearest viewee to your aircraft. If you are not in fixed mode then hit the Q toggle key. As an example, display an outside lock of the nearest friendly aircraft (F8 and SHIFT F3), then keep pressing ALT F to cycle through the views of all friendly craft. Note that the description of the viewee on the information panel remains Near Friend throughout this cycle. The last viewee chosen in the cycle will remain the 'Near Friend' unless the viewee is reset to the nearest using the CTRL F keys.

After assembling all of this information, it is worth remembering what to do if you find yourself looking at an unfamiliar scene in the middle of a combat. Press ESC and the view will always return to your aircraft, press ENTER and you will always get an outside combat lock, and press the [and] keys to give gunsight and cockpit views of your own aircraft.

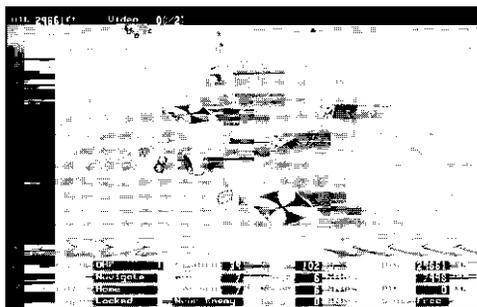
Combat Lock

The combat lock views which were discussed earlier can be very useful in aerial combat, and can make the task of becoming an air ace a more feasible option. We have provided these views because any cockpit view from a flight simulator subtends a relatively small portion of the entire sky. The proper use of combat lock frees your vision so that you can concentrate on the nearest enemy aircraft, wherever it may be.

Outside Combat Lock

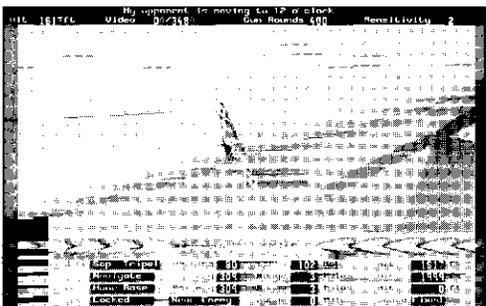
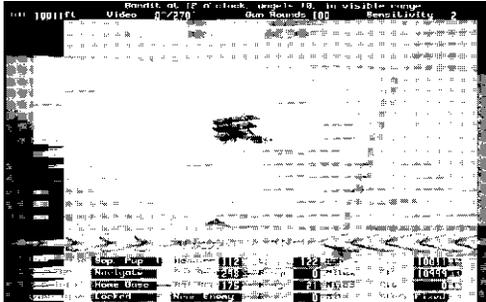
This view always has your own aircraft in the foreground of the camera, which points towards the nearest enemy aircraft. Since the camera tries to maintain the enemy in the centre of view (whether or not it is obscured by your craft), the position and orientation of your aircraft on the screen will alter in response to movement of the enemy, even if you are not adjusting your controls. Initially this can be disconcerting, especially when the enemy aircraft is very close, as the movements of camera angles can be quite large. You must also remember that if the combat lock places the camera in front of your aircraft looking behind you, then a rudder deflection to the left will turn the aircraft towards the right of the screen.

After a little practice you will find this view invaluable for determining the relative position of the enemy, and it is quite possible to make kills and fly an entire mission using the outside combat lock view



From perambulation to **dogfight**

From late 1914 onwards, the air war became increasingly bloody. Polite, mostly unarmed reconnaissance was swiftly overtaken by two-seater armed reconnaissance. First, observers used a rifle; then, as aircraft gained in power and carrying capacity, they operated a light machine-gun. But these tended to be defensive and not offensive measures. The spiral of violence only increased dramatically with the development of the synchronised machine-gun. This enabled the pilot to fly and shoot at the same time, from more manoeuvrable single-seater fighters. The invention unleashed a desperate race for improved power, armament and manoeuvrability.



Eyes like a hawk?

Many aces were blessed with keen eyesight. In fact, without keen eyesight they might not have lived long enough to become aces at all. Yet one of Britain's top flyers the Irishman Edward 'Mick' Mannock had such poor eyesight that he should never even have been a pilot, let alone an ace. He reportedly passed the medical examination by memorising the eye-chart. Mannock compensated for a defective left eye by becoming a master of tactics, by honing his acrobatic skills, and by approaching battles with courage tempered with caution. Between his debut in early 1917 and his death in July 1918, Mannock was credited with seventy-four kills. Nor, in the end, was he killed by a keener-sighted pilot. He was hit by ground-fire.

Inside Combat Lock

Essentially similar to the outside view, inside combat lock places the nearest enemy in the centre of the screen from a camera position inside your cockpit. It is therefore a pilot's eye view of the action, with an eye always turned towards the enemy. Your aim must be to manoeuvre your craft so that the front of the cockpit is positioned straight towards the enemy aircraft. There is no doubt that this view is a challenge to master, but with perseverance it can be a deadly battle aid. It is helpful to practice on an aircraft with very good flying characteristics you could, for instance, try the Spad 7 on page 79 of the Dawn Patrol book. The first thing to notice is the view inside combat lock provides of your aircraft. The cockpit is an essentially empty basket (all instrumentation has been removed), but the wings, front and rear of the aircraft should be familiar to you. If the camera points towards the inside of the cockpit, this means that the nearest enemy aircraft is below you. If the view is of the rear of your aircraft you will need to turn in order to get the enemy in your sights at the front.

Because the inside combat view can be disorienting we have provided a number of orientation lines so that you can tell whether you are facing up or down, left or right, front or rear. These lines are placed in the rear half of the sky above the cockpit, and are rigidly connected to your aircraft when the aircraft moves, the lines move with it. Each line terminates in a half arrow that points forward and upward relative to the aircraft. The lighter coloured lines are overhead, and the most overhead line terminates in a full forward facing arrow.

The only way to master combat lock is to practice hard. Get used to what the front of your cockpit looks like, because you will be aiming to see the enemy from there as you go in for a kill. If you ever get completely disoriented then you should move to another view, such as Outside Combat Lock, until you regain your bearings.

One tip for manoeuvring as you turn is to try and keep the orientation lines parallel with the horizon. You will then be taking a near optimum route to getting the enemy in front of your sights. Always keep an eye on your altitude and your airspeed, since below a certain speed your aircraft will stall. If combat lock appears to have stopped working and you cannot restore it, then the answer is simple. There are no more enemy aircraft to lock on to!

The Post Mission Screen

Your mission, once flown, is completed when you decide to terminate it. In flight, either press ALT X, or press F10 and select the end mission option. A post mission debriefing screen will then be displayed. This summarises the outcome of the mission, written from the perspective of the pilot detailed in the mission briefing. If you flew for the opposition, then the aim will have been to spoil the mission objectives. However, the greatest challenge is to master the mission objectives in the manner outlined in the mission briefing. In a sense, this is the overall mission objective for all players of Dawn Patrol.

The two options available from here are to choose video replay, which allows you to view video footage of your flight (or any other video stored on your hard disk), or to choose reset page, which takes you back to the page describing your mission.

Preferences

The last page of the Dawn Patrol book, page 160, contains the 'preferences' screen from where you can alter some of the basic in-flight and input device options. The screen can also be accessed during a mission by pressing the F10 key. Each available option (highlighted in red) is next to the current setting (displayed in blue).

Engines

There are two options; normal and super. The normal engine setting develops the same thrust as the original aircraft. The super setting develops a 50% greater thrust, thus conveying a significant combat advantage.

Vulnerability

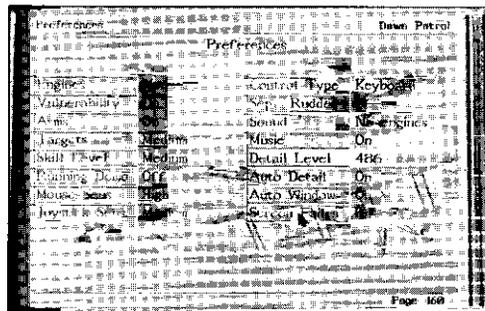
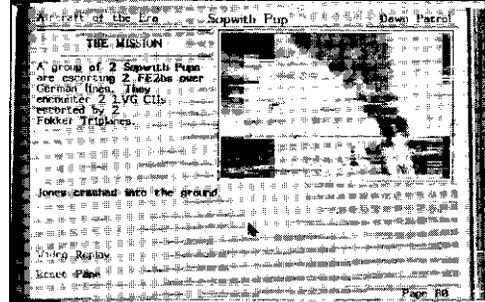
The two options are on and off. The on setting means that your aircraft will be invulnerable to weapons fired from enemy craft. The off setting leads to your aircraft suffering realistic damage while under attack.

Arms

There are two options: on and off. The on setting leads to your gun rounds counter being depleted by one every time a bullet is fired. The off setting gives you unlimited gun rounds.

Targets

The three options are soft, medium, and hard. Under the soft setting, the enemy aircraft will be damaged if bullets are fired nearby. The medium setting leads to damage if your bullets hit anywhere on the enemy aircraft. Under the hard setting, damage is created only when bullets are fired near the centre of the target.



Canada's aces

Despite some caution about their status as 'officers and gentlemen', shortage of pilots led Britain to accept airmen from the Dominions. The 'colonials' responded eagerly. Twenty training squadrons were set up in Canada alone. In fact, the authorities got more than they bargained for, when Canada's airmen came to dominate the league table of British aces. Billy Bishop (RFC) was the second highest-scoring ace of the British forces, at 74, while Raymond Callishaw (RNAS) was the third, at 60. In all, twenty-five British pilots reached scores of 30 or more; ten of those pilots were Canadian.

Skill Level

There are three options; low, medium and high. The operational skill of an average enemy pilot is proportionate to the skill level setting. An enemy novice will be less skilful than the average setting, while an enemy ace will be more skilful.

Running Demo

The two options are on and off. When turned on, the game will enter demonstration mode, which only applies if the book is being displayed. Pages will be turned every 10 seconds on still image pages, and at the end of the animation sequence on animated pages.

Mouse Sensitivity

There are two options; low and high. Under low sensitivity the mouse needs to be moved twice as far to effect the same on-screen pointer movement as under high sensitivity.

Joystick Sensitivity

The four options are low, medium, high and custom. The default setting is medium. If your joystick seems to suffer from poor calibration (see re-calibration option under control type), and you have no trim controls, or those that you have do not help, then you should choose low sensitivity. If you prefer to make your aircraft very sensitive then choose the high setting. The custom setting should only be used if you have created a custom sensitivity using the information in appendix B.

