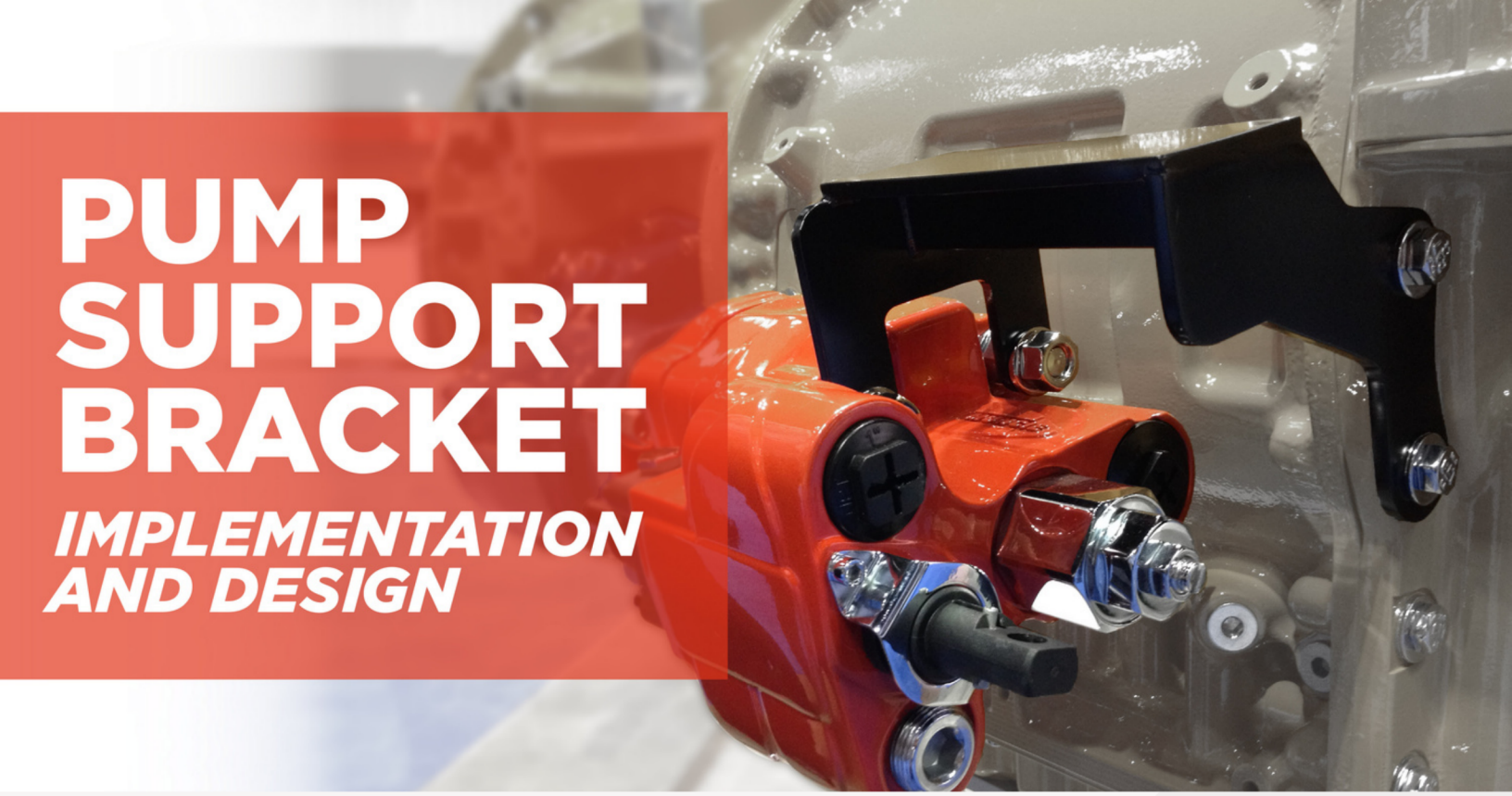


PUMP SUPPORT BRACKET

IMPLEMENTATION AND DESIGN

JIM ABBOTT – PRODUCT PLANNING AND APPLICATION ENGINEER

Muncie Power Products' E Series 27 gallon dump pump weighs roughly 70 lbs.—without fluid. That is 70 lbs. of weight hanging on the end of the PTO before fittings are installed, hoses are connected, and oil is added to the reservoir. In comparison, our TG8 Series PTO, which is commonly paired with a dump pump, weighs roughly 23 lbs.

