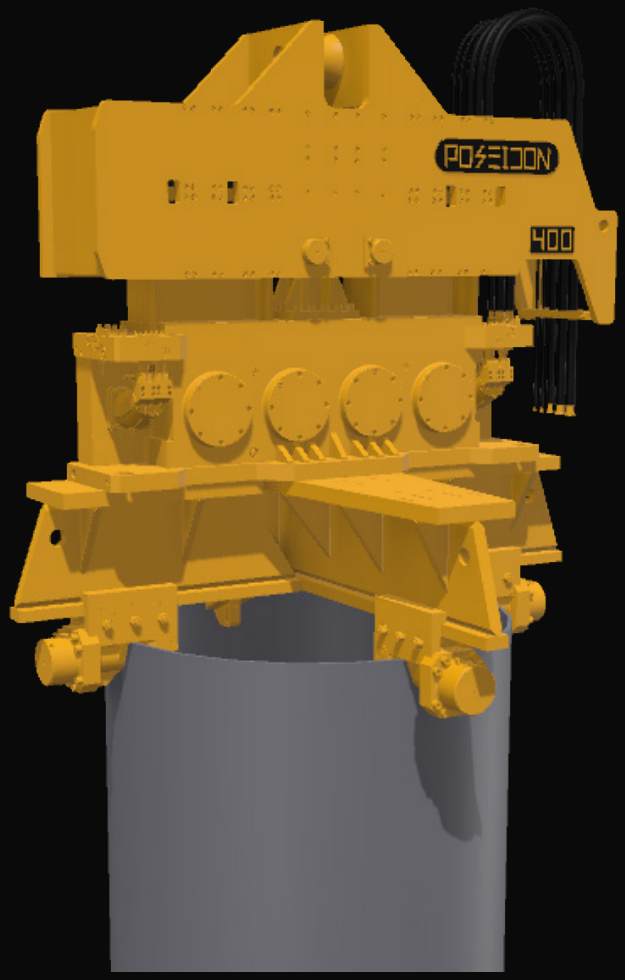
ANTAEUS

OPERATIONS MANUAL

REV. 11.17.26



SHOWN WITH 13 FOOT QUAD BEAM

400 POSEIDON

VIBRATORY DRIVER / EXTRACTOR

350 TONS DRIVE FORCE / 13,000 IN-LBS

WITH ANTAEUS 800 HP POWER UNIT / CAT C18 / TIER 4 FINAL, STAGE 5

ANTAEUS FOUNDATION EQUIPMENT

7265 2ND AVE S, SEATTLE, WA 98108 / ANTAEUSUSA.COM

FRONT MATTER

About this manual

APPLICABILITY

This manual covers the **Antaeus 400 Poseidon Vibratory Driver/Extractor** and the Antaeus 800 HP Tier 4 Final / Stage 5 power unit.

DRIVE FORCE	ECCENTRIC MOMENT	MAX LINE PULL
350 TONS	13,000 IN-LBS	250 TONS

UNITS OF MEASUREMENT AND NOTATION

Canadian Metric: In Canadian and U.S. notation, commas separate thousands and periods indicate decimal values. In contrast, we recognize that many European and French-language countries reverse this convention, using a comma for decimals and a space for thousands.

EXAMPLE

1,500 = one thousand five hundred
1.5 = one point five

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FRONT MATTER

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SECTION 01

Warranty information

Antaeus Foundation Equipment LLC (Antaeus) warrants that its new products are free from defects in materials and workmanship for a period of **one (1) year from the date of delivery** (unless a longer or shorter term warranty was agreed on as written in the purchase agreement) to the original purchaser, subject to the following terms:

SCOPE OF LIABILITY

Antaeus' responsibility under this warranty is strictly limited to, at Antaeus' discretion, the repair or replacement of any parts found to be defective in materials or workmanship after inspection. Such repairs or replacements will be provided at no cost to the user and will be carried out either at Antaeus' facility or by an authorized Antaeus distributor during normal business hours.

EXCLUSIONS

This warranty does not cover components or accessories not manufactured by Antaeus, as these items are subject to the warranty of their respective manufacturers. It also does not apply to routine maintenance items (such as engine tune-ups) or consumable parts (such as filters).

REPLACEMENT PARTS

Any parts replaced or repaired under this warranty are covered only for the balance of the original warranty period, as if they were original components of the product.

LIMITATIONS

No other warranties, whether expressed or implied, are provided. Antaeus specifically disclaims any implied warranties of merchantability or fitness for a particular purpose.

ADDITIONAL EXCLUSIONS

This warranty does not include transportation charges, installation costs, downtime, taxes, or any other incidental, indirect, or consequential damages or delays.

RETURN OF PRODUCTS

If requested by Antaeus, any products or parts covered by this warranty must be returned prepaid, with transportation arranged and paid for by the customer.

WARRANTY CONDITIONS

HYDRAULIC OIL

Hydraulic oil used in Antaeus equipment must meet the ISO 4406 Cleanliness Code 17/15/11. Use of oil that does not meet this standard will void the warranty.

IMPROPER USE

Improper use of the equipment—including but not limited to operating with known defective or worn parts, exceeding rated capacity, using unauthorized replacement parts, or performing repairs or modifications not approved by Antaeus—will result in the warranty being voided if such actions are determined by Antaeus to negatively impact the product.

WELDING

Any welding performed on Antaeus equipment without prior written approval from Antaeus will void the warranty.

MODIFYING THIS WARRANTY

Only written authorization signed by an officer of Antaeus may modify or extend this warranty. No employee is permitted to alter the terms or grant additional warranties verbally or otherwise.

SECTION 02

Warnings and safety

Read every rule before operating, lifting or servicing this equipment.

01 **Authorized Personnel Only**
Only individuals who are properly trained, experienced, and qualified should operate or maintain this equipment.

02 **No Service During Operation**
Never adjust, lubricate, or perform repairs while the unit is running or when it is suspended above the ground.

03 **Maintain Safety Labels**
Do not remove, obscure, or paint over safety or warning labels. Replace any label that is missing, damaged, or unreadable immediately.

04 **Required Personal Protective Equipment (PPE)**
All personnel working near this equipment must wear approved PPE, including:

- Hard Hat
- Safety Footwear
- Safety Glasses
- Hearing Protection

05 **Maintain Safe Distance**
Stay as far from the operating equipment as practical. Components can loosen and fall—never position yourself beneath equipment that is running or elevated.

06 **Approved Replacement Parts Only**
When repairing or maintaining the unit, use only parts supplied by, or approved in writing by, Antaeus. Substitutions are not permitted.

NOTICE

NO WELDING OR FLAME CUTTING

Do not weld, flame cut, or apply heat to this equipment.

07 **Flammable Liquids Prohibited**
Never store or use flammable liquids on or near the engine.

08 **Properly Rated Lifting Gear**
Ensure all lifting equipment—cranes, wire ropes, slings, hooks, shackles, etc.—is rated for the maximum anticipated loads.

09 **Contact Before Operation if in Doubt**
If unsure about the unit's weight, specifications, or performance, consult Antaeus before lifting, handling, or operating the equipment.

10 **Daily Wire Rope Inspection**
Check all wire rope clips for tightness and inspect wire ropes for wear before each day's operation.

11 **Control Ground Vibrations**
Verify that vibrations from operation will not cause damage to or collapse nearby structures or excavations.







SECTION 02

Warnings and safety

Operating & maintenance safety guidelines.

12 **Ventilate Enclosed Areas**
When operating in enclosed spaces, route exhaust fumes to the outside. Inhalation of exhaust gases can be fatal.

13 **Clear the Work Area Before Start-Up**
Remove all tools, parts, and electrical cords before starting the unit.

14 **Battery Safety**
Do not smoke or use open flames near batteries.
Batteries release explosive gases during charging—ensure adequate ventilation.

15 **Fueling Precautions**
Do not smoke or use open flames when filling the fuel tank.

16 **Respond to Abnormal Operation Immediately**
If the equipment operates abnormally, stop use at once and correct the problem before resuming.

17 **Control Pendant Security**
Never leave the control pendant (including radio control) unattended. (If your unit is equipped with a remote pendant.)

18 **Oily Rag Storage**
Store oily rags only in approved containers, well away from the engine exhaust system.

19 **Auger/Drill Start-Up**
Before starting the Power Unit engine, ensure the auger rotation switch is in NEUTRAL. (If your unit has a pendant.)

20 **Hydraulic Pressure Settings**
Do not adjust hydraulic pressures outside the specifications listed in this manual.

21 **Hydraulic Hose Safety**
Never operate with damaged or kinked hoses—replace immediately.
Do not lift or support hydraulic hoses using wire rope slings.

22 **Quick Disconnect (QD) Connections**
Never connect QDs while the Power Unit is running.

23 **Moving Equipment**
Do not pull or attempt to move equipment by the hydraulic hoses.

24 **Hydraulic Leak Safety**
Never use your hands to check for leaks—high-pressure fluid can penetrate the skin and cause severe injury, poisoning, or infection.
Do not attempt leak repairs while the equipment is operating.
Do not tighten or loosen fittings or hoses when the unit is running.

25 **Equipment Stability**
Always position the Power Unit on level, stable ground.



SECTION 02

Warnings and safety

Hazard warnings.

GENERAL SAFETY WARNING

Read and understand the operator's manual before using this equipment. Failure to follow safety instructions may result in serious injury or death. Always wear appropriate personal protective equipment (PPE).

CRUSHING / PINCH HAZARD

Stay clear of moving parts, suspended loads, and pinch points. Contact with moving components may result in severe injury or death. Never position yourself under or near a raised load.

HYDRAULIC FLUID HAZARD

Hydraulic systems are under high pressure. Leaking fluid can penetrate the skin and cause serious injury, including blood poisoning or loss of limb. Seek immediate medical attention if fluid is injected into the skin. Do not inspect hydraulic leaks with your hands.

DIESEL EXHAUST WARNING

Diesel engine exhaust and many of its constituents are known to cause cancer, birth defects, and other reproductive harm. Avoid breathing exhaust fumes. Operate only in well-ventilated areas.

NOISE HAZARD

Equipment may produce noise levels that exceed permissible exposure limits. Prolonged exposure can cause hearing loss. Always wear hearing protection when operating or working near this equipment.

MODIFICATION WARNING

Unauthorized modifications, welding, or use of non-approved parts may compromise safety, cause equipment failure, and void the warranty. Only use Antaeus-approved components and follow factory guidelines.



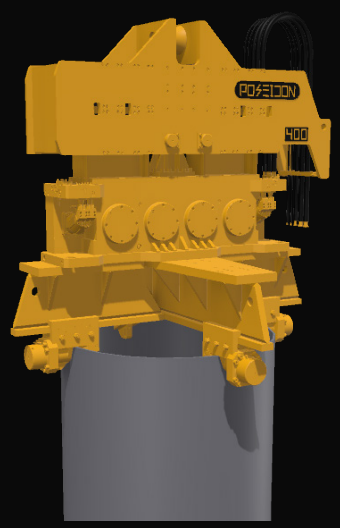
SECTION 03

400 Poseidon specifications

Vibratory pile driver & extractor.

400
POSEIDON

VIBRATORY DRIVER / EXTRACTOR



SHOWN WITH 13 FOOT QUAD BEAM

SPECIFICATION	STANDARD	METRIC
ECCENTRIC MOMENT	**13,000 in-lbs**	150 kg-m
DRIVE FORCE	**350 tons**	3,113 kN
FREQUENCY	**0–1,350 vpm**	0–1,350 vpm
MAX LINE PULL	**250 tons**	2,224 kN
WEIGHT W/O CLAMPS	**38,000 lbs**	17,236 kg
THROAT WIDTH	**32 in**	81.28 cm
LENGTH	**144 in**	365 cm
HEIGHT	**104 in**	264 cm

Weight is without clamps. Specifications are subject to change; confirm with the factory before lifting or rigging.

SECTION 03

800 HP power unit specifications

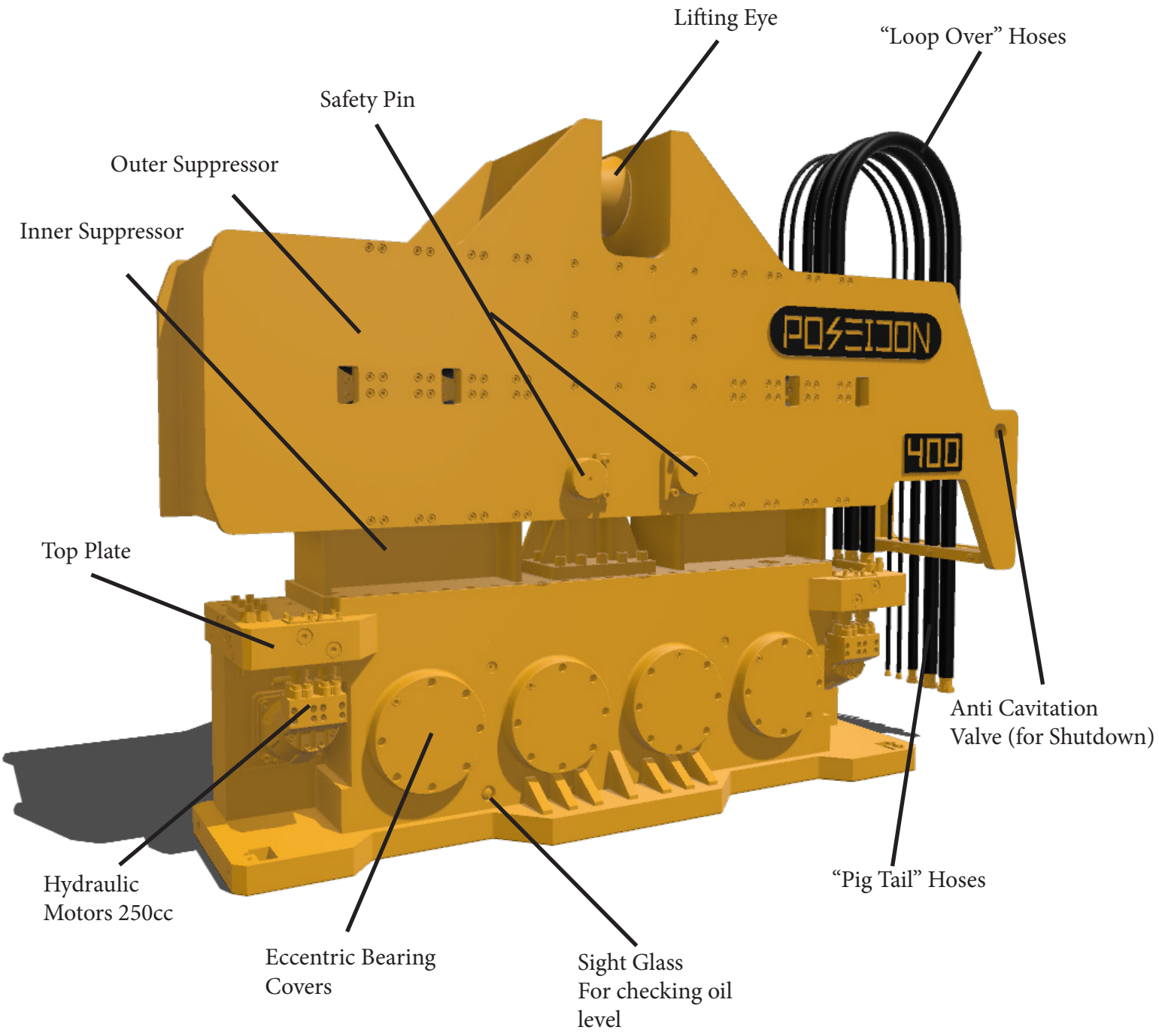
CAT C18, Tier 4 Final / Stage 5.