Control Type

There are six options; keyboard, joystick, joy-throttle, flightstick pro, thrustmaster and recalibrate. The options refer to the control type for the in-flight section of the game.

- | | |
|-----------------|--|
| Keyboard | Change flight control entirely to keyboard. |
| Joystick | This is the standard joystick option. Such a joystick has two movement axes and two fire buttons (A and B). If a second joystick is connected, the fire buttons on that stick can be used as buttons C and D. |
| Joy-Throttle | A joy-throttle has an additional independent throttle lever which can be used to control the aircraft's fuel intake and rev count. It may have up to four fire buttons. This option is compatible with the standard Flightstick and the Maxx Yoke. |
| FlightStick Pro | The FlightStick Pro has a throttle on the base of the joystick to control the rev count and a "coolie hat" on the top with four extra switches. |
| Thrustmaster | - The Thrustmaster PFCS has a top "coolie hat" with four extra switches. |
| Recalibrate | - This option should be used if there is a tendency for your aircraft to yaw or pitch when the joystick is centred. Please see appendix B for details of how to proceed. |

The Australian Flying Corps

Of the dominions who contributed airmen to the British war effort, only Australia set up an independent air arm, known as the Australian Flying Corps (AFC). One squadron served in Palestine from 1916, and three more served on the Western Front from late 1917. There were also three training squadrons in England. The AFC's leading ace was Arthur Cobby, whose score achieved in a bare seven months totalled 2X aeroplanes and 13 balloons. Australian pilots also served with the RFC: about two hundred transferred from the Australian army, while others entered the RFC either directly or from the British army.

Separate Rudder

The two options are on and off. If you have separate rudder pedals this option should be turned on.

Sound

There are three options; all off, no engine sounds or with engine sounds.. These settings relate to the in-flight section, and will output no sound; all sounds except the noise of the engine: or all available sounds. CD users will be able to select the speaker icon regardless of the setting of this option.

Music

The two options are off and on. When turned on, music will be played in the book section of the game.

Detail Level

There are four options; 386,486, 486DX33, and fastest. This setting alters the amount of terrain and vehicle detail which the program attempts to display in-flight (the faster the setting the more the detail). Set the option to the specification closest to that of your particular PC. It is best to experiment, since the graphic speed of your machine will depend on factors other than the main processor, such as the type of video card. If the frame rate on your PC appears to be unacceptably slow, then turn to a slower option.

Auto Detail

The two options are on and off. When set to on, auto detail turns off any graphic detail that will greatly slow the displayed frame rate. It does this on a frame by frame basis.

Auto Window

There are two options; on and off. Auto window reduces the size of the display window if the frame rate begins to slow. It is an alternative method to 'auto detail' for dealing with frame rate reduction, although both features can be set on at the same time.

Screen Fades

The two options are off and on. This feature allows a smooth fade during the transition between two game screens. You should consider switching off screen fades on slower PC's.

Aces High

To become an ace, a pilot needed to be credited with destroying five or more enemy aircraft in combat. The system of 'scoring' victories is not a definitive way to compare talent between aces. Because of rapid technological advances, in both aircraft and armaments, top aces flying later in the war often, had many more victories to their credit than aces who only flew in the early years. Length of active flying time, and length of time assigned to fighter craft, varied enormously between aces. Attribution was sometimes uncertain, especially during mass swarming attacks, or when intersecting with ground-fire. Some victories were never witnessed, and some were never claimed. Scores meant a great deal to some aces, and less to others. Germany's Werner Voss (48) set out like a sportsman each day, seeking to increase his tally. France's Charles Nungesser (45), failing to recover properly from multiple fractures, had himself carried to and from his aircraft so that he could continue to score victories. Von Richthofen (80) had a silver trophy engraved with each win. France's Rene Fonck (75) believed his personal score (incorporating victories not witnessed by Allied observers) was 127. Others, like Britain's top scorer, Mick Mannock (73), reportedly insisted that several victories be attributed to other pilots.

Section 5

Flying and Shooting

'Bloody April', 1917

At the beginning of 1917, the RFC outnumbered German airmen by almost two to one. But the German fighter aircraft were far superior. Their ability to outmanoeuvre British fighters left observer planes (like the BEs) exposed. During March and early April 1917, British observers were taking enormous risks to 'map' the terrain around Arras and Vimy Ridge. In static trench warfare, mobile aircraft were often the only way of discerning enemy positions, and, since the Somme debacle the previous winter, the British command was becoming more ruthless about exposing reconnaissance craft to ground-fire. Observers were literally sacrificed, but their efforts meant that the British and Canadian infantry began the April battles of Arras and Vimy Ridge with good maps and intelligence. Overall RFC losses were high before and during 'Bloody April', and at least one squadron needed replacing twice over. No. 60 Squadron was so desperate for pilots that new arrivals were sent up immediately in aircraft which they'd never seen before. During April itself, 316 RFC airmen were lost double the monthly average for the rest of the year.

Basic Flying Skills

This section deals briefly with some of the fundamentals you will need to master in order to become a Dawn Patrol ace. All of the aircraft featured in the game have different flight characteristics. You will find that some will climb faster than others, some will turn more easily than others, and that the stalling speeds of each aircraft differ. World War One aces had to cope with this, too!

Climbing

An aircraft climbs when the lift provided by its wings is greater than its weight. Lift is proportional to the square of the velocity of the aircraft. Hence, if you want your aircraft to climb quickly and steeply, pull back on the joystick and increase the thrust of your engine, so that you gain airspeed. If you want to make a sustained altitude gain, then your angle of climb should be no more than 10 to 15 degrees. A steeper angle of climb will result in consistent loss of airspeed, leading to a loss of lift. Eventually your aircraft will start to fall and then there is a risk of it stalling.

Reducing Altitude

Apart from pushing the joystick forward, there are two other factors which will reduce your aircraft's altitude. The aircraft will fall if you reduce the engine thrust, since the lift generated by the wings depends on the velocity. More surprisingly, altitude can be lost when the aircraft is turning. Since the lift points upwards in the direction of the tailplane, a turning aircraft loses some of the vertical component of its lift. If no rudder or elevator is applied the aircraft will lose altitude.

Turning your Aircraft

Your aircraft can be turned by moving your joystick left or right in the direction you wish to turn. If you turn acutely, then the aircraft will lose altitude. To prevent this from happening, you should pull up slightly on the joystick as you turn.

Stalling

An aircraft will stall when it loses all lift from its wings. This will tend to happen when you have climbed too steeply, or have let the airspeed fall below about 50 mph. At this point the nose of the aircraft will be pointing downwards, and it will not respond to flight controls. You can come out of a stall by letting go of the stick and increasing the thrust of your engines. As the airspeed builds up, gently pull back on the stick.

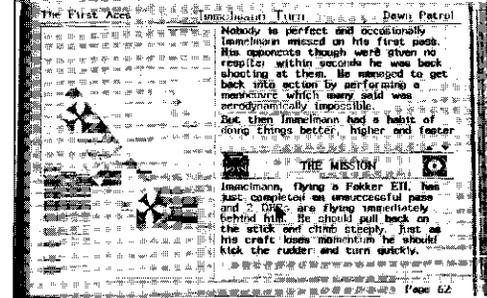
Immelmann Turn

This manoeuvre was first introduced by the German air ace Max Immelmann, who used it to devastating effect during World War One. Expert use of the turn allows you to reverse your direction in the minimum amount of time and space. An inexperienced attacker appearing on your tail can become cannon fodder before he's had time to line you up in his sights. An enemy who passes you after a head-on encounter can suddenly find you on his tail.

To perform your first Immelmann Turn, get a good external view of your aircraft. If you are performing head on approaches towards an enemy aircraft then you might wish to choose an outside combat lock view. If your airspeed is below about 120 mph you should increase it by putting yourself into a dive. Pull back on the stick so that you start climbing, and wait until you are nearly vertical and your airspeed is about 60 miles per hour. At this point apply full rudder, either to your left or right, by pressing the END or PG DN keys on your numeric keypad. Keep your hands on the rudder, and the aircraft will rotate about its tail, with its nose turning towards the ground. Come out of the turn at the appropriate point by letting go of the rudder, pulling back on the stick, and applying a little compensating rudder as needed. After a few practices the turn should become a normal part of your combat repertoire. Some aircraft will feel quite different when you perform this manoeuvre, so you will have to be ready to make small flight adjustments to maintain stability.

Page 62 of the Dawn Patrol book has a detailed animation of the Immelman Turn as it should be performed in combat. Study it closely, and see if you can emulate it. The mission associated with page 62 gives you the opportunity for a number of Immelman Turns as the enemy perform repeated head on passing manoeuvres.

These days the 'Immelmann Turn' is better known as the 'Hammerhead Turn'. Even so, it should not be confused with the more modern 'Immelmann' manoeuvre.



The flying wounded

Sheer grit ensured the survival of some aces, who landed their machines safely despite horrific wounds. In July 1917 von Richthofen was shot through the head while in mid-flight. He passed out, only regaining consciousness within 500 feet of impact. After landing safely, he fainted again. In an even more spectacular incident, in the dying days of the war, Canada's William Barker inadvertently found himself fighting up to sixty enemy aircraft, singlehanded. Already shot through the leg by a Fokker DVII, after dispatching an enemy two-seater, Barker found himself spinning into the midst of a formation of fifty or more Fokker scouts, ranged in descending levels. Some say that the ensuing battle lasted forty minutes. Facing four separate onslaughts of at least a dozen enemy craft, Barker managed to bring down at least three opponents. Somehow he continued fighting, even after his second thigh and his left elbow were smashed. In the course of the battle the wounded pilot fainted twice, to be revived by the rush of air as he plummeted towards ground zero. The remaining Fokkers called off, and Billy Barker unable to operate the rudder towered his crippled Camel Snipe into a crash-landing. He survived, and, undeterred, went on to become a test pilot.

Some pilots continued fighting in the war, even after sustaining crippling wounds. Germany's Rudolf Berthold scored at least 16 of his 44 victories despite a shattered, septic right arm. France's Charles Nungesser set his teeth against multiple fractures sustained in early 1916, and had himself carried to and from the cockpit to achieve a total of 45.

Who shot von Richthofen?

