T.O. 6R1-3-5-33

TECHNICAL MANUAL

OVERHAUL

INJECTION CARBURETOR

MODEL PS-5C

PARTS LIST NUMBERS

380223-2 thru -8
391318-4 thru -11
391629-3 thru -7

(BENDIX)

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TABLE OF CONTENTS

SECTION I

INTRODUCTION

1-1. GENERAL.

1-2. This handbook is published for the information and guidance of personnel responsible for the overhaul and testing of the Stromberg Model PS-5C Injection Carburetor, Parts List 391318-5, as used on the Continental O-470 engine. This carburetor is manufactured by the Bendix Products Division of the Bendix Aviation Corporation, South Bend 20, Indiana, U.S.A. The service procedures outlined in this handbook may be modified as convenient, to suit individual overhaul facilities as a means for expeditious and/or more economical handling. Any variations in this procedure, however, must be consistent with standard shop practices and must not detract from the overall efficiency and operation of the end item. Specified values, limits, test flow limits and dimensions must be strictly adhered to.

1-3. Sections I, II and III of this handbook contain overhaul and test instructions for the Stromberg Model PS-5C Injection Carburetor Parts List 391318. Overhaul and test instructions for additional models are provided in Section IV by the use of Difference Data Sheets. Any additional models included in Section IV are listed in Section IV.

1-4. Overhaul and test procedures for models included in Section IV are the same as the procedures given in Sections II and III, except for the specific differences noted by the applicable Difference Data Sheets.

1-5. IDENTIFICATION.

1-6. All services will use the manufacturer's equipment designation: Stromberg Model PS-5C Injection Carburetor. Each new carburetor is identified with a specification plate (figure 1-2) attached to the throttle body. It identifies the carburetor manufacturer, unit serial number, model designation and parts list and issue numbers to which the unit was manufactured.

a. Specification plates may be restamped or replaced whenever the carburetor is modified.

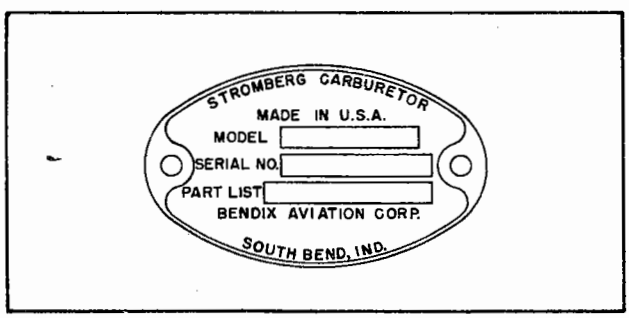

Figure 1-2. Specification Plate

1-7. GENERAL DESCRIPTION.

1-8. The Stromberg Model PS-5C Injection Carburetor is a single barreled updraft unit that provides a closed fuel system from the engine fuel pump to the carburetor discharge nozzle. Its function is to meter fuel through a fixed jet to the engine in proportion to air flow to the engine, and offers such advantages as:

a. The discharge nozzle is located downstream from the throttle valve. (Prevents ice formation in the carburetor due to fuel vaporization.)

b. Assures positive fuel delivery regardless of aircraft attitude or altitude.

1-9. PRINCIPLES OF OPERATION.

1-10. The operation of the Stromberg Model PS-5C Injection Carburetor will be described by discussing the air and fuel sections separately. Refer to the schematic diagram (figure 1-3) for aid in tracing the various circuits of the unit.

a. AIR SECTION.

(1) Air enters the carburetor through the air intake, passes through the venturi tube, past the throttle valve and into the intake manifolds. The flow of air is controlled by a conventional butterfly - type throttle valve. Air flowing through the venturi creates a suction at the throat of the venturi tube. This suction is transmitted through internal channels to chamber "B" of the regulator, and is known as "metering suction". It is also exposed to the low pressure side of the control diaphragms of the discharge nozzle, the idle needle and enrichment valve, and to the needle valve of the manual mixture control.

(2) Intake air also enters the annular space between the outside diameter of the venturi tube and the flange of the carburetor and flows through internal channels to chamber "A" of the regulator and to the discharge nozzle. It is also exposed to the high pressure side of the manual mixture control needle valve.

(3) Since the "intake air pressure" in chamber "A" is greater than the "metering suction" in chamber "B", a pressure differential is created acting upon the air diaphragm separating the two chambers. This differential force acting on the inner (air) diaphragm is termed "air metering force", which increases and decreases with air flow through the carburetor. Further control of the "air metering force" is provided by the manual mixture control.

(4) Movement of the air diaphragm in response

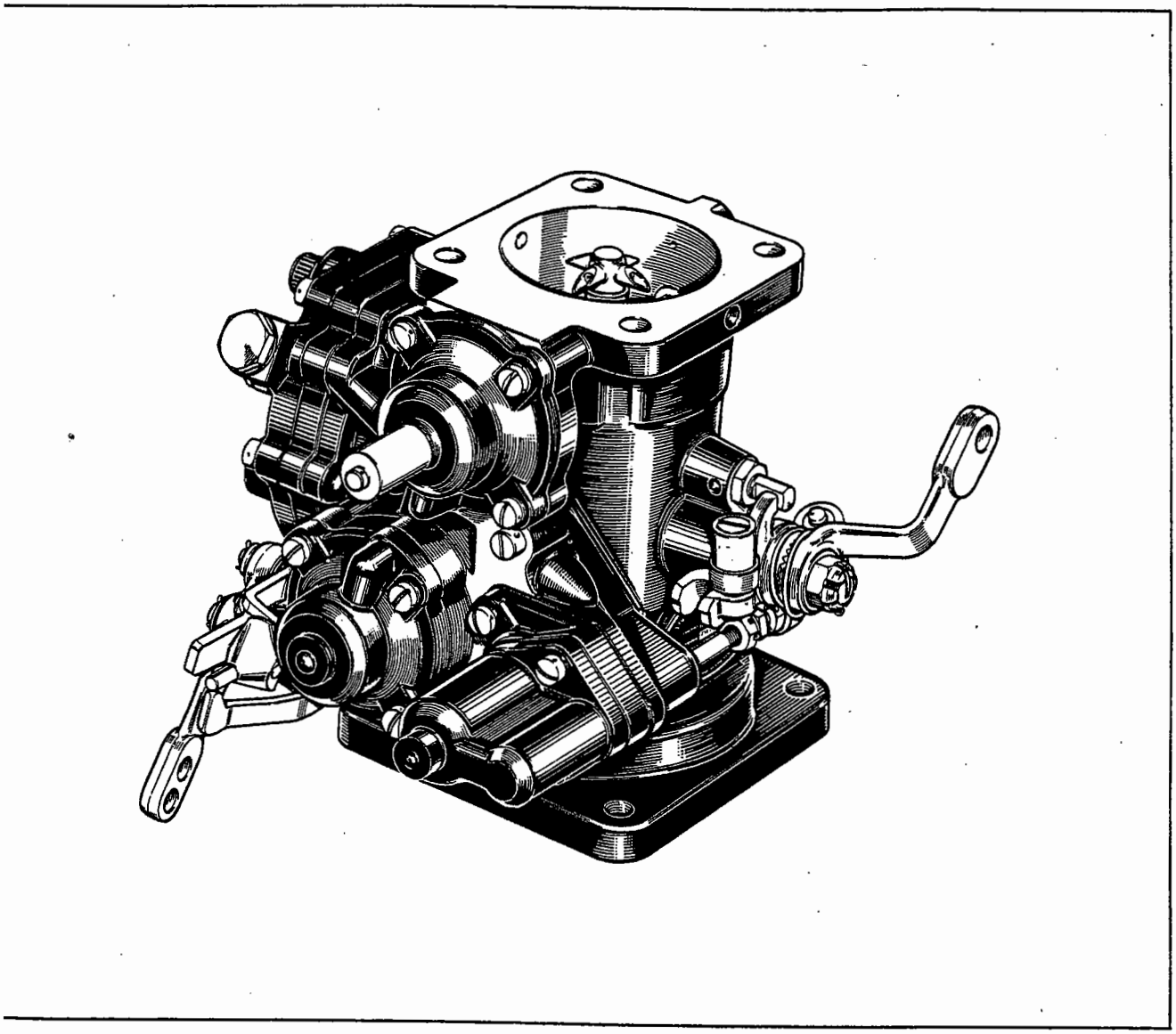

Figure 1 - PS-5C Injection Carburetor Assembly External View

SECTION II
OVERHAUL INSTRUCTIONS

2-1. SPECIAL TOOLS.

Figure Number	Part Number	Nomenclature	USAF Stock Number
2-1A	T25138	Wrench - Staking	9DBP-T25138
2-1B	T25260	Socket - Screwdriver	9DBP-T25260
2-5	T25941	Gauge - Enrichment valve adjusting	9DBP-T25941
2-1C	T26823	Reamer - Throttle shaft bushing	9DBP-T26823

2-2. GENERAL.

2-3. Overhaul of the Stromberg Model PS-5C Injection Carburetor must be performed in a clean area, free of dust, grit and moisture. Special tools must be used where necessary to prevent damage to parts during the overhaul or service operations.

2-4. All serviceable parts of the carburetor are illustrated in the exploded view drawing (figure 2-1), and are identified by numerical index numbers. Proper disassembly sequence can be accomplished by removing parts in ascending numerical order. Refer to the text for instructions on special tools and equipment.

2-5. Remove body studs and threaded, pressed or pinned bushings only if qualified inspection indicates a need for replacement. Before removing studs, note depth to which they are installed. Install replacement studs to the same depth using the correct oversize to maintain the required torque.

2-6. Replace all diaphragms, gaskets, packings and seals at every overhaul. Keep replacement diaphragms, packings and seals wrapped in air- and oil-resistant paper until actual installation. To facilitate the installation of rubber parts, apply a very light film of clean oil, Federal Specification MIL-O-6081, Grade 1010, to the rubber just before installation.

NOTE

Do not apply air pressure to an assembled carburetor as damage to the diaphragms may result.

2-7. DISASSEMBLY.

a. Remove all external lockwires and seals, and disassemble the carburetor in numerical order as indicated in figure 2-1.

b. Remove the idle control rod adjusting nut (38) to permit the removal of the idle control rod and arm (39). Use an awl or similar pointed tool to remove the idle seat lockwasher (49) before removing the idle needle seat (50) using care not to damage the body casting.

c. Remove the discharge diaphragm adjusting screw (52) before removing the cover (53) to release the tension on the discharge diaphragm spring (57).

d. Use metering jet screwdriver T25260 to remove the main metering jet (88).

e. Use care in removing regulator needle valve (97) and valve seat (96) as they are a matched assembly.

f. (Deleted)

g. Place an identifying mark on the throttle valve (128) so it will be replaced in its original position.

h. Use care in removing throttle stop lever (137). If a suitable puller is not available it will be necessary to tap the exposed end of the throttle shaft to drive the expansion plug (143) from the main body. The throttle shaft is made of a soft material and will distort easily.

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SECTION II

OVERHAUL INSTRUCTIONS

2-1. SPECIAL TOOLS.

Part Number	Nomenclature	Figure Number	U.S.A.F. Stock Number
T25138	Staking Tool - Valve screw	2-1	5120-142-3949
T25260	Screwdriver - Metering jet	2-2	5120-398-4321
T25941	Assembly Gage - Enrichment valve screw adjusting	2-3	5220
T26823	Reamer, Finish - Throttle shaft bushing	2-4	5120
T27247	Adapter - Bleeder tube drain	2-5	4920
T27277	Arbor Gage - Throttle shaft bushing	2-6	5220
T27278	Mandrel - Throttle shaft bushing	2-7	5120
*T27351	Pliers - Coiloc seal	2-8	5120

*Tool to have the same depot insignia on each land of the crimping die. Do not exceed three letters in this insignia. Be certain to specify insignia desired with order. Procure this tool from:

Bendix Products Division
South Bend 20, Indiana

or

E.J. Brooks Company
Newark, New Jersey

**Commercially Procurable Special Tools

Heli-Coil Part No.	Nomenclature
528-4N	Inserting Tool
1195-4	Tank Break-Off Tool
1227-6	Extracting Tool

**These tools are procurable from the Heli-Coil Corporation, Danbury, Conn.

2-2. GENERAL.

2-3. Overhaul of the Model PS-5C Injection Carburetor must be performed in a clean location, free from dust, grit and moisture. Special tools shall be used where necessary when performing service and overhaul operations. All serviceable parts of the carburetor are illustrated in the exploded view drawing of the carburetor assembly, and are identified by index numbers and names. Certain repair parts may be available in the form of kits.

NOTE

Presence of a new part in the applicable repair kit eliminates the necessity of cleaning, inspection, or rework of the equivalent used part removed from the assembly being repaired. Removed parts in this category shall be administratively condemned. Removed parts not supplied in applicable kit shall be handled in accordance with the following instructions.

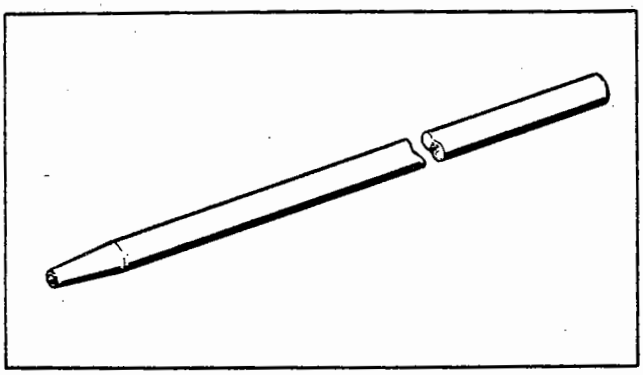

Figure 2-1. T25138 Valve Screw Staking Tool

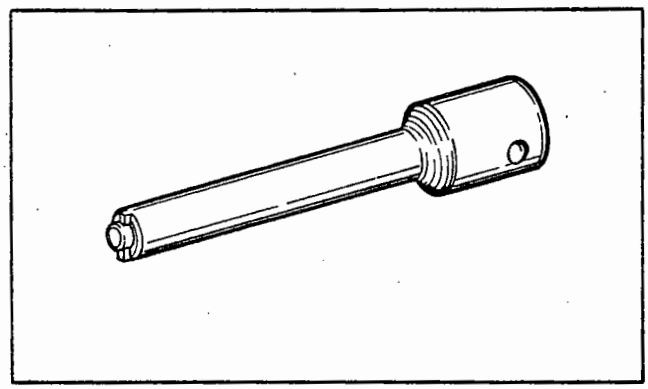

Figure 2-2. T25260 Metering Jet Screwdriver

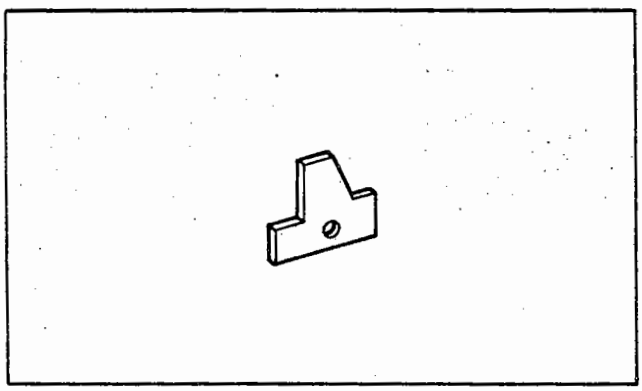

Figure 2-3. T25941 Enrichment Valve Screw Adjusting Assembly Gage

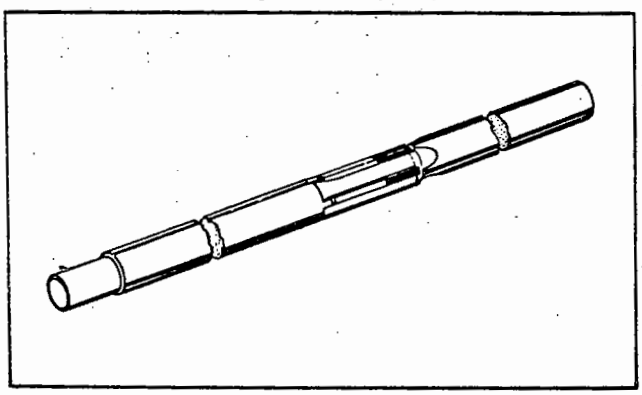

Figure 2-4. T26823 Throttle Shaft Bushing Finish Reamer

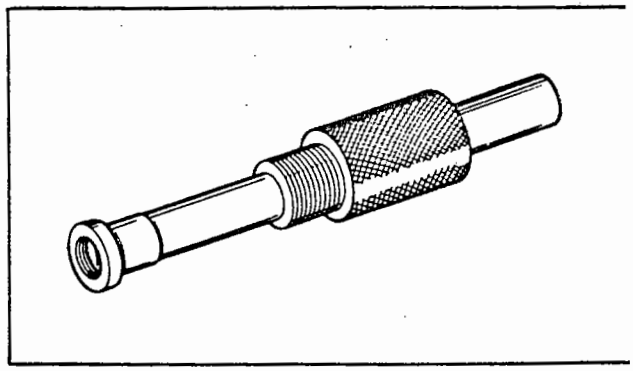

Figure 2-5. T27247 Bleeder Tube Drain Adapter

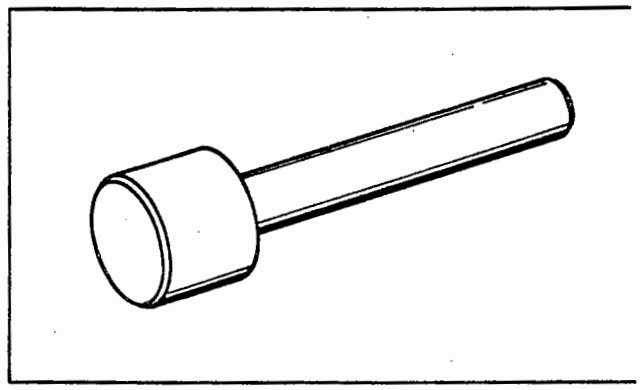

Figure 2-6. T27277 Throttle Shaft Bushing Arbor Gage

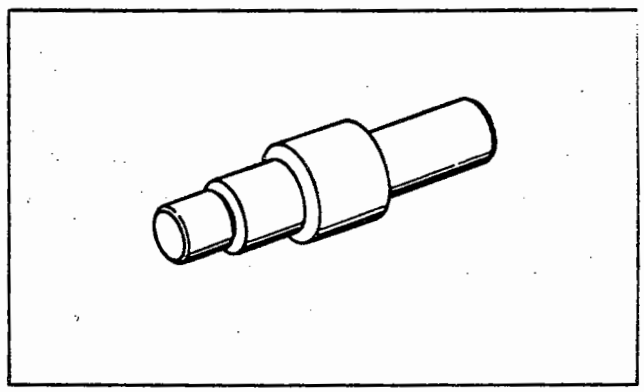

Figure 2-7. T27278 Throttle Shaft Bushing Mandrel

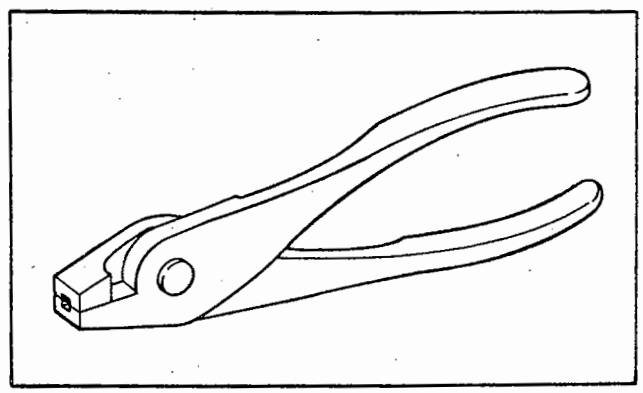

Figure 2-8. T27351 Coiloc Seal Pliers

2-4. GENERAL DISASSEMBLY.

a. Do not pool major operational units or detail components of Model PS-5C Injection Carburetors being overhauled.

b. Perform the disassembly in ascending numerical order as indicated in the applicable exploded view to prevent damaging parts by improper removal. Refer to the supplementary text for special mechanical techniques and instructions for use of special tools and equipment.

c. Remove threaded, pressed or pinned bushings only if inspection indicates a need for replacement.

2-5. GENERAL CLEANING.

a. Cleaning of all parts can be accomplished as follows: Carry out the following five steps on all parts. If further cleaning is necessary, the procedure in paragraphs 2-6 through 2-11 may be followed:

(1) Thoroughly degrease the part, using hydrocarbon solution (Stoddard Solvent) Federal Specification P-S-661, immersing the part for 12-15 minutes.

(2) Immerse the part in carbon remover, conforming to MIL-C-5546A or Specification USAF 20043, for 30 minutes, at 57.2°C (135°F) to 62.8°C (145°F).

(3) Remove the part from carbon remover and rinse thoroughly in water at a temperature of 71.1°C (160°F) to 82.2°C (180°F).

(4) Dry thoroughly with clean dry compressed air, paying particular attention to all recesses and internal passages.

(5) Inspect parts for corrosion.

CAUTION

Exercise extreme caution when corrosion and/or other deposits are found on the surface of the venturi throat (73, figure 2-9) or venturi skirt (76, figure 2-9). If corrosion and/or deposits other than surface stains cannot be removed by immersing in carbontetrachloride (Federal Specification O-C-141A), the part must be replaced. Corrosion and/or other deposits removed by mechanical methods may remove enough metal to affect calibration. Fumes from carbontetrachloride are highly toxic. Perform all cleaning with this fluid in a well ventilated area.

2-6. CLEANING PROCEDURE FOR ALUMINUM PARTS THAT ARE NOT CORRODED.

2-7. Having carried out all the steps outlined in paragraph 2-5, proceed with the following:

a. Use No. 600 Wet or Dry Paper to remove stubborn deposits. The paper should be used wet.

b. Hot water rinse (spray or dip optional).

c. Dry thoroughly with clean dry compressed paying particular attention to all recesses and ternal passages.

d. Allow surface to further dry at room tempe ture or oven dry 10 minutes at 65.6°C (150°F 121.1°C (250°F).

2-8. CLEANING PROCEDURE FOR ALUMINUM PARTS THAT ARE CORRODED.

2-9. Having carried out all the steps outlined paragraph 2-5, proceed with the following:

CAUTION

All bushings, pins or other non-aluminum parts must be removed from the part being cleaned prior to immersion. The complete part must have the anodic film restored either by electrolysis or by application of Alodine 1200.

a. Immerse the part in alkaline cleaner Form "T", or an equivalent alkaline cleaner inhibited agai attack on aluminum, for 10 to 15 minutes maintai at a temperature of 87.8°C (190°F) to 100°C (212° Formula "T" consists of the following ingredien

Sodium Phosphate Dibasic.	20 lb
Sodium Metasilicate	10 lb
Soap (Federal Specification P-S-598)	8 lb
Sodium Dichromate	2 lb
Water at 93.3°C (200°F) to 100°C (212°F)	100 gal

b. Rinse in hot water (spray or dip optiona

c. Rinse in cold water (spray or dip optiona

d. Immerse the part in a chromic-phosphoric ac solution for 5 to 10 minutes at 82.2°C (180°F) 93.3°C (200°F). This treatment will remove corrosi products, paint, and any previously applied anod coating.

NOTE

The solution outlined in step d, above, shall contain 3.5 pints of 75 percent phosphoric acid and 1.75 pounds of chromic acid to 10 gallons of water.

e. Rinse in cold water (spray or dip optional

f. Rinse in hot water (spray or dip optional

g. Use No. 600 Wet or Dry Paper on the corrod area. The paper should be used wet.

h. Rinse in hot water (spray or dip optional

i. Dry thoroughly with clean dry compressed air, paying particular attention to all recesses and internal passages.

NOTE

Observe the caution following paragraph 2-5,a.

2-10. SPOT METHOD CORROSION REMOVAL FOR ALUMINUM PARTS. The following instructions apply to the spot method of corrosion removal from aluminum parts or bodies.

CAUTION

All bushings and/or pressed pins must be suitably protected from the cleaning solution to prevent damage.

a. Place the part or body to be cleaned in an oven or water bath and raise the temperature of the part to approximately 100°C (212°F).

b. When the temperature of the part has reached the specified value, apply the alkaline cleaner specified in paragraph 2-9,a, to the corroded area. If an oven was used in step a, above, return the part to the oven and maintain temperature between 87.8°C (190°F) and 100°C (212°F); if a water bath was used, remove the part from the bath before applying cleaner and avoid drafts or areas which would cause a rapid loss of heat by the part. Allow the cleaner to remain on the area 10 to 15 minutes.

c. Rinse the part thoroughly with hot water, either spray or bath.

d. Restore part temperature to approximately 93.3°C (200°F) and apply the chromic-phosphoric acid cleaner as specified in paragraph 2-9,d, above, to the area to be cleaned. Maintain temperature of the part at 82.2°C (180°F) to 93.3°C (200°F) if possible. Allow the acid cleaner to remain on the area 5 to 10 minutes.

e. Following the application of the acid cleaner rinse the part thoroughly twice. First, rinse the part in cold running water followed by a rinse in hot water. All corrosion deposits must have been removed; if deposits remain, repeat step d, above. Abrade the cleaned surface with No. 600 wet or dry paper (used wet) to assure complete removal of chemical film and provide a suitable surface for application of Alodine No. 1200 method of restoring protective film. Rinse the part with hot water following the abrasion procedure.

NOTE

Observe the caution following paragraph 2-5,a.

2-11. REMOVAL OF RUST DEPOSITS FROM STAINLESS STEEL PARTS. Clean all stainless steel parts displaying rust or other foreign deposits in accordance with the following instructions.

a. Clean the parts by immersing in an alkaline cleaner as specified in paragraph 2-9,a. Allow the parts to remain in the solution 10 to 15 minutes while maintaining the temperature of the solution at 79.5°C (175°F) to 85°C (185°F). Rinse the parts thoroughly with warm water and dry with filtered compressed air.

b. Immerse the parts in a cleaning solution consisting of 50 percent commercial muriatic acid and 3 percent inhibitor similar to "Acid Addition Agent" (manufactured by the Northwest Chemical Company, Detroit, Michigan) with water. Maintain the solution at room temperature and allow the parts to remain in the solution 10 to 45 seconds; excessive exposure to this solution may affect dimensional tolerance and must be avoided. Rinse parts thoroughly to remove all acid solution; dry with filtered compressed air.

2-12. GENERAL INSPECTION. Inspection must determine parts serviceability and repair or replacement requirements. Tolerance tables in this section, indicating minimum and maximum parts serviceability limits, will precede reassembly instructions.

2-13. GENERAL TESTING. Use the special fixtures designed for subassembly testing to assure proper calibration. Test fluid for these tests must be Naphtha conforming to the requirements in Section III of this technical manual, unless otherwise noted.

2-14. GENERAL REPAIR OR REPLACEMENT.

a. Replace all seals, shipping caps or plugs, taper or roll pins, retaining rings, tab or lock washers, packings, gaskets, diaphragms, elastic stop nuts, cotter pins and lockwire, whenever assemblies using these parts are removed for service or overhaul.

b. Wrap replacement packings and diaphragms in air and oil resistant containers and store in a cool dry place. Avoid heat or direct sunlight until actual installation.

c. Refer to the applicable "Illustrated Parts Breakdown" for available oversizes of replacement parts

d. Alodine treat repaired or reworked aluminum parts. Reimmunize repaired or reworked stainless steel parts. Restore the protective finish to parts subjected to a cleaning process which removes the existing corrosion inhibitor.

2-15. IMMERSION TYPE OF ALODINE NO. 1200 TREATMENT FOR ALUMINUM PARTS. Use immersion treatment to increase the corrosion resistance of aluminum alloy parts only when necessary after cleaning and/or rework.

a. Immerse for 1 to 5 minutes at room temperature in Alodine solution.

(1) The solution is prepared by adding slowly, with thorough stirring, 3 oz. of Alodine No. 1200 per gallon of tap water at room temperature. Disregard the small amount of insoluble material that may settle out.

TABLE I. ALODINE NO. 1200 REPLENISHMENT

ml thiosulphate	Concentration of No. 1200		Electrometric Operating pH
	oz/gal	lb-oz/100 gal	
10.0	3.00	18 lb 12 oz.	1.6 to 2.3
9.0	2.75	17 lb 3 oz.	1.6 to 2.3
8.25	2.50	15 lb 10 oz.	1.6 to 2.3
7.5	2.25	14 lb 1 oz.	1.6 to 2.0
6.75	2.00	12 lb 8 oz.	1.6 to 2.0
5.5	1.75	10 lb 15 oz.	1.6 to 2.0
5.0	1.50	9 lb 6 oz.	1.6 to 2.0
4.25	1.25	7 lb 13 oz.	1.5 to 1.7
3.25	1.00	6 lb 4 oz.	1.5 to 1.7
2.50	0.75	4 lb 11 oz.	1.5 to 1.7
1.75	0.50	3 lb 2 oz.	—

(2) Check deterioration of Alodine No. 1200 solution before using. When determining the amount of Alodine No. 1200 to be added for replenishing an existing bath, pipette a 5 ml tank sample into a 250 ml flask. Dilute with distilled water to approximately 100 ml. Add approximately one gram potassium iodide (KI) and agitate the flask to dissolve the salt. Add 5 ml concentrated hydrochloric acid to the flask; rinse the neck of the flask and install a stopper. Allow the solution to settle for approximately one minute. Titrate with 0.1 normal sodium thiosulphate until a straw color is obtained. Add 2 ml soluble starch to the solution. Continue titration until the blue-black color disappears. From the amount of sodium thiosulphate used determine the amount of Alodine No. 1200 to be added to the bath by referring to Table I.

(3) During normal operation the acidity measurement (pH) of the bath rises, causing a reduction in the color of the coating. To counteract this, add one quart of concentrated nitric acid to the bath for each 12 pounds of Alodine No. 1200 used in the normal replenishing procedure, or a sufficient amount to maintain the pH of the bath within the range shown in Table I.

NOTE

ACP Chemical Test Set No. 2266 for the control of the Alodine No. 1200 bath can be obtained from the AMCHEM Products Inc., Ambler, Pa.

(4) The Alodizing tank should be constructed of stainless steel or other suitable acid and oxidation resistant material other than lead, glass, or ceramics. The tank must be ventilated. Containers that are immersed with the work should be of acid-resistant material or mild steel that has been suitably coated.

b. Rinse thoroughly in cold running water.

c. To facilitate drying, rinse in hot water, at 65.6°C (150°F) to 82.2°C (180°F), to which has been added 0.05-0.1 oz. Alodine No. 1200 per gallon. Where hard water exists, pure water (deionized, steam condensate or distilled) must be used for the hot rinse to prevent the deposition of powdery residues which would interfere with paint adhesion. Maintain final rinse by addition of Alodine No. 1200 so that a 25 ml sample titrated, as in paragraph 2-15, a,2, gives a titration of 1.0-2.0 ml

d. The Alodine finish shall be a uniform, adherent, iridescent golden through tan to dark brown coating, free from evidence of surface powder or readily removable surface material.

2-16. BRUSH APPLIED ALODINE NO. 1200 TREATMENT FOR ALUMINUM PARTS.

a. Prepare the solution in the following proportions:

Alodine No. 1200 . . . . . 3 oz
Nitric acid (specific gravity 1.42) . . . . . .1/2 fluid oz
Water. . . . . .1 gallon
Triton X100 (when wetting agent is required) . . . .1/8 fluid oz

NOTE

Triton X100 may be obtained from Rohm and Hass, Philadelphia, Pennsylvania.

WARNING

Since the Alodine No. 1200 solution is injurious to the skin and clothing, operators must be adequately protected by goggles, rubber gauntlets, rubber aprons, etc.

b. The solution is preferably held in a stainless steel container. Steel lined with Neoprene or Koroseal, or a polyethylene container may also be used. Nylon bristle brushes, sponges, rags, paint spray guns or insect sprayers may be used for application of the solution to the part. Applicators must be thoroughly washed with water immediately after use.

c. Rinse or swab the area to be treated with clean water.

KEY TO FIGURE 2-9

1. Seal - Aluminum
2. Seal - Aluminum
3. Locking Cup - Enrichment valve and discharge nozzle
3A. Locking Cup - Enrichment valve and discharge nozzle
3B. Pin
4. Plate - Identification
5. Screw, Tapping - Thread forming
6. Decal
7. Plate - Automatic mixture control
8. Screw - Machine
9. Washer
10. Gasket - Automatic mixture control
11. Plug - Pipe
12. Plug - Pipe
13. Plug - Taper seat
14. Plug - Taper seat
15. Plug - Pipe
16. Plug - Pipe
17. Plug - Machine thread
18. Plug - Pipe
19. Plug - Pipe
20. Plug - Taper seat
21. Cover Assembly - Pump diaphragm
22. Screw - Machine
23. Washer
24. Spring - Pump discharge
25. Diaphragm Assembly - Pump
26. Valve Assembly - Relief
27. Retainer, Valve - Relief
28. Screw - Machine
29. Valve - Relief
30. Spring
31. Spacer - Relief valve
32. Gasket - Acceleration pump
33. Cover Assembly, Push Rod - Idle
34. Screw - Machine
35. Washer
36. Gasket, Cover - Idle push rod
37. Pin - Cotter
38. Nut, Castellated - Hex
39. Rod Assembly - Idle push
40. Washer - Spring retainer
41. Spring - Discharge diaphragm
42. Washer - Spring retainer
43. Plunger - Idle valve
44. Cover - Idle diaphragm
45. Screw - Machine
46. Washer
47. Diaphragm Assembly - Idle and enrichment valve
48. Spring - Idle needle
49. Washer - Lock
50. Seat - Idle needle
51. Washer - Nonmetallic
52. Screw Assembly - Enrichment valve adjustment
52A. Screw Assembly - Enrichment valve adjustment
53. Cover Assembly - Metering needle
53A. Cover Assembly - Metering needle
54. Screw - Machine
55. Washer
56. Retainer - Spring
57. Spring - Discharge diaphragm
58. Diaphragm Assembly - Pump
59. Valve Assembly - Metering needle
60. Spring - Discharge needle
61. Washer - Lock
62. Nut - Metering needle seat
63. Seat - Needle discharge
64. Washer - Nonmetallic
65. Plug - Air bleed
66. Bleed - Air
67. Packing - Preformed
68. Nozzle Assembly - Discharge
69. Screw - Machine
70. Washer
71. Throat Assembly - Venturi
72. Pin - Cotter
73. Venturi - Throat
74. Gasket - Venturi throat
75. Reducer - Automatic mixture control vacuum channel
76. Skirt - Venturi
77. Gasket - Venturi skirt
78. Pin - Cotter
79. Washer - Flat
80. Pin - Cotter
81. Washer - Flat
82. Washer - Spring
83. Lever Assembly
83A. Deleted
84. Bushing - Shoulder
85. Lever
85A. Lever
86. Plug - Hex head
87. Washer - Nonmetallic
88. Jet - Metering
89. Plug - Machine thread
90. Washer - Nonmetallic
91. Strainer Assembly
92. Screw - Machine
93. Washer
94. Washer - Lock
95. Valve and Seat Assembly - Regulator
96. Seat - Regulator needle
97. Valve - Regulator needle
98. Spring - Regulator needle
99. Washer - Nonmetallic
100. Plug and Screen - Regulator
101. Washer - Nonmetallic
102. Cover - Regulator
103. Diaphragm Assembly - Regulator
104. Setscrew
105. Cam - Fuel cut-off
106. Link Assembly - Mixture control
107. Plug - Mixture control needle valve
108. Spring - Altitude control needle
109. Valve - Mixture control
110. Seat - Mixture control
111. Washer - Nonmetallic
112. Lever Assembly - Fuel cut-off
113. Regulator Assembly - Spacer
114. Bushing - Regulator spacer
115. Spacer - Regulator
116. Plunger - Spring release
117. Spring, Plunger - Idle cut-off

adjust the enrichment valve adjusting screw until it just contacts the idle and enrichment valve control rod as shown in figure 2-5, and tighten the locknut securely.

NOTE

To manufacture the gauge locally, use the dimensions given in figure 2-5.

TABLE III. TORQUE VALUES

Figure No.	Index No.	Nomenclature	In. lb Torque	Remarks
2-1	148	NUT, Throttle block stop	55-60	
	146	BLOCK, Throttle stop		Note 1
	133	NUT, Throttle lever attachment	90-100	
	129	SCREW, No. 8-32 throttle valve	20-25	Note 2
	121	PLUG, Taper seat	30-40	Note 3
	109	PLUG, Mixture control needle shaft	70-80	
	106	SCREW, No. 6-32	8-10	
	100	PLUG, 1/2-20 Regulator needle valve	70-80	
	96	SEAT, Regulator needle valve	40-50	Note 4
	92	SCREW, No. 10-24 Regulator cover	20-30	Note 5
	89	PLUG, 3/4-20 Fuel strainer	80-90	
	88	JET, Main metering	35-45	
	86	PLUG, 7/16-20 Metering jet	65-75	
	75	RESTRICTOR	25-35	
	69	SCREW, No. 10-24 Venturi	20-30	
	65	PLUG, 1/2-20 Discharge bleeder	18-20	
	62	NUT, Discharge nozzle needle seat	40-50	Note 4
	54 45 34 22	SCREW, No. 10-24 cover attaching	20-30	Note 5
	50	SEAT, Idle needle valve	40-50	Note 4
	20	PLUG, Taper seat	50-60	Note 3
	17	PLUG, 1/4-28	30-40	
	16 15 12 11	PLUG, 1/8 in. pipe	45-65	
	14 13	PLUG, Taper seat	30-40	Note 3
	8	SCREW, 5/16-18 AMC plate	35-40	

NOTES:

Note 1. Installed height 5/8 in. + 1/32 in., -0 in.; must be snug in main body. Drill through replacement block and body, taper ream with a No. 0000 taper reamer, and pin block to main body.

Note 2. Stake after securing to torque value.

Note 3. Assemble taper plugs snug against seat, tap with a rawhide mallet, then set to specified torque.

Note 4. The above parts are secured in place with a special spring lock after torquing

Note 5. Retorque after 10 minutes to original torque.

d. While it is still wet, coat area to be treated with Alodine solution. Use care that the solution does not enter places where it will be trapped and cannot be removed by subsequent rinsing. Maintain the part and the solution at room temperature. Allow the solution to remain on the area 1 to 5 minutes. Do not allow the solution to dry on the part.

e. Rinse or swab the treated area thoroughly with clean water to completely remove all remaining Alodine solution.

2-17. IMMUNIZATION TREATMENT FOR STAINLESS STEEL.

a. Immerse the part in a solution of nitric acid and tap water for one-half hour. Keep the solution at room temperature and maintain the following specific gravities and concentrations by volume:

Specific Gravity	Baume Scale	Concentration (Percent)
1.422	Be43	50
1.408	Be42	52
1.381	Be40	57
1.355	Be38	62
1.330	Be36	67

b. Rinse thoroughly in cold water.

c. Rinse in hot water.

d. Blow excess water out of recesses and dry thoroughly with clean dry compressed air.

2-18. Exterior surfaces of the carburetor may be repainted by applying zinc chromate primer and then applying lacquer, Cellulose Nitrate Jet Sage 622 (Specification MIL-L-7178).

NOTE

When spot painting is sufficient, repainting the entire part to improve appearance is not necessary.

2-19. GENERAL LUBRICATION.

a. Lubricate all metal shipping plugs, internally used taper seat plugs, and all straight threaded plugs using a gasket or packing, with oil conforming to MIL-L-3572, Grade B.

b. Lubricate the first two threads of all external taper seat plugs, pipe plugs and fittings with anti-seizing lubricant "Titeseal", (brush or liquid type) or equal.

NOTE

"Titeseal" may be procured from the Radiator Specialty Co., 1400 West Independence Blvd., Charlotte, North Carolina.

c. Lubricate all remaining threaded parts, except air bleeds, elastic stop nuts and jets with oil conforming to MIL-L-3572, Grade B.

d. Facilitate installation of parts using rubber packings by applying a light film of special lubricant prepared as follows:

(1) Combine 40 to 50 percent (by weight) petrolatum, conforming to Federal Specification VV-P-236, with 50-60 percent clean hydrocarbon solvent conforming to Specification MIL-F-7024A, Type II. Mix these components into a smooth homogeneous mixture free from abrasives and other impurities.

(2) Place the lubricant in tightly sealed screw top containers to prevent evaporation of the hydrocarbon fluid and contamination with foreign particles. Prepared lubricant must not be stored beyond six months.

(3) Opened containers of lubricant must not be retained for use beyond 30 days. Seal opened containers when not in use to prevent evaporation and contamination.

2-20. GENERAL REASSEMBLY.

a. Before starting reassembly refer to the reassembly instructions for special techniques and required subassembly tests.

b. Use an arbor press for installation and removal of bearings and bushings.

c. Replace all cotter pins and internal lockwire during reassembly.

d. Torque values listed in the "Table of Torque Values" at the end of this section will be adhered to during reassembly. Unless otherwise specified the torque values listed are based upon threaded parts being lubricated as outlined in paragraph 2-19.

2-21. OVERHAUL OF MODEL PS-5C INJECTION CARBURETOR. (See figure 2-9.)

