

PRODUCT ADVISORY NOTICE

KEEPING YOU INFORMED OF PRODUCT CHANGES

To: All Customers, Sales Representatives and Distributors

Date: December 23, 2019

Subject: 62D Die Cast Bushing Retooling

This Product Advisory Notice is to alert you that Grayhill is retooling the die cast zinc bushing used on the 62D part numbers listed below. ***Please forward this notification to the appropriate person(s) in your organization.***

Description of Change

The die cast zinc bushing used in the 62D part numbers below is being retooled at an alternate supplier for supply chain risk mitigation reasons. This new tool has been qualified and approved for use in production units. Please see the qualification report SP02-2635.

Reason for Change

This die cast bushing has been retooled at a second source to mitigate supply chain risk potential issues.

Effective Date

December 23, 2019

Action Required

No action is required by the customer at this time. This is a notification of the configuration change on the part numbers below. Please contact your Grayhill, Inc. Customer Service Representative for further information.



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Part Numbers Affected

62D11-01-020C	62D11-02-120S	62D22-01-050CH	62D30-02-040SH
62D11-01-020SH	62D11-02-200S	62D22-01-060C	62D30-02-050C
62D11-01-040CH	62D11-02-200SH	62D22-01-080S	62D30-02-060C
62D11-01-040S	62D11-02-P	62D22-01-120C	62D30-02-060CH
62D11-01-040SH	62D15-01-020C	62D22-01-120S	62D30-02-120S
62D11-01-060C	62D15-01-020CH	62D22-01-P	62D30-02-P
62D11-01-060S	62D15-01-040C	62D22-02-020C	62DY11002
62D11-01-060SH	62D15-01-040SH	62D22-02-030C	62DY11013
62D11-01-080S	62D15-01-060SH	62D22-02-035C	62DY11018
62D11-01-080SH	62D15-01-100S	62D22-02-035S	62DY11021
62D11-01-120C	62D15-01-120CH	62D22-02-040C	62DY11025
62D11-01-120S	62D15-01-240C	62D22-02-040CH	62DY11028
62D11-01-150S	62D15-01-P	62D22-02-040S	62DY11029
62D11-01-P	62D15-02-020C	62D22-02-060CH	62DY11033
62D11-02-020C	62D15-02-040C	62D22-02-060S	62DY15026
62D11-02-020S	62D15-02-040CH	62D22-02-080CH	62DY15028
62D11-02-040C	62D15-02-140S	62D22-02-080S	62DY15031
62D11-02-040CH	62D15-02-200S	62D22-02-080SH	62DY15033
62D11-02-040S	62D15-02-P	62D22-02-200S	62DY15034
62D11-02-050C	62D18-01-020C	62D22-02-P	62DY15035
62D11-02-050CH	62D18-01-040C	62D30-01-020C	62DY18005
62D11-02-050S	62D18-01-040S	62D30-01-020S	62DY18005V2
62D11-02-060C	62D18-02-020C	62D30-01-P	62DY22011
62D11-02-070C	62D18-02-040C	62D30-02-020C	62DY22014
62D11-02-070CH	62D18-02-040CH	62D30-02-025CH	62DY22016
62D11-02-070S	62D18-02-040S	62D30-02-030C	62DY22017
62D11-02-080CH	62D18-02-P	62D30-02-030S	
62D11-02-080S	62D22-01-020C	62D30-02-035S	
62D11-02-100C	62D22-01-020SH	62D30-02-040C	
62D11-02-100S	62D22-01-040C	62D30-02-040S	





Intuitive Human Interface Solutions

Equipment Under Test:
621413 Bushing (62D Encoder)

Environmental Test:
N/A

Physical Test:
Rotational Life Cycle Test

Test Report Number:	SP02-2635
Test Start Date:	07/10/2019
Test Completion Date:	07/22/2019
Test Facility:	Grayhill Rotational Life Cycle Lab.
Test Requested By:	Jason Kifer Engineer
Test Performed By:	Neringa Noreika Quality Technician
Report Written By:	Neringa Noreika Quality Technician
Report Approved By:	Rupinder Bains Quality Lab Manager

1.0 PURPOSE

Rotational Life testing of 62D encoders built with 621413 bushings from new alternate supplier.

2.0 TESTING PERFORMED

Encoders were tested in accordance with MIL-STD-202G, Method 206.

