



Essex Industries, Inc.
7700 GRAVOIS AVE. ● ST. LOUIS, MO. 63123

MINIATURE FLARELESS, INLINE CHECK VALVE
ESSEX PART NUMBER 0121520500-1, -2, -3, -4, -5, -6
BOEING PART NUMBER S 270T252-1, -2, -3, -4, -5, -6

COMPONENT MAINTENANCE MANUAL
WITH
ILLUSTRATED PARTS LIST

29-11-03
Page T-1
June 24, 1984



Essex Industries, Inc.
COMPONENT MAINTENANCE MANUAL
ESSEX PART NUMBER 0121520500

LIST OF EFFECTIVE PAGES

Page	Date
T-1	June 27, 1984
RR-1	June 27, 1984
LEP-1	June 27, 1984
INTRO-1	June 27, 1984
TC-1	June 27, 1984
1 Thru 8	June 27, 1984

29-11-03

Page LEP-1
June 29, 1984



Essex Industries, Inc.

COMPONENT MAINTENANCE MANUAL

ESSEX PART NUMBER 0121520500

INTRODUCTION

The instructions contained in this manual provide information necessary to understand the valve operation and allow the mechanic to perform maintenance functions consisting of: testing, disassembly, assembly, inspection and complete shop-type repair.

The manual is divided into separate sections. Refer to the Table of Contents for the page location of a particular section.

Some assembly tools are special in nature and are listed by part number in the Assembly section of this manual. The balance of assembly tools and all test equipment are universally applicable and are commercially available. Where a particular item of non-special equipment includes a manufacturer and model number, equal or better equipment may be substituted.

An explanation of the use of the Illustrated Parts List is provided in the Introduction to that section.

The manual will be revised as necessary to reflect current information.

Testing	Verified	6-29-84
Disassembly	Verified	6-29-84
Assembly	Verified	6-29-84

29-11-03

Page INTRO-1
June 29, 1984



Essex Industries, Inc.
COMPONENT MAINTENANCE MANUAL
ESSEX PART NUMBER 0121520500

TABLE OF CONTENTS

	Chapter/Section	Page
I	Description and Operation	1
II	Testing and Trouble Shooting	1
III	Disassembly	3
IV	Cleaning	4
V	Check	4
VI	Repair	4
VII	Assembly	4
VIII	Fits and Clearances	5
IX	Special Tools, Fixtures and Equipment	5
X	Illustrated Parts List	6

29-11-03

Page T/C-1
June 29, 1984



Essex Industries, Inc.
COMPONENT MAINTENANCE MANUAL
ESSEX PART NUMBER 0121520500

I. DESCRIPTION AND OPERATION

A. Physical Description

1. The inline, flareless, miniature, check valve is a poppet type check valve for use in an aircraft 3000 psi hydraulic system.
2. The valve incorporates a flange for mounting to the aircraft structure.
3. A metal to metal precision seat is utilized for internal sealing, eliminating synthetic seals.

B. Operation

1. The valve is a normally-closed check valve which permits flow in only one (1) direction.
2. The poppet is opened by the pressure of the hydraulic fluid against the poppet when the pressure overcomes the force of the spring.

II. TESTING AND TROUBLESHOOTING

A. Test Equipment

Equipment/Materials	Description
Fluid Pressure Source Filtered to 15 microns or better	Regulated BCAC BMS 3-11 Hydraulic Fluid supply capable of supplying a pressure up to 4500 psi
Valves and Fittings	As required to connect test unit
Gages	Low pressure gage 0-30 psi High pressure gage 0-4500 psi Medium pressure gage 0-500 psi
Flow Meters	Low Flow 0 to 50 cc Medium Flow 0 to 15 gpm

B. Functional Testing of Valve

Perform all tests using BCAC BMS 3-11 Hydraulic Fluid.

1. Leakage Test (See Figure 1A)

- a. Apply pressure to the outlet port with direction of flow up.
- b. Apply 5.0 psig and 3000 psig for five (5) minutes each. The leakage period will consist of the last three (3) minutes of the five (5) minute period. The rate of internal leakage will not exceed 1.0 drop per minute for the 5.0 psig test pressure and no drops for the 3000 psig test pressure. There will be no external leakage throughout the pressure range other than a slight wetting insufficient to form a drop.

