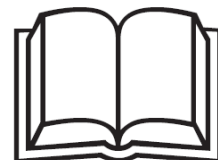
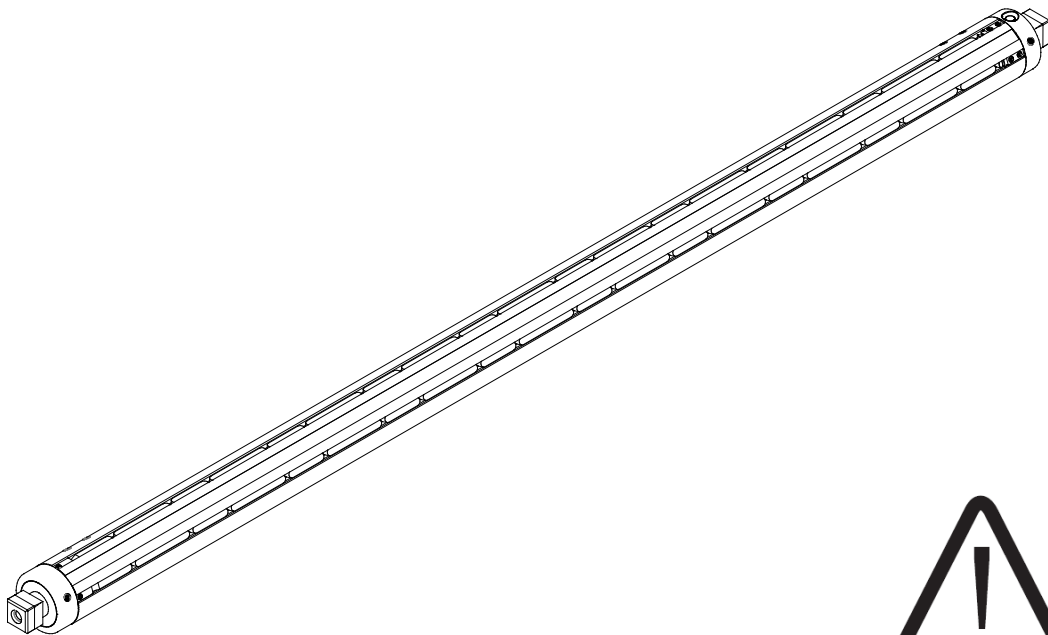




USER'S GUIDE AND MAINTENANCE MANUAL FOR STSR-2000 STRIP SHAFT



USER'S GUIDE AND MAINTENANCE MANUAL FOR STSR-2000 STRIP SHAFT

Version 1.1

November 19, 2019

Copyright © 2019 Double E Company, LLC

All rights reserved.

This publication cannot be reproduced, completely or partially, without prior written authorization from Double E Company. Double E Company's products are subject to frequent changes due to updates and improvements. Therefore, the information included in this publication can undergo modifications without notice. Double E Company appreciates any feedback relating to possible mistakes or omissions.

A. INTRODUCTION

A.1 Introduction

We thank you for choosing Double E Company STSR-2000 strip shafts and are pleased to have you as a customer. We are confident that our product will provide you with years of satisfaction. For optimal performance, please use and maintain your STSR-2000 strip shafts as outlined in this manual.

We recommend that you read this manual carefully and refer to it whenever a problem may arise. Our Technical Support department is also always available for advice and assistance. This manual describes the installation, operation, usage precautions, and detailed information about this product's accessories and options.

The product must be used according to the instructions. Keep this manual as a reference for the future.

Double E Company reserves the right, at any time, to make changes (without any obligation of revision), felt to be useful for the product improvement or for any constructive or commercial reason. Copying, buffering and transmission in any form (electronic, mechanical, by photocopying, translating or others) of this publication is forbidden without express Double E Company authorization.

Double E Company refuses any responsibility in case supplied shafts are set at work before the machine where they are going to be fitted has been declared to be in accordance with provision of the law 89/392 and its subsequent modifications.

