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## SERVICE BULLETIN

### MAINTENANCE OF WAY EQUIPMENT

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**DATE:** 11-2016

**BULLETIN NO:** 16-007

**TITLE:** PD Workhead Output Shaft Seal

**RATING:**

<input type="checkbox"/>	<b>DIRECTIVE</b> (Action Is Required)	<input type="checkbox"/>	<b>ALERT</b> (Potential Problem)
<input type="checkbox"/>	<b>INFORMATION</b> (Action Is Optional)	<input checked="" type="checkbox"/>	<b>PRODUCT IMPROVEMENT</b> (Enhance Product)

**PRODUCT SERIES / MODEL:** Model 6700SJ2PD Production and Switch Tampers  
(2011-Present)

**SERIAL NO:** See list at the end of this Service Bulletin

**SUMMARY:** **This Service Bulletin will supersede Service Bulletin SB15-015 regarding replacement of PD Workhead Output Shaft Seals.** The positive displacement workhead Vibratory Assemblies (PD Workheads) manufactured since December 2015 with the new two-piece seal design continue to experience output shaft seal leaks. Although these workhead vibrators improved output shaft bearing pre-load retention, the new seal is not working in the application. This Service Bulletin provides the information to revert back to the original seal.

The excessive output shaft end play, and subsequent excessive radial movement of the output shaft is a root cause of the original seals leaking. This root cause has been addressed in PD Vibratory Assemblies manufactured since December 2015.

**OPERATIONAL IMPACT:** The leaks do not impair tamping performance, however they are a nuisance, and in extreme cases can be an environmental issue.

**ACTION:** Seal Replacement

**PD Vibrators manufactured from Dec 2015 to present:**

Replace two-piece seal and flange with Seal and Flange per this Service Bulletin, and provided in Service Kit 5068441.

**PD Vibrators manufactured from 2011 to Dec 2015:**

- a) If original seal (Part No. L40550) is installed, leave as is - replace as needed.
- b) If a PD Workhead seal has been replaced per Service Bulletin 15-015, Seal Kit 5060758, then replace the two-piece Seal and Flange with Seal and Flange per this Service Bulletin and provided in Service Kit 5068441.

*Note: Once a PD Workhead Vibrator has been updated with the Seal and Flange per this Service Bulletin, only the seal (Part No. L40550) is required in the future.*

**ACTION:** PD Workhead Rebuild

Many factors go into the decision of when to rebuild a Workhead, whether it is the entire Workhead Installation or only the PD Vibratory Assemblies. No-one parameter should be used to make this decision, and at least the following should be considered: overall condition of machine, operational intensity (regional versus production gang), operator experience, track conditions, quality and timing of periodic maintenance and servicing, etc.

During the life of a PD Vibratory Assembly – between rebuilds - periodic servicing will be required. This will include changing out the output seal, squeeze pin, and flanged bushings as required.

**PD Vibrators manufactured from Dec 2015 onward -**

Consider rebuilding when one or more of the following has occurred:

- a) 5 million insertions
- b) 5 years or seasons
- c) 7000 Machine (engine) hours.

**PD Vibrators manufactured from 2011 to Dec 2015 -**

Consider rebuilding when one or more of the following has occurred:

- a) 3 million insertions
- b) 4 years or seasons
- c) 4500 Machine (engine) hours.

Vibrators will be rebuilt to the latest design, which includes minimizing output shaft movement, and including the Seal and Flange described in this Service Bulletin.

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**SAFETY INFORMATION**



■ **FOLLOW APPLICABLE RAILROAD LOCKOUT - TAGOUT PROCEDURE TO DISABLE ENERGY SOURCES WHEN PERFORMING MAINTENANCE, MAKING ADJUSTMENTS OR REPAIRS TO THE EQUIPMENT. FAILURE TO HEED THIS WARNING COULD RESULT IN SEVERE BODILY INJURY.**

**OUTPUT SHAFT SEAL & SHAFT SEAL FLANGE REPLACEMENT PROCEDURE**

- Be sure to follow the specific detail shown in Harsco Rail engineering drawing - 5068441.