29-11-03

Page 1
June 29, 1984



Essex Industries, Inc.
COMPONENT MAINTENANCE MANUAL

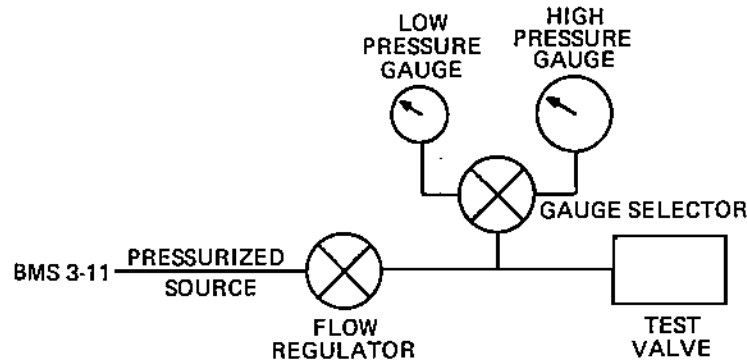


FIGURE 1A

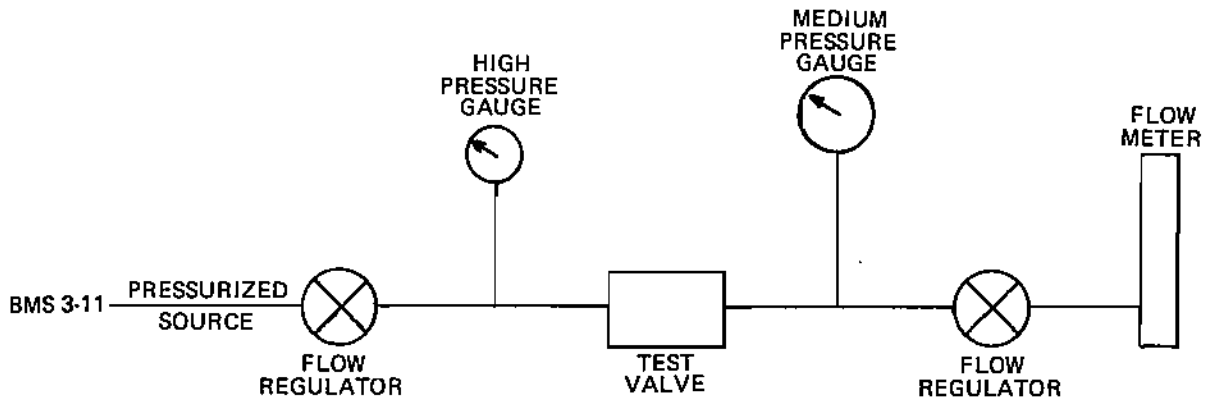


FIGURE 1B

2. Cracking Pressure (See Figure 1B)

- a. Apply pressure to the inlet port of the valve with the down stream flow regulator valve fully open.
- b. Gradually increase pressure beginning with zero. With a pressure of not less than 2.0 psig nor greater than 8.0 psig flow must be equal to or exceeding 2 cc per minute through the valve.

3. Rated Flow (0121520500-6 Valve Only Per Figure 1B)

- a. Apply pressure to the inlet port of the valve controlling outlet pressure and measuring flow through the valve.
- b. Increase the inlet pressure to 3200 psi and control the outlet pressure to 200 psi to obtain a steady flow rate through the valve. Flow must be 10 to 12 gpm.