Three separate parties claim to have killed von Richthofen. The Red Baron, hunting a Canadian novice who'd broken away from a group air battle, failed to notice that he was himself being pursued by another, more experienced Canadian, Roy Brown. Von Richthofen followed the novice towards the Australian lines near Corbie, virtually skimming the ground. What happened next is far from clear, but it seems that almost simultaneously, von Richthofen was tired an by at least three parties: by Roy Brown, by two Australian machine-gunners, and by two Australian anti-aircraft gunners. The fuselage of von Richthofen's triplane was riddled with bullets, but the pilot himself was reportedly killed by a single bullet through the chest. The angle of the shot is said to have accorded with Roy Brown's attack position, although doubt remains. Brown didn't actually claim the kill. but on reading his combat report the RAF amid much controversy credited him with it. Von Richthofen was given a full military funeral by No. 3 Squadron, Australian Flying Corps, and after the war, his body was returned to Germany.

Gunnery Tactics

Improving your Shooting

All of the aircraft in Dawn Patrol are equipped with one or two machine guns. Pressing the [key will give an upper cockpit view of the gun sights, so long as the guns are forward mounted. At all times, pressing the space bar will activate the machine gun. There is no need to fire just from the gun sight view, since it is possible to see the tracer from any view of your aircraft. The direction of the tracer tells you where the bullets are being delivered. A machine gun bullet has a range of about 200 yards, and its effect on the target will be determined by the distance to the target, where it hits, and the setting of the TARGETS option on the preferences screen.

If you are recording hits on the target, then you will hear the ricochet of the bullets, and you will see puffs of smoke from the enemy aircraft.

Ground Targets

Targets on the ground include buildings, airfields, trucks and barrage balloons. You will be able to see most nearby ground targets by pressing F6, then SHIFT F9 followed by repeatedly striking ALT F. These commands will cycle through the nearby ground targets depending on which side you choose for the mission. Opposition convoys are always displayed on the map screen, and you are at liberty to chase after them if you wish. The mission on page 74, 'Ground Attack', involves attacking enemy trucks. There are a potential fifteen further ground targets in this mission, and it is not recommended that you try and attack them all!

It is best to attack truck convoys by strafing the ground and 'walking' the bullets to the target. Start firing your guns, see where the bullets are hitting and adjust your line of flight so that the line of bullets coincide with the convoy. Don't keep firing too long or your guns will jam.

Flak

Many of the ground targets are artillery sites, and they can be a danger. In general you should try and avoid areas where there is heavy flak, because you run a high risk of being shot down.

Sites equipped with anti-aircraft artillery deliver white streams of tracer bullets. Larger bore sites deliver large plumes of exploding flak at higher altitudes. The flak from Allied artillery is white, while the flak from Central Powers artillery is black. At least you will know who is tiring at you! If you are in the middle of a flak attack you might

consider making a positive movement of heading and altitude every 15 seconds, and clearing out as quickly as you can.

Aircraft

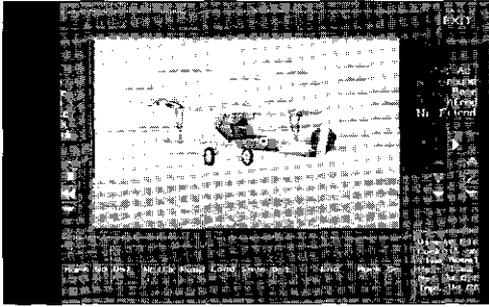
The firing arcs of a number of the aircraft featured in Dawn Patrol are shown in Diagram 1. This diagram shows the relative strengths and weaknesses of each aircraft. For instance the Gotha bomber is very well protected at the rear, but it is extremely vulnerable to frontal attacks from below. In Dawn Patrol the Fe2b is treated as a tighter and so it is only capable of firing a forward fixed gun. A knowledge of the firing arcs of any aircraft can be very useful, whether or not you are attacking one, escorting one, or flying one yourself.

'Parachutes are bad for morale'

Scarcity of British aircraft led to a draconian measure. Airmen were not equipped with parachutes. Baling out was not an option. By forbidding the use of parachutes, the authorities could be sure that aeroplanes would not be abandoned (prematurely or otherwise). Possibly, concern for military property was not the only consideration. It was the first war in which civilians had been called upon to fight: the problem, as the authorities saw it, was to ensure that these civilian combatants did indeed fight to the last gasp. For the soldier, where conviction or courage failed, discipline (including the threat of execution) provided the goad. But enforcing battle readiness in the wide skies was another matter. And so pilots stayed with their aircraft, unable to use their judgement about when to escape a doomed craft. Pilots most dreaded fire, and some carried pistols with which to shoot themselves rather than endure death by burning. By contrast, observers in balloons spotting for the artillery were equipped with parachutes, so that they might escape when their gas-filled balloons were set on fire. Balloons were cheaper than aircraft.

Section 6

Video Editing Suite



The video editing suite is controlled from a single screen located at page 159 of the interactive book. It can be accessed through the List of Contents page or at the end of a mission from the post-mission briefing screen. In either case the facility can only be used if there is video to be edited. Video can be shot during a mission by pressing the V key. It will then be resident in memory, and can be edited on-line. Video footage is destroyed if you exit Dawn Patrol without having saved it onto your hard disk using the editing facility. Once written to your disk it can be edited and viewed whenever you wish. Therefore, if you have sufficient disk space it is advisable to save original video straight to disk after a mission.

Unlike any real-life editing facility you are able to do much more than patch together different pieces of video. If you are unhappy with the camera angles and positions used to shoot the original, you can alter all the viewing characteristics with the same flexibility as the viewing matrix available in the game. The editing suite can be controlled by manoeuvring the on-screen pointer with the mouse and keyboard, but almost every facility is mapped to an individual hotkey for easy operation.

The major features of the editing facility are as follows:

Title Bar

This strip runs along the top of the screen. The filename is an eight character identified of the current video footage. 'Last page' refers to the total memory size of the video footage. Expanded memory is divided into 'pages', each of which is 16 Kbytes long. Page count starts at zero, so a last page number of two takes up three pages, or 48 Kbytes. The number next to 'Position' is the location in memory of the current video frame. The first digit of the 'position' is the page number of the current frame.



Movement Lock

Basic video machine style controls are located in the middle on the left hand side of the screen. Moving across from left to right and then downwards the buttons are:

PLAY/PAUSE	Toggle between play and pause
MOVE FORWARD ONE FRAME	Move the video forward a single frame
STOP	Stop the video
REWIND TO BEGINNING	Rewind the video to the start
FAST REWIND	Rewind the video at an accelerated pace
REWIND ONE SECTION	Rewind the video one page backwards
FORWARD ONE SECTION	Move one page forwards
FAST FORWARD	Wind the video forward at an accelerated pace
FAST FORWARD TO END	Wind the video to the end

This video movement grid is mapped directly to the numeric keypad of your machine.

Zoom & Rotate Keys

These are similar to the zoom and rotate facilities of the flight simulator.

H = Horizontal. The left and right arrows allow you to rotate left and right about a vertical axis.

V = Vertical. The up and down arrows allow you to rotate up and down about a horizontal axis.

Z = Zoom. The up and down arrows allow you to zoom in and out.

Select the central H, V or Z letter to reset to the original display angle or zoom.

Note that a key or screen hotspot must be selected once to start the effect and once again to stop the effect.

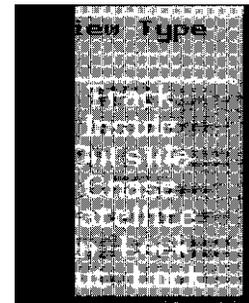
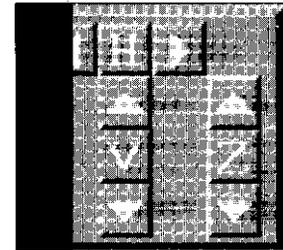
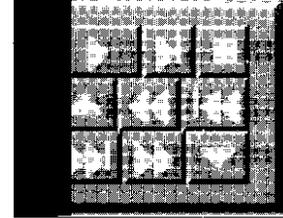
Use the same hotkeys as those available in-flight. F2 and ALT F2 for vertical rotation; F3 and ALT F3 for horizontal rotation; F1 and ALT F1 for zoom.

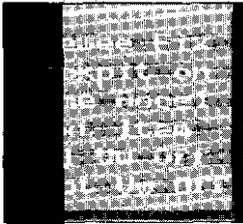
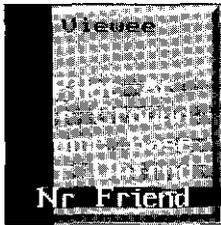
View Type Selector

The currently selected view type is displayed at the top of the box. These view types are the same as those available in-flight.

TRACK -	Track view of the viewee
INSIDE	The view of the viewee from your cockpit. Enhanced by toggling cockpit on option.
OUTSIDE	An outside view of the viewee
CHASE -	Chase view of viewee
SATELLITE	Satellite view of viewee
IN LOCK -	Inside lock view of viewee
OUT LOCK	Outside lock view of viewee

All of these viewing characteristics can be controlled by the familiar function keys.





Viewee Selector

The currently selected viewee is displayed at the top of this box

PILOT AC: Viewee is your aircraft
NR GROUND: Viewee is the nearest ground target, if there is one
HOME BASE: Viewee is your home base
NR UNFRND: Viewee is the nearest enemy aircraft
NR FRIEND: Viewee is the nearest friendly aircraft

The viewee can also be selected using the familiar shift function keys

Extra Flags

The following flags work in conjunction with the other options on the Video Editing Suite. They can all be accessed by pressing the first letter of the function.

VIEWEE FIX /FREE: Toggle between fixed and free viewpoints (hotkey V or Q)
COCKPIT OFF/ON: Toggles a view of cockpit on and off for relevant view types (hotkey C)
TIME NORM/ACCEL: Toggles between normal and accelerated time (hotkey T)
NEXT ITEM: If you have selected the VIEWEE FIX option then this moves to the next nearest viewee. Especially suitable for unfriendly aircraft (hotkey N or ALT F)
MSL VW OFF/ON: If toggled 'ON' it is possible to view the flight of bullets as they are fired (hotkey M)
IMPT VW OFF/ON: If toggled 'On' then the view is transferred to targets just before they blow up (hotkey I).

Lower Editing Box

This facility is used for all the high level video production including editing, splicing, cutting as well as the manipulation of video files on your hard disk.

All grey symbols [e.g.: 1, 2, 3, |] at the bottom of the box are the relevant hotkeys.

Start Marker

START: Places the start marker at the beginning of the video: 'position' 0.

MARK: Places the start marker at the current video position.

GO: Move current video position to position of start marker.

Block Edit

Note: A 'Block' is a section of video bracketed by 'Start' and 'End' markers.

