RV-10 Flight Test Plans Rev A

Flight Objectives

Flight	Duration	Objectives	Parameters
Number	(hrs)		
1, 2	1 hr	Engine: Temperatures, prop control	Vso, Vs1
	2 hr TT	Airframe: Control, trim, flap actuation, fuel tank	
		switch over.	
		Avionics: Basic Functionality	
		Maneuvers: Approach to stall, landing	
3	1.5 hr	Engine: Parameters at various airspeeds and mixture	
	3.5 hr TT	settings.	
		Airframe: Auto-Pilot servos	
		Avionics: Initial IAS calibration (>75% power).	
4	1.5 hr	Maneuvers: Climb speed Vy	Vy
	5.0 TT		
5	1.5 hr	Climb rate versus altitude	
	6.5 TT		
6	1.5 hr	Maneuvers: Climb speed Vx	Vx
	8.0 TT	45 deg turns (1.5g)	
7	1.5 hr	Power on Stall	
	9.5 TT	60 deg turns (2.0g)	
8	1.5 hr	Objectives determined as needed.	
	11.0 TT	Last flight of engine break in	
		Engine Break-In Complete	
9	1.5 hr	Power off stalls	Vs0, Vs1
	11.0 TT	Slow Flight	
10	1.5 hr	Drag Polar Curve	Max End
	12.5 TT		Max Range
			Opt Cruise
11	1.5 hr	IAS Cal over all airspeeds and configurations	1
	14.0 TT		
12	1.5 hr	Best Glide Speed and glide ratio	
	15.5 TT	- 131 July Spring land	
13	1.5 hr	Weight and Balance Limits	
10	17.0 TT	Weight and Bulance Emiles	
14	1.5 hr	Take-off distance to 50'	
•	18.5 TT	Landing distance over 50'	
	10.5 11	Landing distance over 50	
15	1.5 hr	Maneuvers as required	
	20.0 TT		
	20.011		
	1		

Date:	
Hobbs Start:	
Hobbs End:	
Overview Take-off, Climb out over airport to Stabilize Airplane, Check flight cont Get estimates of stall speeds Return to land	
Pre-Flight Data	
Take-off weight:	Oil Level:
CG Position:	Fuel Level:
Temperature from ATIS:	
Fuel tank for take-off: Left	Radio: Comm1
Flight Procedure Climb to 3,500' MSL above airport, Maintai Flight Controls Verify Pitch trim operation.	
Verify Aileron trim operation Engine	
Verify MP and RPM control	T
Compare Altitude and Airspeed PFD with Flight Controls	n GPS and transponder $\square $
Verify roll control to +/- 30 deg bank	□√
Verify pitch control to +/- 10 deg pitch	□√
Verify yaw control	□√
	l and note speed
40 deg map: Slow to first indication of stal	Il and note speed
Post Flight Data	
	nsumption: gph:
	sumption:
Min/May Clar	

Date:	•
Hobbs Start:	
Hobbs End:	
	
Overview	
Take-off, Climb out over airport	to 3,500', Maintain 75% power.
Fuel tank switch, Mixture Control	ol .
Get estimates of stall speeds	
Return to land	
Pre-Flight Data	
Take-off weight:	Oil Level:
CG Position:	Fuel Level:
Temperature from ATIS:	
Fuel tank for take-off: Right	Radio: Comm2
Flight Procedure	
Climb to 3,500' MSL above airport	
Flight Controls	
Verify Pitch trim operation	□√
Verify Aileron trim operation	□√
Switch from Left to Right fuel tank	$\Box $
Engine	Ц Y
Verify changes in EGT and fuel flow	
· · · · · · · · · · · · · · · · · · ·	EGT
<u>Flight Instruments</u>	
Confirm transponder pressure altitude	e with tower $\Box $
Flight Controls	
Verify roll control to +/- 45 deg bank	□√
Verify pitch control to +/- 15 deg pitch	
• 1	1 ∨
Stall Speeds Odea flan: Slow to first indication of	stall and note speed
	stall and note speed
40 deg map. Slow to mist indication of	stall and note speed
Post Flight Data	
0	Consumption: gph:
	Consumption: gpn
Min/Max G's:	

