

**Note Puradyn model nomenclature change: M85 system (prev. MTS 240)
and Application Kit # 01-A1M85X-K7 (prev. 01-71002MTS-DL6)**

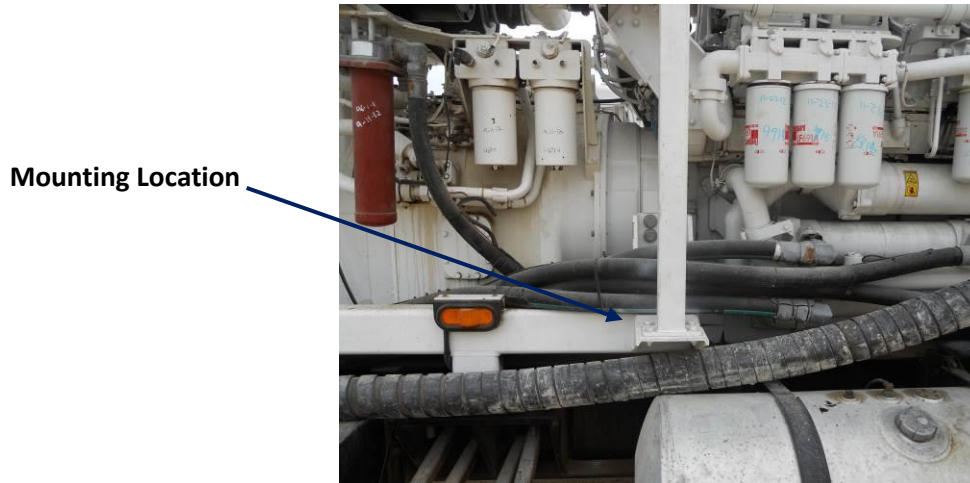
CAT3512 Pump Engine		
Puradyn Part #	Description	Qty
SYSTEM		
15-70023-3	Kit, Assy-Main M85 W/FPS Manifold- Reversed Oil & Gas Services 1-US, Top Return	1
02-M85X1	Filter, Size 85 XD Additives (pre-installed)	1
19-00304CSFT	Manual, Installation Notes for 01-A1M85X-K7, CAT3512-Equipped Frac Truck	1
19-00134	Manual, M Series Standard Installation	1
HOSE & FITTINGS		
15-70054	Kit, Assembly Hose- Supply 3/16" W/ -4 ORFS Crimp Fittings CAT 3512 Application, Frac Truck	1
15-70055	Kit, Assembly Hose-Return 5/8" W/ -12 ORFS Crimp Fittings CAT 3512 Frac Truck App	1
15-70196	Kit, Bag Return Fitting 1/2" NPT X -12 ORFS CAT 3512 Frac Truck	1
SYSTEM MOUNTING HARDWARE		
15-70129	Kit, Bolt Bolt M85 CAT 3512 Frac Applications	1
24-00114	Mounting Bracket CAT 3512 Frac Truck App.	1
ADDITIONAL SUPPLIES FOR INSTALLATION		
15-00453	Kit, Bag Parts M85 CAT Frac Truck Application	1

The following document is used in conjunction with the **puradYN** Bypass Oil Filtration System Installation Manual that is included in the system box and as such, should be considered a supplemental source of information. Further, this document covers the installation of a M85 system on a Peterbilt (Frac)Truck equipped with a CAT3512 pump engine.

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1. OVERVIEW

1.2. **Before Installation:** The M85 System is mounted on the engine/transmission sub-frame. This can be seen in the photograph below on the right-side of the frac truck, relative to operator seated position (just rearward from engine).



Before Installation

1.3. **After Installation:** The picture below shows the location of main filter assembly after the completed installation of the M85 system



