	Standard Work Instruction No. SWI7.5-129	Rev. NR	Page 1 of 18
	Isuzu NPR XD Walkramp Interference With Fuel Hoses		
Identify Process Owner: Engineering, Josh Hunsberger	Document Control Administrator:		

MORGAN CORPORATION

INSPECTION

Issue Date: xx/xx/16
Revision Date: xx/xx/16

**Isuzu NPR XD Walkramp Interference With Fuel Hoses**

1.0	Application
	Applies to Isuzu NPR XD chassis, which were potentially built with an insufficient thickness of mounting wood. This document will identify potential interference (and, if necessary, retrofit) with the aft-axle mounted fuel tank hoses/fittings/fuel pick-up and the walkramp.
2.0	PPE (Special)
	N/A
3.0	Tools
	Varies, see individual sections.
4.0	Specific Tools
	Varies, see individual sections.
5.0	Fixtures (if required)
	N/A
6.0	Applicable Documents
	Varies, see individual sections.
CTS- Critical to Safety CTQ- Critical to Quality CTM- Critical to Manufacturing	
7.0	Inspection
7.1	Suggested Tool: <ul style="list-style-type: none">• Tape Measure• Flashlight• Pen• Inspection Report (provided, page 18)
7.2	CTS- Park the UNLOADED truck on a level surface with the transmission in PARK. Apply the EMERGENCY BRAKE and install a LOCK OUT TAG on the truck.

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7.3

Locate and record the VIN located in the driver side cab door jamb (See Figure 1), and the Morgan Serial # located on the metal ID tag on the roadside, bottom, front of body (See Figure 2). Record these values on the *Inspection Report* (Page 18 of this document).



(Figure 1)



(Figure 2)

7.4

Verify that the chassis is an Isuzu NPR XD (See Figure 3) with an aft-axle mounted fuel tank (See Figure 4) and a walkramp installed between the frame rails (See Figure 5). [If chassis is NOT an Isuzu NPR XD with an aft-axle fuel tank with a walkramp installed between the frame rails, -STOP!- and proceed to the *Inspection Report* (Page 18 of this document) fill out lines 1-5 on the inspection report and submit the inspection report per the information in the *Report* section. No further action is required. Otherwise, continue with Inspection (and, if necessary, retrofit).]

**Note: Some chassis may not have the "Isuzu NPR XD" label as shown in Figure 3. If no Label, Identify via "K" value in the 12th VIN digit.*



(Figure 3)

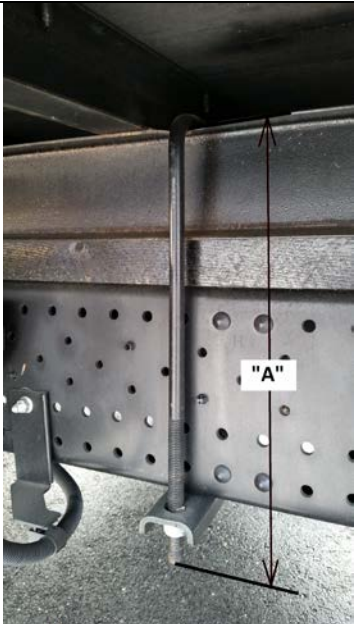


(Figure 4)