Test Flight 3, IAS Cal and Autopilot

Date:	•
Hobbs Start:	
Hobbs End:	
Overview Take-off, Climb out over NE practice area	<u> </u>
Engine performance over different airspectional IAS calibration	as.
Auto Pilot Functions Return to land	
Return to faild	
Pre-Flight Data Take-off weight: CG Position: Temperature from ATIS:	Oil Level: Fuel Level:
Temperature from ATIS:	
Flight Procedure Climb to 4,500' MSL in practice area Set altimeter to 29.92 Record OAT Engine Note Cylinder head temperatures and EGT Initial IAS Calibration Fly out to practice area Adjust altimeter to Pressure Altitude Stabilize on IAS and heading. Fly four courses and record data. Repeat for second set of redundant data. Stabilize to next IAS Repeat	
Auto Pilot Check Out	
Wing leveler $\Box $	
Heading Hold $\square $	
Altitude Hold□√	
GPS1 couple□√	
EFIS couple□√	
Climb/Decent to altitude□√	

IAS: 130 kts, Flaps: 0 deg

	Tes	st 1	Test 2		
Track	GPS Gnd Spd	GPS Course	GPS Gnd Spd	GPS Course	
1					
2					
3					
4					

IAS: 120 kts, Flaps: 0 deg

	Tes	st 1	Test 2		
Track	GPS Gnd Spd GPS Course		GPS Gnd Spd	GPS Course	
1					
2					
3					
4					

IAS: 110 kts, Flaps: 0 deg

	Tes	Test 1 Test 2		
Track	GPS Gnd Spd	GPS Course	GPS Gnd Spd	GPS Course
1				
2				
3				
4				

Post Flight Data		
Fuel Level:	Fuel Consumption:	gph:
Oil Level:	Oil Consumption:	
Min/Max G's:		

Test Flight 4, Climb Performance

Data		igit+_, Ciii	io i citorinance	
Date:	 End:			
Hoods Start-	End:			
Overview				
	off, Climb out over practi	ice area to 3.500	' Maintain 75% n	ower
	mine Rate of Climb Curv		-	ower.
	n to land	c for determining	g va, vy	
Ketui	ii to ianu			
Pre-Flight D	——————————————————————————————————————			
	ght:	Oi	l Level:	
			el Level:	
	from ATIS:			
Temperature	110111 71110.			
Flight Proce	dure			
O	00' MSL in practice area			
Set altimeter				
	at altitude			
Engine Engine	dt difftddc			
	nder head temperatures an	d FGT		
Flight Proced		u LO1		
	actice area, Level at 2,500	N' Altitudo		
			II Miretrone Duon o	and Throattle
	nstant airspeed climb at tal		iii Mixture, Prop a	and Infottie.
	then crossing 3,000' MSL.			
	record feet above 3,000' I	VISL.		
	nd back to 2,500' MSL	. 11		
Repeat on rec	ciprocal heading and aver	age two readings	S	
Flight Data:	Feet gained in 1.5 minu	tes.		
IAS	Heading		+ 180 deg	Average
	<u> </u>			
65				
70				
75				
80				
85				
90	+			
95				
100				
105				
110				
115				
D 4 E22 1 4 2	2.4			
Post Flight I		lanavmenti e	_ 1	
Fuel Level:		consumption:		1:
Oil Level:	Oil Co	nsumption:	Mi	n/Max G's:

Test Flight __5__, Climb Rate vs. Altitude

Date:		S				
Hobbs Start:						
Hobbs End: _						
Overview						
	off, Climb out			00', Maintain 75	5% power.	
	mine Rate of C	limb versus Al	titude.			
Retur	n to land					
Pre-Flight D			011			
	ght:			Level:		
			Fuel	Level:		
Temperature	from ATIS:					
Eliaba Dara	duna					
Flight Proce	aure)0' MSL in prac	otica area Sata	in for constant	- IAS climbs		
Engine	o MSL III prac	tice area. Set t	ip for constant	AS CIIIIUS.		
	der head tempe	eratures and FO	СТ			
Note Cylin	idei nead tempo	ratures and LX	J1			
Flight Proced	lure			_		
	actice area. Set	altimeter to 29	.92"			
	0' Altitude, rec					
	stant airspeed					
Start timer w	hen crossing 40	000' MSL.	•			
Record time	crossing each 1	000' increment	t to 10,000' MS	SL.		
Cruise descer	nd back to 3,00	0' MSL				
Repeat						
Flight Data:	1			T		
Pressure	OAT		Altitude		Altitude	
Altitude	Deg C	Trial 1	Trial 2	Trial 3	Trial 4	
3,000		0	0	0	0	
4,000						
5,000						
6,000 7,000						
8,000						
9,000						
10,000						
10,000	<u> </u>			1		
Post Flight I	Data					
Fuel Level:		Fuel Co	onsumption:		gph:	
Oil Level:			nsumption:		<i>C</i> 1 ———	
Min/Max G's	:	·	. —			

Test Flight 6, Best Angle of Climb

Date:		Test Fight 0, Dest 1	ingle of Chino	
Hobbs Start:				
Hobbs End:				
_				
Overview				
Take-	off, Climb out over	NE practice area to	3,500', Maintain 75	% power.
Deter	mine Vx			
Retur	n to land			
Pre-Flight D	ata			
Take-off wei	ght:	(Oil Level:	
	C. A TEXT		Fuel Level:	
Temperature	from ATIS:			
Flight Proce	dura			
_	00' MSL in practice	area		
	to 29.92. Record O			
Engine Engine	to 27.72. Record O			
	nder head temperatu	res and EGT		
Trote Cylin	ider medd temperatu			
Flight Proced	lure		_	
Fly out to pra				
	0' Altitude, Establis	h course to IWA		
	stant airspeed climb			
	shed in climb, note	•		
At DME min	us 1 nmi, record alt	itude climbed.		
Cruise descer	nd back to 3,500' M	SL		
Repeat				
Flight Data				1
7.0	Trial 1	Trial 2	Trial 3	
IAS	1 nmi Climb	1 nmi Climb	1 nmi Climb	
60				
65				
70				
75				
80				
Dogt Eliabt I	Doto			
Post Flight I Fuel Level:		Fuel Consumption	n•	anh:
Oil Level:		Oil Consumption:		gph:
Min/Max G's	•		•	
IVIIII/IVIAX U S)			

Test Flight 7, Power-on Stall, 2 g turn.

Date:		,	, 3						
Hobbs Start:									
Hobbs End: _									
Overview	eff Clierk out even	NIE mastine area to 2	500! Maintain 7	50/ 20222					
	off, Climb out over m Power-on stalls	NE practice area to 3,	,500°, Maintain 7.	5% power.					
	Perform 2 g turns Return to land								
Roturi	1 to faild								
Pre-Flight D	ata								
	ght:	Oi	il Level:						
CG Position:		Fu	ıel Level:						
Temperature	from ATIS:								
	take-off:								
Climb to 3,50 Verify norma Clear Area	Flight Procedure Climb to 3,500' MSL in NE practice area, Maintain 75% power. Verify normal engine readings. Clear Area Power-on Stall Procedure								
	and engine power	to 20" x 2200 rpm.							
	n to onset of stall an								
	set up for next stall.								
	_								
60 deg banke									
-	uise. Slow to 120 K	IAS.							
Monitor g-me									
Perform 2 g t	urns.		_						
Flight Data									
I iigiit zutu		Flap							
	0 deg	10 deg	20 deg	40 deg					
Trial 1		-	_						
Trial 2									
Trial 3									
Trial 4									
Post Flight D	ata								
Fuel Level:		Fuel Consumption:		gph:	_				
Oil Level:		Oil Consumption:							