800 HP
POWER UNIT

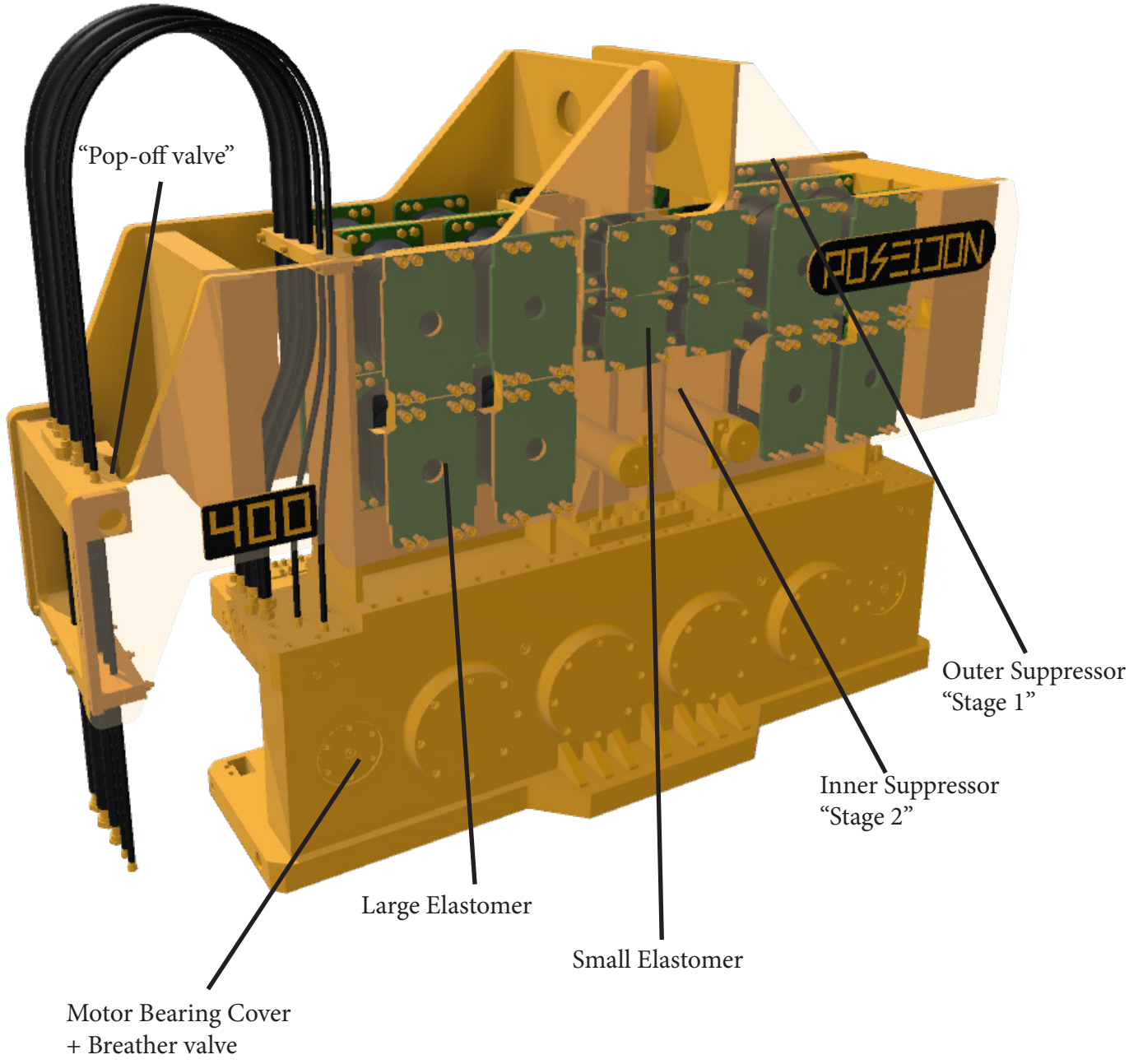
- Operates vibros, drills & impacts
- Spare hydraulic tank
- Full forward and reverse
- Meets European regulations

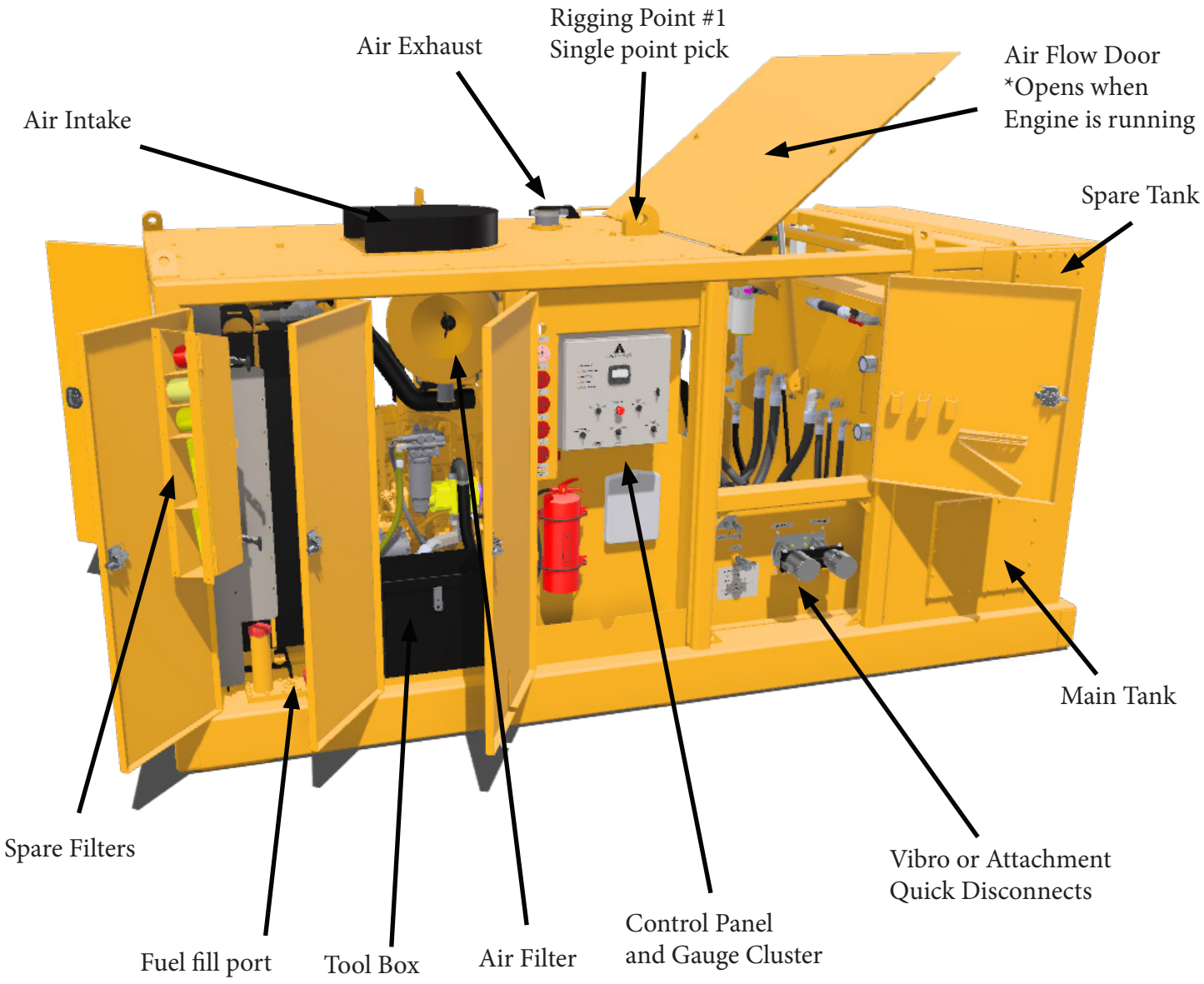


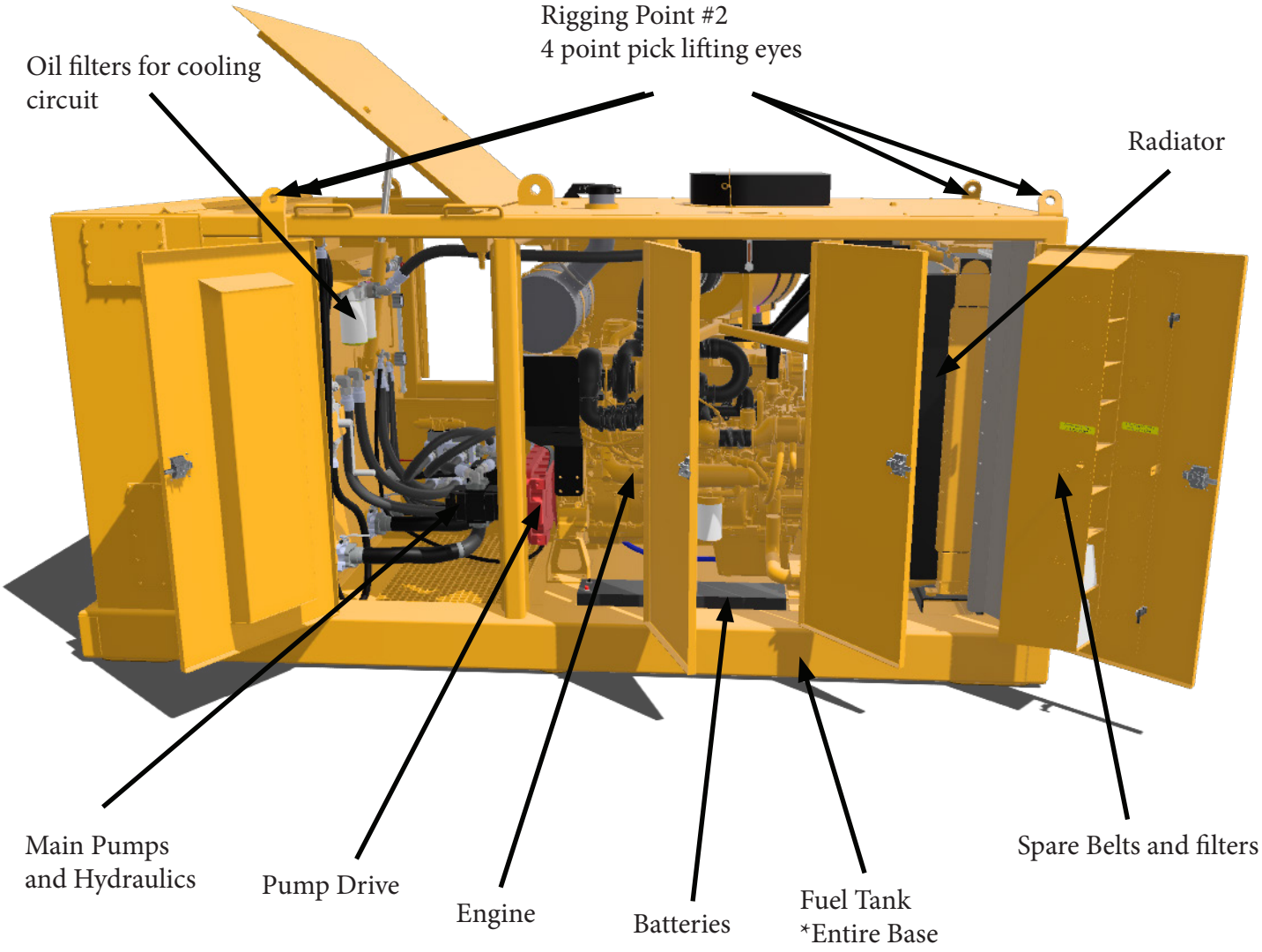
SPECIFICATION	STANDARD	METRIC
ENGINE TYPE	**CAT C18**	Tier 4 Final, Stage 5
HORSEPOWER	**800 HP**	597 kW
ENGINE SPEED	**1,800 RPM + UPDRIVE™**	
DRIVE PRESSURE	**4,500 psi**	310 bar
DRIVE FLOW	**231 gpm**	874 lpm
CLAMP PRESSURE	**4,800 psi**	331 bar
CLAMP FLOW	**10 gpm**	38 lpm
WEIGHT (ALL FLUIDS)	**26,000 lbs**	11,793 kg
LENGTH	**185 in**	470 cm
HEIGHT	**95 in**	241 cm
WIDTH	**81.5 in**	207 cm
HYDRAULIC RESERVOIR SIZE	**800 gal**	3,028 liters
SPARE HYD RESERVOIR SIZE	**55 gal**	208 liters
FUEL CAPACITY	**150 gal**	567 liters


Lifting Eye
"Loop Over" Hoses
Safety Pin
Outer Suppressor
Inner Suppressor
POSEIDON
400
Top Plate
Anti Cavitation
Valve (for Shutdown)
Hydraulic
Motors 250cc
"Pig Tail" Hoses
Eccentric Bearing
Covers
Sight Glass
For checking oil
level

*Shown with transparent plate to see inside




Air Exhaust
Rigging Point #1
Single point pick
Air Flow Door
*Opens when
Engine is running
Air Intake
Spare Tank
Main Tank
Spare Filters
Fuel fill port
Tool Box
Air Filter
Control Panel
and Gauge Cluster
Vibro or Attachment
Quick Disconnects


Rigging Point #2
4 point pick lifting eyes
Oil filters for cooling circuit
Radiator
Main Pumps and Hydraulics
Pump Drive
Engine
Batteries
Fuel Tank
*Entire Base
Spare Belts and filters

Overview

Antaeus Vibratory Hammers use 5 main hoses to control the vibro:

1.) Pressure line - 2”
2.) Return line - 2”
3.) Case drain - 1” or 1.25” (Motor cooling line)
4.) Clamp close - 3/8”
5.) Clamp open - 3/8”

All hydraulic lines are JIC. However some international models have BSP fittings on the hammer body. Take care when replacing fittings to observe the type of fitting.

