
SERVICE BULLETIN

MAINTENANCE OF WAY EQUIPMENT

DATE: 08 - 2025

BULLETIN NO: SBUS000131-25

TITLE: Installation instructions for new Encoder Seal Kits for RGH10C Rail Grinders with Cushman or GEMAC Gearboxes

RATING:

☐

DIRECTIVE
(Action Is Required)

☐

ALERT
(Potential Problem)

☐

INFORMATION
(Action Is Optional)

☒

PRODUCT IMPROVEMENT
(Enhance Product)

PRODUCT SERIES / MODEL: RGH10C Rail Grinders with Cushman or GEMAC Gearboxes

SERIAL NO: N/A

SUMMARY: Machines equipped with GEMAC and Cushman gearboxes have experienced encoder failures caused by gearbox oil leaking into the encoder and damaging its internal components. The newly designed encoder seal kits offer enhanced protection, significantly reducing the risk of oil intrusion and component damage.

OPERATIONAL IMPACT:

Encoder damage has occurred as a result of gearbox oil splashing into internal components. The encoder seal kits provided here offer improved protection, effectively preventing oil from entering and compromising the internal parts.

ACTION: Remove the encoder from the gearbox and install the appropriate seal kit—Harsco Rail #4052208 for Cushman gearboxes - or - Harsco Rail #4052210 for GEMAC gearboxes. Once the seal kit is installed, reattach the encoder to the gearbox. Each kit includes all components required for sealing one encoder.

CONTACT: Harsco Rail Parts Department
1-800-800-6410
Email: railparts@harsco.com

SAFETY INFORMATION



- Follow applicable railroad lockout - tagout procedures to disable energy sources when performing maintenance, making adjustments or repairs to the vehicle or equipment. Failure to heed this warning could result in severe bodily injury.
- Refer to energy control procedure to remove all energy sources from machine before performing maintenance or making adjustments or repairs to machine. Failure to comply could result in severe bodily injury.

Procedure Instructions - Machines with Cushman Gearboxes (refer to Harsco Rail print 4052208):

1. Refer to Harsco Rail Engineering print 4052208 - ENCODER SEAL KIT - CUSHMAN for installation instructions, reference views and parts list.
2. Remove fasteners mounting the encoder to the side of the gearbox and discard. Clean the mounting faces on the encoder and gearbox so they're free of debris or other build-up.
3. Loosen the set screws holding the original gearbox encoder adapter (Harsco Rail 4011688) onto the encoder shaft. Remove the gearbox encoder adapter and discard it along with the set screws. Clean the encoder shaft so it is free of any debris or other build-up.
4. Apply Loctite (6) to threads of the two Cup Point Set Screws (4).
5. Fit the new Encoder Adapter Shaft (1) onto the encoder shaft and secure with two Cup Point Set Screws (4).
6. Place the new Seal Housing Assembly (3) onto its mating face on the gearbox as illustrated in the assembly print.
7. Apply Loctite (6) to threads of the four Socket Head Cap Screws (5).
8. Mate the encoder onto the Seal Housing Assembly (3) ensuring the dog on the end of the encoder adapter shaft fully mates into the recess inside the gearbox. Secure all components onto the gearbox using supplied new Lockwashers (2) and new Socket Head Cap Screws (5). Tighten securely.
9. Repeat as needed for the other gearbox encoders on the machine.
10. Also refer to Harsco Rail Engineering print 4052209 - Seal Housing Assembly for it's assembly instructions, reference views and replacement parts list.

Encoder Seal Kit - Cushman Parts List - (see 4052208 print for Illustration)

ITEM	PART NO	DESCRIPTION	QTY
	4052208	ENCODER SEAL KIT - CUSHMAN	
1	4052203	SHAFT, ENCODER ADAPTER	1
2	F040128	LOCKWASHER	4
3	4052209	SEAL HOUSING ASSEMBLY	1
4	972	SCREW-SET, CUP PT, .25-20 X .25L, BO	2
5	6070	SCREW-SHC, #8-32 X 3.00 LG.	4
6	0-3040000-0-20	LOCTITE 243/.02 OZ TUBE	1

Procedure Instructions - Machines with GEMAC Gearboxes (refer to Harsco Rail print 4052210):

1. Refer to Harsco Rail Engineering print 4052210 - ENCODER SEAL KIT - GEMAC for installation instructions, reference views and parts list.
2. Remove fasteners mounting the encoder to the side of the gearbox and discard. Clean the mounting faces on the encoder and gearbox so they're free of debris or other build-up.
3. Loosen the set screws holding the original gearbox encoder adapter (Harsco Rail 5026784) onto the encoder shaft. Remove the gearbox encoder adapter and discard it along with the set screws. Clean the encoder shaft so it is free of any debris or other build-up.
4. Apply Loctite (6) to threads of the two Cup Point Set Screws (4).
5. Fit the new Encoder Adapter Shaft (1) onto the encoder shaft and secure with two cup point set screws (2).
6. Place the new Seal Housing Assembly (3) onto its mating face on the gearbox as illustrated in the assembly print.
7. Apply Loctite (6) to threads of the four Socket Head Cap Screws (5).
8. Mate the encoder onto the Seal Housing Assembly (3) ensuring the dog on the end of the encoder adapter shaft fully mates into the recess inside the gearbox. Secure all components onto the gearbox using supplied new Lockwashers (4) and new Socket Head Cap Screws (5). Tighten securely.
9. Repeat as needed for the other gearbox encoders on the machine.
10. Also refer to Harsco Rail Engineering print 4052209 - Seal Housing Assembly for it's assembly instructions, reference views and replacement parts list.