2-22. DISASSEMBLY.

a. Remove all external lockwires and seals, and disassemble the carburetor in the numerical order indicated in figure 2-9.

b. Remove the idle control rod adjusting nut (38) to permit removal of the idle control rod and arm (39), idle diaphragm cover (44), and idle control diaphragm and needle valve assembly (47). Use an awl or similar pointed tool to remove the idle seat lockwasher (49) before removing the idle needle seat (50). Use care not to damage the washer seat in the carburetor body.

c. Remove the discharge diaphragm adjustment screw (52) before removing the discharge diaphragm cover (53) to release tension on the discharge diaphragm spring (57). Remove the cover and discharge nozzle parts. Use an awl or similar pointed tool to remove

the discharge nozzle nut lockwasher (61) before removing the discharge nozzle nut (62). Use care not to damage the washer seat in the carburetor body. Remove the discharge air bleeder (66) from the opposite side of the body.

d. Use metering jet screw driver T25260 to remove the main metering jet (88).

e. Remove the regulator needle valve (97) from the regulator cover (102) after the needle valve seat plug (100) and the needle spring (98) are removed. Remove the needle seat (96) after removing the regulator cover.

f. To facilitate removal of fulcrum pin (120), disengage spring (121) from idle cut-off lever assembly (123). Remove tension on idle cut-off lever (123) by pressing down on regulator spring retainer (122), thus allowing the fulcrum pin (120) to slide from the main body.

g. Place an identifying mark on the throttle valve (126) to insure its return to its original position in the throttle bore.

h. Tap the exposed end of the throttle shaft (142) with a soft mallet to drive the expansion plug (141) from the carburetor body to permit shaft removal.

i. Complete carburetor disassembly in the numerical order indicated in figure 2-9.

2-23. CLEANING. Clean all parts as outlined in paragraph 2-5.

CAUTION

Prior to cleaning the main body assembly (143, figure 2-9), install locally manufactured plugs or other suitable devices in a manner to prevent exposure of the bushings (148 and 149, figure 2-9) to the cleaning solvent. Do not expose the bushings to any type of solvent or blow them out with compressed air; the lubricant contained in the bushings may be removed requiring unwarranted bushing replacement.

a. Clean the bushings (148 and 149, figure 2-9) with a soft swab saturated with clean oil conforming to Specification MIL-O-6081, Grade 1010.

b. Do not attempt to clean clogged jets or bleeds with a piece of wire, drill, or sharp instrument.

c. The inlet fuel strainer screen may be cleaned with a soft brush and cleaning solvent. Do not attempt to open clogged screens with a sharp instrument.

d. Remove the assembly date decal (6, figure 2-9) from the main fuel body by wiping with a clean cloth dipped in acetone.

CAUTION

Acetone is highly volatile and combustible, use only in a well ventilated area.

e. Refer to the caution following paragraph 2-5,a.

2-24. INSPECTION.

a. Inspect the mounting surfaces to which various parts are assembled to be certain they are not nicked or scratched.

b. Inspect all parts for grooves, bends, cracks, corrosion and excessive wear. Refer to Table II, Tolerance Values, for permissible worn tolerances. Parts not coming within specified limits must be replaced.

c. Carefully inspect the following valves and seats for burrs, roughness or any damage that may cause sticking and unstable metering.

(1) Idle valve assembly (47) and seat (50).

(2) Discharge needle valve assembly (59) and seat (63).

(3) Manual mixture control valve (109) and seat (110).

(4) Regulator needle valve (97) and seat (96).

d. Inspect the fuel strainer assembly (91) and poppet valve plug (100) for a clogged or damaged screen.

e. Inspect the base of the spring release plunger (116) for a groove.

f. Check springs (24, 41, 48, 57, 60, 98, 108, 117, 124) for free length. Refer to figure 3-4, Specification Sheet, for proper values.

g. Inspect throttle shaft bushings (148 and 149) for fretting corrosion or galling, excessive wear, marring and/or burnishing. Refer to Table II for permissible worn dimensions.

h. Inspect the top and bottom flanges of the main body (155) to be certain they are not nicked or scratched.

2-25. TESTING.

a. No testing is required at this time.

2-26. REPAIR OR REPLACEMENT. (See figure 2-9)

a. Replace all parts specified in paragraph 2-14.

b. Replace all damaged parts that cannot be satisfactorily or economically repaired, and parts worn to such an extent that continued service use would have a detrimental effect.

TABLE II. TOLERANCE VALUES
(See Figure 2-9)

Index No.	Nomenclature	Dimensions New Min. and Max.	Permissible Worn Dimensions Min. or Max.
39	Idle Push Rod Assembly OD	$\frac{0.187}{0.186}$	0.183
83	Lever Assembly ID	$\frac{0.3136}{0.3116}$	0.315
84	Shoulder Bushing ID	$\frac{0.1875}{0.1865}$	0.191
106	Mixture Control Link Assembly OD	$\frac{0.186}{0.184}$	0.181
107	Hex Plug ID	$\frac{0.188}{0.186}$	0.1845
109	Manual Mixture Control Needle Valve OD (in hex plug)	$\frac{0.184}{0.182}$	0.1805
	Manual Mixture Control Needle Valve OD (in sleeve)	$\frac{0.276}{0.274}$	0.2725
110	Mixture Control Seat ID	$\frac{0.282}{0.280}$	0.2835
112	Lever Assembly OD	$\frac{0.216}{0.215}$	0.213
114	Shoulder Bushing ID	$\frac{0.219}{0.217}$	0.221
	Shoulder Bushing OD	$\frac{0.310}{0.308}$	0.3065
116	Spring Release Plunger OD	$\frac{0.278}{0.276}$	0.274
	Spring Release Plunger OD	$\frac{0.371}{0.369}$	0.367
120	Fulcrum Pin OD	$\frac{0.127}{0.126}$	0.1235
123	Idle Lever Assembly	$\frac{0.130}{0.127}$	0.133
142	Throttle Shaft Assembly OD	$\frac{0.4380}{0.4367}$	0.434
	Throttle Shaft End Play	$\frac{0.006}{0.003}$	0.008
147	Bushings ID	$\frac{0.130}{0.127}$	0.1325
148, 149	Throttle Shaft Bushings ID	$\frac{0.440}{0.439}$	0.442
150	Guide Bushing ID	$\frac{0.192}{0.190}$	0.195
154	Spring Release Bushing ID	$\frac{0.282}{0.280}$	0.284
	Spring Release Bushing ID	$\frac{0.375}{0.373}$	0.377

c. Remove burrs on flanges, valves and seats with a flat Arkansas stone. Smooth and polish with a crocus cloth.

d. When replacing spring release bushing (154) remove old bushing and select replacement bushing to obtain a press fit of 0.001 - 0.004 inch. Bushing must be positioned radially as shown in figure 2-10.

e. If inspection indicates a need for replacement of the Heli-Coil inserts (152), proceed as follows:

(1) Remove old insert using Heli-Coil Extracting Tool No. 1227-6.

(2) Install new insert using Heli-Coil Inserting Tool No. 528-4N.

(3) Assemble insert so last coil is 0.005-0.030 inch below flange surface. Remove tang using Tang Break-off Tool No. 1195-4. Must be 1/4 - 20 NC -2 thread after assembly of insert. Thread gage must pass tang break.

NOTE

Tapped holes for Heli-Coil must be completely void of lubrication before inserting.

f. If necessary to replace guide bushing (150), select replacement bushing to obtain a press fit of 0.004 inch. Install new washer (151) and press bushing in until it shoulders.

g. To replace throttle shaft bushings (148 and 149), proceed as follows: (See figure 2-10).

(1) Press out old bushings on an arbor press.

(2) Select replacement bushings to obtain a press fit of 0.003 - 0.005 inch.

(3) Use the T27278 Mandrel in conjunction with a drill press or arbor press. If a drill press is used, the mandrel can be inserted in a one-half inch chuck. The head of the drill press can be used to press in the bushings. There are no provisions for holding the mandrel if an arbor press is used.

(4) Position the throttle shaft boss (front regulator side) in the center of a one inch steel block. Insert bushing (149) on to the 0.429 inch diameter of the mandrel and press in the bushing until the bushing shoulder touches the main body housing boss.

(5) Rotate the main body 180 degrees and insert the T27277 arbor gage through the rear shouldered bushing. Use the mandrel and press the bushing (148) in until the end of the mandrel bottoms against the arbor gage. Use of the mandrel and arbor gage will provide a 3.7815 dimension between the extreme outside faces of the bushings and insure correct end clearance with the throttle shaft installed.

(6) Swab out bushings with light oil and proceed to line ream using T26823 reamer.

NOTE

It is important that the cut be made with a light feed pressure keeping the reamer cutting in an even forward motion. If reamer is power driven, do not turn reamer in excess of 400 rpm.

(7) After completing the reaming operation, clear the bushing again with light oil.

(8) Check alignment by inserting a new throttle shaft through both bushings. The shaft should drop freely without binding either with a rotating or horizontal movement of the throttle shaft. Replace bushings not meeting these requirements.

NOTE

If the main body is to be stored for 30 days or longer, the bushings must be protected. Insert into each bushing a one-half inch by one inch felt dowel that has been soaked in SAE 10 oil and retain for the duration of the storage period.

h. To replace bushings (147), remove old bushings. Select replacement bushings to obtain a press fit of 0.002 - 0.006 inch. Press in new bushings and line ream as indicated in figure 2-10.

i. If necessary to replace stop block screw (144), install hex jam nut (146) and screw in stop to position and dimension shown in figure 2-10. Torque hex jam nut (146) to value specified in Table III. Drill through with a No. 52 (0.0635 inch) drill and install pin (145) as shown.

j. If the throttle stop assembly (135) and/or throttle shaft assembly (142) must be replaced, a new retaining pin hole must be drilled. Proceed as follows:

(1) Assemble the throttle shaft assembly (142) and throttle valve (126) into the main body assembly (143) as outlined in paragraph 2-28, b and c.

(2) Open the throttle valve to the wide open position.

(3) Position the wide open stop of the throttle stop assembly snug against the stop block screw (144).

(4) Establish throttle shaft end play between the flange of the throttle shaft bushing (149) and the lever assembly (137) to the dimensions indicated in Table II.

(5) Drill through the throttle stop assembly (135) and throttle shaft assembly (142) with a No. 42 (0.0935 inch) drill and ream for a No. 0000 split taper pin.

NOTE

If a new throttle stop assembly (135) is used, it will have a locating pilot hole drilled through one wall.

k. If the base of the spring release plunger (116) is grooved, lap the base to remove the groove.

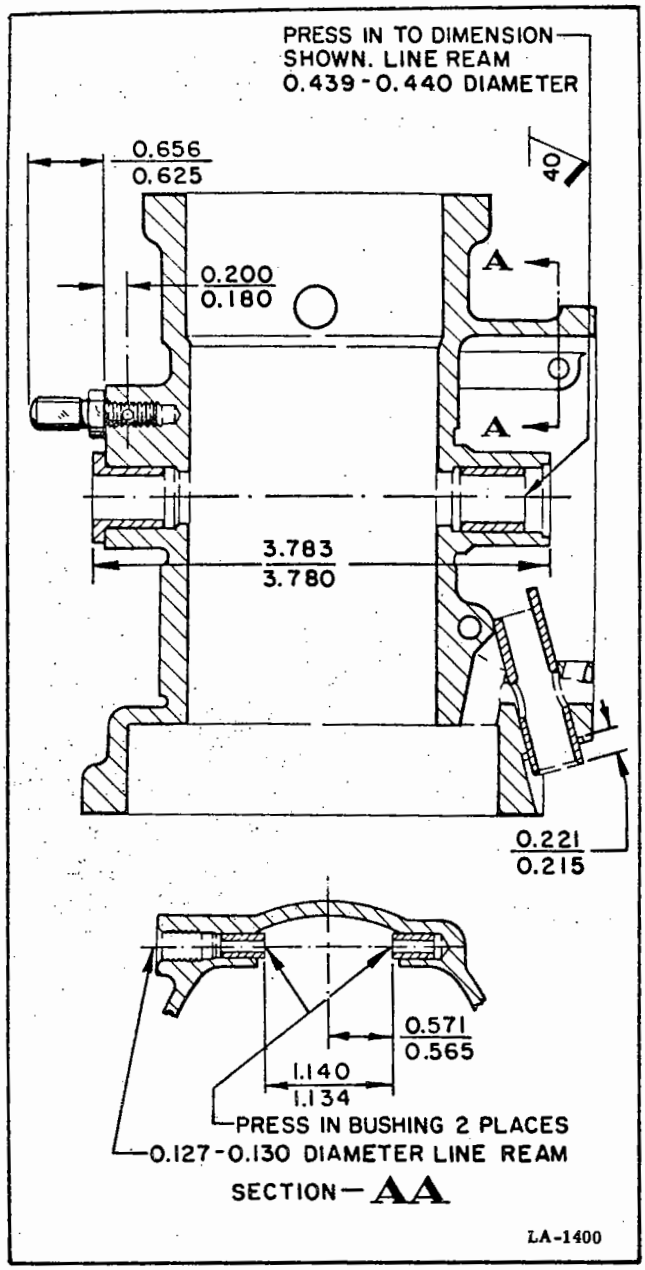

Figure 2-10. Bushing Installation Dimensions

NOTE

When lapping, remove just enough metal to obtain a suitable flat surface. The overall length of the spring release plunger must not be less than 1.581 inches after lapping.

l. Replace springs not meeting free length requirements indicated on the Specification Sheet, figure 3-4.

m. Replace the fuel strainer assembly (91) and poppet-valve plug (100) if the screen is broken or cannot be satisfactorily cleaned.

2-27. LUBRICATION.

a. Apply a thin film of grease conforming to Specification MIL-G-3278 (Standard Oil of Indiana Supermil Grease No. 8723 or equivalent) to the spring release plunger (116), fulcrum pin (120) and to all bearing surfaces of the idle cut-off lever assembly (123) before installation.

b. Lubricate the idle control plunger (43) and the guide pin inside the cover (33) with Universal No. 40 oil without dye, before installation.

2-28. REASSEMBLY.

a. Reassemble the Model PS-5C Injection Carburetor in reverse numerical order as indicated in the exploded view, figure 2-9. Refer to the following paragraphs for applied use of special tools and information not apparent in the exploded view.

b. If the throttle shaft assembly (142) was removed, reinstall shaft into main body assembly (143). Install a new expansion plug (141).

c. Assemble the throttle valve (126) to the throttle shaft (142) with the screws (127) and washers (128). Install throttle valve (126) and fit until a maximum of 0.0015 in. clearance exists at all points between the throttle valve and the throttle bore. Stake the screws using the T25138 staking tool and the special staking fixture illustrated in figure 2-11. This fixture, if used, must be manufactured locally.

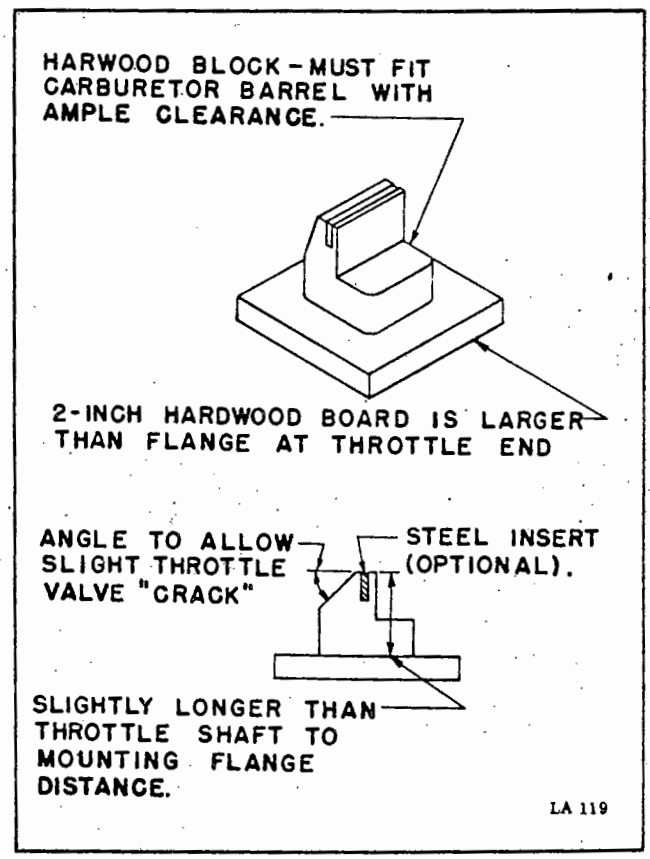

Figure 2-11. Throttle Valve Screw Staking Fixture

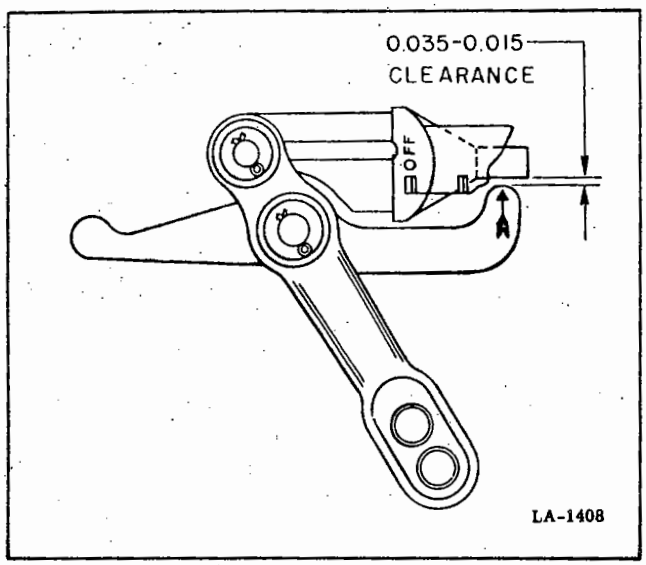

Figure 2-12. Establishing Clearance Between Idle Cut-Off Lever and Manual Mixture Control Needle

d. Install all regulator valve parts using the same number of shims (125) as were originally removed. Rolls of the inner and outer regulator diaphragms (103 and 118) must face each other.

NOTE

Be certain to install the regulator needle (poppet valve) seat (96) into the regulator cover (102) before installing the cover on the main body. Secure the seat to the specified torque and install the seat lockwasher (94).

e. To facilitate installation of the various covers and diaphragms, use two guide pins approximately 2 inches in length by 0.190 inch in diameter. Thread one end of each rod with a No. 10-24 NC - 3 thread. These guide pins will aid in aligning the covers and diaphragms with the main body when installed in two diagonally opposed tapped holes.

f. After assembly of the manual mixture control group (111 through 104) and idle cut-off lever (112), adjust as indicated in figure 2-12, to give the specified clearance. Adjustment is made by bending the idle cut-off lever (112).

g. A leakage test of the discharge nozzle needle valve (59) and the needle valve seat (63) must be performed either as part of the assembly operation or as part of the flow bench test procedure. The leakage test should be made, however, prior to final flow bench testing.

(1) Use a 1/8 inch pipe tee. Attach a length of flexible rubber hose to each arm of the tee.

(2) Connect the free end of one hose to the flow bench metering suction connection; another hose is connected to the flow bench metering suction regulated connection and the third hose is slipped over the discharge end of the discharge nozzle needle seat with the needle valve in place.

(3) First determine if any leakage exists in the hook-up by applying 30.0 inches H_2O vacuum and pinching the hose running to the needle valve seat. With the first hose still pinched off, pinch off the hose from the metering suction regulated and note leakage on the water column. If water column drops, leakage exists in the hook-up and must be corrected before continuing test.

(4) After eliminating hook-up leaks, apply 30.0 inches H_2O vacuum to the nozzle seat and pinch off the hose from the metering suction regulated and observe the water column for leaks. A drop of 4.0 inches H_2O per minute is acceptable.

(5) Excessive leakage of the discharge needle valve and seat in most cases can be minimized by staking the valve seat with a locally manufactured staking tool as illustrated in figure 2-13. Light staking of the needle valve in the seat is also permissible.

(6) If staking of the seat does not reduce the leakage rate to an acceptable value, replacement of the needle and/or seat is indicated. The replacement parts, however, must also prove acceptable by the above test.

h. After installing the idle control rod assembly (39), adjust the control rod nut (38) in the following manner:

(1) Back the idle speed adjustment screw (133) out of the throttle stop assembly (135) to allow the throttle to close fully.

(2) Adjust the idle mixture screw (134) to a mid-position between rich and lean. Accomplish this by turning the screw until its head is flush with the tip of the bushing in which it is installed.

(3) Move the throttle to the full closed position and pull the idle control rod assembly (39) out as far as possible without forcing.

(4) Install the nut on the rod until it contacts the loose lever assembly (137). Back the nut off one-half turn and secure with cotter pin (37).

2-29. GENERAL LOCKWIRING INSTRUCTIONS. Upon completion of calibration and preparation for storage, the complete carburetor must be lockwired. General and specific lockwiring instructions are as follows:

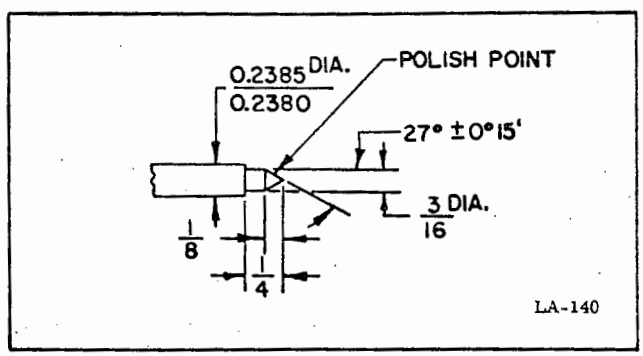

Figure 2-13. Discharge Nozzle Staking Tool

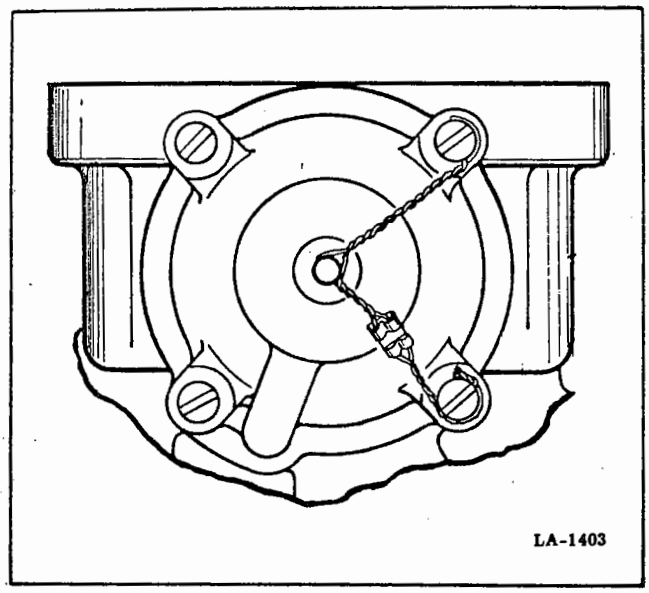

Figure 2-14. Lockwiring and Sealing Discharge Nozzle Adjustment

a. Unless otherwise specified, all internal and external wiring shall be accomplished using 0.0258 inch diameter stainless steel wire conforming to Federal Specification QQ-W-423.

b. Before any nut, screw, plug or comparable part is lockwired it must be properly torqued.

c. Parts shall be lockwired in a manner that will place the wire in tension when the parts tend to loosen. The wire should leave the part in a clockwise direction and shall be double twisted (approximately eight to ten turns per inch) whenever possible.

d. If lockwiring is removed for any purpose, it shall be replaced with new wiring.

e. The wire shall be installed in such manner that the loop around the bolt or part head will have sufficient tension to prevent it from slipping over the bolt head to cause slack in the wiring.

f. When castellated or slotted nuts are secured with lockwire, they shall be tightened to the low value of their torque limit and then the torque is to be increased until a slot aligns with the hole; however, the maximum torque limit must not be exceeded.

g. A pigtail of 1/4 to 1/2 inch shall be made at the end of each wiring group. This pigtail shall be bent under to prevent possible personal injury.

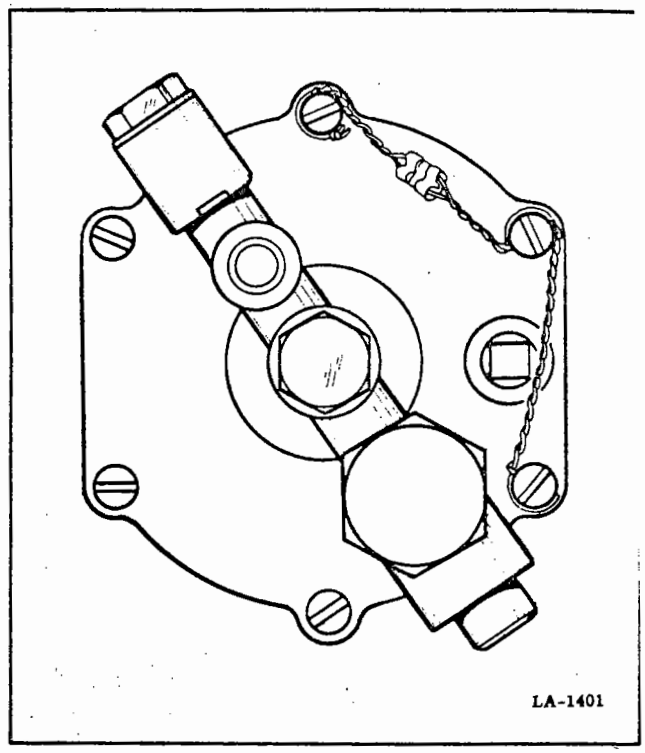

Figure 2-15. Lockwiring and Sealing Regulator Cover

NOTE

Extreme care must be taken to prevent clipped ends of lockwire from entering or becoming lodged in the carburetor.

h. Wiring must not cross over or obstruct a fuel or air flow passage when an alternate method can be used.

i. Lockwire screws and plugs in threes where possible.

j. Lockwire and seal the discharge nozzle adjustment as shown in figure 2-14.

k. Lockwire the venturi throat attaching screws in pairs; thread the lockwire through the cotter pins installed in the throat to prevent any distortion of air flow through the carburetor by the wire.

l. Lockwire and seal the regulator cover as shown in figure 2-15.

TABLE III. TORQUE VALUES

Index	Nomenclature	Torque Inch Pounds	Notes
8	Screw	45-55	Note 1
11, 12	Plug	45-65	
13, 14	Plug	30-40	Note 3
15, 16, 19	Plug	45-65	
17	Plug	30-40	
20	Plug	50-60	Note 3
22	Screw	20-30	Note 1
28	Screw	4.0-4.5	
34, 45	Screw	20-30	Note 1
50	Seat	65-75	
54	Screw	20-30	Note 1
62	Nut	80-90	
65	Plug	18-20	
69	Screw	20-30	Note 1
75	Reducer	9-11	Note 4
86	Plug	65-75	
88	Jet	70-90	Note 4
89	Plug	160-175	
92	Screw	20-30	Note 1
96	Seat	70-80	
100	Plug	70-80	
104	Screw	9-10	
107	Plug	70-80	
119	Plug	30-40	Note 3
127	Screw	10-15	
131	Nut	90-130	Note 2
139	Nut	20-25	
146	Nut	55-60	

Notes:
1. Retorque to original value after 20 minutes. Retorque only once.
2. Must be within limits to align cotter pin.
3. Assemble snug against seat, tap with rawhide mallet; then set to specified torque value.
4. Metering jet shall be screwed in until it is tight; then back out one or two turns. Retighten the jet to specified torque.

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SECTION III

TEST PROCEDURE

3-1. GENERAL.

3-2. Final adjustments and functional testing after overhaul of the carburetor must be performed on specially constructed and calibrated equipment. This testing is a simple, definite and accurate method of checking performance under service conditions.

3-3. The testing of the carburetor must be performed in the following sequence:

a. Eight hour soaking period

b. Exercising and flushing procedure

c. Final calibration procedure

3-4. The flow bench provides means for calibrating the fuel side of the carburetor. An "Air Metering Force", equivalent to that induced by air actually flowing through the carburetor, is applied to simulate actual operating conditions. The "Air Metering Force" is referred to as "Metering Suction". Fuel quantity flowing through the carburetor is referred to as "fuel flow" and is measured with a flowmeter, which is calibrated to indicate fuel flow in pounds per hour.

NOTE

The flow test bench must be piped so its flowmeters will measure fuel flow to the carburetor inlet.

Some flow bench test sheets include "Burette" flow limits for use with flow benches which do not incorporate flowmeters; these limits are based upon the time required for a given volume of fuel to flow through the carburetor.

a. Where Burette limits are not shown on the flow bench limit sheet, the flowmeter (pounds per hour) limits may be converted to Burette limits, if required, by use of the following constants and formula.

1		2	3	4
Flowmeter Limits (lb/hr)		Volume To Be Timed	Naphtha Constant	Heptane Constant
Min.	Max.	(cc)		
0	6	50	291.5	274.7
6	10	100	583	549.4
20	40	200	1166	1098.8
40	60	300	1749	1648
60	100	500	2915	2747
100	165	850	4955	4670
165	195	1000	5830	5494
195	250	2000	11660	10988
250	390	2500	14575	13735
390	650	3000	17490	16480
650	1000	5000	29150	27470
1000	1400	7000	40810	38458
1400	up	9000	52470	49446

$$\text{Minimum Time Limit (in seconds)} = \frac{\text{Constant}}{\text{Maximum Flow}}$$

$$\text{Maximum Time Limit (in seconds)} = \frac{\text{Constant}}{\text{Minimum Flow}}$$

$$\text{Minimum Lb./Hr} = \frac{\text{Constant}}{\text{Maximum Time Limit (in seconds)}}$$

$$\text{Maximum Lb./Hr} = \frac{\text{Constant}}{\text{Minimum Time Limit (in seconds)}}$$

To establish the proper Burette time limit, refer to the flow sheet for the flowmeter limits. Find this limit in column 1 of the chart. Opposite this figure in column 2 will be found the volume of fuel to be timed, and in column 3 the constant factor to be used in the formula.

Example: Find the Burette time limits for a test point that calls for flowmeter limits of 848-882 PPH using naphtha. Locate this in column 1 of the chart, which falls in the 650-1000 category. Column 2 gives 5000 cc as the volume to be timed and column 3 gives 29150.0 as the constant to be used.

Therefore:

Minimum Time Limit $\frac{29150.0}{882}$ 33.0 seconds

Maximum Time Limit $\frac{29150.0}{848}$ 34.3 seconds

3-5. FLOW BENCH TEST FLUIDS.

a. Flow bench test fluids should meet rigid specifications to guarantee accuracy of carburetor metering and also prevent conditions adversely affecting service life.

b. Flow bench limits incorporate a two per cent tolerance from the desired flow. Excessive variation in fuel specific gravity and viscosity will seriously affect the flow of the carburetor. Variation in fuel specifications will affect the accuracy of flowmeters used to measure fuel flow during carburetor test.

c. Satisfactory operation and service life of the carburetor are greatly dependent on the rubber components. Many fluids contain compounds that, if used for testing, will result in excessive swelling, shrinkage or stiffening of the rubber components. As an example, aromatic content should be held to a minimum.

d. The test fluids that have proven satisfactory for carburetor calibration and on which flow bench limits are based are naphtha or heptane that have been refined to meet rigid specifications.

NOTE

Separate factory flow benches are employed for determining heptane and naphtha service limits. Each flow bench has its flowmeter calibrated with the specific fluid being used in that flow bench. The service activities flowmeters, where used, should be calibrated in one or the other of these fluids that have been refined to meet rigid specifications in order to minimize differences in flow.

e. Only naphtha meeting the following specifications should be procured.

Specific Gravity 15.5°C (60°F). 0.738-0.742

Viscosity, Centistokes 21.1°C (70°F) . . . 0.740-0.770

Color. . . . . Water White

Doctor (ASTM) . . . . . Negative

Copper Strip (ASTM) . . . . . Negative

Initial Boiling Point (ASTM) . . . . 60°C (140°F) Min

10% Distillation (ASTM) at or over . . . . . 82.2°C (180°F) Min

End Point (ASTM) . . . . . 176.6°C (350°F) Max

Material must be lead free

Material must be 100% Paraffin base

Aromatic content . . . . . 10% Max

Suggested Sources:

(1) Portage Oil Company
1628 West Circle Avenue
South Bend, Indiana

(2) American Mineral Spirits Company
Carteret, New Jersey or
Chicago, Illinois

f. Only heptane meeting the following specifications should be procured:

Military Specification . . . MIL-F-7024A Carburetor Testing Fluid Type 1 (A)

Specific Gravity 15.5°C (60°F). 0.697-0.701

Viscosity, Centistokes 21.1°C (70°F) . . 0.620-0.640

Color. . . . . Water White

Copper Strip. . . . . Negative

Reid Vapor Pressure 37.7°C (100°F) . . . 2.0 psi Max

Residual Gum mg/100 ml . . . . . 2.0 mg Max

Accelerated Gum mg/100 ml/5 hr . . . . 5.0 mg Max

Distillation Range

Maximum Spread Between 5% and 95% points . . . . . -16.1°C (3°F)

Must include the following temperature . . . . . 97.7°C (208°F)

Suggested Source:

Phillips Petroleum Company
Bartlesville, Oklahoma

g. Sampling and inspection procedures for test fluids used in the flow test of carburetors and components are to be as follows:

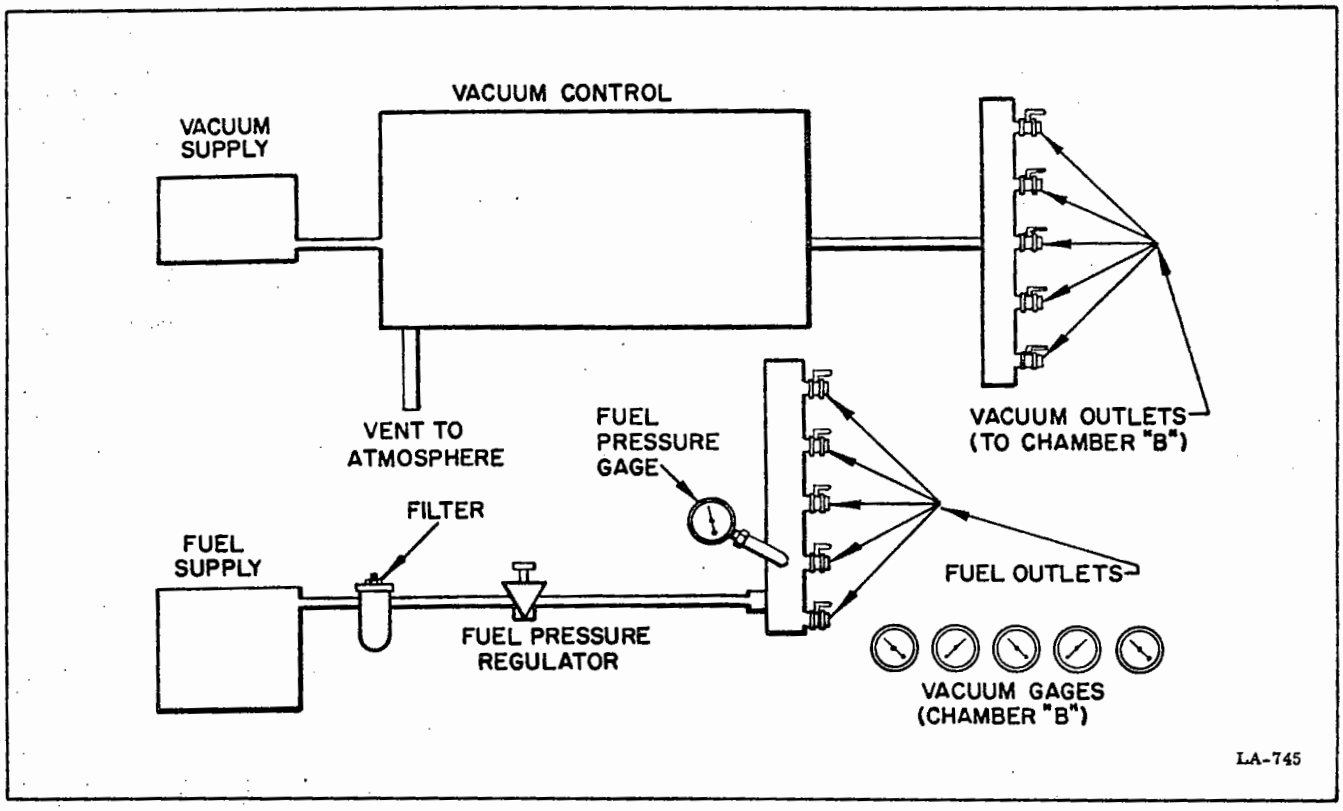

Figure 3-1. Schematic Diagram of Exercising and Flushing Bench

(1) A weekly smaple will be taken from each test bench in the carburetor overhaul test shop and the fluid tested for specific gravity and viscosity for conformance to the limits outlined below. Whenever the fluid does not conform to the applicable specification limits, it shall be replaced.

SPECIFIC GRAVITY

Temperature	Naphtha	Heptane
15.5°C (60°F)	0.744 Max.	0.703 Max.
23.9°C (75°F)	0.738 Max.	0.696 Max.

VISCOSITY (CENTISTOKES)

Temperature	Naphtha	Heptane
21.1°C (70°F)	0.780 Max.	0.650 Max.

(2) Process Fuel Sample Analysis Reports as expeditiously as possible to preclude the possibility of using a flow bench containing sub-standard test fluids.

(3) Maintain adequate records indicating date, time and condition of the test fluid analyzed.

(4) Each time new material is received to reservice the storage tanks, a sample will be taken and the material tested for conformance to the applicable specification. If the material checked does not conform to the applicable specification, the material will not be placed in the storage tank, but will be returned to Supply.

(5) If the container specification identification does not agree with the laboratory analysis the Quality Control Office will be notified in order that corrective action may be initiated.

h. Test fluid should be replaced if contaminated to the extent that accuracy of carburetor metering or service life is affected. The extent of contamination can usually be determined by change in specific gravity and viscosity and by visual inspection. Replace the test fluid when the following maximum values are exceeded.

	NAPHTHA	HEPTANE
Specific Gravity, 15.5°C (60°F) or 23.9°C (75°F)	0.744 Max. 0.738 Max.	0.703 Max. 0.696 Max.
Viscosity, Centistokes 21.1°C (70°F)	0.780 Max.	0.650 Max.

WARNING

Steps should be taken to insure that proper ventilation is maintained at all times to preclude health and explosion hazards.

3-6. CARBURETOR SOAKING.

3-7. Prior to any type of testing, properly soak the carburetor in the test fluid specified on the flow sheet. An eight hour soak period is required to

KEY TO FIGURE 3-2

1. 52R-Low Pressure Connection
2. Nozzle Pressure Gage
3. Metering Suction "A"
4. Carburetor Inlet
5. Carburetor Outlet
6. Static Fuel Pressure
7. Shop Air
8. Air Vibrator
9. Gage No. 48 Connection
10. 52R High Pressure Connection
11. 53 High Pressure Connection
12. 53 Low Pressure Connection
13. Metering Suction, Regulated
14. Carburetor Fuel Pressure
15. Metering Head Manometer, "D" Chamber
16. Metering Head Manometer, "C" Chamber
17. Regulated Air Pressure
18. Metering Suction "B"
19. Manometer No. 51 Shut-Off
20. Selector Valve Left-Right
21. Specific Gravity Indicator Shut-Off
22. Low Flow By-Pass
23. Fuel Shut-Off
24. Metering Head Fuel Manometer Blow Down
25. Gage No. 36 Shut-Off
26. Gage No. 37 Shut-Off
27. Metering Head Fuel Manometer Bleed
28. Metering Head Hg Manometer Bleed
29. Metering Head Hg Manometer Bleed
30. Metering Head Fuel Manometer Shut-Off
31. Metering Suction Regulator
32. Carburetor Fuel Pressure Regulator
33. Nozzle Pressure Regulator
34. Static Fuel Pressure Regulator
35. Air Pressure Regulator
36. Carburetor Fuel Inlet
37. Nozzle Pressure
38. Fuel Filter Pressure
39. Regulated Air Pressure
40. Bleed Sight Glass
41. D-C Ammeter
42. D-C Voltmeter
43. D-C Connection
44. Switch, 24 Volts, DC
45. Rheostat
46. Pilot Light
47. Fuse
48. Vacuum Pressure Gage
49. Fuel Temperature
50. Fuel Temperature Control
51. Metering Suction Water
52L. Metering Suction Hg
52R. Hg Manometer
53. Manometer 60 Inches
54. Metering Head Hg Manometer
55. Metering Head Fuel Manometer
56. Specific Gravity Indicator
57. Flow Meter
58. Blower Switch
59. Vacuum Pump Switch
60. Fuel Pump Switch
61. Master Switch
62. Waste Tank Sight Glass
63. Hose From "Metering Suction Regulated" to Carburetor B Chamber
64. Hose From "Metering Suction B" to Carburetor B Chamber
65. Hose From "Chamber C Metering Head Manometer" to Chamber C
66. Hose From "Chamber D Metering Head Manometer" to Chamber D
67. Hose From Chamber E to "Carburetor Fuel Pressure"
68. Hose From "Carburetor Inlet"
69. Hose From Discharge Nozzle to Right Hand Drain Pan
70. Hose From "Air Vibrator" Connection
71. Hose From Vapor Vent Outlet to Right Hand Drain Pan
100. Test Gage Connection for No. 48
101. Test Gage Connection for No. 36
102. Test Gage Connection for No. 37

condition the carburetor fuel diaphragms. Proper soaking procedure is as follows:

a. Refer to figure 2-9. Remove the air bleed plug (65), air bleed (66), packing (67) and discharge nozzle assembly (68). Screw the T27247 Bleeder Tube Drain Adapter, with preformed packing in place, into the port from which the air bleed plug was removed until it seats against the metering needle seat (63). Slip a length of 7/16 ID Tygon Tubing over the end of the T27247 adapter which protrudes from the carburetor; allow this tube to provide drainage when injecting fuel to the carburetor inlet.

NOTE

Tygon Tubing may be obtained from the U.S. Stoneware Company, Plastics and Synthetics Division, Akron, Ohio.

b. With the throttle lever in the wide open position and the manual mixture control lever in the full rich position, inject fuel through the fuel inlet connection at 5 psi until fuel flows from the bleeder tube drain adapter hose. Move the throttle lever to the closed position and the manual mixture control to the idle cut-off position. Disconnect the fuel supply and install a cap on the fuel inlet connection. Permit the carburetor to stand filled with clean fuel for the eight hour soaking period.