DEL: Delete a video block (be careful no confirmation asked!).

WRITE: Write a video block to disk.

READ: Read a video block into RAM. This allows you to splice different video segments into your footage.

File Edit

LOAD: Load a previously saved video tile into the editor. This overwrites all video currently in memory.

SAVE: Save the current video block to memory. You should provide an eight character name, without a file extension.

DEL: Delete a video file from your hard disk.

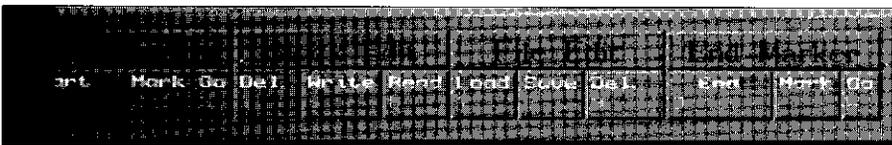
Note: Videos are held in the VIDEOS subdirectory on your hard disk and can be directly manipulated from there.

End Marker

END: Place an end marker at the last frame of the current video.

MARK: Place an end marker at the current video position.

GO: Move the current video position to the end marker.



Le chevalier sans peur et sans reproche

The pilots are the Knighthood of the Air, without fear and without reproach. Every aeroplane flight is a romance, every record an epic.'

- David Lloyd George, British Prime Minister, 1916-22

'Oh, if only I could have brought him down alive!'

- Lt. Rhys-Davids (No. 56 Squadron),

after shooting down the German ace Werner Voss

'To be alone, to have your life in your own hands, to use your own skill, single-handed, against the enemy. It was like the lists of the Middle Ages, the only sphere in modern warfare where a man saw his adversary and faced him in mortal combat, the only sphere where there was still chivalry and honour. If you won, it was your own bravery and skill; if you lost, it was because you had met a better man.'

Cecil Lewis, No. 56 Squadron

'To the memory of Captain Boelcke, our brave and chivalrous opponent.'

RFC tribute dropped over German lines, October 1916.

There was much mutual respect-often expressed in acts of chivalry between aces on both sides. When the German ace, Oswald Boelcke, collided fatally with a comrade during a dogfight in 1916, the British dropped a wreath and a tribute over enemy lines. Sometimes a pilot would risk his own life to drop a message over an enemy aerodrome, relaying the death and burial of a brave opponent. When Britain's Albert Ball failed to return from a patrol in May 1917, the Germans dropped a message over his base, to say that he had been buried near Lille. When Manfred von Richthofen was shot down in April 1918, he was buried by the Australians, with full military honours, and a message was dropped at his aerodrome. Only six months earlier, when the Red Baron was at the height of his killing career, No. 56 Squadron mess had generously toasted his health as the greatest enemy pilot of all.

Appendix A

In-Flight Keyboard Controls

General advice for altering the in-flight view:

- [a] Press the shift key and a function key simultaneously to determine the aircraft or target being viewed (the 'viewee').
- [b] Press either a function key or a numeric key to alter the type of view.

KEYBOARD REFERENCE - NORMAL KEYS

ESC	Change viewee to your aircraft
F1	Zoom in (ALT F1 is zoom out)
F2	Rotate vertically around viewee
F3	Rotate horizontally around viewee
F4	External chase view
F5	Outside view camera maintains absolute heading and pitch
F6	Track view camera pitches and turns with the aircraft
F7	External satellite view
F8	View across your aircraft to the viewee (outside lock)
F9	View from your aircraft's cockpit of the viewee (inside lock)
F10	Configuration menus
1	Increase the keyboard flight control sensitivity
2	Decrease the keyboard flight control sensitivity
5	View the rear of your aircraft from the inside
6	View the left of your aircraft from the inside
7	View the front of your aircraft's cockpit from the inside
8	View the right of your aircraft from the inside
9	View the rear of your aircraft from the inside
0	Return to cockpit from an outside viewpoint
	Decrease RPM continuously, in small steps
	Increase RPM continuously, in small steps
BACKSPACE	Inside combat lock lock onto nearest enemy (see manual)
TAB	Speed-up time (turns off when any key pressed or mission event occurs)
Q	Toggle between fixed and free viewpoints of viewee
W	Wheel brake
R	Decrease rate of rotation for F2 and F3 keys
T	Auto-gunfire (only if autopilot ON)
U	Unjam machine guns
P	Pause
[Look up (see gun sights if looking forward)
]	Look down (see instrument panel if looking forward)
ENTER	Outside combat lock (lock onto enemy from outside view)

A	Autopilot (toggle - indication on instrument panel)
S	Sound toggle (off, no engine sounds or with engine sounds)
J	Increase rate of gunfire
K	Decrease rate of gunfire
	Step back through waypoints
	Step forward through waypoints
Z	Impact viewpoint switch view to target when hit
X	Missile viewpoint switch view to launched bullet
V	Video toggle
B	Air brake toggle
M	Map screen (ESC to return to flight)
	Minimum power setting
	Maximum power setting
SPACE	Fire

NUMERIC KEYPAD AND CURSOR CLUSTER

END (1)	Full rudder deflection, left
PAGE DOWN (3)	Full rudder deflection, right
INSERT (0)	Gradual rudder deflection, left
DELETE (.)	Gradual rudder deflection, right
(8 or cursor up)	Dive - pull forward on stick
(4 or cursor left)	Roll to the left
(6 or cursor right)	Roll to the right
(2 or cursor down)	Climb pull back on stick
	Decrease RPM by single, large steps
+	Increase RPM by single, large steps

KEYBOARD REFERENCE - 'ALT &' KEYS

ALT F1	Zoom out
ALT F2	Rotate vertically around viewee in opposite direction to F2
ALT F3	Rotate horizontally around viewee in opposite direction to F3
ALT F5	Outside view looking out from viewee
ALT F6	Track view looking out from viewee
ALT F7	View below viewee
ALT F8	View looking from in front of your aircraft to the viewee
ALT F9	View from in front of the viewee to your aircraft
ALT F10	Decrease time speed-up
ALT R	Increase rate of rotation for F2 and F3 keys
ALT D	Automatically select level of detail suitable for machine
ALT F	Select the next nearest viewee [fixed mode only]
ALT X	Exit flight

RNAS seaplanes

From 1913, the British Admiralty began planning for the use of seaplanes: for coastal defence, for scouting ahead of its ships, and most boldly of all as offensive aircraft launched from battleships. The aircraft carrier had its modest beginnings in the earliest days of powered flight. Only seven years after the Wright brothers' 1903 success at Kitty Hawk, another American airman, Eugene Ely, made the first successful flight from a sailing vessel. A year later, in 1911, the exploit was matched in Britain. By 1913 the British Admiralty had a rudimentary aircraft carrier, HMS 'Hermes', with three seaplanes. By 1915, HMS 'Ark Royal' was in action, carrying ten seaplanes. The first carrier designed for launching and receiving land planes was HMS 'Furious'. She was equipped with six Sopwith Pups and four seaplanes.

KEYBOARD REFERENCE - 'CTRL &' KEYS

CTRL F1	Reset zoom
CTRL F2	Reset to default vertical view angle
CTRL F3	Reset to default horizontal view angle
CTRL F8	Lock view from behind the viewee to your aircraft
CTRL F10	Increase time speed-up
CTRL R	Reset rate of rotation for F2 and F3 keys and reset view and zoom parameter:
CTRL D	Toggle 3D detail (auto detail must be turned off first)
CTRL F	Reset fixed viewpoint to current nearest viewee
CTRL V	Reset video to start and begin recording

KEYBOARD REFERENCE - 'SHIFT &' KEYS

SHIFT ESC	View of player's aircraft, maintaining last viewpoint
SHIFT F2	View of launched missile
SHIFT F3	View of nearest friendly aircraft
SHIFT F4	View of nearest enemy aircraft
SHIFT FS	View of object you have been assigned to attack, according to on-screen messages
SHIFT F7	View of object that last message refers to
SHIFT F8	View of currently assigned ground target
SHIFT F9	View of nearest possible ground target
SHIFT 9	View of your wingman
SHIFT -	Decrease RPM in large steps
SHIFT +	Increase RPM in large steps
SHIFT TAB	Uninterrupted time speed-up
I SHIFT F	Toggle between fixed and free viewpoints of viewee
SHIFT ;	Cycle through position information

'SHIFT &' NUMERIC KEYPAD

SHIFT -	Decrease RPM by standard amount
SHIFT +	Increase RPM by standard amount
SHIFT 8,4,6 & 2	View directions

Pilots in training

When the RFC was formed in 1912, it numbered less than twelve qualified pilots. Midway through the war, 1,300 British pilots were being turned out each month. Training was less than stringent: 18 hours of flight, including a mere 60-mile flight across country, and only two night landings. Altogether, Britain trained about 22,000 pilots during the war. France, by comparison, trained about 16,500. However, the French casualty rate was much lower than Britain's: probably about 39% compared with about 50% for British pilots.

Aviation casualties

On the face of it, German and British casualty figures would seem to be remarkably similar, with French figures lagging behind. But, as experts point out, the methods of compiling statistics varied from force to force (i.e. 'died' in one arm might mean only 'died of wounds'; in another, it might include 'died of sickness'). The French figures, in particular, are probably incomplete.