Fortunately, Muncie Power's dump pump comes standard with extended studs which can and should be used to facilitate the installation of a pump support bracket.

Support brackets for hydraulic pumps are not only for dump pumps. Muncie Power provides a list of criteria in the PTO Operator's Manual (IN84-03 or IN17-04) to help guide you through the process of determining when and where to use a bracket.

WHEN TO USE A BRACKET

Unless otherwise specified, a pump support bracket **must be used** on all direct mount pump applications that include the following:

- Pumps over 40 lbs. (including unsupported hoses, fittings, oil, etc.)
- Pumps greater than 12" in length
- Dump, tandem, or multiple section pumps
- Pumps used in extreme or unknown conditions
- Or if you're simply not sure, use a bracket.
- **Note:** Some transmission makes and models may have different restrictions on pump and PTO bending moment that may necessitate a bracket be used at different weights and/or lengths than those listed above.

RESULTS OF NO BRACKET

Failing to implement a bracket when necessary could result in damages that range from bad to catastrophic.

Here is what could happen:

- The capscrews holding the output flange onto the PTO will break or come loose,
- The mounting fasteners holding the PTO on the transmission will break or come loose, or
- Total PTO and transmission failure.

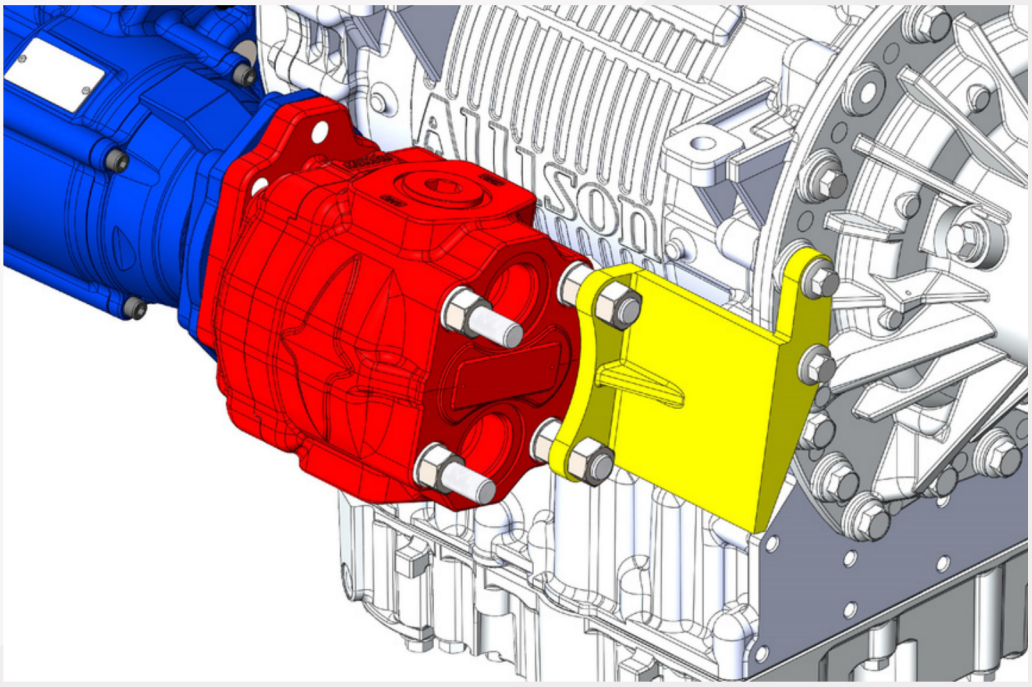
If the truck bounces hard enough, the acceleration and pump mass are enough to fracture the PTO housing, resulting in all the transmission fluid dumping out and the pump being dragged behind the truck by the hydraulic hoses.

BRACKET REQUIREMENTS

The bracket should

- Attach via two points closest to pump center of gravity in rear of pump, and two points on transmission—extended studs can be used for this connection (Consult the transmission manufacturer for approved mounting points on transmission.),
- Consist of a reinforced “Z” bracket with reinforced horizontal members or gussets to prohibit flexing at bends or welds,
- Be both vertically and horizontally rigid to prevent pump moving in any direction,
- Be of sufficient strength to properly support pump,
- Not put pump and/or PTO in bind to assure that no stress or force is exerted on pump or PTO shaft, and
- Not connect to nor contact frame rail or crossmembers.

