# **REVISION LIST CHAPTER 26: FIREWALL FORWARD (PA**

The following list of revisions will allow you to update the Legacy construction manual chapter listed above.

Under the "Action" column, "R&R" directs you to remove and replace the pages affected by the revision. "Add" directs you to insert the pages shows and "R" to remove the pages.

PAGE(S) AFFECTED	<b>REVISION # &amp; DATE</b>	ACTION	DESCRIPTION
26-1 through 26-21	0/02-15-02	None	Current revision is correct
26-22	1/09-18-02	R&R	Text Correction
26-23 through 26-32	0/02-15-02	None	Current revision is correct
26-33	1/09-18-02	R&R	Corrected Fig. 26:H:1
26-34 through 26-35	0/02-15-02	None	Current revision is correct
26-1	3/12-15-04	R&R	Updated table of contents with page n and part nbrs.
26-2 through 26-3	3/12-15-04	R&R	Updated part nbrs.
26-4	3/12-15-04	R&R	Updated engine isolator kit information
26-6	3/12-15-04	R&R	Updated part nbrs.
26-18	3/12-15-04	R&R	Updated part nbrs.
26-20 through 26-21	3/12-15-04	R&R	Updated part nbrs.
26-26	3/12-15-04	R&R	Updated location of bulkhead fitting.
26-3	4/09/30/06	R&R	Corrected plug part nbr.
26-26	4/09/30/06	R&R	Corrected plug part nbr.
26-27 through 26-33	4/09-30-06	R&R	Updated hose numbers and bolded so
26-1, 26-4,	6/08-10-07	R&R	Updated engine mounts.
26-2, 26-3, 26-20, 26-2, 26-24, 26-34, 26-35	6/08-10-07	R&R	Part number changes only.



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Redmo	ond OR 97756						

# Chapter 26: Firewall Forward (part 2) Continental 550

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#### INTRODUCTION 1.

The firewall forward construction is divided into two chapters: Chapter 13 and chapter 26. In Chapter 13 you installed the firewall flame blanket, engine mount and nose gear doors. Chapter 26 completes the firewall forward installation. Chapter 26 is issued in two different versions: One for the Continental 550 and one for the Lycoming 540. More specifically the Continental IO 550 N engine and the Lycoming IO 540V4A5 engine. If you have a different model of either of these engines you will discover differences in the instructions as well as the fit of the parts that we offer. In the case of the baffling for example the IO 550 N versus the IO 550 G you will notice a difference in the fit of the baffling against the cylinders, etc. Most parts required for these two engines are available through Lancair.