1. Remove Tamping Tools from Tamping Tool Holder (use Removal Tool - Harsco Rail p/n 5013208)
2. Remove Tamping Tool Holder from Output Shaft (use Removal Tool - Harsco Rail p/n 5013205)
3. Remove old Seal Carrier Flange and O-Ring by first removing the four retaining bolts and sliding the Seal Carrier Flange (with seal) off the Output Shaft. Discard the removed items.
4. Remove old Speedi-Sleeve® if damaged in any way. Discard the removed items.
5. Install new Speedi-Sleeve® - Harsco Rail p/n C4905Y03 that comes with the kit to the specified dimension on the drawing. Use Installation Tool - Harsco Rail p/n 5068501.
6. Install the new Seal - Harsco Rail p/n L40550 into the new Shaft Seal Flange - Harsco Rail p/n 5068152 provided in the Kit.
7. Install the new Shaft Seal Flange (with seal) and O-Ring provided in Kit into the Vibratory Assembly using Permatex® Gasket Maker the four new bolts provided.
8. Install the Tool Holder on the Output Shaft.
9. Install the Tamping Tools.

**5068441 - OUTPUT SHAFT SEALS & FLANGE KIT**

ITEM	PART NO	DESCRIPTION	QTY
1	5068152	FLANGE, SHAFT SEAL . . . . .	1
2	L40550	OIL SEAL (VIB). . . . .	1
3	150323-83	SNAP RING-INT, .109 THICK X 4.724 DIA . . . . .	1
4	5007185	O-RING, 5.237 ID X .103 VITON . . . . .	1
5	3564	SCREW-SHC, .25-20 X 1.00 LG . . . . .	4
6	C4905Y03	SEAL, SPEEDI-SLEEVE . . . . .	1

**Recommended Special Tools** (not included in 5068441 - Output Shaft Seal & Flange Kit)

- 5068501 Speedi-Sleeve Tool (Blue in color for identification)  
(for installing Speedi-Sleeve onto Shaft)
- 5013208 Removal Tool Assy, Tamp Tools  
(for removing Tamping Tools from Tamping Tool Holders)
- 5013205 Removal Tool Assy, Tool Holder  
(for removing Tamping Holder from Output Shafts)

**Positive Displacement (PD) Workhead - Machine Build Record (as of November 2015)**

Only Vibrators that were updated per Service Bulletin #SB15-015 on machines shown in Table 1 below require Service Kit 5068441 per this Service Bulletin.

Contact Harsco Rail, providing PD Vibrator Serial Number for warranty replacement of Seal and Flange.

TABLE 1  
PD WORKHEAD MACHINES  
MANUFACTURED IN LUDINGTON, MI

Customer/Railroad	Year	Machine Number	Machine Serial Number
CSX (FCM)	2011		153660
			153675
			153676
			153677
			153678
Alaska	2012	ET-20	153697
CP/Delta	2012		152625
Rebuild machines at Delta			152733
			152790
			152791
UPRR	2012	ATS-1201	153715
		ATS-1202	153716
		ATS-1203	153717
		ATS-1204	153718
KCS	2013		153734
KCS	2014		153751
UPRR	2014	ATS-1401	153778
		ATS-1402	153779
		ATS-1403	153780
		ATS-1404	153777
Relam	2014		153766
KCS	2015		153786
			153789
UPRR	2015	ATS-1501	153805
		ATS-1502	153806
		ATS-1503	153807
UPRR	2016	ATS-1601	153831 (*)
		ATS-1602	153832 (*)

(\*) Requires Service Kit 5068441 per this Service Bulletin

**Re-Manufactured Positive Displacement (PD) Workheads - (as of December 2015)  
(Machine Serial Numbers not known)**

PD Workhead Vibrators used in re-manufacturing programs or as spares also fall under this service bulletin and require Service Kit 5068441. Machine Serial Numbers are not known.

All Vibrators listed in Tables 2-1 and 2-2 require Service Kit 5068441 per this Service Bulletin.