Encoder Seal Kit - GEMAC Parts List - (see 4052210 print for Illustration)

ITEM	PART NO	DESCRIPTION	QTY
	4052210	ENCODER SEAL KIT - GEMAC	
1	4052211	SHAFT, ENCODER ADAPTER	1
2	972	SCREW-SET, CUP PT, .25-20 X .25L, BO	2
3	4052209	SEAL HOUSING ASSEMBLY	1
4	F040128	LOCKWASHER	4
5	4052213	SKT HD CS M3 X 0.5, MACHINED	4
6	0-3040000-0-20	LOCTITE 243/.02 OZ TUBE	1

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Fairmont, MN
56031-1837
Tel: (507) 235-7376
Parts: (800) 800-6410
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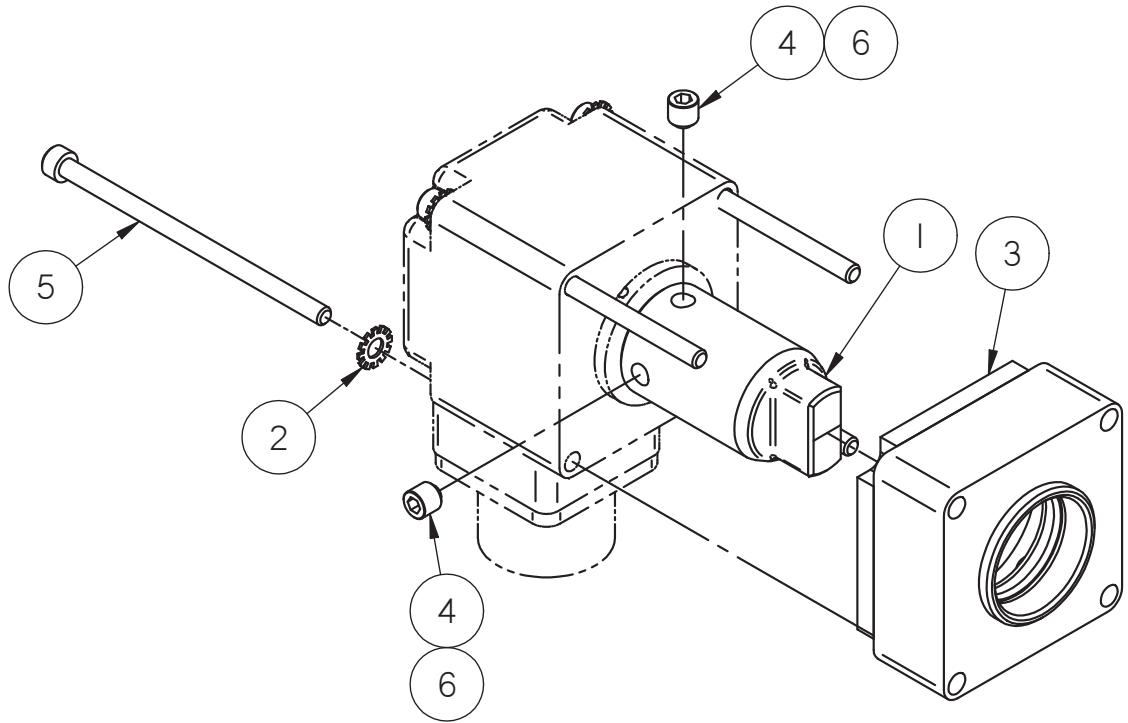
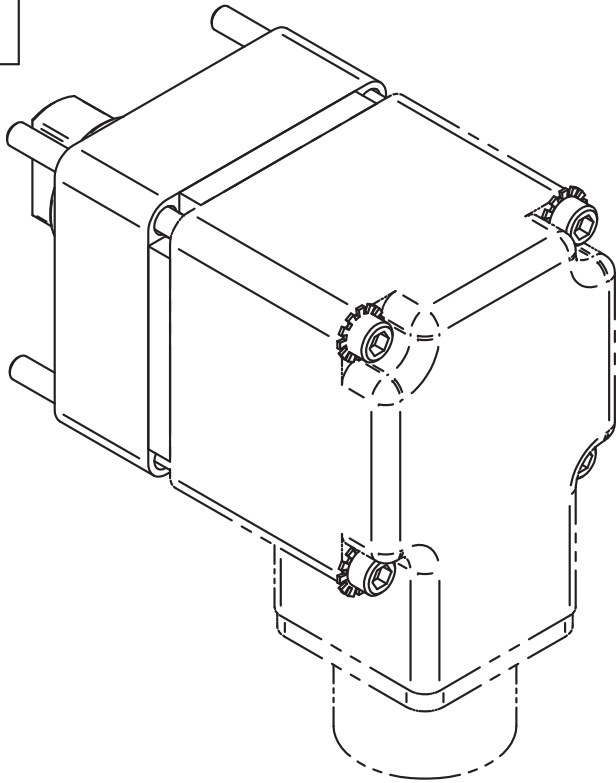
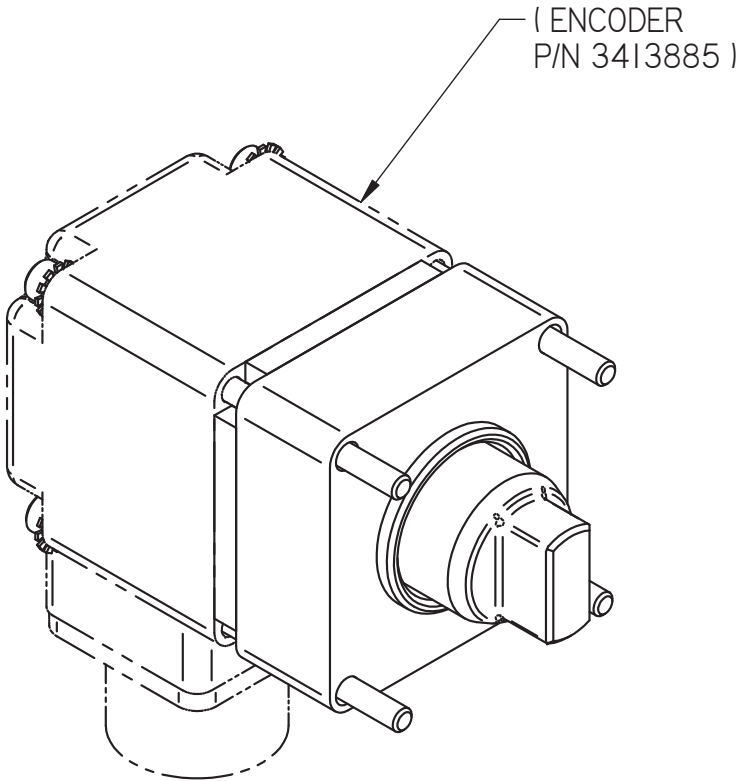
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ITEM	PART NO	QTY	DESCRIPTION
1	4052203	1	SHAFT, ADAPTER, ENCODER
2	F040128	4	LOCKWASHER
3	4052209	1	SEAL HOUSING ASSEMBLY
4	972	2	SCREW,SET,CUPPT,I/4-20X.25L,B0
5	6070	4	SCREW-SHC, #8-32 X 3.00 LG
6	0-3040000-0-20	1	LOCTITE 243/02 OZ TUBE