After Installation

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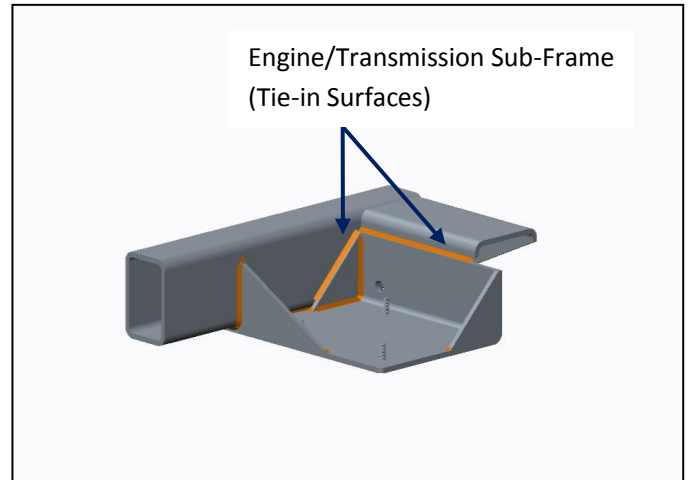
2. INSTALLATION STEPS

2.2. Access Mounting Location & Install Mounting Bracket:

- a) To begin the installation of the **puradYN** system, locate the mounting area along the engine/transmission sub-frame, as shown below, and prepare surface area for welding as appropriate (**Picture 1**). Reference "Before Install" photo on previous page for broader view of mounting location.
 - i. **IMPORTANT:** Take note to relocate/protect hoses in area when welding in mounting bracket for system.
- b) Using a transmission jack, or other appropriate shop tool, elevate mounting bracket such that bottom face is aligned with bottom face of engine/transmission sub-frame (**Picture 2**).
- c) Weld bracket in place as shown in photos below, taking note of the following:



Picture 1: Mounting Location (Tie-in Surfaces)

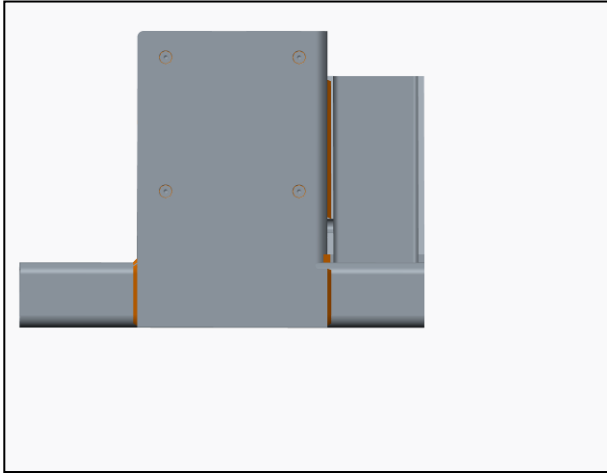


Picture 2: Mounting Plate Location & Orientation

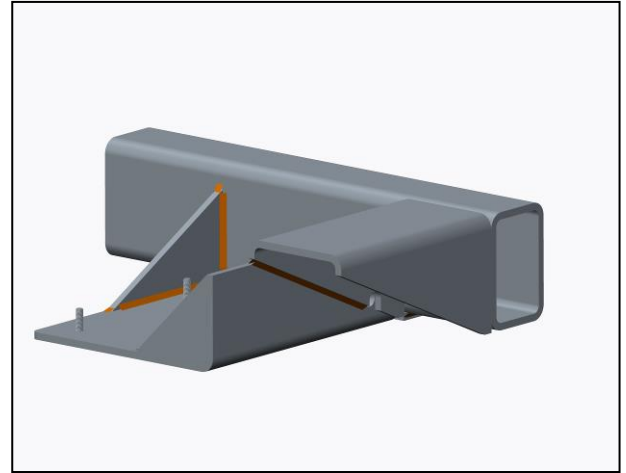
- i. Orange "highlighted" area in illustration represents recommended weld locations

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- ii. Bracket to be positioned such that there is 4 inches of overlapping surface mating when mounting bracket is secured to bottom face of engine/transmission sub-frame, with bracket orientation as illustrated (**Picture 3**).



