

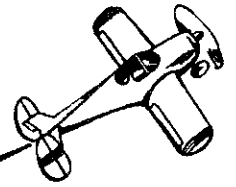
ERCOUPE  
SERVICE  
BULLETIN

No. 24B

# *Ercoupe* BULLETIN

**SUBJECT:** Replacement of aluminum fittings between carburetor and steel or brass fittings.

January 29, 2002



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The Technical aspects of this Service Bulletin are FAA approved.

## SERVICE BULLETIN NO. 24B

DATE: January 29, 2002

SUBJECT: Replacement of aluminum fittings between carburetor and gascolator with steel or brass fittings, verification of gascolator braces, and installation of new gascolator.

This Bulletin supercedes Ercoupe Memorandum No. 52 and Ercoupe Bulletins No. 12, No. 24 and No. 24A

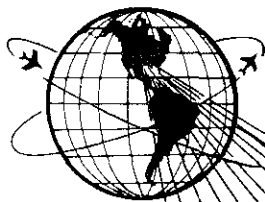
MODELS AFFECTED: All Ercoupe 415-C, 415-CD, 415-D, 415-E and 415-G aircraft with gascolator connected to carburetor.  
All Forney F-1 and F-1A aircraft with gascolator connected to carburetor.

COMPLIANCE: Mandatory before further flight.

### STATEMENT OF DIFFICULTY:

A few failures have been reported of the nipple AN911-2D (aluminum), located between the gascolator and the steel or brass elbow in the carburetor. These failures may have been caused by improper installation of this nipple, either by incorrect alignment or excessive tightening. If the elbow between the gascolator and carburetor is not steel or brass, it may also fail. The elbow in the carburetor inlet should be made of steel or brass. In the intervening years since Ercoupe and Forney aircraft were produced, many aircraft had the factory installed gascolator braces removed without authorization, which can also put appreciable strains on the nipple and elbow.

All Ercoupe and Forney aircraft with the gascolator attached to the carburetor must have double support for the inlet end of the gascolator. This support will overstress the connection between the gascolator and elbow if the system is



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## UNIVAIR®

Dear Ercoupe/Forney Owner:

The attached Service Bulletin No. 24B, dated January 29, 2002 supercedes Service Bulletin No. 24A, dated August 22, 1986, Service Bulletin No. 12 and Service Memorandum No. 52. Service Bulletin No. 24B is referenced in AD 2002-16-04. AD 2002-16-04 supercedes AD 46-38-03 and AD 86-22-09.

Service Bulletin No. 24B applies **only** to aircraft with the gascolator attached to the carburetor whether the carburetor is a Marvel-Schebler or a Bendix-Stromberg type. *Aircraft with the fuel gascolator mounted on the firewall are not affected by AD 2002-16-04 or Service Bulletin No. 24B.* Where AD 2002-16-04 lists what airplanes are affected by this AD and says airplanes that "have the gascolator connected to the side of the carburetor", this means either the left side (Marvel carburetor) or the rear side of the carburetor (Stromberg carburetor).

Note: Ercoupe 415-C, 415-CD, 415-D, 415-E, 415-G and Forney F1 and F1A aircraft with gascolators mounted on the firewall were altered from factory original configuration and the approval basis for these alterations should be reviewed.

You can see in AD 2002-16-04 the stated problem that the AD addresses is "because of the current airplane design configuration (aluminum fuel line nipples, aluminum fuel line elbows, and/or no double support tubes on the gascolator)". We must emphatically state that this is not the case. Service Bulletin 24B mandates that the aircraft must comply with the current design configuration which calls for steel or brass fuel line elbows and nipples as well as the installation of the double support tubes. In other words, the aircraft must comply with the current design configuration to meet the requirements of AD 2002-16-04 and Service Bulletin No. 24B. Aluminum fittings used in the Ercoupe/Forney fuel systems outside the carburetor-gascolator attachment position are not affected by AD 2002-16-04 or Service Bulletin No. 24B.