A.2 Table of Contents

A. INTRODUCTION	3
A.1 Introduction	3
A.2 Table of Contents	4
A.3 Important	5
A.4 Warranty	5
B. SAFETY	5
B.1 Safety Instruction - Symbology	5
B.2 Safe Operation of Equipment	6
C. TERMINOLOGY	7
C.1 Strip Shaft Components	7
D. SHAFTSAFE	8
D.1 ShaftSafe	8
E. OPERATING INSTRUCTIONS	9
E.1 Inflation/Deflation	9
F. PRODUCT SPECIFICATIONS	9
F.1 Technical Specifications	9
G. MAINTENANCE	10
G.1 Routine Inspection	10
G.2 Annual Maintenance	10
G.3 Non-Routine Maintenance	10
G.4 Decommissioning	10
H. REPLACEMENT OF COMPONENTS	11
H.1 Strip Assembly Spare Parts List	11
H.2 Gripping Element/Bladder Removal	12
H.3 Gripping Element/Bladder Replacement	12
I. TROUBLESHOOTING	14
I.1 Troubleshooting	14
J. MANUFACTURER'S DECLARATION	15
K. RETURNS	15

A.3 Important

- Do not use this product before having read and understood the whole content of this manual.
- Double E Company has done everything possible to make this manual complete and correct.
- Please transfer this manual to subsequent users if the product is lent or sold.
- Should this documentation or the warning labels applied on the device be lost or damaged, please request replacements from the supplying company.

A.4 Warranty

See general terms of sale.

B. SAFETY

B.1 Safety Instruction - Symbology

- For safe operation of the STSR-2000 strip shafts, carefully read these safety instructions before use.
- Follow every WARNING and ATTENTION note, described in this section, as they are extremely important for safety.
- In this manual, warnings and are indicated by the following signal word conventions.



Indicates a potentially dangerous situation that, if not avoided, is almost certain to cause serious injuries or death.



Indicates a potentially dangerous situation that, if not avoided, can cause moderate to serious injuries, or even death.



Indicates a potentially dangerous situation that, if not avoided, can cause minor to moderate injuries or damage to the equipment.



Highlights information needed to ensure the proper use of this device.