Altogether Antaeus units will have NPT, JIC, BSP, and ORB fittings depending on where they are located. BSP fittings and ORB fittings can look very similar, as well as JIC and some NPT. It is important to familiarize yourself with the difference in the various hydraulic fittings that could be on the machine.

The vibro only has Code 62 flanges for the manifold connections. You will find Code 61 on the return portion inside the power unit manifold. Antaeus does not use Code 61 on the return hoses on the vibro because Antaeus power units are bi-directional. The vibro can handle pressure in both directions without damage however it will not spin up to full speed in reverse.

The connect to the “Top Plate” which is a large cover for the gearbox and a large hydraulic manifold with gun-drilled holes to provide oil to the motors without the use of a hydraulic hose. The top plate is also sealed allowing the vibro to go underwater with little modification down to 150 feet depth. To go underwater remove the breather valves and optionally you can relocated the pop-off valve near the power unit.



(1) Forward
(2) Reverse
(3) Case Drain
(4) Clamp Close
(5) Clamp Open

Overview Continued...

Drive Forward and Reverse Function:
The reverse function on the Antaeus vibro can be used to warm the unit up in cold temperatures. While at lower idle with the return pressure set at 1,500 PSI to 2,000 PSI (see later on how to set this pressure) push Drive Reverse and the oil will flow up to the vibro and circulate around the anti-cavitation valve and return to the power unit. The reverse flow of oil will simultaneously remove any air in the main lines and warm up the circuit. The vibro will not be able to drive pile in reverse, for driving piles or extracting piles the drive forward function is used. Drive forward is used for BOTH driving piles and extracting piles. The reverse function is ONLY used for warming up the circuit or bleeding air. If the power unit is connected to a drill the forward and reverse changes the direction of the drill, for vibratory hammers the drive forward function can be thought of as an ON/OFF switch for the vibro.

Clamp lines:
The clamp lines will not automatically bleed air. It will be important to manually bleed air from the clamp lines. Air is typically not a problem in the clamp lines unless a hose was recently replaced or if the hoses were recently disconnected. See the "how to bleed air from the clamp circuit section for more information.

Vibro Heat Limits:
It is ALWAYS important to have a heat gun with you while using the vibro. Heat is the killer of vibros. As long as you do not overhead this vibro it will last for decades.

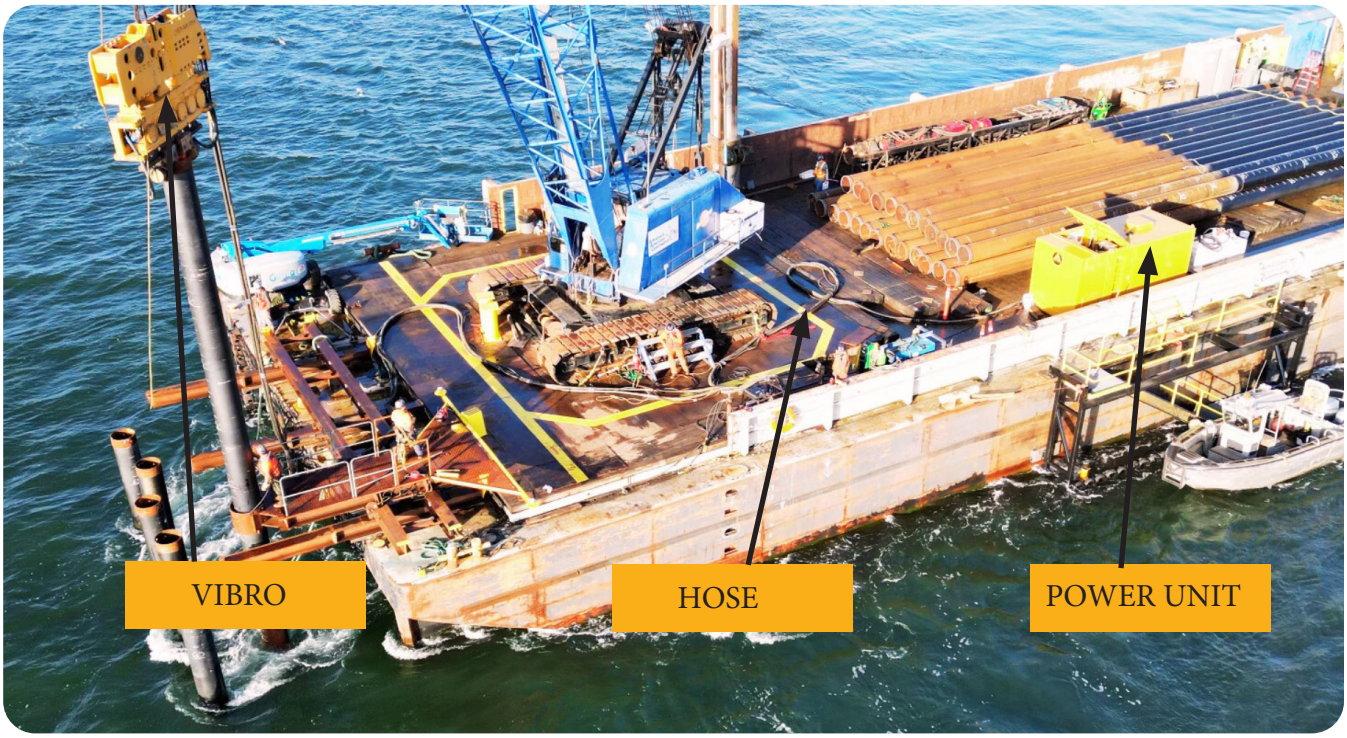
Operating temperatures:
21C (70F) = Vibro is cold, oil is cold, try to run the vibro on slower RPM until it heats up.
27C (80F) to 71C (160F) = Working operating temperature
87.8C (190F) = Highest allowable temperature, do not exceed 190F

104.4C (220F) = **Very high risk to destroy a bearing and destroy the gearbox**
If you believe you have reached 220F degrees it is important to know that the gearbox oil is compromised and is no longer functioning as a lubricant. The vibro is going to get hotter faster and will start to cause rapid damage to the machine if the gearbox oil is not replaced.

126.7C (260F) = Paint will burn on the eccentrics and leave permanent visual damage. Spray the machine with water to cool down and be careful as the machine will be too hot to touch with your hand. At this temperature the machine may not return to cool even if set over night and there is very high risk of damage to components. Replace all internal oil and inspect bearings for damage. Understand that a vibro gearbox repair can range from $50,000 USD on the low end to $200,000+ USD on the high end not including transport or loss due to job downtime.

HEAT IS THE #1 REASON VIBROS FAIL BY FAR. CHECK HEAT OFTEN.

1.) Find a flat and level place for the power unit to sit. If you are on a barge leave room for the hoses to extend out from the quick disconnects and leave enough room around the unit to open up ever door. Do not place unit anywhere that prevents access to opening up doors. The unit must sit flat or the fuel intake and oil suction lines will not function at optimal level and could cause a shutoff flag.



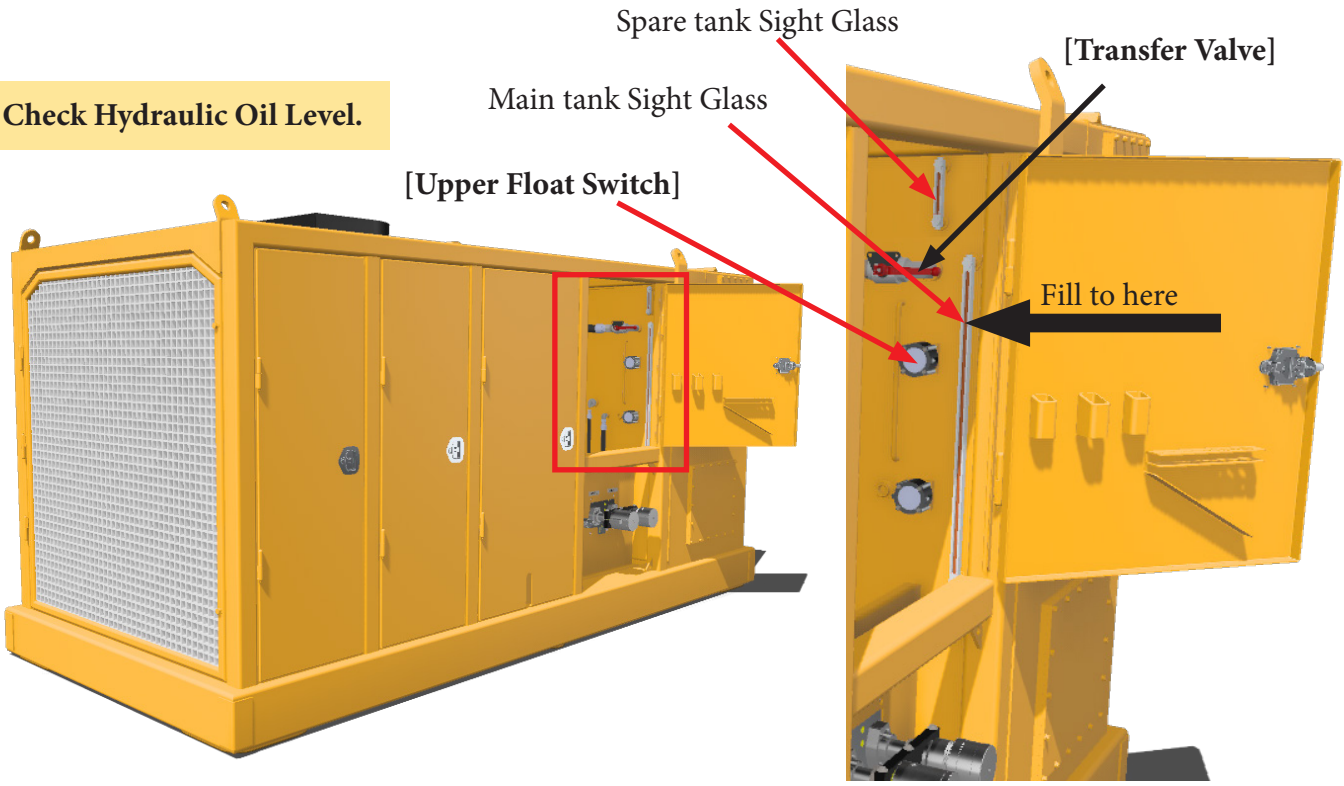
BEFORE you connect any hose lines do a pre-check test on the power unit. Once the hydraulic hose lines are connected to the vibro there are several tests that you will not be able to check.

DO NOT SKIP STEPS AND FIRE THE POWER UNIT UP WITHOUT A PRE-CHECK.

#1 Reason for downtime is the vibro is too hot and breaks, the #2 reason for downtime are preventable pre-check items on the power unit. The following pages show exactly how to do a pre-check.

UNDERSTAND THAT DURING SHIPPING OR TRANSPORT CERTAIN VALVES MAY BE SHUT OFF TO HELP AVOID OIL LEAKS. FUEL BREATHERS MAY BE SHUT OFF, WIRES MAY HAVE VIBRATED LOOSE, ECT. DEPENDING ON COLD WEATHER OR HOT WEATHER DAMAGE TO BATTERIES OR COMPONENTS CAN HAPPEN.
NEVER ASSUME THE POWER UNIT IS READY TO GO UPON ARRIVAL.

1.) Check Hydraulic Oil Level.



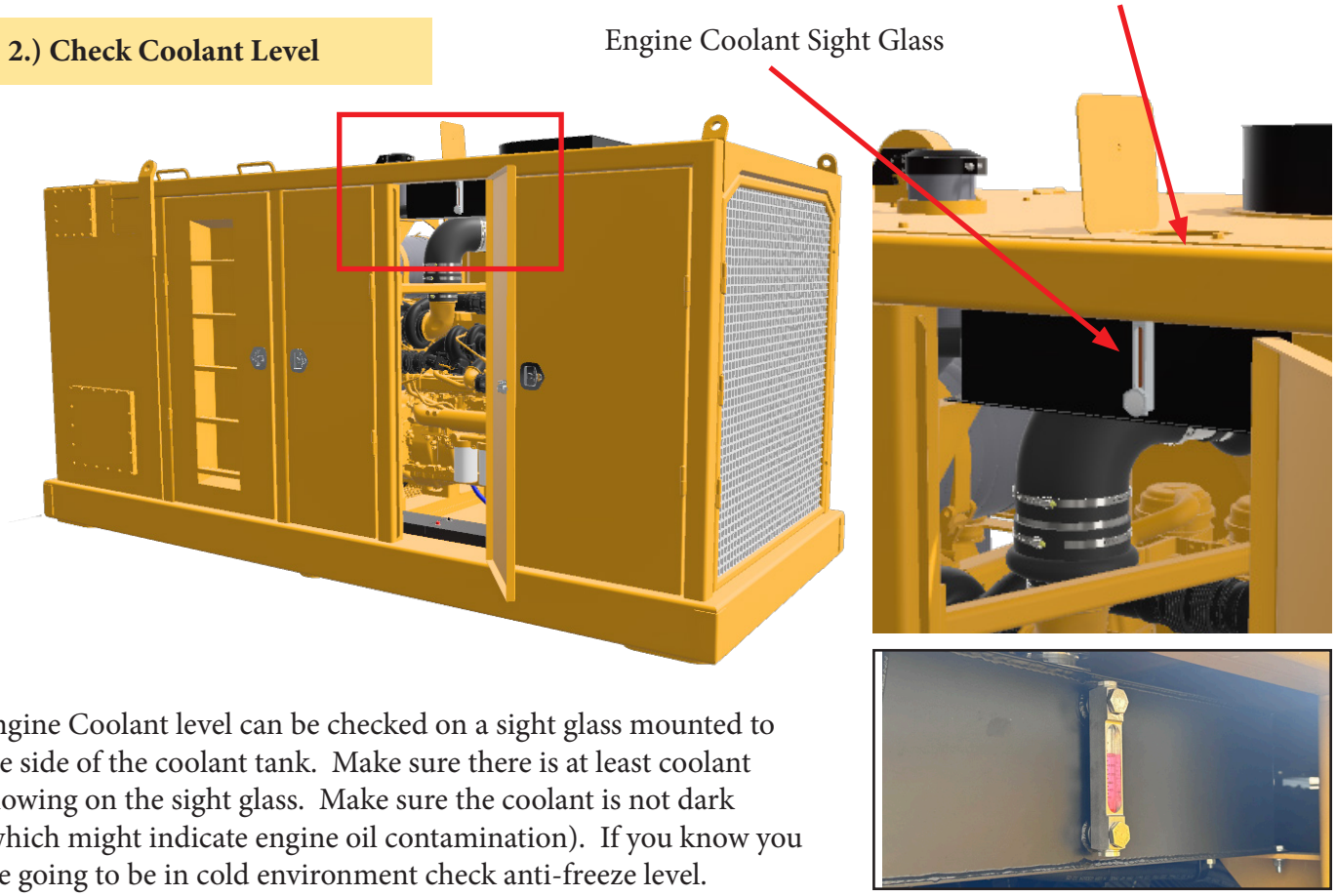
Located above the main exterior quick disconnects are two sight glasses. The bottom one is for the main tank. The top one is for the spare 55 gallon tank. The top tank is only used to conveniently fill the main tank in the event of an oil loss and help prevent downtime as transporting oil can be time consuming and time consuming. Make sure the oil is above the [**upper float switch**] by about at least 1" (2.54cm). Never fill to full on either spare or main tanks, always leave about 1-2" (2.54cm to 5.08cm).

