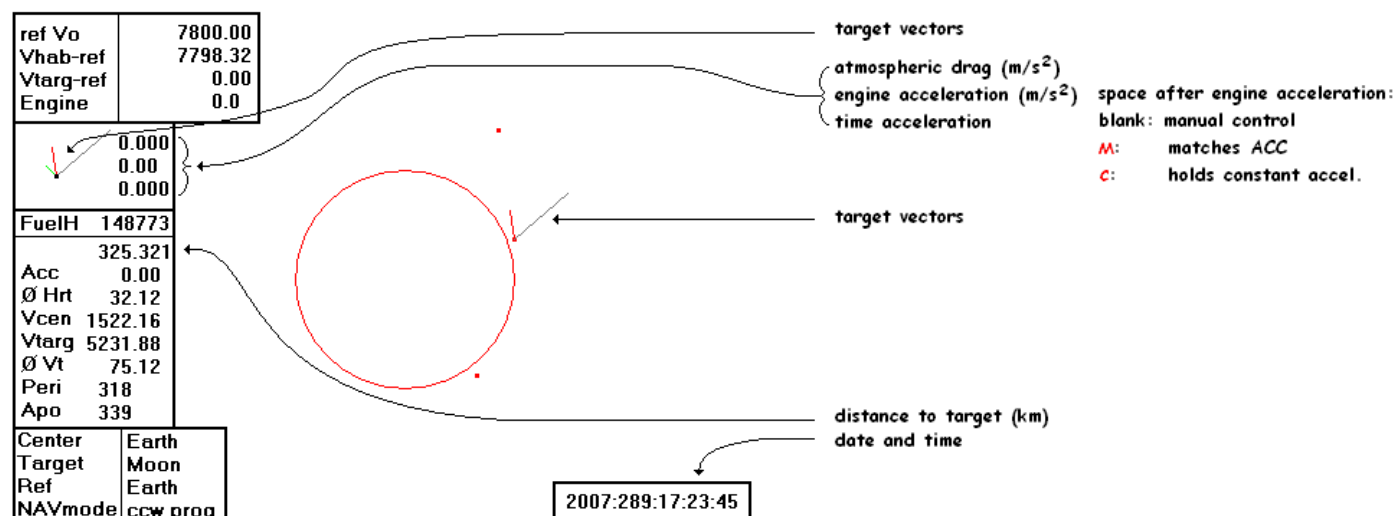


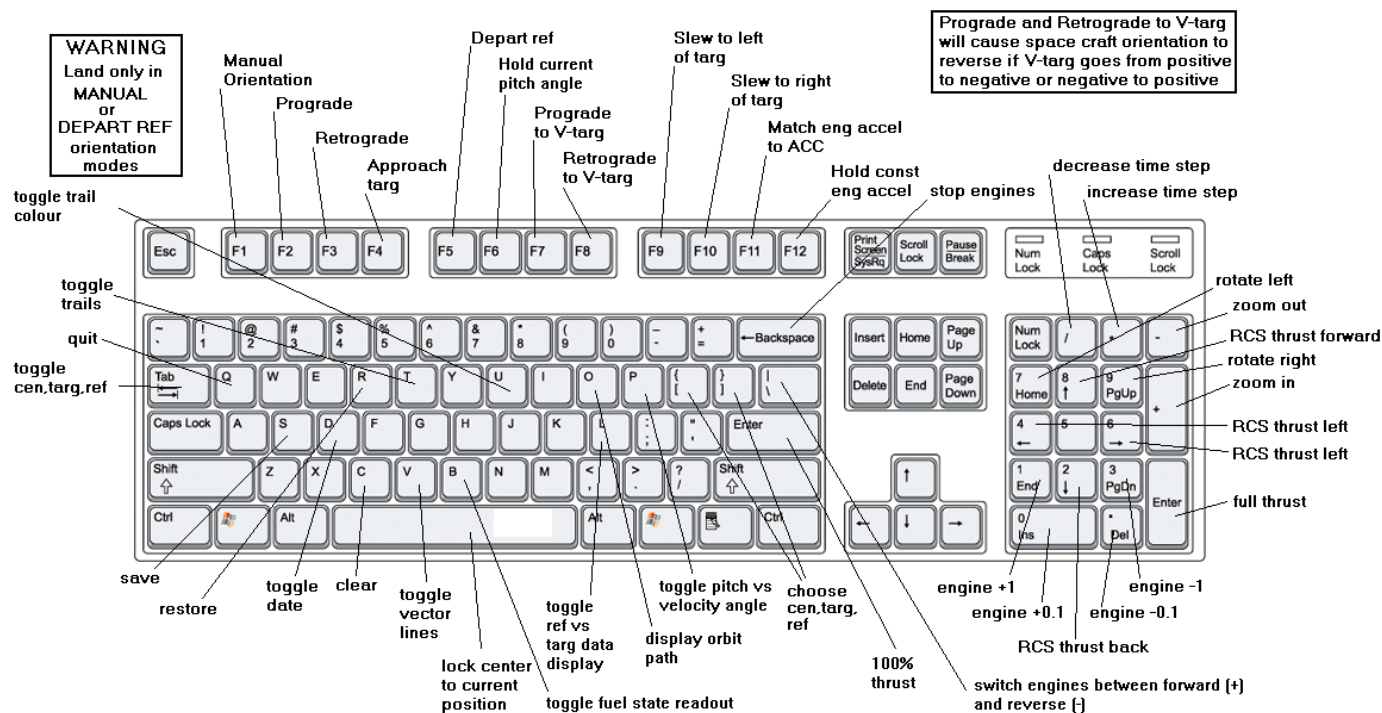
1.5.1.3 ORBIT5S User Interface

All information in Orbit5S is displayed on a single user interface screen.



All controls are manipulated using the computer keyboard.

Keyboard Controls for ORBIT5S



ORBIT5S controls are lower case. CEN, TARG, and REF choices are upper case.

ORBIT5Sm extra controls

a: dock with AYSE
w: ignite SRBs
g: deploy parachute

x: toggle telemetry
(): AYSE release/load fuel
{ }: HAB release/load fuel

y: record path
Z: load and display path
z: display path

1.5.1.4 ORBIT5S Controls (Case Sensitive)

Engines:	Ins	-0.1 %	\	Reverse Engines
	Del	+0.1 %	BckSp	Stop Engines
	End	-1.0 %	ENTER	Full Thrust
	PgDn	+1.0 %	Arrows	Thrusters (up=ahead, down=back, left, right)
	F11	match engine accel. to ACC	F12	maintain constant engine accel.
	b	toggle fuel state read-out		

Navigation:	Home	rotate ccw	PgUp	rotate cw	F1	manual orientation
	F2	ccw prograde	F3	ccw retrograde	F4	approach targ
	F5	depart ref	F6	hold current pitch angle	F7	proVtarg
	F8	retro Vtarg				
	F9	slew left of target (toggles between left (-) and no slew)				
	F10	slew right of target (toggles between right (+) and no slew)				
	v	Toggle approach to target vector & approach to target velocity vector ON/OFF				