CAUTION

Do not immerse or stand the assembled carburetor in fuel or fluids of any kind. Use extreme care to prevent entry of fluids through the annular groove of the venturi into the carburetor air sections. Fluid contact with the air diaphragms will result in damage to the ozone resistant vinyl coating, upset metering qualities of the carburetor and shorten diaphragm service life.

3-8. EXERCISING AND FLUSHING.

a. Exercise and flush the carburetor to remove foreign materials, burnish internal parts to remove sharp edges and to stabilize the carburetor setting to minimize tendency to drift. Refer to figure 3-1 for a schematic diagram of the exercising and flushing bench. The bench should incorporate the following general requirements:

(1) Fuel pressure: 15 to 20 psi.

(2) Chamber "B" depression: 10 to 12 inches Hg.

(3) Cycles per minute: 20 approximately (1-1/2 seconds ON, 1-1/2 seconds OFF).

(4) Duration: 30 minutes (approximately 600 cycles).

b. Plug the space between the venturi throat and the venturi skirt (venturi annulus) to seal all the vacuum channels.

c. Hook the carburetor up as described in paragraph 3-7, a, above and position on the exercising bench with the discharge nozzle in the downward position.

d. Remove the taper seat plug (20, figure 2-9) in the regulator spacer and install a manometer fitting. Connect a manometer to the venturi suction channel.

e. Apply fuel to the inlet of the carburetor at 13-15 pounds per square inch.

CAUTION

Do not allow the fuel pressure to exceed 15 psi. Damage to the diaphragm may result.

f. Lock the throttle in the wide open position.

g. Apply 5 to 6 inches vacuum to a main body suction channel.

h. Flush the carburetor for 30 minutes or through approximately 600 complete cycles of 0-6 inches of mercury with the fuel pressure maintained between 13 and 15 psi.

3-9. FINAL CALIBRATION PROCEDURE.

3-10. Before flow testing the carburetor, remove the venturi throat and skirt gasket. Turn the venturi skirt gasket (77, figure 2-9) over so the venturi (metered) air pressure holes are blocked. Reinstall the venturi throat.

NOTE

With the gasket reversed, only two venturi attaching screws can be installed.

3-11. Install the carburetor on a suitable testing block in its normal operating position (discharge nozzle up) and make the required fuel, vacuum and air connections to the flow bench. Refer to figure 3-2 for the location of test connections from the carburetor to the flow bench.

a. Connect hose (63) from the "Metering Suction Regulated" connection (13) on the bench to the carburetor "B" chamber at the tap provided opposite the manual mixture control needle.

b. Remove the taper seat plug located between the acceleration pump and the regulator and connect hose (64) from the bench "Metering Suction B" connection (18).

c. Remove the taper seat plug located between the idle control and the discharge diaphragm (metered fuel channel) and connect hose (65) from the flow bench "Chamber C, Metering Head Manometer" connection (16).

d. Remove the 1/8 inch pipe plugs located at the top and bottom of the regulator cover. Install a shut-off valve in the upper opening (vapor vent) and slip a length of Tygon Tubing (71) over the outlet of the shut-off valve. Run the other end of the tube to the right hand table to route the discharged fuel back to the supply tank. Connect hose (66) from the flow bench "Chamber D, Metering Head Manometer" connection (15) to the lower opening.

e. Remove the 1/8 inch pipe (shipping) plug located just above and to the right of the poppet valve on the regulator cover and connect hose (67) from the "Carburetor Fuel Pressure" connection (14) on the flow bench.

f. Remove the remaining shipping plug and connect the fuel supply line (68) from the "Carburetor Inlet" connection (4) on the bench.

g. Remove the air bleed plug (65, figure 2-9) air bleed (66), packing (67) and discharge nozzle assembly (68). Screw the T27247 Bleeder Tube Drain Adapter, with packing preformed in place, into the port from which the air bleed plug was removed until it seats against the metering needle seat (63). Slip a length of 7/16 ID Tygon Tubing (69, figure 3-2) over the end of the T27247 adapter which protrudes from the carburetor. Run the other end of the tube to the right hand table to route the discharged fuel back to the supply tank.

h. Hold the throttle lever in the wide open position with the aid of a rubber band or light spring.

i. Bolt a vibrator in place on the testing block or carburetor mounting flange. With hose (70) connect the vibrator to the "Air Vibrator" connection (8) of the flow bench.

NOTE

The air vibrator simulates vibrations encountered on the carburetor during engine operation. The vibrator should be attached so the shaft of the vibrator wheel is parallel to the poppet valve during flow bench test. In this manner vibrations will be at right angles to the length of the valve.

j. Open valves No. 3 and No. 11 of the flow bench to expose the wells of the metering suction manometer to atmosphere.

3-12. Start and operate the inspection flow bench according to the bench manufacturer's instructions. Test and adjust the carburetor in accordance with the Flow Sheet. (See figures 3-5 and 3-6). Fuel flows must fall within the specified limits.

a. With the throttle in the wide open position, the manual mixture control set to a full rich position, and the vapor vent closed, adjust the flow bench to apply the specified metering suction given in check point No. 1, on the Flow Sheet. Adjust the discharge diaphragm adjusting screw (52, figure 2-9) to establish the specified fuel flow.

NOTE

If specified fuel flows cannot be obtained by adjusting the discharge diaphragm adjusting screw, it will be necessary to partially disassemble the carburetor and either add or remove shims (125, figure 2-9) from the regulator diaphragm spring. Adding shims will increase fuel flows, removing shims will decrease fuel flows. It is recommended that shims be changed only one at a time. In no event shall more than two shims be installed in the carburetor.

b. Refer to check point No. 2. Move the mixture control lever to the idle cut-off position. Fuel flow should stop immediately. Any fuel flow at this point indicates leakage past the poppet valve. Remove hose (69, figure 3-2) from the T27247 adapter and observe leakage. Leakage must not exceed 20 drops per minute. Reinstall hose on adapter.

c. Release the throttle lever from the wide open position. Measure throttle lever travel from closed to wide open positions to determine the exact one-half throttle lever position.

d. Set the throttle lever at the one-half position, move the mixture control lever to full rich and continue tests according to check point 3 on the Flow Sheet.

e. Adjustment of the discharge nozzle may twist the discharge nozzle spring (57, figure 2-9) slightly and cause the carburetor to go out of limits after limited use. Other springs in the carburetor may be in a twisted position after assembly. To eliminate this possibility, stabilize the carburetor as follows:

(1) Select the first test point on the flow sheet having metering head limits. (Test point No. 3 in this case.) Run test point No. 3 and record.

(2) Run "Metering Suction", Inches H_2O, from 0 to 60 and 60 to 0 inches several times.

(3) Actuate the manual mixture control lever into idle cut-off several times while running the metering suction up and down. This will cause further flexing of the regulator spring.

NOTE

The carburetor must repeat each time within 1 PPH (0.1 second Burette) of the original value recorded for test point No. 3.

(4) If readjustment is necessary, repeat stabilization procedure until repeatability is assured.

f. With the throttle lever at one-half position and the mixture control lever at full rich, proceed with test points No. 4 and 5.

g. After recording the flowmeter values of check point 5, proceed with check point 6 by opening the vapor vent shut-off valve. Fuel flow should increase from 15.4 to 20 pounds per hour above values found on check point 5.

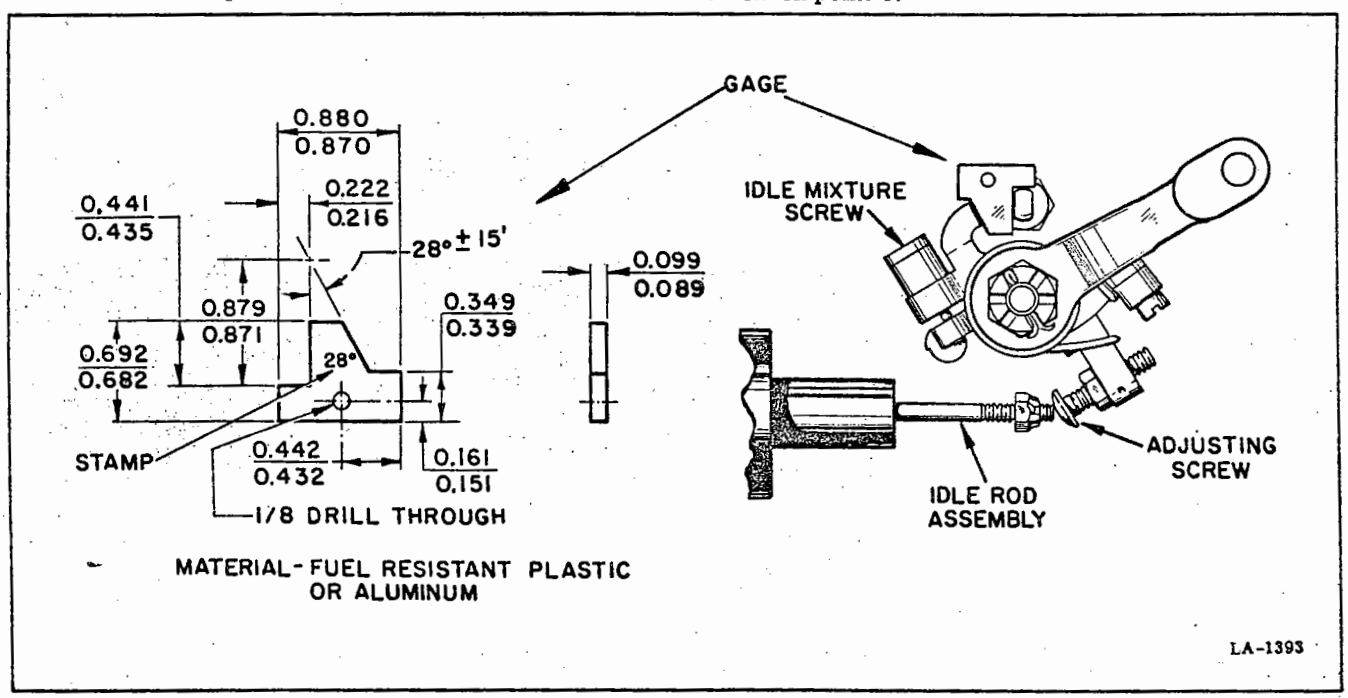

Figure 3-3. Setting Enrichment Valve Actuating Screw With T25941 Gage

h. Close the vapor shut-off valve and proceed with check point 7.

i. Before proceeding with check point No. 8, establish the opening point of the idle and power enrichment valve as follows:

(1) With the idle mixture screw (134, figure 2-9) in a mid-position as described in paragraph 2-28, h, (2) use the T25941 gage as shown in figure 3-3. This will establish the throttle valve in a position 28 degrees from wide open.

(2) Adjust the idle and enrichment valve adjusting screw (138) until it just contacts the idle control rod assembly (39, figure 2-9) as shown in figure 3-3.

(3) Torque the nut (139, figure 2-9) to the value specified in Table III.

NOTE

To manufacture the T25941 gage locally, use the dimensions given in figure 3-3.

j. Continue tests of check points No. 8 through No. 10. If further adjustment of the enrichment valve is necessary, repeat the previous test as assurance that fuel flows are still within the specified limits. Test point No. 10 must recheck within limits to assure against nozzle setting shift.

3-13. After satisfactory completion of flow bench testing, check the carburetor for external leakage.

a. Remove all test connections except test bench fuel supply and fuel pressure gage.

b. Blank off all external fuel connections.

c. Apply fuel at a pressure of 5 ± 1/2 psig in excess of the fuel inlet pressure specified on the flow sheet.

d. Visually inspect the entire exterior of the carburetor for evidence of fuel leakage. No leakage is permissible.

NOTE

Do not use chalk mixtures on this carburetor as an aid in detecting leakage.

e. If the carburetor proves statisfactory in both flow and leakage tests, remove fuel and pressure gage connections and install plugs.

NOTE

Be certain to disassemble the venturi assembly and restore the lower gasket (77, figure 2-9) to its correct position in the main body. Refer to figure 2-9 for proper sequence.

3-14. Lockwire and seal as required and per instructions in paragraph 2-29.

3-15. Install an assembly date decal (6, figure 2-9 (with the applicable assembly date) on the carburetor main body above the specification plate.

3-16. PREPARATION FOR STORAGE. Any unit taken out of service for more than 28 days, or units being returned for overhaul must be flushed with preserving oil, Specification MIL-O-6081, Grade 1010 using the following procedure:

a. Remove plugs and drain all fuel from the carburetor, then apply 10 to 15 psi air pressure to the carburetor inlet until all fuel is discharged from the discharge nozzle.

CAUTION

Do not exceed the above air pressure; internal damage to the carburetor may result.

b. Replace plugs and apply flushing oil filtered through a 10-micron filter at 13-15 psi to the carburetor fuel inlet until oil is discharged from the discharge nozzle.

c. Replace fuel inlet shipping plug.

3-17. PACKING FOR STORAGE.

a. After filling with preservative oil the carburetor should be protected from dust and dirt, and given such protection against moisture as climatic conditions at the point of storage require. Generally, storing the unit in a dry area will be sufficient.

b. If the unit is to be stored near or shipped over salt water, the following precautions should be observed:

(1) Spray the exterior of the carburetor with an approved preservative oil.

(2) Pack in a sealed dustproof container, wrap the container with moisture and vapor proof material and seal. Pack the wrapped unit in a suitable shipping case.

NOTE

Pack a one half pound bag of silica gel crystals in the dustproof container with the carburetor. The bag must not touch the carburetor.

3-18. RECONDITIONING AFTER STORAGE.

a. Remove the inlet strainer and all plugs leading to fuel chambers. Drain all of the preserving oil from the carburetor. Wash the inlet strainer in clean fuel and replace. Replace all plugs.

b. Remove the plug opposite the manual mixture control needle and drain any accumulated moisture from the air chamber. Replace plug.

c. With the throttle lever in the wide open position and the manual mixture control in the full rich position, inject clean fuel through the fuel inlet connection at 5 psi until clean fuel flows from the discharge nozzle.

d. Move the throttle lever to the closed position and the manual mixture control to the idle cut-off position. Disconnect the fuel supply and install a plug in the fuel inlet, leaving the carburetor filled with clean fuel.

e. Allow the carburetor to soak in this fuel for a minimum of eight hours before placing into service.

CAUTION

Never, under any circumstances, submerge the entire carburetor in fuel or other solvents. Submerging the carburetor in this manner will allow the air section to fill, with a resulting detrimental affect on the air diaphragms.

NOTE

Each time an adjustment is made to either the idle speed or idle mixture after the carburetor is installed on the engine, it will be necessary to readjust the enrichment valve adjusting screw position. Use the T25941 gage as described in paragraph 3-12, i.

SETTING SPECIFICATIONS FOR INJECTION CARBURETOR MODEL PS-5C P/L 391318-8

ENGINE MODEL: O-470 DRAWING NUMBER: 391318
ENGINE MFGR.: Continental DATE ISSUED: 8-19-57

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	366141	1.	
2.	Jet, Main Metering	390188	2.	Size: 43
3.	Seat, Idle & Power Enrichment Valve	383886	3.	
4.	Diaphragm Assembly, Idle & Power Enrichment	364969	4.	
5.	Seat, Manual Mixture Control Needle	384967	5.	
6.	Valve, Manual Mixture Control	366291	6.	
7.	Needle & Seat Assy., Poppet Valve	366382	7.	
	Seat, Poppet Valve	366381		
	Valve, Poppet	384142		
8.	Seat Assembly, Discharge Nozzle	366476	8.	
	Seat, Discharge Nozzle	383924		
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 Drilled in 383483 Reg. Cover
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1.625" ± .002"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assembly, Pump Relief	364164	14.	
15.	Automatic Mixture Control Assembly		15.	Not used
16.	Strainer Assembly, Fuel	366362	16.	
17.	Lever, Throttle	390248	17.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125" ± .010" ID: .296" ± .003"
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625" ± .031" OD: .4375" ± .010"
3.	Spring, Discharge Nozzle	393515	3.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
4.	Spring, Manual Mixture Control	383516	4.	Free Length: 2.750" ± .010" ID: .193" ± .003"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" ID: .516" ± .010"
6.	Spring, Poppet Valve	383518	6.	Free Length: .875" ± .010" OD: .188" ± .003"
7.	Spring, Regulator Diaphragm	383519	7.	Free Length: 1.937" ± .062" ID: .938" - 0 + .031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375" ± .015" OD: .301" ± .003"
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
10.	Spring, Loose Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 3-4. Carburetor Specification Sheet Parts List 391318-8

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470
Engine Mfgr.: Continental
Engine Mfgr. Setting: 531857

Fuel Inlet Pressure: 10 P.S.I.
Nozzle Pressure: -
Limits Based on. 734 ± .002 Specific Gravity at 75° ± 5°F.

Parts List No.: 391318-8
Carb. Model: PS-5C
Date Issued: 9-9-57

NAPHTHA

Flow Limits For Issues 4, 5, 6, 7 and 8 are Identical

Test Point No.		1				2	3	4	5	6	7	8	9	10								
Metering Suction Inches of Water		0.7				0.7	2.2	6.3	12.2	12.2	26.4	28.6	34.3	26.4								
Corresponding Air Flow Lb./Hr.		200				200	400	600	800	800	1150	1200	1300	1150								
Mixture Control Lever Position		R				ICO	R	R	R	R	R	R	R	R								
Burette Time Limits In Seconds	Volume	150					200	250	300	300	500	500	500	500								
	Min.	29.2					34.8	31.2	28.3	21.4	32.5	28.1	26.2	32.5								
	Max.	31.0					37.0	33.2	30.1	23.8	34.4	29.8	27.3	34.4								
	Obs.																					
Flowmeter Limits In Lbs./Hr.	Min.	28.2				No	31.5	43.9	58.1	73.5	84.6	97.6	106.7	84.6								
	Max.	29.9				Flow	33.45	46.6	61.7	81.7	89.8	103.6	111.1	89.8								
	Obs.																					
Metering Head Inches of Fuel	Min.						10.75		34.1		69.0											
	Max.						11.65		36.9		74.5											
	Obs.																					

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Lean) Limit:
High (Rich) Limit:

Notes: No. 1 - Check Points 3 through 6 are made with throttle valve in 1/2 open position.
No. 2 - At check Point 6, open vapor vent and measure total flow. All other check points vapor vent is closed.
No. 3 - At check Point 7, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 28° from the wide open position. Recheck at point 10.
No. 4 - Check Points 1, 2, 8, and 9 are made with throttle valve in the wide open position.

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470
Engine Mfgr.: Continental
Engine Mfgr. Setting: 531857

Fuel Inlet Pressure: 10 P.S.I.
Nozzle Pressure: -
Limits Based on .692 ± .002 Specific Gravity at 75° ± 5°F.

Parts List No.: 391318-8
Carb. Model: PS-5C
Date Issued: 9-9-57

HEPTANE

Flow Limits For Issues 4, 5, 6, 7, and 8 are Identical

Test Point No.		1			2	3	4	5	6	7	8	9	10								
Metering Suction Inches of Water		0.7			0.7	2.2	6.3	12.2	12.2	26.4	28.6	34.3	26.4								
Corresponding Air Flow Lb./Hr.		200			200	400	600	800	800	1150	1200	1300	1150								
Mixture Control Lever Position		R			ICO	R	R	R	R	R	R	R	R								
Burette	Volume	150				200	250	300	300	500	500	500	500								
Time	Min.	27.8				33.0	30.0	27.4	20.6	31.7	27.3	25.2	31.7								
Limits	Max.	29.5				35.0	32.0	29.1	22.9	33.7	29.0	26.5	33.7								
In Seconds	Obs.																				
Flowmeter	Min.	27.9			No	31.3	43.0	56.5	71.9	81.7	95.0	103.8	81.7								
Limits	Max.	29.6			Flow	33.2	45.7	60.0	80.0	86.8	100.8	108.0	86.8								
In Lbs./Hr.	Obs.																				
Metering	Min.					11.55		36.5		73.5											
Head	Max.					12.45		39.4		79.4											
Inches of Fuel	Obs.																				

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Lean) Limit:
High (Rich) Limit:

Notes: No. 1 - Check Points 3 through 6 are made with throttle valve in 1/2 open position.
No. 2 - At check Point 6, open vapor vent and measure total flow. All other points vapor vent is closed.
No. 3 - At check Point 7, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 28° from the wide open position. Recheck at point 10.
No. 4 - Check Points 1, 2, 8, and 9 are made with throttle valve in the wide open position.

Figure 3-6. Carburetor Flow Bench Test Sheet (Heptane) Parts List 391318-8

STROMBERG INJECTION CARBURETOR MODEL PS-5C 391318

HISTORY OF SPECIFICATIONS AND FLOW LIMITS

ENGINE MFGR.: Continental ENGINE MODEL: O-470

ISSUE 1		
Serial 1	7-25-50	First production release.
Serial 2	8-10-50	Gasoline strainer assembly 383520 replaced by 364858 to provide satisfactory straining of fuel.
ISSUE 2		
Serial 3	8-30-50	Loose lever assembly 364378 replaced by 364974 to facilitate assembly 364164 assembly accelerating pump relief valve added to improve decelerating engine operating characteristics.
Serial 4	10- 2-50	Regulator cover screws 383513 replaced by 383531 and 384018, idle rod cover screws replaced by 384018 to insure more thread engagement of screw in body.
Serial 5	10- 2-50	Parts list record change only.
Serial 6	12-14-50	Vacuum channel plug P-6387 replaced by 394285 to eliminate unnecessary machine operation.
Serial 7	12-21-50	Parts list record change only.
Serial 8	1-16-51	Parts list record change only.
Serial 9	7-30-51	Regulator needle valve seat and plug gasket P-3260 replaced by P-5319 to facilitate assembly.
Serial 10	4-30-52	Gasket P-22851 replaced by 365533 to facilitate purchase.
ISSUE 3		
Serial 11	11-15-52	Idle and power enrichment valve assembly 384675 replaced by 364969 to provide better engine performance of idle.
ISSUE 4		
Serial 12	8-21-53	Airbox flow limit changed to accomplish a delayed enrichment valve opening point. Carburetor now suitable for use on Continental O-470-11 and -13 engines, Cessna L-19, and Beech T-34 aircraft.
Serial 13	9-22-53	Decal - Rubber parts cure date 364563 replaced by 187406.
Serial 14	10-19-53	Cap - Discharge Nozzle 385035 added.
Serial 15	11-23-53	Parts list correction.
ISSUE 5		
Serial 16	2-15-54	Spacer and bushing Assembly 383946 was changed to Assy. P/N 365796 to incorporate a taper seat plug at pressure connection instead of 1/8" pipe plug, which caused possible casting fracture if over torqued during installation.
Serial 17	10- 1-54	Regulator Diaphragm Assembly P/N 383449 changed to P/N 383974 to standardize on one assembly.
Serial 18	10-21-55	To conform to standard practice of using shipping plugs at fuel pressure and vapor vent connections instead of brass 1/8" pipe plugs.
Serial 19	12- 6-55	To conform to design improvement, Manual mixture control needle P/N 384968 changed to P/N 366291. Pin and lead ball removed and replaced by 366290 Pindog point.
Serial 20	2- 8-56	Vapor outlet connection pipe plug changed from brass to aluminum.
Serial 21	6- 6-56	Discontinued scribing discharge diaphragm adjustment.
Serial 22	7-26-56	Poppet valve seat changed to permit addition of poppet valve strainer if required.
Serial 23	7-26-56	Parts list correction.
ISSUE 6		
Serial 24	10- 1-56	Incorporation of vinyl coated air diaphragm for ozone protection.
Serial 25	11-28-56	Incorporation of matched and leak tested discharge nozzle needle valve and seat.
Serial 26	12-26-56	Added shipping date decalcomania.
Serial 27	1- 7-57	Poppet valve seat and plug gaskets changed from fiber to aluminum.
ISSUE 7		
Serial 28	1- 7-57	Changed discharge diaphragm cover, discharge diaphragm screw, idle speed adjustment, idle control rod adjustment, and throttle stop assemblies from 32 to 56 threads per inch to provide more precise adjustments.
Serial 29	2-21-57	Main metering jet gasket changed from fiber to aluminum material.
ISSUE 8		
Serial 30	7-15-57	Changed to steel throttle shaft and Oilite throttle shaft bushings for increased service life. Added 80 mesh poppet valve strainer and changed to 100 mesh fuel inlet strainer.

Figure 3-7. Carburetor History Sheet Parts List 391318 (Sheet 1 of 2)

STROMBERG INJECTION CARBURETOR MODEL PS-5C 391318 (Cont'd.)

HISTORY OF SPECIFICATIONS AND FLOW LIMITS (Continued)

ISSUE 8 (Cont'd.)
Serial 31 8-19-57 Parts list correction.

NOTE: (1) Flow bench test limits for Issues 4, 5, 6, 7 and 8 are identical

(2) This specification and flow sheet corrects an error that existed in the burette limits of previously published limits for Issues 5, 6 and 7.

Figure 3-7. Carburetor History Sheet Parts List 391318 (Sheet 2 of 2)

SECTION IV
DIFFERENCE DATA SHEETS

4-1. Overhaul and test procedures for the models included in this section are the same as the procedures fo the Model PS-5C Injection Carburetor, Parts List 391318-8, except for the specific differences noted by the ap plicable Difference Data Sheet. Sections I, II and III contain complete overhaul and test information for the Mode PS-5C Injection Carburetor, Parts List 391318-8.

4-2. The following parts list and issues are covered in this section:

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MODEL PS-5C INJECTION CARBURETOR PARTS LIST NO. 380223-

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual, except the T25941 Gage is not used on this carburetor.

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual. Refer to 380223-2 Specification Sheet (figure 4-2) for information on metering variables for this issue.

COMPONENT DIFFERENCES.

a. General

(1) This issue incorporates a regulator needle plug instead of the 80 mesh poppet valve fuel strainer assembly (100, figure 4-1).

(2) The throttle shaft bushings (150 and 151, figure 4-1) on this issue carburetor are brass instead of oil impregnated sintered bronze as used on the carburetor in the basic technical manual. The throttle shaft (144, figure 4-1) is brass instead of steel.

(3) This issue incorporated an 80 mesh screen strainer which is not spring loaded, instead of a 200 mesh spring loaded strainer assembly (91, figure 4-1) as used on the carburetor in the basic technical manual.

(4) This issue carburetor incorporates a different idle power enrichment diaphragm and needle assembly (47, figure 4-1).

(5) This issue does not incorporate a relief valve assembly (26, figure 4-1) and gasket (32, figure 4-1).

(6) This issue carburetor incorporates a different size main metering jet (88, figure 4-1).

(7) This issue carburetor incorporates a different discharge diaphragm cover assembly (53, figure 4-1), discharge diaphragm adjusting screw assembly (52), throttle stop assembly (137), idle speed adjusting screw assembly (135) and idle control rod adjusting screw assembly (136). These parts have 32 threads per inch adjustments instead of 56 threads per inch as used on the carburetor in the basic technical manual.

(8) This issue carburetor does not incorporate a vinyl coated air diaphragm (120, figure 4-1) for ozone protection.

(9) The main metering jet plug gasket (87, figure 4-1) on this issue is fiber instead of aluminum as used on the carburetor in the basic technical manual.

(10) The poppet valve seat gasket (99, figure 4-1 and regulator needle plug gasket (101) are fibe instead of aluminum as used on the carburetor i the basic technical manual. The outside diamete of the gasket used on this carburetor is 1/16 incl larger.

(11) This issue does not incorporate a matchec and leak tested discharge nozzle needle valve anc seat (59 and 63, figure 4-1).

(12) This issue carburetor incorporates a scribed discharge diaphragm adjustment screw to indicate factory adjustment.

(13) This issue carburetor incorporates two diffusion tube attaching rivets (156, figure 4-1).

(14) The poppet valve seat (96, figure 4-1) on this issue carburetor is not machined to receive the end of the poppet valve screen.

(15) This issue incorporates a shipping plug (15, figure 4-1) instead of a pipe plug as used on the carburetor in the basic technical manual.

(16) This issue carburetor incorporates a different part number manual mixture control needle valve (111, figure 4-1) which is not drilled for lockwiring. A different set screw (106) is used which is not drilled for lockwiring. A lead ball (105) is used on this issue to retain the set screw instead of lockwiring. The manual mixture control assembly (104) is assembled before installation into the carburetor to facilitate installation of the lead ball (105).

(17) This issue incorporates a different part number diaphragm assembly (103, figure 4-1).

(18) This issue carburetor does not incorporate the discharge nozzle locking cup (3, figure 4-1).

(19) This carburetor incorporates a different spacer and bushing assembly (115, figure 4-1) which accomodates a pipe plug (20) instead of a taper seat plug.

(20) This issue carburetor uses a gasket (90, figure 4-1) of different material from the carburetor in the basic technical manual.

(21) This issue carburetor incorporates a threaded brass plug (155, figure 4-1) instead of a pressed in aluminum plug as used on the carburetor in the basic technical manual.

(22) This issue carburetor has a different loose idle lever assembly (139, figure 4-1) which incorporates a stationary contact pin instead of the en-

richment valve adjustment screw (140, figure 4-1). This loose idle lever assembly is not drilled for lockwiring.

OVERHAUL PROCEDURES. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement, Lubcation and Reassembly are the same as outlined in Section II.

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-2), Flow Limits Sheet (figure 4-3) and History Sheet (figure 4-4).

PREPARATION FOR STORAGE, PACKAGING, AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this technical manual.

KEY TO FIGURE 4-1

1. Seal - Aluminum
2. Seal - Aluminum
3. Locking Cup - Enrichment valve and discharge nozzle
4. Plate - Identification
5. Screw, Tapping - Thread forming
6. Decal
7. Plate - Automatic mixture control
8. Screw - Machine
9. Washer
10. Gasket - Automatic mixture control
11. Plug - Pipe
12. Plug - Pipe
13. Plug - Taper seat
14. Plug - Taper seat
15. Plug - Pipe
16. Plug - Pipe
17. Plug - Machine thread
18. Plug - Pipe
19. Plug - Pipe
20. Plug - Taper seat
21. Cover Assembly - Pump diaphragm
22. Screw - Machine
23. Washer
24. Spring - Pump discharge
25. Diaphragm Assembly - Pump
26. Valve Assembly - Relief
27. Retainer, Valve - Relief
28. Screw - Machine
29. Valve - Relief
30. Spring
31. Spacer - Relief valve
32. Gasket - Acceleration pump
33. Cover Assembly, Push Rod - Idle
34. Screw - Machine
35. Washer
36. Gasket, Cover - Idle push rod
37. Pin - Cotter
38. Nut, Castellated - Hex
39. Rod Assembly - Idle push
40. Washer - Spring retainer
41. Spring - Discharge diaphragm
42. Washer - Spring retainer
43. Plunger - Idle valve
44. Cover - Idle diaphragm
45. Screw - Machine
46. Washer
47. Diaphragm Assembly - Idle and enrichment valve
48. Spring - Idle needle
49. Washer - Lock
50. Seat - Idle needle
51. Washer - Nonmetallic
52. Screw Assembly - Enrichment valve adjustment
53. Cover Assembly - Metering needle
54. Screw - Machine
55. Washer
56. Retainer - Spring
57. Spring - Discharge diaphragm
58. Diaphragm Assembly - Pump
59. Valve Assembly - Metering needle
60. Spring - Discharge needle
61. Washer - Lock
62. Nut - Metering needle seat
63. Seat - Needle discharge
64. Washer - Nonmetallic
65. Plug - Air bleed
66. Bleed - Air
67. Packing - Preformed
68. Nozzle Assembly - Discharge
69. Screw - Machine
70. Washer
71. Throat Assembly - Venturi
72. Pin - Cotter
73. Venturi - Throat
74. Gasket - Venturi throat
75. Reducer - Automatic mixture control vacuum channel
76. Skirt - Venturi
77. Gasket - Venturi skirt
78. Pin - Cotter
79. Washer - Flat
80. Pin - Cotter
81. Washer - Flat
82. Washer - Spring
83. Lever Assembly
84. Bushing - Shoulder
85. Lever
86. Plug - Hex head
87. Washer - Nonmetallic
88. Jet - Metering
89. Plug - Machine thread
90. Washer - Nonmetallic
91. Strainer Assembly
92. Screw - Machine
93. Washer
94. Washer - Lock
95. Valve and Seat Assembly - Regulator
96. Seat - Regulator needle
97. Valve - Regulator needle
98. Spring - Regulator needle
99. Washer - Nonmetallic
100. Plug - Regulator needle
101. Washer - Nonmetallic
102. Cover - Regulator
103. Diaphragm Assembly - Regulator
104. Needle and Link Assembly - Mixture control
105. Ball

380223-2

SETTING SPECIFICATIONS FOR INJECTION CARBURETOR MODEL PS-5C

ENGINE MODEL: 0-470 DRAWING NUMBER: 380223
ENGINE MFGR.: Continental DATE ISSUED: 3-18-49 (Rev: 1-1-50)

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	384607	1.	
2.	Jet, Main Metering	390188	2.	Size: No. 44 - 627CC
3.	Seat, Idle	383886	3.	Size: 0.120" ; 1190-1214
4.	Valve Assembly, Idle	384675	4.	
5.	Seat, Manual Mixture Control Needle	384967	5.	Size: 0.124" - 0.126"
6.	Needle, Manual Mixture Control	384968	6.	
7.	Needle & Seat Assy., Poppet Valve	384836	7.	
	Seat, Poppet Valve	384138		Size:
	Valve, Poppet	384142		
8.	Nozzle Assembly, Discharge	384961	8.	
	Seat, Discharge Nozzle	383924		Size: 0.112"
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: No. 44
11.	Vapor Vent		11.	Size: No. 70, Drilled in 383483 Regulator Cover
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1.625" ± .002"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Strainer Assembly, Fuel	383520	14.	
15.	Loose Lever Assembly, Idle Control Rod	383845	15.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: 0.8125" ± .010" I.D. 0.296" ± .003"
2.	Spring, Discharge Needle	383514	2.	Free Length: 0.5625" ± .031" O.D. 0.4375" ± .010"
3.	Spring, Discharge Diaphragm	383515	3.	Free Length: 1.875" ± .062" I.D. 0.516" - 0+ .016"
4.	Spring, Manual Mixture Control Needle	383516	4.	Free Length: 2.750" ± .010" I.D. 0.193" ± .003"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" I.D. 0.516" ± .010"
6.	Spring, Poppet Valve	383518	6.	Free Length: 0.875" ± .010" O.D. 0.188" ± .003"
7.	Spring, Regulator Diaphragm	383519	7.	Free Length: 1.937" ± .062" I.D. 0.988" - 0+ .031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: 0.375" ± .015" O.D. 0.301" ± .003"
9.	Spring, Idle	383515	9.	Free Length: 1.875" ± .062" I.D. 0.516" - 0+ .016"
10.	Spring, Loose Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-2. Carburetor Specification Sheet Parts List 380223-2

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470
Engine Mfgr.: Continental
Engine Mfgr. Setting: 530486

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on. 734 ± .002 Specific Gravity at 75 ± 5 °F.
NAPHTHA

Parts List No.: 380223-2 through -6
Carb. Model: PS-5C
Date Issued: 3-3-58

Flow limits for Issues 2 through 6 are identical.

Test Point No.		1			2	3	4	5	6	7	8	9	10								
Metering Suction Inches of Water		0.7			0.7	1.6	3.1	7.25	13.4	13.4	20.8	30.9	36.9								
Corresponding Air Flow Lb./Hr.		200			200	300	400	600	800	800	1000	1200	1300								
Mixture Control Lever Position		R			ICO	R	R	R	R	R	R	R	R								
Throttle Position		WO			WO	1/2	1/2	1/2	1/2	1/2	WO	WO	WO								
Burette	Volume	150				150	200	250	300	300	500	500	500								
Time	Min.	29.2				28.0	31.5	29.4	27.1	20.8	33.6	28.0	26.2								
Limits	Max.	31.0				29.8	33.4	31.2	28.7	23.0	35.7	29.8	27.4								
In Seconds	Obs.																				
Flowmeter	Min.	28.2			No	29.4	34.85	46.7	60.8	76.2	81.6	97.9	106.5								
Limits	Max.	29.9			Flow	31.2	36.95	49.5	64.4	83.8	86.5	103.8	111.0								
In Lbs./Hr.	Obs.																				
Metering	Min.						12.2		36.2			77.0									
Head	Max.						13.4		39.4			84.0									
Inches of Fuel	Obs.																				

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Lean) Limit:
High (Rich) Limit:

Notes:
1. Check Points 3 through 7 are made with throttle valve in 1/2 open position.
2. At Check Point 7, open vapor vent and measure total flow. All other points vapor vent is closed.
3. At Check Point 8, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 35° from the wide open position.
4. Check Points 1, 2, 8 9 and 10 are made with throttle valve in the wide open position

Figure 4-3. Carburetor Flow Bench Test Sheet (Naphtha) Parts List 380223-2

380223

STROMBERG INJECTION CARBURETOR MODEL PS-5C

HISTORY OF SPECIFICATIONS AND FLOW LIMITS

Engine Mfgr.: Continental Engine Model: O-470

ISSUE 1			
Serial	1	7-25-47	Parts list released to production.
Serial	2	10-27-47	Parts list records change only.
Serial	3	12- 5-47	Parts list records change only.
ISSUE 2			
Serial	4	12-19-47	Discharge nozzle air bleeder seal 390267 changed to 250-S-5 to provide an improved seal.
Serial	5	5- 7-48	Parts list records change only.
Serial	6	5- 5-49	Parts list records change only.

Figure 4-4. Carburetor History Sheet Parts List 380223-2

MODEL PS-5C INJECTION CARBURETOR — PARTS LIST NO. 380223-3

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual, except the T25941 Gage is not used on this carburetor. The following tool is used in addition:

Part No.	Nomenclature	Figure No.	USAF Stock No.
T25939	Assembly Gage - Enrichment valve screw adjusting	4-5	5220

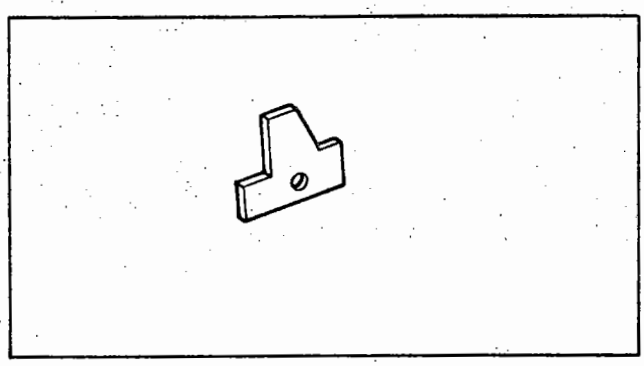

Figure 4-5. T25939 Enrichment Valve Screw Adjusting Assembly Gage

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual. Refer to 380223-3 Specification Sheet (figure 4-8) for information on metering variables for this issue.

COMPONENT DIFFERENCES.

a. General

(1) This issue incorporates a regulator needle plug instead of the 80 mesh poppet valve fuel strainer assembly (100, figure 4-6).

(2) The throttle shaft bushings (150 and 151, figure 4-6) on this issue carburetor are brass instead of oil impregnated sintered bronze as used on the carburetor in the basic technical manual. The throttle shaft (144, figure 4-6) is brass instead of steel.

(3) This issue incorporates an 80 mesh screen on the strainer assembly (91, figure 4-6) instead of a 200 mesh screen as used on the carburetor in the basic technical manual.

(4) This issue carburetor incorporates a different idle power enrichment diaphragm and needle assembly (47, figure 4-6).

(5) This issue does not incorporate a relief valve assembly (26, figure 4-6) and gasket (32, figure 4-6).

(6) This issue carburetor incorporates a different size main metering jet (88, figure 4-6).

(7) This issue carburetor incorporates a different discharge diaphragm cover assembly (53, figure 4-6), discharge diaphragm adjusting screw assembly (52), throttle stop assembly (137), idle speed adjusting screw assembly (135) and the idle control rod adjusting screw assembly (136). These parts have 32 threads per inch adjustments instead of 56 threads per inch as used on the carburetor in the basic technical manual.

(8) This issue carburetor does not incorporate a vinyl coated air diaphragm (120, figure 4-6) for ozone protection.

(9) The main metering jet plug gasket (87, figure 4-6) on this issue is fiber instead of aluminum as used on the carburetor in the basic technical manual.

(10) The poppet valve seat gasket (99, figure 4-6) and regulator needle plug gasket (101) are fiber instead of aluminum as used on the carburetor in the basic technical manual.

(11) This issue does not incorporate a matched and leak tested discharge nozzle needle valve and seat (59 and 63, figure 4-6).

(12) This issue carburetor incorporates a scribed discharge diaphragm adjustment screw to indicate factory adjustment.

(13) This issue carburetor incorporates two diffusion tube attaching rivets (156, figure 4-6).

(14) The poppet valve seat (96, figure 4-6) on this issue carburetor is not machined to receive the end of the poppet valve screen.

(15) This issue incorporates a shipping plug (15, figure 4-6) instead of a pipe plug as used on the carburetor in the basic technical manual.