Do not over fill
Oil will expand as it heats up, if there is nowhere for the oil to expand to (from being full) the oil will expand out of the breather valves on the power unit and cause an oil mess.

Pro tip: If you have over filled your main hydraulic tank you can use the clamp open circuit to pump oil back out of the unit into a storage container. If the spare tank is over filled you must drain some back into the main tank using the **[Transfer valve].**

Do not under fill:
If oil level goes below the bottom float switch level it will cause aeration and cavitation of pumps. The bottom float switch is only there for emergencies or for larger scale vibro operations where more than one vibro is connected together.

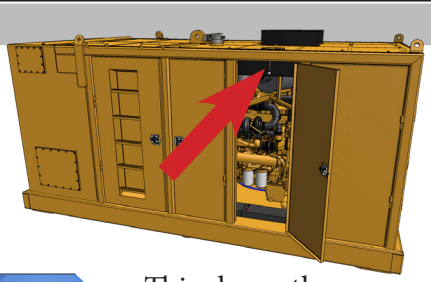
2.) Check Coolant Level



Engine Coolant level can be checked on a sight glass mounted to the side of the coolant tank. Make sure there is at least coolant showing on the sight glass. Make sure the coolant is not dark (which might indicate engine oil contamination). If you know you are going to be in cold environment check anti-freeze level.

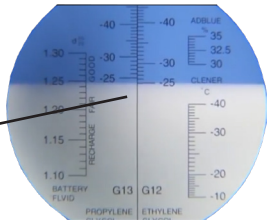
How to Check Anti-freeze level (inside of the coolant)

Take a few drops of coolant from the fill port and use a manual refractometer to verify the coolant temp of the anti-freeze temperature. Other testing equipment exists including digital versions of these tools. However a manual refractometer is inexpensive and durable. How to use it:





You will see something like this:

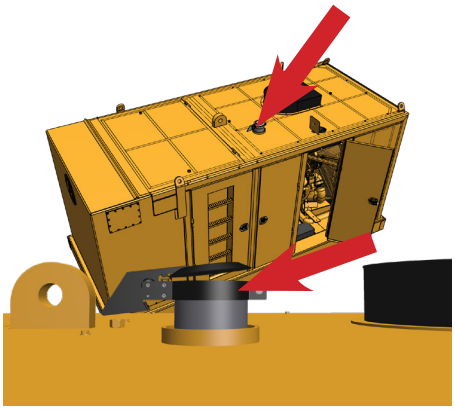


This shows the anti-freeze is -25C

Note: Even if you don't know if you have Propylene Glycol or Ethylene the scale is pretty similar.

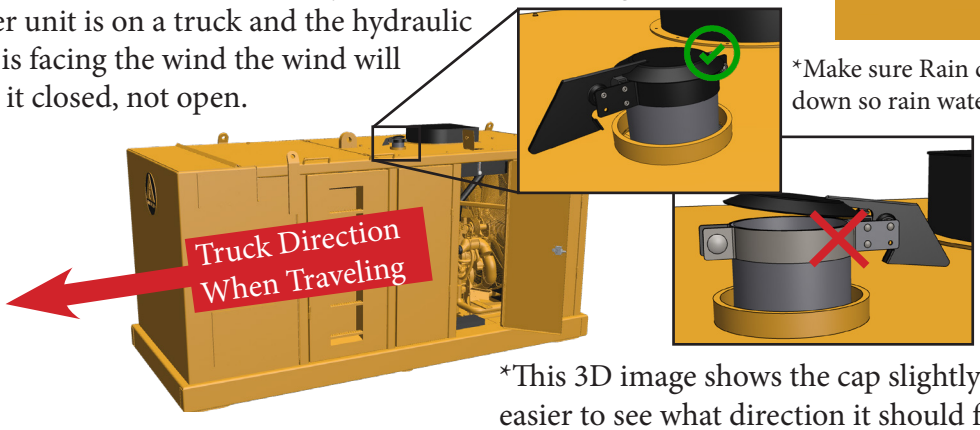
3.) Check Exhaust System and Rain Cap

This rain cap sometimes will be taped down during shipping or long term storage to prevent water from getting into the engine. Make sure the exhaust cap can open and close.



*Make sure Rain cap fully closes or is tilted down so rain water does not go inside engine

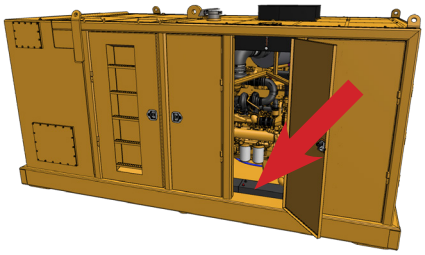
Next, make sure the rain cap is facing in the correct direction. It should close AWAY from the hydraulic tank. Meaning, that when a power unit is on a truck and the hydraulic tank is facing the wind the wind will push it closed, not open.



*This 3D image shows the cap slightly open to make it easier to see what direction it should face, however in reality the cap should close completely.

4.) Check Battery terminals

The ECM on the engine requires a constant 24 volts to run. If the terminals are dirty or loose the voltage will be interrupted and cause the engine to stop. A loose wire during times of vibration can kill the engine and result in a service call. It may not be obvious at the time the engine stopping is caused by loose battery connections or dirty terminals.





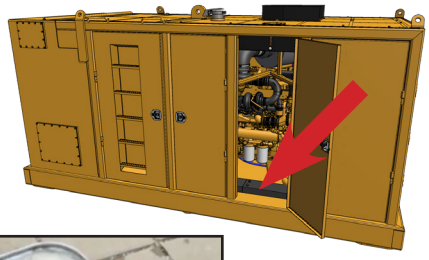
Tools List

-1/2" wrench
-wire brush
-battery terminal contact cleaner (WD40 Contact Cleaner, CRC Battery cleaner, Sprayway Electrical Contact Cleaner, ect.)

LOOSE BATTERY CONNECTIONS ARE THE 3RD MOST COMMON REASONS FOR JOB SITE DOWNTIME. MAKE SURE THE CONNECTIONS ARE TIGHT OFTEN.

MONTHLY: Check Battery water level

Yes, the batteries do have distilled water inside that needs to be checked regularly (best practice is monthly but at least per job or rental minimum).



Here are the steps:



Pop open the top of the battery cover



Use a flashlight to look and make sure all the holes are filled to full the marking.



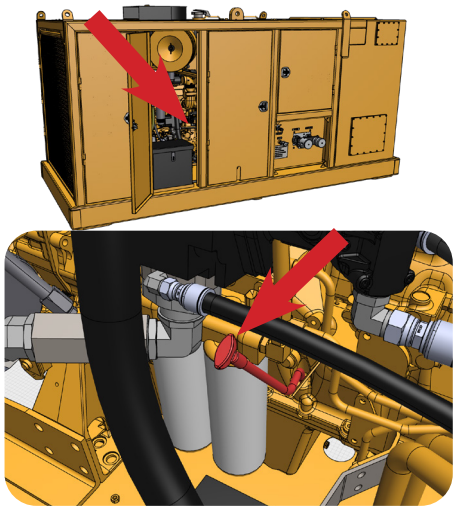
Add ONLY distilled water. NEVER use tap water, tap water has minerals that can damage the battery.

Tools List

-pry tool
-flashlight
-distilled water

Note: Low water will allow components to oxidize which leads to power loss and irreversible damage to the battery plates and separators. It exposes the battery terminals to more oxygen. The water is a consumable used in a reaction when charging and discharging, therefore it water needs to periodically be added.

5.) Engine Oil Level Check



Check engine oil when engine is cold. Do not check it while it's running or after it's run for awhile since the oil will expand and give a false reading. Pull out the stick, wipe it off with a rag, then dip and pull back out. Make sure the oil is at the proper level. If it's not add oil. If it's too full then remove some oil.

Use Cat DEO 5W-40 synthetic oil. Best to use the CAT brand oil.

When changing the oil make sure the engine is warm before removing the oil. Warmed oil will drain better and pull more contaminates then when it's cold. The port is located on the bottom of the engine.

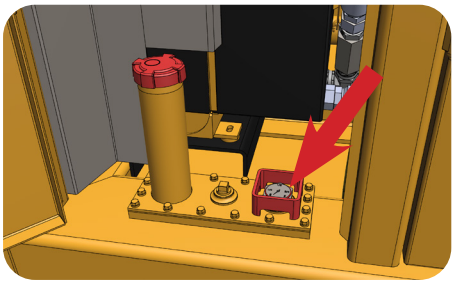
It's best to lift the power unit up on before changing the oil. Always be careful when going under a power unit, never your dunnage/cribbage/horse/frame 100%.

6.) Diesel Fuel Level Check



Make sure the unit is sitting level before you read the gauge. The reading off by 1/4 of a tank or more if the unit is sitting to where the fuel is more towards the gauge side. Confirm the unit is sitting level. Write down the level that is indicated on the gauge.

Pro tip: Downtime Preventer:
Understand that long term harsh salt water environments the gauges CAN break (not common), and so the reading on the gauge may not be accurate if the internal mechanism has seized. It may say 3/4 full but is actually totally empty. If you plan to take this power unit far off shore or far from a city it is wise to confirm the fuel gauge mechanism has not been compromised.



*For units that are purchased on auction, traded in, or of less known history it's best to drain all fuel out of the engine and verify the tank has good fuel and tank is not damaged. If there is no record for when fuel was added to the system then assume the fuel is bad; 90% chance you are right. Bad fuel will make the engine run bad, it won't be easily detectable until your crew is trying to drive or pull a pile under load. It can be very troublesome or impossible to change all the fuel of a unit on site. Best practice is to flush all the diesel fuel annually if the unit has done more sitting that running.

Bad fuel quality is the #4 reason for downtime, confirm you have good fuel is in the system.

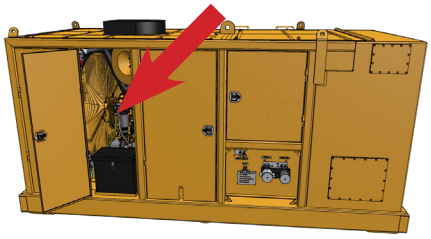
COMMON FUEL/ENGINE ISSUE SIGNS:

White smoke: When the engine starts it is common to see some white smoke. White smoke can be a sign of water in the fuel. A little white smoke vapor for the first 20-30 seconds after the engine starts is common after rain. However if white smoke is persisting after 3-4 minutes it could be a sign of a larger issue.

Black Smoke: A little plume of black smoke when the engine starts is common, however if the black smoke persists longer than 30 seconds or is excessive during high engine loads it could be a sign of issue. It usually means the engine is burning too much fuel.

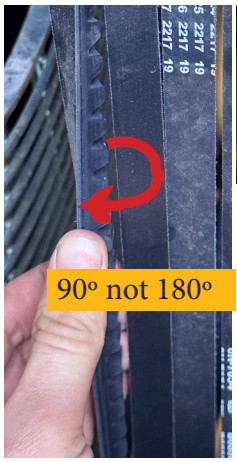
Engine bogging down during load or random times: When the engine is running sluggish it is often due to bad or dirty fuel. The first thing to change is the fuel filters, if the fuel filters are dirty they will prevent the engine for consuming the proper amount of fuel. Fuel filters should last at least 3 to 6 months, if they are getting dirty within a matter of hours or days it is a sign of bad fuel. **It is very common that fuel storage on barges or remote locations can get contaminated.**

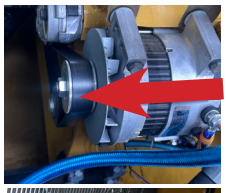
7.) Fan and Alternator Belt Check

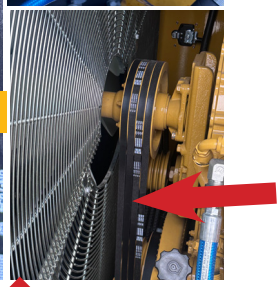


Important Safety Warning: Disable the battery or warn others before checking fan or alternator belts so that nobody tries to start the engine while a service tech's hands are near the belt.

In general a belt should be tight enough to where if you try to spin one of the belts it should only be able to spin about 90 degrees with the strength of an average persons hand. It should not easily spin 180 degrees. The fan has multiple belts, you will want to inspect them all and make sure none are missing.





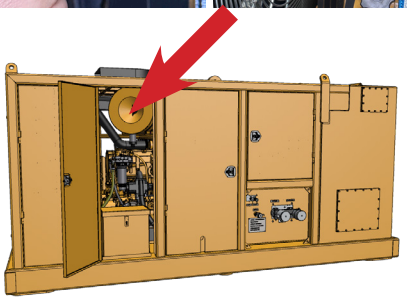


- Look for signs of damage and wear
- Confirm no missing belts
- Confirm during engine startup no belts are slipping

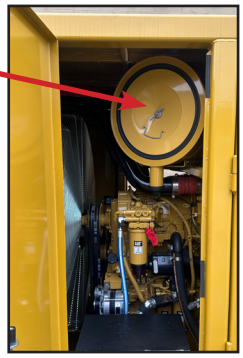
Make sure you have spare fan belts (located in the service door) before going to a remote location.