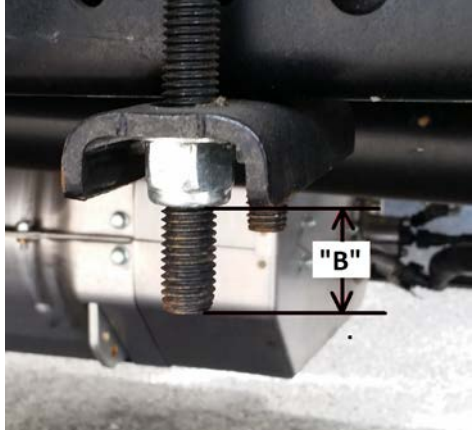
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		<p>(Figure 5)</p>
<p>7.5</p>	<p>Locate an accessible area (roadside and curbside) under the body to measure the overall height of the longrail and mounting wood (See Figure 6). Record these values on the <i>Inspection Report</i> (Page 18 of this document).</p> <p>The overall height of the longrail and mounting wood must be NO LESS than 7-1/4".</p> <p>Exception: If the truck has a 1 piece Thermo-King refrigeration unit that has the Thermo-King fuel pick-up tube installed into the Isuzu aft-axle fuel tank, (See Figure 7), then the overall height of the longrail and mounting wood must be NO LESS than 8" for these trucks only.</p>	<p>(Figure 6)</p> <p>(Figure 7)</p>
<p>7.6</p>	<p>If the overall height DOES meet the minimum requirements as described above, -STOP!- and proceed to the <i>Inspection Report</i> (Page 18 of this document) fill out lines 1-7 on the inspection report and submit the inspection report per the information in the Report section. Otherwise, continue with Inspection (and, if necessary, retrofit).</p> <p>If the overall height DOES NOT meet the minimum requirements as described above, proceed as follows:</p>	

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<p>8.0</p>	<p>Evaluate</p>	
<p>8.1</p>	<p>Unlatch walkramp and carefully pull walkramp out from under the body.</p>	
<p>8.2</p>	<p>Carefully position yourself under the truck body to inspect the fuel hoses (refrigeration unit fuel hoses and/or Isuzu fuel hoses) coming out of the top of the fuel tank (See Figure 7, above). Note any dampness from potential fuel leaks in the fuel tank area. Note any damage (scuffing, tearing, bending, crushing, etc.) of the Isuzu or refrigeration unit fuel hoses/fittings/clamps/pick-up that resulted from contact with the walkramp. Note any damage to the fuel tank itself as well. Record these findings in the <i>Inspection Report</i> (Page 18 of this document).</p> <div style="border: 2px solid red; padding: 5px; margin-top: 10px;"> <p>CTS- If a fuel leak has been noted, the ignition must NOT be turned on to prevent any further fuel leakage and contamination. The chassis must be towed or pushed so that no further fuel leakage occurs until the unit is properly repaired.</p> </div>	
<p>8.3</p>	<p>Count and record the quantity of standard U-bolts (legs down) and quantity of inverted U-bolts (legs up). Measure the overall length of U-bolts from the inside of the “U” to the end of the U-bolt threads and record the overall length of the U-bolts (See Figure 8), also measure and record the amount of exposed threads past the nut (See Figure 9). Record these findings in the <i>Inspection Report</i> (Page 18 of this document).</p>	 <p style="text-align: center;">(Figure 8)</p>

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		 <p>(Figure 9)</p>
<p>8.4</p>	<p>If NO damage or fuel leak were noted in step 8.2, BUT the overall height of the longrail and mounting wood does <u>NOT</u> meet the minimum height requirement referenced in step 7.5 then proceed to step 9.0. Otherwise, continue to Step 8.5.</p>	
<p>8.5</p>	<p>Submit completed <i>Inspection Report</i> (Page 16 of this document) per the information in the Report section, and then wait for instruction from Morgan. Morgan will contact you with instructions and/or an authorization P.O. as well as a list of parts that Morgan will provide.</p> <p>After receiving authorization and parts from Morgan, continue to Retrofit section below.</p>	

CTS- If you are not willing or able, not properly trained, not properly equipped with tools and/or equipment to perform the required retrofit(s) below, please contact an approved Morgan service center, or Gary Herbert at Morgan 1-800-666-7426 x2245.

**Prior to performing any of the following retrofits, the Inspection Report must be submitted to the Morgan Corporation, and parts must be ordered.*




