

BETTIS

CONVERSION INSTRUCTIONS

TO CONVERT

G-SR TO G-SR-M3 OR G-SR-M3HW

PNEUMATIC OR HYDRAULIC

SERIES ACTUATORS

PART NUMBER: 135815

REVISION: "A"

RELEASE DATE: June 2001

1.0 **INTRODUCTION**

NOTE: This field conversion is done without the need for Service Kits and without the need to dis-assemble the Drive Module, the Power Module or the Spring Module.

- 1.1 This service procedure is offered as a guide to field add a jackscrew mechanical override (-M3 or -M3HW) to any G01, G2 or G3 Series Spring Return actuator Spring Module.
- 1.2 This procedure is applicable with the understanding that all electrical power and pneumatic pressure has been removed from the actuator.
- 1.3 This procedure should only be implemented by a technically competent technician who should take care to observe good workmanship practices.

2.0 **DEFINITIONS:**

WARNING: If not observed, user incurs a high risk of severe damage to actuator and/or fatal injury to personnel.

CAUTION: If not observed, user may incur damage to actuator and/or injury to personnel.

NOTE: Advisory and information comments provided to assist maintenance personnel to carry out maintenance procedures.

3.0 SAFETY STATEMENT: Products supplied by Bettis, in its "as shipped" condition, are intrinsically safe if the instructions contained within this Service Instruction are strictly adhered to and executed by a well trained, equipped, prepared and competent technician.

WARNING: For the protection of personnel working on Bettis actuators, this procedure should be reviewed and implemented for safe disassembly and reassembly. Close attention should be noted to the WARNINGS, CAUTIONS and NOTES contained in this procedure.

WARNING: This procedure should not supersede or replace any customer's plant safety or work procedures. If a conflict arises between this procedure and the customer's procedures the differences should be resolved in writing between an authorized customers representative and an authorized Bettis representative.

4.0 **SUPPORT ITEMS AND TOOLS**

- 4.1 Tools - All tools are American Standard inch.

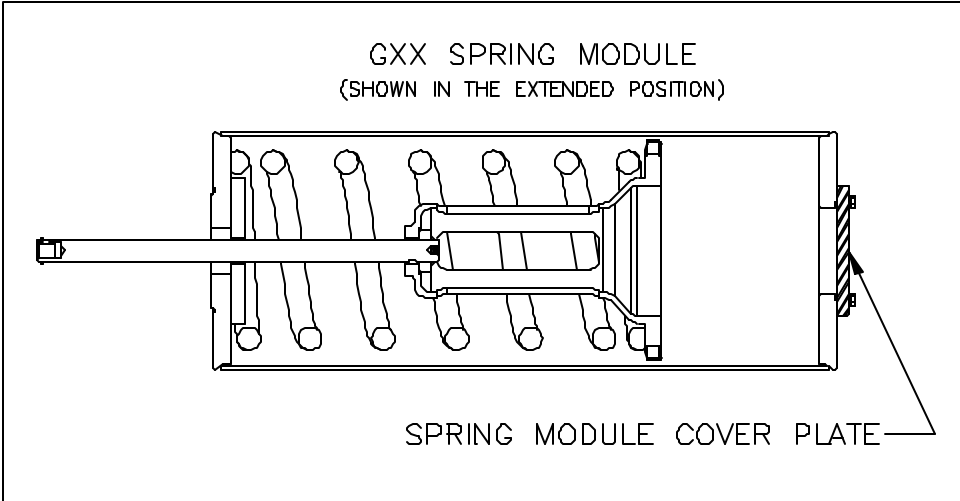
5.0 **LUBRICATION REQUIREMENTS**

NOTE: Lubricants other than those listed in step 5.1 should not be used without prior written approval of Bettis Product Engineering.