FIGURE 1



In the example above, the pump support bracket (shown in yellow) meets Muncie Power's design requirements for it to be mounted to the transmission and to the hydraulic pump.

BRACKET BUILDING

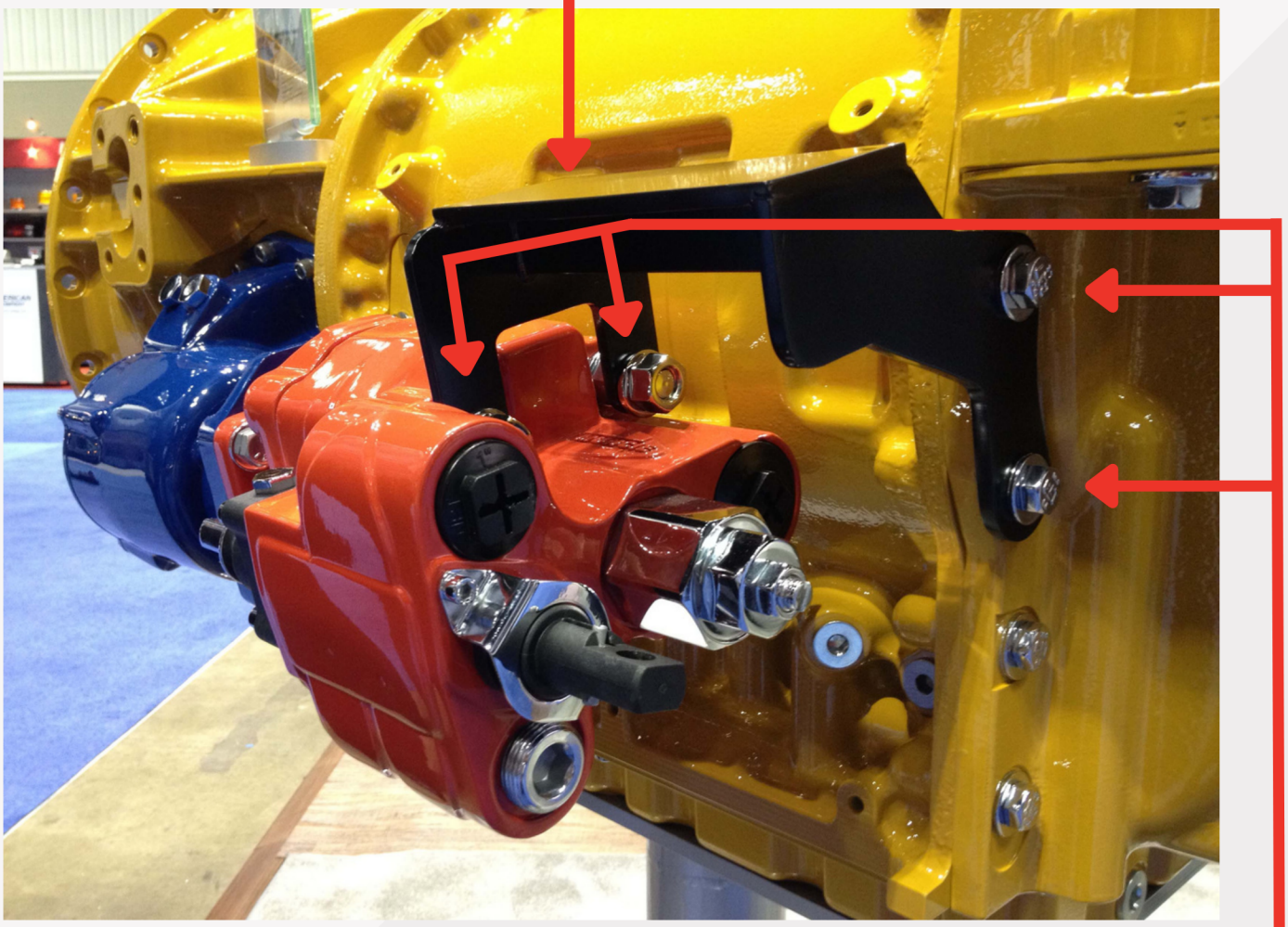
The building of the bracket is best done when the PTO and pump are installed on the transmission. A jack should be used to support the pump to remove any stress on the PTO. The two ends of the bracket are bolted to the pump and transmission, respectively, then the middle piece is held in position between the two and tack welded in place.