We can also provide the engine mount and cowling for Lycoming IO 360 installations. However we do not currently support or approve of any other installations than the 3 engines mentioned.

# 2. PARTS LIST

MOUNTING ENGINE1)J-9613-54 (Lord)4Engine Mountor94011-20 (Barry)Vibration Isolator kit (lowor94001-01 (Barry) (recommended)Vibration Isolator (hig2)AN7-33A4Bolt, Undrilled3)AN970-74Washer, Flat4)588-024Safety wire5)98-9074-114Washer, for vibration isolator isolat	(not included w. **Yes **Yes h temp.) **Yes **Yes **Yes **Yes **Yes
1)J-9613-54 (Lord)4Engine Mountor94011-20 (Barry)Vibration Isolator kit (lowor94001-01 (Barry) (recommended)Vibration Isolator (hig2)AN7-33A43)AN970-744)588-0245)98-9074-114Washer, for vibration isolator isolator (higPROPELLER/SPINNER	**Yes **Yes **Yes **Yes **Yes **Yes **Yes
or94011-20 (Barry)Vibration Isolator kit (lowor94001-01 (Barry) (recommended)Vibration Isolator (hig2)AN7-33A43)AN970-744)588-0245)98-9074-114Washer, for vibration iPROPELLER/SPINNER	w temp.) **Yes h temp.) **Yes **Yes **Yes **Yes **Yes
or94001-01 (Barry) (recommended)Vibration Isolator (hig2)AN7-33A43)AN970-744)588-0245)98-9074-114Washer, for vibration iPROPELLER/SPINNER	h temp.) **Yes **Yes **Yes **Yes
2)AN7-33A4Bolt, Undrilled3)AN970-74Washer, Flat4)588-024Safety wire5)98-9074-114Washer, for vibration iPROPELLER/SPINNER	**Yes **Yes **Yes
2)1 Attribut1 Dolt, Onlined3)AN970-74Washer, Flat4)588-024Safety wire5)98-9074-114Washer, for vibration iPROPELLER/SPINNER	**Yes ** <b>Yes</b>
4)588-024Safety wire5)98-9074-114Washer, for vibration iPROPELLER/SPINNER	**Yes
5) 98-9074-11 4 Washer, for vibration i PROPELLER/SPINNER	
PROPELLER/SPINNER	solator **Yes
1) A-2295-P 1 Polished 14" Diameter H	arzell Spinner **Yes
2) BHC-J2YF-1B/F7694-4TX 1 69" Dia. 2 Bladed Hartz	ell Propeller **Yes
COWLING	
1) 4000-01 1 Upper Cowling	
2) 4000-02 1 Lower Cowling	
3) H-5000-2 1 Hartwell Latch	
4) MS20001 1 Hinge	
5) K1000-08 48 Nutplates	
6) AN426A3-5 20 Rivets (Nose gear door n	ails)
7) <u>MSC-34</u> 76 Rivets	
8) MS24694-S5 48 Screws	
BAFFLING	
1)4851-0011Front Upper Shroud	**Yes
2) 4851-002 1 Front Lower Shroud	**Yes
3) 4851-003 1 Front Left Shroud	**Yes
4) 4851-004 1 Front Right Shroud	**Yes
5) 4851-005 1 Left Deck	**Yes
6) 4851-006 1 Right Deck	**Yes
7) 4851-007 1 Left Wing	**Yes
8) 4851-008 1 Right Wing	**Yes
9) 4851-010 1 Right Rear Panel	**Yes
10) 4851-011 2 Stand Off	**Yes
11) 4851-012 1 Left Rear Panel	**Yes
12) 4851-013 1 Oil Cooler Box	**Yes
13) 4851-014 1 Cable Bracket	**Yes
14) 4851-015 1 Oil Cooler Door	****