Some Ercoupes have been converted by the installation of C90 or O-200 engines in place of the original C75 or C85 engines through the STC or field approval process. If your aircraft has one of these conversions, you are not exempt from the requirements of the AD or Service Bulletin if it has a carburetor mounted gascolator. You may be able to use one of the gascolator support kits listed in Service Bulletin 24B. If the gascolator is mounted on the carburetor in a manner different from the original method of gascolator installation, a form of gascolator support should be fabricated, installed, and FAA approved per the alternate methods of compliance provision of AD 2002-16-04. It is very important that the gascolator not be allowed to hang off the carburetor without proper support and brass or steel fittings and elbows.

Similarly, some aircraft owners have replaced the Bendix-Stromberg carburetors with Marvel-Schebler carburetors. The early Forney F1 aircraft, Serial Numbers 5600 through 5659, and all the Ercoupe 415 series aircraft were originally supplied with Bendix-Stromberg carburetors. To clarify which fittings and gascolator supports should be used on your aircraft see the following:

Aircraft with Bendix-Stromberg carburetors should use the parts listed in Service Bulletin No. 24B for Service Kit SK-76 or Service Kit SK-76G.

Aircraft with Marvel-Schebler carburetors should use the parts listed in Service Bulletin No. 24B for Service Kit SK-76F or Service Kit SK-76FG.

improperly aligned. The gascolator piping, braces, and bracket or clamp can be properly aligned using the instructions in this bulletin.

Improper alignment, removal of the support braces, and/or use of aluminum fittings between the gascolator and carburetor may lead to a failure of the gascolator, gascolator attach fittings, fuel line fittings, and/or carburetor. Such failure(s) may create a fuel leak leading to engine stoppage and/or fire.

The original gascolators on many Ercoupe and Forney aircraft have glass bowls. Although the glass bowls make it easy to see if any water or contaminants are present, most of them do not have any way of draining the water or contaminants out of them without removing the bowl. Also, replacement parts for the glass bowl gascolators are difficult or impossible to find. Univair therefore strongly recommends that the Univair U14330-002 fuel strainer assembly be installed if the existing gascolator is to be replaced. The U14330-002 fuel strainer assembly incorporates a drain valve to facilitate fuel sampling during aircraft preflight.

#### INSPECTION:

1. Open the left side cowling to gain access to the fuel gascolator.
2. Check the location of the gascolator. If the gascolator is mounted on the firewall, no further action is required. If the gascolator is connected to the carburetor with an elbow and nipple, turn fuel valves in the cockpit to OFF and continue to step 3.
3. Visually inspect the fuel line nipple and elbow located between the gascolator and the carburetor for cracks or incorrect alignment and replace as necessary. If the nipple is an AN911-2D (aluminum) fitting, replace it with an AN911-2 (brass or steel) fitting. If the elbow is aluminum replace it with a brass or steel elbow. The Ercoupe 415-C, 415-CD, 415-D, 415-E, and 415-G use an AN914-2 90° elbow. The Forney F1 and F1A use an AN915-2 45° elbow.

**DO NOT USE AN ALUMINUM FITTING BETWEEN THE GASCOLATOR AND CARBURETOR.**

4. Remove the gascolator bowl and verify that a fine mesh strainer or screen is installed in the cap. Check the gascolator cap for cracks. If cracks are present, replace the gascolator. Check the gasket for condition and replace as necessary.
5. Verify that two support braces are attached to the inlet side of the gascolator. If one or both braces are missing, install the proper support braces before flying the aircraft. Operation of the aircraft without both of the support braces installed

may lead to a failure of the gascolator, gascolator attach fittings, and/or carburetor. Such failure(s) may create a fuel leak leading to engine stoppage and/or fire.