(16) This issue carburetor incorporates a different part number manual mixture control needle valve (111, figure 4-6) which is not drilled for lockwiring. A different set screw (106) is used which is not drilled for lockwiring. A lead ball (105) is used on

KEY TO FIGURE 4-6

1. Seal - Aluminum
2. Seal - Aluminum
3. Locking Cup - Enrichment valve and discharge nozzle
4. Plate - Identification
5. Screw, Tapping - Thread forming
6. Decal
7. Plate - Automatic mixture control
8. Screw - Machine
9. Washer
10. Gasket - Automatic mixture control
11. Plug - Pipe
12. Plug - Pipe
13. Plug - Taper seat
14. Plug - Taper seat
15. Plug - Pipe
16. Plug - Pipe
17. Plug - Machine thread
18. Plug - Pipe
19. Plug - Pipe
20. Plug - Taper seat
21. Cover Assembly - Pump diaphragm
22. Screw - Machine
23. Washer
24. Spring - Pump discharge
25. Diaphragm Assembly - Pump
26. Valve Assembly - Relief
27. Retainer, Valve - Relief
28. Screw - Machine
29. Valve - Relief
30. Spring
31. Spacer - Relief valve
32. Gasket - Acceleration pump
33. Cover Assembly, Push Rod - Idle
34. Screw - Machine
35. Washer
36. Gasket, Cover - Idle push rod
37. Pin - Cotter
38. Nut, Castellated - Hex
39. Rod Assembly - Idle push
40. Washer - Spring retainer
41. Spring - Discharge diaphragm
42. Washer - Spring retainer
43. Plunger - Idle valve
44. Cover - Idle diaphragm
45. Screw - Machine
46. Washer
47. Diaphragm Assembly - Idle and enrichment valve
48. Spring - Idle needle
49. Washer - Lock
50. Seat - Idle needle
51. Washer - Nonmetallic
52. Screw Assembly - Enrichment valve adjustment
53. Cover Assembly - Metering needle
54. Screw - Machine
55. Washer
56. Retainer - Spring
57. Spring - Discharge diaphragm
58. Diaphragm Assembly - Pump
59. Valve Assembly - Metering needle
60. Spring - Discharge needle
61. Washer - Lock
62. Nut - Metering needle seat
63. Seat - Needle discharge
64. Washer - Nonmetallic
65. Plug - Air bleed
66. Bleed - Air
67. Packing - Preformed
68. Nozzle Assembly - Discharge
69. Screw - Machine
70. Washer
71. Throat Assembly - Venturi
72. Pin - Cotter
73. Venturi - Throat
74. Gasket - Venturi throat
75. Reducer - Automatic mixture control vacuum channel
76. Skirt - Venturi
77. Gasket - Venturi skirt
78. Pin - Cotter
79. Washer - Flat
80. Pin - Cotter
81. Washer - Flat
82. Washer - Spring
83. Lever Assembly
84. Bushing - Shoulder
85. Lever
86. Plug - Hex head
87. Washer - Nonmetallic
88. Jet - Metering
89. Plug - Machine thread
90. Washer - Nonmetallic
91. Strainer Assembly
92. Screw - Machine
93. Washer
94. Washer - Lock
95. Valve and Seat Assembly - Regulator
96. Seat - Regulator needle
97. Valve - Regulator needle
98. Spring - Regulator needle
99. Washer - Nonmetallic
100. Plug - Regulator needle
101. Washer - Nonmetallic
102. Cover - Regulator
103. Diaphragm Assembly - Regulator
104. Needle and Link Assembly - Mixture control
105. Ball
106. Pin - Dog point
107. Cam - Fuel cut-off
108. Link Assembly - Mixture control
109. Plug - Mixture control needle valve
110. Spring - Altitude control needle
111. Valve - Mixture control
112. Seat - Mixture control
113. Washer - Nonmetallic
114. Lever Assembly - Fuel cut-off
115. Regulator Assembly - Spacer
116. Bushing - Regulator spacer
117. Spacer - Regulator
118. Plunger - Spring release
119. Spring, Plunger - Idle cut-off
120. Diaphragm Assembly
121. Plug - Taper seat
122. Pin, Straight - Headless
123. Spring - Idle cut-off lever

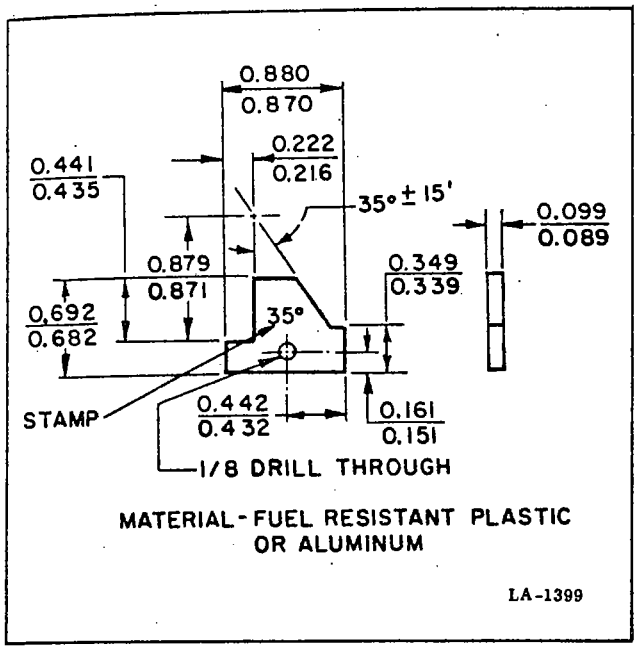

Figure 4-7. Dimensions for Manufacturing the T25939 Gage

this issue to retain the set screw instead of lockwiring. The manual mixture control assembly (104) is assembled before installation into the carburetor to facilitate installation of the lead ball (105).

(17) This issue incorporates a different part number diaphragm assembly (103, figure 4-6).

(18) This issue carburetor does not incorporate the discharge nozzle locking cup (3, figure 4-6).

(19) This carburetor incorporates a different spacer and bushing assembly (115, figure 4-6) which accomodates a pipe plug (20) instead of a taper seat plug.

(20) This issue carburetor may or may not incorporate a loose idle lever assembly (139, figure 4-6) which is drilled for lockwiring.

OVERHAUL PROCEDURES, Disassembly, Cleaning, Inspection, Testing, Repair or Replacement, Lubrication and Reassembly are the same as outlined in Section II.

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-8), Flow Limits Sheet (figure 4-9) and History Sheet (figure 4-10).

a. Use the T25939 gage to establish the opening point of the idle and power enrichment valve as described in paragraph 3-12, i.

NOTE

To manufacture the T25939 gage locally, use the dimensions given in figure 4-7.

PREPARATION FOR STORAGE, PACKAGING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this technical manual.

380223-3

SETTING SPECIFICATIONS FOR INJECTION CARBURETOR MODEL PS-5C

ENGINE MODEL: 0-470 DRAWING NUMBER: 380223
ENGINE MFGR.: Continental DATE ISSUED: 11-3-50

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	384607	1.	
2.	Jet, Main Metering	390188	2.	Size: No. 44 - 627CC
3.	Seat, Idle	383886	3.	Size: 0.120"; 1190-1214
4.	Valve Assembly, Idle	384675	4.	
5.	Seat, Manual Mixture Control Needle	384967	5.	Size: 0.124" - 0.126"
6.	Needle, Manual Mixture Control	384968	6.	
7.	Needle & Seat Assy., Poppet Valve	384836	7.	
	Seat, Poppet Valve	384138		Size:
	Valve, Poppet	384142		
8.	Nozzle Assembly, Discharge	384961	8.	
	Seat, Discharge Nozzle	383924		Size: 0.112"
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: No. 44
11.	Vapor Vent		11.	Size: No. 70, Drilled in 383483 Regulator Cover.
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1.625" ± 0.002"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Strainer Assembly, Fuel	364858	14.	
15.	Loose Lever Assembly, Idle Control Rod	364974	15.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: 0.8125" ± .010" I.D. 0.296" ± .003"
2.	Spring, Discharge Needle	383514	2.	Free Length: 0.5625" ± .031" O.D. 0.4375" ± .010"
3.	Spring, Discharge Diaphragm	383515	3.	Free Length: 1.875" ± .062" I.D. 0.516" - 0+.016"
4.	Spring, Manual Mixture Control Needle	383516	4.	Free Length: 2.750" ± .010" I.D. 0.193" ± .003"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" I.D. 0.516" ± .010"
6.	Spring, Poppet Valve	383518	6.	Free Length: 0.875" ± .010" O.D. 0.188" ± .003"
7.	Spring, Regulator Diaphragm	383519	7.	Free Length: 1.937" ± .062" I.D. 0.988" - 0+.031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: 0.375" ± .015" O.D. 0.301" ± .003"
9.	Spring, Idle	383515	9.	Free Length: 1.875" ± .062" I.D. 0.516" - 0+.016"
10.	Spring, Loose Lever to Throttle	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-8. Carburetor Specification Sheet Parts List 380223-3

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470
Engine Mfgr.: Continental
Engine Mfgr. Setting: 530486

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on .734 ± .002 Specific Gravity at 75 ± 5 °F.
NAPHTHA

Parts List No.: 380223-2 through -6
Carb. Model: PS-5C
Date Issued: 3-3-58

Flow limits for Issues 2 through 6 are identical.

Test Point No.		1				2	3	4	5	6	7	8	9	10									
Metering Suction Inches of Water		0.7				0.7	1.6	3.1	7.25	13.4	13.4	20.8	30.9	36.9									
Corresponding Air Flow Lb./Hr.		200				200	300	400	600	800	800	1000	1200	1300									
Mixture Control Lever Position		R				ICO	R	R	R	R	R	R	R	R									
Throttle Position		WO				WO	1/2	1/2	1/2	1/2	1/2	WO	WO	WO									
Burette	Volume	150					150	200	250	300	300	500	500	500									
Time	Min.	29.2					28.0	31.5	29.4	27.1	20.8	33.6	28.0	26.2									
Limits	Max.	31.0					29.8	33.4	31.2	28.7	23.0	35.7	29.8	27.4									
In Seconds	Obs.																						
Flowmeter	Min.	28.2				No	29.4	34.85	46.7	60.8	76.2	81.6	97.9	106.5									
Limits	Max.	29.9				Flow	31.2	36.95	49.5	64.4	83.8	86.5	103.8	111.0									
In Lbs./Hr.	Obs.																						
Metering	Min.							12.2		36.2			77.0										
Head	Max.							13.4		39.4			84.0										
Inches of Fuel	Obs.																						

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Lean) Limit:
High (Rich) Limit:

Notes:
1. Check Points 3 through 7 are made with throttle valve in 1/2 open position.
2. At Check Point 7, open vapor vent and measure total flow. All other points vapor vent is closed.
3. At Check Point 8, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 35° from the wide open position.
4. Check Points 1, 2, 8 9 and 10 are made with throttle valve in the wide open position

Figure 4-9. Carburetor Flow Bench Test Sheet (Naphtha) Parts List 380223-3

STROMBERG INJECTION CARBURETOR MODEL PS-5C

HISTORY OF SPECIFICATIONS AND FLOW LIMITS

Engine Mfgr.: Continental Engine Model: O-470

ISSUE 1		
Serial 1	7-25-47	Parts list released to production.
Serial 2	10-27-47	Parts list records change only.
Serial 3	12- 5-47	Parts list records change only.
ISSUE 2		
Serial 4	12-19-47	Discharge nozzle air bleeder seal 390267 changed to 250-S-5 to provide an improved seal.
Serial 5	5- 7-48	Parts list records change only.
Serial 6	5- 5-49	Parts list records change only.
ISSUE 3		
Serial 7	9- 9-49	Loose lever assembly 383845 changed to 364378 to incorporate an adjustable enrichment valve actuating screw.
Serial 8	2- 9-50	Parts list records change only.
Serial 9	5-11-50	Parts list records change only.
Serial 10	8-24-50	Parts list records change only.
Serial 11	9- 7-50	Parts list records change only.
Serial 12	10-18-50	Fuel strainer 383520 changed to 364858 assembly to provide an improved filter.
Serial 13	12-14-50	Parts list records change only.
Serial 14	12-21-51	Discharge nozzle air bleeder seal 250-S-5 changed to 315-S-5 to specify improved material.
Serial 15	1-29-51	Loose lever assembly 364378 changed to 364974 to allow for lockwire.
Serial 16	8- 2-51	Poppet valve seat and plug gasket P3260 changed to P5319 to facilitate assembly.
Serial 17	1-18-52	Parts list records change only.
Serial 18	5- 1-52	Fuel strainer plug gasket P22851 changed to 365533 to provide improved material.
Serial 19	10-16-52	Parts list records change only.

Figure 4-10. Carburetor History Sheet Parts List 380223-3

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MODEL PS-5C INJECTION CARBURETOR PARTS LIST NO. 380223-4

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual, except the T25941 Gage is not used on this carburetor. The following tool is used in addition:

Part No.	Nomenclature	Figure No.	USAF Stock No.
T25939	Assembly Gage - Enrichment valve screw adjusting	4-11	5220

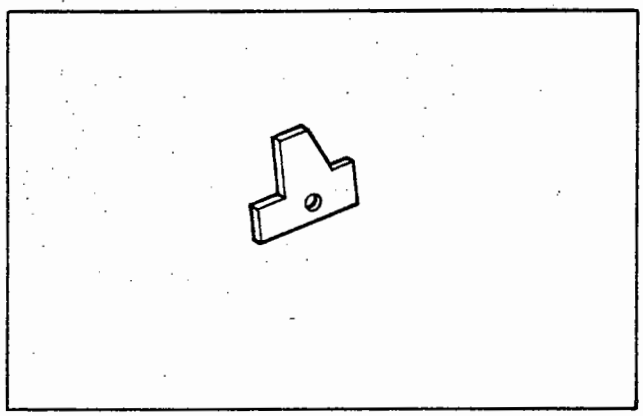

Figure 4-11. T25939 Enrichment Valve Screw Adjusting Assembly Gage

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual. Refer to 380223-4 Specification Sheet (figure 4-13) for information on metering variables for this issue.

COMPONENT DIFFERENCES.

a. General

(1) This issue incorporates a regulator needle plug instead of the 80 mesh poppet valve fuel strainer assembly (100, figure 2-9).

(2) The throttle shaft bushings (148 and 149, figure 2-9) on this issue carburetor are brass instead of oil impregnated sintered bronze as used on the carburetor in the basic technical manual. The throttle shaft (142, figure 2-9) is brass instead of steel.

(3) This issue incorporates an 80 mesh screen on the strainer assembly (91, figure 2-9) instead of a 200 mesh screen as used in the carburetor in the basic technical manual.

(4) This issue carburetor incorporates a different idle power enrichment diaphragm and needle assembly (47, figure 2-9).

(5) This issue does not incorporate a relief valve assembly (26, figure 2-9) and gasket (32, figure 2-9).

(6) This issue carburetor incorporates a different size main metering jet (88, figure 2-9).

(7) This issue carburetor incorporates a different discharge diaphragm cover assembly (53, figure 2-9), discharge diaphragm adjusting screw assembly (52), throttle stop assembly (135), idle speed adjusting screw assembly (133) and idle control rod adjusting screw assembly (134). These parts have 32 threads per inch adjustments instead of 56 threads per inch as used in the carburetor in the basic technical manual.

(8) This issue carburetor does not incorporate a vinyl coated air diaphragm (118, figure 2-9) for ozone protection.

OVERHAUL PROCEDURES. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement, Lubrication and Reassembly are the same as outlined in Section II.

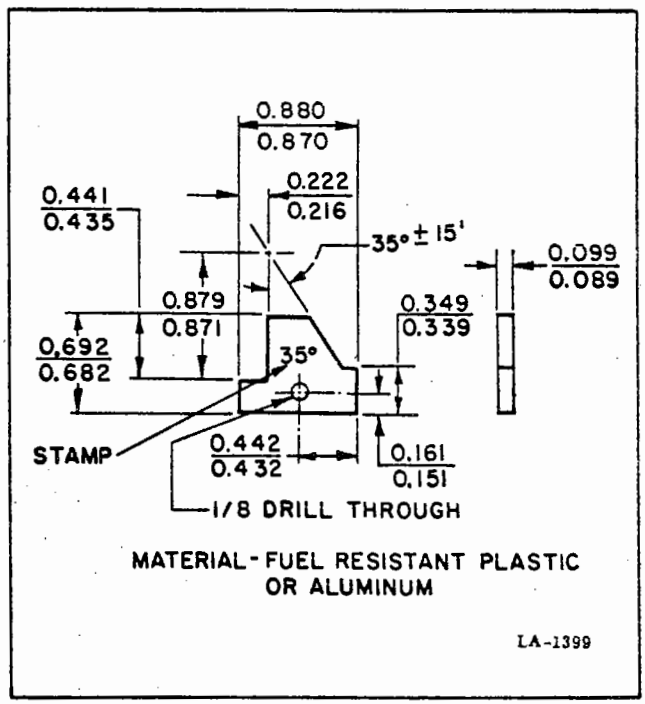

Figure 4-12. Dimensions for Manufacturing the T25939 Gage

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-13), Flow Limits Sheet (figure 4-14) and History Sheet (figure 4-15).

a. Use the T25939 gage to establish the opening point of the idle and power enrichment valve as described in paragraph 3-12, i.

NOTE

To manufacture the T25939 gage locally, use the dimensions given in figure 4-12.

PREPARATION FOR STORAGE, PACKAGING ANI RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this technical manual.

380223-4

SETTING SPECIFICATIONS FOR INJECTION CARBURETOR MODEL PS-5C

ENGINE MODEL: 0-470 — DRAWING NUMBER: 380223
ENGINE MFGR.: Continental — DATE ISSUED: 8-24-53

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	384607	1.	
2.	Jet, Main Metering	390188	2.	Size: No. 44 - 627CC
3.	Seat, Idle	383886	3.	Size: 0.120"; 1190-1214
4.	Valve Assembly, Idle	384675	4.	
5.	Seat, Manual Mixture Control Needle	384967	5.	Size: 0.124" - 0.126"
6.	Needle, Manual Mixture Control	366291	6.	
7.	Needle & Seat Assy., Poppet Valve	366382	7.	
	Seat, Poppet Valve	366381		Size:
	Valve, Poppet	384142		
8.	Nozzle Assembly, Discharge	384961	8.	
	Seat, Discharge Nozzle	383924		Size: 0.112"
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: No. 44
11.	Vapor Vent		11.	Size: No. 70, Drilled in 383483 Regulator Cover.
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1.625" ± 0.002"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Strainer Assembly, Fuel	364858	14.	
15.	Loose Lever Assembly, Idle Control Rod	364974	15.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: 0.8125" ± .010" I.D. 0.296" ± .003"
2.	Spring, Discharge Needle	383514	2.	Free Length: 0.5625" ± .031" O.D. 0.4375" ± .010"
3.	Spring, Discharge Diaphragm	383515	3.	Free Length: 1.875" ± .062" I.D. 0.516" - 0+ .016"
4.	Spring, Manual Mixture Control Needle	383516	4.	Free Length: 2.750" ± .010" I.D. 0.193" ± .003"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" I.D. 0.516" ± .010"
6.	Spring, Poppet Valve	383518	6.	Free Length: 0.875" ± .010" O.D. 0.188" ± .003"
7.	Spring, Regulator Diaphragm	383519	7.	Free Length: 1.937" ± .062" I.D. 0.988" - 0+ .031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: 0.375" ± .015" O.D. 0.301" ± .003"
9.	Spring, Idle	383515	9.	Free Length: 1.875" ± .062" I.D. 0.516" - 0+ .016"
10.	Spring, Loose Lever to Throttle	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-13. Carburetor Specification Sheet Parts List 380223-4

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470
Engine Mfgr.: Continental
Engine Mfgr. Setting: 530486

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on. 734 ± .002 Specific Gravity at 75 ± 5 °F.
NAPHTHA

Parts List No.: 380223-2 through -6
Carb. Model: PS-5C
Date Issued: 3-3-58
Flow limits for Issues 2 through 6 are identical.

Test Point No.		1				2	3	4	5	6	7	8	9	10								
Metering Suction Inches of Water		0.7				0.7	1.6	3.1	7.25	13.4	13.4	20.8	30.9	36.9								
Corresponding Air Flow Lb./Hr.		200				200	300	400	600	800	800	1000	1200	1300								
Mixture Control Lever Position		R				ICO	R	R	R	R	R	R	R	R								
Throttle Position		WO				WO	1/2	1/2	1/2	1/2	1/2	WO	WO	WO								
Burette	Volume	150					150	200	250	300	300	500	500	500								
Time	Min.	29.2					28.0	31.5	29.4	27.1	20.8	33.6	28.0	26.2								
Limits	Max.	31.0					29.8	33.4	31.2	28.7	23.0	35.7	29.8	27.4								
In Seconds	Obs.																					
Flowmeter	Min.	28.2				No	29.4	34.85	46.7	60.8	76.2	81.6	97.9	106.5								
Limits	Max.	29.9				Flow	31.2	36.95	49.5	64.4	83.8	86.5	103.8	111.0								
In Lbs./Hr.	Obs.																					
Metering	Min.							12.2		36.2			77.0									
Head	Max.							13.4		39.4			84.0									
Inches of Fuel	Obs.																					

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Lean) Limit:
High (Rich) Limit:

Notes:
1. Check Points 3 through 7 are made with throttle valve in 1/2 open position.
2. At Check Point 7, open vapor vent and measure total flow. All other points vapor vent is closed.
3. At Check Point 8, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 35° from the wide open position.
4. Check Points 1, 2, 8 9 and 10 are made with throttle valve in the wide open position

Figure 4-14. Carburetor Flow Bench Test Sheet (Naphtha) Parts List 380223-4

STROMBERG INJECTION CARBURETOR MODEL PS-5C

HISTORY OF SPECIFICATIONS AND FLOW LIMITS

Engine Mfgr.: Continental Engine Model: O-470

ISSUE 1		
Serial 1	7-25-47	Parts list released to production.
Serial 2	10-27-47	Parts list records change only.
Serial 3	12- 5-47	Parts list records change only.
ISSUE 2		
Serial 4	12-19-47	Discharge nozzle air bleeder seal 390267 changed to 250-S-5 to provide an improved seal.
Serial 5	5- 7-48	Parts list records change only.
Serial 6	5- 5-49	Parts list records change only.
ISSUE 3		
Serial 7	9- 9-49	Loose lever assembly 383845 changed to 364378 to incorporate an adjustable enrichment valve actuating screw.
Serial 8	2- 9-50	Parts list records change only.
Serial 9	5-11-50	Parts list records change only.
Serial 10	8-24-50	Parts list records change only.
Serial 11	9- 7-50	Parts list records change only.
Serial 12	10-18-50	Fuel strainer 383520 changed to 364858 assembly to provide an improved filter.
Serial 13	12-14-50	Parts list records change only.
Serial 14	12-21-51	Discharge nozzle air bleeder seal 250-S-5 changed to 315-S-5 to specify improved material.
Serial 15	1-29-51	Loose lever assembly 364378 changed to 364974 to allow for lockwire.
Serial 16	8- 2-51	Poppet valve seat and plug gasket P3260 changed to P5319 to facilitate assembly.
Serial 17	1-18-52	Parts list records change only.
Serial 18	5- 1-52	Fuel strainer plug gasket P22851 changed to 365533 to provide improved material.
Serial 19	10-16-52	Parts list records change only.
ISSUE 4		
Serial 20	8-24-53	Regulator spacer and bushing assembly 383946 changed to 365796 and spacer plug P8508 changed to P60000 taper seat plug, to eliminate possibility of cracking spacer from overtorque of the pipe threaded plug and/or test fitting.
Serial 21	10-22-53	Parts list records change only.
Serial 22	10-26-53	Parts list records change only.
Serial 23	8- 9-54	Parts list records change only.
Serial 24	9-19-55	Manual mixture control needle valve 384968 changed to 366291 and idle cut-off cam attaching screw 383504 changed to 366290 dog point pin and P19983 lead ball eliminated to improve cam attaching.
Serial 25	9-28-55	Parts list records change only.
Serial 26	2-10-56	Plug 396660 removed from fuel pressure connection and replaced with plug P-8503. Plug P-8503 added to vapor vent and drain, per request of engine manufacturer.
Serial 27	3-20-56	Seat and needle assembly - regulator 384836 replaced with assembly 366382. Seat (regulator needle) 384138 replaced with seat 366381, to accommodate poppet screen 366373.
Serial 28	4-19-56	Diffusion tube attaching rivets removed, holes eliminated from main body of new production units.
Serial 29	6- 5-56	Scribe line and prick punch markings removed from discharge nozzle adjusting screw bushing. Change made to prevent possible damage and leakage around the bushing.
Serial 30	11-27-56	To provide a leak tested matched discharge needle and seat assembly.
Serial 31	12-26-56	Parts list correction.
Serial 32	1- 7-57	Regulator needle valve seat gasket material changed to improve fuel sealing at this location.
Serial 33	2-20-57	Gasket material changed in main metering jet and power enrichment valve seat gaskets to provide a more positive fuel seal.

Figure 4-15. Carburetor History Sheet Parts List 380223-4

MODEL PS-5C INJECTION CARBURETOR PARTS LIST NO. 380223-5

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual, except the T25941 Gage is not used on this Carburetor. The following tool is used in addition:

Part No.	Nomenclature	Figure No.	USAF Stock No.
T25939	Assembly Gage - Enrichment valve screw adjusting	4-16	5220

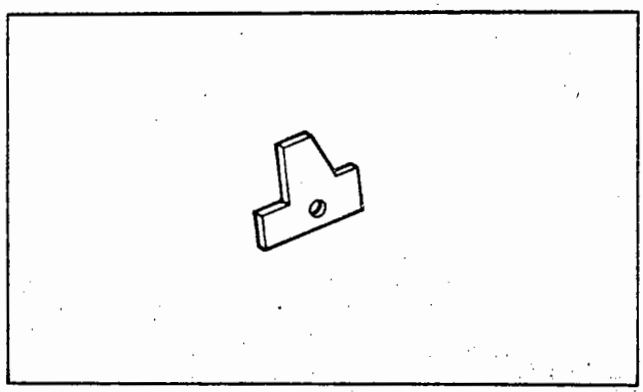

Figure 4-16. T25939 Enrichment Valve Screw Adjusting Assembly Gage

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual. Refer to 380223-5 Specification Sheet (figure 4-18) for information on metering variables for this issue.

COMPONENT DIFFERENCES.

a. General

(1) This issue incorporates a regulator needle plug instead of the 80 mesh poppet valve fuel strainer assembly (100, figure 2-9).

(2) The throttle shaft bushings (148 and 149, figure 2-9) on this issue carburetor are brass instead of oil impregnated sintered bronze as used on the carburetor in the basic technical manual. The throttle shaft (142, figure 2-9) is brass instead of steel.

(3) This issue incorporates an 80 mesh screen on the strainer assembly (91, figure 2-9) instead of a 200 mesh screen as used on the carburetor in the basic technical manual.

(4) This issue carburetor incorporates a different idle power enrichment diaphragm and needle assembly (47, figure 2-9).

(5) This issue does not incorporate a relief valve assembly (26, figure 2-9) and gasket (32, figure 2-9).

(6) This issue carburetor incorporates a different size main metering jet (88, figure 2-9).

OVERHAUL PROCEDURES. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement, Lubrication and Reassembly are the same as outlined in Section II.

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-18), Flow Limits Sheet (figure 4-19) and History Sheet (figure 4-20).

a. Use the T25939 gage to establish the opening point of the idle and power enrichment valve as described in paragraph 3-12, i.

NOTE

To manufacture the T25939 gage locally, use the dimensions given in figure 4-17.

PREPARATION FOR STORAGE, PACKAGING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this technical manual.

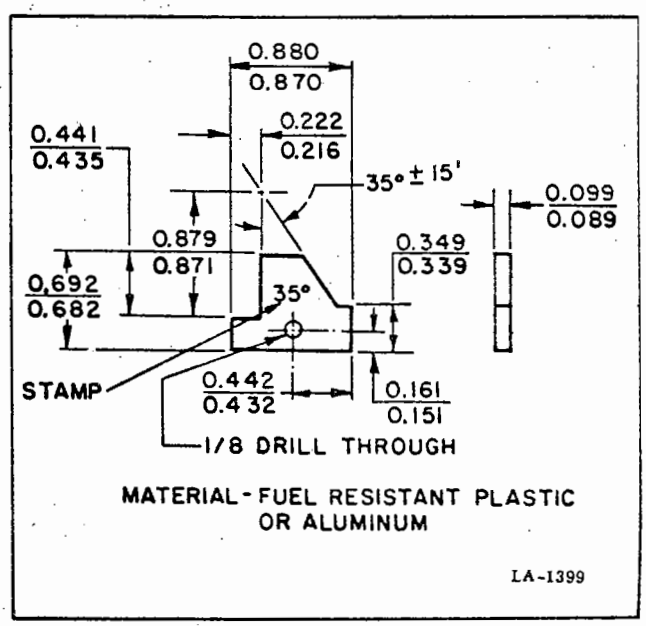

Figure 4-17. Dimensions for Manufacturing the T25939 Gage

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SETTING SPECIFICATIONS FOR INJECTION CARBURETOR MODEL PS-5C P/L 380223-5

ENGINE MODEL: O-470
ENGINE MFGR.: Continental

DRAWING NUMBER: 380223
DATE ISSUED: 7-22-59

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	384607	1.	
2.	Jet, Main Metering	390188	2.	Size: 44
3.	Seat, Idle & Power Enrichment Valve	383886	3.	
4.	Dia. Assy., Idle & Power Enrichment	384675	4.	
5.	Seat, Manual Mixture Control Needle	384967	5.	
6.	Valve, Manual Mixture Control	366291	6.	
7.	Needle & Seat Assy., Poppet Valve	366382	7.	
	Seat, Poppet Valve	366381		
	Valve, Poppet	384142		
8.	Seat Assy., Discharge Nozzle	366476	8.	
	Seat, Discharge Nozzle	383924		
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 drilled in 383483 reg. cover
12.	Venturi Throat Assy.	384599	12.	Throat Diameter: 1.625" ± .002"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assy., Pump Relief		14.	Not used.
15.	Automatic Mixture Control Assy.		15.	Not used.
16.	Strainer Assy., Fuel	364858	16.	
17.	Lever, Throttle	390248	17.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125" ± .010" ID: .296" ± .003"
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625" ± .031" OD: .4375" ± .010"
3.	Spring, Discharge Nozzle	393515	3.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
4.	Spring, Manual Mixture Control	383516	4.	Free Length: 2.750" ± .063" ID: .193" ± .005"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" ID: .516" ± .010"
6.	Spring, Poppet Valve	383518	6.	Free Length: .875" ± .010" OD: .188" ± .003"
7.	Spring, Regulator Diaphragm	383519	7.	Free Length: 1.937" ± .062" ID: .938" - 0 + .031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375" ± .015" OD: .301" ± .003"
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
10.	Spring, Loose Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-18. Carburetor Specification Sheet Parts List 380223-5

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470
Engine Mfgr.: Continental
Engine Mfgr. Setting: 530486

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on .734 ± .002 Specific Gravity at 75 ± 5 °F.
NAPHTHA

Parts List No.: 380223-2 through -6
Carb. Model: PS-5C
Date Issued: 3-3-58

Flow limits for Issues 2 through 6 are identical.

Test Point No.		1			2	3	4	5	6	7	8	9	10
Metering Suction Inches of Water		0.7			0.7	1.6	3.1	7.25	13.4	13.4	20.8	30.9	36.9
Corresponding Air Flow Lb./Hr.		200			200	300	400	600	800	800	1000	1200	1300
Mixture Control Lever Position		R			ICO	R	R	R	R	R	R	R	R
Throttle Position		WO			WO	1/2	1/2	1/2	1/2	1/2	WO	WO	WO
Burette	Volume	150				150	200	250	300	300	500	500	500
Time Limits In Seconds	Min.	29.2				28.0	31.5	29.4	27.1	20.8	33.6	28.0	26.2
	Max.	31.0				29.8	33.4	31.2	28.7	23.0	35.7	29.8	27.4
	Obs.												
Flowmeter Limits In Lbs./Hr.	Min.	28.2			No	29.4	34.85	46.7	60.8	76.2	81.6	97.9	106.5
	Max.	29.9			Flow	31.2	36.95	49.5	64.4	83.8	86.5	103.8	111.0
	Obs.												
Metering Head Inches of Fuel	Min.						12.2		36.2			77.0	
	Max.						13.4		39.4			84.0	
	Obs.												

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Lean) Limit:
High (Rich) Limit:

Notes:
1. Check Points 3 through 7 are made with throttle valve in 1/2 open position.
2. At Check Point 7, open vapor vent and measure total flow. All other points vapor vent is closed.
3. At Check Point 8, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 35° from the wide open position.
4. Check Points 1, 2, 8 9 and 10 are made with throttle valve in the wide open position

Figure 4-19. Carburetor Flow Bench Test Sheet (Naphtha) Parts List 380223-5

380223

STROMBERG INJECTION CARBURETOR MODEL PS-5C

HISTORY OF SPECIFICATIONS AND FLOW LIMITS

Engine Mfgr.: Continental — Engine Model: O-470

ISSUE 1		
Serial 1	7-25-47	Parts list released to production.
Serial 2	10-27-47	Parts list records change only.
Serial 3	12- 5-47	Parts list records change only.
ISSUE 2		
Serial 4	12-19-47	Discharge nozzle air bleeder seal 390267 changed to 250-S-5 to provide an improved seal.
Serial 5	5- 7-48	Parts list records change only.
Serial 6	5- 5-49	Parts list records change only.
ISSUE 3		
Serial 7	9- 9-49	Loose lever assembly 383845 changed to 364378 to incorporate an adjustable enrichment valve actuating screw.
Serial 8	2- 9-50	Parts list records change only.
Serial 9	5-11-50	Parts list records change only.
Serial 10	8-24-50	Parts list records change only.
Serial 11	9- 7-50	Parts list records change only.
Serial 12	10-18-50	Fuel strainer 383520 changed to 364858 assembly to provide an improved filter.
Serial 13	12-14-50	Parts list records change only.
Serial 14	12-21-51	Discharge nozzle air bleeder seal 250-S-5 changed to 315-S-5 to specify improved material.
Serial 15	1-29-51	Loose lever assembly 364378 changed to 364974 to allow for lockwire.
Serial 16	8- 2-51	Poppet valve seat and plug gasket P3260 changed to P5319 to facilitate assembly.
Serial 17	1-18-52	Parts list records change only.
Serial 18	5- 1-52	Fuel strainer plug gasket P22851 changed to 365533 to provide improved material.
Serial 19	10-16-52	Parts list records change only.
ISSUE 4		
Serial 20	8-24-53	Regulator spacer and bushing assembly 383946 changed to 365796 and spacer plug P8508 changed to P60000 taper seat plug, to eliminate possibility of cracking spacer from overtorque of the pipe threaded plug and/or test fitting.
Serial 21	10-22-53	Parts list records change only.
Serial 22	10-26-53	Parts list records change only.
Serial 23	8- 9-54	Parts list records change only.
Serial 24	9-19-55	Manual mixture control needle valve 384968 changed to 366291 and idle cut-off cam attaching screw 383504 changed to 366290 dog point pin and P19983 lead ball eliminated to improve cam attaching.
Serial 25	9-28-55	Parts list records change only.
Serial 26	2-10-56	Plug 396660 removed from fuel pressure connection and replaced with plug P-8503. Plug P-8503 added to vapor vent and drain, per request of engine manufacturer.
Serial 27	3-20-56	Seat and needle assembly - regulator 384836 replaced with assembly 366382. Seat (regulator needle) 384138 replaced with seat 366381, to accommodate poppet screen 366373.
Serial 28	4-19-56	Diffusion tube attaching rivets removed, holes eliminated from main body of new production units.
Serial 29	6- 5-56	Scribe line and prick punch markings removed from discharge nozzle adjusting screw bushing. Change made to prevent possible damage and leakage around the bushing.
Serial 30	11-27-56	To provide a leak tested matched discharge needle and seat assembly.
Serial 31	12-26-56	Parts list correction.
Serial 32	1- 7-57	Regulator needle valve seat gasket material changed to improve fuel sealing at this location.
Serial 33	2-20-57	Gasket material changed in main metering jet and power enrichment valve seat gaskets to provide a more positive fuel seal.

Figure 4-20. Carburetor History Sheet Parts List 380223-5 (Sheet 1 of 2)

STROMBERG INJECTION CARBURETOR MODEL PS-5C 380223

HISTORY OF SPECIFICATIONS AND FLOW LIMITS

Engine Mfgr.: Continental Engine Model: O-470

ISSUE 5		
Serial 34	7-23-57	Various adjusting screws changed to a finer thread to provide more exact adjustment.

Figure 4-20. Carburetor History Sheet Parts List 380223-5 (Sheet 2 of 2)

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual.

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual. Refer to 391318-4 Specification Sheet (figure 4-22) for information on metering variables for this issue.

COMPONENT DIFFERENCES. (See figure 4-21)

a. General

(1) This issue incorporates a regulator needle plug instead of the 80 mesh poppet valve fuel strainer assembly (100, figure 4-21).

(2) The throttle shaft bushings (150 and 151, figure 4-21) on this issue carburetor are brass instead of oil impregnated sintered bronze as used on the carburetor in the basic technical manual. The throttle shaft (144 figure 4-21) is brass instead of steel.

(3) This issue incorporates an 80 mesh screen on the strainer assembly (91, figure 4-21) instead of a 200 mesh screen as used in the carburetor in the basic technical manual.

(4) The main metering jet plug gasket (87, figure 4-21) on this issue is fiber instead of aluminum as used on the carburetor in the basic technical manual.

(5) This issue carburetor incorporates a different discharge diaphragm cover assembly (53, figure 4-21), discharge diaphragm adjusting screw assembly (52), throttle stop assembly (139), idle speed adjusting screw assembly (135) and idle control rod adjusting screw assembly (136). These parts have 32 threads per inch adjustments instead of 56 threads per inch as used on the carburetor in the basic technical manual.

(6) The poppet valve seat gasket (99, figure 4-21) and regulator needle plug gasket (101) are fiber instead of aluminum as used on the carburetor in the basic technical manual.

(7) This issue does not incorporate a matched and leak tested discharge nozzle needle valve and seat (59 63, figure 4-21).

(8) This issue carburetor does not incorporate a vinyl coated air diaphragm (120, figure 4-21) for ozone protection.

(9) The poppet valve seat (96, figure 4-21), on this issue carburetor is not machined to receive the end of the poppet valve screen.

(10) This issue carburetor incorporates a scribed discharge diaphragm adjustment screw to indicate factory adjustment.

(11) This issue carburetor incorporates a different part number manual mixture control needle valve (111, figure 4-21) which is not drilled for lockwiring. A different set screw (106) is used which is not drilled for lockwiring. A lead ball (105) is used on this issue to retain the set screw instead of lockwiring. The manual mixture control assembly (104) is assembled before installation into the carburetor to facilitate installation of the lead ball (105).

(12) This issue incorporates a different part number diaphragm assembly (103, figure 4-21).

(13) This carburetor incorporates a different spacer and bushing assembly (115, figure 4-21) which accomodates a pipe plug (20) instead of a taper seat plug.

(14) This issue incorporates a shipping plug (15, figure 4-21) instead of a pipe plug as used on the carburetor in the basic technical manual.

(15) This issue carburetor incorporates two diffusion tube attaching rivets (156, figure 4-21).

OVERHAUL PROCEDURES. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement, Lubrication and Reassembly are the same as outlined in Section II.

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-22) and History Sheet (figure 4-23). Flow limits are the same as for the carburetor in the basic technical manual. Refer to figures 3-5 and 3-6 for limits.

PREPARATION FOR STORAGE, PACKAGING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this technical manual.