Picture 3: Mounting Location & Orientation
(Bottom View)



Picture 4: Mounting Location & Orientation
(Iso View)

- d) **Note:** Bracket is supplied unpainted to allow for welding during install; **mask bolt threads and coat bracket with spray paint to resist corrosion; allow to dry before continuing on to next steps**

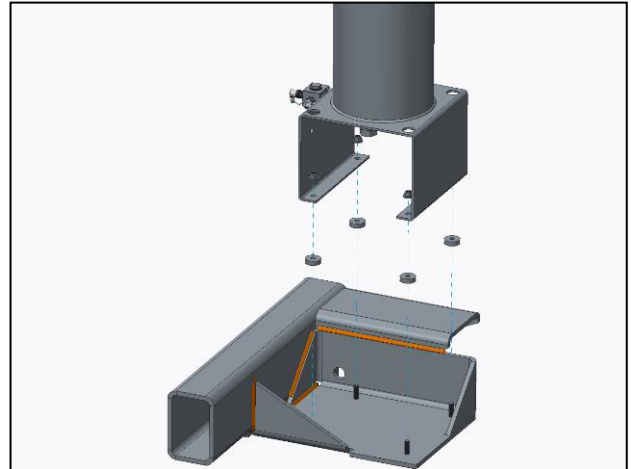


Picture 5: Bracket after painting

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2.3. Install Bypass Filter System w/ Supplied Bolt Hardware

- a) Once the mounting bracket is fully secured, secure bypass filter system to mounting bracket using bolt hardware supplied in part number 15-70129 kit bag materials as follows (**Picture 6**):
 - i. Install spacer hardware on to mounting bracket's welded studs
 - ii. Carefully lift bypass filter system and set on top of spacers, aligning bolt holes on base of bypass filter system with (4) welded studs on mounting bracket.



Picture 6: Installation of Bypass Filter Unit

2.3.a.ii.1. **Note:** Bypass filter system should be oriented such that bypass filter system's return fitting (located towards top of filter system) is oriented "inwards" toward engine.

- iii. Apply thread-locker paste to bolt threads, and then install and tighten flange nuts supplied in bolt bag

2.4. Install Supply Lines & Fittings

- a) Drain old engine oil from engine oil sump, and clean all surfaces thoroughly
- b) Locate designated pressurized oil plug behind O.E. oil filter on right-side of engine block and a few inches above the oil sump. This port location will be used as the oil supply (pressure) port to System (**Picture 7**)
- c) Carefully remove the "pressurized oil plug" from the port.
- d) Install brass adapter fitting (included in Parts Bag P/N 15-00453) at designated pressurized oil port, **with Staybond Hydraulic Sealant or Teflon tape applied to NPT threads**
- e) ext, Install Heavy Duty Shut-off Valve (included in Parts Bag P/N 15-00453) **with Staybond Hydraulic Sealant or Teflon tape applied to NPT threads (Picture 8)**, fastening to NPT-threaded end of adapter fitting

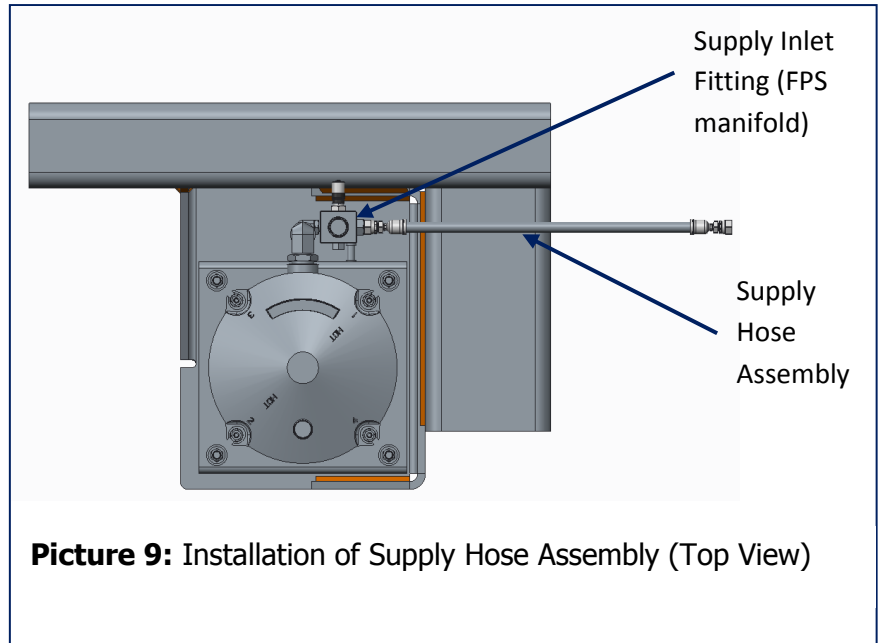


Picture 7: Oil supply port

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Note: Shut-off Valve may be in "closed" position at this point, ensure Shut-off Valve is fully open once install is complete

- f) Install the Supply Hose Assembly, connect to (#4) ORFS fitting on bypass filter supply inlet fitting (**Picture 9**).
- g) Route the other end of the hose assembly, towards the Shut-off Valve on engine, while securing away from any sharp edges and hot engine components with hose support clamp or supplied tie-wraps.
- h) Connect Supply Hose Assembly end to (#4) ORFS end of Shut-off Valve.