B. Troubleshooting

1. Test valve and use fault isolation diagram to determine possible cause of malfunction.

29-11-03

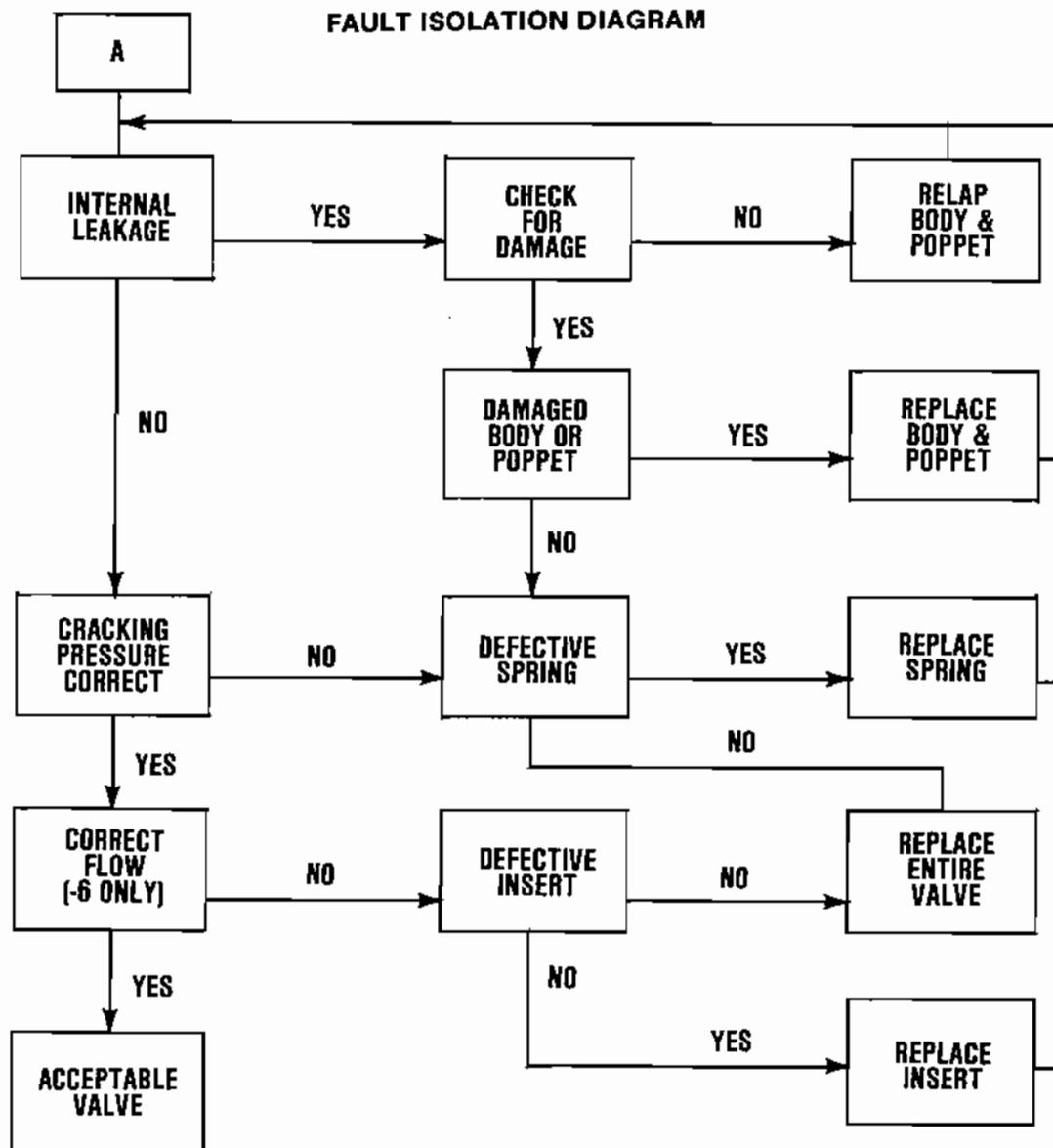
Page 2
June 29, 1984



Essex Industries, Inc.

COMPONENT MAINTENANCE MANUAL

ESSEX PART NUMBER 0121520500



III. DISASSEMBLY (Refer to Figure 2)

Note: Failure of any of the functional tests under TESTING AND TROUBLESHOOTING will require disassembly of the valve.

- A. Disassembly of the valve is accomplished by removing the retainer (3) while holding the insert (4) forward as far as possible. The retainer will be destroyed or damaged beyond reuse during removal.
- B. The insert (4), spring (5) and poppet (6) will slide out when the retainer (3) is removed.
- C. Nameplate (2) is removed by straightening tab and sliding out of slot.

29-11-03



Essex Industries, Inc.
COMPONENT MAINTENANCE MANUAL
ESSEX PART NUMBER 0121520500

IV. CLEANING

- A. Immerse and agitate parts in Freon 113 or equivalent. Do not use petroleum based solvent.
- B. Blow dry parts with filtered, compressed air.
- C. Flush fitting assembly with BMS 3-11 fluid and shake dry.