TABLE 2-1  
INDIVIDUAL PD VIBRATORS USED FOR SPARES  
OR IN RE-MANUFACTURING PROGRAMS  
LISTED BY SERIAL NUMBER

Customer / Railroad	Build Completion Date	Vibrator Serial Number	Customer / Railroad	Build Completion Date	Vibrator Serial Number
CP/Delta	15-Dec-2015	172154	UPRR	17-Feb-2016	172178
		172155			172179
		172156			172180
		172157			172181
		172158			172182
		172159			172183
		172160			172184
		172161			172185
CP/Delta	15-Dec-2015	172162	UPRR	26-Feb-2016	172186
		172163			172187
		172164			172188
		172165			172189
		172166			172190
		172167			172191
		172168			172192
		172169			172193
UPRR	21-Dec-2015	172170	-	-	172194
		172171			172195
		172172			172196
		172173			172197
		172174			172198
		172175			172199
		172176			-
		172177	-	-	173101

**TABLE 2-2  
INDIVIDUAL PD VIBRATORS USED FOR SPARES  
OR IN RE-MANUFACTURING PROGRAMS  
LISTED BY SERIAL NUMBER**

Customer / Railroad	Build Completion Date	Vibrator Serial Number	Customer / Railroad	Build Completion Date	Vibrator Serial Number		
UPRR	15-Apr-2016	173102	UPRR	12-Apr-2016	173125		
		173103	-	-	173126		
		173104	-	25-Apr-2016	173127		
		173105			173128		
BNSF	15-Apr-2016	173106	BNSF or Stock	9-Jun-2016	173129		
		173107			173130		
		173108			173131		
		173109			173132		
UPRR	Phase 1	173110			UPRR	16-Jun-2016	173133
		173111					173134
		173112					173151
		173113					173152
		173114					173153
		173115					173154
		173116					173155
		173117					173156
-	-	173118	UPRR	16-Jun-2016	173157		
		173119			173158		
		173120			173159		
		173121			173160		
		173122			173161		
		173123			173162		
		173124			173163		
					173164		
					173165		

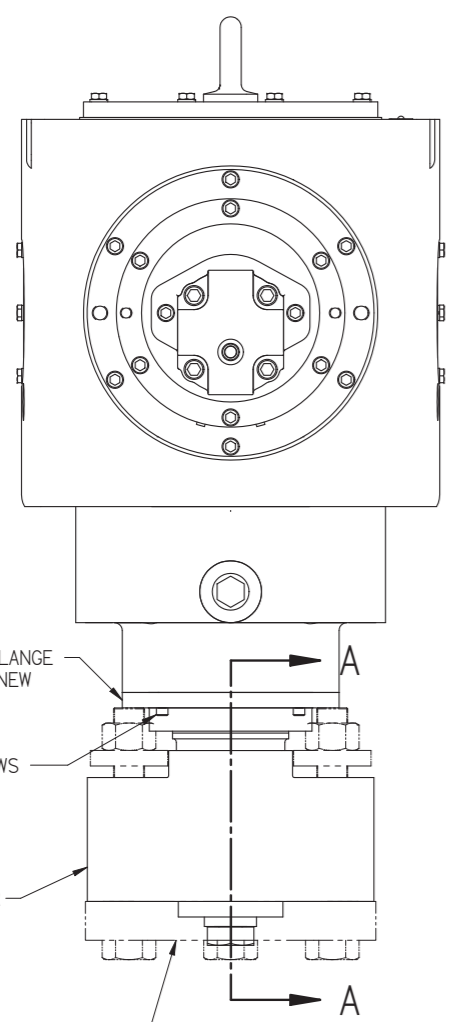
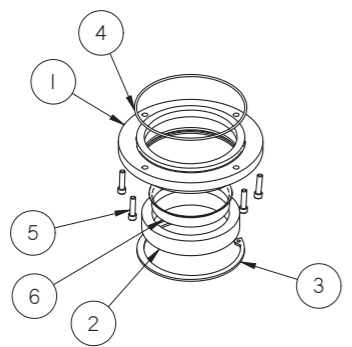
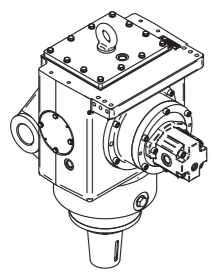
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REMOVE TOOL HOLDER USING HARSCO RAIL #5013205