Test Flight 8, Open Objectives

Date:	8 1 7 1 9	
Hobbs Start:		
Hobbs End:		
Overview		
	ever NE practice area to 3,500', Mainta	ain 75% power.
Complete engine brea		
	mined during test program	
Return to land		
Pre-Flight Data		_
Take-off weight:	Oil Level:	
CG Position:	Gii Level	
Temperature from ATIS:		
Fuel tank for take-off:		
Tuel talk for take-off.		
Flight Procedure		
0	practice area, Maintain 75% power.	
Verify normal engine reading		
Clear Area		
Complete Engine Break In		
	ainder of engine break in period.	
•		
Other Objectives		
Other objectives to be determ	ined during the test program.	
Flight Data		
As Needed.		
Post Flight Data		
Fuel Level:	Fuel Consumption:	anh:
Oil Level:	Oil Consumption:	==
Min/May G's:	_ On Consumption	

Test Flight 9: Power Off Stall, Slow Flight

Date:			,g					
Hobbs Start:								
Hobbs End: _	Hobbs End:							
Overview								
	off, Climb out over	SE practice area to 4	,500', Maintain 75	% power.				
	rm Power-off stalls	1	,	1				
Retur	n to land							
Pre-Flight D								
Take-off wei	ght:	. (Oil Level:					
CG Position:		F	uel Level:					
Temperature	from ATIS:							
Г								
Flight Proce								
		tice area, Maintain 75	5% power.					
	al engine readings.							
Clear Area								
Configure for	r Slow Flight							
		A to slow airspeed an	d maintain altitude					
Set Flaps		To sion wilspood wil		•				
-	op High RPM, Thro	ottle Set.						
,	7							
Power-off Sta								
	h and reduce engine							
		ds. Record Stall spec	ed					
Recover and	set up for next stall	•						
Flight Data	T							
_	2.1	Flag	•	20.1				
	-3 deg	0 deg	15 deg	30 deg				
Triol 1	Horn/Stall	Horn/Stall	Horn/Stall	Horn/Stall				
Trial 1								
Trial 2								
Trial 3								
	Trial 4							
Trial 5								
Trial 6								
Dogt Eliabt	Doto							
Post Flight I Fuel Level:		Fuel Consumption	··	anh:				
Oil Level:		Fuel Consumption Oil Consumption:		gph:	_			
	•	On Consumption.						
IVIII/IVIAX U S	Min/Max G's:							

Test Flight 10_____ Drag Polar Determination

Date:	Drag Polar Detern	nination
Hobbs Start:		
Hobbs End:		
0		
Overview Talan off Climb and and		001
· ·	er test area to 3,500', 4,5	
	and Drag Curve at various	us flap settings
Return to land		
Γ		
Pre-Flight Data		
Take-off weight:		ATIS Temp:
CG Position:	Fuel Level:	
Flight Procedure		
Climb to 3,500' MSL in test are	ea	
Engine		
Note Cylinder head tempera	ture	
Flight Procedure		
Fly out to test area		
Set altimeter to 2992		
Level at 3,500' with appropriat	e flap setting and record	OAT
Trim for Indicated Air Speed		
Record TAS, IAS, % power, M	IP, RPM	
Repeat		

Flight Data, -3 deg Flap (Reflex)

	Trial 1			Trial 2				
IAS	TAS	% Pwr	MP	RPM	TAS	% Pwr	MP	RPM
60								
65								
70								
75								
80								
85								
90								
95								
100								
105								
110								
115								
120								
125								
130								
135								
140								

Flight Data, 0 deg Flap (122 kts Max)

	Trial 1			Trial 2				
IAS	TAS	% Pwr	MP	RPM	TAS	% Pwr	MP	RPM
60								
65								
70								
75								
80								
85								
90								
95								
100								
105								
110								
115								