KEY TO FIGURE 4-21

1. Seal - Aluminum
2. Seal - Aluminum
3. Locking Cup - Enrichment valve and discharge nozzle
4. Plate - Identification
5. Screw, Tapping - Thread forming
6. Decal
7. Plate - Automatic mixture control
8. Screw - Machine
9. Washer
10. Gasket - Automatic mixture control
11. Plug - Pipe
12. Plug - Pipe
13. Plug - Taper seat
14. Plug - Taper seat
15. Plug - Pipe
16. Plug - Pipe
17. Plug - Machine thread
18. Plug - Pipe
19. Plug - Pipe
20. Plug - Taper seat
21. Cover Assembly - Pump diaphragm
22. Screw - Machine
23. Washer
24. Spring - Pump discharge
25. Diaphragm Assembly - Pump
26. Valve Assembly - Relief
27. Retainer, Valve - Relief
28. Screw - Machine
29. Valve - Relief
30. Spring
31. Spacer - Relief valve
32. Gasket - Acceleration pump
33. Cover Assembly, Push Rod - Idle
34. Screw - Machine
35. Washer
36. Gasket, Cover - Idle push rod
37. Pin - Cotter
38. Nut, Castellated - Hex
39. Rod Assembly - Idle push
40. Washer - Spring retainer
41. Spring - Discharge diaphragm
42. Washer - Spring retainer
43. Plunger - Idle valve
44. Cover - Idle diaphragm
45. Screw - Machine
46. Washer
47. Diaphragm Assembly - Idle and enrichment valve
48. Spring - Idle needle
49. Washer - Lock
50. Seat - Idle needle
51. Washer - Nonmetallic
52. Screw Assembly - Enrichment valve adjustment
53. Cover Assembly - Metering needle
54. Screw - Machine
55. Washer
56. Retainer - Spring
57. Spring - Discharge diaphragm
58. Diaphragm Assembly - Pump
59. Valve Assembly - Metering needle
60. Spring - Discharge needle
61. Washer - Lock
62. Nut - Metering needle seat
63. Seat - Needle discharge
64. Washer - Nonmetallic
65. Plug - Air bleed
66. Bleed - Air
67. Packing - Preformed
68. Nozzle Assembly - Discharge
69. Screw - Machine
70. Washer
71. Throat Assembly - Venturi
72. Pin - Cotter
73. Venturi - Throat
74. Gasket - Venturi throat
75. Reducer - Automatic mixture control vacuum channel
76. Skirt - Venturi
77. Gasket - Venturi skirt
78. Pin - Cotter
79. Washer - Flat
80. Pin - Cotter
81. Washer - Flat
82. Washer - Spring
83. Lever Assembly
84. Bushing - Shoulder
85. Lever
86. Plug - Hex head
87. Washer - Nonmetallic
88. Jet - Metering
89. Plug - Machine thread
90. Washer - Nonmetallic
91. Strainer Assembly
92. Screw - Machine
93. Washer
94. Washer - Lock
95. Valve and Seat Assembly - Regulator
96. Seat - Regulator needle
97. Valve - Regulator needle
98. Spring - Regulator needle
99. Washer - Nonmetallic
100. Plug - Regulator needle
101. Washer - Nonmetallic
102. Cover - Regulator
103. Diaphragm Assembly - Regulator
104. Needle and Link Assembly - Mixture control
105. Ball
106. Pin - Dog point
107. Cam - Fuel cut-off
108. Link Assembly - Mixture control
109. Plug - Mixture control needle valve
110. Spring - Altitude control needle
111. Valve - Mixture control
112. Seat - Mixture control
113. Washer - Nonmetallic
114. Lever Assembly - Fuel cut-off
115. Regulator Assembly - Spacer
116. Bushing - Regulator spacer
117. Spacer - Regulator
118. Plunger - Spring release
119. Spring, Plunger - Idle cut-off
120. Diaphragm Assembly
121. Plug - Taper seat
122. Pin, Straight - Headless

391318-4

SETTING SPECIFICATIONS FOR INJECTION CARBURETOR MODEL PS-5C

ENGINE MODEL: 0-470 DRAWING NUMBER: 391318
ENGINE MFGR.: Continental DATE ISSUED: 12-1-53

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	384607	1.	
2.	Jet, Main Metering	390188	2.	Size: 43
3.	Seat, Idle	383886	3.	Size: 0.121"-0.123"
4.	Valve Assembly, Idle	364969	4.	
5.	Seat, Manual Mixture Control	384967	5.	Size: 0.124"-0.126"
6.	Needle, Manual Mixture Control	384968	6.	
7.	Needle & Seat Assy., Poppet Valve	384836	7.	
	Seat, Poppet Valve	384138		Size: 0.080"-0.082"
	Valve, Poppet	384142		
8.	Nozzle Assembly, Discharge	384961	8.	
	Seat, Discharge Nozzle	383924		Size: 0.112"-0.114"
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 hole drilled in 383483 Reg. Cover
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1.625" ± 0.002"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assembly, Pump Relief	364164	14.	
15.	Strainer Assembly, Fuel	364858	15.	
16.	Loose Lever Assembly, Idle Control Rod	364974	16.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: 0.8125" ± 0.010", ID 0.296" ± 0.003"
2.	Spring, Discharge Needle	383514	2.	Free Length: 0.5625" ± 0.031", OD 0.4375" ± 0.010"
3.	Spring, Discharge Diaphragm	383515	3.	Free Length: 1.875" ± 0.062", ID 0.516"-0+0.016"
4.	Spring, Manual Mixture Control Needle	383516	4.	Free Length: 2.750" ± 0.010", ID 0.193" ± 0.003"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± 0.0625", ID 0.516" ± 0.010"
6.	Spring, Poppet Valve	383518	6.	Free Length: 0.875" ± 0.010", OD 0.188" ± 0.003"
7.	Spring, Regulator Diaphragm	383519	7.	Free Length: 1.937" ± 0.062", ID 0.988"-0+0.031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: 0.375" ± 0.015", OD 0.301" ± 0.003"
9.	Spring, Idle	383515	9.	Free Length: 1.875" ± 0.062", ID 0.516"-0+0.016"
10.	Spring, Loose Lever to Throttle	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-22. Carburetor Specification Sheet Parts List 391318-4

STROMBERG INJECTION CARBURETOR MODEL PS-5C 391318

HISTORY OF SPECIFICATIONS AND FLOW LIMITS

ENGINE MFGR.: Continental ENGINE MODEL: O-470

ISSUE 1		
Serial 1	7-25-50	First production release.
Serial 2	8-10-50	Gasoline strainer assembly 383520 replaced by 364858 to provide satisfactory straining of fuel.
ISSUE 2		
Serial 3	8-30-50	Loose lever assembly 364378 replaced by 364974 to facilitate assembly 364164 assembly accelerating pump relief valve added to improve decelerating engine operating characteristics.
Serial 4	10- 2-50	Regulator cover screws 383513 replaced by 383531 and 384018, idle rod cover screws replaced by 384018 to insure more thread engagement of screw in body.
Serial 5	10- 2-50	Parts list record change only.
Serial 6	12-14-50	Vacuum channel plug P-6387 replaced by 394285 to eliminate unnecessary machine operation.
Serial 7	12-21-50	Parts list record change only.
Serial 8	1-16-51	Parts list record change only.
Serial 9	7-30-51	Regulator needle valve seat and plug gasket P-3260 replaced by P-5319 to facilitate assembly.
Serial 10	4-30-52	Gasket P-22851 replaced by 365533 to facilitate purchase.
ISSUE 3		
Serial 11	11-15-52	Idle and power enrichment valve assembly 384675 replaced by 364969 to provide better engine performance of idle.
ISSUE 4		
Serial 12	8-21-53	Airbox flow limit changed to accomplish a delayed enrichment valve opening point. Carburetor now suitable for use on Continental O-470-11 and -13 engines, Cessna L-19, and Beech T-34 aircraft.
Serial 13	9-22-53	Decal - Rubber parts cure date 364563 replaced by 187406.
Serial 14	10-19-53	Cap - Discharge Nozzle 385035 added.
Serial 15	11-23-53	Parts list correction.

Figure 4-23. Carburetor History Sheet Parts List 391318-4

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual.

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual. Refer to 391318-5 Specification Sheet (figure 4-24) for information on metering variables for this issue.

COMPONENT DIFFERENCES.

a. General

(1) This issue incorporates a regulator needle plug instead of the 80 mesh poppet valve fuel strainer assembly (100, figure 2-9).

(2) The throttle shaft bushings (148 and 149, figure 2-9) on this issue carburetor are brass instead of oil impregnated sintered bronze as used on the carburetor in the basic technical manual. The throttle shaft (142, figure 2-9) is brass instead of steel.

(3) This issue incorporates an 80 mesh screen on the strainer assembly (91, figure 2-9) instead of a 200 mesh screen as used in the carburetor in the basic technical manual.

(4) The main metering jet plug gasket (87, figure 2-9) on this issue is fiber instead of aluminum as used on the carburetor in the basic technical manual.

(5) This issue carburetor incorporates a different discharge diaphragm cover assembly (53, figure 2-9), discharge diaphragm adjusting screw assembly (52), throttle stop assembly (135), idle speed adjusting screw assembly (133) and idle control rod adjusting screw assembly (134). These parts have 32 threads per inch adjustments instead of 56 threads per inch as used on the carburetor in the basic technical manual.

(6) The poppet valve seat gasket (99, figure 2-9) and regulator needle plug gasket (101) are fiber instead of aluminum as used on the carburetor in the basic technical manual.

(7) This issue does not incorporate a matched and leak tested discharge nozzle needle valve and seat (59 and 63, figure 2-9).

(8) This issue carburetor does not incorporate a vinyl coated air diaphragm (118, figure 2-9) for ozone protection.

OVERHAUL PROCEDURES. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement, Lubrication and Reassembly are the same as outlined in Section II.

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-24) and History Sheet (figure 4-25). Flow limits are the same as for the carburetor in the basic technical manual. Refer to figures 3-5 and 3-6 for limits.

PREPARATION FOR STORAGE, PACKAGING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this technical manual.

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SETTING SPECIFICATIONS FOR INJECTION CARBURETOR MODEL PS-5C 391318-5

ENGINE MODEL: O-470 DRAWING NUMBER: 391318
ENGINE MFGR.: Continental DATE ISSUED: 9-25-56

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	384607	1.	
2.	Jet, Main Metering	390188	2.	Size: 43
3.	Seat, Idle & Power Enrichment Valve	383886	3.	Orifice Diameter: .121"-.122"
4.	Valve Assembly, Idle & Power Enrichment	364969	4.	Included Angle: 19° ± 30'
5.	Seat, Manual Mixture Control	384967	5.	Size: .124"-.125"
6.	Needle, Manual Mixture Control	366291	6.	
7.	Needle & Seat Assy., Poppet Valve	366382	7.	
	Seat, Poppet Valve	366381		Size: .080"-.082"
	Valve, Poppet	384142		
8.	Nozzle Assembly, Discharge	384961	8.	
	Seat, Discharge Nozzle	383924		Size: .112"-.114"
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 drilled in 383483 Reg. Cover
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1.625"±.002"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assembly, Pump Relief	364164	14.	
15.	Automatic Mixture Control Assembly		15.	Not used
16.	Strainer Assembly, Fuel	364858	16.	
17.	Lever, Throttle	390248	17.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125"±.010" ID: .296"±.003"
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625"±.031" OD: .4375"±.010"
3.	Spring, Discharge Nozzle	383515	3.	Free Length: 1.875"±.062" ID: .516"-0+.016"
4.	Spring, Manual Mixture Control	383516	4.	Free Length: 2.750"±.010" ID: .193"±.003"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500"±.0625" ID: .516"±.010"
6.	Spring, Poppet Valve	383518	6.	Free Length: .875"±.010" OD: .188"±.003"
7.	Spring, Regulator	383519	7.	Free Length: 1.937"±.062" ID: .938"-0+.031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375"±.015" OD: .301"±.003"
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875"±.062" ID: .516"-0+.016"
10.	Spring, Loose Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-24. Carburetor Specification Sheet Parts List 391318-5

STROMBERG INJECTION CARBURETOR MODEL PS-5C 391318

HISTORY OF SPECIFICATIONS AND FLOW LIMITS

ENGINE MFGR.: Continental ENGINE MODEL: O-470

ISSUE 1		
Serial 1	7-25-50	First production release.
Serial 2	8-10-50	Gasoline strainer assembly 383520 replaced by 364858 to provide satisfactory straining of fuel.
ISSUE 2		
Serial 3	8-30-50	Loose lever assembly 364378 replaced by 364974 to facilitate assembly 364164 assembly accelerating pump relief valve added to improve decelerating engine operating characteristics.
Serial 4	10- 2-50	Regulator cover screws 383513 replaced by 383531 and 384018, idle rod cover screws replaced by 384018 to insure more thread engagement of screw in body.
Serial 5	10- 2-50	Parts list record change only.
Serial 6	12-14-50	Vacuum channel plug P-6387 replaced by 394285 to eliminate unnecessary machine operation.
Serial 7	12-21-50	Parts list record change only.
Serial 8	1-16-51	Parts list record change only.
Serial 9	7-30-51	Regulator needle valve seat and plug gasket P-3260 replaced by P-5319 to facilitate assembly.
Serial 10	4-30-52	Gasket P-22851 replaced by 365533 to facilitate purchase.
ISSUE 3		
Serial 11	11-15-52	Idle and power enrichment valve assembly 384675 replaced by 364969 to provide better engine performance of idle.
ISSUE 4		
Serial 12	8-21-53	Airbox flow limit changed to accomplish a delayed enrichment valve opening point. Carburetor now suitable for use on Continental O-470-11 and -13 engines, Cessna L-19, and Beech T-34 aircraft.
Serial 13	9-22-53	Decal - Rubber parts cure date 364563 replaced by 187406.
Serial 14	10-19-53	Cap - Discharge Nozzle 385035 added.
Serial 15	11-23-53	Parts list correction.
ISSUE 5		
Serial 16	2-15-54	Spacer and bushing Assembly 383946 was changed to Assy. P/N 365796 to incorporate a taper seat plug at pressure connection instead of 1/8" pipe plug, which caused possible casting fracture if over torqued during installation.
Serial 17	10- 1-54	Regulator Diaphragm Assembly P/N 383449 changed to P/N 383974 to standardize on one assembly.
Serial 18	10-21-55	To conform to standard practice of using shipping plugs at fuel pressure and vapor vent connections instead of brass 1/8" pipe plugs.
Serial 19	12- 6-55	To conform to design improvement, Manual mixture control needle P/N 384968 changed to P/N 366291. Pin and lead ball removed and replaced by 366290 Pin-dog point.
Serial 20	2- 8-56	Vapor outlet connection pipe plug changed from brass to aluminum.
Serial 21	6- 6-56	Discontinued scribing discharge diaphragm adjustment.
Serial 22	7-26-56	Poppet valve seat changed to permit addition of poppet valve strainer if required.
Serial 23	7-26-56	Parts list correction.

Figure 4-25. Carburetor History Sheet Parts List 391318-5

MODEL PS-5C INJECTION CARBURETOR PARTS LIST NO. 391318-6

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual.

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual.

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual. Refer to 391318-6 Specification Sheet (figure 4-26) for information on metering variables for this issue.

COMPONENT DIFFERENCES.

a. General

(1) This issue incorporates a regulator needle plug instead of the 80 mesh poppet valve fuel strainer assembly (100, figure 2-9).

(2) The throttle shaft bushings (148 and 149, figure 2-9) on this issue carburetor are brass instead of oil impregnated sintered bronze as used on the carburetor in the basic technical manual. The throttle shaft (142, figure 2-9) is brass instead of steel.

(3) This issue incorporates an 80 mesh screen on the strainer assembly (91, figure 2-9) instead of a 200 mesh screen as used on the carburetor in the basic technical manual.

(4) The main metering jet plug gasket (87, figure 2-9) on this issue is fiber instead of aluminum as used on the carburetor in the basic technical manual.

(5) This issue carburetor incorporates a different discharge diaphragm cover assembly (53, figure 2-9), discharge diaphragm adjusting screw assembly (52), throttle stop assembly (135), idle speed adjusting screw assembly (133) and idle control rod adjusting screw assembly (134). These parts have 32 threads per inch adjustments instead of 56 threads per inch as used on the carburetor in the basic technical manual.

OVERHAUL PROCEDURES. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement, Lubrication and Reassembly are the same as outlined in Section II.

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-26) and History Sheet (figure 4-27). Flow limits are the same as for the carburetor in the basic technical manual. Refer to figures 3-5 and 3-6 for limits.

PREPARATION FOR STORAGE, PACKAGING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this technical manual.

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SETTING SPECIFICATIONS FOR INJECTION CARBURETOR MODEL PS-5C P/L 391318-6

ENGINE MODEL: O-470
ENGINE MFGR.: Continental

DRAWING NUMBER: 391318
DATE ISSUED: 1-11-57

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	384607	1.	
2.	Jet, Main Metering	390188	2.	Size: 43
3.	Seat, Idle & Power Enrichment Valve	383886	3.	Orifice Diameter: .121"-.122"
4.	Valve Assembly, Idle & Power Enrichment	364969	4.	Included Angle: 19° ± 30'
5.	Seat, Manual Mixture Control	384967	5.	Size: .124"-.125"
6.	Needle, Manual Mixture Control	366291	6.	
7.	Needle & Seat Assy., Poppet Valve	366382	7.	
	Seat, Poppet Valve	366381		Size: .080"-.082"
	Valve, Poppet	384142		
8.	Nozzle Assembly, Discharge	384961	8.	
	Seat, Discharge Nozzle	366476		Size: .112"-.114"
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 drilled in 383483 Reg. Cover
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1.625"±.002"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assembly, Pump Relief	364164	14.	
15.	Automatic Mixture Control Assembly		15.	Not used
16.	Strainer Assembly, Fuel	364858	16.	
17.	Lever, Throttle	390248	17.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125"±.010" ID: .296"±.003"
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625"±.031" OD: .4375"±.010"
3.	Spring, Discharge Nozzle	383515	3.	Free Length: 1.875"±.062" ID: .516"-0+.016"
4.	Spring, Manual Mixture Control	383516	4.	Free Length: 2.750"±.010" ID: .193"±.003"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500"±.0625" ID: .516"±.010"
6.	Spring, Poppet Valve	383518	6.	Free Length: .875"±.010" OD: .188"±.003"
7.	Spring, Regulator	383519	7.	Free Length: 1.937"±.062" ID: .938"-0+.031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375"±.015" OD: .301"±.003"
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875"±.062" ID: .516"-0+.016"
10.	Spring, Loose Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-26. Carburetor Specification Sheet Parts List 391318-6

STROMBERG INJECTION CARBURETOR MODEL PS-5C 391318

HISTORY OF SPECIFICATIONS AND FLOW LIMITS

ENGINE MFGR.: Continental ENGINE MODEL: O-470

ISSUE 1		
Serial 1	7-25-50	First production release.
Serial 2	8-10-50	Gasoline strainer assembly 383520 replaced by 364858 to provide satisfactory straining of fuel.
ISSUE 2		
Serial 3	8-30-50	Loose lever assembly 364378 replaced by 364974 to facilitate assembly 364164 assembly accelerating pump relief valve added to improve decelerating engine operating characteristics.
Serial 4	10- 2-50	Regulator cover screws 383513 replaced by 383531 and 384018, idle rod cover screws replaced by 384018 to insure more thread engagement of screw in body.
Serial 5	10- 2-50	Parts list record change only.
Serial 6	12-14-50	Vacuum channel plug P-6387 replaced by 394285 to eliminate unnecessary machine operation.
Serial 7	12-21-50	Parts list record change only.
Serial 8	1-16-51	Parts list record change only.
Serial 9	7-30-51	Regulator needle valve seat and plug gasket P-3260 replaced by P-5319 to facilitate assembly.
Serial 10	4-30-52	Gasket P-22851 replaced by 365533 to facilitate purchase.
ISSUE 3		
Serial 11	11-15-52	Idle and power enrichment valve assembly 384675 replaced by 364969 to provide better engine performance of idle.
ISSUE 4		
Serial 12	8-21-53	Airbox flow limit changed to accomplish a delayed enrichment valve opening point. Carburetor now suitable for use on Continental O-470-11 and -13 engines, Cessna L-19, and Beech T-34 aircraft.
Serial 13	9-22-53	Decal - Rubber parts cure date 364563 replaced by 187406.
Serial 14	10-19-53	Cap - Discharge Nozzle 385035 added.
Serial 15	11-23-53	Parts list correction.
ISSUE 5		
Serial 16	2-15-54	Spacer and bushing Assembly 383946 was changed to Assy. P/N 365796 to incorporate a taper seat plug at pressure connection instead of 1/8" pipe plug, which caused possible casting fracture if over torqued during installation.
Serial 17	10- 1-54	Regulator Diaphragm Assembly P/N 383449 changed to P/N 383974 to standardize on one assembly.
Serial 18	10-21-55	To conform to standard practice of using shipping plugs at fuel pressure and vapor vent connections instead of brass 1/8" pipe plugs.
Serial 19	12- 6-55	To conform to design improvement, Manual mixture control needle P/N 384968 changed to P/N 366291. Pin and lead ball removed and replaced by 366290 Pin-dog point.
Serial 20	2- 8-56	Vapor outlet connection pipe plug changed from brass to aluminum.
Serial 21	6- 6-56	Discontinued scribing discharge diaphragm adjustment.
Serial 22	7-26-56	Poppet valve seat changed to permit addition of poppet valve strainer if required.
Serial 23	7-26-56	Parts list correction.
ISSUE 6		
Serial 24	10- 1-56	Incorporation of vinyl coated air diaphragm for ozone protection.
Serial 25	11-28-56	Incorporation of matched and leak tested discharge nozzle needle valve and seat.
Serial 26	12-26-56	Added shipping date decalcomania.
Serial 27	1- 7-57	Poppet valve seat and plug gaskets changed from fiber to aluminum.

Figure 4-27. Carburetor History Sheet Parts List 391318-6

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual.

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual. Refer to 391318-7 Specification Sheet (figure 4-28) for information on metering variables for this issue.

COMPONENT DIFFERENCES.

a. General.

(1) This issue incorporates a regulator needle plug instead of the 80 mesh poppet valve fuel strainer assembly (100, figure 2-9).

(2) The throttle shaft bushings (148 and 149, figure 2-9) on this issue carburetor are brass instead of oil impregnated sintered bronze as used on the carburetor in the basic technical manual. The throttle shaft (142, figure 2-9) is brass instead of steel.

(3) This issue incorporates an 80 mesh screen on the strainer assembly (91, figure 2-9) instead of a 200 mesh screen as used in the carburetor in the basic technical manual.

OVERHAUL PROCEDURES. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement, Lubrication and Reassembly are the same as outlined in Section II.

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-28) and History Sheet (figure 4-29). Flow limits are the same as for the carburetor in the basic technical manual. Refer to figures 3-5 and 3-6 for limits.

PREPARATION FOR STORAGE, PACKAGING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this technical manual.

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SETTING SPECIFICATIONS FOR INJECTION CARBURETOR MODEL PS-5C P/L 391318-7

ENGINE MODEL: O-470
ENGINE MFGR.: Continental

DRAWING NUMBER: 391318
DATE ISSUED: 1-21-57

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	384607	1.	
2.	Jet, Main Metering	390188	2.	Size: 43
3.	Seat, Idle & Power Enrichment Valve	383886	3.	Orifice Diameter: .121"-.122"
4.	Valve Assembly, Idle & Power Enrichment	364969	4.	Included Angle: 19°±30'
5.	Seat, Manual Mixture Control	384967	5.	Size: .124"-.125"
6.	Needle, Manual Mixture Control	366291	6.	
7.	Needle & Seat Assy., Poppet Valve	366382	7.	
	Seat, Poppet Valve	366381		Size: .080"-.082"
	Valve, Poppet	384142		
8.	Nozzle Assembly, Discharge	384961	8.	
	Seat, Discharge Nozzle	366476		Size: .112"-.114"
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 Drilled in 383483 Reg. Cover
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1.625"±.002"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assembly, Pump Relief	364164	14.	
15.	Automatic Mixture Control Assembly		15.	Not used
16.	Strainer Assembly, Fuel	364858	16.	
17.	Lever, Throttle	390248	17.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125"±.010" ID: .296"±.003"
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625"±.031" OD: .4375"±.010"
3.	Spring, Discharge Nozzle	393515	3.	Free Length: 1.875"±.062" ID: .516"-0+.016"
4.	Spring, Manual Mixture Control	383516	4.	Free Length: 2.750"±.010" ID: .193"±.003"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500"±.0625" ID: .516"±.010"
6.	Spring, Poppet Valve	383518	6.	Free Length: .875"±.010" OD: .188"±.003"
7.	Spring, Regulator	383519	7.	Free Length: 1.937"±.062" ID: .938"-0+.031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375"±.015" OD: .301"±.003"
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875"±.062" ID: .516"-0+.016"
10.	Spring, Loose Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-28. Carburetor Specification Sheet Parts List 391318-7

STROMBERG INJECTION CARBURETOR MODEL PS-5C 391318

HISTORY OF SPECIFICATIONS AND FLOW LIMITS

ENGINE MFGR.: Continental ENGINE MODEL: O-470

ISSUE 1		
Serial 1	7-25-50	First production release.
Serial 2	8-10-50	Gasoline strainer assembly 383520 replaced by 364858 to provide satisfactory straining of fuel.
ISSUE 2		
Serial 3	8-30-50	Loose lever assembly 364378 replaced by 364974 to facilitate assembly 364164 assembly accelerating pump relief valve added to improve decelerating engine operating characteristics.
Serial 4	10- 2-50	Regulator cover screws 383513 replaced by 383531 and 384018, idle rod cover screws replaced by 384018 to insure more thread engagement of screw in body.
Serial 5	10- 2-50	Parts list record change only.
Serial 6	12-14-50	Vacuum channel plug P-6387 replaced by 394285 to eliminate unnecessary machine operation.
Serial 7	12-21-50	Parts list record change only.
Serial 8	1-16-51	Parts list record change only.
Serial 9	7-30-51	Regulator needle valve seat and plug gasket P-3260 replaced by P-5319 to facilitate assembly.
Serial 10	4-30-52	Gasket P-22851 replaced by 365533 to facilitate purchase.
ISSUE 3		
Serial 11	11-15-52	Idle and power enrichment valve assembly 384675 replaced by 364969 to provide better engine performance of idle.
ISSUE 4		
Serial 12	8-21-53	Airbox flow limit changed to accomplish a delayed enrichment valve opening point. Carburetor now suitable for use on Continental O-470-11 and -13 engines, Cessna L-19, and Beech T-34 aircraft.
Serial 13	9-22-53	Decal - Rubber parts cure date 364563 replaced by 187406.
Serial 14	10-19-53	Cap - Discharge Nozzle 385035 added.
Serial 15	11-23-53	Parts list correction.
ISSUE 5		
Serial 16	2-15-54	Spacer and bushing Assembly 383946 was changed to Assy. P/N 365796 to incorporate a taper seat plug at pressure connection instead of 1/8" pipe plug, which caused possible casting fracture if over torqued during installation.
Serial 17	10- 1-54	Regulator Diaphragm Assembly P/N 383449 changed to P/N 383974 to standardize on one assembly.
Serial 18	10-21-55	To conform to standard practice of using shipping plugs at fuel pressure and vapor vent connections instead of brass 1/8" pipe plugs.
Serial 19	12- 6-55	To conform to design improvement, Manual mixture control needle P/N 384968 changed to P/N 366291. Pin and lead ball removed and replaced by 366290 Pin-dog point.
Serial 20	2- 8-56	Vapor outlet connection pipe plug changed from brass to aluminum.
Serial 21	6- 6-56	Discontinued scribing discharge diaphragm adjustment.
Serial 22	7-26-56	Poppet valve seat changed to permit addition of poppet valve strainer if required.
Serial 23	7-26-56	Parts list correction.
ISSUE 6		
Serial 24	10- 1-56	Incorporation of vinyl coated air diaphragm for ozone protection.
Serial 25	11-28-56	Incorporation of matched and leak tested discharge nozzle needle valve and seat.
Serial 26	12-26-56	Added shipping date decalcomania.
Serial 27	1- 7-57	Poppet valve seat and plug gaskets changed from fiber to aluminum.
ISSUE 7		
Serial 28	1- 7-57	Changed discharge diaphragm cover, discharge diaphragm screw, idle speed adjustment, idle control rod adjustment, and throttle stop assemblies from 32 to 56 threads per inch to provide more precise adjustments.
Serial 29	2-21-57	Main metering jet gasket changed from fiber to aluminum material.

Figure 4-29. Carburetor History Sheet Parts List 391318-7

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual.

GENERAL INSTRUCTIONS. Same as outlined in Section II of this manual. Refer to 391629-3 specification sheet (figure 4-30) for information on metering variables for this issue.

COMPONENT DIFFERENCES. (See figure 2-9.)

a. General

(1) The manual mixture control lever assembly (83, figure 2-9) is of a different configuration than used on the carburetor in the basic technical manual to conform to airplane installation requirements.

(2) The throttle shaft bushings (148 and 149, figure 2-9) on this issue carburetor are brass instead of oil impregnated sintered bronze as used on the carburetor in the basic technical manual. The throttle shaft (142, figure 2-9) is brass instead of steel.

(3) This issue incorporates an 80 mesh screen on the strainer assembly (91, figure 2-9) instead of a 200 mesh screen as used on the carburetor in the basic technical manual.

(4) This issue incorporates a regulator needle plug instead of the 80 mesh poppet valve strainer assembly (100, figure 2-9).

OVERHAUL PROCEDURES. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement, Lubrication and Reassembly are the same as outlined in Section II.

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-30) and History Sheet (figure 4-33). Refer to figures 4-31 and 4-32 for flow limits.

PREPARATION FOR STORAGE, PACKING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this manual.

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SETTING SPECIFICATIONS FOR INJECTION CARBURETOR PS-5C 391629-3

ENGINE MODEL: O-470
ENGINE MFGR.: Continental

DRAWING NUMBER: 391629
DATE ISSUED: 7-11-57

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	366691	1.	
2.	Jet, Main Metering	390188	2.	Size: 43
3.	Seat, Idle & Power Enrichment Valve	383886	3.	
4.	Diaphragm Assembly, Idle & Power Enrichment	364969	4.	
5.	Seat, Manual Mixture Control	384967	5.	
6.	Valve, Manual Mixture Control Needle	366291	6.	
7.	Needle & Seat Assy., Poppet Valve	366382	7.	
	Seat, Poppet Valve	366381		
	Valve, Poppet	384142		
8.	Seat Assembly, Discharge Nozzle	366476	8.	
	Seat, Discharge Nozzle	383924		
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 drilled in 383483 Reg. Dia. Body
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1-5/8"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assembly, Pump Relief	364164	14.	
15.	Automatic Mixture Control Assembly		15.	Not used.
16.	Strainer Assembly, Fuel	366362	16.	
17.	Lever, Throttle	390248	17.	
18.	Lever Assy., Manual Mixture Control	365125	18.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125" ± .010" ID .296" ± .003"
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625" ± .031" OD .4375" ± .010"
3.	Spring, Discharge Nozzle	383515	3.	Free Length: 1.875" ± .062" ID .516" -0 +.016"
4.	Spring, Manual Mixture Control	383516	4.	Free Length: 2.750" ± .010" ID .193" ± .003"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" ID .516" ± .010"
6.	Spring, Poppet Valve	383518	6.	Free Length: .875" ± .010" OD .188" ± .003"
7.	Spring, Regulator	383519	7.	Free Length: 1.937" ± .062" ID .938" -0 +.031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375" ± .015" OD .301" ± .003"
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875" ± .062" ID .516" -0 +.016"
10.	Spring, Losse Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-30. Carburetor Specification Sheet Parts List 391629-3

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470
Engine Mfgr.: Continental
Engine Mfgr. Setting:

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on .734 ± .002 Specific Gravity at 75 ± 5°F.
NAPHTHA

Parts List No.: 391629-1 through -6
Carb. Model: PS-5C
Date Issued: 6-13-58
Flow Limits for Issues 1 through 6 are identical.

Test Point No.		1				2	3	4	5	6	7	8	9	10								
Metering Suction Inches of Water		0.7				0.7	2.2	6.3	12.2	12.2	26.4	28.6	34.3	26.4								
Corresponding Air Flow Lb./Hr.		200				200	400	600	800	800	1150	1200	1300	1150								
Mixture Control Lever Position		R				ICO	R	R	R	R	R	R	R	R								
Throttle Position		WO				WO	1/2	1/2	1/2	1/2	1/2	WO	WO	1/2								
Burette Time Limits In Seconds	Volume	150					200	250	300	300	500	500	500	500								
	Min.	29.2					34.8	31.3	28.3	21.4	32.4	28.1	26.2	32.4								
	Max.	31.0					37.0	33.2	30.0	23.8	34.4	29.8	27.3	34.4								
	Obs.																					
Flowmeter Limits In Lbs./Hr.	Min.	28.2				No	31.5	43.9	58.1	73.5	84.6	97.6	106.7	84.6								
	Max.	29.9				Flow	33.5	46.6	61.7	81.7	89.8	103.6	111.1	89.8								
	Obs.																					
Metering Head Inches of Fuel	Min.						10.75		34.1		69.0											
	Max.						11.65		36.9		74.5											
	Obs.																					

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Lean) Limit:
High (Rich) Limit:

Notes:
1. At check point 6, open vapor vent and measure total flow. All other check points vapor vent is closed.
2. At check point 7, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 28° from the wide open position. Use T-25941.

Figure 4-31. Carburetor Flow Bench Test Sheet (Naphtha) Parts List 391629-3

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470
Engine Mfgr.: Continental
Engine Mfgr. Setting:

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on .692 ± .002 Specific Gravity at 75 ± 5 °F.

Parts List No.: 391629-1 through -6
Carb. Model: PS-5C
Date Issued: 6-13-58

HEPTANE

Flow Limits for Issues 1 through 6 are identical.

Test Point No.		1				2	3	4	5	6	7	8	9	10								
Metering Suction Inches of Water		0.7				0.7	2.2	6.3	12.2	12.2	26.4	28.6	34.3	26.4								
Corresponding Air Flow Lb./Hr.		200				200	400	600	800	800	1150	1200	1300	1150								
Mixture Control Lever Position		R				ICO	R	R	R	R	R	R	R	R								
Throttle Position		WO				WO	1/2	1/2	1/2	1/2	1/2	WO	WO	1/2								
Burette	Volume	150					200	250	300	300	500	500	500	500								
Time	Min.	27.8					33.0	30.0	27.4	20.6	31.6	27.2	25.4	31.6								
Limits	Max.	29.5					34.8	32.0	29.2	22.9	33.6	28.9	26.5	33.6								
In Seconds	Obs.																					
Flowmeter	Min.	27.9				No	31.5	43.0	56.5	71.9	81.7	95.0	103.8	81.7								
Limits	Max.	29.6				Flow	33.2	45.7	60.0	80.0	86.8	100.8	108.0	86.8								
In Lbs./Hr.	Obs.																					
Metering	Min.						11.55		36.5		73.5											
Head	Max.						12.45		39.4		79.4											
Inches of Fuel	Obs.																					

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Rich) Limit:
High (Lean) Limit:

Notes:
1. At check point 6, open vapor vent and measure total flow. All other check points, vapor vent is closed.
2. At check point 7, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 28° from the wide open position. Use T-25941.

Figure 4-32. Carburetor Flow Bench Test Sheet (Heptane) Parts List 391629-3

STROMBERG INJECTION CARBURETOR MODEL PS-5C

HISTORY OF SPECIFICATIONS AND FLOW LIMITS

ENGINE MFGR.: Continental ENGINE MODEL: O-470

PS-5C carburetor, P/L 391629 is identical to P/L 391318 except that P/L 391629 incorporates a special Manual Mixture Control Lever to conform to airplane installation requirements.

ISSUE 1		
Serial 2	1-18-56	Released to production.
Serial 3	2-15-56	Installed 1/8" pipe plugs at vapor vent and fuel pressure connections in place of shipping plugs at request of the engine manufacturer.
Serial 4	2-27-56	To incorporate an improved design manual mixture control needle assembly. The idle cut-off cam is attached to the new needle using a 366290 pin-dog point, instead of the 383504 screw and lead ball configuration.
Serial 5	4- 2-56	Parts list correction.
Serial 6	6- 5-56	Discontinued scribing the discharge diaphragm adjusting screw.
Serial 7	7-31-56	Poppet valve seat changed to provide a seat that will accommodate a poppet screen if required.
Serial 8	10- 1-56	Elimination of diffusion tube attaching rivets which are no longer required.
ISSUE 2		
Serial 9	10- 1-56	Incorporation of vinyl coated air diaphragm 366408 to increase resistance to ozone deterioration.
ISSUE 3		
Serial 10	10- 1-56	Discharge diaphragm, idle speed, and idle control rod adjusting screws changed from 32 to 56 threads per inch to provide more precise adjustments.
Serial 11	11-27-56	Incorporation of matched discharge nozzle seat and discharge needle valve assembly to prevent fuel leakage.
Serial 12	12-26-56	Addition of shipping date decalcomania.
Serial 13	1- 7-57	Regulator needle valve seat and plug gaskets change from fiber to aluminum material.
Serial 14	2-20-57	Main metering jet plug gasket changed from fiber to aluminum material.

Figure 4-33. Carburetor History Sheet Parts List 391629-3

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual.

GENERAL INSTRUCTIONS. Same as outlined in Section II of this manual. Refer to 391629-4 specification sheet (figure 4-34) for information on metering variables for this issue.

COMPONENT DIFFERENCES. (See figure 2-9).

a. General

(1) The manual mixture control lever assembly (83, figure 2-9) is of a different configuration than used on the carburetor in the basic technical manual to conform to airplane installation requirements.

(2) This issue incorporates a strainer support wire in the strainer assembly (91, figure 2-9) to prevent the strainer from crushing.

OVERHAUL PROCEDURES. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement, Lubrication and Reassembly are the same as outlined in Section II.

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-34) and History Sheet (figure 4-37). Refer to figures 4-35 and 4-36 for flow limits.

PREPARATION FOR STORAGE, PACKING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this manual.

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SETTING SPECIFICATIONS FOR INJECTION CARBURETOR PS-5C 391629-4

ENGINE MODEL: O-470 DRAWING NUMBER: 391629
ENGINE MFGR.: Continental DATE ISSUED: 1-8-58

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	366691	1.	
2.	Jet, Main Metering	390188	2.	Size: 43
3.	Seat, Idle & Power Enrichment Valve	383886	3.	
4.	Diaphragm Assembly, Idle & Power Enrichment	364969	4.	
5.	Seat, Manual Mixture Control	384967	5.	
6.	Valve, Manual Mixture Control Needle	366291	6.	
7.	Needle & Seat Assy., Poppet Valve	366382	7.	
	Seat, Poppet Valve	366381		
	Valve, Poppet	384142		
8.	Seat Assembly, Discharge Nozzle	366476	8.	
	Seat, Discharge Nozzle	383924		
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 drilled in 383483 Reg. Dia. Body
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1-5/8"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assembly, Pump Relief	364164	14.	
15.	Automatic Mixture Control Assembly		15.	Not used.
16.	Strainer Assembly, Fuel	366362	16.	
17.	Lever, Throttle	390248	17.	
18.	Lever Assy., Manual Mixture Control	365125	18.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125" ± .010" .296" ± .003" ID
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625" ± .031" .4375" ± .010" OD
3.	Spring, Discharge Nozzle	383515	3.	Free Length: 1.875" ± .062" .516" -0 +.016"ID
4.	Spring, Manual Mixture Control	383516	4.	Free Length: 2.750" ± .010" .193" ± .003" ID
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" .516" ± .010" ID
6.	Spring, Poppet Valve	383518	6.	Free Length: .875" ± .010" .188" ± .003" OD
7.	Spring, Regulator	383519	7.	Free Length: 1.937" ± .062" .938" -0 +.031"ID
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375" ± .015" .301" ± .003" OD
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875" ± .062" .516" -0 +.016"ID
10.	Spring, Loose Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-34. Carburetor Specification Sheet Parts List 391629-4

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470
Engine Mfgr.: Continental
Engine Mfgr. Setting:

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on .734 ± .002 Specific Gravity at 75 ± 5°F.
NAPHTHA

Parts List No.: 391629-1 through -6
Carb. Model: PS-5C
Date Issued: 6-13-58
Flow Limits for Issues 1 through 6 are identical.

Test Point No.		1				2	3	4	5	6	7	8	9	10								
Metering Suction Inches of Water		0.7				0.7	2.2	6.3	12.2	12.2	26.4	28.6	34.3	26.4								
Corresponding Air Flow Lb./Hr.		200				200	400	600	800	800	1150	1200	1300	1150								
Mixture Control Lever Position		R				ICO	R	R	R	R	R	R	R	R								
Throttle Position		WO				WO	1/2	1/2	1/2	1/2	1/2	WO	WO	1/2								
Burette	Volume	150					200	250	300	300	500	500	500	500								
Time	Min.	29.2					34.8	31.3	28.3	21.4	32.4	28.1	26.2	32.4								
Limits	Max.	31.0					37.0	33.2	30.0	23.8	34.4	29.8	27.3	34.4								
In Seconds	Obs.																					
Flowmeter	Min.	28.2				No	31.5	43.9	58.1	73.5	84.6	97.6	106.7	84.6								
Limits	Max.	29.9				Flow	33.5	46.6	61.7	81.7	89.8	103.6	111.1	89.8								
In Lbs./Hr.	Obs.																					
Metering	Min.						10.75		34.1		69.0											
Head	Max.						11.65		36.9		74.5											
Inches of Fuel	Obs.																					

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Lean) Limit:
High (Rich) Limit:

Notes: 1. At check point 6, open vapor vent and measure total flow. All other check points vapor vent is closed.

2. At check point 7, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 28° from the wide open position. Use T-25941.

Figure 4-35. Carburetor Flow Bench Test Sheet (Naphtha) Parts List 391629-4

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470
Engine Mfgr.: Continental
Engine Mfgr. Setting:

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on .692 ± .002 Specific Gravity at 75 ± 5 °F.

Parts List No.: 391629-1 through -6
Carb. Model: PS-5C
Date Issued: 6-13-58

HEPTANE

Flow Limits for Issues 1 through 6 are identical.

Test Point No.		1				2	3	4	5	6	7	8	9	10								
Metering Suction Inches of Water		0.7				0.7	2.2	6.3	12.2	12.2	26.4	28.6	34.3	26.4								
Corresponding Air Flow Lb./Hr.		200				200	400	600	800	800	1150	1200	1300	1150								
Mixture Control Lever Position		R				ICO	R	R	R	R	R	R	R	R								
Throttle Position		WO				WO	1/2	1/2	1/2	1/2	1/2	WO	WO	1/2								
Burette	Volume	150					200	250	300	300	500	500	500	500								
Time	Min.	27.8					33.0	30.0	27.4	20.6	31.6	27.2	25.4	31.6								
Limits	Max.	29.5					34.8	32.0	29.2	22.9	33.6	28.9	26.5	33.6								
In Seconds	Obs.																					
Flowmeter	Min.	27.9				No	31.5	43.0	56.5	71.9	81.7	95.0	103.8	81.7								
Limits	Max.	29.6				Flow	33.2	45.7	60.0	80.0	86.8	100.8	108.0	86.8								
In Lbs./Hr.	Obs.																					
Metering	Min.						11.55		36.5		73.5											
Head	Max.						12.45		39.4		79.4											
Inches of Fuel	Obs.																					

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Rich) Limit:
High (Lean) Limit:

Notes:
1. At check point 6, open vapor vent and measure total flow. All other check points, vapor vent is closed.
2. At check point 7, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 28° from the wide open position. Use T-25941.

Figure 4-36. Carburetor Flow Bench Test Sheet (Heptane) Parts List 391629-4

391629

STROMBERG INJECTION CARBURETOR MODEL PS-5C

HISTORY OF SPECIFICATIONS AND FLOW LIMITS

ENGINE MFGR.: Continental ENGINE MODEL: O-470

PS-5C carburetor, P/L 391629 is identical to P/L 391318 except that P/L 391629 incorporates a special Manual Mixture Control Lever to conform to airplane installation requirements.