MORGAN CORPORATION

RETROFIT


**Isuzu NPR XD Walkramp Interference With Fuel Hoses**

9.0	Retrofit - Remounting Body With Additional Mounting Wood	
9.1	Suggested Tool: <ul style="list-style-type: none">• 15/16" hex deep socket, 1/2" square drive• 1/2" square drive ratchet wrench• 1/2" square drive torque wrench• Jack stands• Electric grinder• Welder• Paint equipment• Grease pencil• (Other, as needed)	
9.2	New Parts Required: <ul style="list-style-type: none">• Mounting wood (thickness & length varies)• U-bolts (if necessary, size and style varies)• U-bolt nuts, nylon locking nuts, 5/8-11 (qty varies) (Morgan P/N: 052232)• U-bolts washers, 5/8" flat washer, 1-5/16" O.D. (qty varies) (Morgan P/N: 05261)• (2) Walkramp decals (Morgan P/N: 081397 & 081390)• (2) Mounting wood splice channel (Morgan P/N: 1041004)• (2) Walkramp nuts, nylon locking nuts, 3/8-16 (Morgan P/N: 05211)• (1) Walkramp carrier nut, nylon locking nut, 3/8-16 (Morgan P/N 1116344)• (24) Nylon zip-tie (Morgan P/N: 05540)	
9.3	Reference Documents: <ul style="list-style-type: none">• Morgan Engineering Standards 4-5, 4-6, 4-17, 4-18 & 4-22.• Morgan Drawings MD0000, MD0000B & MD0001.	
9.4	<div style="border: 2px solid red; padding: 5px;">CTS- Park the UNLOADED truck on a level surface with the transmission in PARK. Apply the EMERGENCY BRAKE and install a LOCK OUT TAG on the truck.</div> <p><i>*Longer U-bolts may be required to remount the body with additional mounting wood*</i></p>	
9.5	Remove the walkramp and carrier/trolley assembly.	

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9.6	Mark exact position of each U-bolt on body longrail and on chassis frame rail (use grease pencil or similar marker).	
9.7	Disconnect any electrical harnesses or connections as required. Disconnect at connection/plugs rather than cutting wiring, if possible. Also disconnect refrigeration unit fuel hoses, and remove hose loop clamps or cable ties (as required).	
9.8	Loosen and remove all U-bolt mounting nuts, washers and tie channels. Discard all U-bolt mounting nuts, they shall NOT be reused. Mark existing body location on chassis frame.	
9.9	Remove or loosen rear bumper or other as required. Walkramp latch plate must remain at exact same distance from bottom of body before determining how to remove or loosen bumper.	
9.10	Raise body to an adequate position and height, safely secure and stabilize the body using jack stands or other means. While slowly raising the body, ensure there are no other connections to the body. If subsequent repair steps from above are required, complete those steps now otherwise continue to the next step in this section.	
9.11	Remove and/or add new mounting wood to meet the minimum height requirement referenced in 7.5 from above. Do not exceed an overall longrail and mounting wood required height by more than 1/4".	
9.12	Before remounting the body, perform any other retrofits required from below. If no other retrofits are required proceed to the next step.	

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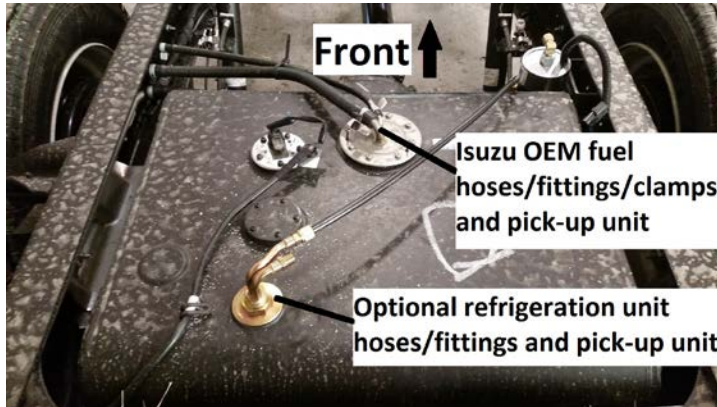
<p>9.13</p>	<p>Position and lower body back over chassis frame; ensure not to damage any chassis components, wires, hoses or other items when lowering body onto frame. Make sure to align U-bolts around mounting wood and chassis frame.</p>	
<p>9.14</p>	<p>Install U-bolt tie channels, washers and NEW nuts at positions marked in step 3 above, torque to 50 ft-lbs (± 10 ft-lbs).</p>	
<p>9.15</p>	<p>Re-connect all electrical harnesses or other disconnected accessories & clamps and re-secure as required. (refrigeration unit fuel hoses)</p>	
<p>9.16</p>	<p>Remount rear bumper or other as required. Ensure the walkramp latch and latch plate in rear bumper function properly. The rear bumper and/or latch plate must move with the body to maintain a proper working relationship.</p>	
<p>9.17</p>	<p>Reinstall walkramp and carrier/trolley assembly, use new nuts (provided).</p>	
<p>9.18</p>	<p>Ensure all mounting hardware is properly torqued; all lights and accessories are working properly and refrigeration unit is working properly (if applicable).</p>	
<p>9.19</p>	<p>Once complete and the body is remounted to chassis, verify there is no contact between walkramp and fuel hoses or fittings.</p> <p>Measure and verify longrail and mounting wood height meets the minimum requirements referenced in step 7.5 from above.</p>	