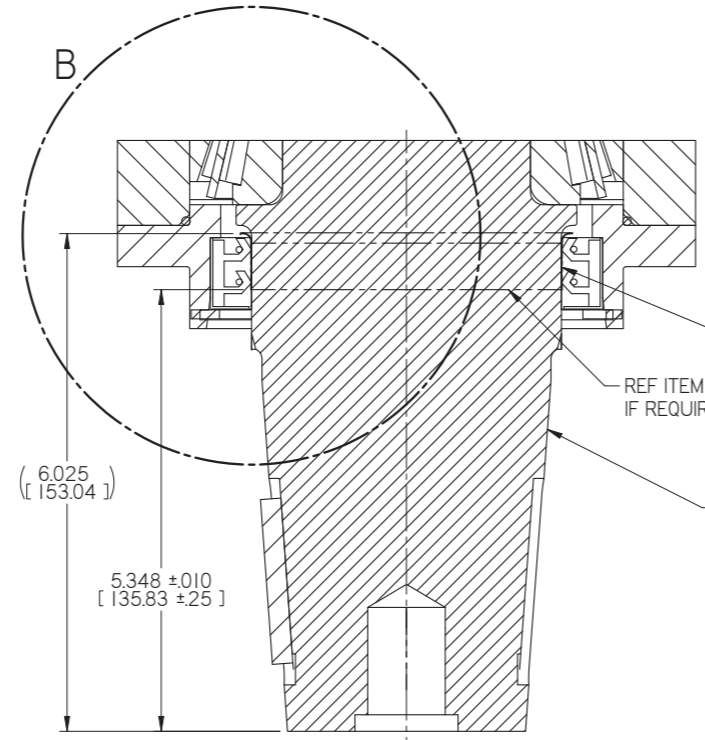
### REFERENCE DRAWINGS

INCLUDE A COPY OF EACH OF THE FOLLOWING DRAWINGS WITH EACH KIT

DRAWING #	DESCRIPTION
506844I	OUTPUT SHAFT SEALS & FLANGE KIT
501321I	REMOVAL TOOLS, PD WORKHEAD

ITEM	PART NO	QTY	DESCRIPTION
1	5068152	1	FLANGE, SHAFT SEAL
2	L40550	1	OIL SEAL (VIB)
3	150323-83	1	SNAP RING- INT, .109 THICK X 4.724 DIA
4	5007185	1	O-RING, 5.237 ID X .103 VITON
5	3564	4	SCREW-SHC, .25-20 X 1.00 LG
6	C4905Y03	1	SEAL, SPEEDI-SLEEVE

**RECOMENDED INSTALLATION TOOLS FOR INSTALLING THIS KIT; (NOT INCLUDED)**  
 5013211 REMOVAL TOOL FOR TOOL HOLDER  
 5068501 SPEEDIE SLEEVE INSTALL TOOL (BLUE COLOR FOR IDENTIFICATION)  
**NOTE: PREVIOUS VERSIONS OF INSTALL TOOL WILL NOT POSITION THE SLEEVE CORRECTLY. USE ONLY THE BLUE TOOL #5068501**



