MANDATORY REPLACEMENT INSTRUCTIONS FOR AIRBORNE AIR FILTER AND AIR FILTER ELEMENT

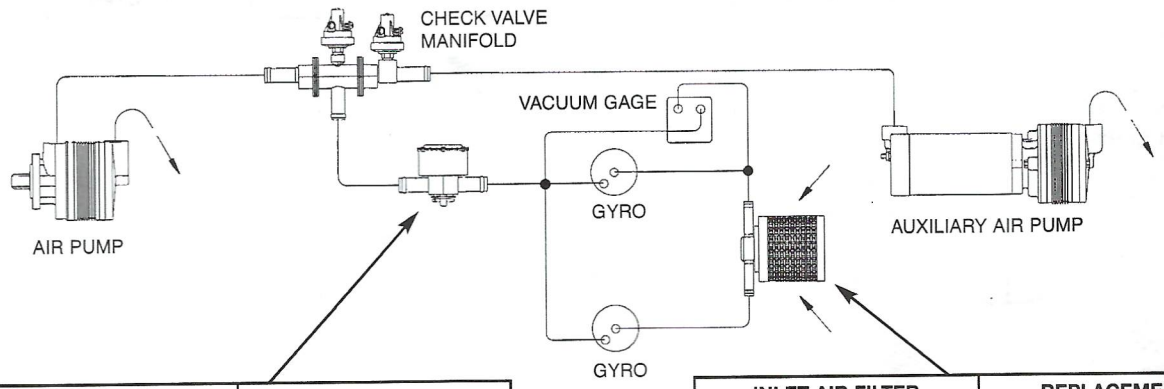
CONTENTS: Each Airborne Air Filter and Air Filter Element Kit consists of an air filter or air filter element, air filter change reminder label SI300-21, assembly fasteners (if required), **Mandatory** Replacement Instructions For Airborne Air Filters and Air Filter Elements SI300-10 and Summary of **Mandatory** Service Instructions for Airborne Pneumatic Components SI300-17.

CAUTION: Consult the latest revision of Airborne Service Letter Number 59, **Mandatory** Replacement Times for Airborne Air Filters and Air Filter Elements in order to obtain the latest information regarding **mandatory** replacement times.

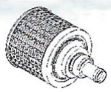
Consult the Airframe Manufacturer's maintenance publication and parts catalog for the specific part number(s) air filter(s) and/or air filter element(s) for your aircraft. Air filters are designed for specific functions and **must not** be interchanged.

Vacuum System Example:

A typical Airframe Manufacturer's vacuum instrument system incorporates two types of air filters. The inlet air filter assembly is used to protect the instruments (gyros) and the garter filter element for the vacuum regulator is used to protect the vacuum regulator valve seat and the air pump.



VACUUM REGULATOR ASSEMBLY	REPLACEMENT GARTER FILTER ELEMENT
 2H3 SERIES	 B3-5-1

INLET AIR FILTER ASSEMBLY	REPLACEMENT FILTER ELEMENT
 1J2-1, -3, -5 AND -8	 D9-14-5
 1J2-2	 D9-14-3
 1J7-1 AND -2	 D9-18-1
INLINE AIR FILTER	**REPLACEMENT INLINE AIR FILTER**
 1J10-1	 1J10-1

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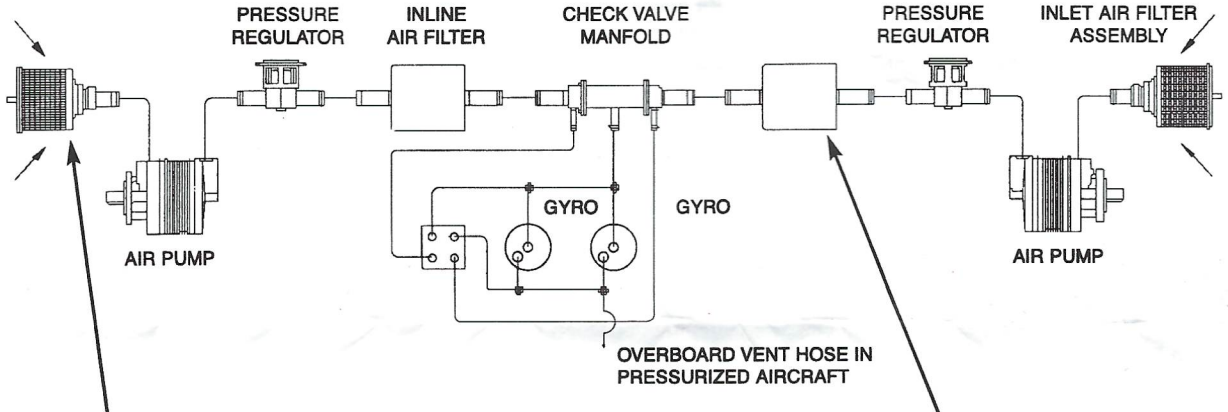
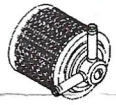
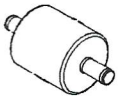
SI300-10 (Rev. C) April, 2004, (Reprinted May, 2005)