8.) Air Filter Condition

Locate the engine's air intake. The engine requires clean air to operate, so all incoming air must pass through a filter. If this filter becomes dirty, performance will suffer. The air filter can be cleaned manually a few times, but replacement is recommended once it's dirty. Some engines use multiple filters—some round, others square.



To remove the filter there are typically a few clips that hold the housing door in place or a large wing nut. The filter itself is pushed into the housing so removing it may require some moving it back and forth while pulling. Pull it out and inspect:


Antaeus Style

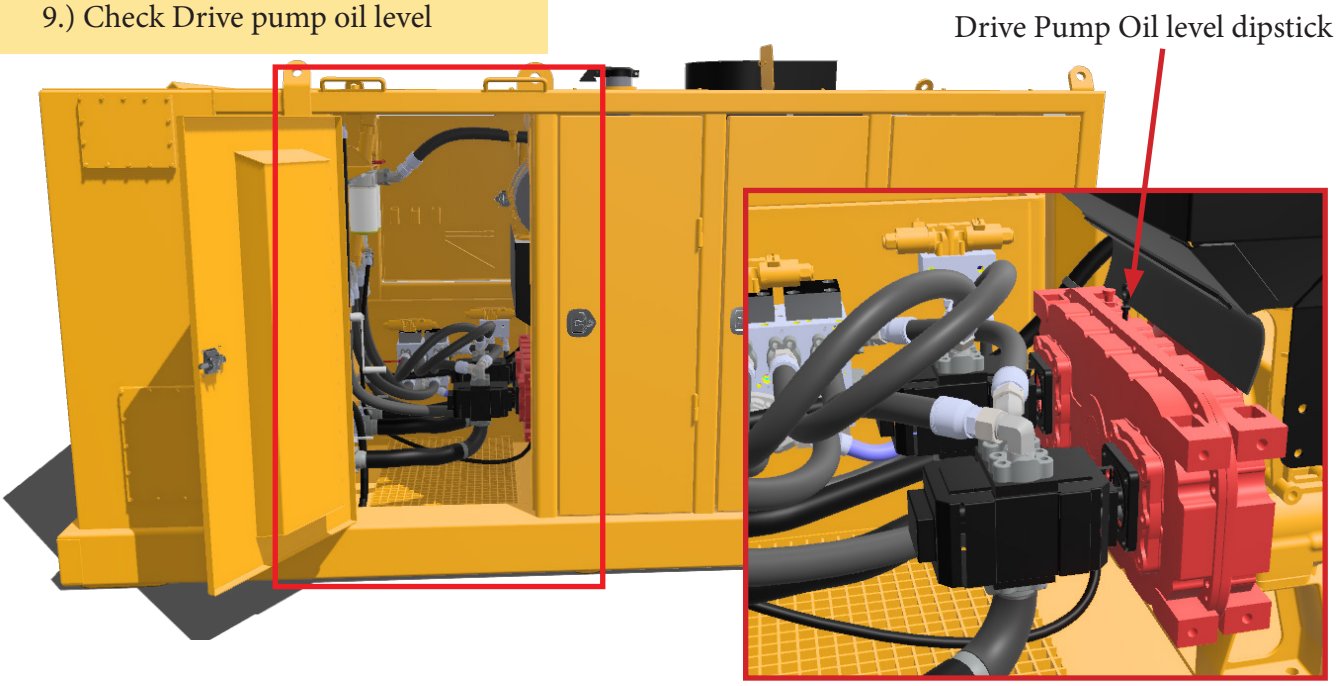

Double Round Style


Old Square Style

Visual inspection of the air filter:

-Overall color, it should not be black or brown
When new it's a white or tan color
-Check for tears, holes, cracks or physical damage
-Check for any dates that were written down when it was last changed.
-Check for obvious excessive dust and debris

9.) Check Drive pump oil level



The pump drive (Durst) is a gearbox that allows the engine shaft to drive two pumps at the same time. The pump drive requires gear oil to lubricate and must be changed out every 150 hours. Use the dip-stick to check the oil level. Add oil if needed.

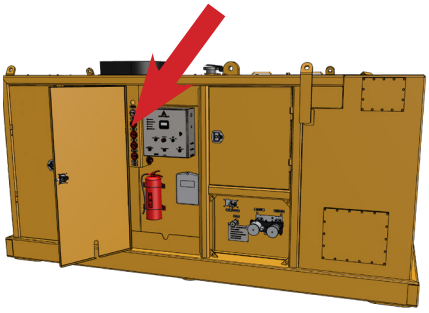
Recommended oil type is: Schaeffer 268 140wt oil

*Note: pump drives can typically last 20+ years if good oil is kept inside. It is very rare for a pump drive to fail, when they do fail they are almost always because the box ran dry of oil. When pump drives fail the repair time can be very costly.

Pro tip Downtime Preventer: While inspecting the Durst pump drive, check beneath all pumps and systems to ensure no oil is present in the power unit catch basin. Over time, rainwater or oil can collect there. Tier 4 engines require a full catch basin under the engine, but if it becomes too dirty, distinguishing new spills from old ones is difficult. Keeping the area under the pump drive and pumps clean makes it easier to spot leaks and trace their source. Most oil leaks near pumps, manifolds, or drive units result from vibration loosening flange fittings. Leaks are hard to trace when components are coated with oil or debris. A loose or leaking component is usually fixable quickly re-tightening it, however if fittings become too loose they can damage seals causing longer downtime.

Clean Power Unit = Increased preventative care = Faster Debugging and Less downtime

10. Hydraulic Gauges Check / Labels Check



Next to the control panel you will find the hydraulic gauges. The Antaeus gauge list is the following: Clamp Close, Clamp Open, Drive Forward, Drive Reverse, Return Pressure. Older units may have Drill Shift, Hydraulic Temperature, Water Temperature, Oil Temperature.

For Clamp and Drive pressure use 0-7500 PSI Gauge
For Return Pressure use 100 PSI gauge.

There are a few different style gauges, some mount with 3 bolts, some mount from the back. When replacing make sure to replace with the same style of gauge.

Note: "Return filter pressure" or sometimes just "return pressure" is referring to the pressure of the cooling circuit oil before it goes through the filter. The pressure is an indicator of how dirty the hydraulic oil filters are, not the return pressure of the vibro or attachment. 20-30 PSI is normal, above 60 PSI = dirty filters.

Make sure gauges have fluid in the gauge, we typically use glycerin, but for cold weather climates (-0F or C) you should replace with silicon oil as glycerin does not do well at super cold temps below zero.

Make sure the gauge is about 80-90% full of fluid, it should not be totally full. 10% empty leaves room for the fluid to expand and contrast. The purpose of the fluid is to dampen the vibration to the needle and protect moving parts from seizing. Ideally the level is at least above the center of the needle but best if it's just showing a small bubble at the top. If you can't tell if it's full or empty then that's a service problem.

*Shown right are various gauge conditions to look for:
1.) Missing label on the drill shift gauge on top. (Order new label)
2.) Drive forward gauge looks a bit cloudy (Replace soon)
3.) Clamp open may have zero or too full glycerin. (Don't trust this gauge)
4.) Clamp close glycerin is too full (gauge may break when oil gets hot)
5.) Return filter pressure gauge looks too yellow (Replace soon)

Look for:



Cloudy and **Missing Label**

Set too High
Use Allen wrench to adjust cut off to below 200F (red dots)

Too Full
Remove fluid

Too Full or Empty
Drain or Fill

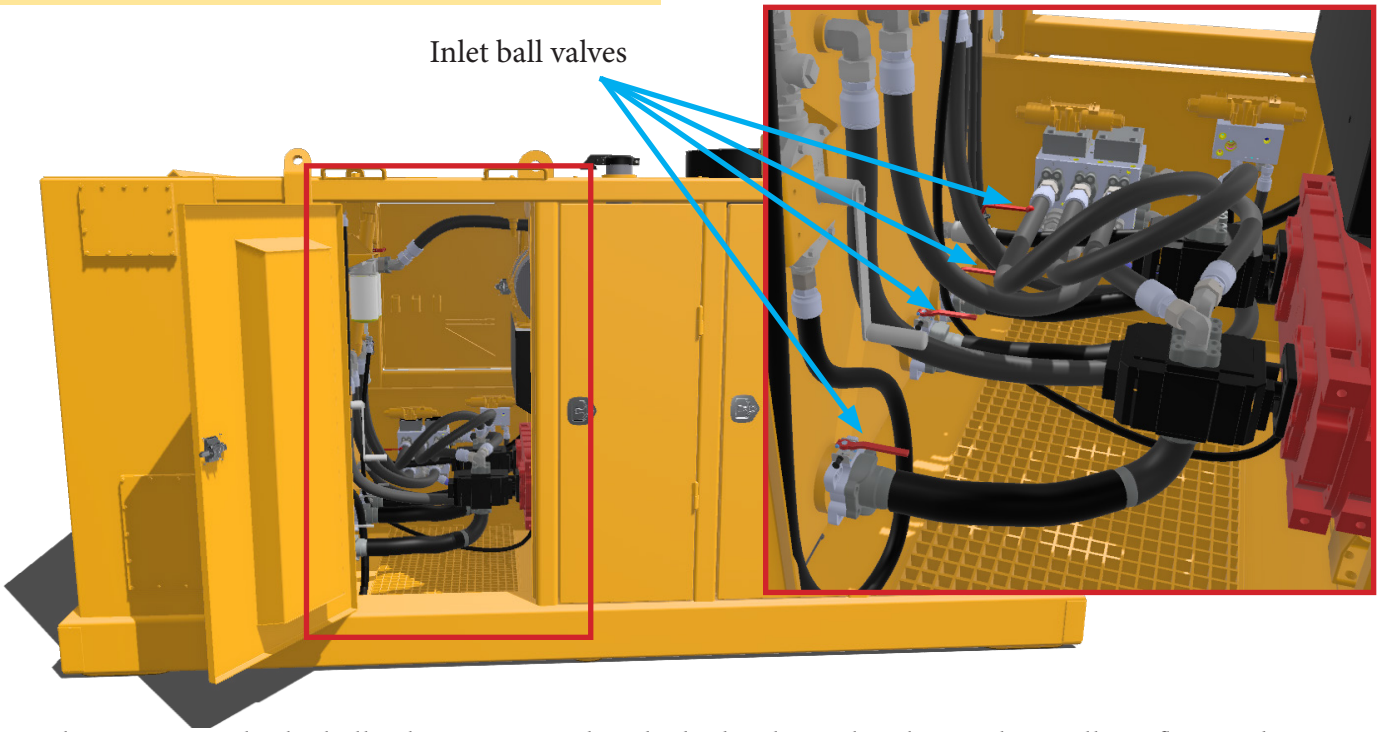
Too Cloudy
Replace Soon

Too Yellow
Replace, cannot see the needle, maybe be broken

*For New or Refurbished units make sure no painted over spray is on the gauges. If so, use a paint cleaner to remove.

To fully test the gauge the power unit will need to be running. Make sure gauges return to zero after they are pressurized. A stuck gauge can cause troubleshooting errors.

11.) Make sure all inlet ball valves are OPEN



There are 4 total inlet ball valves connected to the hydraulic tank. These valves will cut flow to the 4 hydraulic pumps. Normally these valves are ALWAYS OPEN, however, if a service tech was working on the unit and replacing a pump they may have shut the valve off. If the engine runs with the valve closed it will take about 5 seconds to destroy the pumps. It is very important to make sure these valves are open so the pump can suck oil from the hydraulic tank properly.

Make sure ALL 4 ball valves are **OPEN**, each one is connected to specific pump and with it closed the pump can only survive about 5-10 seconds when the engine is running. There is very little time after the engine starts to stop take corrective action, **it must be done before the engine starts** or it is likely too late.

A broken pump often shows these signs:

1.) It becomes much hotter than the others—use a thermal camera or heat gun to compare temperatures.

2.) The vibro spins slowly with no clear cause.

3.) In severe cases, the pump shaft seal fails, leaking oil into the pump drive. Oil can fill the drive rapidly, shooting out the fill port. If it reaches the engine's hot turbo, it can ignite. A shroud above the pump drive helps prevent this, but prolonged unnoticed spraying poses a **serious fire risk**. This applies to all vibratory pile drivers and most mobile equipment of all brands and sizes.