B.2 Safe Operation of Equipment

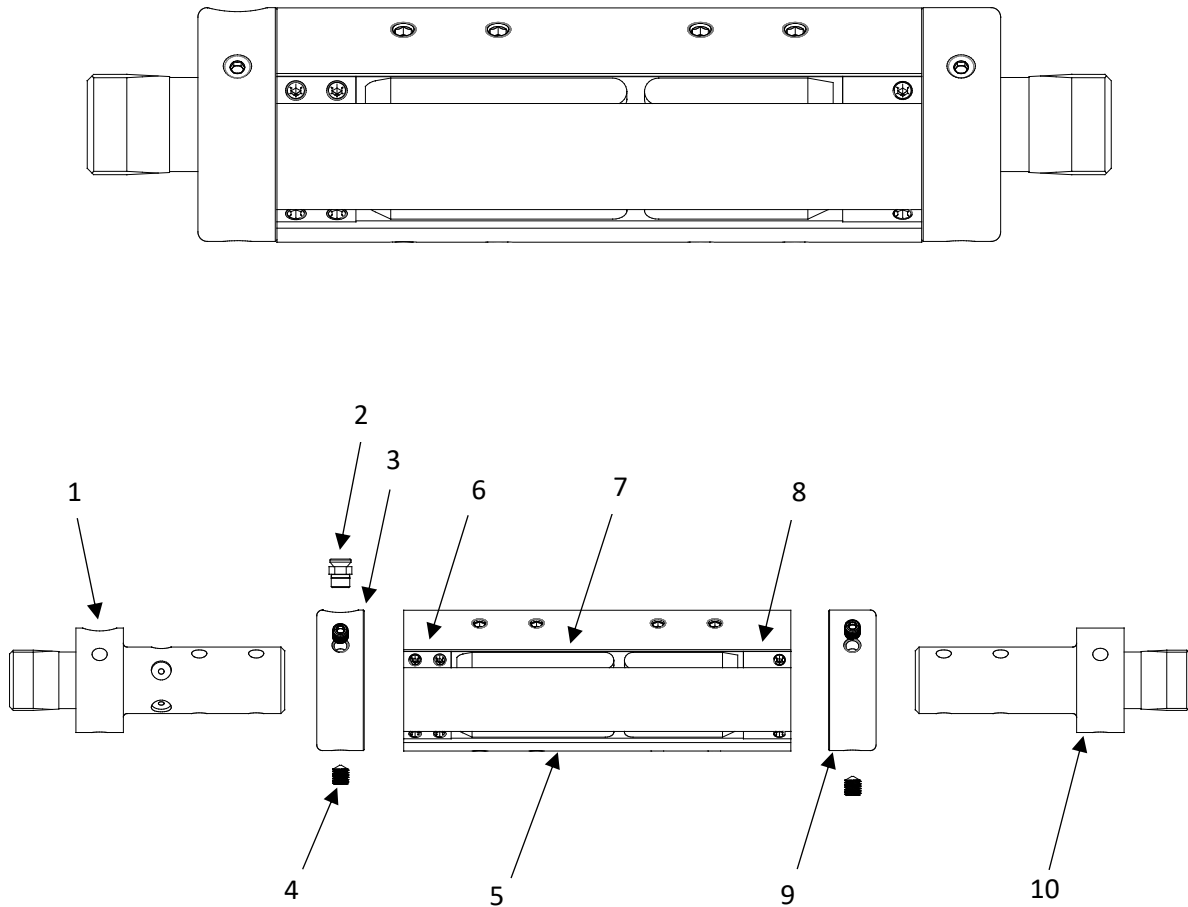


Double E Company designs and manufactures strip shafts with maximum safety in mind. Please take careful note of the following rules for safe operation:

- Double E recommends always using the shaft carefully without abusing it. Avoid strong collisions and/or accidental impacts with foreign bodies. These collisions can damage the shaft's external gripping elements or body.
- There is risk of injury or pinching from the rotation of this shaft during un/winding. Keep sufficient distance during un/winding and do not touch any part of the shaft during rotation.
- Do not wear loose hair or clothing near rotating shaft for risk of entanglement.
- Avoid unnecessary emergency braking.
- Do not cantilever the shaft during winding or roll unloading unless stated in the customer approval drawing.
- Do not use the strip shaft in working conditions different than stated in the specifications table or on any notes on the assembly drawing.
- Do not exceed the operating loads of the shaft as specified on the customer quotation and/or assembly drawing. This voids shaft warranty and can be unsafe.
- Make sure all fasteners are in place and torqued to the appropriate specification before operation.
- All replacement parts on this shaft should be original equipment supplied by the Double E Company.