Keyboard Reference chart-Keys by Subject

VIEWPOINTS

ESC	Change viewee to your aircraft
SHIFT ESC	View of player's aircraft, maintaining last viewpoint
F1	zoom in
ALT F1	Zoom out
CTRL F1	Reset zoom
F2	Rotate vertically around viewee
ALT F2	Rotate vertically around viewee in opposite direction to F2
CTRL F2	Reset to default vertical view angle
F3	Rotate horizontally around viewee
ALT F3	Rotate horizontally around viewee in opposite direction to F3
CTRL F3	Reset to default horizontal view angle
SHIFT F2	View of launched missile
SHIFT F3	View of nearest friendly aircraft
SHIFT F4	View of nearest enemy aircraft
SHIFT F5	View of object you have been assigned to attack, according to on-screen
SHIFT F7	View of object that last message refers to
SHIFT F8	View of currently assigned ground target
SHIFT F9	View of nearest possible ground target
SHIFT 9	View of your wingman
F4	External chase view
F5	Outside view: camera maintains absolute heading and pitch
ALT F5	Outside view looking out from viewee messages
F6	Track view: camera pitches and turns with the aircraft
ALT F6	Track view looking out from viewee
F7	External satellite view
ALT F7	View below viewee
F8	View across your aircraft to the viewee (outside lock)
ALT F8	View looking from in front of your aircraft to the viewee
CTRL F8	Lock view from behind the viewee to your aircraft
F9	View from your Bit-craft's cockpit of the viewee (inside lock)
ALT F9	View from in front of the viewee to your aircraft
5	View the rear of your aircraft from the inside
6	View the left of your aircraft from the inside
7	View the front of your aircraft's cockpit from the inside
8	View the right of your aircraft from the inside
9	View the rear of your aircraft from the inside
0	Return to cockpit from an outside viewpoint.
BACKSPACE	Inside combat lock lock onto nearest enemy (see manual)
Q	Toggle between fixed and free viewpoints of viewee

R Decrease rate of rotation for F2 and F3 keys
ALTR Increase rate of rotation for F2 and F3 keys
CTRL R Reset rate of rotation for F2 and F3 keys and reset view angle
[Look up (see gun sights if looking forward)
] Look down (see instrument panel if looking forward)
ENIER Outside combat lock (lock onto nearest enemy from outside view)
ALTF Select the next nearest viewee [fixed mode only]
CTRL F Reset fixed viewpoint to current nearest viewee
SHIFT F Toggle between fixed and free viewpoints of viewee
2 Impact viewpoint switch view to target when hit
X Missile viewpoint switch view to launched bullet
[NUM KEYPAD] SHIFT 8,4,6 & 2 View directions

ACCELERATION CONTROLS

TAB Speed-up time (turns off when any key pressed or mission event occurs)
SHIFT TAB Uninterrupted time speed-up
ALT F10 Decrease time speed-up
CTRL F10 Increase time speed-up

GEAR

W Wheel brake

FLIGHT CONTROLS

A Autopilot (toggle indication on instrument panel)
1 Increase the keyboard flight control sensitivity
2 Decrease the keyboard flight control sensitivity
[NUM KEYPAD]JEND Full rudder deflection, left
[NUM KEYPAD]PG DN Full rudder deflection, right
[NUM KEYPAD]INS Gradual rudder deflection, left
[NUM KEYPAD]DEL Gradual rudder deflection, right
[NUM KEYPAD] 8, 4,6, 2) Flight directions
CURSOR Right, Left, Up, Down Flight directions
B Air brake toggle

ENGINE CONTROLS

Minimum power setting
 Maximum power setting
[NUM KEYPAD]1 - Decrease RPM by single, large steps
[NUM KEYPAD] + Increase RPM by single, large steps
SHIFT - Decrease RPM in large steps
SHIFT + Increase RPM in large steps
[NUM KEYPAD] SHIFT - Decrease RPM by standard amount
[NUM KEYPAD] SHIFT + Increase RPM by standard amount
 Decrease RPM continuously, in small steps
 Increase RPM continuously, in small steps

GENERAL CONTROLS

F10 Configuration menus
ALT X Exit flight
P Pause
S Sound toggle (off, no engine sounds or with engine sounds)
V Video toggle
CTRL V Reset video to start and begin recording
ALT D Automatically select level of detail suitable for machine
CTRL D Toggle 3D detail (auto detail must be turned off first)

WEAPONS CONTROLS

SPACE Fire
T Auto-gunfire (only if autopilot ON)
U Unjam machine gun
J Increase rate of gunfire
K Decrease rate of gunfire

MAPS AND WAYPOINTS

M Map screen (ESC to return to flight)
Step back through waypoints
Step forward through waypoints
SHIFT ; Cycle through position information

Appendix B

Joystick Controls

JOYSTICK CALIBRATION

After changing the joystick option and choosing 'accept' you will be asked to move your joystick controls in order to calibrate the game to your joystick. There are a number of factors which can effect the operation of the analogue joystick and it is necessary to go through this process in order to get the best from it.

First, ensure that any auto fire devices are turned off. These will not be useful in this simulation and will confuse the calibration process.

ALL JOYSTICKS

For all joysticks you will be asked to:

"Centre Stick & Press Fire Button"

Then you will be asked to:

"Move Stick thro' full movement"

"& Press Fire Button"

Make sure that you push the stick to its maximum deflection on each of the four sides.

On some joysticks the maximum deflection is in the corners, on others it is in the middle of each edge, so to be certain of covering all the positions you should run along each edge and into each corner before pressing the joystick fire button.

If the joystick is not connected then after a few seconds the following message is displayed and the keyboard will be selected as the flight control device:

"CALIBRATION ERROR" "Press Enter"

You may also see a message like:

"Warning: Poor Calibration"

"Move trim to left and back"

This message indicates in which direction the trim controls should be moved to improve the calibration. It will only help if your joystick is fitted with trim controls.

You will then be asked to

"ACCEPT" or "RETRY"

You should "chop" the available trim range until the calibration screen accepts the value. For example, when you first calibrate with the trim centered you might get the message:

"Move trim to RIGHT"

Move the trim to the furthest right, and try again. Now, you may get the message:

"Move trim to LEFT"

The 'correct' place is clearly somewhere between the two trim settings. Move the trim half the distance back towards the left and retry the calibration. You will be told which direction to move the trim this time. Move it by only half the distance you moved it last time. Continue this process of halving the range until your joystick is accepted.

With certain joysticks there can be problems when initially moving the trim the furthest distance:

On some joysticks it may be necessary to move the trim in the opposite direction to that given in the messages. If you find that pushing the trim all the way in the requested direction has no effect on the warning message, then try pushing it in the opposite direction. If this does change the warning message then you have one of these non-standard joystick designs.

It can be possible to move the trim so far in one direction that the calibration code cannot produce any kind of calibration. In these cases a calibration error message will be displayed. Please try again, but do not push the trim control quite so far.

This is the end of the joystick configuration for normal joysticks

FlightStick PRO AND THROTTLE CALIBRATION

For the FlightStick Pro and Throttle joysticks there are two extra request screens. These vary depending on whether or not you have also selected analogue rudder pedals.

If you have not selected rudder the first screen reads:

"Min Throttle" "& Press Fire Button"

You may arbitrarily decide to make your throttle work in either direction so you can choose either end as the minimum.

If you have also selected Rudder pedals then this request will read:

"Min Throttle" "Centre Pedals" "& Press Fire Button"

If the screen times out, or the throttle or pedals cannot be detected then the following message is displayed and the keyboard will be selected as the flight control device:

"CALIBRATION ERROR" "Press Enter"

If you have not selected rudder the second screen will show the following text:

"Max Throttle" "& Press Fire Button"

You should move the throttle control to the opposite extreme, then press the joystick fire key. If you have selected rudder the second screen will show the following text:

"Max Throttle"

"Move Pedals thro' full movement"

"& Press Fire Button"

As well as moving the throttle to the opposite extreme you should also press down each of the rudder pedals in turn before pressing the joystick fire key.

Aces of Belgium

Belgium, with two operational squadrons at the outbreak of war, was swiftly occupied by Germany at the outset. However, Belgian pilots went on to serve with distinction with the Allies. The leading Belgian aces were Willy Coppens (37), Andre de Meulemeester (11) and Edmond Thieffrey (10).

America's aces

In all, America produced 88 aces, counting those who flew in other Allied air arms besides the US force. America's aces were led by Edward Rickenbacker (26), Frank Luke Jr. (21) and Raoul Lufbery (17).

If the centering of the rudder pedals is poor then you may be warned:

“Warning: Poor Calibration”

“Move trim to left/right”

See the section above entitled ‘ALL JOYSTICKS’ for advice on dealing with this warning message.

THRUSTMASTER CALIBRATION

For the Thrustmaster PFCS coolie hat there are two additional request screens. These vary depending on whether you have also selected analogue rudder pedals.

If you have not selected rudder the first screen reads:

“Centre Coolie” “& Press Fire Button”

If you have rudder selected the screen will read:

“Centre Coolie” “Centre Pedals” “& Press Fire Button”

The coolie centre position is the position it returns to when released.

If the screen times out, or the coolie hat or pedals cannot be detected then the following message is displayed and the keyboard will be selected as the flight control device:

“CALIBRATION ERROR” “Press Enter”

NOTE: If you have also attached the WCS (Weapon Control System) you can either calibrate the PFCS as a standard joystick and use the keyboard mapping program to activate the coolie hat or you should set the switch to TEST and ANALOGUE on the WCS.

If you have not selected rudder the second screen will then show the following text:

“Move Coolie thro’ full movement” “& Press Fire Button”

It is important that you push the coolie-hat into all four possible positions.

If you have selected rudder the second screen will then show the following text:

“Move Coolie thro’ full movement”

“Move Pedals thro’ full movement”

“& Press Fire Button”

It is important that you push the coolie-hat into all four possible positions, and press down each of the rudder pedals in turn before pressing the joystick fire key.

If the centering of the rudder pedals is poor then you may be warned:

“Warning: Poor Calibration”

“Move trim to left/right”

See the section above entitled ‘ALL JOYSTICKS’ for advice on dealing with this warning message.

If you have Thrustmaster’s WCS Mk.II, which attaches to the keyboard port and can emulate the keyboard keys that controls the throttle, as well as any other functions, here are the keys that can be used for that unit:

> Max throttle
shift += Continuous large increases
pad + Single large increase

Aces of France

The French produced 158 aces, of whom René Fonck (75), Georges Guynemer (54) and Charles Nungesser (45) were the top scorers.

Aces of Germany

Germany’s aces numbered 363, led by Manfred von Richthofen (80), Ernst Udet (62) and Erich Loewenhardt (53). Werner Voss followed, with 48.

Aces of Italy

Italy’s aces numbered 43. Francesco Baracca (34) had the highest score, followed by Silvio Scaroni (26) and Ruggiero Piccio (24).

=+	Continuous small increases
shift pad +	Single small increase
shift pad ·	Single small decrease
	Continuous small decreases
pad -	Single large decrease
shift	Continuous large decreases
<	Min throttle

RUDDER PEDALS

If you have selected Thrustmaster or FlightStick then you have already configured the rudder. If you selected joystick and rudder pedals then the following two additional screens will calibrate the rudder. Screen 1 requests:
 "Centre Pedals" "& Press Fire Button"

If the screen times out, or the pedals cannot be detected then the following message is displayed and the keyboard will be selected as the flight control device:

"CALIBRATION ERROR" "Press Enter"

The second screen will then show the following text:

"Move Pedals thro' full movement"

"& Press Fire Button"

Press down each of the rudder pedals in turn before pressing the joystick fire key. If the centering of the rudder pedals is poor then you may be warned:

"Warning: Poor Calibration"

"Move trim to left/right"

See the section above entitled 'ALL JOYSTICKS' for advice on dealing with this warning message.