The bracket can then be removed and given a more permanent weld along with any required gussets and paint. It is critical that the finished bracket not put any stress on the PTO and the pump. The bracket should only support the pump such that the pump itself does not act as a lever arm on the PTO as the truck bounces and jounces during driving or operation of equipment.

See examples of pump support brackets on the following pages.

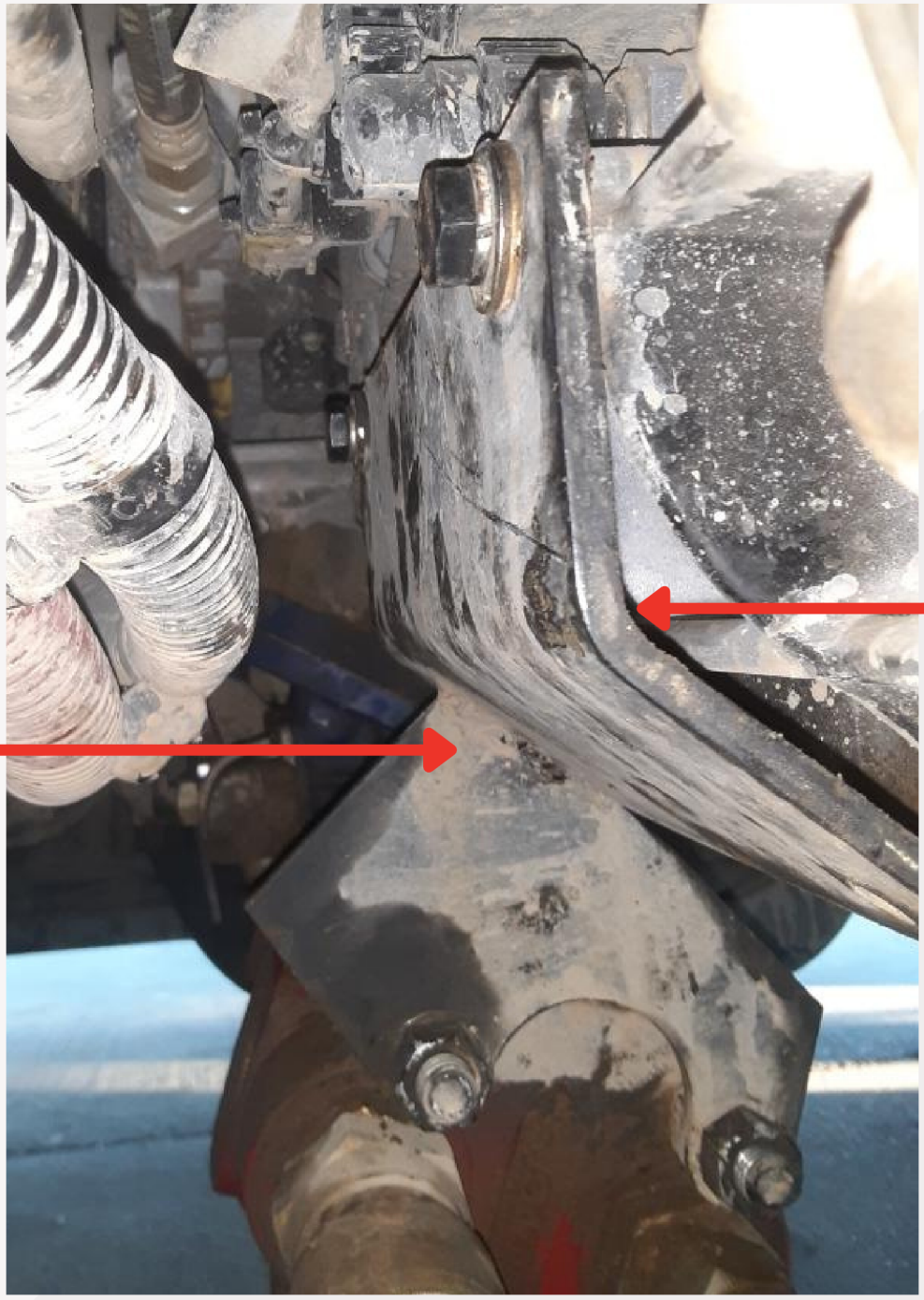
EXAMPLE OF A GOOD PUMP SUPPORT BRACKET

Gusset to prevent flexing at the corner.