ISSUE 1		
Serial 2	1-18-56	Released to production.
Serial 3	2-15-56	Installed 1/8" pipe plugs at vapor vent and fuel pressure connections in place of shipping plugs at request of the engine manufacturer.
Serial 4	2-27-56	To incorporate an improved design manual mixture control needle assembly. The idle cut-off cam is attached to the new needle using a 366290 pin-dog point, instead of the 383504 screw and lead ball configuration.
Serial 5	4- 2-56	Parts list correction.
Serial 6	4- 5-56	Discontinued scribing the discharge diaphragm adjusting screw.
Serial 7	7-31-56	Poppet valve seat changed to provide a seat that will accommodate a poppet screen if required.
Serial 8	10- 1-56	Elimination of diffusion tube attaching rivets which are no longer required.
ISSUE 2		
Serial 9	10- 1-56	Incorporation of vinyl coated air diaphragm 366408 to increase resistance to ozone deterioration.
ISSUE 3		
Serial 10	10- 1-56	Discharge diaphragm, idle speed, and idle control rod adjusting screws changed from 32 to 56 threads per inch to provide more precise adjustments.
Serial 11	11-27-56	Incorporation of matched discharge nozzle seat and discharge needle valve assembly to prevent fuel leakage.
Serial 12	12-26-56	Addition of shipping date decalcomania.
Serial 13	1- 7-57	Regulator needle valve seat and plug gaskets change from fiber to aluminum material.
Serial 14	2-20-57	Main metering jet plug gasket changed from fiber to aluminum material.
ISSUE 4		
Serial 15	6-24-57	Changed to steel throttle shaft and Oilite throttle shaft bushings. Changed to a 200 mesh inlet fuel strainer and added an 80 mesh poppet valve strainer.
Serial 16	7-11-57	Parts list correction.
Serial 17	1- 8-58	Fuel inlet strainer changed to include wire support to prevent strainer from crushing.

Figure 4-37. Carburetor History Sheet Parts List 391629-4

MODEL PS-5C INJECTION CARBURETOR | PARTS LIST NO. 391629-5

THE INSTRUCTONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual.

GENERAL INSTRUCTIONS. Same as outlined in Section II of this manual. Refer to 391629-5 specification sheet (figure 4-38) for information on metering variables for this issue.

COMPONENT DIFFERENCES. (See figure 2-9.)

a. General

(1) This issue carburetor incorporates an inner regulator diaphragm assembly (118, figure 2-9) that has a different pin from the diaphragm assembly used on the carburetor in the basic technical manual. The pin used on this assembly does not extend beyond the diaphragm.

(2) This issue incorporates a different outer regulator diaphragm assembly (103, figure 2-9) which uses a different washer than in the basic technical manual. The washer on this carburetor is cup shaped. This diaphragm uses a different rivet.

(3) The manual mixture control lever assembly (83, figure 2-9) is of a different configuration to conform to airplane installation requirements and a different bushing (84, figure 2-9) is used than in the basic technical manual.

(4) The manual mixture control link assembly (106, figure 2-9) has a different pin of harder material than the link used on the carburetor in the basic technical manual.

(5) The regulator needle valve assembly (95, figure 2-9) has a valve (97) of harder material with longer service life than on the carburetor in the basic technical manual.

(6) This issue incorporates a different regulator spacer and bushing assembly (113, figure 2-9). Its bushing (114) is of a harder material to increase service life expectancy than on the carburetor in the basic technical manual.

(7) This issue incorporates a strainer support wire in the strainer assembly (91, figure 2-9) to prevent the strainer from crushing.

(8) The manual mixture control needle valve (109, figure 2-9) on this issue carburetor is of harder material for increased service life expectancy.

(9) This issue carburetor uses a different part number manual mixture control spring (108, figure 2-9).

(10) This issue incorporates a manual mixture control nut (104, figure 2-9) of different design and harder material than on the carburetor in the basic technical manual.

OVERHAUL PROCEDURES. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement, Lubrication and Reassembly are the same as outlined in Section II.

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-38) and History Sheet (figure 4-41). Refer to figures 4-39 and 4-40 for flow limits.

PREPARATION FOR STORAGE, PACKING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this manual.

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SETTING SPECIFICATIONS FOR INJECTION CARBURETOR PS-5C 391629-5

ENGINE MODEL: O-470 DRAWING NUMBER: 391629
ENGINE MFGR.: Continental DATE ISSUED: 6-25-58

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	366691	1.	
2.	Jet, Main Metering	390188	2.	Size: 43
3.	Seat, Idle & Power Enrichment Valve	383886	3.	
4.	Diaphragm Assembly, Idle & Power Enrichment	364969	4.	
5.	Seat, Manual Mixture Control	384967	5.	
6.	Valve, Manual Mixture Control Needle	366298	6.	
7.	Needle & Seat Assy., Poppet Valve	366462	7.	
	Seat, Poppet Valve	366381		
	Valve, Poppet	366138		
8.	Seat Assembly, Discharge Nozzle	366476	8.	
	Seat, Discharge Nozzle	383924		
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 drilled in 383483 Reg. Dia. Body
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1-5/8"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assembly, Pump Relief	364164	14.	
15.	Automatic Mixture Control Assembly		15.	Not used.
16.	Strainer Assembly, Fuel	366362	16.	
17.	Lever, Throttle	390248	17.	
18.	Lever Assy., Manual Mixture Control	366487	18.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125" ± .010" ID .296" ± .003"
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625" ± .031" OD .4375" ± .010"
3.	Spring, Discharge Nozzle	383515	3.	Free Length: 1.875" ± .062" ID .516" -0 +.016"
4.	Spring, Manual Mixture Control	366147	4.	Free Length: 2.344" ± .063" ID .193" ± .005"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" ID .516" ± .010"
6.	Spring, Poppet Valve	383518	6.	Free Length: .875" ± .010" OD .188" ± .003"
7.	Spring, Regulator	383519	7.	Free Length: 1.937" ± .062" ID .938" -0 +.031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375" ± .015" OD .301" ± .003"
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875" ± .062" ID .516" -0 +.016"
10.	Spring, Losse Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-38. Carburetor Specification Sheet Parts List 391629-5

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470
Engine Mfgr.: Continental
Engine Mfgr. Setting:

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on .734 ± .002 Specific Gravity at 75 ± 5°F.
NAPHTHA

Parts List No.: 391629-1 through -6
Carb. Model: PS-5C
Date Issued: 6-13-58
Flow Limits for Issues 1 through 6 are identical.

Test Point No.		1			2	3	4	5	6	7	8	9	10								
Metering Suction Inches of Water		0.7			0.7	2.2	6.3	12.2	12.2	26.4	28.6	34.3	26.4								
Corresponding Air Flow Lb./Hr.		200			200	400	600	800	800	1150	1200	1300	1150								
Mixture Control Lever Position		R			ICO	R	R	R	R	R	R	R	R								
Throttle Position		WO			WO	1/2	1/2	1/2	1/2	1/2	WO	WO	1/2								
Burette	Volume	150				200	250	300	300	500	500	500	500								
Time	Min.	29.2				34.8	31.3	28.3	21.4	32.4	28.1	26.2	32.4								
Limits	Max.	31.0				37.0	33.2	30.0	23.8	34.4	29.8	27.3	34.4								
In Seconds	Obs.																				
Flowmeter	Min.	28.2			No	31.5	43.9	58.1	73.5	84.6	97.6	106.7	84.6								
Limits	Max.	29.9			Flow	33.5	46.6	61.7	81.7	89.8	103.6	111.1	89.8								
In Lbs./Hr.	Obs.																				
Metering	Min.					10.75		34.1		69.0											
Head	Max.					11.65		36.9		74.5											
Inches of Fuel	Obs.																				

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Lean) Limit:
High (Rich) Limit:

Notes: 1. At check point 6, open vapor vent and measure total flow. All other check points vapor vent is closed.

2. At check point 7, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 28° from the wide open position. Use T-25941.

Figure 4-39. Carburetor Flow Bench Test Sheet (Naphtha) Parts List 391629-5

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470
Engine Mfgr.: Continental
Engine Mfgr. Setting:

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on .692 ± .002 Specific Gravity at 75 ± 5 °F.
HEPTANE

Parts List No.: 391629-1 through -6
Carb. Model: PS-5C
Date Issued: 6-13-58

Flow Limits for Issues 1 through 6 are identical.

Test Point No.		1				2	3	4	5	6	7	8	9	10								
Metering Suction Inches of Water		0.7				0.7	2.2	6.3	12.2	12.2	26.4	28.6	34.3	26.4								
Corresponding Air Flow Lb./Hr.		200				200	400	600	800	800	1150	1200	1300	1150								
Mixture Control Lever Position		R				ICO	R	R	R	R	R	R	R	R								
Throttle Position		WO				WO	1/2	1/2	1/2	1/2	1/2	WO	WO	1/2								
Burette	Volume	150					200	250	300	300	500	500	500	500								
Time	Min.	27.8					33.0	30.0	27.4	20.6	31.6	27.2	25.4	31.6								
Limits	Max.	29.5					34.8	32.0	29.2	22.9	33.6	28.9	26.5	33.6								
In Seconds	Obs.																					
Flowmeter	Min.	27.9				No	31.5	43.0	56.5	71.9	81.7	95.0	103.8	81.7								
Limits	Max.	29.6				Flow	33.2	45.7	60.0	80.0	86.8	100.8	108.0	86.8								
In Lbs./Hr.	Obs.																					
Metering	Min.						11.55		36.5		73.5											
Head	Max.						12.45		39.4		79.4											
Inches of Fuel	Obs.																					

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Rich) Limit:
High (Lean) Limit:

Notes: 1. At check point 6, open vapor vent and measure total flow. All other check points, vapor vent is closed.

2. At check point 7, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 28° from the wide open position. Use T-25941.

Figure 4-40. Carburetor Flow Bench Test Sheet (Heptane) Parts List 391629-5

STROMBERG INJECTION CARBURETOR MODEL PS-5C

HISTORY OF SPECIFICATIONS AND FLOW LIMITS

ENGINE MFGR.: Continental ENGINE MODEL: O-470

PS-5C carburetor, P/L 391629 is identical to P/L 391318 except that P/L 391629 incorporates a special Manual Mixture Control Lever to conform to airplane installation requirements.

ISSUE 1		
Serial 2	1-18-56	Released to production.
Serial 3	2-15-56	Installed 1/8" pipe plugs at vapor vent and fuel pressure connections in place of shipping plugs at request of the engine manufacturer.
Serial 4	2-27-56	To incorporate an improved design manual mixture control needle assembly. The idle cut-off cam is attached to the new needle using a 366290 pin-dog point, instead of the 383504 screw and lead ball configuration.
Serial 5	4- 2-56	Parts list correction.
Serial 6	6- 5-56	Discontinued scribing the discharge diaphragm adjusting screw.
Serial 7	7-31-56	Poppet valve seat changed to provide a seat that will accommodate a poppet screen if required.
Serial 8	10- 1-56	Elimination of diffusion tube attaching rivets which are no longer required.
ISSUE 2		
Serial 9	10- 1-56	Incorporation of vinyl coated air diaphragm 366408 to increase resistance to ozone deterioration.
ISSUE 3		
Serial 10	10- 1-56	Discharge diaphragm, idle speed, and idle control rod adjusting screws changed from 32 to 56 threads per inch to provide more precise adjustments.
Serial 11	11-27-56	Incorporation of matched discharge nozzle seat and discharge needle valve assembly to prevent fuel leakage.
Serial 12	12-26-56	Addition of shipping date decalcomania.
Serial 13	1- 7-57	Regulator needle valve seat and plug gaskets change from fiber to aluminum material.
Serial 14	2-20-57	Main metering jet plug gasket changed from fiber to aluminum material.
ISSUE 4		
Serial 15	6-24-57	Changed to steel throttle shaft and Oilite throttle shaft bushings. Changed to a 200 mesh inlet fuel strainer and added an 80 mesh poppet valve strainer.
Serial 16	7-11-57	Parts list correction.
Serial 17	1- 8-58	Fuel inlet strainer changed to include wire support to prevent strainer from crushing.
ISSUE 5		
Serial 18	3-27-58	Incorporation of hard parts at wear points to increase service life.
Serial 19	3-27-58	Regulator (outer) diaphragm assembly changed to part number 366876 to incorporate minor manufacturing change.

Figure 4-41. Carburetor History Sheet Parts List 391629-5

MODEL PS-5C INJECTION CARBURETOR PARTS LIST NO. 391629-6

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual.

GENERAL INSTRUCTIONS. Same as outlined in Section II of this manual. Refer to 391629-6 specification sheet (figure 4-42) for information on metering variables for this issue.

COMPONENT DIFFERENCES. (See figure 2-9.)

a. General

(1) This issue carburetor incorporates an inner regulator diaphragm assembly (118, figure 2-9) that has a different diaphragm and pin from the diaphragm assembly used on the carburetor in the basic technical manual. The pin used on this assembly does not extend beyond the diaphragm.

(2) This issue incorporates a different outer regulator diaphragm assembly (103, figure 2-9) which uses a different washer than in the basic technical manual. The washer on this carburetor is cup shaped. This diaphragm uses a different rivet.

(3) The manual mixture control lever assembly (83, figure 2-9) is of a different configuration to conform to airplane installation requirements and a different bushing (84, figure 2-9) is used than in the basic technical manual.

(4) The manual mixture control link assembly (106, figure 2-9) has a different pin of harder material than the link used on the carburetor in the basic technical manual.

(5) The regulator needle valve assembly (95, figure 2-9) has a valve (97) of harder material with longer service life than on the carburetor in the basic technical manual.

(6) This issue incorporates a different regulator spacer and bushing assembly (113, figure 2-9). Its bushing (114) is of a harder material to increase service life expectancy than on the carburetor in the basic technical manual.

(7) This issue incorporates a strainer support wire in the strainer assembly (91, figure 2-9) to prevent the strainer from crushing.

(8) The manual mixture control needle valve (109, figure 2-9) on this issue carburetor is of harder material for increased service life expectancy.

(9) This issue carburetor uses a different part number manual mixture control spring (108, figure 2-9).

(10) This issue incorporates a manual mixture control nut (104, figure 2-9) of different design and harder material than on the carburetor in the basic technical manual.

OVERHAUL PROCEDURES. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement, Lubrication and Reassembly are the same as outlined in Section II.

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-42) and History Sheet (figure 4-45). Refer to figures 4-43 and 4-44 for flow limits.

PREPARATION FOR STORAGE, PACKING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this manual.

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SETTING SPECIFICATIONS FOR INJECTION CARBURETOR PS-5C 391629-6

ENGINE MODEL: O-470 DRAWING NUMBER: 391629
ENGINE MFGR.: Continental DATE ISSUED: 6-25-58

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	366691	1.	
2.	Jet, Main Metering	390188	2.	Size: 43
3.	Seat, Idle & Power Enrichment Valve	383886	3.	
4.	Diaphragm Assembly, Idle & Power Enrichment	364969	4.	
5.	Seat, Manual Mixture Control	384967	5.	
6.	Valve, Manual Mixture Control Needle	366298	6.	
7.	Needle & Seat Assy., Poppet Valve	366462	7.	
	Seat, Poppet Valve	366381		
	Valve, Poppet	366138		
8.	Seat Assembly, Discharge Nozzle	366476	8.	
	Seat, Discharge Nozzle	383924		
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 drilled in 383483 Reg. Dia. Body
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1-5/8"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assembly, Pump Relief	364164	14.	
15.	Automatic Mixture Control Assembly		15.	Not used.
16.	Strainer Assembly, Fuel	366362	16.	
17.	Lever, Throttle	390248	17.	
18.	Lever Assy., Manual Mixture Control	366487	18.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125" ± .010" ID .296" ± .003"
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625" ± .031" OD .4375" ± .010"
3.	Spring, Discharge Nozzle	383515	3.	Free Length: 1.875" ± .062" ID .516" -0 +.016"
4.	Spring, Manual Mixture Control	366147	4.	Free Length: 2.344" ± .063" ID .193" ± .005"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" ID .516" ± .010"
6.	Spring, Poppet Valve	383518	6.	Free Length: .875" ± .010" OD .188" ± .003"
7.	Spring, Regulator	383519	7.	Free Length: 1.937" ± .062" ID .938" -0 +.031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375" ± .015" OD .301" ± .003"
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875" ± .062" ID .516" -0 +.016"
10.	Spring, Losse Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-42. Carburetor Specification Sheet Parts List 391629-6

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470
Engine Mfgr.: Continental
Engine Mfgr. Setting:

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on .734 ± .002 Specific Gravity at 75 ± 5°F.
NAPHTHA

Parts List No.: 391629-1 through -6
Carb. Model: PS-5C
Date Issued: 6-13-58
Flow Limits for Issues 1 through 6 are identical.

Test Point No.		1			2	3	4	5	6	7	8	9	10
Metering Suction Inches of Water		0.7			0.7	2.2	6.3	12.2	12.2	26.4	28.6	34.3	26.4
Corresponding Air Flow Lb./Hr.		200			200	400	600	800	800	1150	1200	1300	1150
Mixture Control Lever Position		R			ICO	R	R	R	R	R	R	R	R
Throttle Position		WO			WO	1/2	1/2	1/2	1/2	1/2	WO	WO	1/2
Burette	Volume	150				200	250	300	300	500	500	500	500
Time	Min.	29.2				34.8	31.3	28.3	21.4	32.4	28.1	26.2	32.4
Limits	Max.	31.0				37.0	33.2	30.0	23.8	34.4	29.8	27.3	34.4
In Seconds	Obs.												
Flowmeter	Min.	28.2			No	31.5	43.9	58.1	73.5	84.6	97.6	106.7	84.6
Limits	Max.	29.9			Flow	33.5	46.6	61.7	81.7	89.8	103.6	111.1	89.8
In Lbs./Hr.	Obs.												
Metering	Min.					10.75		34.1		69.0			
Head	Max.					11.65		36.9		74.5			
Inches of Fuel	Obs.												

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Lean) Limit:
High (Rich) Limit:

Notes: 1. At check point 6, open vapor vent and measure total flow. All other check points vapor vent is closed.

2. At check point 7, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 28° from the wide open position. Use T-25941.

Figure 4-43. Carburetor Flow Bench Test Sheet (Naphtha) Parts List 391629-6

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470
Engine Mfgr.: Continental
Engine Mfgr. Setting:

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on .692 ± .002 Specific Gravity at 75 ± 5 °F.

Parts List No.: 391629-1 through -6
Carb. Model: PS-5C
Date Issued: 6-13-58

HEPTANE

Flow Limits for Issues 1 through 6 are identical.

Test Point No.		1				2	3	4	5	6	7	8	9	10								
Metering Suction Inches of Water		0.7				0.7	2.2	6.3	12.2	12.2	26.4	28.6	34.3	26.4								
Corresponding Air Flow Lb./Hr.		200				200	400	600	800	800	1150	1200	1300	1150								
Mixture Control Lever Position		R				ICO	R	R	R	R	R	R	R	R								
Throttle Position		WO				WO	1/2	1/2	1/2	1/2	1/2	WO	WO	1/2								
Burette	Volume	150					200	250	300	300	500	500	500	500								
Time	Min.	27.8					33.0	30.0	27.4	20.6	31.6	27.2	25.4	31.6								
Limits	Max.	29.5					34.8	32.0	29.2	22.9	33.6	28.9	26.5	33.6								
In Seconds	Obs.																					
Flowmeter	Min.	27.9				No	31.5	43.0	56.5	71.9	81.7	95.0	103.8	81.7								
Limits	Max.	29.6				Flow	33.2	45.7	60.0	80.0	86.8	100.8	108.0	86.8								
In Lbs./Hr.	Obs.																					
Metering	Min.						11.55		36.5		73.5											
Head	Max.						12.45		39.4		79.4											
Inches of Fuel	Obs.																					

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Rich) Limit:
High (Lean) Limit:

Notes: 1. At check point 6, open vapor vent and measure total flow. All other check points, vapor vent is closed.

2. At check point 7, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 28° from the wide open position. Use T-25941.

Figure 4-44. Carburetor Flow Bench Test Sheet (Heptane) Parts List 391629-6

391629

STROMBERG INJECTION CARBURETOR MODEL PS-5C

HISTORY OF SPECIFICATIONS AND FLOW LIMITS

ENGINE MFGR.: Continental ENGINE MODEL: O-470

PS-5C carburetor, P/L 391629 is identical to P/L 391318 except that P/L 391629 incorporates a special Manual Mixture Control Lever to conform to airplane installation requirements.

ISSUE 1		
Serial 2	1-18-56	Released to production.
Serial 3	2-15-56	Installed 1/8" pipe plugs at vapor vent and fuel pressure connections in place of shipping plugs at request of the engine manufacturer.
Serial 4	2-27-56	To incorporate an improved design manual mixture control needle assembly. The idle cut-off cam is attached to the new needle using a 366290 pin-dog point, instead of the 383504 screw and lead ball configuration.
Serial 5	4- 2-56	Parts list correction.
Serial 6	6- 5-56	Discontinued scribing the discharge diaphragm adjusting screw.
Serial 7	7-31-56	Poppet valve seat changed to provide a seat that will accommodate a poppet screen if required.
Serial 8	10- 1-56	Elimination of diffusion tube attaching rivets which are no longer required.
ISSUE 2		
Serial 9	10- 1-56	Incorporation of vinyl coated air diaphragm 366408 to increase resistance to ozone deterioration.
ISSUE 3		
Serial 10	10- 1-56	Discharge diaphragm, idle speed, and idle control rod adjusting screws changed from 32 to 56 threads per inch to provide more precise adjustments.
Serial 11	11-27-56	Incorporation of matched discharge nozzle seat and discharge needle valve assembly to prevent fuel leakage.
Serial 12	12-26-56	Addition of shipping date decalcomania.
Serial 13	1- 7-57	Regulator needle valve seat and plug gaskets change from fiber to aluminum material.
Serial 14	2-20-57	Main metering jet plug gasket changed from fiber to aluminum material.
ISSUE 4		
Serial 15	6-24-57	Changed to steel throttle shaft and Oilite throttle shaft bushings. Changed to a 200 mesh inlet fuel strainer and added an 80 mesh poppet valve strainer.
Serial 16	7-11-57	Parts list correction.
Serial 17	1- 8-58	Fuel inlet strainer changed to include wire support to prevent strainer from crushing.
ISSUE 5		
Serial 18	3-27-58	Incorporation of hard parts at wear points to increase service life.
Serial 19	3-27-58	Regulator (outer) diaphragm assembly changed to part number 366876 to incorporate minor manufacturing change.
ISSUE 6		
Serial 20	5-23-58	Incorporation of vinyl impregnated (red) inner regulator diaphragm.

NOTE: Flow bench test limits for Issues 1 through 6 are identical.

Figure 4-45. Carburetor History Sheet Parts List 391629-6

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET.

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual, except the T25941 Gage is not used on this issue carburetor. The following tool is used instead.

Part No.	Nomenclature	Figure No.	USAF Stock No.
T25939	Assembly Gage - Enrichment valve screw adjusting	4-46	5220

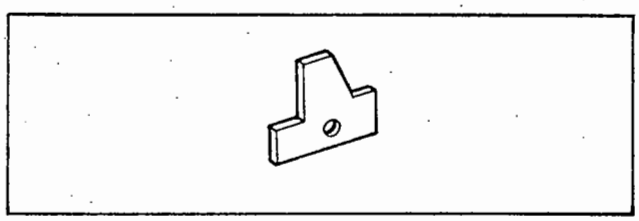

Figure 4-46. T25939 Enrichment Valve Screw Adjusting Assembly Gage

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual. Refer to 380223-6 Specification Sheet (figure 4-48) for information on metering variables for this issue.

COMPONENT DIFFERENCES.

a. General. Refer to figure 2-9.

(1) This issue does not incorporate a relief valve assembly (26) or gasket (32).

(2) This issue carburetor uses a different idle and power enrichment diaphragm assembly (47).

(3) Lever assembly (83) uses a different bushing (84) that is hardened to decrease wear.

(4) Main metering jet (88) is smaller.

(5) This issue incorporates an 80 mesh screen on strainer assembly (91) instead of a 200 mesh as used on the carburetor in the basic technical manual.

(6) Valve and seal assembly (95) uses harder parts decrease wear.

regulator needle plug is used instead of a pop- fuel strainer (100).

(8) Diaphragm assembly (103) has harder parts incorporated to decrease wear.

(9) Link assembly (106) has harder parts incorporated to decrease wear.

(10) Plug (107) has different inside diameter dimensions.

(11) Spring (108) is shorter.

(12) Valve (109) is made of harder material to reduce wear.

(13) Spacer (113) has a harder bushing (114) incorporated to decrease wear.

(14) Diaphragm assembly (118) uses harder parts to decrease wear.

(15) Main body assembly (143) is different on this parts list and issue carburetor.

OVERHAUL PROCEDURES. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement, Lubrication and Reassembly procedures are the same as outlined in Section II.

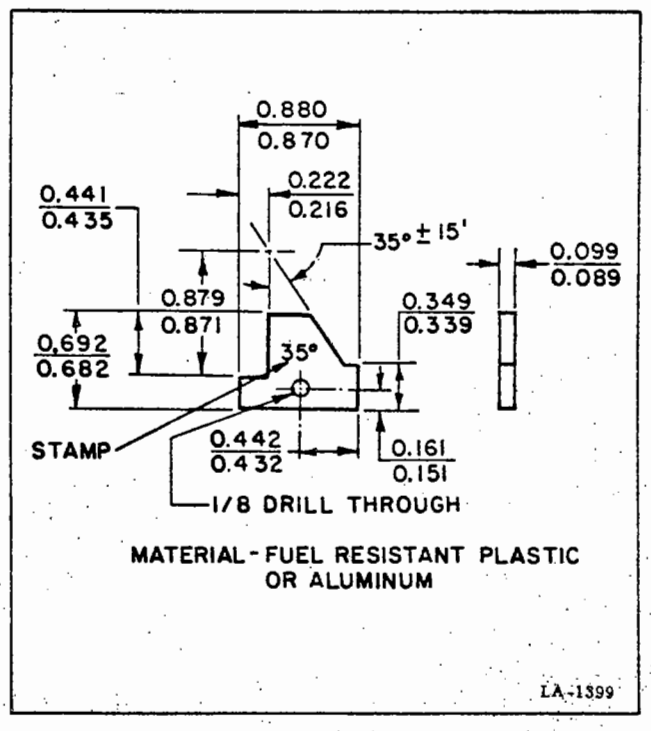

Figure 4-47. Dimensions for Manufacturing the T25939 Gage

TEST PROCEDURES.

a. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-48), Flow Limits Sheet (figure 4-49) and History Sheet (figure 4-50).

b. Use the T25939 gage to establish the opening point of the idle and power enrichment valve as described in paragraph 3-12, i.

NOTE

To manufacture the T25939 gage locally, use the dimensions given in figure 4-47.

PREPARATION FOR STORAGE, PACKAGING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this technical manual.

MODEL: PS-5C
Injection Carburetor

SETTING SPECIFICATIONS

P/L 380223-6

ENGINE MODEL: E-165 & E-185
ENGINE MFGR.: Continental

DRAWING NUMBER: 380223
DATE ISSUED: 12-30-57

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	366691	1.	
2.	Jet, Main Metering	390188	2.	Size: 44
3.	Seat, Idle & Power Enrichment Valve	383886	3.	
4.	Dia. Assy., Idle & Power Enrichment	384675	4.	
5.	Seat, Manual Mixture Control Needle	384967	5.	
6.	Valve, Manual Mixture Control	366298	6.	
7.	Needle & Seat Assy., Poppet Valve	366462	7.	
	Seat, Poppet Valve	366381		
	Valve, Poppet	366138		
8.	Seat Assy., Discharge Nozzle	366476	8.	
	Seat, Discharge Nozzle	383924		
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 drilled in 383483 reg. cover
12.	Venturi Throat Assy.	384599	12.	Throat Diameter: 1.625" ± .002"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assy., Pump Relief		14.	Not used.
15.	Automatic Mixture Control Assy.		15.	Not used.
16.	Strainer Assy., Fuel	364858	16.	
17.	Lever, Throttle	390248	17.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125" ± .010" ID: .296" ± .003"
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625" ± .031" OD: .4375" ± .010"
3.	Spring, Discharge Nozzle	393515	3.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
4.	Spring, Manual Mixture Control	366147	4.	Free Length: 2.344" ± .063" ID: .193" ± .005"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" ID: .516" ± .010"
6.	Spring, Poppet Valve	383518	6.	Free Length: .875" ± .010" OD: .188" ± .003"
7.	Spring, Regulator Diaphragm	383519	7.	Free Length: 1.937" ± .062" ID: .938" - 0 + .031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375" ± .015" OD: .301" ± .003"
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
10.	Spring, Loose Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-48. Carburetor Specification Sheet, Parts List 380223-6

Engine Model: E-165 & E-185
Engine Mfgr.: Continental
Engine Mfgr. Setting: 530486

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on. 734 ± .002 Specific Gravity at 75 ± 5 °F.
NAPHTHA

Parts List No.: 380223-6
Carb. Model: PS-5C
Date Issued: 3-3-58

Flow limits for Issues 2 through 6 are identical.

Test Point No.		1	2	3	4	5	6	7	8	9	10
Metering Suction Inches of Water		0.7	0.7	1.6	3.1	7.25	13.4	13.4	20.8	30.9	36.9
Corresponding Air Flow Lb./Hr.		200	200	300	400	600	800	800	1000	1200	1300
Mixture Control Lever Position		R	ICO	R	R	R	R	R	R	R	R
Throttle Position		WO	WO	1/2	1/2	1/2	1/2	1/2	WO	WO	WO
Burette	Volume	150		150	200	250	300	300	500	500	500
Time Limits In Seconds	Min.	29.2		28.0	31.5	29.4	27.1	20.8	33.6	28.0	26.2
	Max.	31.0		29.8	33.4	31.2	28.7	23.0	35.7	29.8	27.4
	Obs.										
Flowmeter Limits In Lbs./Hr.	Min.	28.2	No Flow	29.4	34.85	46.7	60.8	76.2	81.6	97.9	106.5
	Max.	29.9		31.2	36.95	49.5	64.4	83.8	86.5	103.8	111.0
	Obs.										
Metering Head Inches of Fuel	Min.				12.2		36.2			77.0	
	Max.				13.4		39.4			84.0	
	Obs.										

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Lean) Limit:
High (Rich) Limit:

Notes:
1. Check Points 3 through 7 are made with throttle valve in 1/2 open position.
2. At Check Point 7, open vapor vent and measure total flow. All other points vapor vent is closed.
3. At Check Point 8, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 35° from the wide open position.
4. Check Points 1, 2, 8 9 and 10 are made with throttle valve in the wide open position

Figure 4-49 Carburetor Flow

MODEL: PS-5C
Injection Carburetor

HISTORY OF CHANGES

P/L 380223

Engine Mfgr.: Continental

Engine Model: E-165 & E-185

ISSUE 1		
Serial 1	7-25-47	Parts list released to production.
Serial 2	10-27-47	Parts list records change only.
Serial 3	12- 5-47	Parts list records change only.
ISSUE 2		
Serial 4	12-19-47	Discharge nozzle air bleeder seal P/N 390267 changed to P/N 250-S-5 to provide an improved seal.
Serial 5	5- 7-48	Parts list records change only.
Serial 6	5- 5-49	Parts list records change only.
ISSUE 3		
Serial 7	9- 9-49	Loose lever assembly P/N 383845 changed to P/N 364378 to incorporate an adjustable enrichment valve actuating screw.
Serial 8	2- 9-50	Parts list records change only.
Serial 9	5-11-50	Parts list records change only.
Serial 10	8-24-50	Parts list records change only.
Serial 11	9- 7-50	Parts list records change only.
Serial 12	10-18-50	Fuel strainer P/N 383520 changed to P/N 364858 assembly to provide an improved filter.
Serial 13	12-14-50	Parts list records change only.
Serial 14	12-21-50	Discharge nozzle air bleeder seal P/N 250-S-5 changed to P/N 315-S-5 to specify improved material.
Serial 15	1-29-51	Loose lever assembly P/N 364378 changed to P/N 364974 to allow for lock-wire.
Serial 16	8- 2-51	Poppet valve seat and plug gasket P/N P3260 changed to P/N P5319 to facilitate assembly.
Serial 17	1-18-52	Parts list records change only.
Serial 18	5- 1-52	Fuel strainer plug gasket P/N P22851 changed to P/N 365533 to provide improved material.
Serial 19	10-16-52	Parts list records change only.
ISSUE 4		
Serial 20	8-24-53	Regulator spacer and bushing assembly P/N 383946 changed to P/N 365796 and spacer plug P/N P8508 changed to P/N P60000 taper seat plug. to eliminate possibility of cracking spacer from overtorque of the pipe threaded plug and/or test fitting.
Serial 21	10-22-53	Parts list records change only.
Serial 22	10-26-53	Parts list records change only.
Serial 23	8- 9-54	Parts list records change only.
Serial 24	9-19-55	Manual mixture control needle valve P/N 384968 changed to P/N 366291 and idle cut-off cam attaching screw P/N 383504 changed to P/N 366290 dog point pin and P/N P19983 lead ball eliminated to improve cam attaching.
Serial 25	9-28-55	Parts list records change only.
Serial 26	2-10-56	Plug P/N 396660 removed from fuel pressure connection and replaced with plug P/N P8508. Plug P/N P8508 added to vapor vent and drain, per request of engine manufacturer.
Serial 27	3-20-56	Seat and needle assembly - regulator P/N 384836 replaced with assembly P/N 366382. Seat (regulator needle) P/N 384138 replaced with seat P/N 366381, to accommodate poppet screen P/N 366373.
Serial 28	4-19-56	Diffusion tube attaching rivets removed, holes eliminated from main body of new production units.
Serial 29	6- 5-56	Scribe line and prick punch markings removed from discharge nozzle adjusting screw bushing. Change made to prevent possible damage and leakage around the bushing.
Serial 30	11-27-56	To provide a leak tested matched discharge needle and seat assembly.
Serial 31	12-26-56	Parts list correction.
Serial 32	1- 7-57	Regulator needle valve seat gasket material changed to improve fuel sealing at this location.
Serial 33	2-20-57	Gasket material changed in main metering jet and power enrichment valve seat gaskets to provide a more positive fuel seal.

Figure 4-50. Carburetor History Sheet, Parts List 380223-6 (Sheet 1 of 2)

P/L 380223 — HISTORY OF CHANGES (Continued) — MODEL: PS-5C Injection Carburetor

ISSUE 5		
Serial 34	7-23-57	Various adjusting screws changed to a finer thread to provide more exact adjustment.
ISSUE 6		
Serial 35	10- 7-57	Incorporation of hard parts at wear points to increase service life.
Serial 36	12-30-57	Parts list correction.

NOTE: Flow bench test limits for Issue 2 through 6 are identical.

Figure 4-50. Carburetor History Sheet, Parts List 380223-6 (Sheet 2 of 2)

MODEL PS-5C INJECTION CARBURETOR — PARTS LIST NO. 380223-7

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET.

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual, except the T25941 Gage is not used on this issue carburetor. The following tool is used instead.

Part No.	Nomenclature	Figure No.	USAF Stock No.
T25939	Assembly Gage - Enrichment valve screw adjusting	4-51	5220

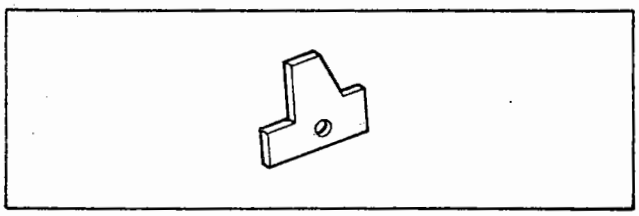

Figure 4-51. T25939 Enrichment Valve Screw Adjusting Assembly Gage

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual. Refer to 380223-7 Specification Sheet (figure 4-53) for information on metering variables for this issue.

COMPONENT DIFFERENCES.

a. General. Refer to figure 2-9.

(1) This issue does not incorporate a relief valve assembly (26) or gasket (32).

(2) This issue carburetor uses a different idle and power enrichment diaphragm assembly (47).

(3) Cover assembly (53), screw assembly (52) and locking cup (3) have been changed to provide a limited field adjustment for the discharge nozzle. The new cover assembly (53A) has a pin (3B) installed in the bushing that acts as a stop when making an adjustment.

(4) Lever assembly (83) uses a different bushing (84) that is hardened to decrease wear.

(5) Main metering jet (88) is smaller.

(6) This issue incorporates an 80 mesh screen on strainer assembly (91) instead of a 200 mesh as used on the carburetor in the basic technical manual.

(7) Valve and seat assembly (95) uses harder parts to decrease wear.

(8) A regulator needle plug is used instead of a poppet valve fuel strainer (100).

(9) Diaphragm assembly (103) has harder parts incorporated to decrease wear.

(10) Link assembly (106) has harder parts incorporated to decrease wear.

(11) Plug (107) has different inside diameter dimensions.

(12) Spring (108) is shorter.

(13) Valve (109) is made of harder material to reduce wear.

(14) Spacer (113) has a harder bushing (114) incorporated to decrease wear.

(15) Diaphragm assembly (118) uses harder parts to decrease wear.

(16) Main body assembly (143) is different on this parts list and issue carburetor.

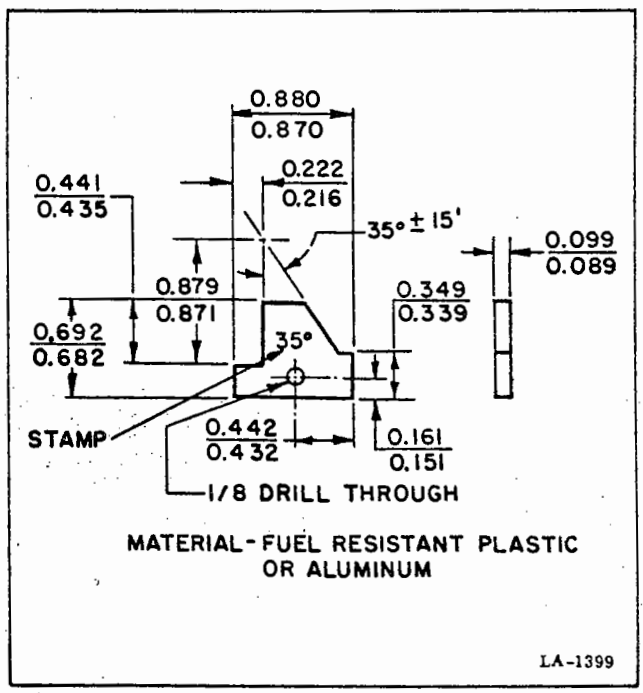

Figure 4-52. Dimensions for Manufacturing the T25939 Gage

Difference Data Sheet

OVERHAUL PROCEDURES.

a. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement and Lubrication procedures are the same as outlined in Section II.

b. Reassembly. The limit pin shall be installed in one of the seven drilled holes in the adjusting screw bushing in such a position that the adjusting screw assembly may be rotated one-half turn in either direction.

TEST PROCEDURES.

a. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-53), Flow Limits Sheet (figure 4-54) and History She (figure 4-55).

b. Use T25939 gage to establish the opening point the idle and power enrichment valve as described paragraph 3-12, i.

NOTE

To manufacture the T25939 gage localiy, use the dimensions given in figure 4-52.

PREPARATION FOR STORAGE, PACKAGING AN RECONDITIONING AFTER STORAGE. Same outlined in Section III of this technical manual.

MODEL: PS-5C — SETTING SPECIFICATIONS — P/L 380223-7
Injection Carburetor

ENGINE MODEL: E-165 & E-185 — DRAWING NUMBER: 380223
ENGINE MFGR.: Continental — DATE ISSUED: 5-26-58

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	366691	1.	
2.	Jet, Main Metering	390188	2.	Size: 44
3.	Seat, Idle & Power Enrichment Valve	383886	3.	
4.	Dia. Assy., Idle & Power Enrichment	384675	4.	
5.	Seat, Manual Mixture Control Needle	384967	5.	
6.	Valve, Manual Mixture Control	366298	6.	
7.	Needle & Seat Assy., Poppet Valve	366462	7.	
	Seat, Poppet Valve	366381		
	Valve, Poppet	366138		
8.	Seat Assy., Discharge Nozzle	366476	8.	
	Seat, Discharge Nozzle	383924		
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 drilled in 383483 reg. cover
12.	Venturi Throat Assy.	384599	12.	Throat Diameter: 1.625" ± .002"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assy., Pump Relief		14.	Not used.
15.	Automatic Mixture Control Assy.		15.	Not used.
16.	Strainer Assy., Fuel	364858	16.	
17.	Lever, Throttle	390248	17.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125" ± .010" ID: .296" ± .003"
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625" ± .031" OD: .4375" ± .010"
3.	Spring, Discharge Nozzle	393515	3.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
4.	Spring, Manual Mixture Control	366147	4.	Free Length: 2.344" ± .063" ID: .193" ± .005"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" ID: .516" ± .010"
6.	Spring, Poppet Valve	383518	6.	Free Length: .875" ± .010" OD: .188" ± .003"
7.	Spring, Regulator Diaphragm	383519	7.	Free Length: 1.937" ± .062" ID: .938" - 0 + .031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375" ± .015" OD: .301" ± .003"
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
10.	Spring, Loose Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-53. Carburetor Specification Sheet, Parts List 380223-7

Engine Model: E-165 & E-185
Engine Mfgr.: Continental
Engine Mfgr. Setting: 530486

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on. 734 ± .002 Specific Gravity at 75 ± 5 °F.
NAPHTHA

Parts List No.: 380223-7
Carb. Model: PS-5C
Date Issued: 5-26-58

Flow limits for Issues 2 through 7 are identical.

Test Point No.		1				2	3	4	5	6	7	8	9	10									
Metering Suction Inches of Water		0.7				0.7	1.6	3.1	7.25	13.4	13.4	20.8	30.9	36.9									
Corresponding Air Flow Lb./Hr.		200				200	300	400	600	800	800	1000	1200	1300									
Mixture Control Lever Position		R				ICO	R	R	R	R	R	R	R	R									
Throttle Position		WO				WO	1/2	1/2	1/2	1/2	1/2	WO	WO	WO									
Burette	Volume	150					150	200	250	300	300	500	500	500									
Time	Min.	29.2					28.0	31.5	29.4	27.1	20.8	33.6	28.0	26.2									
Limits	Max.	31.0					29.8	33.4	31.2	28.7	23.0	35.7	29.8	27.4									
In Seconds	Obs.																						
Flowmeter	Min.	28.2				No	29.4	34.85	46.7	60.8	76.2	81.6	97.9	106.5									
Limits	Max.	29.9				Flow	31.2	36.95	49.5	64.4	83.8	86.5	103.8	111.0									
In Lbs./Hr.	Obs.																						
Metering	Min.							12.2		36.2			77.0										
Head	Max.							13.4		39.4			84.0										
Inches of Fuel	Obs.																						