Recap and Summary

Power Unit Pre-Check Quick List:

1. ☐ **Check Hydraulic Oil level**
2. ☐ **Check Coolant Level**
3. ☐ **Check Exhaust System and Rain Cap**
4. ☐ **Check Battery terminals**
5. ☐ **Engine Oil Level Check**
6. ☐ **Diesel Fuel Level Check**
7. ☐ **Fan and Alternator Belt Check**
8. ☐ **Air Filter Condition**
9. ☐ **Check Drive pump oil level**
10. ☐ **Hydraulic Gauges Check / Labels Check**
11. ☐ **Make sure all oil inlet ball valves are closed**

TOP 5 REASONS FOR DOWNTIME REMINDER:

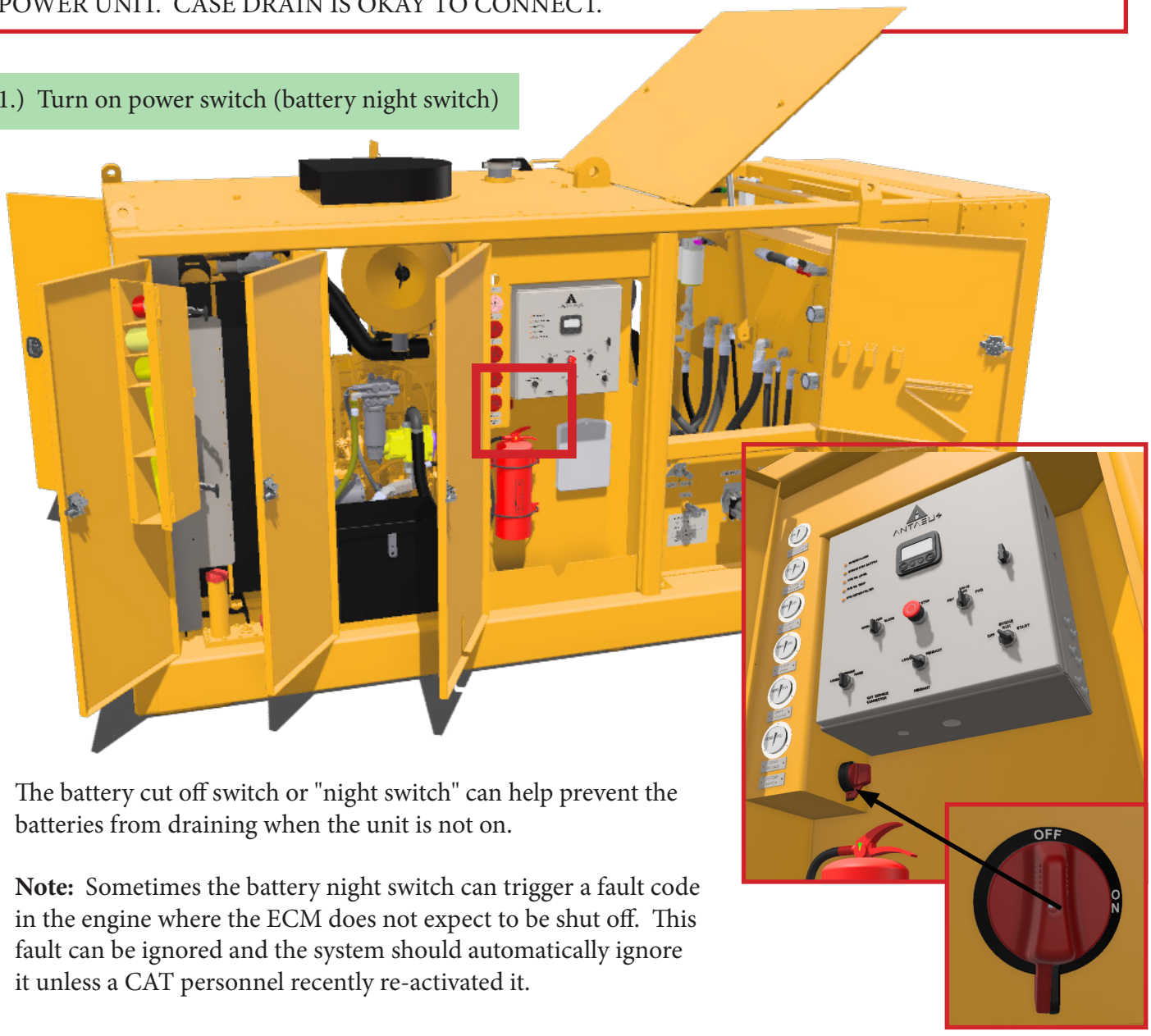
#1) VIBRO HEAT (NOT CHECKING HEAT WHICH CAUSES DAMAGE TO THE UNIT)
#2) POWER UNIT PRE-CHECK WAS NOT DONE OR TAKEN SERIOUS
#3) LOOSE BATTERY CONNECTIONS AND/OR BAD BATTERY
#4) BAD FUEL / DIRTY FUEL CAUSING UNIT TO BOG DOWN
#5) QUICK-DISCONNECTS NOT CLEAN / TIGHTENED WAY TOO TIGHT AND BROKE.

If this short list is respected you will prevent 80% of all downtime. It would be well for the entire crew to understand how important these 5 factors are to the prevention of down time.

Once the Power Unit Pre-Check is complete you can now begin the Power Unit System Check.

DO NOT CONNECT THE MAIN HOSE LINES UNTIL A SYSTEM CHECK IS COMPLETE.
YOU CAN CONNECT THE CLAMP LINES AS LONG AS THEY ARE CONNECTED TO A CLAMP.
IF THE CLAMP LINES ARE NOT CONNECTED TO THE CLAMP THEN DO NOT CONNECT TO POWER UNIT. CASE DRAIN IS OKAY TO CONNECT.

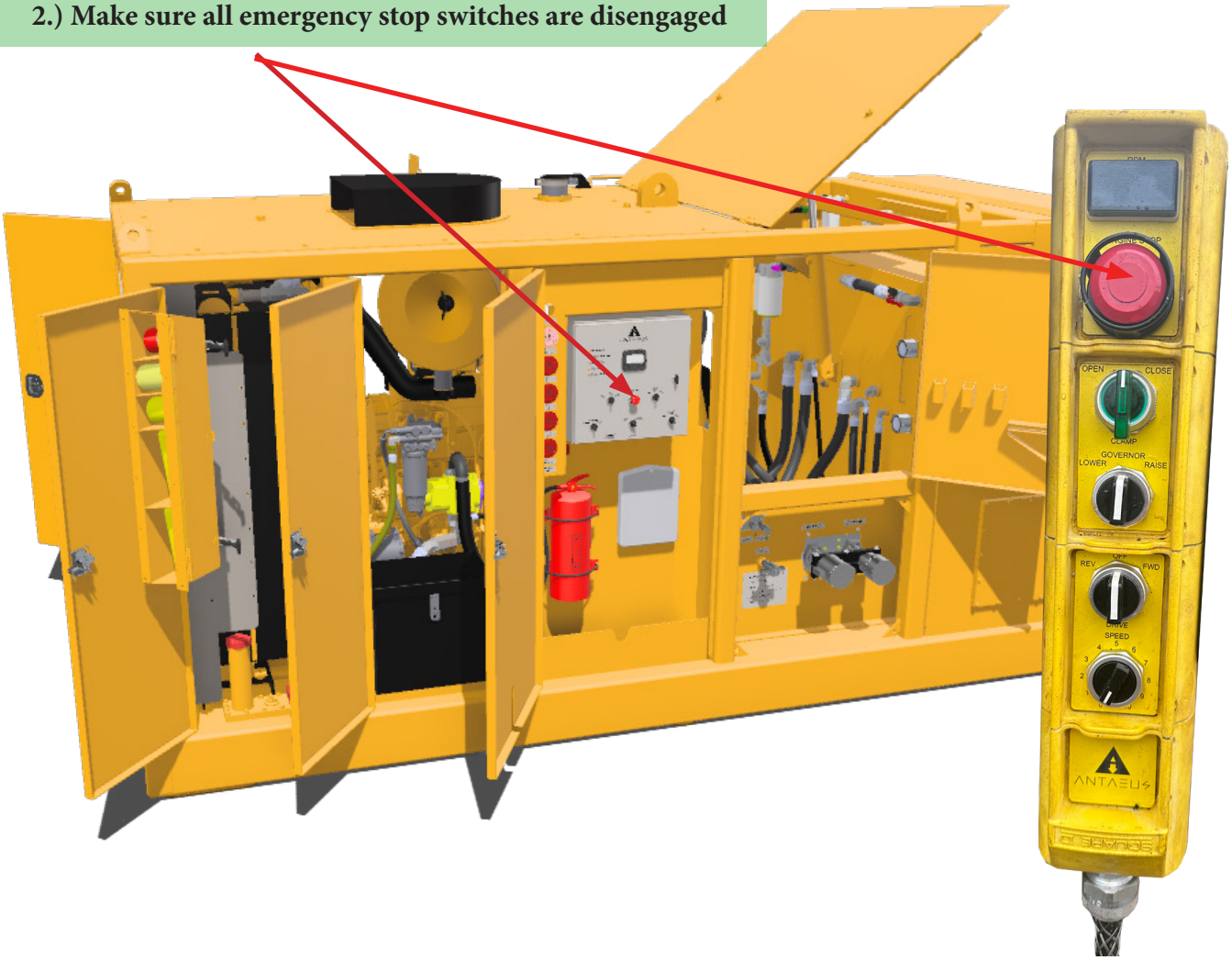
1.) Turn on power switch (battery night switch)



The battery cut off switch or "night switch" can help prevent the batteries from draining when the unit is not on.

Note: Sometimes the battery night switch can trigger a fault code in the engine where the ECM does not expect to be shut off. This fault can be ignored and the system should automatically ignore it unless a CAT personnel recently re-activated it.

2.) Make sure all emergency stop switches are disengaged

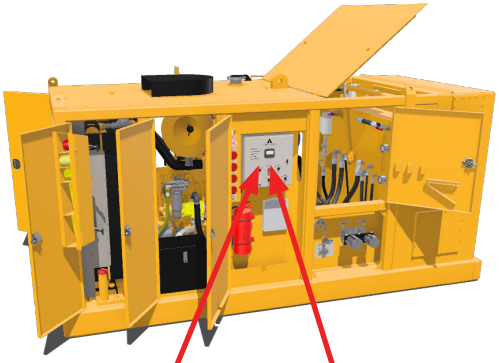


Pull the switch out to turn off.

IMPORTANT REMINDER:
NEVER USE THIS SWITCH TO TURN OFF THE POWER UNIT UNLESS YOU ARE AN IN AN EMERGENCY SITUATION. USING THE EMERGENCY STOP SWITCH TO KILL POWER THE ENGINE WILL CAUSE A FAULT CODE IN THE TIER 4 ENGINE ECM AND EVENTUALLY CAN CAUSE A LOCK OUT IF USED REPEATEDLY.

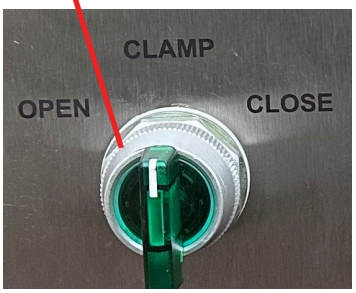
Remote Pendant
*Your pendant may look slightly different

3.) Make CLAMP AND DRIVE SWITCHES ARE OFF FOR BOTH PENDANT AND LOCAL PANEL



On Power Unit local panel (Shown Right)
Verify that the Clamp and Drive switches are set to OFF or Neutral.





IF THESE SWITCHES ARE ON THE CLAMPS WILL CLOSE OR THE VIBRO WILL START VIBRATING AS SOON AS THE ENGINE STARTS.

IMPORTANT NOTE:
ANTAEUS UNITS WILL ALLOW YOU TO HIT DRIVE FORWARD (VIBRO ON) EVEN IF CLAMPS ARE NOT PRESSURIZED. THIS IS A FEATURE TO ALLOW SHORT BURST OF VIBRATION TO HELP SEAT A VIBRO ONTO A PILE WHEN THE CLAMPS ARE OPEN.

On Remote Pendant (Shown Right):
Verify that the Clamp and Drive switches are set to OFF or Neutral.



IF A PENDANT IS NOT PLACED IN A SECURE POSITION THE CLAMP FUNCTIONS OR DRIVE FUNCTIONS CAN GET TOGGLED ACCIDENTALLY IF DROPPED OR IF SERVICE PERSON FORGOT TO TURN THEM OFF WHILE DRIVING PREVIOUS PILE. MAKE SURE THESE ARE OFF OR YOU MAY END UP TURNING THE UNIT ON UNEXPECTEDLY.

2.) Turn on Engine



Turn switch to the Start position and hold until the engine starts. Once the engine has started you can release the switch and it will spring back to center RUN position.

This is the main switch to turn the unit off.

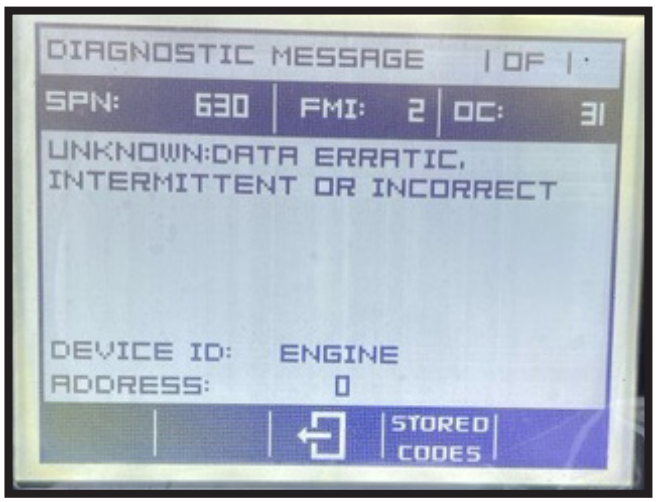
Let the engine run for about 10 minutes before driving pile or doing a system check, especially if the ambient temp is cold.

The top roof should open automatically when the engine starts.

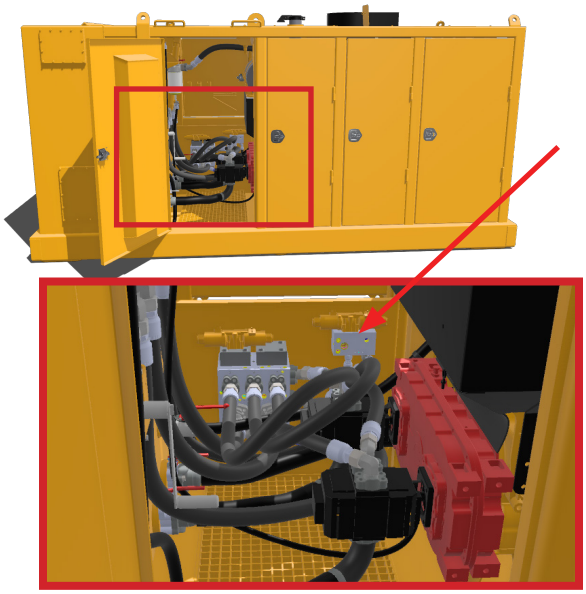
After the engine starts is a good time to do a quick glance around the unit to verify there is nothing leaking oil. Confirm that fittings are tight and not rattling around.

The C18 Tier 4 engine does not need DEF fluid, the CAT technology ACERT system will burn off all contaminated internally automatically. For that reason this system does not have a manual burn off switch nor is it needed. However, it is important to let the engine rest at idle (600 to 800 rpm) for at least 5 minutes before turning it off.

NOTE: If the engine dies unexpectedly for any reason the throttle control for the Tier 4 can sometimes get locked causing the throttle up and down switch to become inactive. To quickly fix this hold on RPM down for 10 seconds and it will reset the throttle switch. This is a known issue with all CAT Tier 4 Engines and should not occur very often. The switch will eventually reset itself after about a 1 minute. This feature is to protect the engine from accidentally ramping up to full RPM after an engine shutdown. The error shown right may pop-up, it can be ignored as it is only telling you that the ECM lost power unexpectedly.



3A) Check Clamp Relief Valve Setting



The clamp relief valve sets the MAX pressure the clamps can reach. It is important to verify the max relief pressure is set to 5,000 PSI.

The reason to lower this pressure down is related to driving various type of piles. For example if you are pulling or driving timber piles the relief setting can be reduced to prevent the clamps from squishing the timer piles. For plastic, concrete, or composite piles may require other pressure settings.