#### REPLACEMENT OF GASCOLATOR-TO-CARBURETOR FITTINGS:

1. Verify that fuel valves are OFF.
2. Remove fuel line from inlet to gascolator and gascolator support braces. Remove gascolator bowl.
3. Remove the gascolator cap and nipple from the elbow attached to the carburetor with a wrench on the nipple. Support the elbow connected to the carburetor while turning the nipple.
4. If the elbow is being replaced, remove the existing elbow from the carburetor and replace with one of the following: For Ercoupe 415-C, 415-CD, 415-D, 415-E, or 415G install an AN914-2 90° steel or brass elbow. For Forney F1 or F1A install an AN915-2 45° steel or brass elbow. Do not use Teflon tape or RTV on the threads of the elbow. Permatex Form-A-Gasket No. 2 or No. 3 or Titesal is recommended. Tighten the elbow to 7 to 8 ft. lbs. Continue tightening only enough to properly align the elbow. Note: the carburetor or oil tank may have to be removed to remove and replace the elbow. Carburetor or oil tank removal and reinstallation should be accomplished in accordance with engine manufacturer's maintenance/overhaul manual.
5. If the nipple is being replaced, carefully support the gascolator cap and remove the existing nipple with a wrench. Replace with an AN911-2 steel or brass nipple. See Step 4 above for recommended thread sealant. Tighten the replacement nipple to not more than 7 to 8 ft. lbs.
6. Install the gascolator cap and nipple onto the elbow attached to the carburetor. Tighten to 7 to 8 ft. lbs. If torque is reached before the gascolator is aligned, continue tightening until proper alignment is obtained. Use a wrench on the nipple to align the gascolator. Do not turn the gascolator cap. Support the elbow while tightening the nipple to prevent damaging the elbow or carburetor.
7. Replace the gascolator support braces (see instructions for installation of support braces), gascolator bowl, and fuel line. Tighten the nut on the gascolator bale and safety wire the nut to the bale. Replace any rubber fuel line that appears brittle or cracked. Turn fuel valves ON and check for leaks.

## REPLACEMENT OF GASCOLATOR:

1. If the gascolator needs replacement, Univair recommends the use of a Univair U14330-002 fuel strainer assembly in place of the original glass bowl gascolator. The U14330-002 includes a drain valve to check for water and contaminants during each preflight inspection of the aircraft. Univair Kit No. SK-76G includes a U14330-002 all metal fuel strainer assembly for installation on Ercoupe 415-C, 415-CD, 415-D, 415-E, or 415G aircraft. Univair Kit No. SK-76GF includes a U14330-002 all metal fuel strainer assembly for installation on Forney F1 or F1A aircraft. Univair Kits SK-76G and SK-76GF each contain a new gascolator bracket for attaching the gascolator to the gascolator support brackets.
2. Verify that fuel valves are OFF.
3. Remove fuel line from inlet to gascolator and gascolator braces. Remove gascolator bowl.
4. Remove the gascolator cap and nipple from the elbow attached to the carburetor with a wrench on the nipple. Support the elbow connected to the carburetor while turning the nipple.
5. Remove the bowl and the wire bale from the U14330-002 fuel strainer assembly.
6. Install the gascolator bracket (PN 48308-001) on the cap of the gascolator so that the tabs are lined up with the center of the inlet port and the open end of the cut out for the outlet port faces up. Install the bale through the small holes on the gascolator bracket and into the sides of the gascolator cap to support the bracket while tightening the bracket. Use a hose clamp to squeeze the bracket around the gascolator cap. Insert an AN515-8-10 (MS35206-246) screw through the lower tabs and tighten with an AN365-832 (MS21044N08) nut. Remove the hose clamp.
7. Install an AN913-1D pipe plug in the top of the gascolator cap. Install an AN911-2 steel or brass nipple in the outlet port of the gascolator cap. Install an AN914-2 elbow in the inlet port. Do not use Teflon tape or RTV on the threads of the nipple, elbow or plug. Permatex Form-A-Gasket No. 2 or No. 3 or Titesal is recommended. Tighten the replacement nipple to not more than 7 to 8 ft. lbs. Tighten the elbow to line up with the fuel line.
8. Install the gascolator cap and nipple onto the elbow attached to the carburetor. Tighten to 7 to 8 ft. lbs. If torque is reached before the gascolator is aligned, continue tightening until proper alignment is obtained. Use a wrench on the nipple to align the gascolator. Do not turn the gascolator cap. Support the elbow while tightening the nipple to prevent damaging the elbow or carburetor.

9. Replace the gascolator support braces (see instructions for installation of support braces), gascolator bowl, and fuel line (replace cracked or brittle fuel line). Be sure the drain valve is oriented to point outboard when installing the gascolator bowl. Tighten the nut on the gascolator bale and safety wire the nut to the bale. Turn fuel valves ON and check for leaks.

