

Controls

Standard Joystick Configuration

Stick	Cyclic
Hat switch (POV)	Pan view
Button 1	Fire weapon
Button 2	Select weapon
Button 3	Select target
Button 4	Padlock/unpadlock target

Programmable Joystick Configurations

Programmable joystick configuration files are located in the 'Joystick' folder on the Comanche Hokum CD.

'Sticky' Keys

Occasionally you may experience problems with 'sticky' keys.

For example, the torque value may continue to rise or fall even though you have released the collective keys. Pressing and releasing the appropriate key will solve the problem (press **Q** if the torque value is continuously rising, or press **A** if the torque value is continuously falling).

Game

Ctrl + X	Exit game
Ctrl + Q	Quit mission/campaign
P	Pause (single player)
Ctrl + +	Increase time acceleration (single player)
Ctrl + -	Decrease time acceleration (single player)

Alternatively (for Japanese keyboards):-

Ctrl + + (Numpad)	Increase time acceleration (single player)
Ctrl + - (Numpad)	Decrease time acceleration (single player)

←	Toggle cockpits/menus
Ctrl + I	Toggle in-flight intelligence messages
Ctrl + R	Rearm, refuel and repair (cheat)
	Take screenshot

Flight Controls

Cyclic, Collective, Tail Rotor

- ←** Cyclic left
- Cyclic right
- ↑** Cyclic up
- ↓** Cyclic down

- Q** or **±** Increase collective
- A** or **-** Decrease collective

- Z** Tail rotor left
- X** Tail rotor right

- T** Trim cyclic
- Shift** + **T** Clear trim

Autopilot

- G** Autopilot (engage/disengage)
- Alt** + **H** Altitude hold (engage/disengage)
- Alt** + **J** Decrease altitude hold level
- Alt** + **K** Increase altitude hold level

- H** Hover hold (engage/disengage)
- Shift** + **H** Stable hover hold (engage/disengage)

Miscellaneous

- R** Rotor brake (engage/disengage)
- B** Wheel brake (engage/disengage)
- Ctrl** + **G** Gear (raise/lower)
- Alt** + **E** Eject (Hokum)

Cockpit

Warnings

- M** Acknowledge master caution
- Ctrl** + **F** Fire extinguishers (once per mission)

Radio Messages

- Display radio message
- + Repeat radio message
- + Attack my target

Navigation

- Select next waypoint (flight group leader)
- + Select previous waypoint (flight group leader)

Night Flying

- Night vision (on/off) – PNVS (Comanche) / NVG (Hokum)
- Navigation lights (on/off)

Wipers

- Wipers (on/off) (Hokum)
- + Toggle intermittent wipe (Hokum)

HIDSS (Comanche) / HUD (Hokum)

- Select next HIDSS (Comanche) / HUD (Hokum) colour
- + Select previous HIDSS (Comanche) / HUD (Hokum) colour
- Engage bob-up
- + Disengage bob-up

Multi-Function Displays (MFDs)

- Increase TSD and ASE/TWD range
- + Decrease TSD and ASE/TWD range
- Select next TSD declutter level
- + Select previous TSD declutter level
- + Toggle ASE/TWD auto-page

Cycle MFD Pages

- Select next left MFD page
- + Select previous left MFD page
- + Left MFD on/off
- Select next right MFD page
- + Select previous right MFD page
- + Right MFD on/off
- + Left side display on/off (Comanche)
- + Right side display on/off (Comanche)

MFD Page Shortcuts

Ctrl + 1 to 0	Select page for left MFD
Alt + 1 to 0	Select page for right MFD
1	Ground radar
2	Air radar
3	TADS (Comanche) / EOS (Hokum)
4	TSD
5	ASE (Comanche) / TWD (Hokum)
6	Weapon
7	System
8	Engine
9	Flight
0	Mission

Weapons and Countermeasures

←	Select next weapon
Shift + ←	Select previous weapon
Alt + ←	Select gun
Ctrl + ←	Weapons safe
Spacebar	Fire weapon
S	Increase rocket salvo size
Shift + S	Decrease rocket salvo size
L	Hellfire LOBL/LOAL toggle (Comanche)
C	Release chaff
F	Release flare
J	Radar jammer (on/off)
I	Infra-red jammer (on/off)
Ctrl + C	Auto-countermeasures (on/off)