Test Profile and Setup Details:

- Take initial torque readings
- Program Smart Motors to rotate encoders at 200 RPM to 500K cycles
- Mount encoders 1-5 in the normal orientation in the test fixture.
- Take torque readings for each unit at initial, 500k and 1 Million cycles
- For each unit record average CW & CCW torque at each of these milestones

Table 1 – Equipment List

Equipment ID	Equipment Type	Model Number	Manufacturer	Calibration Due Date
GT-153	Torque Sensor	BGI	Mark-10	03/2020
GT-199	Torque Wrench	CAL-36/4 Roto Torq	Sturtevant Richmond	03/2020
RLS-82 w/fix#65	Rotational Life Cycle Assy.	N/A	Grayhill	N/A
RLS-89 w/fix#74	Rotational Life Cycle Assy.	N/A	Grayhill	N/A
RLS-90 w/fix #26	Rotational Life Cycle Assy.	N/A	Grayhill	N/A



Figure 1 -Test Setup Photo

Table 2 – Test Conditions

Test Condition	Units	Parameters
Quantity	DUT	30
Operational Mode		Unpowered
Cycles		500K cycles in CW/CCW
Rotational Speed	RPM	200
Temperature	°C	23
Relative Humidity	%	30

3.0 TESTING SUMMARY

Acceptance Criteria:

All DUT are subject to the same pass/fail criteria. A test unit is deemed to have failed if the encoder has a bind of the switch shaft or if the spring has failed (no detent). Although torque readings are taken, the failure criteria is easily identified as increased torque, drag or binding of the shaft/bushing interface.

Table 3 – Test Results

DUT	Test	Specification	Pass	Test Location	Test Date
1 - 30	Rotational Life	MIL-STD-202G, Method 206	Pass	Grayhill Rotational Life Cycle Lab	07/10/2019 07/22/2019

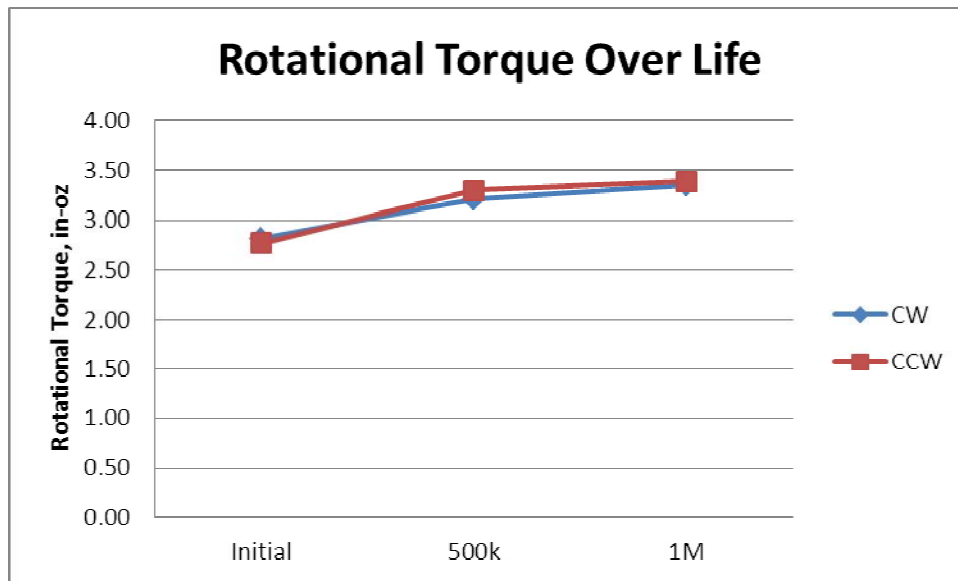


Figure 2- Average CW & CCW Rotational Torque

Sample #	Rivet Pushout Force (lbs)
1	216.0
2	282.0
3	274.0
4	285.0
5	299.0
6	276.0
7	227.0
8	253.0
9	281.0
10	303.0
11	292.0
12	234.0
13	242.0
14	284.0
15	233.0
16	274.0
17	253.0
18	296.0
19	294.0
20	298.0
21	279.0
22	306.0
23	312.0
24	235.0
25	304.0
26	305.0
27	227.0
28	282.0
29	289.0
30	247.0

Avg:	272.7
Std Dev:	28.4
CPK for 45 lb Min. Specification:	2.67