For Steel piles (most common) the setting should be at 5,000 PSI.

It is quite common that the clamp relief max pressure setting is confused with the clamp pressure switch. The clamp relief pressure setting refers to the MAX pressure the clamp system can reach. The clamp pressure switch is a on/off switch that will shift the clamp manifold to neutral when a certain pressure is reached. The clamp pressure switch prevents the clamp manifold from overheating, otherwise the oil would continuously burn over the relief valve. When the pressure switch reaches set pressure it will turn on a green light to indicate the pressure setting has been reached. As stated in the overview section, the green light ONLY indicates the set pressure has been reached, IT DOES NOT mean it's safe to drive piles because the system does not know what type of pile you are trying to drive and what clamp pressure you are requiring. Always check the clamp close pressure gauge to verify the clamps are at the desired pressure setting.

How to set or confirm clamp max relief pressure setting:
Step 1) Ramp up RPM to max 1800 RPM.
Step 2) Hold clamp open and see how high the clamp open gauge will go. The needle should stop at 5,000 PSI. If you have clamps attached you will need to wait until the clamps full open before the pressure rises up past the relief valve setting. You may need to hold clamp open for about 10-20 seconds.

If reading is 5,000 PSI you can move on to testing the Drive Forward and Reverse Pressures

If reading is too high or too low see next page on how to adjust:

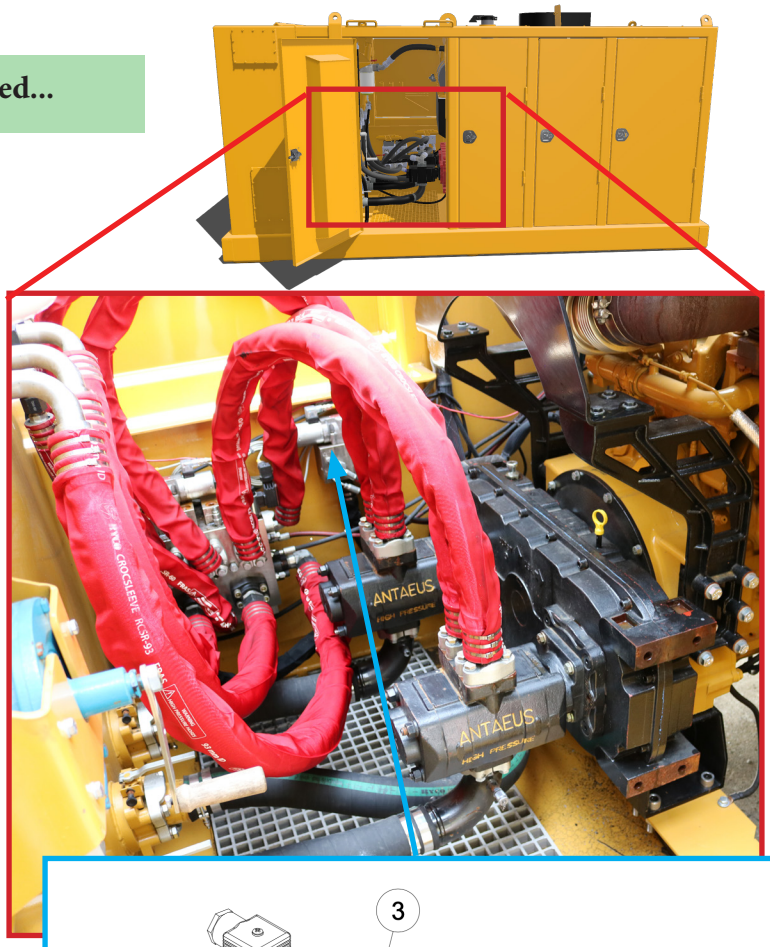
3B) Check Clamp Relief Valve Setting continued...

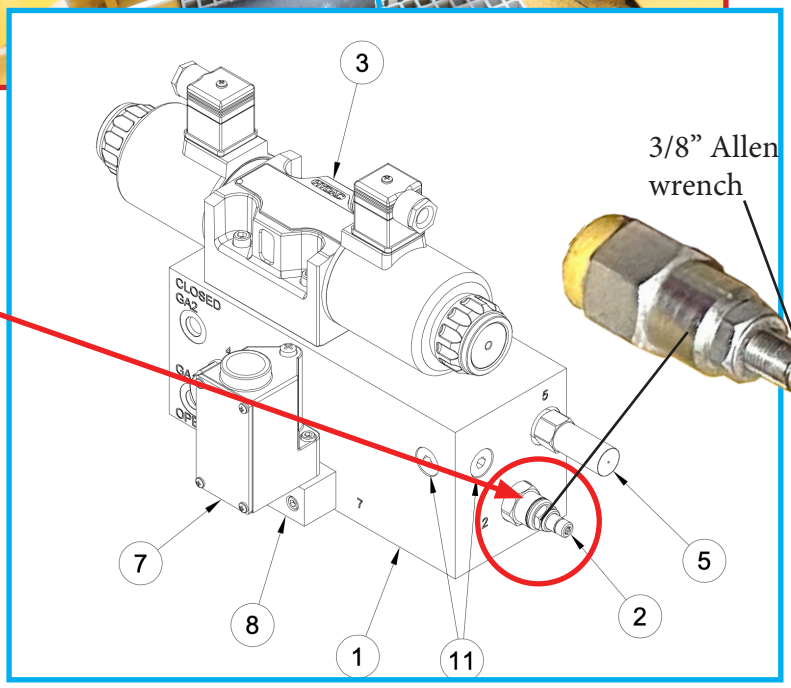
On the side of the clamp manifold block is an adjustable relief valve.

If the pressure is too high you can loosen the setting, then hold clamp open again and check the setting. Try to avoid turning the adjustment while also holding on clamp open. Best practice is to hold clamp open, look at the reading, then let go of the switch and allow it to return to neutral position. Make small adjustments to the relief valve, 1/4 turn at a time, then check again.

Note: Adjustment valve #5 looks very similiar to #4, if your manifold version has a #5 you can screw that one in all the way. #5 is the thermal expansion relief valve that is no longer used.

Only adjust #2.





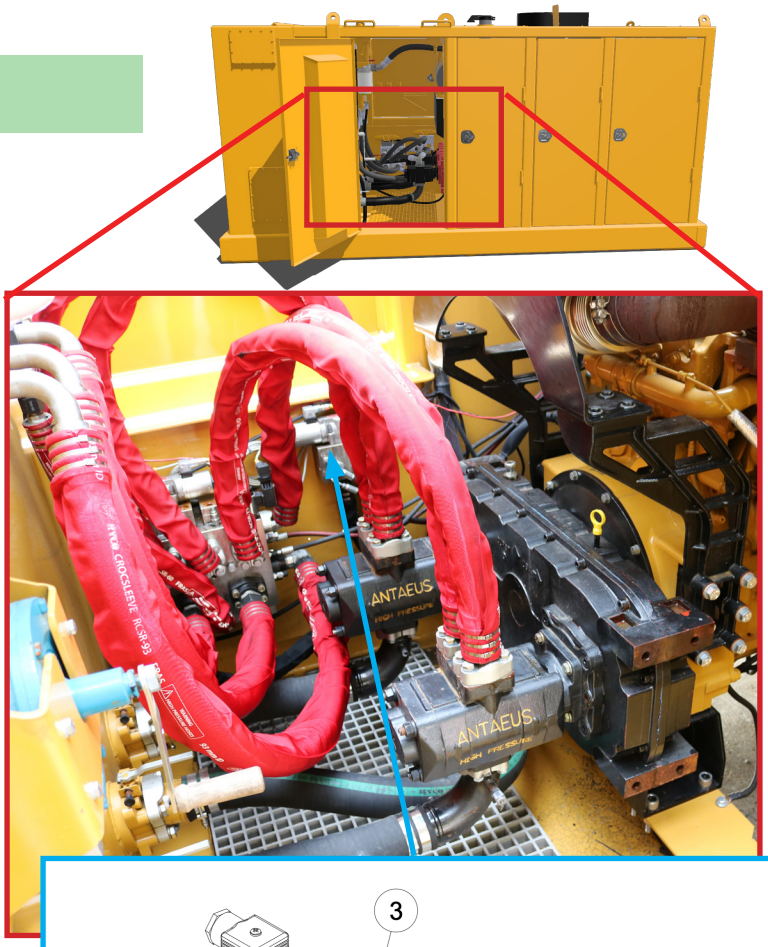
Max Clamp Relief Valve

Loosen locking nut with small wrench. Use an allen wrench to tighten or loosen the valve.

Tighter = Higher PSI
Looser = Lower PSI

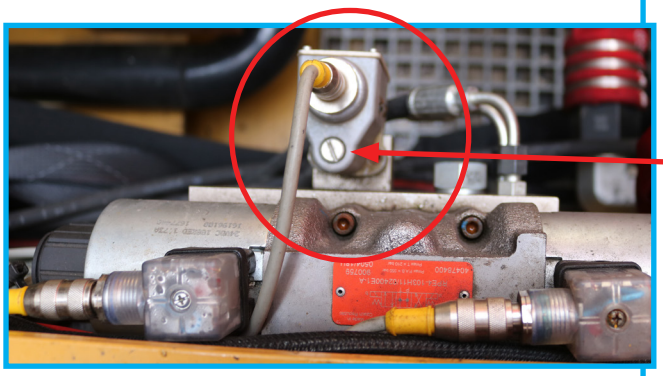
3B) Check pressure switch setting continued...

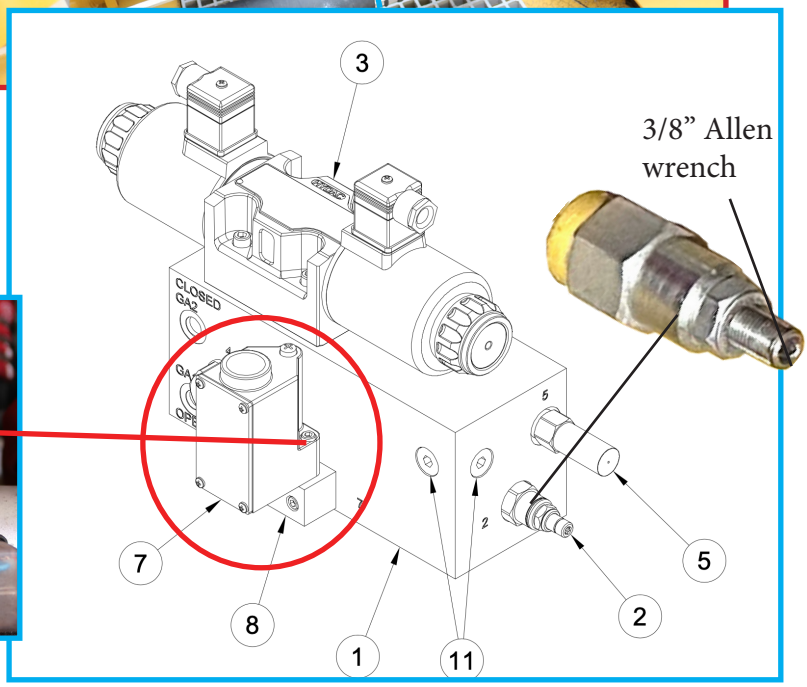
On the same clamp manifold block is the pressure switch. To adjust the pressure switch you will need a flat head screw driver. The adjustment screw is shown in the picture below.



Note: The pressure switch shown is an "Oildyne" pressure switch which can be mounted upright (shown in the photo) or upside-down, which means the adjustment screw may be on the bottom. The screw mounted upside down seems to last longer as rain and contaminates have a harder time getting inside. If your pressure switch is mounted upright you can consider mounting it upside down.

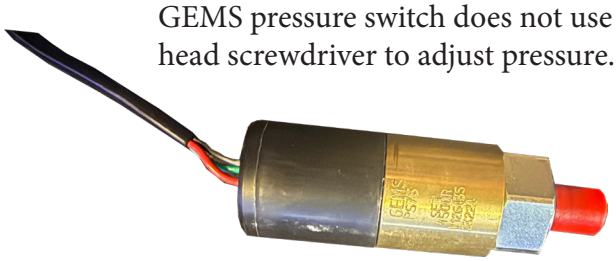
Select clamp close. The green light should come on and the pressure should read 4,300 PSI at the lowest to 4,800 PSI at the highest. If the green light does not turn on the adjustment needs to be made lower. If the green light turns on with pressure lower than 4,300 PSI the setting needs to be higher.

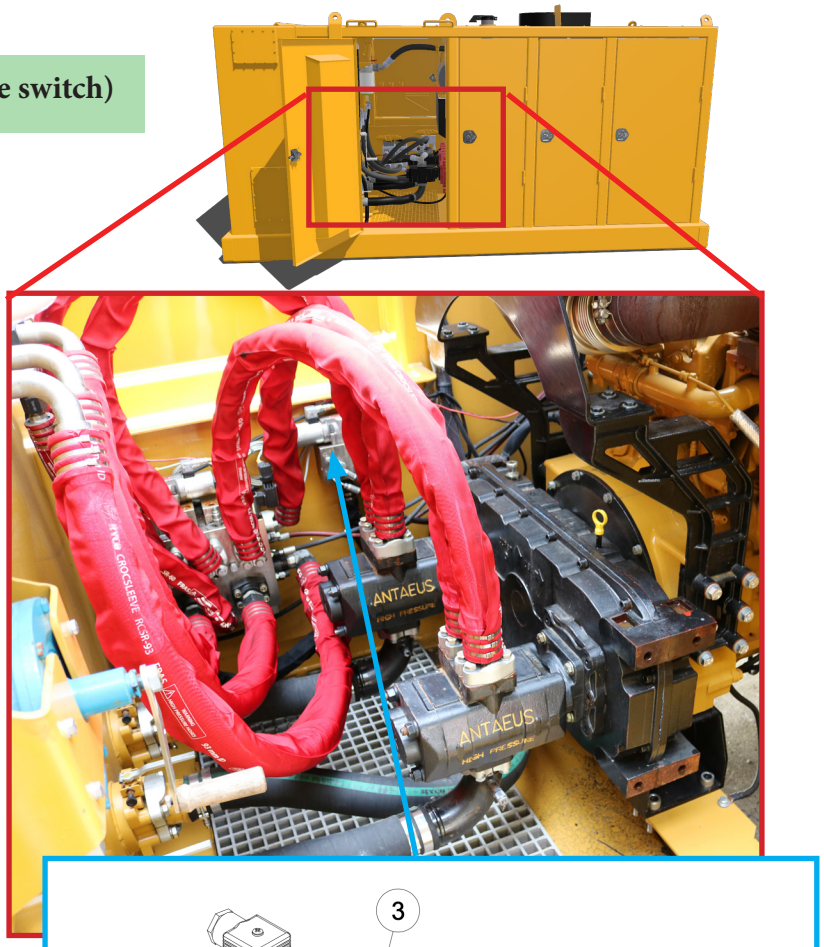




3D) Check pressure switch setting (GEMS style switch)

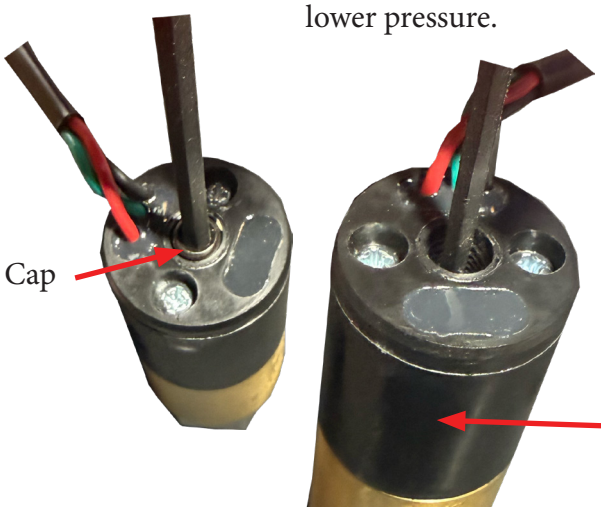
Newer models use a different style pressure switch called GEMS. The sequence is very similar however the GEMS pressure switch does not use a flat head screwdriver to adjust pressure.