#### INSTALLATION OF GASCOLATOR SUPPORT BRACES:

1. For Ercoupe 415-C, 415-CD, 415-D, 415-E, and 415-G, attach forward support brace (PN 48096) to the forward lower stud supporting the push rod housing flange under cylinder #4. Use the existing 1/4-28 nut and washer with a new lockwasher (MS35338-44) to secure the gascolator support in place. The tab on the end of the support may need some filing to achieve a proper fit. Leave the nut loose until final fit has been accomplished. For the Forney F1 and F1A, attach forward support brace (PN 48099) to the forward lower stud supporting the push rod housing flange under cylinder #4. Use the existing 1/4-28 nut and washer with a new lockwasher (MS35338-44) to secure the gascolator support in place. The tab on the end of the support may need some filing to achieve a proper fit. Leave the nut loose until final fit has been accomplished.
2. For Ercoupe 415-C, 415-CD, 415-D, 415-E, and 415-G, attach rear support brace (PN 48076) to the stud on the bottom of the left lower engine mount. Use an AN315-5 nut, AN960-516 washer, and MS35338-45 lockwasher to secure the gascolator support in place. Leave the nut loose until final fit has been accomplished. For the Forney F1 and F1A, attach rear support brace (PN 48098) to the forward lower stud supporting the push rod housing flange under cylinder #2. Use the existing nut and washer with a new lockwasher (MS35338-44) to secure the gascolator support in place. The tab on the end of the support may need some filing to achieve a proper fit. Leave the nut loose until final fit has been accomplished.
3. Turn the elbow in the carburetor and the nipple in the gascolator cap as required to align the upper tab on the gascolator bracket (or the Adel 738-10 clamp if the glass bowl gascolator is being retained) with the gascolator support brackets. Remember to use a wrench on the nipple to turn the gascolator cap; do not twist the gascolator cap. Adjust the gascolator piping so that the 6-32 screw, which connects the braces to the bracket (or clamp), can easily be inserted without force. The bracket support brace tabs may be adjusted with duckbill pliers to provide the proper fit (apply tape to the jaws of the pliers to prevent scratching or marring the tabs). Install an AN365-632 (MS21044N06) nut on the screw and tighten. Tighten the remaining attaching hardware and torque to engine manufacturer's recommended values (7.5 to 9.2 ft. lbs. for 1/4-28 threads, 15.0 to 18.3 ft. lbs. for 5/16-24 threads).

**INSTRUCTIONS FOR CONTINUED AIRWORTHINESS:**

Drain water, sediment and impurities from the U14330-002 gascolator before each flight.

Continue to maintain the gascolator as detailed in the applicable Ercoupe or Forney Service Manual.

**INFORMATION AND PARTS AVAILABILITY:**

AN911-2 steel nipples are available from Univair Aircraft Corporation.

The following Univair Aircraft Corporation Service Kits are available from Univair:

Service Kit SK-76 contains forward and rear gascolator support braces, Adel 738-10 clamp, AN515-6-8 screw, and AN365-632 nut for installation of the proper gascolator braces on Ercoupe 415-C, 415-CD, 415-D, 415-E, and 415-G aircraft with the original glass gascolator.

Service Kit SK-76F contains forward and rear gascolator support braces, Adel 738-10 clamp, AN515-6-8 screw, and AN365-632 nut for installation of the proper braces on Forney F1 and F1A aircraft with the original glass gascolator.

Service Kit SK-76G contains a new all-metal gascolator, gascolator bracket, AN515-8-10 screw, AN365-832 nut, forward and rear gascolator support braces, AN515-6-8 screw, and AN365-632 nut for installation of the proper braces on Ercoupe 415-C, 415-CD, 415-D, 415-E, and 415-G aircraft.

Service Kit SK-76GF contains a new all-metal gascolator, gascolator bracket, AN515-8-10 screw, AN365-832 nut, forward and rear gascolator support braces, AN515-6-8 screw, and AN365-632 nut for installation of the proper braces on Forney F1 and F1A aircraft.

Parts and kits may be ordered from Univair Aircraft Corporation  
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