Flight Data, 15 deg Flap (96 kts max)

riight Data, 13 deg riap (70 kts max)								
	Trial 1			Trial 2				
IAS	TAS	% Pwr	MP	RPM	TAS	% Pwr	MP	RPM
55								
60								
65								
70								
75								
80								
85								
90								

Flight Data, 30 deg Flap (87 kts max)

	Trial 1			Trial 2				
IAS	TAS	% Pwr	MP	RPM	TAS	% Pwr	MP	RPM
55								
60								
65								
70								
75								
80								

Post Flight Data		
Fuel Level:	Fuel Consumption:	gph:
Oil Level:	Oil Consumption:	
Min/Max G's:		

Date:	
	End:
Γ	
Overview	
Take-off	
Climb out over practice area to 4,500	'
Conduct IAS calibration tests	
Return to land	
Dro Flight Data	
Pre-Flight Data Take-off weight:	Oil Laval:
CG Position:	Oil Level: Fuel Level:
Tamparatura from ATIS:	ruei Levei.
Temperature from ATIS:	
Flight Procedure	
Climb to 4,500' MSL in practice area	
Engine	
Note Cylinder head temperatures and EGT	
Flight Procedure	
Fly out to practice area	
Adjust altimeter to Pressure Altitude.	
Record OAT	
Stabilize on IAS and heading.	
Fly four courses and record data.	
Repeat for second set of redundant data.	
Stabilize to next IAS	
Repeat	

In Flight Data
IAS: 100 kts, Flaps: 0 deg

	Tes	st 1	Test 2		
Track	GPS Gnd Spd	GPS Course	GPS Gnd Spd	GPS Course	
1					
2					
3					
4					

IAS: 90 kts, Flaps: 0 deg

	Tes	st 1	Test 2		
Track	GPS Gnd Spd	GPS Course	GPS Gnd Spd	GPS Course	
1					
2					
3					
4					

IAS: 80 kts, Flaps: 0 deg

	Tes	st 1	Test 2		
Track	GPS Gnd Spd	GPS Course	GPS Gnd Spd	GPS Course	
1					
2					
3					
4					

IAS: 70 kts, Flaps: 0 deg

	Test 1		Test 2	
Track	GPS Gnd Spd	GPS Course	GPS Gnd Spd	GPS Course
1				
2				
3				
4				

IAS: 60 kts, Flaps: 0 deg

	Test 1		Test 2	
Track	GPS Gnd Spd	GPS Course	GPS Gnd Spd	GPS Course
1				
2				
3				
4				

IAS: 50 kts, Flaps: 0 deg

	Test 1		Test 2	
Track	GPS Gnd Spd	GPS Course	GPS Gnd Spd	GPS Course
1				
2				
3				
4				

Post Flight Data		
Fuel Level:	Consumption:	gph:
Oil Level:	Consumption:	
Min/Max G's:		

Date:		O			
Hobbs Start:					
Hobbs End: _					
Overview					
	off, Climb out over	NE practice area to 4	4,500', Maintain 75	5% power.	
	mine Best Glide Sp	_	, ,	1	
	n to land				
Pre-Flight D	ata				
Take-off wei	ght:	C	Oil Level:		
CG Position:	CG Position:		Fuel Level:		
Temperature	from ATIS:				
Flight Proce					
Climb to 4,50	00' MSL in practice	area			
Engine					
Note Cylin	ider head temperatu	res and EGT			
	_		-		
Flight Proced					
Fly out to pra					
		h course to IWA or o	other suitable wayp	point	
	stant airspeed powe				
	shed in decent, note				
	us 1 nmi, record altaback to 4,500' MSL				
Repeat	Dack to 4,500 MIST				
Кереаі					
Flight Data	Clean Configurati	, ' 		_	
	Trial 1	Trial 2	Trial 3		
IAS	1 nmi Decent	1 nmi Decent	1 nmi Decent	1	
70				1	
75				1	
80					
85					
90					
Post Flight Data					
Fuel Level: Fuel Consumption: gph:					
Oil Level:		Oil Consumption:			
Min/Max G's	:				