C. TERMINOLOGY

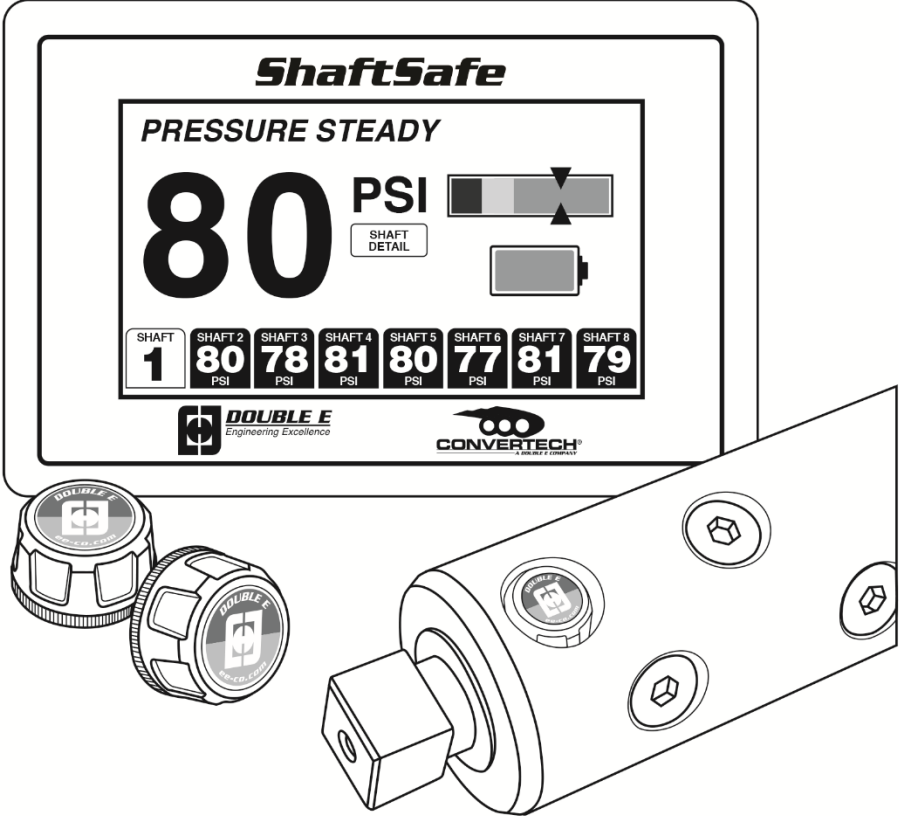
C.1 Strip Shaft Components



-
- | | |
|---|---|
| 1. Valve Journal | 7. Strip Assembly |
| 2. 1/8-28 BSPP Tank Valve | 8. Clamp Assembly, Non-Valve End
(Locking Tab and Upper Clamp) |
| 3. Valve Side Collar | 9. Non-Valve Side Collar |
| 4. M8 Set Screw | 10. Non-Valve Journal |
| 5. Housing | |
| 6. Clamp Assembly, Valve End (Locking Tab
and Upper Clamp) | |

D. SHAFTSAFE

D.1 ShaftSafe



Most shafts sold after April 1, 2019 include the ShaftSafe sensor. This battery powered sensor communicates to a ShaftSafe control panel via Bluetooth Low Energy communication. For information on how to activate the ShaftSafe system or to interact with the ShaftSafe sensor, please consult the ShaftSafe manual.

NOTICE

Please refer to the separate ShaftSafe manual for instructions regarding the safe use and operation of shafts equipped with ShaftSafe technology.

E. OPERATING INSTRUCTIONS

E.1 Inflation/Deflation

WARNING

Do not inflate or deflate shaft while it is rotating.

To **inflate** the shaft, press the tip of the supplied Double E Inflation Tool into the air valve. Squeeze the Inflation Gun while maintaining firm contact between the tip and the air valve for at least 30 seconds. This will ensure that the shaft is fully inflated prior to use. Refer to your specific assembly drawing for the correct air pressure for normal operation. In most cases, the shaft should be operated at a minimum of 80psi (5.5 bar) and should not exceed 110psi (7.5 bar).

Most Double E STSR-2000 strip shafts are equipped with a single air valve. Refer to your assembly drawing for the exact location of inflation air valves on the reel spool.

To **deflate** the shaft, depress the air valve with the tip of the inflate/deflate tool for at least 30 seconds to allow all the air to fully exhaust from the shaft. Never use a finger to release air from the shaft.

NOTICE

Never try to remove cores from the shaft without fully deflating the shaft. This can cause serious damage to the strip assemblies and body of the strip shaft.

F. PRODUCT SPECIFICATIONS

F.1 Technical Specifications

WARNING

Do not exceed the operating parameters of the strip shaft as specified on the assembly drawing. This voids shaft guarantees and can cause serious injury.

Please refer to the assembly drawing for the operating parameters and limits of your strip shaft.