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Lean) Limit:
High (Rich) Limit:

Notes:
1. Check Points 3 through 7 are made with throttle valve in 1/2 open position.
2. At Check Point 7, open vapor vent and measure total flow. All other points vapor vent is closed.
3. At Check Point 8, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 35° from the wide open position.
4. Check Points 1, 2, 8 9 and 10 are made with throttle valve in the wide open position

Figure 4-54. Carburetor Flow Bench Test Sheet

MODEL: PS-5C
Injection Carburetor

HISTORY OF CHANGES

P/L 380223

Engine Mfgr.: Continental

Engine Model: E-165 & E-185

ISSUE 1		
Serial 1	7-25-47	Parts list released to production.
Serial 2	10-27-47	Parts list records change only.
Serial 3	12- 5-47	Parts list records change only.
ISSUE 2		
Serial 4	12-19-47	Discharge nozzle air bleeder seal P/N 390267 changed to P/N 250-S-5 to provide an improved seal.
Serial 5	5- 7-48	Parts list records change only.
Serial 6	5- 5-49	Parts list records change only.
ISSUE 3		
Serial 7	9- 9-49	Loose lever assembly P/N 383845 changed to P/N 364378 to incorporate an adjustable enrichment valve actuating screw.
Serial 8	2- 9-50	Parts list records change only.
Serial 9	5-11-50	Parts list records change only.
Serial 10	8-24-50	Parts list records change only.
Serial 11	9- 7-50	Parts list records change only.
Serial 12	10-18-50	Fuel strainer P/N 383520 changed to P/N 364858 assembly to provide an improved filter.
Serial 13	12-14-50	Parts list records change only.
Serial 14	12-21-50	Discharge nozzle air bleeder seal P/N 250-S-5 changed to P/N 315-S-5 to specify improved material.
Serial 15	1-29-51	Loose lever assembly P/N 364378 changed to P/N 364974 to allow for lock-wire.
Serial 16	8- 2-51	Poppet valve seat and plug gasket, P/N P3260 changed to P/N P5319 to facilitate assembly.
Serial 17	1-18-52	Parts list records change only.
Serial 18	5- 1-52	Fuel strainer plug gasket P/N P22851 changed to P/N 365533 to provide improved material.
Serial 19	10-16-52	Parts list records change only.
ISSUE 4		
Serial 20	8-24-53	Regulator spacer and bushing assembly P/N 383946 changed to P/N 365796 and spacer plug P/N P8508 changed to P/N P60000 taper seat plug. to eliminate possibility of cracking spacer from overtorque of the pipe threaded plug and/or test fitting.
Serial 21	10-22-53	Parts list records change only.
Serial 22	10-26-53	Parts list records change only.
Serial 23	8- 9-54	Parts list records change only.
Serial 24	9-19-55	Manual mixture control needle valve P/N 384968 changed to P/N 366291 and idle cut-off cam attaching screw P/N 383504 changed to P/N 366290 dog point pin and P/N P19983 lead ball eliminated to improve cam attaching.
Serial 25	9-28-55	Parts list records change only.
Serial 26	2-10-56	Plug P/N 396660 removed from fuel pressure connection and replaced with plug P/N P8508. Plug P/N P8508 added to vapor vent and drain, per request of engine manufacturer.
Serial 27	3-20-56	Seat and needle assembly - regulator P/N 384836 replaced with assembly P/N 366382. Seat (regulator needle) P/N 384138 replaced with seat P/N 366381, to accommodate poppet screen P/N 366373.
Serial 28	4-19-56	Diffusion tube attaching rivets removed, holes eliminated from main body of new production units.
Serial 29	6- 5-56	Scribe line and prick punch markings removed from discharge nozzle adjusting screw bushing. Change made to prevent possible damage and leakage around the bushing.
Serial 30	11-27-56	To provide a leak tested matched discharge needle and seat assembly.
Serial 31	12-26-56	Parts list correction.
Serial 32	1- 7-57	Regulator needle valve seat gasket material changed to improve fuel sealing at this location.
Serial 33	2-20-57	Gasket material changed in main metering jet and power enrichment valve seat gaskets to provide a more positive fuel seal.

Figure 4-55. Carburetor History Sheet, Parts List 380223-7 (Sheet 1 of 2)

P/L 380223		HISTORY OF CHANGES (Continued)	MODEL: PS-5C Injection Carburetor
ISSUE 5			
Serial 34	7-23-57	Various adjusting screws changed to a finer thread to provide more exact adjustment.	
ISSUE 6			
Serial 35	10- 7-57	Incorporation of hard parts at wear points to increase service life.	
Serial 36	12-30-57	Parts list correction.	
ISSUE 7			
Serial 37	5-26-58	Incorporation of discharge nozzle adjustment limiter to provide a safe field adjustment for the off idle range.	
		NOTE: Flow bench test limits for Issue 2 through Issue 7 are identical.	

Figure 4-55. Carburetor History Sheet, Parts List 380223-7 (Sheet 2 of 2)

MODEL PS-5C INJECTION CARBURETOR PARTS LIST NO. 380223-8

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET.

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual, except the T25941 Gage is not used on this issue carburetor. The following tool is used instead.

Part No.	Nomenclature	Figure No.	USAF Stock No.
T25939	Assembly Gage - Enrichment valve screw adjusting	4-56	5220

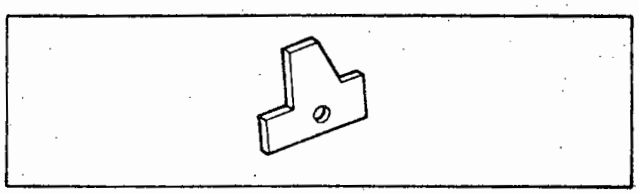

Figure 4-56. T25939 Enrichment Valve Screw Adjusting Assembly Gage

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual. Refer to 380223-8 Specification Sheet (figure 4-58) for information on metering variables for this issue.

COMPONENT DIFFERENCES.

a. General. Refer to figure 2-9.

(1) This issue does not incorporate a relief valve assembly (26) or gasket (32).

(2) This issue carburetor uses a different idle and power enrichment diaphragm assembly (47).

(3) Cover assembly (53), screw assembly (52) and locking cup (3) have been changed to provide a limited field adjustment for the discharge nozzle. The new cover (53A) assembly has a pin (3B) installed in the bushing that acts as a stop when making an adjustment.

(4) Lever assembly (83) uses a different bushing (84) that is hardened to decrease wear.

(5) Main metering jet (88) is smaller.

(6) This issue incorporates an 80 mesh screen on strainer assembly (91) instead of a 200 mesh as used on the carburetor in the basic technical manual.

(7) Valve and seat assembly (95) uses harder parts to decrease wear.

(8) A regulator needle plug is used instead of a poppet valve fuel strainer (100).

(9) Diaphragm assembly (103) has harder parts incorporated to decrease wear.

(10) Link assembly (106) has harder parts incorporated to decrease wear.

(11) Plug (107) has different inside diameter dimensions.

(12) Spring (108) is shorter.

(13) Valve (109) is made of harder material to reduce wear.

(14) Spacer (113) has a harder bushing (114) incorporated to decrease wear.

(15) Diaphragm assembly (118) is impregnated with vinyl to reduce ozone attack; assembly uses parts that are hardened to reduce wear.

(16) Main body assembly (143) is different on this parts list and issue carburetor.

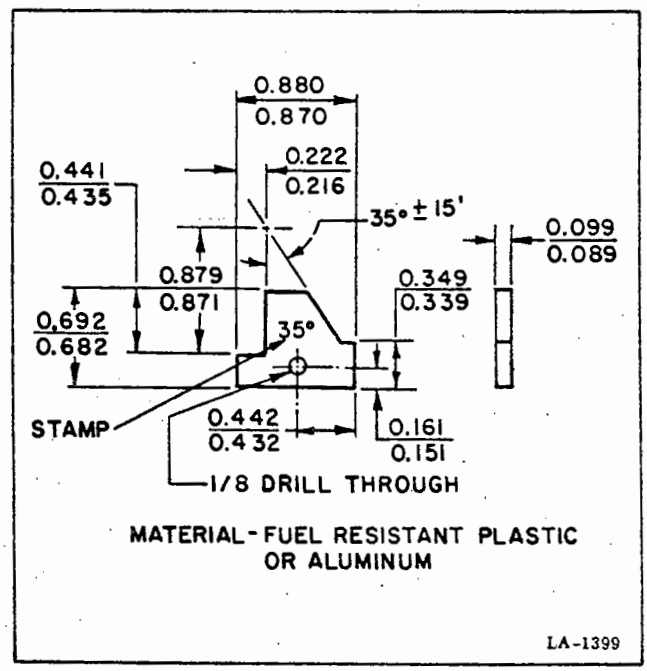

Figure 4-57. Dimensions for Manufacturing the T25939 Gage

OVERHAUL PROCEDURES.

a. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement and Lubrication procedures are the same as outlined in Section II.

b. Reassembly. The limit pin shall be installed in one of the seven drilled holes in the adjusting screw bushing in such a position that the adjusting screw assembly may be rotated one-half turn in either direction.

TEST PROCEDURES.

a. The same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-58), Flow Limits Sheet (figure 4-59) and History Sheet (figure 4-60).

b. Use T25939 gage to establish the opening point of the idle and power enrichment valve as described in paragraph 3-12, i.

NOTE

To manufacture the T25939 gage locally, use the dimensions given in figure 4-57.

PREPARATION FOR STORAGE, PACKAGING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this technical manual.

MODEL: PS-5C
Injection Carburetor

SETTING SPECIFICATIONS

P/L 380223-8

ENGINE MODEL: E-165 & E-185
ENGINE MFGR.: Continental

DRAWING NUMBER: 380223
DATE ISSUED: 5-26-58

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	366141	1.	
2.	Jet, Main Metering	390188	2.	Size: 44
3.	Seat, Idle & Power Enrichment Valve	383886	3.	
4.	Dia. Assy., Idle & Power Enrichment	384675	4.	
5.	Seat, Manual Mixture Control Needle	384967	5.	
6.	Valve, Manual Mixture Control	366298	6.	
7.	Needle & Seat Assy., Poppet Valve	366462	7.	
	Seat, Poppet Valve	366381		
	Valve, Poppet	366138		
8.	Seat Assy., Discharge Nozzle	366476	8.	
	Seat, Discharge Nozzle	383924		
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 drilled in 383483 reg. cover
12.	Venturi Throat Assy.	384599	12.	Throat Diameter: 1.625" ± .002"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assy., Pump Relief		14.	Not used.
15.	Automatic Mixture Control Assy.		15.	Not used.
16.	Strainer Assy., Fuel	364858	16.	
17.	Lever, Throttle	390248	17.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125" ± .010" ID: .296" ± .003"
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625" ± .031" OD: .4375" ± .010"
3.	Spring, Discharge Nozzle	393515	3.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
4.	Spring, Manual Mixture Control	366147	4.	Free Length: 2.344" ± .063" ID: .193" ± .005"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" ID: .516" ± .010"
6.	Spring, Poppet Valve	383518	6.	Free Length: .875" ± .010" OD: .188" ± .003"
7.	Spring, Regulator Diaphragm	383519	7.	Free Length: 1.937" ± .062" ID: .938" - 0 + .031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375" ± .015" OD: .301" ± .003"
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
10.	Spring, Loose Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-58. Carburetor Specification Sheet, Parts List 380223-8

Engine Model: E-165 & E-185
Engine Mfgr.: Continental
Engine Mfgr. Setting: 530486

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on. 734 ± .002 Specific Gravity at 75 ± 5 °F.
NAPHTHA

Parts List No.: 380223-8
Carb. Model: PS-5C
Date Issued: 5-26-58

Flow limits for Issues 2 through 8 are identical.

Test Point No.		1	2	3	4	5	6	7	8	9	10
Metering Suction Inches of Water		0.7	0.7	1.6	3.1	7.25	13.4	13.4	20.8	30.9	36.9
Corresponding Air Flow Lb./Hr.		200	200	300	400	600	800	800	1000	1200	1300
Mixture Control Lever Position		R	ICO	R	R	R	R	R	R	R	R
Throttle Position		WO	WO	1/2	1/2	1/2	1/2	1/2	WO	WO	WO
Burette	Volume	150		150	200	250	300	300	500	500	500
Time Limits In Seconds	Min.	29.2		28.0	31.5	29.4	27.1	20.8	33.6	28.0	26.2
	Max.	31.0		29.8	33.4	31.2	28.7	23.0	35.7	29.8	27.4
	Obs.										
Flowmeter Limits In Lbs./Hr.	Min.	28.2	No	29.4	34.85	46.7	60.8	76.2	81.6	97.9	106.5
	Max.	29.9	Flow	31.2	36.95	49.5	64.4	83.8	86.5	103.8	111.0
	Obs.										
Metering Head Inches of Fuel	Min.				12.2		36.2			77.0	
	Max.				13.4		39.4			84.0	
	Obs.										

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Lean) Limit:
High (Rich) Limit:

Notes:
1. Check Points 3 through 7 are made with throttle valve in 1/2 open position.
2. At Check Point 7, open vapor vent and measure total flow. All other points vapor vent is closed.
3. At Check Point 8, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 35° from the wide open position.
4. Check Points 1, 2, 8 9 and 10 are made with throttle valve in the wide open position

Figure 4-59. Carburetor Flow Bench Test Sheet, Parts List 380223-8

MODEL: PS-5C
Injection Carburetor

HISTORY OF CHANGES

P/L 380223

Engine Mfgr.: Continental

Engine Model: E-165 & E-185

ISSUE 1		
Serial 1	7-25-47	Parts list released to production.
Serial 2	10-27-47	Parts list records change only.
Serial 3	12- 5-47	Parts list records change only.
ISSUE 2		
Serial 4	12-19-47	Discharge nozzle air bleeder seal P/N 390267 changed to P/N 250-S-5 to provide an improved seal.
Serial 5	5- 7-48	Parts list records change only.
Serial 6	5- 5-49	Parts list records change only.
ISSUE 3		
Serial 7	9- 9-49	Loose lever assembly P/N 383845 changed to P/N 364378 to incorporate an adjustable enrichment valve actuating screw.
Serial 8	2- 9-50	Parts list records change only.
Serial 9	5-11-50	Parts list records change only.
Serial 10	8-24-50	Parts list records change only.
Serial 11	9- 7-50	Parts list records change only.
Serial 12	10-18-50	Fuel strainer P/N 383520 changed to P/N 364858 assembly to provide an improved filter.
Serial 13	12-14-50	Parts list records change only.
Serial 14	12-21-50	Discharge nozzle air bleeder seal P/N 250-S-5 changed to P/N 315-S-5 to specify improved material.
Serial 15	1-29-51	Loose lever assembly P/N 364378 changed to P/N 364974 to allow for lock-wire.
Serial 16	8- 2-51	Poppet valve seat and plug gasket P/N P3260 changed to P/N P5319 to facilitate assembly.
Serial 17	1-18-52	Parts list records change only.
Serial 18	5- 1-52	Fuel strainer plug gasket P/N P22851 changed to P/N 365533 to provide improved material.
Serial 19	10-16-52	Parts list records change only.
ISSUE 4		
Serial 20	8-24-53	Regulator spacer and bushing assembly P/N 383946 changed to P/N 365796 and spacer plug P/N P8508 changed to P/N P60000 taper seat plug. to eliminate possibility of cracking spacer from overtorque of the pipe threaded plug and/or test fitting.
Serial 21	10-22-53	Parts list records change only.
Serial 22	10-26-53	Parts list records change only.
Serial 23	8- 9-54	Parts list records change only.
Serial 24	9-19-55	Manual mixture control needle valve P/N 384968 changed to P/N 366291 and idle cut-off cam attaching screw P/N 383504 changed to P/N 366290 dog point pin and P/N P19983 lead ball eliminated to improve cam attaching.
Serial 25	9-28-55	Parts list records change only.
Serial 26	2-10-56	Plug P/N 396660 removed from fuel pressure connection and replaced with plug P/N P8503. Plug P/N P8508 added to vapor vent and drain, per request of engine manufacturer.
Serial 27	3-20-56	Seat and needle assembly - regulator P/N 384836 replaced with assembly P/N 366382. Seat (regulator needle) P/N 384138 replaced with seat P/N 366381, to accommodate poppet screen P/N 366373.
Serial 28	4-19-56	Diffusion tube attaching rivets removed, holes eliminated from main body of new production units.
Serial 29	6- 5-56	Scribe line and prick punch markings removed from discharge nozzle adjusting screw bushing. Change made to prevent possible damage and leakage around the bushing.
Serial 30	11-27-56	To provide a leak tested matched discharge needle and seat assembly.
Serial 31	12-26-56	Parts list correction.
Serial 32	1- 7-57	Regulator needle valve seat gasket material changed to improve fuel sealing at this location.
Serial 33	2-20-57	Gasket material changed in main metering jet and power enrichment valve seat gaskets to provide a more positive fuel seal.

Figure 4-60. Carburetor History Sheet, Parts List 380223-8 (Sheet 1 of 2)

P/L 380223 — HISTORY OF CHANGES (Continued) — MODEL: PS-5C Injection Carburetor

ISSUE 5		
Serial 34	7-23-57	Various adjusting screws changed to a finer thread to provide more exact adjustment.
ISSUE 6		
Serial 35	10- 7-57	Incorporation of hard parts at wear points to increase service life.
Serial 36	12-30-57	Parts list correction.
ISSUE 7		
Serial 37	5-26-58	Incorporation of discharge nozzle adjustment limiter to provide a safe field adjustment for the off idle range.
ISSUE 8		
Serial 38	5-26-58	Incorporation of vinyl impregnated (red) regulator air diaphragm to provide greater resistance to ozone attack.
Serial 39	8-21-58	To standardize on parts incorporated in PS type carburetors. Assembly P/N 366141 was P/N 366691.

NOTE: Flow bench test limits for Issue 2 through Issue 8 are identical.

Figure 4-60. Carburetor History Sheet, Parts List 380223-8 (Sheet 2 of 2)

MODEL PS-5C INJECTION CARBURETOR PARTS LIST NO. 391318-9

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET.

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual.

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual. Refer to 391318-9 Specification Sheet (figure 4-61) for information on metering variables for this issue.

COMPONENT DIFFERENCES.

a. General. Refer to figure 2-9.

(1) Lever assembly (83) uses a different bushing (84) that is hardened to decrease wear.

(2) Strainer assembly (91) has a strainer support incorporated to prevent strainer from crushing.

(3) Valve and seat assembly (95) uses harder parts to decrease wear.

(4) Diaphragm assembly (103) has harder parts incorporated to decrease wear.

(5) Link assembly (106) has harder parts incorporated to decrease wear.

(6) Plug (107) has different inside diameter dimensions.

(7) Spring (108) is shorter.

(8) Valve (109) is made of harder material to reduce wear.

(9) Spacer (113) has a harder bushing (114) incorporated to decrease wear.

(10) Diaphragm assembly (118) uses harder parts to decrease wear.

OVERHAUL PROCEDURES. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement, Lubrication and Reassembly procedures are the same as outlined in Section II.

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-61) and History Sheet (figure 4-62). Flow limits are the same as for the carburetor in the basic technical manual. Refer to figures 3-5 and 3-6 for limits.

PREPARATION FOR STORAGE, PACKAGING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this technical manual.

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SETTING SPECIFICATIONS FOR INJECTION CARBURETOR MODEL PS-5C P/L 391318-9

ENGINE MODEL: E-225-4-8; O-470-11-13 DRAWING NUMBER: 391318
ENGINE MFGR.: Continental DATE ISSUED: 1-7-58

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	366141	1.	
2.	Jet, Main Metering	390188	2.	Size: 43
3.	Seat, Idle & Power Enrichment Valve	383886	3.	
4.	Diaphragm Assembly, Idle & Power Enrichment	364969	4.	
5.	Seat, Manual Mixture Control Needle	384967	5.	
6.	Valve, Manual Mixture Control	366298	6.	
7.	Needle & Seat Assy., Poppet Valve	366462	7.	
	Seat, Poppet Valve	366381		
	Valve, Poppet	366138		
8.	Seat Assembly, Discharge Nozzle	366476	8.	
	Seat, Discharge Nozzle	383924		
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 Drilled in 383483 Reg. Cover
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1.625" ± .002"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assembly, Pump Relief	364164	14.	
15.	Automatic Mixture Control Assembly		15.	Not used
16.	Strainer Assembly, Fuel	366362	16.	
17.	Lever, Throttle	390248	17.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125" ± .010" ID: .296" ± .003"
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625" ± .031" OD: .4375" ± .010"
3.	Spring, Discharge Nozzle	393515	3.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
4.	Spring, Manual Mixture Control	366147	4.	Free Length: 2.344" ± .063" ID: .193" ± .005"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" ID: .516" ± .010"
6.	Spring, Poppet Valve	383518	6.	Free Length: .875" ± .010" OD: .188" ± .003"
7.	Spring, Regulator Diaphragm	383519	7.	Free Length: 1.937" ± .062" ID: .938" - 0 + .031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375" ± .015" OD: .301" ± .003"
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
10.	Spring, Loose Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-61. Carburetor Specification Sheet, Parts List 391318-9

STROMBERG INJECTION CARBURETOR MODEL PS-5C 391318

HISTORY OF SPECIFICATIONS AND FLOW UNITS

ENGINE MFGR.: Continental

ENGINE MODEL: E-225-4-8
O-470-11-13

ISSUE 1		
Serial 1	7-25-50	First production release.
Serial 2	8-10-50	Gasoline strainer assembly 383520 replaced by 364858 to provide satisfactory straining of fuel.
ISSUE 2		
Serial 3	8-30-50	Loose lever assembly 364378 replaced by 364974 to facilitate assembly 364164 assembly accelerating pump relief valve added to improve decelerating engine operating characteristics.
Serial 4	10- 2-50	Regulator cover screws 383513 replaced by 383531 and 384018, idle rod cover screws replaced by 384018 to insure more thread engagement of screw in body.
Serial 5	10- 2-50	Parts list record change only.
Serial 6	12-14-50	Vacuum channel plug P-6387 replaced by 394285 to eliminate unnecessary machine operation.
Serial 7	12-21-50	Parts list record change only.
Serial 8	1-16-51	Parts list record change only.
Serial 9	7-30-51	Regulator needle valve seat and plug gasket P-3260 replaced by P-5319 to facilitate assembly.
Serial 10	4-30-52	Gasket P-22851 replaced by 365533 to facilitate purchase.
ISSUE 3		
Serial 11	11-15-52	Idle and power enrichment valve assembly 384675 replaced by 364969 to provide better engine performance of idle.
ISSUE 4		
Serial 12	8-21-53	Airbox flow limit changed to accomplish a delayed enrichment valve opening point. Carburetor now suitable for use on Continental O-470-11 and -13 engines, Cessna L-19, and Beech T-34 aircraft.
Serial 13	9-22-53	Decal - Rubber parts cure date 364563 replaced by 187406.
Serial 14	10-19-53	Cap - Discharge Nozzle 385035 added.
Serial 15	11-23-53	Parts list correction.
ISSUE 5		
Serial 16	2-15-54	Spacer and bushing Assembly 383946 was changed to Assy. P/N 365796 to incorporate a taper seat plug at pressure connection instead of 1/8" pipe plug, which caused possible casting fracture if over torqued during installation.
Serial 17	10- 1-54	Regulator Diaphragm Assembly P/N 383449 changed to P/N 383974 to standardize on one assembly.
Serial 18	10-21-55	To conform to standard practice of using shipping plugs at fuel pressure and vapor vent connections instead of brass 1/8" pipe plugs.
Serial 19	12- 6-55	To conform to design improvement, Manual mixture control needle P/N 384968 changed to P/N 366291. Pin and lead ball removed and replaced by 366290 Pin-dog point.
Serial 20	2- 8-56	Vapor outlet connection pipe plug changed from brass to aluminum.
Serial 21	6- 6-56	Discontinued scribing discharge diaphragm adjustment.
Serial 22	7-26-56	Poppet valve seat changed to permit addition of poppet valve strainer if required.
Serial 23	7-26-56	Parts list correction.
ISSUE 6		
Serial 24	10- 1-56	Incorporation of vinyl coated air diaphragm for ozone protection.
Serial 25	11-28-56	Incorporation of matched and leak tested discharge nozzle needle valve and seat.
Serial 26	12-26-56	Added shipping date decalcomania.
Serial 27	1- 7-57	Poppet valve seat and plug gaskets changed from fiber to aluminum.
ISSUE 7		
Serial 28	1- 7-57	Changed discharge diaphragm cover, discharge diaphragm screw, idle speed adjustment, idle control rod adjustment, and throttle stop assemblies from 32 to 56 threads per inch to provide more precise adjustments.
Serial 29	2-21-57	Main metering jet gasket changed from fiber to aluminum material.
ISSUE 8		
Serial 30	7-15-57	Changed to steel throttle shaft and Oilite throttle shaft bushings for increased service life. Added 80 mesh poppet valve strainer and changed to 100 mesh fuel inlet strainer.

Figure 4-62. Carburetor History Sheet, Parts List 391318-9 (Sheet 1 of 2)

STROMBERG INJECTION CARBURETOR MODEL PS-5C 391318 (Cont'd.)

HISTORY OF SPECIFICATIONS AND FLOW UNITS (Continued)

ISSUE 8 (Cont'd.)		
Serial 31	8-19-57	Parts list correction.
Serial 32	9-13-57	Parts list correction.
ISSUE 9		
Serial 33	11- 6-57	Incorporation of hard parts at wear points to increase service life.
Serial 34	1- 7-58	Fuel inlet strainer changed to include wire support to prevent strainer from crushing.

Note: (1) Flow bench test limits for Issues 4 through 9 are identical.

(2) This specification and flow sheet corrects an error that existed in the burette limits of previously published limits for Issues 5, 6 and 7.

Figure 4-62. Carburetor History Sheet, Parts List 391318-9 (Sheet 2 of 2)

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MODEL PS-5C INJECTION CARBURETOR PARTS LIST NO. 391318-10

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET.

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual.

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual. Refer to 391318-10 Specification Sheet (figure 4-63) for information on metering variables for this issue.

COMPONENT DIFFERENCES.

a. General. Refer to figure 2-9.

(1) Lever assembly (83) uses a different bushing (84) that is hardened to decrease wear.

(2) Strainer assembly (91) has a strainer support incorporated to prevent strainer from crushing.

(3) Valve and seat assembly (95) uses harder parts to decrease wear.

(4) Diaphragm assembly (103) has harder parts incorporated to decrease wear.

(5) Link assembly (106) has harder parts incorporated to decrease wear.

(6) Plug (107) has different inside diameter dimensions.

(7) Spring (108) is shorter.

(8) Valve (109) is made of material to reduce wear.

(9) Spacer (113) has a harder bushing (114) incorporated to decrease wear.

(10) Diaphragm (118) uses harder parts to decrease wear, and the diaphragm is impregnated with vinyl for greater resistance to ozone attack.

OVERHAUL PROCEDURES. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement, Lubrication, and Reassembly procedures are the same as outlined in Section II.

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-63) and History Sheet (figure 4-64). Flow limits are the same as for the carburetor in the basic technical manual. Refer to figures 3-5 and 3-6 for limits.

PREPARATION FOR STORAGE, PACKAGING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this technical manual.

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SETTING SPECIFICATIONS FOR INJECTION CARBURETOR MODEL PS-5C P/L 391318-10

ENGINE MODEL: E-225-4-8; O-470-11-13 DRAWING NUMBER: 391318
ENGINE MFGR.: Continental DATE ISSUED: 6-26-58

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	366141	1.	
2.	Jet, Main Metering	390188	2.	Size: 43
3.	Seat, Idle & Power Enrichment Valve	383886	3.	
4.	Diaphragm Assembly, Idle & Power Enrichment	364969	4.	
5.	Seat, Manual Mixture Control Needle	384967	5.	
6.	Valve, Manual Mixture Control	366298	6.	
7.	Needle & Seat Assy., Poppet Valve	366462	7.	
	Seat, Poppet Valve	366381		
	Valve, Poppet	366138		
8.	Seat Assembly, Discharge Nozzle	366476	8.	
	Seat, Discharge Nozzle	383924		
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 Drilled in 383483 Reg. Cover
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1.625" ± .002"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assembly, Pump Relief	364164	14.	
15.	Automatic Mixture Control Assembly		15.	Not used
16.	Strainer Assembly, Fuel	366362	16.	
17.	Lever, Throttle	390248	17.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125" ± .010" ID: .296" ± .003"
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625" ± .031" OD: .4375" ± .010"
3.	Spring, Discharge Nozzle	393515	3.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
4.	Spring, Manual Mixture Control	366147	4.	Free Length: 2.344" ± .063" ID: .193" ± .005"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" ID: .516" ± .010"
6.	Spring, Poppet Valve	383518	6.	Free Length: .875" ± .010" OD: .188" ± .003"
7.	Spring, Regulator Diaphragm	383519	7.	Free Length: 1.937" ± .062" ID: .938" - 0 + .031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375" ± .015" OD: .301" ± .003"
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
10.	Spring, Loose Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-63. Carburetor Specification Sheet, Parts List 391318-10

STROMBERG INJECTION CARBURETOR MODEL PS-5C 391318

HISTORY OF SPECIFICATIONS AND FLOW UNITS

ENGINE MFGR.: Continental

ENGINE MODEL: E-225-4-8
O-470-11-13

ISSUE 1		
Serial 1	7-25-50	First production release.
Serial 2	8-10-50	Gasoline strainer assembly 383520 replaced by 364858 to provide satisfactory straining of fuel.
ISSUE 2		
Serial 3	8-30-50	Loose lever assembly 364378 replaced by 364974 to facilitate assembly 364164 assembly accelerating pump relief valve added to improve decelerating engine operating characteristics.
Serial 4	10- 2-50	Regulator cover screws 383513 replaced by 383531 and 384018, idle rod cover screws replaced by 384018 to insure more thread engagement of screw in body.
Serial 5	10- 2-50	Parts list record change only.
Serial 6	12-14-50	Vacuum channel plug P-6387 replaced by 394285 to eliminate unnecessary machine operation.
Serial 7	12-21-50	Parts list record change only.
Serial 8	1-16-51	Parts list record change only.
Serial 9	7-30-51	Regulator needle valve seat and plug gasket P-3260 replaced by P-5319 to facilitate assembly.
Serial 10	4-30-52	Gasket P-22851 replaced by 365533 to facilitate purchase.
ISSUE 3		
Serial 11	11-15-52	Idle and power enrichment valve assembly 384675 replaced by 364969 to provide better engine performance of idle.
ISSUE 4		
Serial 12	8-21-53	Airbox flow limit changed to accomplish a delayed enrichment valve opening point. Carburetor now suitable for use on Continental O-470-11 and -13 engines, Cessna L-19, and Beech T-34 aircraft.
Serial 13	9-22-53	Decal - Rubber parts cure date 364563 replaced by 187406.
Serial 14	10-19-53	Cap - Discharge Nozzle 385035 added.
Serial 15	11-23-53	Parts list correction.
ISSUE 5		
Serial 16	2-15-54	Spacer and bushing Assembly 383946 was changed to Assy. P/N 365796 to incorporate a taper seat plug at pressure connection instead of 1/8" pipe plug, which caused possible casting fracture if over torqued during installation.
Serial 17	10- 1-54	Regulator Diaphragm Assembly P/N 383449 changed to P/N 383974 to standardize on one assembly.
Serial 18	10-21-55	To conform to standard practice of using shipping plugs at fuel pressure and vapor vent connections instead of brass 1/8" pipe plugs.
Serial 19	12- 6-55	To conform to design improvement, Manual mixture control needle P/N 384968 changed to P/N 366291. Pin and lead ball removed and replaced by 366290 Pin-dog point.
Serial 20	2- 8-56	Vapor outlet connection pipe plug changed from brass to aluminum.
Serial 21	6- 6-56	Discontinued scribing discharge diaphragm adjustment.
Serial 22	7-26-56	Poppet valve seat changed to permit addition of poppet valve strainer if required.
Serial 23	7-26-56	Parts list correction.
ISSUE 6		
Serial 24	10- 1-56	Incorporation of vinyl coated air diaphragm for ozone protection.
Serial 25	11-28-56	Incorporation of matched and leak tested discharge nozzle needle valve and seat.
Serial 26	12-26-56	Added shipping date decalcomania.
Serial 27	1- 7-57	Poppet valve seat and plug gaskets changed from fiber to aluminum.
ISSUE 7		
Serial 28	1- 7-57	Changed discharge diaphragm cover, discharge diaphragm screw, idle speed adjustment, idle control rod adjustment, and throttle stop assemblies from 32 to 56 threads per inch to provide more precise adjustments.
Serial 29	2-21-57	Main metering jet gasket changed from fiber to aluminum material.
ISSUE 8		
Serial 30	7-15-57	Changed to steel throttle shaft and Oilite throttle shaft bushings for increased service life. Added 80 mesh poppet valve strainer and changed to 100 mesh fuel inlet strainer.

Figure 4-64. Carburetor History Sheet, Parts List 391318-10 (Sheet 1 of 2)

STROMBERG INJECTION CARBURETOR MODEL PS-5C 391318 (Cont'd.)

HISTORY OF SPECIFICATIONS AND FLOW UNITS (Continued)

ISSUE 8 (Cont'd.)		
Serial 31	8-19-57	Parts list correction.
Serial 32	9-13-57	Parts list correction.
ISSUE 9		
Serial 33	11- 6-57	Incorporation of hard parts at wear points to increase service life.
Serial 34	1- 7-58	Fuel inlet strainer changed to include wire support to prevent strainer from crushing.
Serial 35	2-21-58	Regulator (outer) diaphragm part number changed to identify minor manufacturing change.
ISSUE 10		
Serial 36	5-20-58	Incorporation of vinyl impregnated (red) regulator air diaphragm to provide greater resistance to ozone attack.

Note: (1) Flow bench test limits for Issues 4 through 10 are identical.

(2) This specification and flow sheet corrects an error that existed in the burette limits of previously published limits for Issues 5, 6 and 7.

Figure 4-64. Carburetor History Sheet, Parts List 391318-10 (Sheet 2 of 2)

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THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET.

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual.

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual. Refer to 391318-11 Specification Sheet (figure 4-65) for information on metering variables for this issue.

COMPONENT DIFFERENCES.

a. General. Refer to figure 2-9.

(1) Cover assembly (53), screw assembly (52) and locking cup (3) have been changed to provide a limited field adjustment for the discharge nozzle. The new cover assembly has a pin installed in the bushing that acts as a stop when making an adjustment.

(2) Lever assembly (83) uses a different bushing (84) that is hardened to decrease wear.

(3) Strainer assembly (91) has a strainer support incorporated to prevent strainer from crushing.

(4) Valve and seat assembly (95) uses harder parts to decrease wear.

(5) Diaphragm assembly (103) has harder parts incorporated to decrease wear.

(6) Link assembly (106) has harder parts incorporated to decrease wear.

(7) Plug (107) has different inside diameter dimensions.

(8) Spring (108) is shorter.

(9) Valve (109) is made of material to reduce wear.

(10) Spacer (113) has a harder bushing (114) incorporated to decrease wear.

(11) Diaphragm (118) uses harder parts to decrease wear, and the diaphragm is impregnated with vinyl for greater resistance to ozone attack.

OVERHAUL PROCEDURES.

a. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement and Lubrication procedures are the same as outlined in Section II.

b. Reassembly. The limit pin shall be installed in one of the seven drilled holes in the adjusting screw bushing in such a position that the adjusting screw assembly may be rotated one-half turn in either direction.

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-65) and History Sheet (figure 4-66). Flow limits are the same as for the carburetor in the basic technical manual. Refer to figures 3-5 and 3-6 for limits.

PREPARATION FOR STORAGE, PACKAGING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section II of this technical manual.

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MODEL: PS-5C
Injection Carburetor

SETTING SPECIFICATIONS

P/L 391318-11
Printed 5 August 1959

ENGINE MODEL: E-225-4-8; O-470-11-13
ENGINE MFGR.: Continental

DRAWING NUMBER: 391318
DATE ISSUED: 7-1-59

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	366141	1.	
2.	Jet, Main Metering	390188	2.	Size: #43
3.	Seat, Idle & Power Enrichment Valve	383886	3.	
4.	Diaphragm Assembly, Idle & Power Enrichment	364969	4.	
5.	Seat, Manual Mixture Control Needle	384967	5.	
6.	Valve, Manual Mixture Control	366298	6.	
7.	Needle & Seat Assy., Poppet Valve	366462	7.	
	Seat, Poppet Valve	366381		
	Valve, Poppet	366138		
8.	Seat Assembly, Discharge Nozzle	366476	8.	
	Seat, Discharge Nozzle	383924		
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: #44
11.	Vapor Vent		11.	Size: #70 Drilled in 383483 Reg. Cover
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1.625" ± .002"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assembly, Pump Relief	364164	14.	
15.	Automatic Mixture Control Assembly		15.	Not used.
16.	Strainer Assembly, Fuel	366362	16.	
17.	Lever, Throttle	390248	17.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125" ± .010" ID: .296" ± .003"
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625" ± .031" OD: .4375" ± .010"
3.	Spring, Discharge Nozzle	393515	3.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
4.	Spring, Manual Mixture Control	366147	4.	Free Length: 2.344" ± .063" ID: .193" ± .005"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" ID: .516" ± .010"
6.	Spring, Poppet Valve	383518	6.	Free Length: .875" ± .010" OD: .188" ± .003"
7.	Spring, Regulator Diaphragm	383519	7.	Free Length: 1.937" ± .062" ID: .938" - 0 + .031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375" ± .015" OD: .301" ± .003"
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875" ± .062" ID: .516" - 0 + .016"
10.	Spring, Loose Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-65. Carburetor Specification Sheet, Parts List 391318-11

P/L 391318 | HISTORY OF CHANGES | MODEL: PS-5C Injection Carburetor

ENGINE MFGR.: Continental | ENGINE MODEL: E-225-4-8; O-470-11-13

ISSUE 1		
Serial 1	7-25-50	First production release.
Serial 2	8-10-50	Gasoline strainer assembly 383520 replaced by 364858 to provide satisfactory straining of fuel.
ISSUE 2		
Serial 3	8-30-50	Loose lever assembly 364378 replaced by 364974 to facilitate assembly 364164 assembly accelerating pump relief valve added to improve decelerating engine operating characteristics.
Serial 4	10- 2-50	Regulator cover screws 383513 replaced by 383531 and 384018, idle rod cover screws replaced by 384018 to insure more thread engagement of screw in body.
Serial 5	10- 2-50	Parts list record change only.
Serial 6	12-14-50	Vacuum channel plug P-6387 replaced by 394285 to eliminate unnecessary machine operation.
Serial 7	12-21-50	Parts list record change only.
Serial 8	1-16-51	Parts list record change only.
Serial 9	7-30-51	Regulator needle valve seat and plug gasket P-3260 replaced by P-5319 to facilitate assembly.
Serial 10	4-30-52	Gasket P-22851 replaced by 365533 to facilitate purchase.
ISSUE 3		
Serial 11	11-15-52	Idle and power enrichment valve assembly 384675 replaced by 364969 to provide better engine performance of idle.
ISSUE 4		
Serial 12	8-21-53	Airbox flow limit changed to accomplish a delayed enrichment valve opening point. Carburetor now suitable for use on Continental O-470-11 and -13 engines, Cessna L-19, and Beech T-34 aircraft.
Serial 13	9-22-53	Decal - Rubber parts cure date 364563 replaced by 187406.
Serial 14	10-19-53	Cap - Discharge Nozzle 385035 added.
Serial 15	11-23-53	Parts list correction.
ISSUE 5		
Serial 16	2-15-54	Spacer and bushing Assembly 383946 was changed to Assy. P/N 365796 to incorporate a taper seat plug at pressure connection instead of 1/8" pipe plug, which caused possible casting fracture if over torqued during installation.
Serial 17	10- 1-54	Regulator Diaphragm Assembly P/N 383449 changed to P/N 383974 to standardize on one assembly.
Serial 18	10-21-55	To conform to standard practice of using shipping plugs at fuel pressure and vapor vent connections instead of brass 1/8" pipe plugs.
Serial 19	12- 6-55	To conform to design improvement, Manual mixture control needle P/N 384968 changed to P/N 366291. Pin and lead ball removed and replaced by 366290 Pin-dog point.
Serial 20	2- 8-56	Vapor outlet connection pipe plug changed from brass to aluminum.
Serial 21	6- 6-56	Discontinued scribing discharge diaphragm adjustment.
Serial 22	7-26-56	Poppet valve seat changed to permit addition of poppet valve strainer if required.
Serial 23	7-26-56	Parts list correction.
ISSUE 6		
Serial 24	10- 1-56	Incorporation of vinyl coated air diaphragm for ozone protection.
Serial 25	11-28-56	Incorporation of matched and leak tested discharge nozzle needle valve and seat.
Serial 26	12-26-56	Added shipping date decalcomania.
Serial 27	1- 7-57	Poppet valve seat and plug gaskets changed from fiber to aluminum.
ISSUE 7		
Serial 28	1- 7-57	Changed discharge diaphragm cover, discharge diaphragm screw, idle speed adjustment, idle control rod adjustment, and throttle stop assemblies from 32 to 56 threads per inch to provide more precise adjustments.
Serial 29	2-21-57	Main metering jet gasket changed from fiber to aluminum material
ISSUE 8		
Serial 30	7-15-57	Changed to steel throttle shaft and Oilite throttle shaft bushings for increased service life. Added 80 mesh poppet valve strainer and changed to 100 mesh fuel inlet strainer.