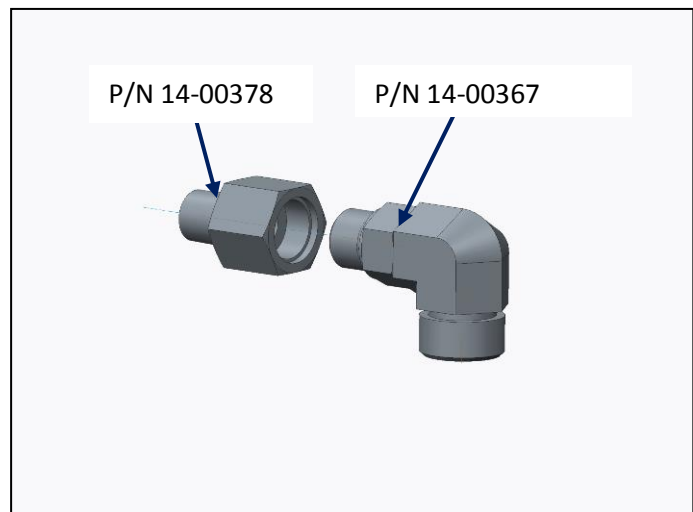


2.5. Install Return Hose Assembly & Fittings

- a) Install the Return Fitting Kit (P/N 15-70196), in place of the plug fitting located on side of oil pan as follows: (**Pictures 10,11**)
 - i. Remove O.E. plug fitting and install adapter fitting (P/N 14-00378) from kit bag at designated return port location **with Staybond Hydraulic Sealant or Teflon tape applied to NPT threads**



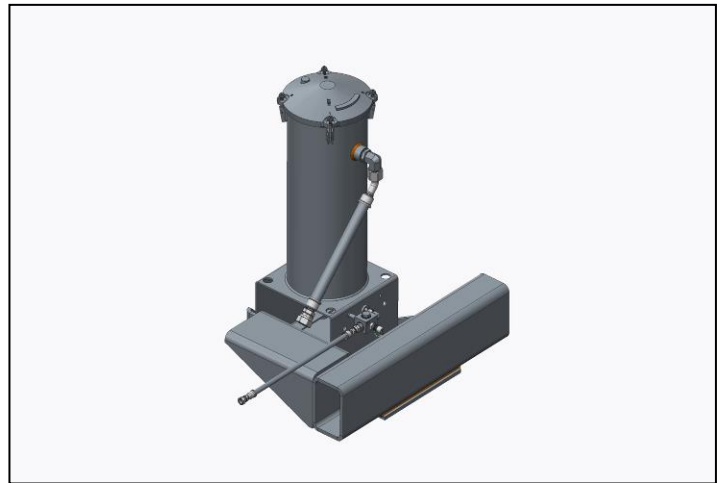
Picture 10: Side of oil pan- Return Fitting Location



Picture 11: Return Fitting Kit (P/N 15-70196)

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- ii. Install -12 ORFS X -08 ORB Elbow fitting (P/N 14-00367) from kit bag, fastening to adapter fitting
 - iii. **NOTE:** Properly orient the the elbow fitting in direction of bypass filter before firmly tightening adjustment nut, to avoid any sharp bends in return line routing
- b) Install Return Hose Assembly, connecting side with 45 degree end-fitting to the bypass filter's return fitting (located towards the top of system) positioning hose assembly in direction of engine oil sump. Route the other end of the hose assembly downward, towards the installed Return Fitting Kit on the engine oil sump and connect. Make sure to route the hose away from any sharp edges, moving parts or areas with excessive heat. Use hose support clamp or supplied tie-wraps (**Picture 12**).