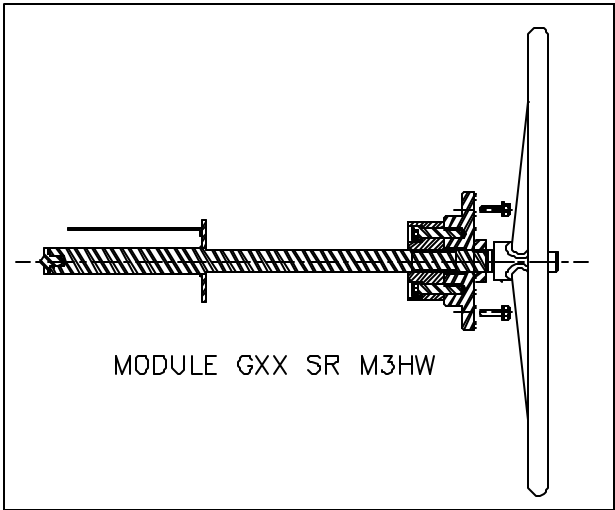
- 5.1 **LUBRICATION REQUIREMENTS:** All temperature services use Bettis ESL-4,5 & 10 lubricant.

6.0 CONVERSION INSTRUCTIONS FOR SPRING RETURN ACTUATORS TO FIELD ADD -M3 OR -M3HW TO THE OUTER END OF THE SPRING MODULE

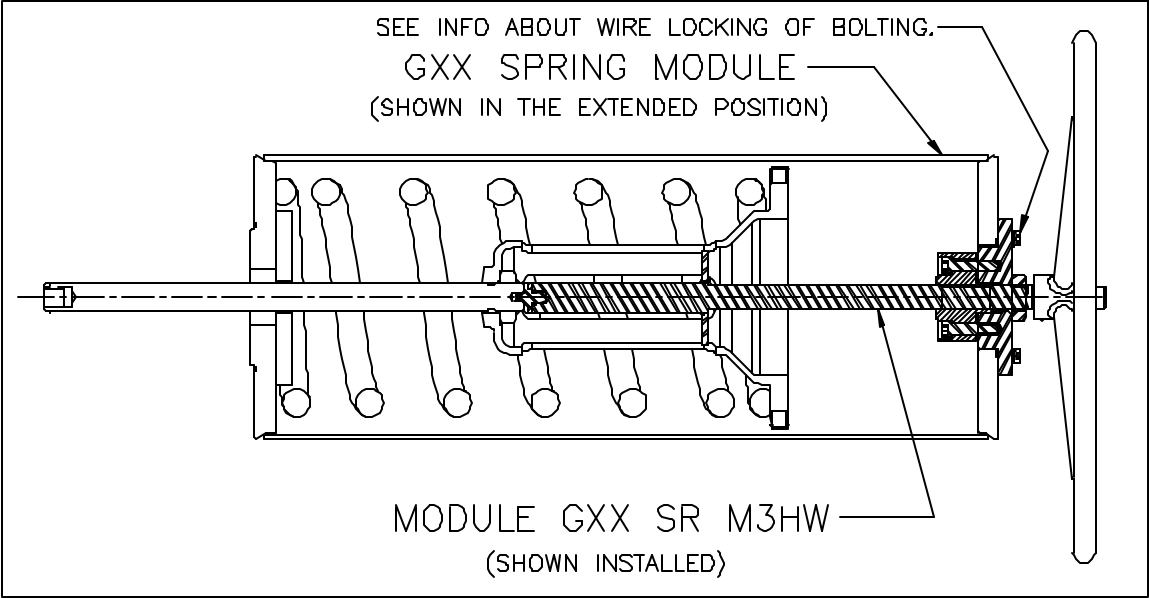
- 6.1 Use the following steps of this procedure to convert from a non-jackscrew G-SR Spring Return model actuator to a G-SR Spring Return model with a jackscrew (-M3 or M3HW).
- 6.2 Remove spring cylinder Cover Plate from outer end of Spring Cylinder Module (**See drawing insert below**).



- 6.3 See G series M3 Spring Module drawing insert below.



7.3 Install M3 Spring Module into opening at outer end of spring cylinder per drawing inserted below.



7.0 INSTRUCTIONS FOR WIRE LOCKING BOLTING

WARNING: FAILURE TO INSTALL M3 ADAPTER PLATE BOLTING PER THE FOLLOWING INSTRUCTION MAY CREATE AN UNSAFE WORK HAZARD TO PERSONNEL.

7.1 SCOPE: This Section provides guidelines for wire locking bolts.

8.2 PURPOSE: To discourage bolt loosening and removal when Spring Module spring is compressed and bolt removal could create a hazard to personnel.