Mounted to two points on both pump and transmission.

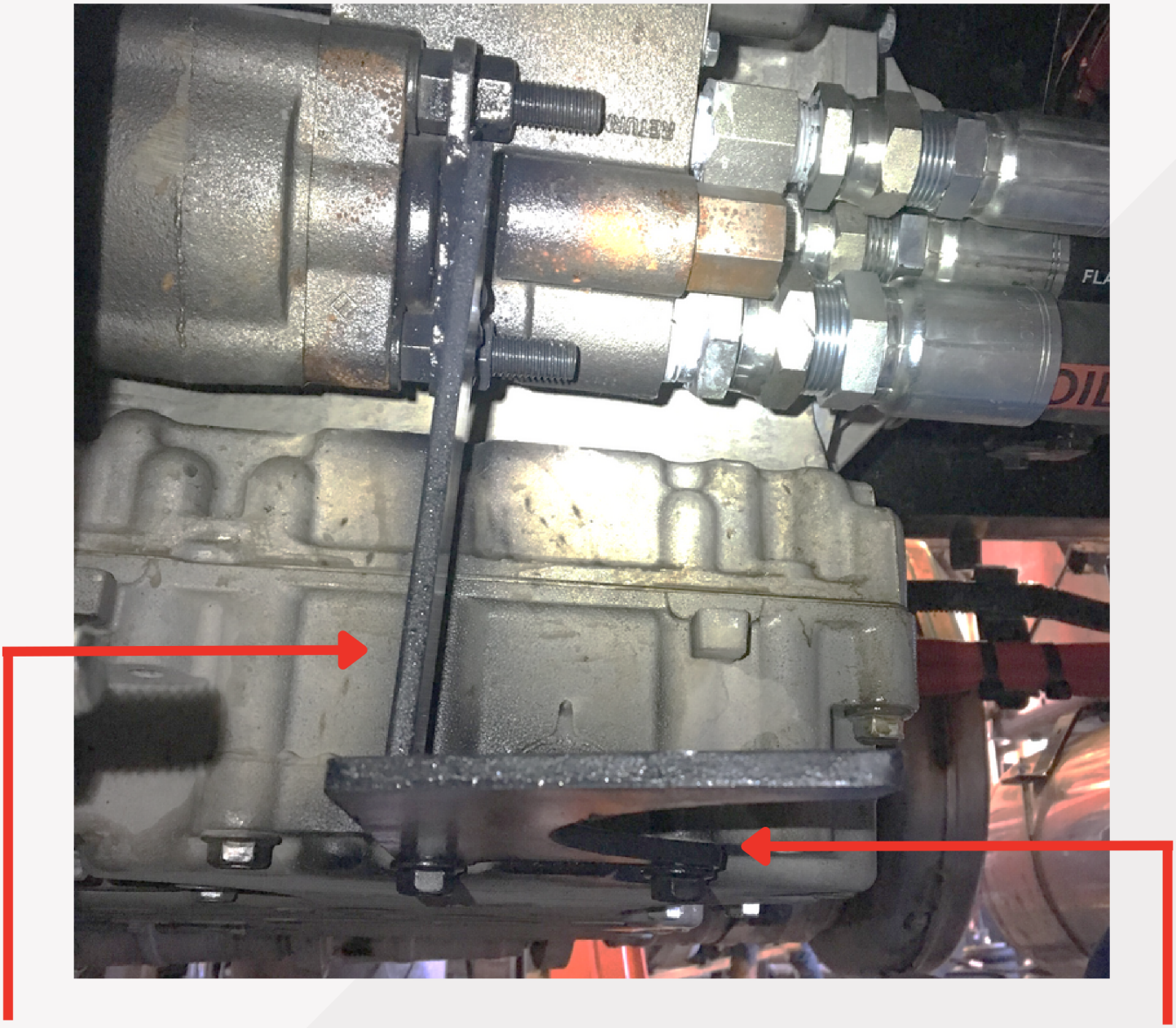
EXAMPLE OF A POOR PUMP SUPPORT BRACKET



No gussets to prevent flexing at welded corners. Therefore, the bracket will flex as the truck bounces.

This area would also need a gusset to prevent flexing.