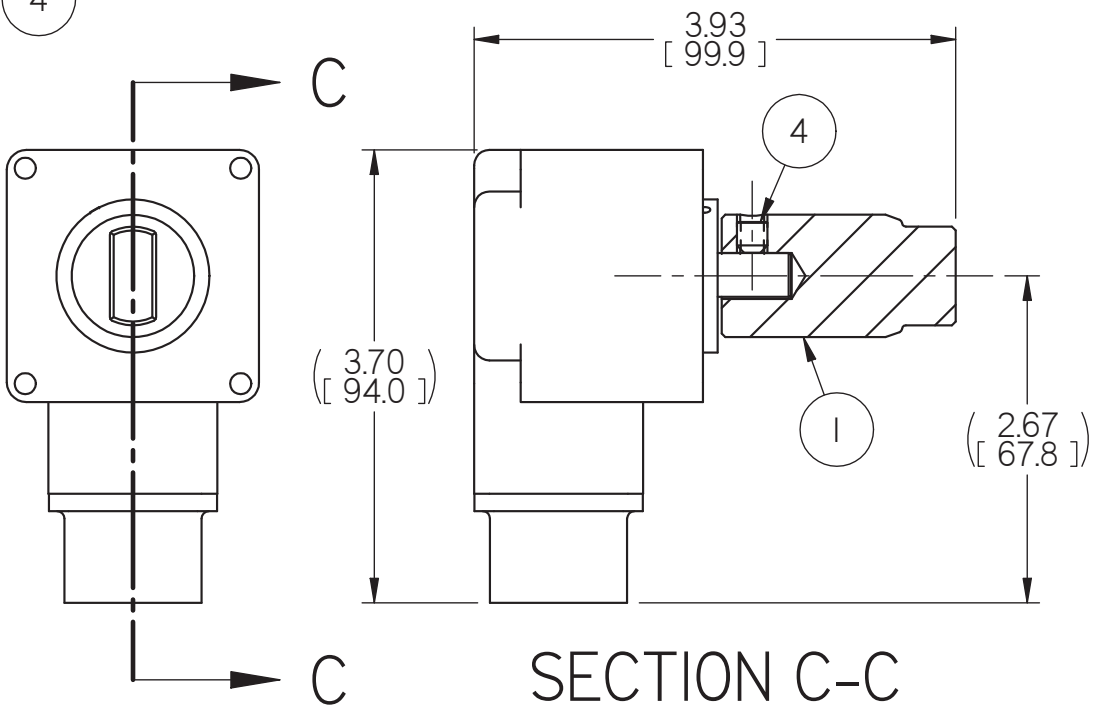
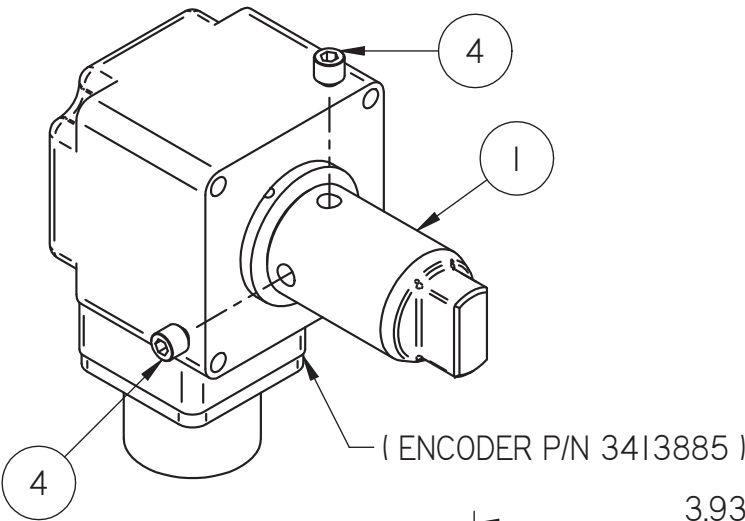
- NOTE:
- THIS KIT IS TO BE USED ON CUSHMAN / MERITOR GEARBOXES (FOR GEMAC XFGE SEE 4052210).
 - SOME BOGIE ASSEMBLIES THAT CAN USE THIS KIT (EXAMPLES);
5009516 - POWER BOGIE ASSEMBLY
5051687 - POWER BOGIE, NON-INSULATED
5109603 - POWER BOGIE ASSEMBLY