	TAB	Toggle Select: CENTER, TARGET, REFERENCE				
		Select objects from the list below or				
		Scroll through items using '[' and ']' keys				
	p	toggle between display of pitch angle and velocity to target angle				
	l	(lower-case "L") toggle between displaying target vs reference data in orbit data box				
		reference data shows 'r' notation when reference readout is selected				
	o	project orbit path relative to reference or target				
		this shows the path that the spacecraft would take relative to the reference object if				
		the engines were shut off at that point in time. It is less accurate if there are any other				
		objects with significant gravity nearby.				
	space	lock center position at current habitat position relative to target object				

Solar System Objects for selecting target, reference, and center of view (case sensitive)

0	Sun	=	Io	J	Triton
1	Mercury	>	Europa	K	Charon
2	Venus	?	Ganymede	L	Habitat
3	Earth	@	Callisto	M	Ceres
4	Mars	A	Tethys	N	Comet Borrelly
5	Jupiter	B	Dione	O	Vesta
6	Saturn	C	Rhea	P	AYSE drive Module
7	Uranus	D	Titan	Q	Sedna
8	Neptune	E	Iapetus	R	Quaoar
9	Pluto	F	Ariel	S	ISS
:	Moon	G	Umbriel	T	Detachable Habitat Module
;	Phobos	H	Titania	U	OCESS Launch Pad
<	Deimos	I	Oberon		