V. CHECK (Refer to Figure 2)

- A. Check parts as noted per Table I.
- B. Check poppet (6) for damaged cone face.
- C. Check body assembly (7) for cracked welds at the body and bracket junction, damage of the seal face on the inlet and outlet and damage at the poppet seat edge at bottom of bore.

VI. REPAIR (Refer to Figure 2)

- A. Repair consists of replacing defective parts.
- B. Any disassembly will require replacement of retainer (3).

VII. ASSEMBLY (Refer to Figure 2)

- A. Install poppet (6) into body (7).
- B. Install spring (5) onto poppet (6).
- C. Install insert (4).
- D. Install retainer (3) into groove in body (5) and allow insert (4) to slide back over retainer (3).
- E. Wrap nameplate (2) around body (5) on large end of body with flow arrow pointing toward hex. Insert tab into slot and bend over to retain.
- F. If valve is going to storage, install thread protector (1) on each end or seal in plastic bag.

29-11-03

Page 4
June 29, 1984



Essex Industries, Inc.
COMPONENT MAINTENANCE MANUAL
ESSEX PART NUMBER 0121520500

VIII. FITS AND CLEARANCES

Index No.	Part No.	O.D.	Length	I.D.	Depth of Bore	Spring Load		
						Load lb.	At Length	
4	0121520511-1	---	---	.250 ± .005	---			
	0121520511-2	---	---	.300 ± .005	---			
	Insert	0121520511-3	---	---	.443 ± .005	---		
		0121520511-4	---	---	.535 ± .005	---		
		0121520511-5	---	---	.625 ± .005	---		
		0121520511-6	---	---	.0995 ± .0010	---		
5	0121520512-1	.349 ± .010	---	---	---	.25 ± .03	.328	
	0121520513-1	.468 ± .010	---	---	---	.46 ± .05	.372	
	Spring	0121520514-1	.575 ± .010	---	---	---	.74 ± .05	.320
		0121520515-1	.717 ± .005	---	---	---	1.23 ± .05	.454
		0121520516-1	.860 ± .010	---	---	---	1.52 ± .05	.468
6	0121520506-1	.370 + .000	.585 ± .005	---	---			
		- .001						
	0121520507-1	.496 + .000	.700 ± .005	---	---			
		- .001						
	Poppet	0121520508-1	.600 + .000	.737 ± .005	---	---		
		- .001						
0121520509-1	.729 + .000	.784 ± .005	---	---				
0121520510-1	.932 + .000	1.234 ± .005	---	---				
		- .001						
7	01215205B1-1	---	---	.359 + .002	1.035 ± .005			
		- .000						
	01215205B1-2	---	---	.484 + .002	1.190 ± .005			
		- .000						
	Body Assy	01215205B1-3	---	---	.590 ± .002	1.320 ± .005		
		01215205B1-4	---	---	.718 ± .002	1.432 ± .005		
01215205B1-5		---	---	.932 ± .002	1.890 ± .005			
01215205B1-6		---	---	.484 + .002	1.190 ± .005			
		- .000						

IX. SPECIAL TOOLS

Not Applicable



Essex Industries, Inc.
COMPONENT MAINTENANCE MANUAL
ESSEX PART NUMBER 0121520500

X. ILLUSTRATED PARTS LIST

A. INTRODUCTION

1. Purpose

(a) This section provides illustrations and parts breakdown of all parts of the assembly shown on the title page which can be disassembled, repaired or replaced and reassembled.

2. Explanation and Usage of Section

(a) Assembly Order Indenture System

The Indenture system used in the parts list shows the relationship of one part to another. For a given item, the number of indentures depicts the relationship of the item to the associated next higher assembly as follows:

1 2 3

Assembly

Detail Parts for Assembly

Subassembly

Attaching parts for Subassembly

Detail Parts for Subassembly

(b) Effective Code

(1) Reference letters (A, B, C, etc.) are assigned in the EFF CODE column to each top assembly. The reference letter of the applicable top assembly is also shown in the EFF CODE column for each detail part and subassembly except that no reference letter is shown for detail parts and subassemblies used on all top assemblies.