#### **TEM** ith kit)

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, Redmo	nd, OR 97756					

	PART NO. (P/N)	QTY	DESCRIPTION OPT	ONAL ITEM	#	PART NO. (P/N)	QTY	DESCRIPTION	OPTIONAL ITEM
			(not i	ncluded with kit)	<b>n</b> 4 m				(not included with kit)
BAFFI	LING (CONTINUED)				BAF	FLING (CONTINUED)	10		skale T. T
5)	4851-016	1	Front Left Inner Baffle	**Yes	57)	AN526A3-4	12	Rivets	**Yes
.6)	4851-018	1	Right Aft Inner Baffle	**Yes	58)	MS24693-S4	4	Rivets	**Yes
.7)	4851-019	1	Bracket	**Yes	<u>59)</u>	<u>MSC-34</u>	11	Rivets	**Yes
.8)	4851-020	1	Bracket	**Yes	60)	AN525-10R6	4	Screw, Panhead	**Yes
.9)	4851-021	1	Left Outer Baffle	**Yes	61)	MS24694-S48	6	Screw, Machine	**Yes
.0)	4851-022	1	Right Front Outer Baffle	**Yes	52)	AN500-A416-6	6	Screw, Fillister Head	**Yes
21)	4851-023	1	Left Aft Inner Baffle	**Yes	63)	518-3	1	Stud, 8-32	**Yes
22)	4851-024	1	Front Right Inner Baffle	**Yes	64)	AN960-10	20	Washer, Flat	**Yes
23)	4851-025	1	Bracket	**Yes	65)	AN960-10L	22	Washer, Flat	**Yes
24)	4851-026	1	Bracket	**Yes	66)	AN960-08L	2	Washer, Flat	**Yes
25)	4851-027	1	Bracket	**Yes	67)	AN970-3	5	Washer, Large Area	**Yes
.6)	4851-028	1	Bracket	**Yes	67)	MS35338-44	6	Washer, Lock	**Yes
.7)	4851-029	6	Deck Bracket	**Yes	68)	216CW	1	Vacuum Pump	**Yes
28)	4851-030	4	Stand Off	**Yes	69)	1085	1	Vacuum Pump Shroud	**Yes
.9)	4851-031	4	Stand Off	**Yes				-	
(0)	4851-032	6	Stand Off	**Yes	ENG	INE CONTROL SYSTEMS	•		
1)	4851-033	2	Bracket	**Yes	1)	HFC-3	3	Bearing, Rod End	**Yes
2)	4851-034	1	Aft Center Brace	**Yes	2)	AN3-4A	4	Bolt, Undrilled	**Yes
3)	4851-035	1	Left Front Outer Baffle	**Yes	3)	AN3-7A	2	Bolt, Undrilled	**Yes
4)	4851-036	1	Stand Off	**Yes	4)	AN3-10A	1	Bolt, Undrilled	**Yes
5)	4851-037	1	Stand Off	**Yes	5)	AN3-11A	1	Bolt, Undrilled	**Yes
6)	4851-A	1	Baffling Kit (Includes Roll of Seal)	**Yes	6)	AN3-12A	1	Bolt, Undrilled	**Yes
7)	4853	1	Di-cut Baffling Seal	**Yes	7)	AN6-5A	1	Bolt. Undrilled	**Yes
8)	AN3-3A	30	Bolt Undrilled	**Yes	8)	565-02	1	Bracket Mixture Cable	**Yes
9)	AN3-4A	13	Bolt Undrilled	**Yes	9)	PG564	1	Bracket Prop Cable	**Yes
0)	AN3-5A	10	Bolt Undrilled	**Ves	10)	TB653	1	Bracket Throttle	**Ves
1)	05-16100	1	Terminal Bolt Kit	**Ves	11)	A750-RD-5	1	Cable Mixture	**Ves
2)	A-740BL 0720	1	Cable	**Ves	12)	A750-BU-5	1	Cable Propeller	**Ves
2) 3)	M\$35649_202	2	Checknut	**Ves	13)	A800-BL -5	1	Cable Throttle	**Ves
7) 4)	145 0004 5416K15	2 1	Clamp Hose	**Ves	13) 14)	AN315-3	2	Checknut	**Vec
+) 5)	AN742 D4		Clamp Modified	105 **Voc	15)	31500	2	Clamp Cable	**Vas
5) 6)	AIN 742-D4	1	Ducting SCAT	**Vec	15)	103 0026 01911 4021	1	Nut	**Vos
() 7)	05-29904	24	Ducting, SCAI	~) **Vec	10)	AN262 1022	1	Nut Look	**Vos
/) 0)	03-29904 561 1	24	Elence	3) ··· 105	1/)	AN303-1032 SD565	1	Spacer	105 **Voc
o)	JOI-1 519.02	ے 1	Fiange	**Yez	10)	SF 303 ANIO70 6	1	Washer Area	10S **V~~
9) 0)	JI8-UZ	1	ruei Pump Snroud	**Y-	19)	AIN7/0-0	ے 2	Washer Area	** <b>1</b> 85
U)	AN305-1032A	8	Locknut	TT Yes	20)	AIN9/U-3	3	washer, Area	Yes
1)	AN363-1032	38	Locknut	**Yes	21)	AN900-10	20	wasner, Flat	TT Yes
2)	AN364-832A	1	Locknut	**Yes	22)	AN960-10L	4	Washer, Flat	**Yes
3)	K1000-3	11	Nutplate	**Yes	23)	AN960-616	1	Washer, Flat	**Yes
94)	MS20001	11"	Piano Hinge	**Yes	24)	9115 <b>D</b> A114	1	Washer, Lock	**Yes
5)	AN426A3-4	4	Rivets	**Yes	Γ		ð .	Chapter 26	REV 6/08-10-07
6)	AN426A3-5	10	Rivets	**Yes			LEGACY		