Other Controls	+	Zoom In	-	Zoom out
	c	refresh screen	`	Toggle data display on/off
	t	display trails	u	display colour-coded trails
	*	increase frame rate	/	decrease frame rate
		do NOT use frame rate greater than 2 seconds when in a low altitude orbit		
	q	End program	s	Save data to a file
	r	Restore data from a file (timed backup file is called "ORbackup")		
	d	display time & date (toggles between off , mission time , mission elapsed time , event elapsed time)		

1.5.1.5 ORBIT5S Screen Data Display

ref Vo:	displays the correct orbital speed (m/s) for the current distance from the reference object.
Vhab-ref:	displays the total speed (m/s) of the habitat relative to the reference object (magnitude only, not direction) this will match the ref Vo when in a stable, circular orbit
Vtarg-ref:	displays the speed (m/s) of the target relative to the reference object (will be zero if targ = ref).
Engine:	Current engine thrust in percent of maximum (can exceed 100% with increased risk of engine failure) “SRB” indicates active solid rocket booster; “AYSE” indicates docked (ORBIT5tM only)
Target Vectors:	grey vector (direction to target) shows direction towards centre of the target object. red vector (velocity) shows the habitat velocity direction relative to the target object green vector (pitch) shows orientation of spacecraft; the direction that positive thrust will push the spacecraft
Drag:	Shows the acceleration due to atmospheric drag in m/s^2 (yellow when parachute is deployed)
Engine Accel:	Shows the acceleration of the habitat or AYSE drive resulting from the engine thrust in m/s^2 If followed by ‘ M ’ this indicates that the engines are matching their thrust to the current ACC to the target If followed by ‘ C ’ this indicates that the engine acceleration is being held constant. (normally, engine acceleration increases with constant thrust as fuel is used up and total mass decreases)
Frame Rate:	Shows the simulation frame rate (0.125 and 0.250 are real time, all others are accelerated)
Fuel:	Displaces the current fuel load can toggle between habitat fuel (H), AYSE drive unit fuel (A), and the vernier thruster pressure reserve (RCS)
Distance:	Displays distance (in km) to the target object.
Acc:	Displays the engine thrust needed to bring the habitat to a stop at the surface of the current target object. Only displays correctly when habitat is moving directly or nearly directly towards the target object. This reading takes into account: gravity of target object distance to target object’s surface relative speed toward target object (V_{cen})
Θ Hrt:	Displays the angle between the habitat and target relative to the center of the reference object.
V_{cen} :	Shows centripetal speed (in-and-out speed) (m/s) relative to target object.
V_{tan} :	Shows tangential speed (side-to-side speed) (m/s) relative to target object Should be near zero when in a circular orbit and when the target is the same as the reference.
Θ Vt:	Angle between the direction to target vector (grey) and the velocity to target vector (red)
Θ Pch:	Pitch angle: angle between the front-back axis of the spacecraft (green vector) and the center of the target (grey vector)
Peri:	Displays the projected minimum altitude (km) from reference or target object in the current orbit (periapsis).
Apo:	Displays the projected maximum altitude (km) from reference or target object in the current orbit (apoapsis).
Center:	The object on which the display is centered
Target:	The destination object; can be the as the reference object to facilitate certain orbit calculations
Reference:	The object for which orbital statistics are calculated.
NAVmode:	Manual: orientation remains fixed in the inertial frame unless manual orientation controls are used ccw prog: maintains correct orientation for counter clockwise (prograde) orbit ccw retro: maintains correct orientation for a clockwise (retrograde) orbit App targ: maintains an orientation directly towards the target object Deprt ref: maintains an orientation directly away from the reference object hold targ: maintains current pitch angle relative to the target or reference pro Vtrg: maintains an orientation in the same direction as the target velocity vector ret Vtrg: maintains an orientation directly opposite the target velocity vector If preceded by a ‘+’, the target vector points to the right side of the target (right slew) If preceded by a ‘-’, the target vector points to the left side of the target (left slew)
Date:	Displays year: day: hour: min: sec; toggles between date , mission elapsed time , event elapsed time , and off