FEATURES ENCLOSED IN  ARE KEY CHARACTERISTICS								UNLESS OTHERWISE SPECIFIED: 1. REMOVE BURRS AND BREAK SHARP EDGES 2. ALL MACHINED SURFACES WILL HAVE: A SURFACE FINISH OF 125 MICRONS INCHES ANGULAR TOLERANCE OF ± .50° CONCENTRICITY WITHIN .010 3. ALL WELDS SHOULD ADHERE TO THE MOST CURRENT AWS WELDING STANDARDS 4. TORQUE ALL FASTENERS PER STD-1603D 5. TORQUE ALL FITTINGS PER STD 5369															
NOMINAL SIZE RANGE		INCH PLUS OR MINUS		NOMINAL SIZE RANGE		METRIC PLUS OR MINUS		CHANGE	R/L	REVISION		DR	DATE	Description				HARSCO RAIL					
OVER	TO	2 PLACE DECIMAL	3 PLACE DECIMAL	OVER	TO	1 PLACE DECIMAL	2 PLACE DECIMAL	EC616199	A	NEW RELEASE		CLB	08/03/23	ENCODER SEAL KIT - CUSHMAN				Machine Type RGH10C				Size B	
0	6	.03	.005	0	150	.8	.13							Material				Part Number				Sheet 1 of 2	
6	24	.04	.008	150	600	1.0	.20							Weight 1.283 lbm		Drawn cbecker		Date Drawn 5/27/2020		4052208			
24	-	.06	.010	600	-	1.5	.25							SOLID EDGE DRAWING				DO NOT SCALE					
 THIRD ANGLE PROJECTION																							
DRAFTED PER HARSCO RAIL STANDARD STD-1601D																							

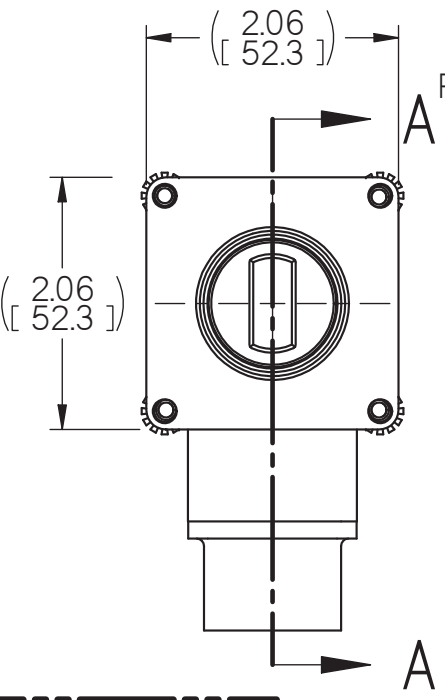
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ASSEMBLY STEP 1

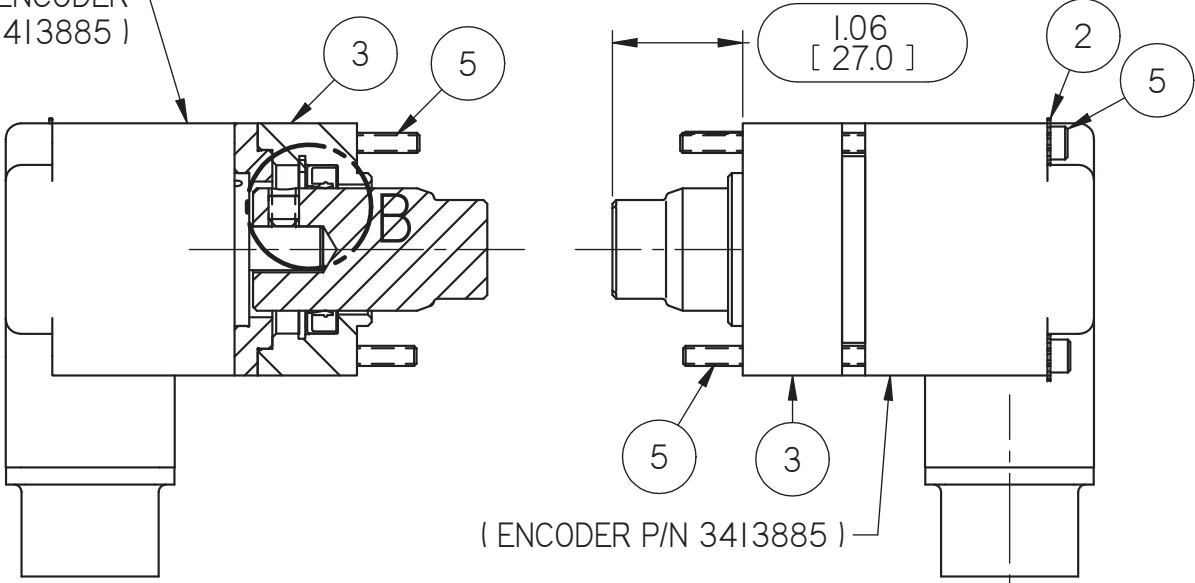


SECTION C-C



(ENCODER P/N 3413885)