(c) Quantity Per Assembly

(1) The UNIT PER ASSY column shows the total number of units required per assembly, per subassembly, as applicable. For bulk items, the letters AR indicate "as required." The letters RF indicate the item is listed for reference purposes.

(d) Parts Replacement Data

(1) The interchangeability relationship between parts, where applicable, is identified in the NOMENCLATURE column of the parts list. A list of the terms used to show interchangeability and their definition is as follows:

Term	Parts List Abbreviation	Definition
Optional	OPT	This part is optional to and interchangeable with other parts in the same item number variant group or other item number if designated.
Superseded by	SUPSD BY	This part in the part number column is replaced by and is not interchangeable with the item number shown in the notation.
Supersedes	SUPSDS	The part in the part number column replaces and is not interchangeable with the item number shown in the notation.

29-11-03



Essex Industries, Inc.
COMPONENT MAINTENANCE MANUAL
ESSEX PART NUMBER 0121520500

Term	Parts List Abbreviation	Definition
Replaced by	REPLD BY	The part in the part number column is replaced by and interchangeable with the item number shown in the notation.
Replaces	REPLS	The part in the part number column replaces and is interchangeable with the item number shown in the notation.

(e) Service Bulletin Incorporation

- (1) Except as indicated below, assemblies, subassemblies and detail parts subject to modification, deletion, addition or replacement by an issued service bulletin are annotated to show both pre- and post-service bulletin configuration. The term (PRE SB XXXX) in the Nomenclature column designates the original configuration, and the term (POST SB XXXX) identifies assemblies and parts after the service bulletin modification has been completed.
- (2) Subassemblies and detail parts used on assemblies bearing the pre- or post-service-bulletin notation will carry the same notation themselves if the use code(s) assigned to them clearly reflect(s) their pre- or post-service bulletin status.
- (3) Top assemblies to modification by a service bulletin without assignment of a new part number (no production equivalent of the modified assembly) are not annotated with pre- or post-service-bulletin information.
- (4) If a subassembly or detail part is modified by a service bulletin without a new part number being assigned, the original part number is listed with an alpha-variant item number and the term (POST SB XXXX). The effectivity code remains the same as for the pre-service bulletin configuration.

(f) Items Not Illustrated

- (1) Alpha variants A-Z (except I and O) are assigned to existing item number when necessary to show:
 - a) Added items
 - b) Service bulletin modifications
 - c) Configuration differences
 - d) Optional parts
 - e) Product improvement parts (non-service bulletin)
- (2) Alpha variant item numbers are not shown on the exploded view when the appearance and location of the alpha variant item is the same as the basic item.

29-11-03

Page 7
June 29, 1984



Essex Industries, Inc.
 COMPONENT MAINTENANCE MANUAL
 ESSEX PART NUMBER 0121520500