Figure 4-66. Carburetor History Sheet, Parts List 391318-11 (Sheet 1 of 2)

MODEL: PS-5C
Injection Carburetor

HISTORY OF CHANGES (Cont'd.)

P/L 391318

ISSUE 8		
Serial 31	8-19-57	Parts list correction.
Serial 32	9-13-57	Parts list correction.
ISSUE 9		
Serial 33	11- 6-57	Incorporation of hard parts at wear points to increase service life.
Serial 34	1- 7-58	Fuel inlet strainer changed to include wire support to prevent strainer from crushing.
Serial 35	2-21-58	Regulator (outer) diaphragm part number changed to identify minor manufacturing change.
ISSUE 10		
Serial 36	5-20-58	Incorporation of vinyl impregnated (red) regulator air diaphragm to provide greater resistance to ozone attack.
ISSUE 11		
Serial 37	12- 4-58	Incorporation of discharge nozzle adjustment limiter to provide a safe field adjustment for the off idle range.
Serial 38	7- 1-59	Parts List correction.

Note: Flow bench test limits for Issues 4 through 11 are identical.

Figure 4-66. Carburetor History Sheet, Parts List 391318-11 (Sheet 2 of 2)

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MODEL PS-5C INJECTION CARBURETOR PARTS LIST NO. 391629-7

THE INSTRUCTIONS CONTAINED IN PRECEDING SECTIONS OF THIS TECHNICAL MANUAL APPLY EXCEPT FOR THE DIFFERENCES LISTED IN THIS DATA SHEET.

INTRODUCTION. Same as for Section I of this technical manual.

SPECIAL TOOLS. The special tools used are the same as listed in Section II of this technical manual.

GENERAL INSTRUCTIONS. Same as outlined in Section II of this technical manual. Refer to 391318-11 Specification Sheet (figure 4-67) for information on metering variables for this issue.

COMPONENT DIFFERENCES.

a. General. Refer to figure 2-9.

(1) Cover assembly (53), screw assembly (52) and locking cup (3) have been changed to provide a limited field adjustment for the discharge nozzle. The new cover assembly has a pin installed in the bushing that acts as a stop when making an adjustment.

(2) Lever assembly (83) has a different contour and it has a hardened bushing (84) to reduce wear.

(3) Strainer assembly (91) has a strainer support incorporated to prevent strainer from crushing.

(4) Valve and seat assembly (95) uses harder parts to reduce wear.

(5) Diaphragm assembly (103) has harder parts incorporated to decrease wear.

(6) Link assembly (106) has harder parts incorporated to decrease wear.

(7) Plug (107) has different inside diameter dimensions.

(8) Spring (108) is shorter.

(9) Valve (109) is made of material to reduce wear.

(10) Spacer (113) has a harder bushing (114) incorporated to decrease wear.

(11) Diaphragm (118) uses harder parts to decrease wear and the diaphragm is impregnated with vinyl for greater resistance to ozone attack.

OVERHAUL PROCEDURES.

a. Disassembly, Cleaning, Inspection, Testing, Repair or Replacement and Lubrication procedures are the same as outlined in Section II.

b. Reassembly. The limit pin shall be installed in one of the seven drilled holes in the adjusting screw bushing in such a position that the adjusting screw assembly may be rotated one-half turn in either direction.

TEST PROCEDURE. Same as outlined in Section III of this technical manual except use Specification Sheet (figure 4-67), History Sheet (figure 4-70) and Flow Limit Sheets (figures 4-68 and 4-69).

PREPARATION FOR STORAGE, PACKAGING AND RECONDITIONING AFTER STORAGE. Same as outlined in Section III of this technical manual.

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SETTING SPECIFICATIONS FOR INJECTION CARBURETOR PS-5C 391629-7

ENGINE MODEL: O-470-15 DRAWING NUMBER: 391629
ENGINE MFGR.: Continental DATE ISSUED: 1-29-59

ITEM NO.	DESCRIPTION	PART NUMBER	ITEM NO.	SIZE, SETTING OR REMARKS
1.	Main Body Assembly	366141	1.	
2.	Jet, Main Metering	390188	2.	Size: 43
3.	Seat, Idle & Power Enrichment Valve	383886	3.	
4.	Diaphragm Assembly, Idle & Power Enrichment	364969	4.	
5.	Seat, Manual Mixture Control	384967	5.	
6.	Valve, Manual Mixture Control Needle	366298	6.	
7.	Needle & Seat Assy., Poppet Valve	366462	7.	
	Seat, Poppet Valve	366381		
	Valve, Poppet	366138		
8.	Seat Assembly, Discharge Nozzle	366476	8.	
	Seat, Discharge Nozzle	383924		
	Valve, Discharge Nozzle	383474		
9.	Bleeder, Discharge Nozzle Air	383922	9.	
10.	Reducer, Vacuum	384606	10.	Size: 44
11.	Vapor Vent		11.	Size: No. 70 drilled in 383483 Reg. Dia. Body
12.	Venturi Throat Assembly	384599	12.	Throat Diameter: 1-5/8"
13.	Washer, Regulator Spring Adjustment	384819	13.	
14.	Valve Assembly, Pump Relief	364164	14.	
15.	Automatic Mixture Control Assembly		15.	Not used.
16.	Strainer Assembly, Fuel	366362	16.	
17.	Lever, Throttle	390248	17.	
18.	Lever Assy., Manual Mixture Control	366487	18.	
	SPRING IDENTIFICATION			
1.	Spring, Idle Cut-Off Plunger	383512	1.	Free Length: .8125" ± .010" ID .296" ± .003"
2.	Spring, Discharge Needle	383514	2.	Free Length: .5625" ± .031" OD .4375" ± .010"
3.	Spring, Discharge Nozzle	383515	3.	Free Length: 1.875" ± .062" ID .516" -0 +.016"
4.	Spring, Manual Mixture Control	366147	4.	Free Length: 2.344" ± .063" ID .193" ± .005"
5.	Spring, Pump Diaphragm	383517	5.	Free Length: 2.500" ± .0625" ID .516" ± .010"
6.	Spring, Poppet Valve	383518	6.	Free Length: .875" ± .010" OD .188" ± .003"
7.	Spring, Regulator	383519	7.	Free Length: 1.937" ± .062" ID .938" -0 +.031"
8.	Spring, Idle Needle Valve	384629	8.	Free Length: .375" ± .015" OD .301" ± .003"
9.	Spring, Idle & Enrichment Valve Diaphragm	383515	9.	Free Length: 1.875" ± .062" ID .516" -0 +.016"
10.	Spring, Losse Lever to Throttle Stop	383853	10.	
11.	Spring, Idle Cut-Off Lever	384141	11.	

Figure 4-67. Carburetor Specification Sheet, Parts List 391629-7

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470-15
Engine Mfgr.: Continental
Engine Mfgr. Setting:

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on .734 ± .002 Specific Gravity at 75 ± 5°F.
NAPHTHA

Parts List No.: 391629-7
Carb. Model: PS-5C
Date Issued: 1-29-59
Flow Limits for Issues 1 through 7 are identical.

Test Point No.		1			2	3	4	5	6	7	8	9	10
Metering Suction Inches of Water		0.7			0.7	2.2	6.3	12.2	12.2	26.4	28.6	34.3	26.4
Corresponding Air Flow Lb./Hr.		200			200	400	600	800	800	1150	1200	1300	1150
Mixture Control Lever Position		R			ICO	R	R	R	R	R	R	R	R
Throttle Position		WO			WO	1/2	1/2	1/2	1/2	1/2	WO	WO	1/2
Burette	Volume	150				200	250	300	300	500	500	500	500
Time	Min.	29.2				34.8	31.3	28.3	21.4	32.4	28.1	26.2	32.4
Limits	Max.	31.0				37.0	33.2	30.0	23.8	34.4	29.8	27.3	34.4
In Seconds	Obs.												
Flowmeter	Min.	28.2			No	31.5	43.9	58.1	73.5	84.6	97.6	106.7	84.6
Limits	Max.	29.9			Flow	33.5	46.6	61.7	81.7	89.8	103.6	111.1	89.8
In Lbs./Hr.	Obs.												
Metering	Min.					10.75		34.1		69.0			
Head	Max.					11.65		36.9		74.5			
Inches of Fuel	Obs.												

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Lean) Limit:
High (Rich) Limit:

Notes: 1. At check point 6, open vapor vent and measure total flow. All other check points vapor vent is closed.

2. At check point 7, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 28° from the wide open position. Use T-25941.

Figure 4-68 Carburetor Flow Bench Test Sheet (Naphtha) Parts List 391629-7

INJECTION CARBURETOR FLOW BENCH TEST

Engine Model: O-470-15
Engine Mfgr.: Continental
Engine Mfgr. Setting:

Fuel Inlet Pressure: 10 psi
Nozzle Pressure:
Limits Based on .692 ± .002 Specific Gravity at 75 ± 5 °F.

Parts List No.: 391629-7
Carb. Model: PS-5C
Date Issued: 1-29-59

HEPTANE

Flow Limits for Issues 1 through 7 are identical.

Test Point No.		1				2	3	4	5	6	7	8	9	10								
Metering Suction Inches of Water		0.7				0.7	2.2	6.3	12.2	12.2	26.4	28.6	34.3	26.4								
Corresponding Air Flow Lb./Hr.		200				200	400	600	800	800	1150	1200	1300	1150								
Mixture Control Lever Position		R				ICO	R	R	R	R	R	R	R	R								
Throttle Position		WO				WO	1/2	1/2	1/2	1/2	1/2	WO	WO	1/2								
Burette	Volume	150					200	250	300	300	500	500	500	500								
Time Limits In Seconds	Min.	27.8					33.0	30.0	27.4	20.6	31.6	27.2	25.4	31.6								
	Max.	29.5					34.8	32.0	29.2	22.9	33.6	28.9	26.5	33.6								
	Obs.																					
Flowmeter Limits In Lbs./Hr.	Min.	27.9				No	31.5	43.0	56.5	71.9	81.7	95.0	103.8	81.7								
	Max.	29.6				Flow	33.2	45.7	60.0	80.0	86.8	100.8	108.0	86.8								
	Obs.																					
Metering Head Inches of Fuel	Min.						11.55		36.5		73.5											
	Max.						12.45		39.4		79.4											
	Obs.																					

CAUTION

These limits are based on flow bench checking the carburetor in the same relative position as when it is installed on the engine in the aircraft.

PS-5C carburetors are up-draft units and are checked with the discharge nozzle up.

Multi-Point Automatic Mixture Control Calibration Limits:

Flow Method:

Date Issued:

Density:
Low (Rich) Limit:
High (Lean) Limit:

Notes: 1. At check point 6, open vapor vent and measure total flow. All other check points, vapor vent is closed.

2. At check point 7, position enrichment valve actuating screw to contact idle and enrichment valve stem with throttle valve set at 28° from the wide open position. Use T-25941.

Figure 4-69. Carburetor Flow Bench Test Sheet (Heptane), Parts List 391629-7

STROMBERG INJECTION CARBURETOR MODEL PS-5C

HISTORY OF SPECIFICATIONS AND FLOW UNITS

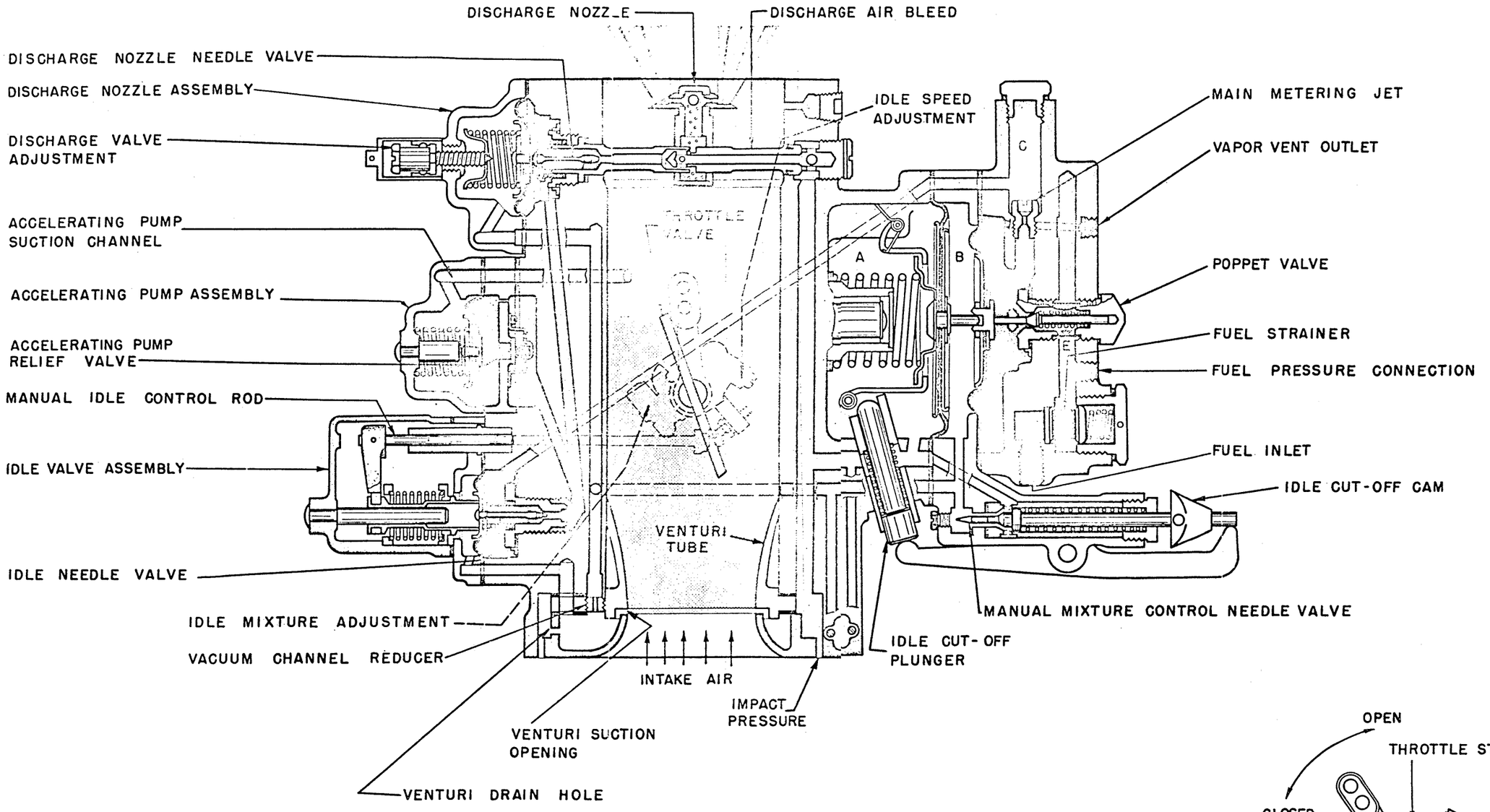
ENGINE MFGR.: Continental ENGINE MODEL: O-470-15

PS-5C carburetor, P/L 391629 is identical to P/L 391318 except that P/L 391629 incorporates a special Manual Mixture Control Lever to conform to airplane installation requirements.

ISSUE 1		
Serial 2	1-18-56	Released to production.
Serial 3	2-15-56	Installed 1/8" pipe plugs at vapor vent and fuel pressure connections in place of shipping plugs at request of the engine manufacturer.
Serial 4	2-27-56	To incorporate an improved design manual mixture control needle assembly. The idle cut-off cam is attached to the new needle using a 366290 pin-dog point, instead of the 383504 screw and lead ball configuration.
Serial 5	4- 2-56	Parts list correction.
Serial 6	6- 5-56	Discontinued scribing the discharge diaphragm adjusting screw.
Serial 7	7-31-56	Poppet valve seat changed to provide a seat that will accommodate a poppet screen if required.
Serial 8	10- 1-56	Elimination of diffusion tube attaching rivets which are no longer required.
ISSUE 2		
Serial 9	10- 1-56	Incorporation of vinyl coated air diaphragm 366408 to increase resistance to ozone deterioration.
ISSUE 3		
Serial 10	10- 1-56	Discharge diaphragm, idle speed, and idle control rod adjusting screws changed from 32 to 56 threads per inch to provide more precise adjustments.
Serial 11	11-27-56	Incorporation of matched discharge nozzle seat and discharge needle valve assembly to prevent fuel leakage.
Serial 12	12-26-56	Addition of shipping date decalcomania.
Serial 13	1- 7-57	Regulator needle valve seat and plug gaskets change from fiber to aluminum material.
Serial 14	2-20-57	Main metering jet plug gasket changed from fiber to aluminum material.
ISSUE 4		
Serial 15	6-24-57	Changed to steel throttle shaft and Oilite throttle shaft bushings. Changed to a 200 mesh inlet fuel strainer and added an 80 mesh poppet valve strainer.
Serial 16	7-11-57	Parts list correction.
Serial 17	1- 8-58	Fuel inlet strainer changed to include wire support to prevent strainer from crushing.
ISSUE 5		
Serial 18	3-27-58	Incorporation of hard parts at wear points to increase service life.
Serial 19	3-27-58	Regulator (outer) diaphragm assembly changed to part number 366876 to incorporate minor manufacturing change.
ISSUE 6		
Serial 20	5-23-58	Incorporation of vinyl impregnated (red) inner regulator diaphragm.
Serial 21	8-21-58	Main body assembly changed to standardize on part number.
ISSUE 7		
Serial 22	1-29-59	Incorporation of discharge nozzle adjustment limiter to provide a safe field adjustment for the off idle range.

NOTE: Flow bench test limits for Issues 1 through 7 are identical.

Figure 4-70. Carburetor History Sheet, Parts List 391629-7



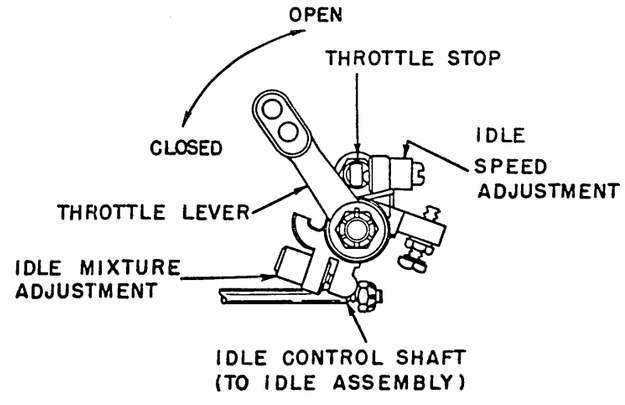


Figure 1-3. Schematic Diagram of the Model PS-5C Injection Carburetor

KEY TO FIGURE 2-9 (CONT)

118. Diaphragm Assembly
118A. Diaphragm Assembly
119. Plug - Taper seat
120. Pin, Straight - Headless
121. Spring - Idle cut-off lever
122. Retainer - Regulator diaphragm spring
123. Lever Assembly - Idle cut-off
124. Spring - Regulator diaphragm
125. Washer
126. Valve - Throttle
127. Screw - Machine
128. Washer - Lock
129. Lever
130. Pin - Cotter
131. Nut, Castellated - Hex
132. Spring - Push rod
133. Screw Assembly - Throttle adjustment
134. Screw Assembly - Throttle adjustment
135. Stop Assembly - Throttle
136. Pin, Tapered - Plain
137. Lever Assembly - Loose
138. Screw - Machine
139. Nut, Plain - Hex
140. Lever and Pin Assembly
141. Plug - Expansion
142. Shaft Assembly - Throttle
143. Body Assembly - Main
144. Screw - Stop block
145. Pin
146. Nut - Mixture control stop
147. Bushing
148. Bushing - Throttle stem
149. Bushing - Throttle shaft
150. Bushing - Guide
151. Washer - Nonmetallic
152. Insert - Screw thread
153. Pin, Straight - Headless
154. Bushing - Spring release
155. Body - Main

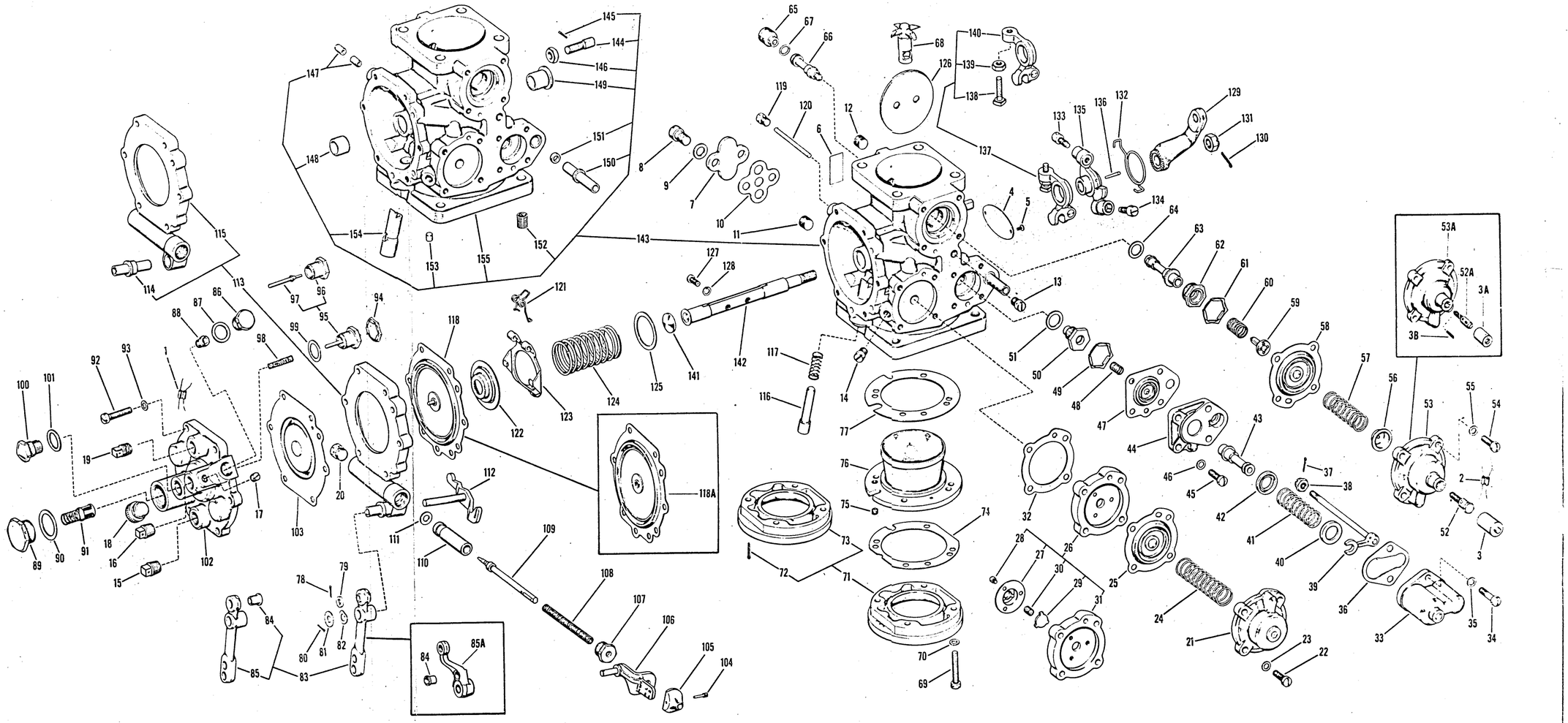


Figure 2-9. Exploded View of Model PS-5C Injection Carburetor

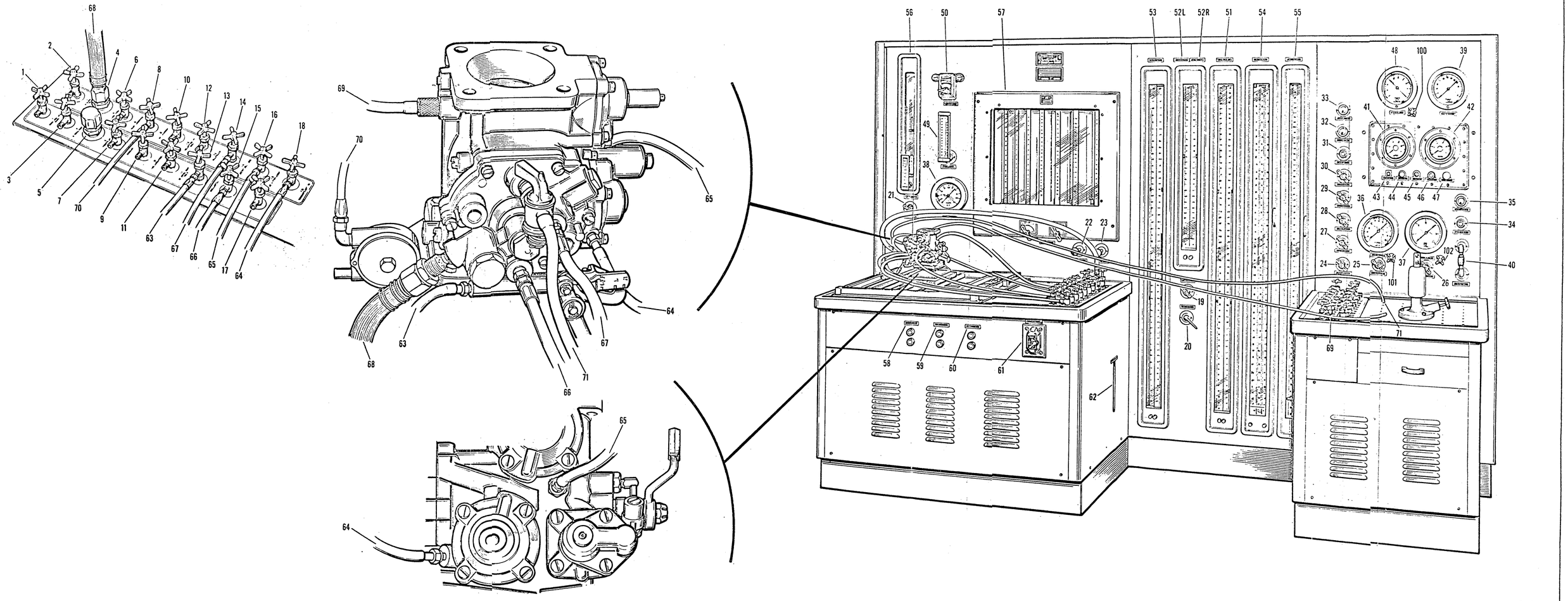


Figure 3-2. Flow Bench Hookup for Model PS-5C Injection Carburetor

KEY TO FIGURE 4-1 (CONT)

106. Pin - Dog point
107. Cam - Fuel cut-off
108. Link Assembly - Mixture control
109. Plug - Mixture control needle valve
110. Spring - Altitude control needle
111. Valve - Mixture control
112. Seat - Mixture control
113. Washer - Nonmetallic
114. Lever Assembly - Fuel cut-off
115. Regulator Assembly - Spacer
116. Bushing - Regulator spacer
117. Spacer - Regulator
118. Plunger - Spring release
119. Spring, Plunger - Idle cut-off
120. Diaphragm Assembly
121. Plug - Taper seat
122. Pin, Straight - Headless
123. Spring - Idle cut-off lever
124. Retainer - Regulator diaphragm spring
125. Lever Assembly - Idle cut-off
126. Spring - Regulator diaphragm
127. Washer
128. Valve - Throttle
129. Screw - Machine
130. Washer - Lock
131. Lever
132. Pin - Cotter
133. Nut, Castellated - Hex
134. Spring - Push rod
135. Screw Assembly - Throttle adjustment
136. Screw Assembly - Throttle adjustment
137. Stop Assembly - Throttle
138. Pin, Tapered - Plain
139. Lever Assembly - Loose
140. Screw - Machine
141. Nut, Plain - Hex
142. Lever and Pin Assembly
143. Plug - Expansion
144. Shaft Assembly - Throttle
145. Body Assembly - Main
146. Screw - Stop block
147. Pin
148. Nut - Mixture control stop
149. Bushing
150. Bushing - Throttle stem
151. Bushing - Throttle shaft
152. Bushing - Guide
153. Washer - Nonmetallic
154. Bushing - Spring release
155. Pin, Straight - Headless
156. Rivet - Solid
157. Insert - Screw thread
158. Body - Main

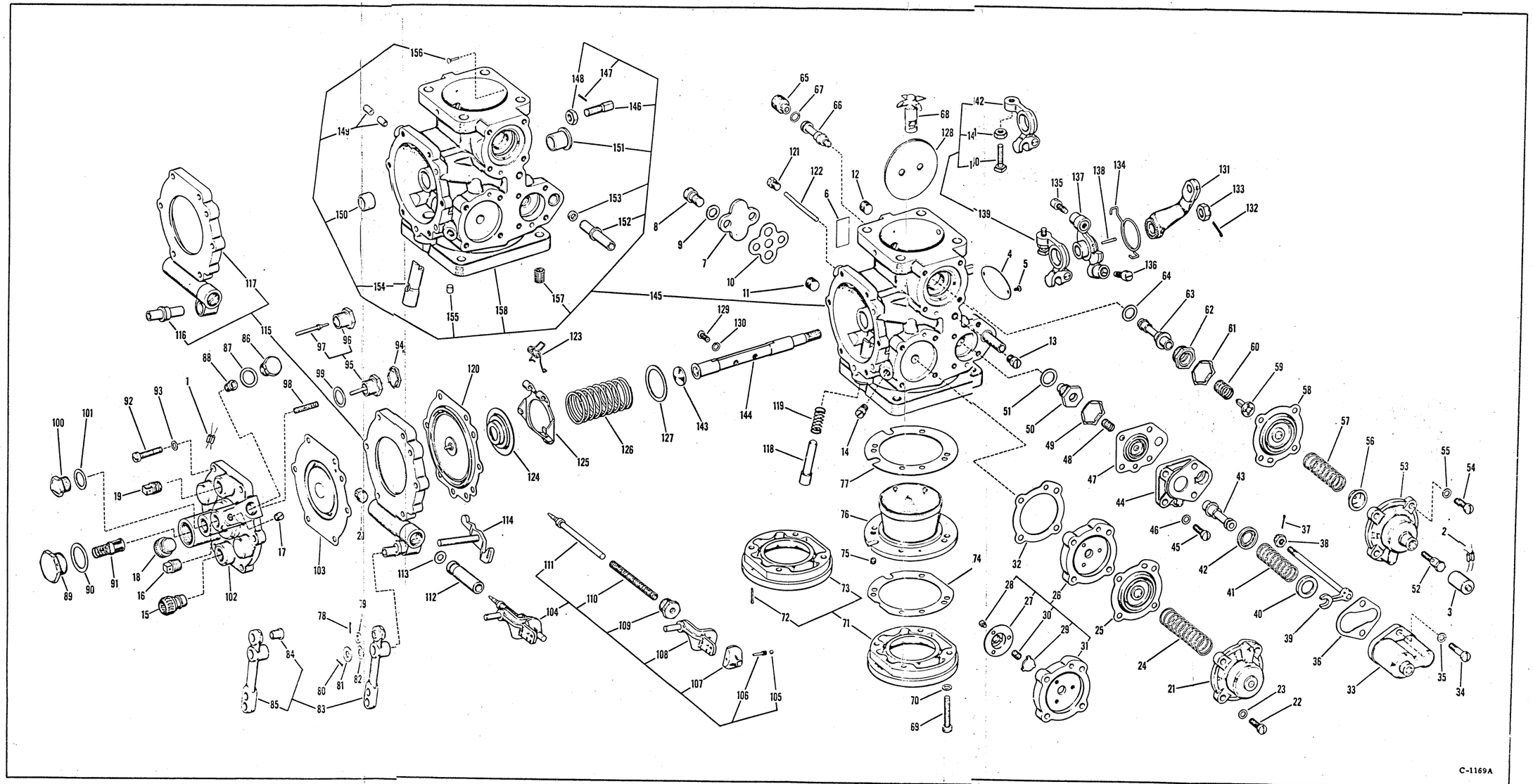


Figure 4-1. Exploded View of Model PS-5C Injection Carburetor

KEY TO FIGURE 4-6 (CONT)

124. Retainer - Regulator diaphragm spring
125. Lever Assembly - Idle cut-off
126. Spring - Regulator diaphragm
127. Washer
128. Valve - Throttle
129. Screw - Machine
130. Washer - Lock
131. Lever
132. Pin - Cotter
133. Nut, Castellated - Hex
134. Spring - Push rod
135. Screw Assembly - Throttle Adjustment
136. Screw Assembly - Throttle adjustment
137. Stop Assembly - Throttle
138. Pin, Tapered - Plain
139. Lever Assembly - Loose
140. Screw - Machine
141. Nut, Plain - Hex
142. Lever and Pin Assembly
143. Plug - Expansion
144. Shaft Assembly - Throttle
145. Body Assembly - Main
146. Screw - Stop block
147. Pin
148. Nut - Mixture control stop
149. Bushing
150. Bushing - Throttle stem
151. Bushing - Throttle shaft
152. Bushing - Guide
153. Washer - Nonmetallic
154. Bushing - Spring release
155. Pin, Straight - Headless
156. Rivet - Solid
157. Insert - Screw thread
158. Body - Main

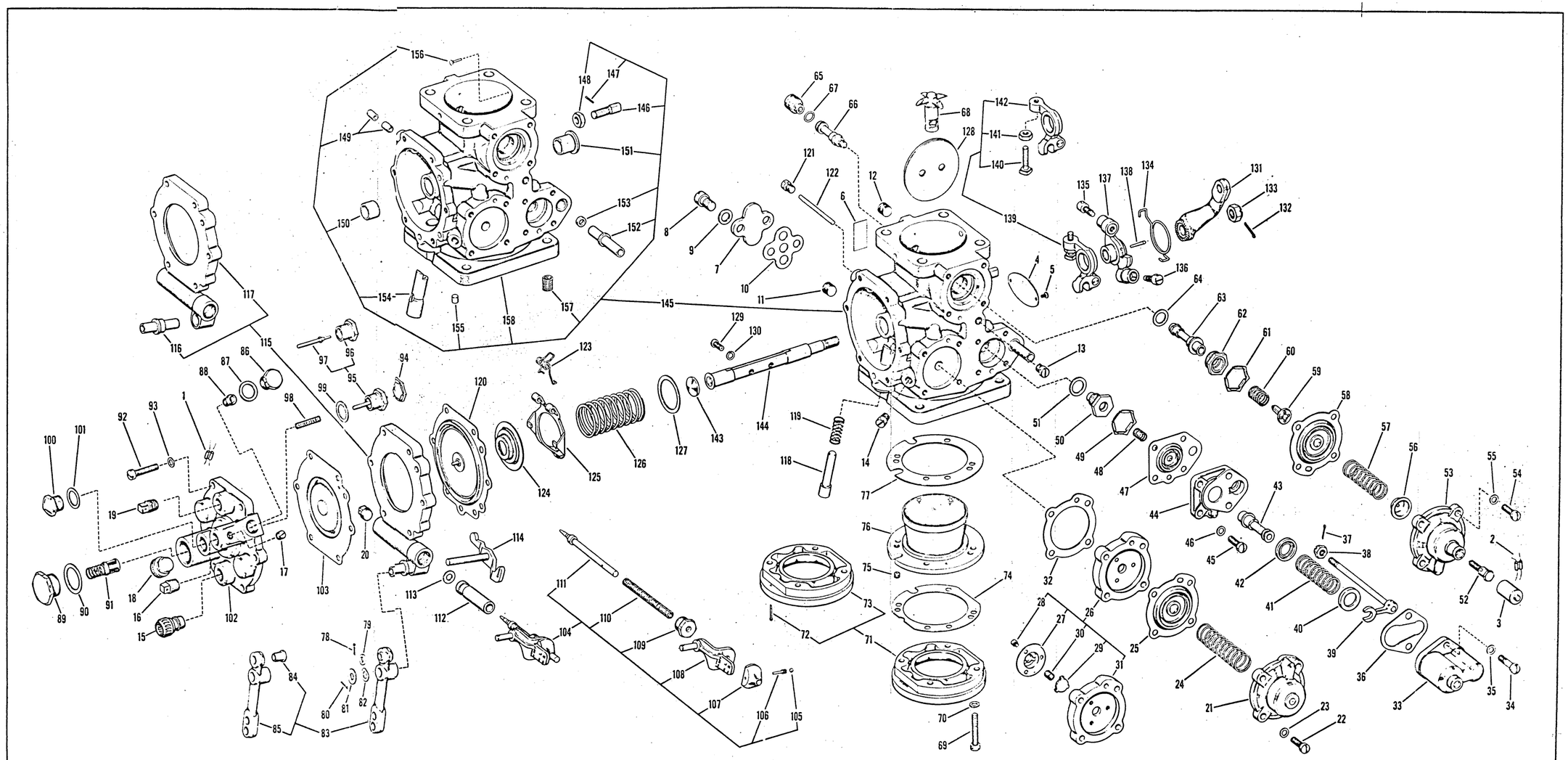


Figure 4-6. Exploded View of Model PS-5C Injection Carburetor

KEY TO FIGURE 4-21 (CONT)

123. Spring - Idle cut-off lever
124. Retainer - Regulator diaphragm spring
125. Lever Assembly - Idle cut-off
126. Spring - Regulator diaphragm
127. Washer
128. Valve - Throttle
129. Screw - Machine
130. Washer - Lock
131. Lever
132. Pin - Cotter
133. Nut, Castellated - Hex
134. Spring - Push rod
135. Screw Assembly - Throttle adjustment
136. Screw Assembly - Throttle adjustment
137. Stop Assembly - Throttle
138. Pin, Tapered - Plain
139. Lever Assembly - Loose
140. Screw - Machine
141. Nut, Plain - Hex
142. Lever and Pin Assembly
143. Plug - Expansion
144. Shaft Assembly - Throttle
145. Body Assembly - Main
146. Screw - Stop block
147. Pin
148. Nut - Mixture control stop
149. Bushing
150. Bushing - Throttle stem
151. Bushing - Throttle shaft
152. Bushing - Guide
153. Washer - Nonmetallic
154. Bushing - Spring release
155. Pin, Straight - Headless
156. Rivet - Solid
157. Insert - Screw thread
158. Body - Main

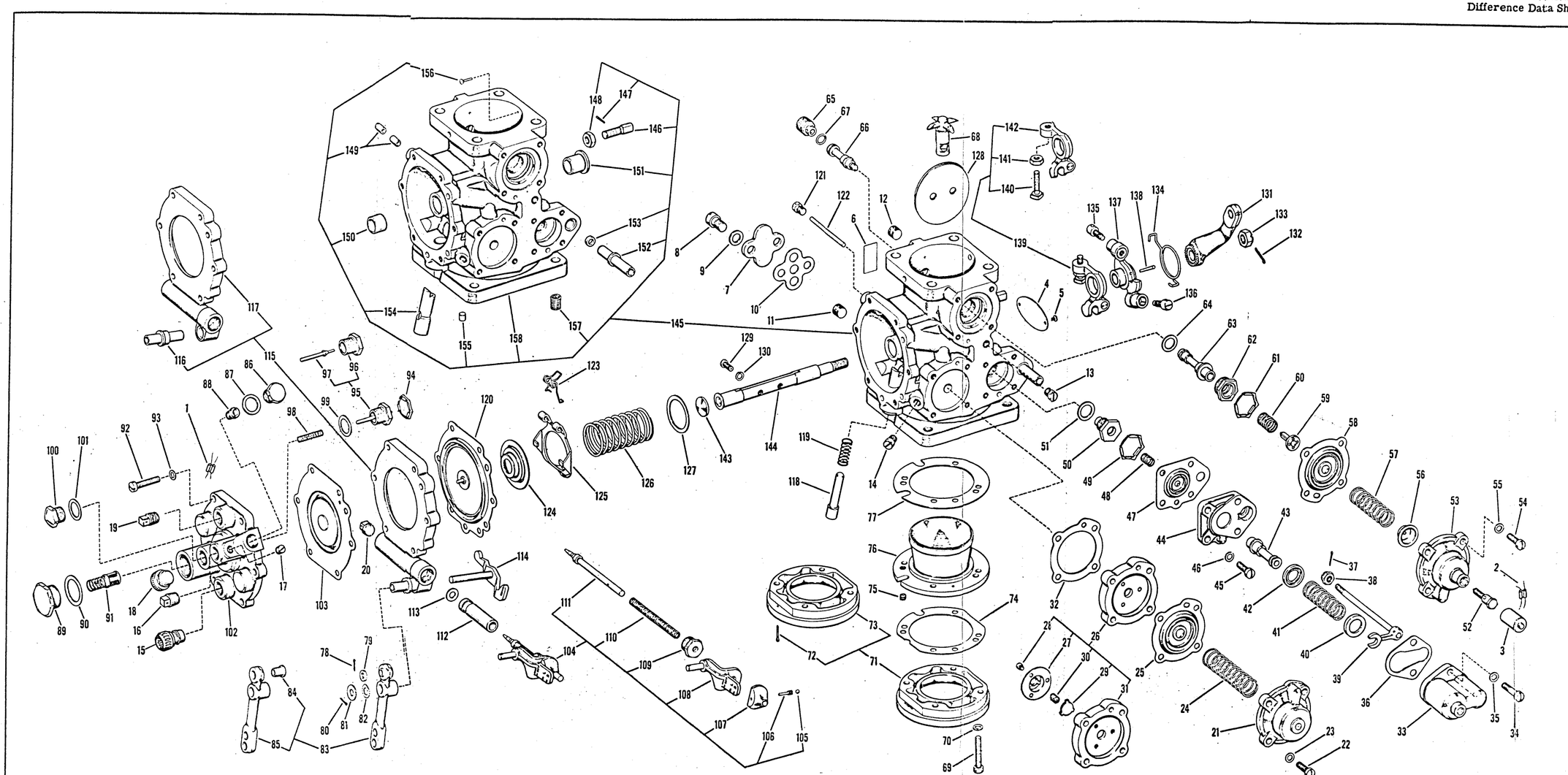


Figure 4-21. Exploded View of Model PS-5C Injection Carburetor