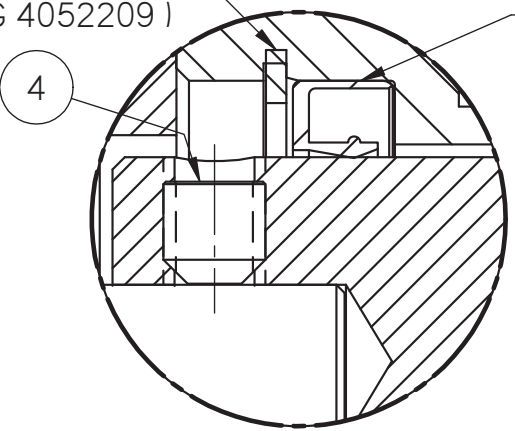
ASSEMBLY STEP 2



SECTION A-A

NOMINAL SHAFT PROJECTION DISTANCE FOR EFFECTIVE ENGAGEMENT WITH GEARBOX INTERMEDIATE SHAFT.

RETAINING RING F014990 (REF. DWG 4052209)
SEAL P/N 4052204 (REF. DWG 4052209)



DETAIL B

Inch [mm]

FEATURES ENCLOSED IN ARE KEY CHARACTERISTICS								UNLESS OTHERWISE SPECIFIED:				CHANGE				REVISION				DR				DATE				Description				HARSCO RAIL			
NOMINAL SIZE RANGE				PLUS OR MINUS				PLUS OR MINUS				EC616199				NEW RELEASE				CLB				08/03/23				ENCODER SEAL KIT - CUSHMAN				Machine Type RGH10C			
OVER				TO				1 PLACE DECIMAL																				Material				Weight 1.283 lbm			
2 PLACE DECIMAL				3 PLACE DECIMAL				OVER				TO				1 PLACE DECIMAL				2 PLACE DECIMAL				Date Drawn 5/27/2020				Machine Type RGH10C				Part Number 4052208			
0				6				.03				0				.8				.13															
6				24				.04				150				1.0				.20															
24								.06								1.5				.25															

1. REMOVE BURRS AND BREAK SHARP EDGES.

2. ALL MACHINED SURFACES WILL HAVE: A SURFACE FINISH OF 125 MICROINCHES ANGULAR TOLERANCE OF +.50° CONCENTRICITY WITHIN .010

3. ALL WELDS SHOULD ADHERE TO THE MOST CURRENT A.W.S. WELDING STANDARDS

4. TORQUE ALL FASTENERS PER STD-1603D

5. TORQUE ALL FITTINGS PER STD 5369

THIRD ANGLE PROJECTION

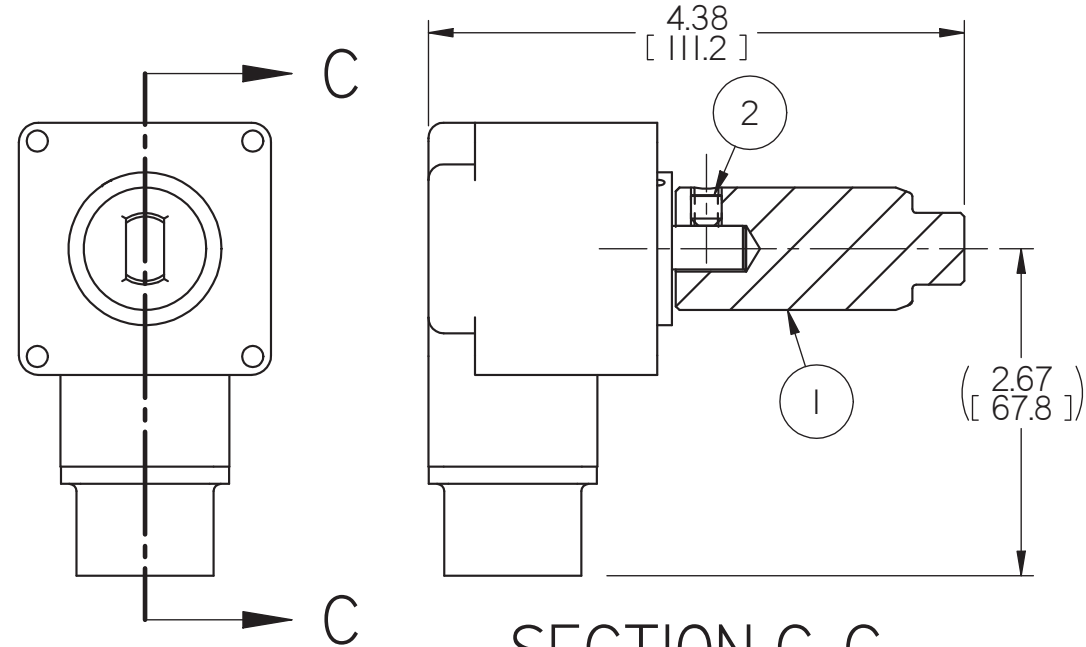
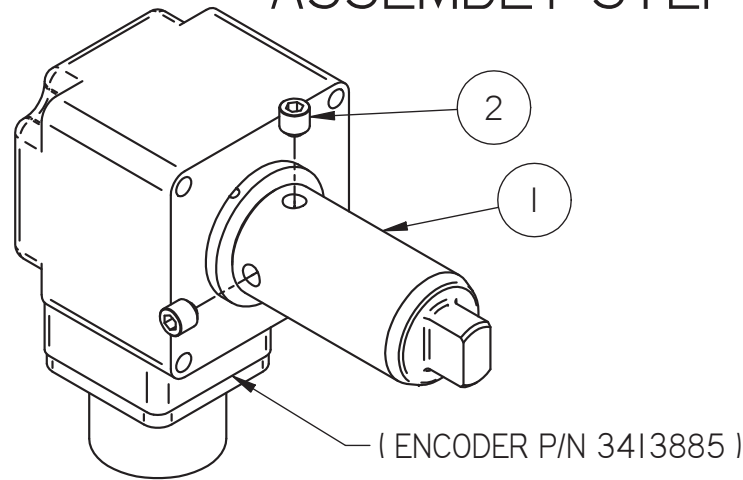
DRAFTED PER HARSCO RAIL STANDARD STD-1601D