G. MAINTENANCE

G.1 Routine Inspection

Perform routine inspection **weekly**. Routine inspection can usually be accomplished without disassembly or removal of the shaft from the machine. The purpose of routine inspection is to ensure that the shaft is functioning properly prior to being used in the machine. Check the pneumatic system to ensure that all of the gripping elements expand and contract properly and that the gripping element is fully contained within the slot on the housing. Additionally, inspect the gripping elements to make sure they are not cracked or worn unevenly and that there is no foreign debris, such as a dust buildup, that may impair the proper functionality of the shaft. Ensure that all fasteners are tightened properly and are not missing.

G.2 Annual Maintenance

Perform annual inspection/maintenance **yearly**. Ensure that all fasteners are tightened properly and that the journals and gripping strips are installed per shaft assembly drawing. If present, grease all bearing assemblies per assembly drawing. Replace any gripping strips if uneven or excessive wear is seen. Always replace the underlying protective strip and bladder when a gripping strip is replaced.

G.3 Non-Routine Maintenance

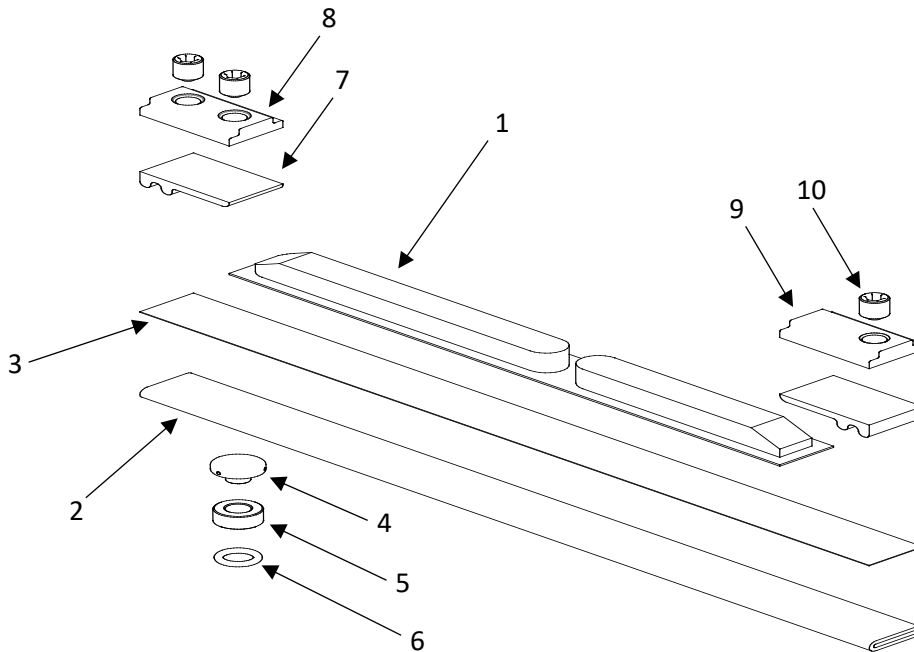
If the product is used under normal conditions and inspected regularly, it is rare that any non-routine or extraordinary maintenance will be needed. In the event that it is necessary, it is recommended that you contact Double E Company Technical Support at 508-588-8099 extension 571.

G.4 Decommissioning

If the product is withdrawn or removed from service, it is necessary to make all at-risk components harmless through proper demolition. These operations must be carried out in accordance with the provisions existing in the nation in which the product will be disposed.

H. REPLACEMENT OF COMPONENTS

H.1 Strip Assembly Spare Parts List



NUMBER	DESCRIPTION	UM	DOUBLE E PART NUMBER
1	Gripping Strip	Inch	112-70602-0720
2	Bladder Material	Inch	112-70802-0001
3	Protective Strip	Inch	112-70702-0001
4	Brass Air Distributor	Each	112-71101-0001
5	Air Bushing	Each	112-71201-0002
6	O-Ring .210mm x 6.475mm	Each	999-450-0010
7	Locking Tab	Each	112-70902-0001
8	Clamp, Valve End	Each	112-71002-0002
9	Clamp, Non-Valve End	Each	112-71002-0003
10	M6 x 8mm Socket Set Screw	Each	999-415-1150
Not Shown	Return Spring	Each	112-71402-0001