JOYSTICK CONTROLS

The basic joystick provides elevator (pitch) and aileron (roll) controls, and two fire buttons. Button "A" fires the guns. Button "B" switches between guns and other weapon types.

There are two additional buttons fitted to many extended joysticks:

Button "C" switches to track view

Button "D" steps through the available targets in "Nearest Friendly", "Nearest Unfriendly", and "Nearest ground target" views.

When available, the throttle controls the RPM of the aircraft.

When available, the four positions of the coolie hat are used to select additional views and aircraft controls:

front: Selects max RPM

hack: Engages and disengages air-brakes

left: Switches to an inside lock view of object currently being viewed

right: Switches to an outside lock view of object currently being viewed

Armistice

'I cannot describe my feelings, right off the bat. But I can say I feel ninety-nine per cent better. There is a chance of living now and the gang is glad.'

- *Eddie Rickenbacker, American ace, on the signing of the Armistice.*

Confessions of leading aces

'When one has shot down one's first, second, or third opponent, then one begins to find out how the trick is done.'

- *Manfred von Richthofen*

'The most important thing in fighting was shooting; next, the various tactics in coming into a fight, and last of all flying ability itself.'

- *Billy Bishop*

'The smallest amount of vanity is fatal . . . Self-distrust rather is the quality to which many a pilot owes his existence.'

- *Eddie Rickenbacker*

It is possible to take advantage of the rudder, throttle and additional fire keys using two joysticks attached to a two-port joystick card or using a joystick "Y" splitter. Note that basic 'multi i/o' cards fitted as standard on many machines often only implement the standard two axes of one joystick. so a "Y" spliuer or an extended joystick will nut work with these cards.

The joystick ports fitted to SoundBlaster, and many compatible sound cards do properly support two joysticks, but the 'multi-i/o' joystick port should be disabled by a jumper on the card if you have one of each. Wiring of the joystick port can be found in the SoundBlaster manual.

On the second joystick you can use the trim control of the "Y" pitch axis as the throttle, and the left and right movement of the joystick can he used as rudder. This is similar to a model aircraft controller. In addition the two extra buttons can he utilised.

The sensitivity and dead area parameters and the mapping of the joystick buttons to features of the game is now held in the DRIVERS directory.

The file Custom.JOY is selected if Custom is chosen from the sensitivity menu. Changing this file will have an effect next time the game is run with the joystick sensitivity set.

The format of this file is below:

The file starts with the 4 character string "STIK". "STIK" is followed by the translate table for the elevators. This table is 64 bytes long and is indexed with absolute joystick Y position scaled to the range 0 to 63. It should return a value in the same range. This is followed by six overflow entries for elevator making 70 entries in total.

The elevators table is followed by the translate table for the ailerons. This table is 64 bytes long and is indexed with absolute joystick X position scaled to the range 0 to 63. It should return a value in the same range. This table is followed by six overflow entries for aileron to make 70 entries in total.

The aileron overflow entries are followed by 0 word which we have reserved.

The zero word is followed by the keyboard mappings for the various switches on the joystick. There are up to four buttons and four positions on the coolie hat.

Button A is reserved for fire. The other seven switches are each encoded as two consecutive bytes defining the scancode and simultaneous shift keys. The values for scancode can he found in PC references. The values for shift keys are:

- | | |
|---|----------------------------------|
| 1 | Normal key on its own |
| 2 | Shift key pressed simultaneously |
| 4 | Alt key pressed simultaneously |
| 8 | Ctrl key pressed simultaneously |

An Aircraft Boom

Overall. France produced the most aircraft during the war: 52,000, to Germany's 48,000 and Britain's 43,000. France's achievement was even more impressive in the light of its record for engine manufacture: 88,000. compared with 82,000 for Germany and Britain combined.

Aces of Austria-Hungary

Differing attributions between Italy, Austria and Hungary have led to experts assigning approximate scores only to the leading aces of Austria and Hungary. The Austro-Hungarian Imperial Air Forces included between 25 and 30 aces, led by Godwin Brumowski (35 40). Julius Arigi, Frank Linke-Crawford (27 30) and Benno Fiala, Ritter von-Fernbrugg (27 29).

Only the initial press event is detected by the program for the switch translations. so they cannot be used to emulate keys that are normally held down in use, such as the outside view rotates.

The order of the switch codes is:

Switch	Default use	Key	Encoding
Button A	Fire	Space Bar	
Button B	Chase	F4	01 3E
Button C	Track view	F6	01 40
Button D	Next Viewee	Alt F	0421
Coolie Left	Inside Lock	F9	01 43
Coolie Back	Air brakes	B	01 30
Coolie Right	Outside lock	F8	01 42
Coolie Forward	Return to cockpit	0	01 0B

The encodings for the coolie hat are as follows:

Coolie hat position	Thrustmaster axis Y2	FlightStick Pro buttons
centred	100%	
left	75%	AB-
back	50%	ABC-
right	25%	AB-D
forward	0%	ABCD

Those building their own sticks may like to note that our code allows +/- 10% tolerance in the Thrustmaster position reading, and that the Flightstick Pro blocks multiple button presses except for the patterns above for the coolie hat.

The Joystick type and range values are still held in the player record. but are no longer externally modifiable.

We have added JTEST.COM to the game directory. This program provides joystick information in a graphical form:

1st Column	X axis
2nd Column	Y axis
3rd Column	Rudder
4th Column	Throttle
5th Column	Button A
6th Column	Button B
7th Column	Button C
8th Column	Button D

The program is provided as a backstop for people who can't get a good calibration using the Dawn Patrol program. Here are some notes on JTEST:

1. The +/- keys can be used to change the range of the columns printed so that maximum does not go off the bottom of the screen.
3. The flicker or wobble of the columns represents noise. If the joystick wobbles a lot even when not touched then a lower sensitivity should be selected in the game. If the whole column is 'flickery' then you may have multiple joystick ports enabled on your machine. Most cards have jumpers to disable the joystick.
4. A 'gap' at the top of a column indicates a very old joystick card in a new fast machine, If you get calibration errors or other software doesn't like your joystick this may be why.
5. The JTEST can be used to trim the joystick. The +/- keys are useful here, as they allow the output to be limited to one column. This makes the job of finding the trimmed centre much easier. Simply note the position of maximum, minimum and center for different trim positions until you find a point where maximum and minimum are equidistant from center. When this is found Dawn Patrol should accept the joystick calibration.

Aviation casualties

On the face of it, German and British casualty figures would seem to be remarkably similar, with French figures tagging behind. But as experts point out, the methods of compiling statistics varied from force to force (i.e. 'died' in one arm might mean only 'died of wounds': in another, it might include 'died of sickness'). The French figures, in particular, are probably incomplete.

	British	German	French
Killed /died	6,166	5,953	2,812
Wounded/injured	7,245	7,353	2,922
Missing / interned	7,212	2,758	1,461
Total	16,623	16,054	7,255

British aviation casualties, by rank

Far more British officers became aviation casualties than did other ranks: altogether there were 12,787 officer casualties, compared with 3,836.

	Officers	Men
Killed:	4,579	1,587
Missing / POW:		373
Wounded:	5,369	1,876

INSTALLATION ADDENDUM FOR DAWN PATROL

- Q. My system is using Windows '95 and the game just doesn't run or function properly. Why?
- A. Dawn Patrol was designed and released before the introduction of this operating system. We suggest that you use the details enclosed to make a boot disk.
- Q. When I attempt to run the game, all I see are overlapped/flashing images. Why does this happen?
- A. This error is caused by not having an SVGA driver installed that is completely compatible with your display card. It is suggested that you try configuring your card manually through the SVGATEST or contact our customer support department on the number included in this box for further information.
- Q. How much base memory does Dawn Patrol need?
- A. Dawn Patrol needs exactly 580kb and 3mb of Expanded memory.
- Q. I don't get sound when I run in Head-To-Head. Why?
- A. The solution here is to select NO to the request for Qsound in the set-up program.



Technical Supplement

IBM PC & Compatibles

Floppy Disk and CDROM

empire[®]
I N T E R A C T I V E

Minimum Requirements

To play the VGA version of Dawn Patrol you will need:

1. Minimum 386 SX 25 MHz processor;
2. 522Kb of memory under 1Mb (see comments below);
3. 2.2Mb of free expanded memory;
4. VGA graphics card;
5. PC-DOS or MS-DOS versions 3.0 and above;
6. For the floppy disk version - 3.5" high density floppy drive, and 8Mb free hard disk space;
7. For the CDROM version - dual-speed CDROM drive, and 760Kb of free hard disk space.

To play the SVGA version of Dawn Patrol you will need:

1. Minimum 486 DX2 66 MHz processor;
2. 522Kb of memory under 1Mb (see comments below);
3. 2.5Mb free expanded memory;
4. A 100% VESA compatible SVGA graphics card with at least 1Mb of on-board memory;
5. PC-DOS or MS-DOS versions 3.0 and above;
6. For the floppy disk version - 3.5" high density floppy drive, and 14Mb free hard disk space;
7. For the CDROM version - dual-speed CDROM drive, and 760Kb of free hard disk space.

The following equipment is optional:

1. Joystick, Throttle, Pedals, Coolie Hat
2. Mouse with Microsoft or 100% compatible mouse driver;
3. Adlib or Soundblaster or 100% compatible sound card.

The following equipment is necessary for head-to-head play:

1. A null modem lead or a 9600+ baud modem.
2. Another PC conforming to the requirements listed above (note that you can play Head-to-Head with one machine running in SVGA and another running in VGA if you wish).

Installing Dawn Patrol

In this documentation we refer to your floppy drive as A:, CDROM drive as D: and the hard disk as C:. If the drive specifications on your machine are different, please change them as appropriate.

Floppy disk version

Dawn Patrol comes with its own hard disk installation program and must be installed to your hard disk before it can be played.

1. Insert your Dawn Patrol Disk 1 into your floppy drive and type the following -
A: <Return>
INSTALL <Return>.
2. An installation screen will be displayed. A window at the bottom of the screen will display the amount of information on your hard disk. If you have more than one hard disk you will be asked to select which one you wish to use.
3. The installation program will then ask if it can install Dawn Patrol to the directory C:\DAWNPTRL. If you would prefer to install the game to a different directory, you can insert your directory name using the keyboard. Select the CONTINUE icon to proceed.
4. You will now be asked whether you wish to install the VGA and/or SVGA versions of Dawn Patrol on to your hard disk. The VGA option uses less space but uses lower

resolution graphics than the SVGA version. If your machine does not reach the specifications required for SVGA, then do not install the SVGA version.