Pressure System Example:

A typical Airframe Manufacturer's pressure instrument system incorporates two types of air filters. The inlet air filter assembly is used to protect the air pump and the inline air filter is used to protect the instruments (gyros).



INLET AIR FILTER ASSEMBLY	REPLACEMENT FILTER ELEMENT
 1J1 SERIES	 B3-5-1
 1J2-1, -3, -5 AND -8	 D9-14-5
 1J2-2	 D9-14-3
 1J7-1 AND -2	 D9-18-1
INLINE AIR FILTER	**REPLACEMENT INLINE AIR FILTER**
 1J10-1	 1J10-1

INLINE AIR FILTER	REPLACEMENT INLINE AIR FILTER
 1J4 SERIES NOTE: 1J4 SERIES HAS BEEN REPLACED BY 2J4 SERIES	 2J4 SERIES REPLACE WITH SAME DASH NUMBER. E.G. 1J4-4 WITH 2J4-4 OR 2J4-4 WITH 2J4-4
 2J4 SERIES	

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Air Filter Removal

To remove 1J4 or 2J4 series and 1J10-1 air filter assemblies, disassemble the hose clamps and remove the hoses from the air filter assemblies. Disassemble any retaining devices and remove the air filter assembly.

To remove D9-14-3, D9-14-5 and D9-18-1 air filter elements, unscrew the retaining nut at the end of the air filter assembly and remove the air filter element.

To remove B3-5-1 inlet garter filter element, stretch the garter filter element and pull it over the retaining flange.

Air Filter Installation

Hoses and clamps should be examined periodically. In addition they should be inspected carefully whenever engine maintenance activities cause hose disconnections within pneumatically driven gyro flight instrument and deice systems. Hose clamps and fittings should be replaced when broken, damaged or corroded.

1. Before reinstalling hoses, inspect the inside of each hose carefully to make sure it is clean and free of all debris, oils or solvents. Use vacuum or air pressure to clean the hoses.

   CAUTION: Never apply compressed air to hoses or components installed in the airplane. Excessive pressures will damage components within the pneumatically driven gyro flight instrument and de-ice systems. If an obstructed or dirty hose is to be blown out, disconnect it at both ends before blowing it out.

2. Replace old, hard, cracked or brittle hose.

   CAUTION: Sections of the inner layers may separate, causing pneumatically driven gyro fight instrument and de-ice system failure.

3. Where hose clearance is tight, making it difficult to reinstall it onto the filter assembly fitting, spray the fitting at the hose end with silicone. Let dry and then install hose by pushing it straight on.

   CAUTION: Do Not wiggle hose from side to side. Wiggling could cause particles to be cut from inner wall of hose which will result in the loss of the pneumatically powered gyro fight instruments and de-ice system.

Make sure connections are made correctly. Do Not over-tighten the hose clamps. Upon completion of the **mandatory** replacement, ensure an entry has been added in the aircraft's logbook identifying compliance with Airborne Service Letter Number 59.