H.2 Gripping Element/Bladder Removal

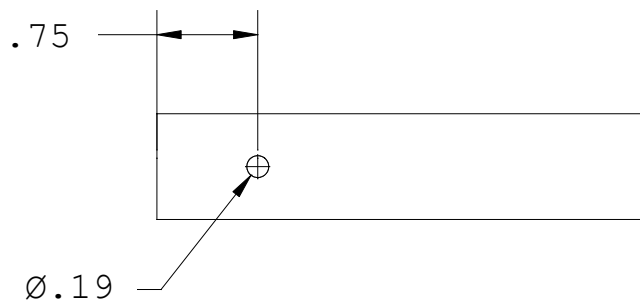
CAUTION

Always fully deflate shaft prior to performing any maintenance on the strip assemblies.

1. Locate the valve side of the shaft.
2. If the shaft has a side valve configuration, remove the air valve (C.1.2) from the valve side collar (C.1.3).
3. Remove the socket set screws (C.1.4) holding the valve side collar (C.1.3) in place and then remove the collar.
4. Remove the socket set screws (H.1.10) in the valve side upper clamp (H.1.8) and then remove the valve side upper clamp (H.1.8) and the locking tab (H.1.7).
5. Remove the socket set screw (H.1.10) in the non-valve side upper clamp (H.1.9).
6. Slide out the gripping strip (H.1.1), saving the return springs as they exit from the channel. If any spring is damaged or broken, discard the spring.
7. Remove the non-valve side upper clamp (H.1.9) and locking tab (H.1.7).
8. Repeat steps 4-7 for each strip assembly channel.
9. Remove the protective strip (H.1.3) from each channel.
10. Prior to removing the bladder material (H.1.2), inspect the channel for any debris or contaminants. Clean any affected area and then proceed with the removal of the bladder material.
11. Prior to discarding the worn or damaged bladder material, remove the brass pneumatic distributor (H.1.4) from the valve end and save it for reassembly.
12. Recover the air bushing (H.1.5) and o-ring (H.1.6) from each strip assembly and inspect for damage. If in good, working condition, save for reassembly.

H.3 Gripping Element/Bladder Replacement

1. To replace the bladder (H.1.2):
 - a. Reuse the brass pneumatic distributor (H.1.4) from the original bladder. If this part has been discarded or cannot be reused, contact Double E Company Inside Sales to order a replacement part.
 - b. Cut the new bladder material (H.1.2) to the length of the channel, leaving an additional 0.5" of length for adjustment during the assembly process.
 - c. Using sharp scissors or a punch, make a 0.19" diameter hole at one end of the bladder. This should be 0.75" from the end of the bladder.



- d. Install the brass pneumatic distributor (H.1.4) into the new bladder material.
 - e. Install the o-ring (H.1.6) and the air bushing (H.1.5) in the appropriate hole in the housing.
 - f. Install the bladder (H.1.2) into the channel, beginning with the non-valve end. A silicone lubricant can be used if necessary to make sliding the bladder in the channel easier. When the bladder is completely installed in the channel, press the brass pneumatic distributor into the air bushing in the shaft housing. This is located at the valve end of the shaft.
2. Install the new safety strip (H.1.3), leaving approximately 1" beyond the valve end of the channel for adjustment.
 3. Install the locking tab (H.1.7) and non-valve side upper clamp (H.1.9) on top of the bladder material and protective strip by sliding it to the opposite end of the channel and secure with the socket set screw (H.1.10).
 4. Install the gripping element (H.1.1). Reuse the return springs collected during disassembly and insert one return spring in every other gap in the gripping strip. Replace any damaged or missing return springs with new springs.
 5. Cut excess bladder material and protective strip to length.
 6. Install the locking tab (H.1.7) and valve side upper clamp (H.1.8) on top of the bladder material and protective strip and secure it with the socket set screw (H.1.10). Make sure the pneumatic air distributor is properly seated in its air bushing, and that the bladder material is square and flush against the back edge of the valve side clamp assembly.
 7. Repeat steps 1-6 for each strip assembly channel.
 8. Replace valve side collar (C.1.3) and socket set screws (C.1.4) as indicated on the assembly drawing.
 9. If removed during disassembly, install the air valve (C.1.2), applying Loctite® 545 Thread Sealant or equivalent.
 10. Inflate the shaft to a minimum of 80 psi using the procedure outlined in section D.1. Let the shaft rest for a period of at least (8) eight hours to verify that there are no leaks. If there is a leak, use soapy water to determine the location and repeat the gripping element/bladder material replacement as needed.