SECTION A-A

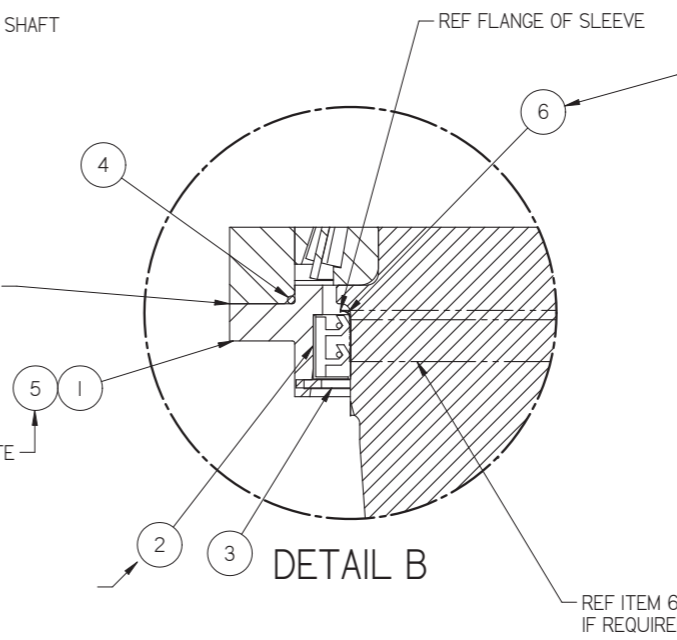
USE PERMATAX GASKET MAKER #51845

#### STEP #1 DISASSEMBLY

1. REMOVE OLD SEAL, CARRIER AND SEAL. DISCARD PARTS.
2. REMOVE SPEEDIE SLEEVE (IF PRESENT)
3. CLEAN SEALING SURFACE.

#### STEP #3 SEAL ASSEMBLY

1. PRESS ITEM 2, OIL SEAL, INTO ITEM 1, FLANGE, SHAFT SEAL, WITH LIPS FACING TOWARDS INSIDE OF VIBRATOR HOUSING WHEN INSTALLED. IF INSTALLING IN USED FLANGES, APPLY A COAT OF LOCTITE MR GS2 GASKET SEALANT ONTO OUTSIDE DIAMETER OF SEAL.
2. PRESS ITEM 2, OIL SEAL UNTIL IT BOTTOMS OUT IN COUNTER BORE OF ITEM 1, FLANGE, SHAFT SEAL.
3. PACK HIGH TEMPERATURE GREASE, MOBIL GREASE XHP 222, LITHIUM COMPLEX GREASE BETWEEN THE TWO SEAL LIPS
4. LIGHTLY COAT THE 3.750" OUTSIDE DIAMETER (SEAL SURFACE) OF THE VIBRATOR SHAFT WITH HIGH TEMPERATURE GREASE, MOBIL GREASE XHP 222, LITHIUM COMPLEX GREASE.



DETAIL B

#### STEP #2 SHAFT INSPECTION

**NOTE: IF CONDITION OF SEAL FACE ON SHAFT REQUIRES A SPEEDIE SLEEVE REPAIR, FOLLOW THESE INSTRUCTIONS TO INSTALL ITEM 6 (ONLY IF REQUIRED):**

1. INSTALL BEFORE ITEMS 1, 2, 3, & 4.
2. ENSURE SHAFT & SLEEVE ARE CLEAN. INSPECT SHAFT FOR BURRS, GROOVES AND GOUGES. FILE OFF BURRS. FILL GROOVES AND GOUGES, THEN FILE SMOOTH.
3. INSTALL SLEEVE USING HARSCO TOOL 5068501 (BLUE). STANDARD SKF TOOL AND PREVIOUS DESIGN HARSCO TOOL (YELLOW) WILL NOT PROVIDE THE CORRECT POSITION OF THE SLEEVE. FLANGED END GOES ON FIRST. GENTLY TAP THE CENTER OF TOOL UNTIL BOTTOM OF TOOL IS AGAINST END OF OUTPUT SHAFT TO ACHIEVE DIMENSION SHOWN.
4. MEASURE FROM END OF SHAFT TO EDGE OF SLEEVE, MUST MEASURE 5.348 +/- .010.
5. LUBRICATE SHAFT BEFORE INSTALLING SEAL.