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TROUBLESHOOTING VACUUM SYSTEMS – FILTER RELATED SYMPTOMS		
Problem	Possible Causes(s) - Most causes an be identified with Airborne's 343 Test Kit	Corrective Action(s)
Frequent air pump replacement	High air pump inlet suction – plugged or partially plugged inlet filter	Replace inlet filter, adjust regulator
Vacuum gage indicates frequent need for regulator adjustment	Inlet filter nearly plugged	Replace inlet filter, adjust regulator
No vacuum at vacuum gage with engine at low RPM and vacuum OK at vacuum gage with engine at high RPM	Plugged or partially plugged inlet filter	Replace inlet filter, adjust regulator
No or low vacuum gage indication and/or low vacuum to autopilot servos	Totally or partially plugged inlet filter	Replace inlet filter, adjust regulator
TROUBLESHOOTING PRESSURE SYSTEMS – FILTER RELATED SYMPTOMS		
Problem	Possible Causes(s) – Most causes can be identified with Airborne's 343 Test Kit	Corrective Action(s)
Frequent air pump replacement	High air pump inlet suction – plugged or partial plugged inlet filter.	Replace inlet filter, adjust regulator
	High air pump discharge pressure – plugged or partially plugged inline filter.	Replace inline filter, adjust regulator
Pressure gage indicates frequent need for pressure regulator adjustment	Inlet and/or inline filter nearly plugged	Replace inlet and/or inline filter, adjust regulator
No pressure at pressure gage with engine at low RPM and pressure OK at pressure gage with engine at high RPM	Plugged or partially plugged inlet and/or inline filter	Replace inlet and/or inline filter, adjust regulator
Pressure gage reading OK and gyros tumble/process or won't erect	Plugged inline filter	Replace inline filter, adjust regulator
No or low pressure gage indication and/or low pressure to autopilot servos	Totally or partial plugged inlet and/or inline filter	Replace inlet and/or inline filter, adjust regulator

Any questions regarding these **Mandatory** Replacement Instructions for Airborne Air Filters and Air Filter Elements, or requests for copies of any Airborne Service Letters (can also be printed from Airborne's Website) should be directed to Airborne's Customer Support Team as follows:

Toll Free Phone Number:	800-382-8422
Direct Phone Number:	440-284-6215
Fax Number:	440-284-6208
E-mail:	techhelp@parker.com
Website:	www.parker.com/ag/nad

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SUMMARY OF MANDATORY SERVICE INSTRUCTIONS FOR AIRBORNE PNEUMATIC COMPONENTS

Airborne has published various Service Letters defining the **mandatory** inspection intervals and **mandatory** replacement times for its pneumatic components used in single-engine and multi-engine piston aircraft pneumatic gyro flight instrument systems and de-ice systems. The purpose of this document is to provide a summary reference for these **mandatory** service instructions and to identify the specific detailed Service Letter documents which (the latest revision of) can be printed from Airborne's website or ordered from Airborne.

Airborne Model Number	Mandatory Inspection Intervals*	Mandatory Replacement Times*	Service Letter No.
Engine-Driven Air Pumps			
• Any model no. beginning with 200 through 216	-	500 aircraft hrs. or 6 yrs. from date of manufacture, whichever comes first	58
• E211CC or E212CW	-	500 aircraft hrs. or 6 yrs. from date of manufacture, whichever comes first	58
• Any model no. beginning with 220 through 242	-	500 aircraft hrs. or 6 yrs. from date of manufacture, whichever comes first	58
• Any model no. beginning with 28C214 (clutch-operated)	Every 100 aircraft hrs. for 28C214CW-2	500 aircraft hrs. or 6 yrs. from date of manufacture, whichever comes first	54, 58
• Any model no. beginning with 28C444 (clutch-operated)	Every 50 aircraft hrs. for 28C444CW-4 and -6	500 aircraft hrs. or 6 yrs. from date of manufacture, whichever comes first	53, 58
• Any model no. beginning with 420 through 442	-	400 aircraft hrs. or 6 yrs. from date of manufacture, whichever comes first	58
• 832CW or 842CW	-	300 aircraft hrs. or 6 yrs. from date of manufacture, whichever comes first	58
• Any model subjected to sudden engine stoppage	-	Before next flight	38
• Any model (inspection for oil contamination)	100 aircraft hrs. or annually, whichever comes first	-	43
• Any model subjected to oil contamination	-	Before next flight	43
Auxiliary Motor-Driven Air Pumps and Elapsed Time Indicators			
• Any model no. beginning with 4A2 or 4A3	Check elapsed time indicator (ETI) at 100 aircraft hrs. or annually, whichever comes first	500 pump hrs. or 10 yrs. of service, whichever comes first	57, 58
Vacuum System Air Filters			
• B3-5-1 Garter Filter Element for Vacuum Regulator	-	100 aircraft hrs. or annually, whichever comes first, and each pump replacement	59
• D9-14-3 Air Filter Element • D9-14-5 Air Filter Element • D9-18-1 Air Filter Element • 1J10-1 Air Filter	-	500 aircraft hrs. or annually, whichever comes first, and each pump replacement	59
Pressure System Air Filters			
• B3-5-1 Garter Filter Element for Inlet Filter • D9-14-3 Air Filter Element • D9-14-5 Air Filter Element • D9-18-1 Air Filter Element	-	100 aircraft hrs. or annually, whichever comes first, and each pump replacement	59
• 1J4-4 Inline Air Filter (Replaced by 2J4-4) • 1J4-6 Inline Air Filter (Replaced by 2J4-6) • 1J4-7 Inline Air Filter (Replaced by 2J4-7) • 2J4-4 Inline Air Filter • 2J4-6 Inline Air Filter • 2J4-7 Inline Air Filter	-	500 aircraft hrs. or annually, whichever comes first, and each pump replacement	59
Check Valve Manifolds, Check Valves and Regulator Check Valve Manifolds			
• 1H5 series (all dash numbers) • 1H24 series (all dash numbers) and 2H24-8 • 1H37 series (all dash numbers) • 2H3-39 and 2H3-47	5 yrs. from date of manufacture, every 12 months hereafter until 10 yrs.	10 yrs. from date of manufacture	39
*NOTE: The above components **must not** be operated beyond the Airframe Manufacturer's specification for **mandatory** inspection intervals or **mandatory** replacement times or Airborne's **mandatory** inspection intervals or **mandatory** replacement times, whichever comes first.			