Targeting

Select Target Acquisition System

Insert	Ground radar
Home	Air radar
Page Up	HIDSS (Comanche) / HMS (Hokum)
Delete	FLIR
End	DTV (Comanche) / LLLTV (Hokum)
Page Down	Periscope (Hokum)

Alternatively (for programmable joysticks):-

- Shift** + **1** Ground radar
- Shift** + **2** Air radar
- Shift** + **3** HIDSS (Comanche) / HMS (Hokum)
- Shift** + **4** FLIR
- Shift** + **5** DTV (Comanche) / LLLTV (Hokum)
- Shift** + **6** Periscope (Hokum)

Radar Controls (use numeric keypad)

- 4** Scan left
- 5** Scan centre
- 6** Scan right
- 8** Increase scan size
- 2** Decrease scan size
- +** Increase range
- Decrease range
- 9** Increase target priority (ground radar)
- 3** Decrease target priority (ground radar)
- 1** Engage auto-target
- 7** Toggle allied aircraft / all aircraft (air radar)
- *** Toggle single / continuous sweep
- /** Activate single radar sweep
- Enter** Lock/unlock target
- Ctrl** + **Enter** Padlock/unpadlock target
- 0** Select next target
- Shift** + **0** Select previous target
- Ctrl** + **Delete** Switch radar off

TADS (Comanche) / EOS (Hokum) Controls (use numeric keypad)

- 4** Pan left
- 5** Pan centre
- 6** Pan right
- 8** Pan up
- 2** Pan down
- +** Increase zoom
- Decrease zoom
- Enter** Lock/unlock target
- Ctrl** + **Enter** Padlock/unpadlock target
- 0** Select next target
- Shift** + **0** Select previous target
- Ctrl** + **Delete** Switch TADS / EOS off

HIDSS (Comanche) / HMS (Hokum) Controls (use numeric keypad)

Alt + 4 6 8 2	Pan virtual cockpit
Enter	Lock/unlock target
Ctrl + Enter	Padlock/unpadlock target
0	Select next target
Shift + 0	Select previous target
Ctrl + Delete	Switch HIDSS / HMS off

Cockpit Views**Main Cockpit Views**

F1	Forward view
F2	Instrument view
F3	Left MFD view, press again for instrument view
F4	Right MFD view, press again for instrument view
Shift + F2	Hokum HUD view, press again for forward view
Esc	Switch pilot/co-pilot seats
Ctrl + ←	Look left
Ctrl + →	Look right
Ctrl + ↑	Forward view
Ctrl + ↓	Instrument view
Shift + ←	Left MFD view, press again for instrument view
Shift + →	Right MFD view, press again for instrument view
Shift + ↑	Pilot's seat
Shift + ↓	Co-pilot's seat

Virtual Cockpit

Alt + ←	Pan left
Alt + →	Pan right
Alt + ↑	Pan up
Alt + ↓	Pan down

Padlock Views

1	Padlock target
2	Padlock wingman, press again to cycle wingmen
3	Padlock air threat, press again to cycle air threats
4	Padlock ground threat, press again to cycle ground threats
5	Padlock incoming missile, press again to cycle incoming missiles
6	Padlock waypoint
0	Unpadlock

Cockpit Detail

- Ctrl** + **F1** Toggle cockpit graphics
- Ctrl** + **F2** Toggle glass cockpit
- Ctrl** + **F3** Decrease cockpit detail
- Ctrl** + **F4** Increase cockpit detail
- Alt** + **R** Toggle blurred rotors

High Resolution Support

- Shift** + **F1** 640*480 resolution
- Shift** + **F4** Increase resolution
- Shift** + **F3** Decrease resolution

External Views

Pan And Zoom

- Alt** + **←** Pan left
- Alt** + **→** Pan right
- Alt** + **↑** Pan up
- Alt** + **↓** Pan down
- Alt** + **<** Zoom out
- Alt** + **>** Zoom in

Select Object To View

- F5** View player's gunship
- F6** View player's target
- F7** View player's weapon
- F8** View player's padlock
- F12** Toggle 'Select Object To View' menu
- Ctrl** + **F5** View next side
- Shift** + **F5** View previous side
- Ctrl** + **F6** View next category
- Shift** + **F6** View previous category
- Ctrl** + **F7** View next type
- Shift** + **F7** View previous type
- Ctrl** + **F8** View next object
- Shift** + **F8** View previous object
- Alt** + **F5** View all
- Alt** + **F6** View wingmen
- Alt** + **F7** View players
- Alt** + **F8** View available gunships