EXAMPLE OF A POOR PUMP SUPPORT BRACKET

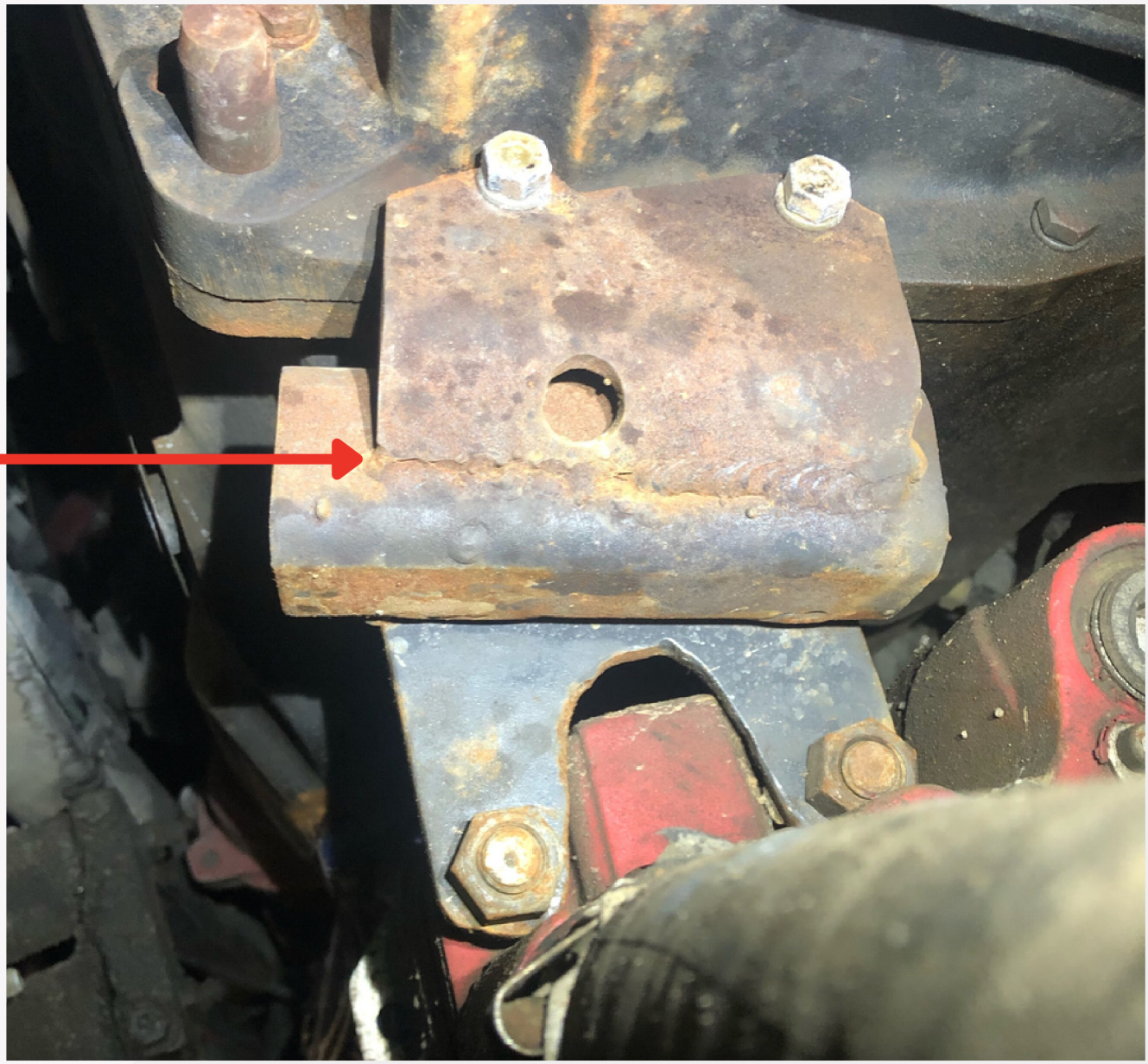


No gussets to prevent flexing at welded corners. Therefore, the bracket will flex as the truck bounces.