6 5 4 3 2 1

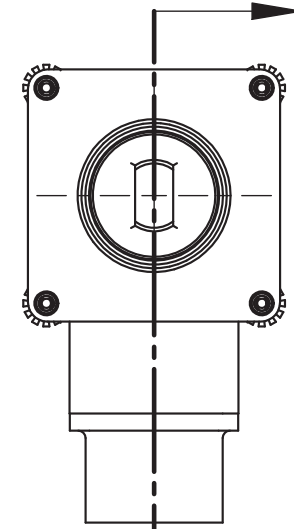
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ASSEMBLY STEP 1



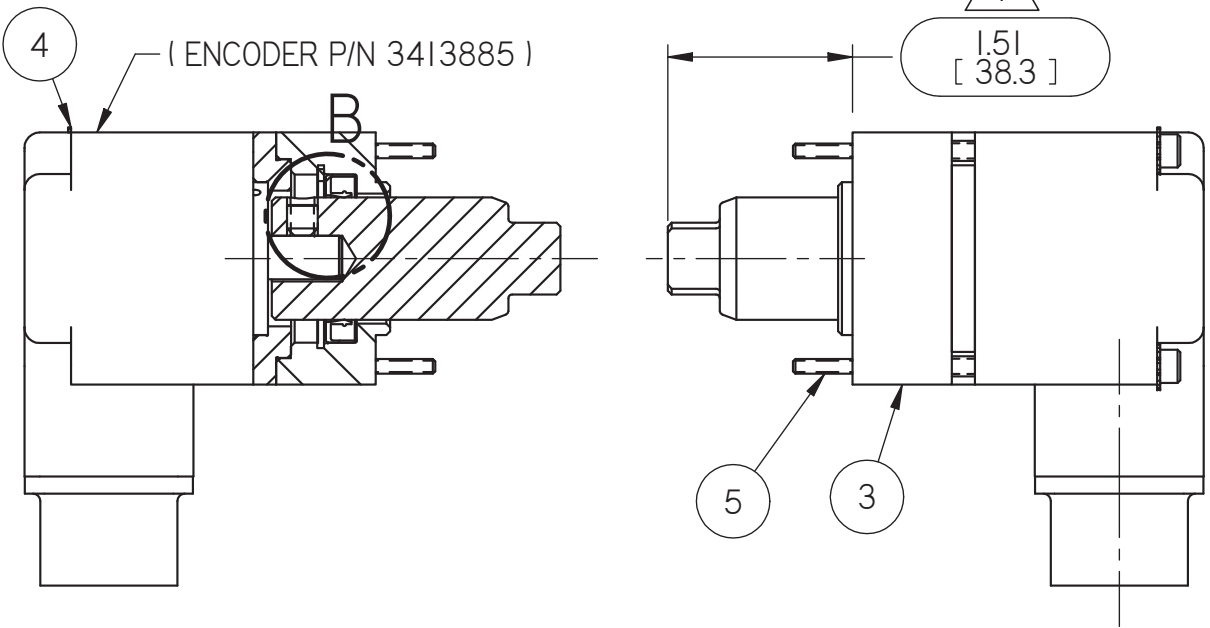
SECTION C-C



A

A

ASSEMBLY STEP 2

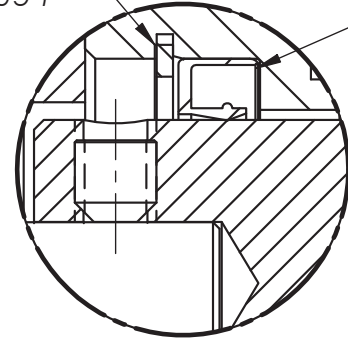


SECTION A-A

 NOMINAL SHAFT PROJECTION DISTANCE FOR ENGAGEMENT WITH GEARBOX INTERMEDIATE DRIVE SHAFT

RETAINING RING F014990
(REF. DWG 4052209)

SEAL P/N 4052204
(REF. DWG 4052209)



DETAIL B

Inch
[mm]