10.0 Retrofit - Replacing Isuzu OEM Hoses and Clamps (If Necessary)

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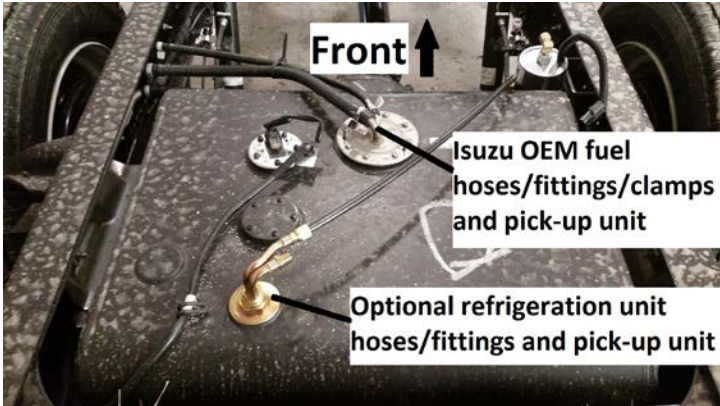
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<p>10.1</p>	<p>Suggested Tool:</p> <ul style="list-style-type: none"> • Adjustable pliers
<p>10.2</p>	<p>New Parts Required:</p> <ul style="list-style-type: none"> • Item 1: (1) Fuel hose, larger O.D. (Isuzu P/N: 8-98114-269-1) • Item 2: (1) Fuel hose, smaller O.D. (Isuzu P/N: 0-01558-300-0) • Item 3: (2) Hose clamps, larger O.D. (Isuzu P/N: 8-98150-356-0) • Item 4: (2) Hose clamps, smaller O.D. (Isuzu P/N: 8-98150-357-0) • Item 5: (1) Nylon zip-tie (Morgan P/N: 05540)
<p>10.3</p>	<p>Reference Documents:</p> <ul style="list-style-type: none"> • Isuzu Fuel Pick-Up Replacement
<p>10.4</p>	<p>Unmount body, reference steps 9.0 from above.</p>
<p>10.5</p>	<p>Squeeze and slide hose clamps off both ends of the (2) fuel hoses, (4) clamps total.</p>
<p>10.6</p>	<p>Remove the (2) fuel hoses and (4) clamps, do not damage metal fuel lines or fittings. Be careful of excess fuel in fuel lines & hoses.</p>
<p>10.7</p>	<p>Install new clamps and fuel hoses, secure to the fittings and fuel lines with the</p>

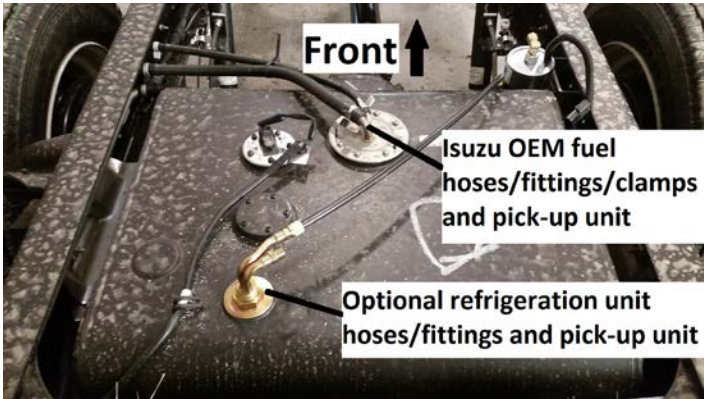
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		properly sized hose clamps.	
	10.8	Install zip-tie around the middle of the 2 hoses, and tighten without pinching hoses.	
	10.9	Ensure all fuel hoses and fittings are properly connected, clamped, secured and that there are no fuel leaks.	
	10.10	Remount body, reference steps 9.0 from above.	
11.0	<p>Retrofit – Replacing Isuzu OEM Fuel Pick-up Unit, Hoses & Clamps (If Necessary)</p> <p><i>* If fuel pick-up assembly is damaged, it's assumed the hoses and clamps are damaged as well, and all must be replaced.</i></p> 		
	11.1	<p>Suggested Tools Required:</p> <ul style="list-style-type: none"> • Adjustable pliers • Phillips screwdriver 	