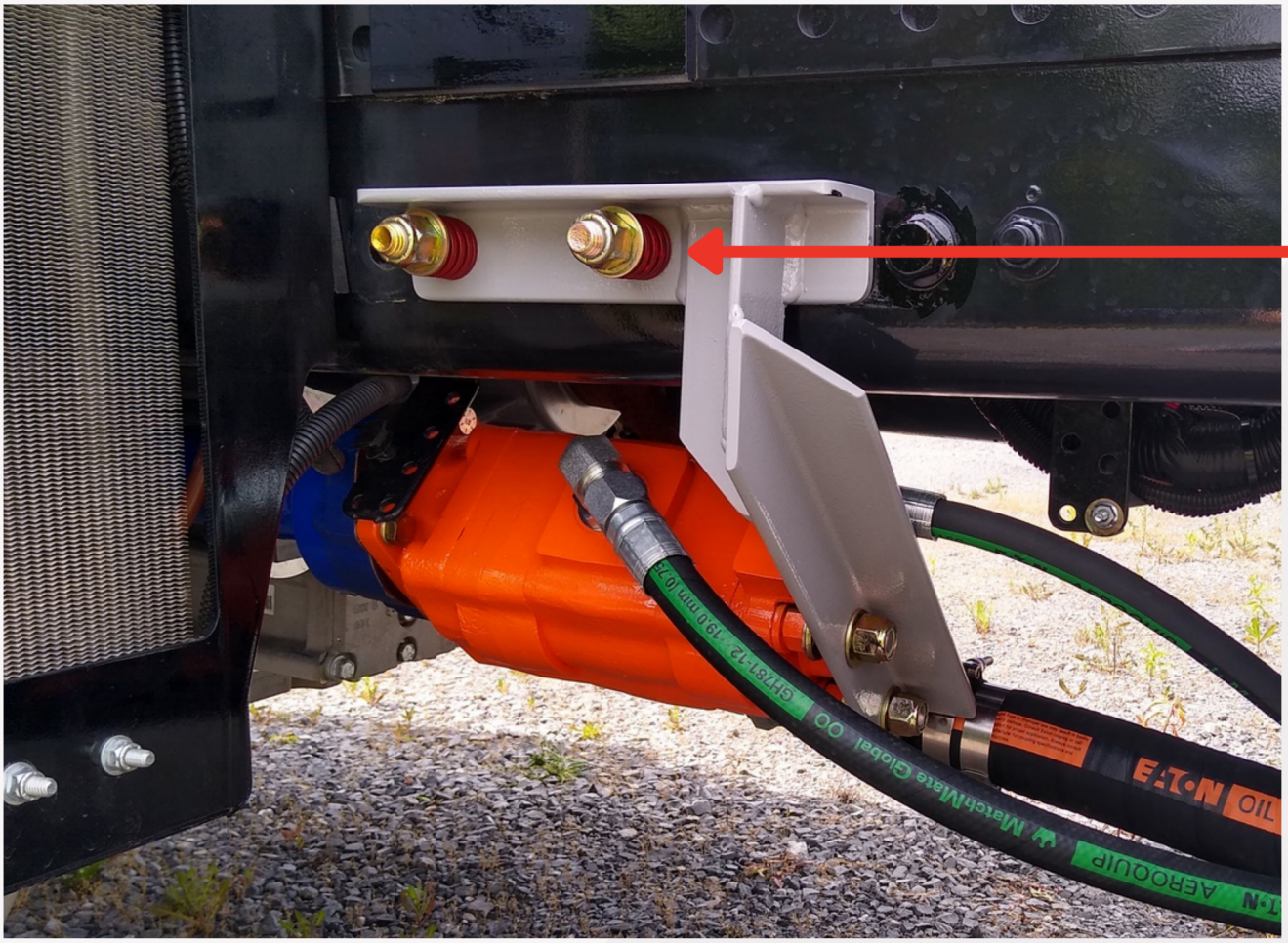
Bracket is connected to transmission via pan bolts—this is **not** a suitable bracket mounting location.

EXAMPLE OF A POOR PUMP SUPPORT BRACKET

No gussets to prevent flexing at welded corners.
Therefore, the bracket will flex as the truck bounces.



EXAMPLE OF A POOR PUMP SUPPORT BRACKET



The bracket attached to frame; this is inadvisable. The transmission is supported by the engine, which in turn is supported by the engine mounts.

This allows the transmission to roll, bounce, etc. during operation. Connecting the pump to the frame will cause either the bracket to break, or the PTO and pump will break.

*Due to the high number of PTO, pump, transmission, and truck combinations possible, Muncie Power **does not** design, manufacture, or sell pump support brackets. However, we are available to offer suggestions as needed, and can review brackets designs as well.*

For additional assistance, contact your Muncie Power sales rep.

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