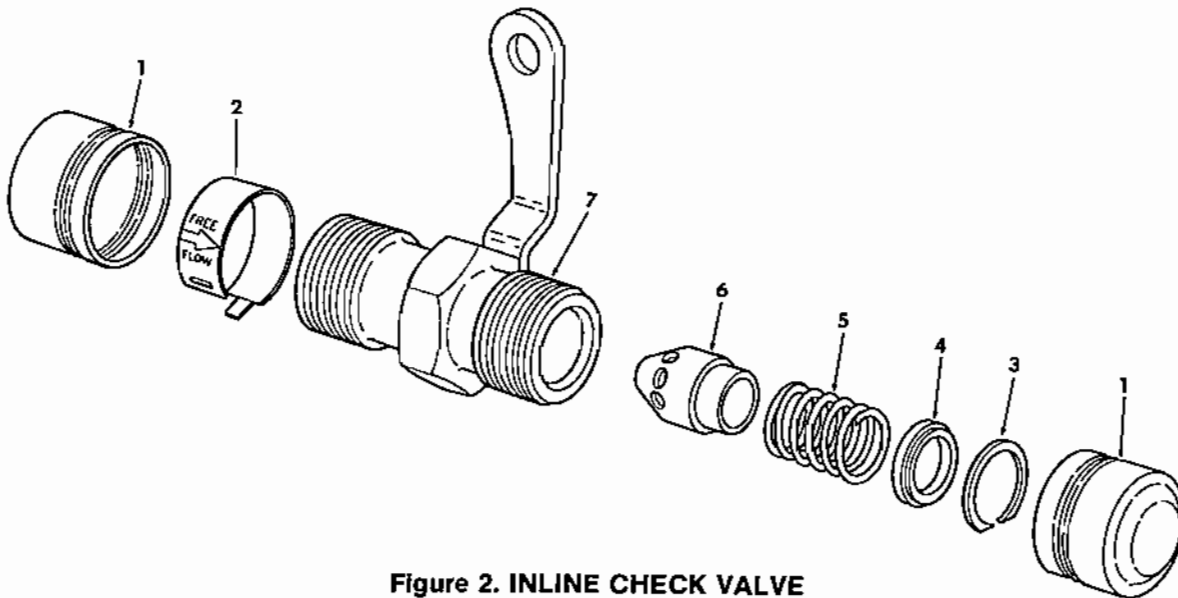


Figure 2. INLINE CHECK VALVE

FIG. & INDEX NO.	PART NUMBER	DESCRIPTION	USABLE ON CODE	UNITS PER ASS'Y.
		1 2 3 4 5 6 7		
-1A	0121520500-1	CHECK VALVE, Flareless, In-line Miniature	A	REF
B	0121520500-2	CHECK VALVE, Flareless, In-line Miniature	B	REF
C	0121520500-3	CHECK VALVE, Flareless, In-line Miniature	C	REF
D	0121520500-4	CHECK VALVE, Flareless, In-line Miniature	D	REF
E	0121520500-5	CHECK VALVE, Flareless, In-line Miniature	E	REF
F	0121520500-6	CHECK VALVE, Flareless, In-line Miniature	F	REF
2A	8C-0005-0005	. THREAD PROTECTOR	A	2
B	8C-0005-0006	. THREAD PROTECTOR	B,F	2
C	8C-0005-0007	. THREAD PROTECTOR	C	2
D	8C-0005-0008	. THREAD PROTECTOR	D	2
E	8C-0005-0009	. THREAD PROTECTOR	E	2
3A	0121520518-1	. NAME PLATE	A	1
B	0121520519-1	. NAME PLATE	B	1
C	0121520520-1	. NAME PLATE	C	1
D	0121520521-1	. NAME PLATE	D	1
E	0121520522-1	. NAME PLATE	E	1
F	0121520519-2	. NAME PLATE	F	1
4A	0121520523-1	. RETAINER	A	1
B	0121520523-2	. RETAINER	B,F	1
C	0121520523-3	. RETAINER	C	1
D	0121520523-4	. RETAINER	D	1
E	0121520523-5	. RETAINER	E	1
5A	0121520511-1	. INSERT	A	1
B	0121520511-2	. INSERT	B	1
C	0121520511-3	. INSERT	C	1
D	0121520511-4	. INSERT	D	1
E	0121520511-5	. INSERT	E	1
F	0121520511-6	. INSERT	F	1

29-11-03



Essex Industries, Inc.

COMPONENT MAINTENANCE MANUAL

ESSEX PART NUMBER 0121520500

FIG. & INDEX NO.	PART NUMBER	DESCRIPTION							USABLE ON CODE	UNITS PER ASS'Y.
		1	2	3	4	5	6	7		
6A	0121520512-1	.	SPRING	.....					A	1
B	0121520513-1	.	SPRING	.....					B,F	1
C	0121520514-1	.	SPRING	.....					C	1
D	0121520515-1	.	SPRING	.....					D	1
E	0121520516-1	.	SPRING	.....					E	1
7A	0121520506-1	.	POPPET	.....					A	1
B	0121520507-1	.	POPPET	.....					B,F	1
C	0121520508-1	.	POPPET	.....					C	1
D	0121520509-1	.	POPPET	.....					D	1
E	0121520510-1	.	POPPET	.....					E	1
8A	01215205B1-1	.	BODY ASSY.	.....					A	1
B	01215205B1-2	.	BODY ASSY.	.....					B	1
C	01215205B1-3	.	BODY ASSY.	.....					C	1
D	01215205B1-4	.	BODY ASSY.	.....					D	1
E	01215205B1-5	.	BODY ASSY.	.....					E	1
F	01215205B1-6	.	BODY ASSY.	.....					F	1

29-11-03