FEATURES ENCLOSED IN  ARE KEY CHARACTERISTICS										UNLESS OTHERWISE SPECIFIED:									
NOMINAL SIZE RANGE				PLUS OR MINUS				NOMINAL SIZE RANGE				PLUS OR MINUS				1. REMOVE BURRS AND BREAK SHARP EDGES			
INCH				METRIC				2. ALL MACHINED SURFACES WILL HAVE:				A SURFACE FINISH OF 125 MICROINCHES				ANGULAR TOLERANCE OF + .50°			
OVER	TO	2 PLACE DECIMAL	3 PLACE DECIMAL	OVER	TO	1 PLACE DECIMAL	2 PLACE DECIMAL	3. ALL WELDS SHOULD ADHERE TO THE MOST CURRENT A.W.S. WELDING STANDARDS				CONCENTRICITY WITHIN .010				4. TORQUE ALL FASTENERS PER STD-1603D			
0	6	.03	.005	0	150	.8	.13	5. TORQUE ALL FITTINGS PER STD 5369				THIRD ANGLE PROJECTION				DRAFTED PER HARSCO RAIL STANDARD			
6	24	.04	.008	150	600	1.0	.20									STD-1601D			
24	-	.06	.010	600	-	1.5	.25												

CHANGE	R/L	REVISION	DR	DATE	Description
EC616199	A	NEW RELEASE	CLB	08/03/23	ENCODER SEAL KIT - GEMAC
					Material
					Weight 1.364 lbm Drawn cbecker Date Drawn 6/10/2020
					SOLID EDGE DRAWING DO NOT SCALE

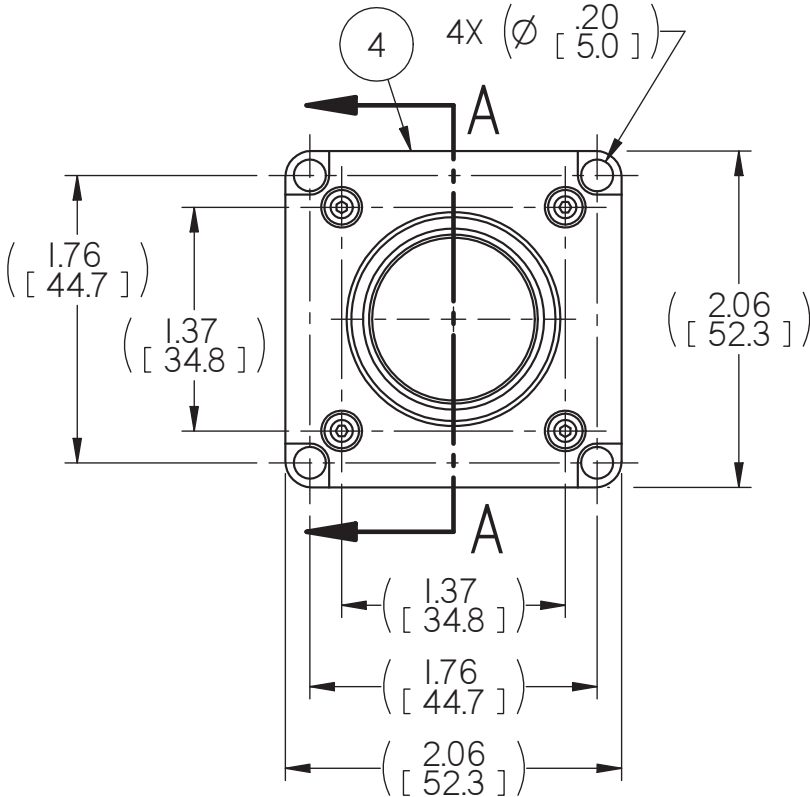
Machine Type RGH10C		Size B
Part Number 4052210		Sheet 2 of 2