#### STEP #4 INSTALL NEW SEAL HOUSING & SEAL

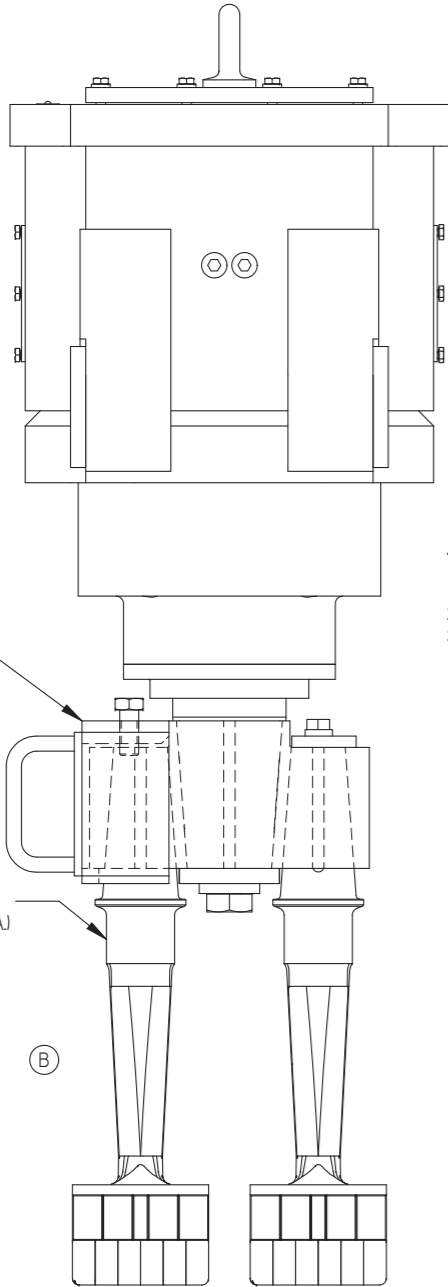
REF: SERVICE BULLETIN: SBI6-007 - P.D. WORKHEAD OUTPUT SHAFT SEAL

CONFIDENTIAL										CHANGE	R/L	REVISION	DR	DATE	Description	HARSCO RAIL	
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<small>UNLESS OTHERWISE SPECIFIED ALL MACHINED SURFACES WILL HAVE A SURFACE FINISH OF 10 MICRONS INCHES ANGULAR TOLERANCE OF 1.5° CONCENTRICITY WITHIN .010"</small>										<small>THIRD ANGLE PROJECTION</small>		<small>UNLESS OTHERWISE SPECIFIED ALL WELDS SHALL CONFORM TO THE MOST CURRENT A.W.S. WELDING STANDARDS</small>		Weight 6.1 lbm Date Drawn 9/2/2016 Drawn CROSSO DO NOT SCALE		Sheet 1 of 1	

REFERENCE DRAWINGS	
INCLUDE A COPY OF EACH OF THE FOLLOWING DRAWINGS WITH EACH KIT	
DRAWING #	DESCRIPTION
5013211	TOOL & TOOL HOLDER REMOVAL