5. The lower window shows the base memory, expanded memory and hard disk space available on your system - It compares each one with the requirements of the game. Any numbers shown in red do not meet the requirements of the game. See the section on page 5 for further information on freeing memory.
6. When you have decided which versions to install you should select the INSTALL icon. The program will then be loaded on to your hard disk, and you should change floppy disks when requested.
7. Once installation is complete you can exit from the installation procedure, and you will be transferred to the Dawn Patrol directory.
8. Please read the section on page below headed 'Loading Dawn Patrol'.

CDROM version

Dawn Patrol comes with its own hard disk drive installation program. The CDROM version must be run from your hard drive, but you can choose a 'minimum' installation where most files are read from the CDROM.

1. Insert your Dawn Patrol CDROM into your CDROM drive and type the following -
D: <Return>
INSTALL <Return>
2. An installation screen will be displayed. A window at the bottom of the screen will display the amount of information on your hard disk. If you have more than one hard disk you will be asked to select which one you wish to use.
3. The installation program will then ask if it can install Dawn Patrol to the directory C:\DAWNPTRL. If you would prefer to install the game to a different directory, you can insert your directory using the keyboard. Select the CONTINUE icon to proceed.
4. You will now be asked whether you wish to install the VGA and/or SVGA versions of Dawn Patrol on to your hard disk. The VGA option requires less hard disk space but uses lower resolution graphics than the SVGA version. If your machine does not reach the specifications required for SVGA, then do not install the SVGA version. You will also be asked how much of the hard disk you want taken up by the game. The less you install the more information is the CDROM, and this may slow the game down in certain areas. Note that if you select a full installation you will be unable to select speech.
5. The lower window shows the base memory, expanded memory and hard disk space available on your system, and compares each one with the requirements of the game when it is run. Any numbers shown in red do not meet the requirements of the game. See the section on page 5 for further information on freeing memory.
6. When you have decided which versions to install you should select the INSTALL icon. The game will then be loaded on to your hard disk.
7. Once installation is complete you can exit from the installation procedure, and you will be transferred to the Dawn Patrol directory. You will need to insert the CDROM into the drive each time you want to play the game, unless you selected the 'complete installation' option.
8. Please read the section below headed 'Loading Dawn Patrol'.

Loading Dawn Patrol

1. To start Dawn Patrol, ensure you are in the directory specified during installation. For example- C:<Return>
CD\DAWNPTRL <Return>
2. To start the game type PATROL and press <Return>. When this is done for the first time after installation, a configuration program will ask you to specify the desired graphics mode and sound options. Select the appropriate options using the number keys. Note that you will be unable to use SVGA mode if you have only installed VGA graphics. The configuration program automatically saves these options to the hard disk, so you do not have to go through the configuration again. If you do want to change any

- of the options, type PATROL ? and press <Return> when you start the game.
4. When you load the game you will be presented with the Empire logo and a series of credits. To skip past these, press <Esc>. You will then find yourself presented with the on-screen Contents page.

Memory requirements

In order to run Dawn Patrol, the following memory requirements must be met. If they are not, Dawn Patrol will fail to load and will crash to DOS with an error message appropriate to the memory required. The amount of memory available is, due to the architecture of PCs, dependent upon the device drivers in your machine and not the age of it. To find out how much of each memory type you have, type MEM and press <Return>.

You need 485Kb of conventional memory to load the program plus a further 70Kb of conventional or upper memory for VGA or a further 85Kb of conventional or upper memory for SVGA. You also need 2.2Mb of Expanded memory (EMS) for VGA, or 2.5Mb for the high speed SVGA drivers. Note that if you are using the Universal Driver you will need 3Mb of expanded memory for SVGA. To install the SVGA drivers, see the section called 'Installing SVGA' on this page.

If you do not have sufficient memory to run Dawn Patrol see the section on page 5 called 'Freeing Memory'.

Installing SVGA

To install SVGA, type SVGATEST <Return> in the Dawn Patrol directory (e.g. C:\DAWNPTRL>). You will be presented with a list of SVGA drivers. You should now select one appropriate to your graphics card. If you do not know the name of your graphics card, select Z for 'Other' and then A for 'Display Technical Information Screen'. The name of your card will then be displayed at the top of the screen.

Installing SVGA with Head-to-Head

If you have Head-to-Head, select the SVGA Drivers option when the installation program has finished. The program will attempt to detect your graphics card automatically, and an SVGA driver will be suggested as the driver to install. Please follow the on-screen prompts.

If the animation played is corrupted in any way, another driver will be suggested. Follow the on-screen prompts as before. If the animation merely wobbles, select Wobble Fix.

In the unlikely event that the driver does not work within the game, you can install the SVGA drivers without going through the installation process. To do this type SVGASET <Return> in the game directory.

Head-to-Head

If you have the Head-to-Head version of Dawn Patrol, please read the following information relating to Serial-Link and Modem play.

Using the Serial-Link Option

1. Select a page in the game.
2. Click on the 'connect icon' in the bottom-left corner of the page.
3. The Communications Setup screen will appear.
4. Alter the IRQ Line - select from Default, and 2 to 7.
5. Comms port - select from Com1 to Com4 as appropriate
6. Change Link Method to Serial Link.
7. Change Connection Method to Already Connected.

8. Leave Modem Type blank.
9. Allow your opponent to configure his Communications Setup.
10. Both players must now click on Accept, and after a few moments the game will connect both machines.
11. The Transmit Chat/Mission Briefing screen will appear.
12. The host can now alter any option (in red) until either player selects a side to fly with.
13. Note that if there is more than one aircraft on one side in the mission, the players can opt to have a team game if they both select the same side. If there is only one aircraft on one side, and both players select that side, the host will fly the aircraft on the side selected, and the opponent will be forced to fly with the other air force.

Using the Modem-Link option

1. Select a page in the game.
2. Click on the 'connect icon' in the bottom-left corner of the page.
3. The Communications Setup screen will appear.
4. Alter the IRQ Line - select from Default, and 2 to 7.
5. Comms port - select from Com1 to Com4.
6. Change Link Method to Modem Link.
7. One player must change the Connection Method to 'Call Now', the other player must change his Connection Method to 'Wait For Call'.
8. Select your Modem Type from the list. If your modem is not listed, you should find out what if your modem is equivalent to any on the list. If you can't find an equivalent, select Generic.
9. Allow your opponent to configure his Communications Setup.
10. Both players must now click on Accept, and after a few moments the game will connect both machines.
11. Please refer to points 11 to 13 in the serial-link section.

Please note that the SVGA graphics, while linked, may seem jerky on slower machines. This is due to the sheer amount of information each machine is processing, and may also be attributable to older modems. To compensate for this you should reduce the graphics detail on the Preferences page in the game, page 160. This page can also be accessed while in flight by pressing F10.

Freeing Memory with DOS 6.0 and above

As the technological level of the graphics, sound, and dynamics increases, the more RAM is required. This section of the supplement will instruct you on various ways to free it up.

This guide consists of three different sections of instructions on how to free memory, in increasing order of difficulty. These sections are:

- How to use Memmaker;
- How to make a Boot Disk;
- How to use Memory Addressing.

Each section also (briefly) discusses the advantages and disadvantages of the method described.

Throughout the guide we assume that you are using MS-DOS 6.0 and above, as this is now the standard throughout the industry. If you have another version of DOS your user guide should instruct you on the equivalent terms.

Before you attempt any of these methods, we recommend you follow the instructions below to make a back-up disk of your system files.

1. Insert a blank disk in drive A.
2. At the DOS prompt, type FORMAT A: /S <Return>.
3. When the disk has been formatted, type COPY CONFIG.SYS A: <Return>.

- 4 When this file has been copied, type COPY AUTOEXEC.BAT A: <Return>.
- 5 Finally, label your disk as a system back-up disk.

Note that you can type MEM at any time in DOS to find out how much free memory you have.

How to use Memmaker

Memmaker is a useful utility provided with MS-DOS. It is quick and easy to use, and usually frees up enough memory. Its main disadvantages are:

- it permanently affects your computer;
- sometimes it doesn't free as much memory as possible.

Follow the instructions below to use Memmaker.

1. Type MEMMAKER <Return> at the DOS prompt.
2. On the first screen, select Express Setup.
3. If your game requires EMS or Expanded Memory, select Expanded Memory.
4. Memmaker will then reset your computer twice, and finally ask you if your system appears to be working properly. If it does select Yes.
5. Memmaker will then exit to DOS, after saving the original files to the C:\BACKUPS directory (as config.umb and autoexec.umb).
6. If you want to return the system to its original state, do the following:
 - a. Type COPY C:\BACKUPS\CONFIG.UMB CONFIG.SYS and press <Return>.
 - b. Type COPY C:\BACKUPS\AUTOEXEC.UMB AUTOEXEC.BAT and press <Return>.

How to make a boot disk

A boot disk is a useful tool that allows the original configuration to be kept while a temporary configuration is used. Before playing the game, the user must insert the disk into the floppy drive and reset the machine. The machine will then boot from the disk, and RAM will be freed. Follow the instructions below to make a boot disk.

An example of a finished boot disk can be found at the end of this section. A list of drivers you can delete without fear are also at the end of this section.

1. First, insert a blank disk into the floppy drive. For the sake of brevity, we will assume your floppy drive is labelled Drive A.
2. Type FORMAT A: /S /U <Return>.
3. When the disk has been formatted, type COPY CONFIG.SYS A: <Return>.
4. When this has finished, type COPY AUTOEXEC.BAT A: <Return>.
5. Label the disk as a game boot disk.
6. Next type EDIT A:\CONFIG.SYS <Return>. You will be presented with the MS-DOS Editor, and a list of devices that load up when the computer boots.
7. Ensure that the first line reads DEVICE=C:\DOS\HIMEM.SYS.
8. If your game requires Expanded Memory, ensure that the second line reads DEVICE=C:\DOS\EMM386.EXE RAM
9. If your game does not require Expanded Memory, ensure that the second line reads: DEVICE=C:\DOS\EMM386.EXE NOEMS.
10. Ensure that the third line reads DOS=HIGH,UMB.
11. Ensure that the fourth line reads FILES=20.
12. Ensure that the fifth line reads BUFFERS=20.
13. Delete everything else in the file except sound card lines, hard drive lines (if any), CD lines and mouse lines. These lines are usually easily identifiable as the sound card or CD drive because they will have some form of the manufacturer's name on the line. For example, a Panasonic CD drive will usually read
 DEVICE=C:\APANA\CDMKE.SYS;
 a Sound Blaster 16 card will usually read
 DEVICE=C:\SB16\DRVACTSB16.SYS;

and a Vibra 16 sound card will usually read
 DEVICE=C:\VIBRA16\DRVVIBRA16.SYS.