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11.2	<p>New Parts Required:</p> <ul style="list-style-type: none"> • Item 1: (1) Fuel hose, larger O.D. (Isuzu P/N: 8-98114-269-1) • Item 2: (1) Fuel hose, smaller O.D. (Isuzu P/N: 0-01558-300-0) • Item 3: (2) Hose clamps, larger O.D. (Isuzu P/N: 8-98150-356-0) • Item 4: (2) Hose clamps, smaller O.D. (Isuzu P/N: 8-98150-357-0) • Item 5: (1) Black nylon zip-tie (Morgan P/N: 055401) • Item 6: (1) Fuel pick-up w/ gasket (Isuzu P/N: 8-98195-722-0) 	
11.3	<p>Reference Documents:</p> <ul style="list-style-type: none"> • Isuzu Fuel Pick-Up Replacement 	
11.4	<p>Unmount body, reference steps 9.0 from above.</p>	
11.5	<p>Squeeze and slide hose clamps off both ends of the (2) fuel hoses, (4) clamps total.</p>	
11.6	<p>Remove the (2) fuel hoses and (4) clamps, do not damage metal fuel lines or fittings. Be careful of excess fuel in fuel lines & hoses.</p>	
11.7	<p>Loosen and remove the fuel pick-up unit mounting screws around flange that secure the unit to the fuel tank.</p>	
11.8	<p>Carefully remove fuel pick-up unit from fuel tank. Be careful of fuel dripping from the unit.</p>	
11.9	<p>Properly reinstall new fuel pick-up unit into the tank with fuel fittings facing in the correct direction, ensure that any gaskets or seals are properly in place.</p>	

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11.10	Secure the fuel pick-up unit with the mounting screws and tighten, do not over tighten or damage gaskets or seals.	
11.11	Install new clamps and fuel hoses, secure to the fittings and fuel lines with the properly sized hose clamps. Install zip-tie around the middle of the 2 hoses, and tighten without pinching hoses.	
11.12	Ensure all fuel hoses and fittings are properly connected, tightened, secured and there are no fuel leaks.	
11.13	Remount body, reference steps 9.0 from above.	
12.0	<p>Retrofit (<u>Refrigeration trucks only!</u>)– Replacing Refrigeration Unit Fuel Pick-up Unit, Hoses & Clamps (If Necessary)</p> <p><i>* Covers both Thermo-King and Carrier units.</i></p> 	
12.1	<p>Suggested Tools:</p> <ul style="list-style-type: none"> • Cordless drill with phillips bit • Small adjustable wrench • Large adjustable wrench • Pneumatic cutoff wheel • Metal deburring tool • Fuel hose cutting tool 	