(Continued on reverse side)

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SI300-17 (Rev. E, January, 2007)

Where to Find Date of Manufacture:

The date of manufacture is encoded in the serial number located on the nameplate of Airborne Air Pumps, Check Valve Manifolds, or Regulator Check Valve Manifolds. The date of manufacture is ink stamped on the body of Airborne Check Valves. The first numbers (1 through 12) of the serial number indicate the **month** (January through December of manufacture). The following letter combinations of the serial number indicate the **year** of manufacture:

T = 1972	E = 1979	AB = 1986	AJ = 1993	AT = 2000	BC = 2007
V = 1973	F = 1980	AC = 1987	AK = 1994	AU = 2001	BD = 2008
W = 1974	H = 1981	AD = 1988	AL = 1995	AV = 2002	BE = 2009
A = 1975	J = 1982	AE = 1989	AM = 1996	AW = 2003	BF = 2010
B = 1976	K = 1983	AF = 1990	AN = 1997	AY = 2004	BG = 2011
C = 1977	M = 1984	AG = 1991	AP = 1998	BA = 2005	BH = 2012
D = 1978	AA = 1985	AH = 1992	AR = 1999	BB = 2006	BJ = 2013

If the product nameplate has been lost, obliterated, or for any reason the date of manufacture cannot be substantiated, replace the air pump, check valve manifold, check valve, or regulator check valve manifold.

Referenced Service Letters:

Service Letter No.	Service Letter Subject
38	**Mandatory** Replacement of Airborne Engine-Driven Air Pumps That Have Been Subjected to Sudden Engine Stoppage
39	**Mandatory** Inspection Intervals and Replacement Times for Airborne Check Valve Manifolds, Check Valves and Regulator Check Valve Manifolds
43	**Mandatory** Inspection Intervals for Airborne Air Pumps for Oil Contamination and **Mandatory** Replacement of Oil Contaminated Airborne Air Pumps
53	**Mandatory** Inspection Intervals and Replacement Times for Airborne Model 28C444CW-4 and 28C444CW-6 Engine-Driven Clutch-Operated Air Pumps (Piper PA-46-310P Aircraft)
54	**Mandatory** Inspection Intervals and Replacement Times for Airborne Model 28C214CW-2 Engine-Driven Clutch-Operated Air Pumps (Mooney M20M and M20R Aircraft)
57	Revision of Installation and Maintenance Instructions Manuals and Associated Aircraft Flight Manual Supplements for Installation of Airborne Auxiliary Air Pump System Kits.
58	**Mandatory** Replacement Times for Airborne Air Pumps
59	**Mandatory** Replacement Times for Airborne Air Filters and Air Filter Elements
66	**Mandatory Inspection and Replacement** of Overhauled or Reconditioned Parker/Airborne Air Pumps, Pneumatic System Valves and Check Valve Manifolds

Where to Get Service Letters and More Information:

Any questions concerning this **SUMMARY OF MANDATORY SERVICE INSTRUCTIONS FOR AIRBORNE PNEUMATIC COMPONENTS** or requests for copies of the referenced Service Letters (can also be printed from Airborne's website) should be directed to Airborne's Customer Support Team as follows:

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