Alt + **+**

Increase view range

Alt + **-**

Decrease view range

Alternatively (for Japanese keyboards):-

Alt + **+** (Numpad)

Increase view range

Alt + **-** (Numpad)

Decrease view range

Select Camera**F9**

Chase camera

Shift + **F9**

Reset chase camera position

Alt + **F9**

Lock/unlock chase camera

F10

Fly-by camera

Shift + **F10**

Drop camera

Ctrl + **F10**

Static camera

Alt + **F10**

Weapon camera

F11

Auto-action camera

Shift + **F11**

Cinematic camera

Ctrl + **F11**

Crew camera

Miscellaneous**Alt** + **F2**

Toggle external view HIDSS (Comanche) / HUD (Hokum)

Ctrl + **F12**

Toggle external view object text

Alt + **F12**

Toggle external view inset target

U

Fly external view gunship (available gunship only)

Trouble shooting

Updates

For latest news and information visit www.razorworks.com

Graphics Drivers

If you are experiencing problems with Comanche Hokum graphics, we have included some graphics cards drivers for you to install. These are located on your CD in the directory called 'Graphics Drivers\Drivers'.

Please note that these drivers should only be used if you have problems with your graphics card. Whilst we have taken care to ensure that the drivers are the latest versions available, they are being constantly updated by the graphics card manufacturers.

These drivers are not necessarily from the card manufacturers, but from the chipset manufacturers, so it is possible you may lose features added by your originally installed drivers.

To get the latest chipset drivers you will need to visit the following websites:-

For 3Dfx drivers:	www.3dfx.com
For 3DLabs drivers:	www.3dlabs.com
For ATI drivers:	www.atitech.ca
For Chromatic Research drivers:	www.chromatic.com
For Matrox drivers:	www.matrox.com
For NVIDIA drivers:	www.nvidia.com
For Real3D drivers:	www.real3d.com
For Rendition drivers:	www.rendition.com
For S3 drivers:	www.s3.com

Re-Installing

If you re-install Comanche Hokum on to your PC then please ensure that the previous installation was completely removed. That is, in addition to un-installing Comanche Hokum delete the Razorworks\cohokum folder as well.

Cannot Find Comanche Hokum CD

If Comanche Hokum reports that it cannot find the CD then please ensure that you have closed any CD Player applications that may have captured the CD.

Loading ... "Comms System" Crash

On the rare occurrence that the program hangs while initialising the 'Comms System' then you will need to reboot your PC.

'Sticky' Keys

Occasionally you may experience problems with 'sticky' keys.

For example, the torque value may continue to rise or fall even though you have released the collective keys. Pressing and releasing the appropriate key will solve the problem (press **Q** if the torque value is continuously rising, or press **A** if the torque value is continuously falling).

Multiplayer Connection Problems in Windows 98

If your network card uses a Realtek 8029 chipset then you may experience an unstable connection in Windows 98 (not Windows 95). You can get updated drivers from the Realtek website (www.realtek.com.tw).

Graphics

If you are experiencing problems with Comanche Hokum graphics then please ensure that you have the latest drivers for your 3D graphics card.

Comanche Hokum terminates with "Unable to find a 3D graphics card ..."

Comanche Hokum requires that your PC has a 3D graphics card. If the program terminates with the message "Unable to find a 3D graphics card. Please ensure you have the latest drivers for your 3D card and have installed DirectX 7" then please ensure that you have a 3D graphics card with the appropriate drivers.

PowerVR

Comanche Hokum does not support some older PowerVR cards. A PowerVR card may be present if the program terminates with the message "Unable to create Zbuffer surface: DDERR_NOZBUFFERHW".

RivaTNT

3D graphics cards which use the RivaTNT chipset must have 'VSYNC' enabled otherwise flickering will occur. This may occur on other chipsets which have a switchable 'VSYNC'.

Riva128

The Riva128 chipset exhibits a graphical artefact in that the right hand and bottom edges of the 3D display have a 'dirty' edge. This can be rectified by running the program with the '/3dce' command line option.

Hardware Geometry Acceleration (TnL)

If your graphics card supports geometry acceleration (transformation and lighting – 'TnL') then Comanche Hokum will use this by default. However, more data is required and this may cause excessive memory paging on some machines. If this occurs then disable the geometry acceleration using the '/notnl' command line option.