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12.2	<p><u>Carrier</u>, New Parts Required:</p> <ul style="list-style-type: none"> Item 1: (1) Fuel pick-up assembly (Carrier P/N: 65-01091-00) Item 2: (1) Fuel hose, 3/8" O.D. X 25ft (Carrier P/N: 58-01391-00) Item 3: (1) Fuel hose, 1/4" O.D. X 25ft (Carrier P/N: 58-01390-00) Item 4: (2) Compression sleeve fitting kit, 3/8" O.D. hose (Carrier P/N: 40-01169-01) Item 5: (2) Compression hose sleeve, 1/4" O.D. hose (Carrier P/N: 40-00409-02) Item 6: (2) Compression hose eyelet, 1/4" O.D. hose (Carrier P/N: 40-00409-02) Item 7: (2) Compression hose nut, 1/4" O.D. hose (Carrier P/N: 40-00343-07)
12.3	<p><u>Thermo-King</u>, New Parts Required:</p> <ul style="list-style-type: none"> Item 2: (4) Compression sleeve & eyelet fitting kit, 3/8" O.D. hose (TK P/N: 10-242) Item 3: (4) Compression hose nut, 3/8" O.D. hose (TK P/N: 11-4941) Item 4: (1) Fuel hose, 3/8" O.D. (shorter supply hose), (TK P/N: 66-6856) Item 5: (1) Fuel hose, 3/8" O.D. x 35ft (return hose), (TK P/N: 11-4375) Item 31: (1) Fuel pick-up assembly (TK P/N: 11-9279)
12.4	<p>Reference Documents:</p> <ul style="list-style-type: none"> Carrier Fuel Pick-Up Diagram OR Thermo-King Fuel Pick-Up Diagram
12.5	<p>Unmount body, reference steps 9.0 from above. Be sure to disconnect fuel hoses & clamps as required and they are not secured to the chassis.</p>
12.6	<p>Disconnect fuel hoses from fuel pick-up unit by unthreading the hose fittings. Be careful of excess fuel in fuel lines & hoses.</p>
12.7	<p>Loosen and fully unthread the fuel pick-up unit mounting nut.</p> 
12.8	<p>Carefully angle fuel pick-up unit to remove</p>

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		from hole in fuel tank. Be careful of fuel dripping from the unit.	
	12.9	Using old pick-up unit as a guide cut the vertical pipe(s) on the new pick-up unit to the proper length. De-burr cut end and ensure all metal chips and dirt are removed.	
	12.10	Properly reinstall new fuel pick-up unit into the tank with fuel fittings facing in the correct direction, ensure that any gaskets or seals are properly in place.	
	12.11	Secure the fuel pick-up unit with the mounting nut and tighten, do not over tighten or damage gaskets or seals.	
	12.12	Remove the existing refrigeration unit fuel hose between the fuel tank and the fuel pump located on the inside of the curbside frame rail, forward of the fuel tank. Use this hose to measure and cut a new piece of supply hose.	
	12.13	Properly replace the supply fuel hose between the fuel tank and the fuel pump. Ensure the fuel hose fittings are properly tightened. (New fittings provided)	
	12.14	Remount body, reference steps 9.0 from above.	
	12.15	Remove the existing fuel return hose between the fuel tank and the refrigeration unit. Use this hose to measure and cut new lengths of hose for the new fuel hoses.	



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	12.16	Properly replace and secure the fuel hose between the fuel tank and the refrigeration unit. Ensure the fuel hose fittings are properly tightened. (New fittings provided)	
	12.17	Ensure all fuel hoses and fittings are properly connected, tightened, secured and there are no fuel leaks.	



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Inspection Report

- 1. Name of Inspector: _____ Phone#: _____
- 2. Customer (End User): _____ Date of Inspection: _____
- 3. Location of Unit (Address): _____
- 4. VIN: _____ NPR XD Chassis: Yes / No (circle one)
- 5. Morgan Body Serial #: _____
- 6. Overall height of longrail and mounting wood; Curbside: _____ Roadside: _____
- 7. Does this meet the minimum requirements: Yes / No (circle one)
*(If Yes, proceed to the **Report** section below)*
- 8. Note any damage or comments during your evaluation:

9. U-Bolt Information:

<u>U-Bolt Length</u> (Dimension "A")	<u>Length of Threads Past Nut</u> (Dimension "B")	<u>U-Bolt QTY</u>	<u>U-Bolt Style</u> (Legs up/Legs Down)

Report:

Submit this form and pictures (if applicable) to the Morgan Corporation via:

Email: Gary.Herbert@morgancorp.com & morgan.campaign@morgancorp.com

or Fax to: 610-286-2744. **PO will be issued for needed repairs and parts orders will be placed as needed.*

Issue Date: xx/xx/16

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