Picture 12: Return Hose Install & Orientation
(hose assemblies not shown to scale)

- i. **IMPORTANT: Return hose routing must follow a continually downward path towards oil sump to allow for proper bypass filtration system function**
- c) Check to make sure the fittings and hose are secure. **Refill engine oil** per the CAT service manual and check oil dip stick to verify proper oil level.

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Filter Change and Oil Analysis

Replace the **paraDYN** filter element and perform oil analysis at the oil change intervals recommended by your equipment's Original Engine Manufacturer (OEM). **As long as the oil analysis confirms that the oil is suitable for continued use, the oil does not need to be changed.**

	Before paraDYN Installation	Midpoint of First OEM Interval	Each OEM interval
Take Oil Analysis Sample	✓	✓	✓
Change paraDYN filter and change/clean full flow filter		✓	✓
Change Oil	✓	If analysis requires	If analysis requires

Oil analysis is a fast, non-invasive way to monitor the condition of your engine or hydraulic oil and is key to evaluating the benefits that result from optimized oil life and extended oil drain intervals. In addition, oil analysis is the only economical way to measure wear or contamination in the engine or equipment and often serves as an indicator of potentially costly problems.

Samples are easily taken from the oil sample valve provided with each unit. Sampling the oil before it enters the **paraDYN** system enables an accurate assessment of the condition of the equipment. The oil analysis is conducted by an independent laboratory and is reported in a three-tier test that includes: spectrographic metals, wear metals, and contaminant metals (these metals must be monitored to fully evaluate the lubrication)

For extended oil drain practices relative to over the road trucks, Puradyn follows the Technology & Maintenance Council's (TMC) stringent requirements.

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3. TROUBLESHOOTING SECTION

The **puradYN** system has been engineered in a quality system certified to ISO 9001. It is manufactured from the highest quality materials available with superior workmanship. If, however, your **puradYN** system is not functioning properly, check the following conditions as indicated:

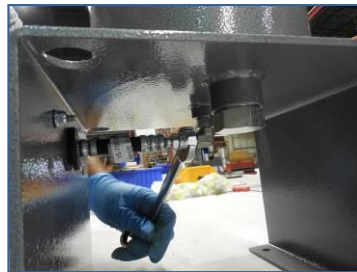
Restricted oil Flow:

- Pressure line may be cloggedblow line out with high air pressure (**do this first**)
- Shutoff valve maybe closedopen valve
- Filter may be dirty and clogged.....replace with new filter
- Metering jet screen maybe cloggedclean screen thoroughly
- If metering jet is cloggedclean metering jet thoroughly

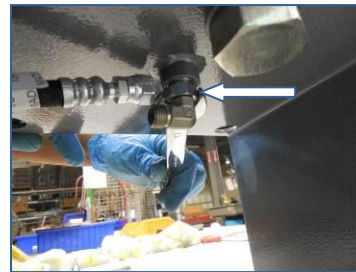
Cleaning the Metering Jet Assembly (M Series Systems)



1) Loosen locknut, which secures FPS Manifold Assembly to unit base



2) Loosen hose fitting, to disconnect 'Inlet Plumbing Hose Assembly'



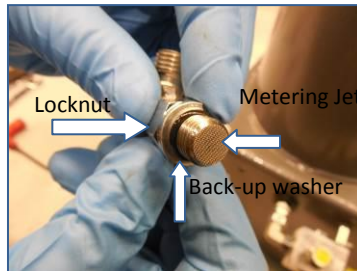
3) Loosen (adjustment) locknut on 90 Degree fitting, then rotate entire fitting CCW to remove- metering jet screen will drop down



4) Clean port internals & metering jet screen with solvent/fine wire brush; use high-pressure air to blow-out port & screen, clearing any debris



5) Back-off locknut/back-up washer on 90 degree fitting and lubricate external o-ring w/system fluid, also applying a dab on face of fitting- for screen adherence



6) Place screen on face of fitting, centered, against dabbed oil; screw this end of fitting into port- by hand, until back-up washer contacts face of port.



7) Slightly unscrew fitting- as required to align with hose assembly, then use (2) wrenches to hold fitting in place while tightening locknut; reconnect hose assembly



8) Check all fittings for tightness, then re-tighten locknut- securing FPS Manifold Assembly to unit base