14. Ensure that all the lines beginning DEVICE now begin with DEVICEHIGH, except for the first two lines in your file (HIMEM.SYS and EMM386.EXE).
15. Save and exit this file using the File menu.
16. Next, type EDIT A:\AUTOEXEC.BAT <Return>.
17. Again, you will be presented with a list of drivers that load when your computer boots. Remove everything you will not need to play the game.
18. At the very beginning of the lines that begin with C:\, for example C:\DOS\MSCDEX.EXE, type LH (or LOADHIGH). Our example line will therefore read LH C:\DOS\MSCDEX.EXE /D:MSCD000 /L:D /M:20
19. Save and exit using the File menu.
20. You have now made a boot disk. To use it, insert it into the floppy drive and reset the machine. The machine will load from the boot disk instead of it's own system files, freeing memory. Each time you want to play Dawn Patrol, you must insert the boot disk in drive A and reboot the machine.

The following is a list of commands you can safely delete without affecting Dawn Patrol: ANSI, append, break, chcp, command, country, city, display, doskey, driver, drivparm, ega, fastopen, include, install, interlink, intersvr, mode, nlsfunc, numlock, power, ramdrive, setver, share, shell, shift, smartdrv, subst, switches, verify, vsafe.

The following are examples of edited config.sys and autoexec.bat files. Note that they are examples and should not, therefore, be copied on to your boot disk.config.sys

```

DEVICE=C:\DOS\HIMEM.SYS
DEVICE=C:\DOS\EMM386.EXE RAM HIGHSCAN
BUFFERS=20
FILES=20
DOS=HIGH,UMB
DEVICE=C:\SB16\DRVACTSB16.SYS /UNIT=0 /BLASTER=A:220 I:5 D:1 H:5
DEVICE=C:\ATAPITOSHV109.SYS /D:MSCD000
  
```

```

autoexec.bat
@ECHO OFF
PROMPT $P$G
LH C:\MOUSE\MOUSE.COM
SET SOUND=C:\SB16
SET BLASTER=A220 I5 D1 H5 P330 T6
SET MIDI=SYNTH:1 MAP:E
LH C:\DOS\MSCDEX.EXE /D:MSCD000 /L:D /M:20
  
```

How to use Memory Addressing

If your boot disk fails to free enough memory you may be able to free more using memory addressing. This will free upper memory blocks, enabling more devices to be loaded high, and will also increase the amount of memory under 1Mb. Please follow the instructions below.

1. Type MSD <Return> at the DOS prompt. The Microsoft Diagnose program will appear.
2. Press M for memory. A new screen will appear, detailing the current memory configuration of your machine
3. Note down the lines that have 'free' or 'possibly free' UMBs, for example E000-E3FF.
4. Exit from MSD using the File Menu. At the hard disk prompt, type EDIT A:\CONFIG.SYS <Return>.
5. Locate the EMM386.EXE line (it should be the second line down). At the very end of the line, type I= followed by the address you have written down, for example
 DEVICE=C:\DOS\EMM386.EXE RAM I=EC00-E3FF HIGHSCAN.

Note that you can have any number of addresses on this line.

6. Save and exit using the file menu.
7. If you find that the game exits to DOS with no error message, or an error message stating that there is a problem with EMM386.EXE, remove the addresses from your EMM386.EXE line that were listed as 'possibly available' UMBs.

Freeing memory using Windows 95

There are several different methods of freeing memory with Windows 95. Please follow the instructions below to for the easiest method.

My Computer Method

1. Double-click on My Computer.
2. Double-click on Drive C:.
3. Double-click on the Dawn Patrol Folder.
4. Click once on Patrol (small window icon).
5. Click once on the File Menu.
6. Click once on Properties.
7. Click once on the Program Tab.
8. Click once on the Advanced Button.
9. Click MS-DOS Mode.
10. Click on specify a new MS-DOS configuration.
11. Click on the configuration button.
12. Ensure that the expanded memory button is selected, and all other options are blank.
13. Click on OK on the next three windows.
14. Double-click on Patrol.

The README file

A text file called README.TXT will have been installed in the Dawn Patrol directory. It contains this technical supplement and any updates since going to press. To read this file, type EDIT README.TXT <Return> in the game directory.

The Technical Support Line

If you are still having problems, please check through this information one more time. In the event that your problem is unsolvable, you can contact the Empire Interactive Technical Support and Customer Services line on:

United Kingdom: 0181-343-9143

United States: (301)-916-9303



Technical Supplement Addendum

Two-player mode notes

Installing

We recommend that you use the 'complete installation' option in the Head-to-Head installation program for two player mode, as this allows the game to calculate with greater accuracy and speed.

Using the modem option

If the name of your modem is not listed you can add your modem to the list using a standard text editor. You can edit the file (in the directory you installed Dawn Patrol to) using one of the following methods:

Type EDIT MODEM.TXT <Enter> - if you have MS-DOS;
Type E MODEM.TXT <Enter> - if you have PC-DOS;
Use MS Word or Write to open the file as a text file.

The MODEM.TXT file consists of entries in the following format:

GENERIC	Modem name
AT &B0 &K0 &Q0 &D0 &C0	Modem initialisation string
AT Z H0	Modem hang up string
9600	Baud rate

Modem name - this is the text which will allow you to identify your modem from the list.
Modem initialisation string - this is a Hayes standard init-string that is used to switch off error correction and data compression. Consult your modem manual for the correct parameters needed to do this.
Modem hang up string - this is used to reset your modem when disconnecting.
Baud rate - legitimate values for the baud rate are 9600, 19200, 38400.

Please consult the your modem user guide for more information on initialisation strings, hang up strings, and baud rates.

Correction to User Guide

Map notes

The map described in the User Guide is no longer accessible.

New key - chat mode

Pressing 'M' in-flight allows you to enter chat mode. Type a message using the keyboard and press <Enter> to send.



Dawn Patrol Boot Disk Maker Sheet for DOS

NOTE: Please read the following instructions very carefully. If you do not feel confident in making changes to your system after reading then either consult your MS-DOS manual, or contact your system supplier. Virgin Interactive Entertainment cannot accept any responsibility for any damage caused to either hardware or software, from the following procedure.

- Step 1: Insert a blank disk into drive A:
- Step 2: At the C: prompt type CD\ followed by the <ENTER> key.
- Step 3: Type **FORMAT A: /S** followed by the <ENTER> key.
- Step 4: Type **COPY CONFIG.SYS A:** followed by the <ENTER> key
- Step 5: Type **COPY AUTOEXEC.BAT A:** followed by the <ENTER> key
- Step 6: Type **A:** followed by the <ENTER> key
- Step 7: Edit your **CONFIG.SYS** file to look like this. (note: the text in arrow brackets represents the device drivers described. You should not type the brackets.)

```

DEVICE=C:\DOS\HIMEM.SYS
DEVICE=C:\DOS\EMM386.EXE 4096 I=A000-AFFF
DOS=HIGH,UMB
FILES=30
BUFFERS=30
STACKS=0,0
DEVICEHIGH=<<

```

- Step 8: Save these settings.
- Step 9: Edit your **AUTOEXEC.BAT** file to look like this (as above, the text in arrow brackets represents the device drivers described. You should not type the brackets.)

```

@ECHO OFF
PROMPT $P$G
PATH C:\DOS
LOADHIGH <<<SOUND CARD LINES>>>
LOADHIGH <<<MOUSE DRIVER>>>
LOADHIGH <<<CD ROM DRIVER>>>

```

- Step 10: Save these settings.
- Step 11: Restart your computer with the new boot disk in the disk drive.

The boot disk does create a basic operation therefore commands that you would normally use may give the 'Bad command or file name' error. To return to normal use of the machine remove the 'BOOT DISK' and reset the machine.



Dawn Patrol Boot Maker Sheet for Win '95

NOTE: Please read the following instructions very carefully. If certain lines listed below are not present or you do not feel confident in making changes to your system after reading then contact your system supplier. Virgin Interactive Entertainment cannot accept any responsibility for any damage caused to either hardware or software, from the following procedure.

- Step 1: Click on My Computer.
- Step 2: Using the **Right Mouse Button**, Click on the **3½ Floppy Icon** and select **Format** from the list.
- Step 3: Select **FULL** from the top options and **COPY SYSTEMS FILE** from the bottom options in the Format Window.
- Step 4: Click on **START** and proceed to format the disk.
- Step 5: Go to the **MS-DOS prompt** on the **Start, Programs** and **MS-DOS prompt** option on the status bar.
- Step 6: Create on your **A:** drive a **CONFIG.SYS** file which should look like this. (Note: the text in arrow brackets represents the device drivers described. You should not type the brackets.)

```

SWITCHES=/F
DEVICE=C:\WINDOWS\HIMEM.SYS /TESTMEM:OFF
DEVICE=C:\WINDOWS\EMM386.EXE 4096 I=A000-AFFF
DOS=HIGH,UMB,NOAUTO
FILESHIGH=30
BUFFERSHIGH=30
LASTDRIVEHIGH=M
FCBSHIGH=4,0
STACKSHIGH=0,0
DEVICEHIGH=<<

```

- Step 7: Save these settings.
- Step 8: Create on your **A:** drive a **AUTOEXEC.BAT** file which should look like this (as above, the text in arrow brackets represents the device drivers described. You should not type the brackets.)

```

@ECHO OFF
PROMPT $P$G
PATH C:\WINDOWS\COMMAND
LOADHIGH <<<SOUND CARD LINES>>>
LOADHIGH <<<CD-ROM DRIVER>>>
LOADHIGH <<<MOUSE DRIVER>>>

```

- Step 9: Save these settings & then **EXIT**.
- Step 10: Restart your computer with the new boot disk in the disk drive.

The boot disk does create a basic operation therefore commands that you would normally use may give the 'Bad command or file name' error. To return to normal use of the machine remove the 'BOOT DISK' and reset the machine. **DO NOT RUN WINDOWS FROM THIS BOOT DISK !**