#	PART NO. (P/N)	QTY	DESCRIPTION	<b>OPTIONAL ITEM</b>	#	PART NO. (P/N)	QTY	DESCRIPTION	<b>OPTIONAL</b> I
				(not included with kit)					(not included t
MA	NIFOLD PRESSURE AN	D TACHOME	ΓER						
1)	C5205x4x4	1	Fitting	**Yes	OILS	SYSTEMS			
2)	MS27404-4D	2	Fitting	**Yes	1)	165-0000 8500K83	1	Anti Chafe Material	**Yes
3)	193-4	1	Hose	**Yes	2)	AN3-7A	1	Bolt, Undrilled	**Yes
					3)	MS21919-DG16	1	Clamp	**Yes
FUE	ELSYSTEMS				4)	145-0003 5416K14	1	Clamp	**Yes
1)	4875	1	Gascolator Shroud	**Yes	5)	AN912-3	1	Coupling, Steel	**Yes
2)	4876	1	Attach Bracket	**Yes	6)	HK822-4	1	Fitting (with .05" Restriction)	**Yes
3)	4890	28"	Fuel Supply Line	**Yes	7)	AN363-1032A	1	Locknut, Nylon	**Yes
4)	AN912-1D	1	Bushing Reducer	**Yes	8)	124F001-4CR0160	16"	Oil Pressure Line	**Yes
5)	5416R14	2	Clamp, Hose	**Yes	9)	MIL-H-6000x3/4	1	Oil Breather Line	**Yes
6)	MS21919-DG32	2	Clamp	**Yes	10)	AN960-10	1	Washer, Flat	**Yes
7)	MS21919-DG10	2	Clamp	**Yes					
8)	AN624-4D	1	Fitting, T	**Yes	VAC	UUM SYSTEM INSTALL	ATION (OPT	TONAL)	
9)	AN816-4-4	2	Fitting	**Yes	1)	212CW	1	Airborne Dry Air Pump	**Yes
10)	AN822-4D	1	Fitting, Elbow	**Yes	2)	145-0001 5321K16	10	Clamps, Hose	**Yes
11)	AN822-4	1	Fitting, Elbow	**Yes	3)	145-0003 5416K14	2	Clamps, Hose	**Yes
12)	2240-6-8S	1	Fitting, Bulkhead	**Yes	4)	1K1-6-10	1	Fitting, Airborne 90°	**Yes
13)	561-1	1	Flange, Inlet	**Yes	5)	1K8-6-10	1	Fitting, Airborne 135°	**Yes
14)	510A	4	Fuel Return Line	**Yes	6)	AN840-6D	4	Fitting, Straight	**Yes
15)	193-4	7'	Fuel Divider Drain Line	**Yes	7)	AN840-4D	2	Fitting, Straight	**Yes
16)	530	21"	Fuel Line	**Yes	8)	193-10	2	5/8" I.D. Vacuum Stratoflex Ho	se **Yes
17)	A500	1	Andair Gascolator	**Yes	9)	193-6	7	3/8" I.D. Vacuum Stratoflex Ho	se **Yes
18)	MS35489-13	1	Grommet	**Yes	10)	193-4	3	1/4" I.D. Vacuum Stratoflex Ho	se **Yes
19)	AN931-12-23	1	Grommet	**Yes	11)	H3-12	12	Vacuum Pump Regulator	**Yes
20)	514	1	Hose, Prebuilt	**Yes	12)	1J7-1	1	Vacuum Pump Filter	**Yes
21)	515	1	Hose, Prebuilt	**Yes					
22)	516	1	Hose, Prebuilt	**Yes					
23)	K3000-3	3	Nutplate	**Yes					
24)	AN913- <u>2</u> D	1	Plug	**Yes					
25)	MSC-34	4	Rivets, Pop	**Yes					
26)	AN426A3-4	6	Rivets	**Yes					
27)	SCAT 4	1	Tubing, Flexible	**Yes					
28)	CCA-1550	1	Valve, Drain	**Yes					
29)	AN960-6D	1	Washer	**Yes					
<u>30)</u>	<u>539</u>	24"	Fuel Pump Drain on Firewall						



**ITEM** with kit)

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# **CONSTRUCTION PROCEDURES**





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Continental Installation CONTINENTAL MOTORS
Spacers Washers Locknuts
binner Backing Plate (part of spinner assembly) peller blades were ght envelope.
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#### **C**. Cowling

#### For the purpose of installing the cowling, the propeller and the spinner backplate must be installed. We suggest removing the spinner itself to avoid scratches. For the same reason protect the propeller blades. Before starting this section, the aircraft should be leveled for reference.

The cowling is aligned to the spinner and the fuselage. You will need to cut out for the nose gear doors to fit the cowling. We suggest you start by making a cut just large enough to start fitting the cowling. Once aligned properly cut to exact dimensions.

NOTE: When drilling for the cleco holes (that will eventually be used for the screws) install the holes first at the fixed locations. For example for the lower cowling start at the bottom and work your way up along the sides. When drilling the holes for the upper cowling, make sure the cowling matches up good in the front then start drilling in the aft center where it secures to the fuselage. Work your way down the side making sure it is pulled nice and tight. Then drill for the sides. As you are drilling each hole keep checking the rest of the cowling.

The lower cowl is first aligned and then the upper cowling. When the engine is running it "pulls" down a little so we generally set the cowling 1/8" to 3/16" below the spinner. Also allow for a 3/16" clearance between the spinner and the cowling. Trim excess material off along the back.

The upper cowl is set in a similar manner to the lower cowling. Note that at first the cowling may appear to backlock at the air inlets. If this is a problem grind a little off the lower cowl joggle to eliminate this backlock.

Read this section for a better understanding of the whole process before you start. Before drilling any holes, mark all holes on the cowling and double check spacing!

# DI (June)

**Cowling Screw Patterns** Fig. 26:C:1

> Upper Cowling 4000-01 spinner. Lower Cowling 4000-02













### **Baffling Baffling Exploded View** D. Fig. 26:D:1 The baffling is at first glance, a lot of odd looking pieces of aluminum. If taken systematically, it's not too tough to install. The factory new Continental 550 engines all come with the center, lower cylinder baffles already in place. If you don't have a factory new engine, be sure to install these baffles as they are critical.