TADS and EOS 3D display is missing from MFD page

The TADS and EOS MFD pages require your 3D card to be able to render a 3D scene to a texture. Some cards do not support this feature. In which case the 3D display will be absent from the MFD page. The 3D display will be displayed on the full screen MFD views (use **F3** and **F4** to see these).

Command Line Options

Comanche Hokum is customisable to some degree by the user. Some flight model, visual and most communication elements can be altered by passing command line parameters when launching the game.

Command line parameters can be entered into a DOS box or program shortcut ('Target' field).

As an alternative to using command line or shortcuts options, you can specify the commands you want with the COMANCHE_HOKUM environment variable and SET command.

For example:-

```
SET COMANCHE_HOKUM=/cgs:1 /cig:1 /cbar:1000
```

This can be included in your AUTOEXEC.BAT file.

Visual

Switch	Meaning	Description
/mfr:n	max_frame_rate	n = max visual frame rate (defaults = 30)

Flight Dynamics

Switch	Meaning	Description
/drbs:n	dynamics_retreating_blade_stall	n = floating point scaling factor for RBS effect (default = 1.0)
/drv:n	dynamics_rudder_value	n = scaling factor for drag on tail rotation (default = 1.0)
/dra:n	dynamics_rudder_acceleration	n = scaling factor for tail rotation acceleration (default = 0.8)
/drd:n	dynamics_main_rotor_drag	n = scaling factor for drag caused by main rotor (default = 1.0)
/dtrd:n	dynamics_tail_rotor_drag	n = scaling factor for drag caused by tail in forward flight (default = 1.0)
/dczd:n	dynamics_cyclic_dead_zone	n = percentage dead zone for the cyclic (default = 0.0)
/vfm:1	vector_flight_model	activates viewer or 'UFO' flight mode

Graphic Cards

Switch	Meaning	Description
/3dreset	3d_reset	reset screen resolution to 640x480
/3dce	3d_clean_edge	cleans up the graphical artefact exhibited by Riva128 chipsets
/cbt	cpu_blit_textures	try specifying this option if you experience slowdowns during rain
/notnl	no_transformation_and_lighting	disable hardware geometry acceleration

Sound Cards

Switch	Meaning	Description
/ns	no_sound	bypass sound card, useful for tracking hardware conflicts

Communications

Switch	Meaning	Description
/ccrs:n	comms_connection_receive_size	n = Initial guess of campaign data size. If campaign data is larger then this can slow things down (default = 200k)
/cdrs:n	comms_data_record_size	similar to above...
/cpbs:n	comms_pack_buffer_size	similar to above...
/cgs:1	comms_guaranteed_send	force the comms to use DirectPlay guaranteed send instead of its own n = 1 (turn on) n = 0 (turn off – default)
/crls:n	comms_resend_list_size	n = packet history list size, increase if client keeps getting kicked out by server (default = 1000)
/crl:n	comms_rerequest_limit	n = number of times a client can re-request the same packet. Increase this for poor connections (default = 10)
/cpt:n	comms_packet_timer	n = time delay in seconds the comms will wait for a packet before re-requesting it (default = 5s)

Communications		
Switch	Meaning	Description
/crt:n	comms_resend_timeout	n = time comms will wait before assuming re-requested packets was lost (default = 2s)
/mur:n	max_update_rate	n = network frame rate for a server, n/a for a client (default = 5fps for TCP/IP, 15fps for IPX)
/cig:1	comms_interpolate_gunships	program will interpolate a players helicopter position for smoother visuals n = 0 (off / default) n = 1 (on)
/cvc:1	comms_validate_connection	removes dead player husks when client crashes n = 0 (off / default) n = 1 (on)
/cto:n	comms_time_out	the amount of time to wait before removing dead player husks n = 0 (off / default) n = 1 (on)
/cist:n	comms_initial_sleep_time	sets the length of time (in milliseconds) the program will wait before sending packets (default = 500)
/cpt:n	comms packet timer	sets the length of time (in seconds) the program will wait for a packet before re-requesting it (default = 5)
/crto:n	comms_resend_timeout	sets the length of time (in seconds) the program will wait for a re-requested packet before asking for it again (default = 1)

Miscellaneous		
Switch	Meaning	Description
/goto:1	planner_goto_button	activates 'GOTO' teleport button on the campaign map
/psr:n	player_start_rank	n = start rank for new pilots
/uit:n	user_invulnerable_time	invulnerable time allowed after entering the cockpit (default = 5 seconds)