ITEM	PART NO	QTY	DESCRIPTION
1	5013205	1	REMOVAL TOOL ASSY, TOOL HOLDER
2	5013208	1	REMOVAL TOOL ASSY, TAMP TOOLS

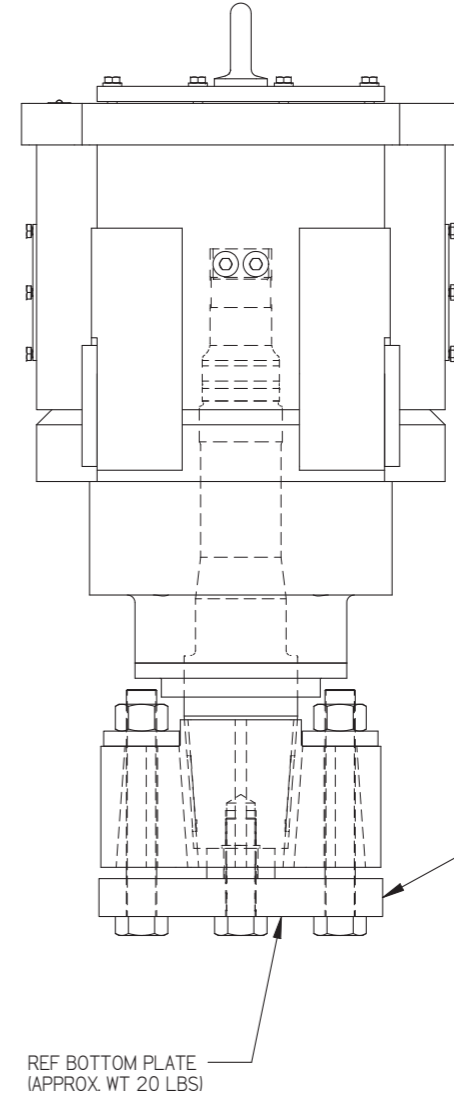
### TAMPING TOOL REMOVAL



**NOTE:**  
NEVER USE HEAVY HAMMER BLOWS TO REMOVE TAMPING TOOLS OR TOOL HOLDER AS BEARING DAMAGE MAY RESULT.

- TAMPING TOOL REMOVAL**
1. REMOVE EXISTING BOLT, FLAT WASHER, & LOCKWASHER, FROM TOOL BEING REMOVED.
  2. INSTALL ITEM 2, MAKING SURE BOLT DOES NOT PROTRUDE THROUGH THE TOP PLATE.
  3. TIGHTEN BOLT WITH WRENCH UNTIL TOOL LOOSENS AND FALLS OUT. A SLIGHT TAP ON TAMPING TOOL MAY BE NEEDED. TOOL MAY POP FREE WITH FORCE, TAKE PRECAUTIONS FOR OPERATOR SAFETY.

### TAMPING TOOL HOLDER REMOVAL



- TOOL HOLDER REMOVAL**
1. BOTH TAMPING TOOLS MUST BE REMOVED.
  2. REMOVE EXISTING BOLT, LOCKWASHER, & FLAT WASHER.
  3. INSTALL BOTTOM PLATE WITH SUPPLIED BOLT, SNUG TIGHT.
  4. INSTALL THE SUPPLIED BOLTS, FLAT WASHERS, & NUTS AS SHOWN.
  5. EQUALLY TIGHTEN NUTS ALTERNATING TO EACH SIDE UNTIL TOOL HOLDER LOOSENS, A SLIGHT TAP WITH HAMMER ON SIDE OF CENTER BORE MAY BE NEEDED.
  6. HOLDER WILL BE HEAVY, (APPROX. WT 24 LBS), FOR OPERATOR SAFETY, USE CARE WHEN REMOVING CENTER BOLT.

REF TAMPING TOOLS  
(APPROX. WT 18 LBS EA)

REF BOTTOM PLATE  
(APPROX. WT 20 LBS)

CONFIDENTIAL				INCH		METRIC		UNLESS OTHERWISE SPECIFIED, ALL MACHINES SURFACES WILL HAVE A SURFACE FINISH OF 125 MICROINCHES ANGULAR TOLERANCE OF .1° THIRD ANGLE PROJECTION		CHANGE	R/L	REVISION	DR	DATE	Description	Machine Type	Part Number	Sheet						
<small>           ■ COPYRIGHT 2011 HARSCO. THIS DRAWING OR DOCUMENT IS THE PROPERTY OF HARSCO AND EMBODIES CONFIDENTIAL INFORMATION, TRADE SECRET INFORMATION, AND/OR KNOW-HOW THAT IS THE PROPERTY OF HARSCO. BY ACCEPTING THIS DRAWING OR DOCUMENT, THE RECIPIENT AGREES (1) NOT TO PROVIDE, OR OTHERWISE MAKE AVAILABLE, THE DRAWING OR DOCUMENT, OR ANY INFORMATION OR KNOW-HOW EMBODIED THEREIN, TO ANY THIRD PARTY AND (2) NOT TO REPRODUCE OR USE THE DRAWING OR DOCUMENT TO MANUFACTURE ANY APPARATUS OR DEVICE, WITHOUT THE PRIOR WRITTEN AUTHORIZATION OF HARSCO.         </small>				0	8	.00	.005	0	150	.8	13													
6	24	.04	.008	150	800	1.0	.20																	
24	-	.06	.010	800	-	1.5	.25																	
<small>           UNLESS OTHERWISE SPECIFIED, ALL WELDS SHOULD ADHERE TO THE MOST CURRENT A.W.S. WELDING STANDARDS         </small>										EC502454	A	RELEASE	CTR	02DEC11	REMOVAL TOOLS, PD WORKHEAD									
										EC507716	B	UPDATED GEOM. CORR NOTE, CHG BOM WAS 10, 20,....	CTR	02JUL13										
															Weight	32.1 lbm	Drawn	CTR	Date Drawn	02DEC11	Part Number	5013211	Sheet	1 of 1
										SOLID EDGE DRAWING		DO NOT SCALE												

Inch  
[mm]

**HARSCO**  
RAIL

PD WORKHEAD

5013211