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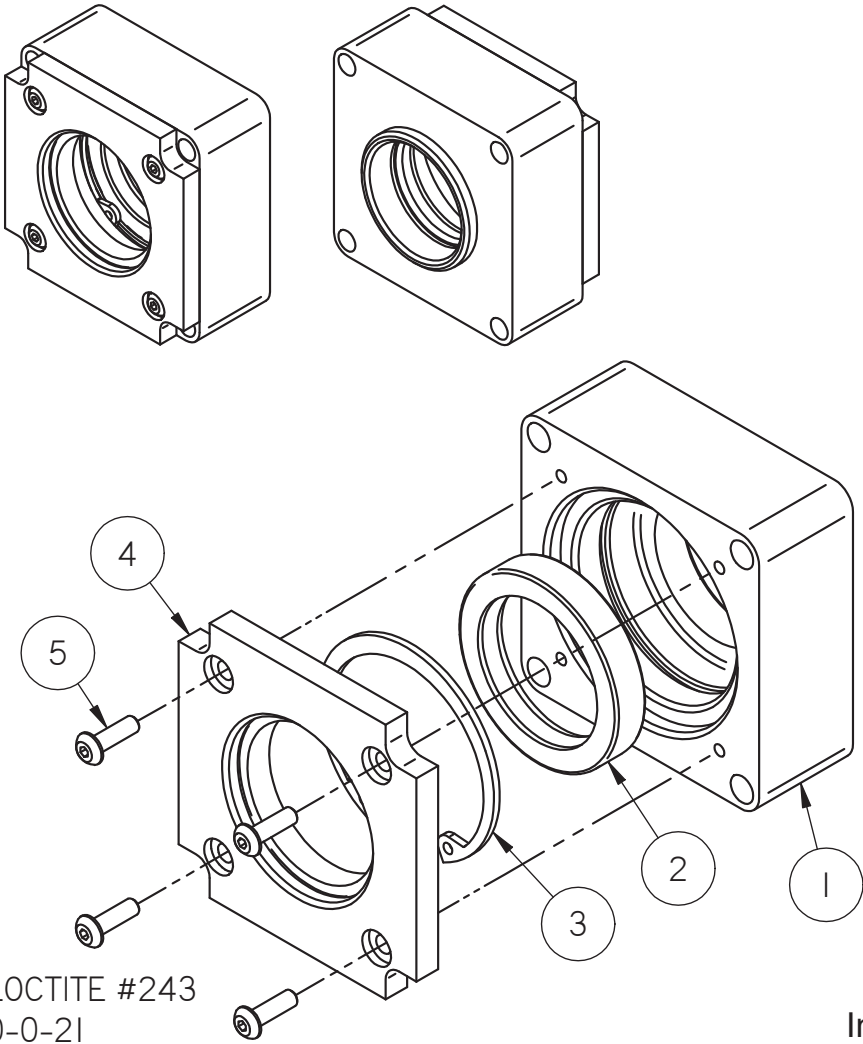
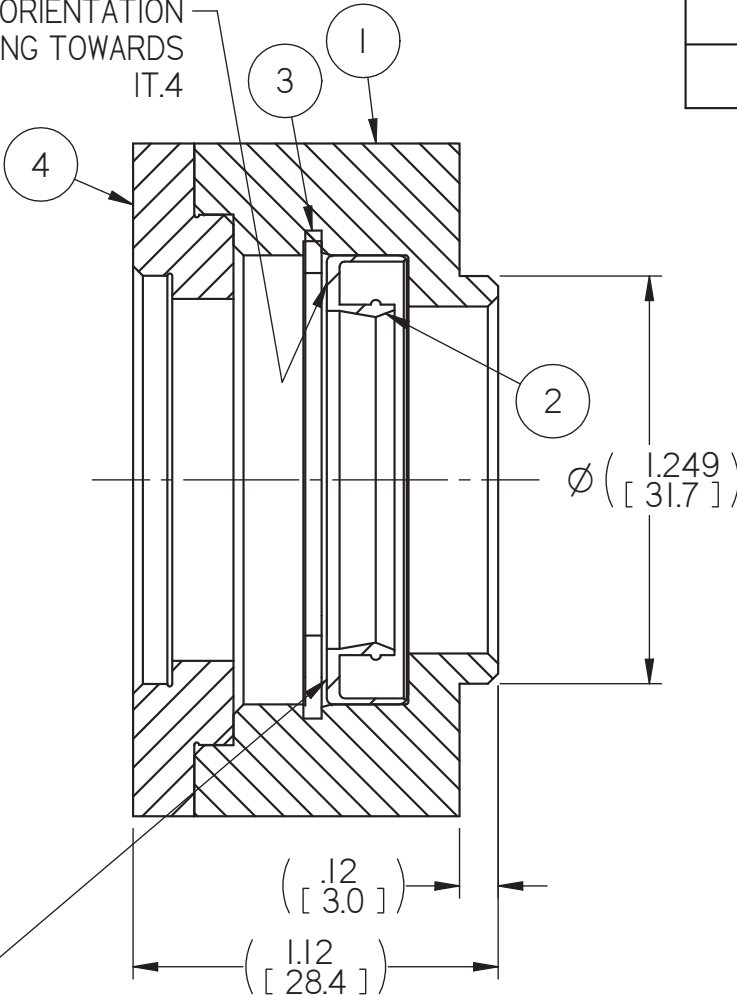
ITEM	PART NO	QTY	DESCRIPTION
1	4052205	1	SEAL HOUSING
2	4052204	1	SEAL, RADIAL SHAFT
3	F014990	1	RETAINING RING
4	4052206	1	SPACER, ENCODER KIT
5	I57082-5	4	SCREW-SBHC, #4-40 X .38 LG

ENSURE SEAL ORIENTATION
METAL SIDE FACING TOWARDS
IT.4



ENSURE SEAL ORIENTATION
METAL SIDE FACING TOWARDS
P/N 4052206

SECTION A-A



SECURE SCREWS WITH LOCTITE #243
HARSCO PN 0-3040000-0-21

Inch
[mm]

FEATURES ENCLOSED IN  ARE KEY CHARACTERISTICS								UNLESS OTHERWISE SPECIFIED:								CHANGE		R/L	REVISION				DR	DATE	Description											
NOMINAL SIZE RANGE		INCH PLUS OR MINUS		NOMINAL SIZE RANGE		METRIC PLUS OR MINUS		1. REMOVE BURRS AND BREAK SHARP EDGES 2. ALL MACHINED SURFACES WILL HAVE: A SURFACE FINISH OF 125 MICROINCHES ANGULAR TOLERANCE OF ±.50° CONCENTRICITY WITHIN .010 3. ALL WELDS SHOULD ADHERE TO THE MOST CURRENT A.W.S. WELDING STANDARDS 4. TORQUE ALL FASTENERS PER STD-1603D 5. TORQUE ALL FITTINGS PER STD 5369								EC616199	A	NEW RELEASE				SRS	05/28/20	SEAL HOUSING ASSEMBLY												
OVER	TO	2 PLACE DECIMAL	3 PLACE DECIMAL	OVER	TO	1 PLACE DECIMAL	2 PLACE DECIMAL	 THIRD ANGLE PROJECTION DRAFTED PER HARSCO RAIL STANDARD STD-1601D																		Material		Machine Type		Size						
0	6	.03	.005	0	150	.8	.13																									RGH10C				
6	24	.04	.008	150	600	1.0	.20																								Weight		Part Number		Sheet	
24	-	.06	.010	600	-	1.5	.25																								0.8 lbm		rsami		4052209	
																											Date Drawn		5/27/2020		DO NOT SCALE					
																											SOLID EDGE DRAWING									