7.3 PROCEDURE:

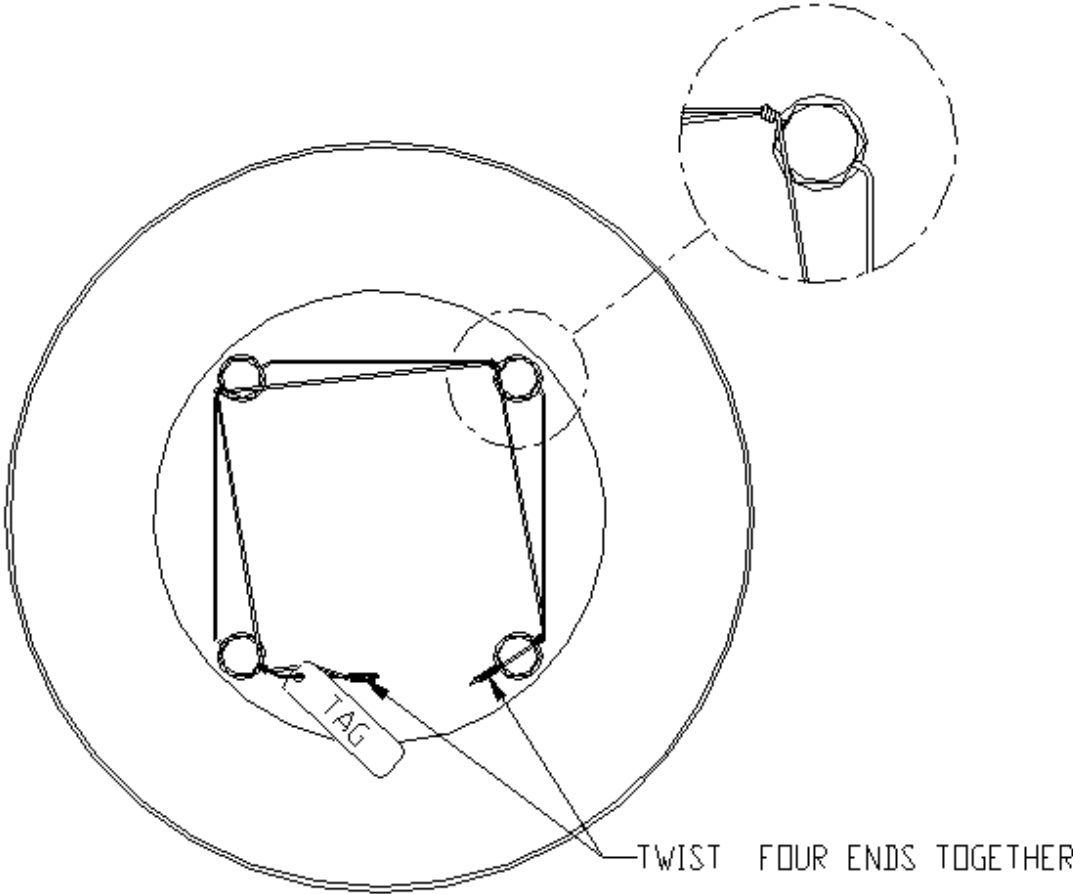
7.3.1 Torque tighten the bolts to 30 ft-lb / 41 N-m (±5 % Percent).

7.3.2 Obtain required lengths of .031 in / 0.7874 mm diameter Monel wire as specified in the following chart.

ACTUATOR MODEL	WIRE LENGTH (MINIMUM)	
	Inches	Millimeters
G01-SR-M3/HW	36 Inches	914.4 Millimeters
G2-SR-M3/HW	44 Inches	1117.6 Millimeters
G3-SR-M3/HW	55 Inches	1397.0 Millimeters

7.3.3 Twist the end of both wires together and insert one through the drilled hole in the bolt head, pass the second wire over the bolt head and twist it three (3) times around the first wire at a location where the first wire exits the bolt head.

- 7.3.4. Repeat the procedure until the second wire is twist tied to the bolt head through wire of the last bolt head.
- 7.3.5. Attach caution tag and twist tie the wires from the last bolt head to the twisted wires of the first bolt head. See sheet the following illustration.



ECN	RELEASE DATE	REV		BY *	DATE
Released	June 2001	A	COMPILED	BC	1 June 2001
			CHECKED	GB	1 June 2001
			APPROVED	TJ	1 June 2001

* Signatures on file Bettis, Waller, Texas