I. TROUBLESHOOTING

I.1 Troubleshooting

					A. Air Leak B. Gripping strip does not expand. C. Gripping Strip does not collapse. D. Core will not fit on shaft. E. Core slips on shaft during operation.				Instructions: Identify the problem along the upper left corner of the grid. The numbers in the corresponding column below indicate the order in which to troubleshoot potential causes. If applicable, the location of the corrective measure is shown in parantheses next to a description of the corrective action.	
PROBLEM					POSSIBLE CAUSE OF PROBLEM				CORRECTIVE MEASURE	
1	1			4					Valve Side or Non-Valve Side Clamp Assemblies are not tight.	Tighten set screws in clamps to 60in.lbs
4	4			5					Bladder is not centered under clamps.	Ensure bladder is centered under clamps and completely sealed.
2	2			3					Leak in air valve.	Using soapy water, spray around air valve. Bubbles indicate a leak. If valve is leaking from the center, replace valve. If valve is leaking from the threads, remove and reinstall with Loctite® Thread Sealant 545 or equivalent.
3	3			2					Leak in bladder material.	Using soapy water, spray around ends of strip assemblies near slots. Bubbles indicate an air leak. Replace bladder according to bladder replacement instructions. (Section H.3)
		2	3						Return springs are jammed or broken.	Remove gripping strip and replace broken or improperly installed return springs. (Section H.3)
	5	3	2	6					Gripping strip is worn or damaged.	Remove gripping strip and replace broken or improperly installed return springs. (Section H.3)
		1	1						Air has not been released from shaft.	Ensure that shaft is completely deflated by depressing air valve for at least 30 seconds.
				1					Shaft is not inflated properly.	Ensure shaft is enflated fully to a minimum of 80 psi (5.5 Bar).

J. MANUFACTURER'S DECLARATION

Buyer shall afford Double E Company prompt and reasonable opportunity to inspect any goods as to which a claim is made and Double E Company shall have the right of final determination of the cause and existence of any defect under this warranty. No material may be returned to Double E Company without Double E Company's express prior permission in the form of a return authorization number.

Correction of non-conformities, in the manner and for the period provided above, shall constitute fulfillment of all liabilities of Double E Company to Buyer with respect for the goods, whether based on contract, negligence, strict tort, or otherwise.

K. RETURNS

Warranty and non-warranty returns are initiated through the issuance of a return material authorization (RMA) number from an authorized Double E Company sales or service/support representative. This can be obtained by calling Double E Company in West Bridgewater, MA at 508-588-8099.

The RMA number should be clearly evident on the shipping label and/or invoice and the package should be shipped freight prepaid. If questions arise or if additional information is required, please call the Inside Sales department at 508-588-8099

Product returns should be sent to the address below:

Double E Company, LLC
319 Manley Street
West Bridgewater, MA 02379
ATTN: RMA # _____

Copyright © 2019 Double E Company, LLC

All rights reserved.

This publication cannot be reproduced, completely or partially, without prior written authorization from Double E Company. Double E Company's products are subject to frequent changes due to updates and improvements. Therefore, the information included in this publication can undergo modifications without notice. Double E Company appreciates any feedback relating to possible mistakes or omissions.