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## E.



#### Prop Governor Cable Installation Fig. 26:E:2



Continental Installation				
CONTINE Bolt, AN3-4A (2 pcs.)	ENTAL	MOTORS		
Cable Clamp, 31509				
Washer, Flat, AN960-10 (2 pcs.)				
Washer, Flat, AN960-10 (2 pcs.)				
Nut, AN363-1032 (2 pcs.)				
Chantor 26	DEV	0/02 15 02		
-23 FIREWALLEOD	KEV.	0/02-13-02		
Redmond, OR 97756				

# Fig. 26:E:3

Install the mixture cable per Figure 26:D:2. the 565-1 bracket installs on the stud of the oil filter base casting.



#### **Manifold Pressure and Tachometer** F.

The manifold pressure is picked up at the forward left side of the throttle body. As with all of the engine instrumentation the final size will depend on the type of MP gage you select. We suggest the shown arrangement routed aft to the firewall. Follow the manufacturer's recommendations of the sender installation.



**Tachometer** 

**Manifold Pressure** 

Fig. 26:F:1

The Continental engine does not provide for a mechanical tach drive cable attachment. Therefore, one must use an electronic type tach drive. There are a couple of more common approaches.

Use of a mag sensor which sends a signal based on the revolving magnets in the magneto. Typically the mag sensor is a small metallic clip which attaches to the outside of the magneto case, using one of the existing case screws.

Another method is to use the wires emerging from the right mag. These were originally designed for a "RD Co. tach unit" and can be adapted for other applications.

Continental Magneto Drive Ratio to Crankshaft: CCW, 1.5:1

LEGACY





The manifold pressure transducer is normally installed on the firewall. The fitting used depends on which system you use. Follow the manufacturer's recommendations.



# **G** Fuel Systems

The gascolator mounts to the lower right side of firewall. Refer to blueprint #4862 for the location of the gascolator. We suggest creating a coreless area for the gascolator as shown on the blueprint. Remove a 2" diameter section of the aft laminate and corecentered on the gascolator location. Reinforce with 4-BID. Assemble and install the gascolator as shown.







<b>Continental Installation</b>				
yas storying				
6-4-4 fitting in each side.				
uel flow transducer. The fuel flow transducer should be following manufacturer's recommendations. Wrap the cer with fireshield.				
AN931-12-23 grommet in ce 4851-012.				
e, 21" Long - 4 Lines - straight, <b>530</b>				
Fuel Return Line, 12" Long - 4 Lines, straight - straight, <b>510A</b> Connects to fuel return on firewall.				
Supply Line, 28" Long - 8 Lines,				
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**Engine Driven Fuel Pump** Fig. 26:G:3 AFT VIEW **TOP VIEW** – Fuel Pump  $\bigcirc$  $\bigcirc$ Fuel Line, 530 (Ref.) -TP  $\bigcirc$ LEGACY

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**Fuel Distributor** Fig. 26:G:4









The cylinder drain lines provide an escape for excess fuel that accumulates during both priming and shut down. The fuel is allowed to drain out of the cylinders through the lines and out the sniffle valve. The sniffle valve is supplied with all Continental 550 N models but not the 550 G model. If you have a 550 G model you can either purchase a sniffle valve through Continental or use an HK822-4 fitting and an FUI mounting block available through KCI. The sniffle valve is normally packaged in the same box as the spark plugs.

#### **NOTE:** allow sufficient clearance between the exhaust and the lines.



#### **Fuel Pressure Ports** Fig. 26:G:6

Fuel pressure transducer readings are taken either from the unmetered side or the metered side of the fuel system. This depends on the engine monitoring system used. Consult with the installation manual of the system used to determine to install your system.







**Drain Line Exits** Fig. 26:G:7

There are several ways to terminate the drain lines. The drain lines must dump the fluids overboard and not inside the engine compartment. The following is one method for terminating the lines.



potted into the phenolic with epoxy/flox.





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The primary purpose of the oil breather line is to vent the crank case to ambient pressure. Fumes will escape through the breather line and any oil particles will burn off on the engine exhaust. Note that negative-G maneuvers may cause large amount of oil to expel through the breather line.

Oil Breather Line MIL-H-6000 x 3/4

Secure the exit to the firewall such that any oil - discharged through the breather line drips on to exhaust and is burnt off.

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#### Vacuum System Installation (Optional) I.

kit for this configuration. The contents are listed below. Note that the angled fittings in and out of the vacuum pump are not standard AN fittings. 90° AN fittings may cause approximately a 1/2 psi drop per fitting installed. The part number for this kit is LESF-VC-550.