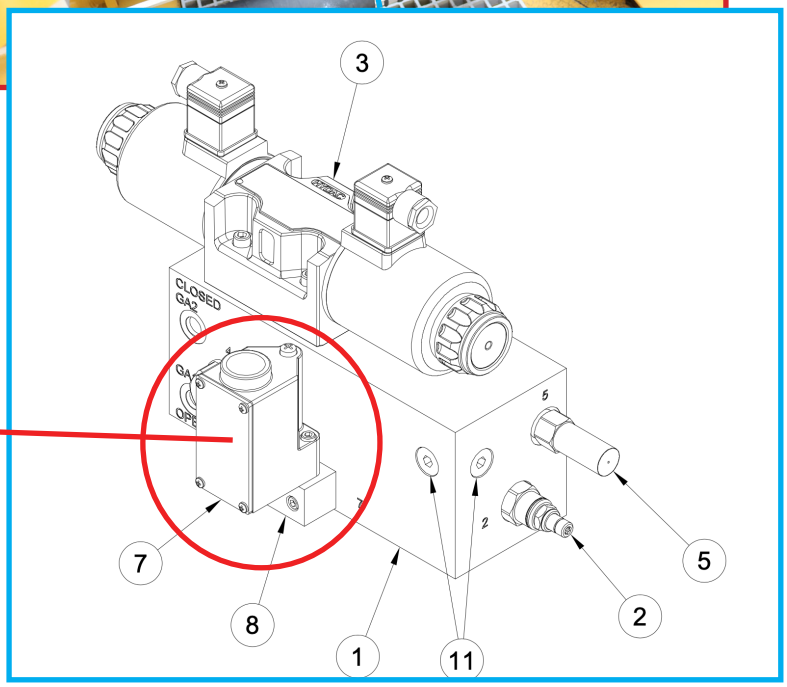




First: Remove the cap using 1/4" Allen. A common mistake is to think the cap is the adjustment, it is only a cap.

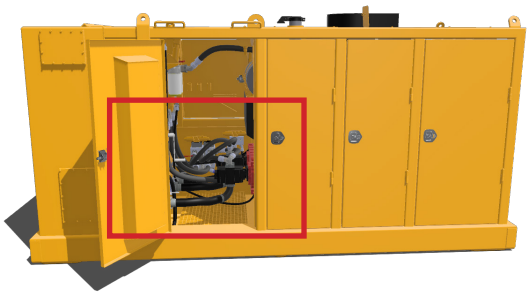
Second: Use a 7/32" Allen wrench and turn the adjustment down inside of the switch either clockwise for higher pressure or counterclockwise for lower pressure.





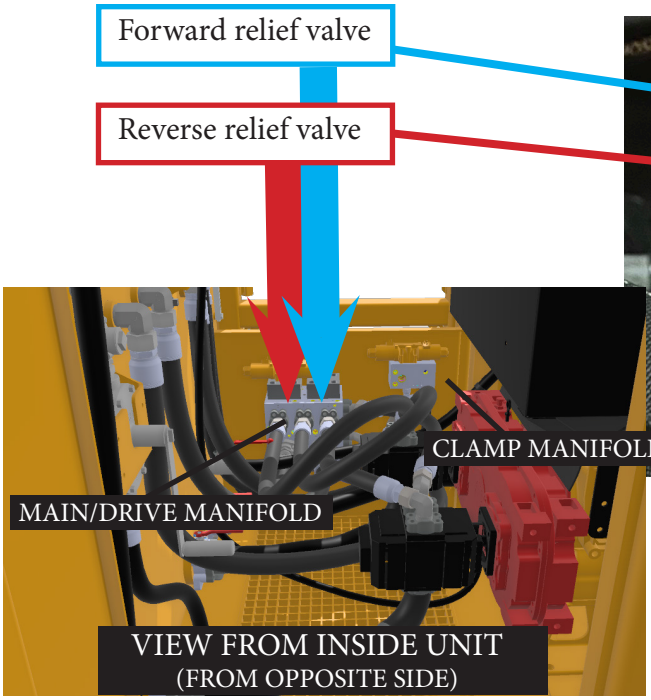
Regardless of Oildyne or GEMS the logic is still exactly the same.

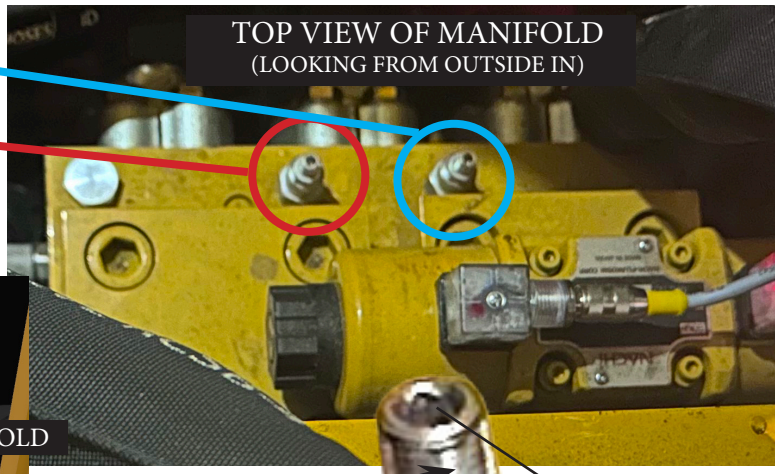
For GEMS make sure to put the cap back on after the pressure switch has been adjusted.



4.) Check Drive Forward / Reverse Pressure setting

1.) Ramp up RPM to 1600 RPM (not full RPM)
2.) Select Drive Forward
3.) Look at Gauge and see what the pressure reading is. This is your max drive forward pressure.
4.) Select Drive Reverse
5.) Look at Driver Reverse pressure gauge and see what the pressure is. This is your max drive reverse pressure.





Adjustment screw
tighten = PSI higher
loosen = PSI lower

Locking nut
*Remember to tighten after adjusting.

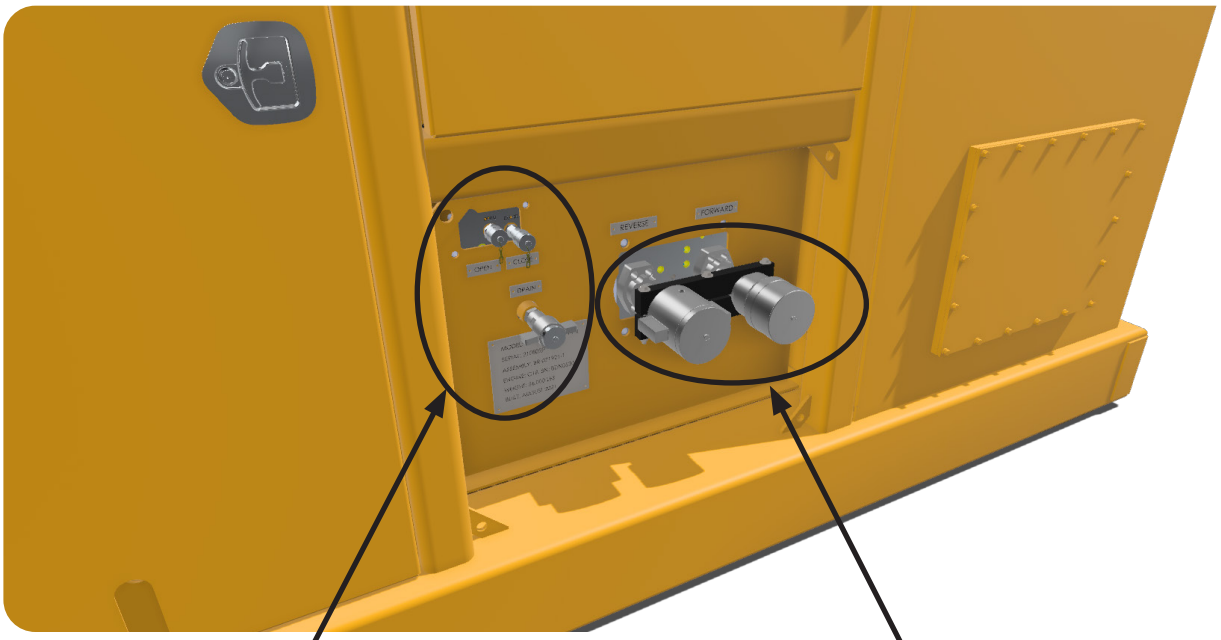


NOTE: For MOST vibro operations we suggest setting the drive reverse pressure to 1,500 PSI. This is the amount of pressure you will need to circulate the oil effectively and warm up the machine and not too much to run the vibro in reverse accidentally. If the power unit is at max RPM and pressure is at max the reverse can force enough oil through the system backwards that the vibro can spin slowly backwards.

Recap and Summary

Power Unit Systems Check Quick List:

1. ☐ 1.) Turn on power switch (battery night switch)
2. ☐ **2.) Turn on Engine**
3. ☐ **3A, 3B, 3C, 3D) Check Clamp Relief Valve Setting**
4. ☐ **4.) Check Drive Forward / Reverse Pressure setting**

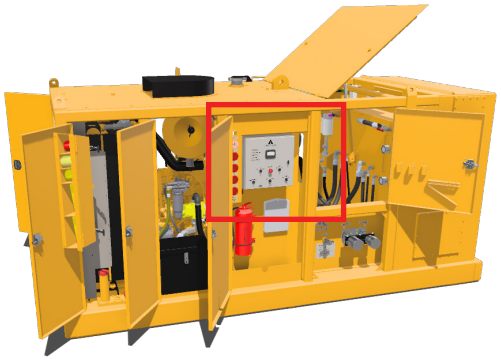


Hand Tight
NEVER USE PIPE WRENCH
NEVER USE ANY TOOLS

Will likely need a hammer or chain wrench to both tighten and loosen

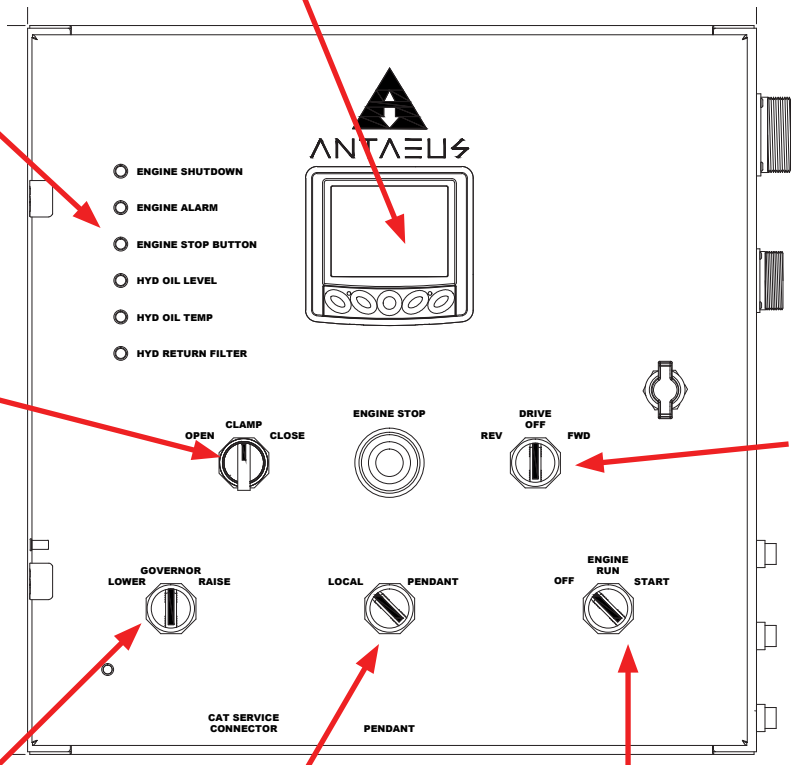
Make sure the hose bundle is not pulling on the quick disconnects or side loading them. Best practice is to tie off the hoses to make sure that when the vibro is being moved around with the crane it does not accidentally yank so hard and bend or break the quick disconnects.

Before you try to remove the clamp lines make sure to check the clamp open and clamp close pressure gauges and verify they are at 0 PSI. If there is pressure on the gauge the clamp lines will be nearly impossible to remove without breaking them. Note that if your unit has been sitting in the sun for a long time the thermal expansion inside the clamp lines could be putting a lot of pressure on the quick disconnecting making it difficult to install. If your unit has been in the sun all day you can crack a union in the line and relieve some of the oil pressure before you put the clamp lines on. If the lines are connected to the power unit the quick disconnects will not get locked from thermal expansion, only if the unit is sitting in a stand or on the site while NOT connected to the power unit could this possibly happen. It is quite often that due to thermal expansion in the hydraulic lines a crew member will resort to using a pipe wrench to install a clamp line and break it. If a line is not going on by hand you can be quite confident there is a simple reason for it; 90% of the time thermal expansion in the lines or clamp close pressure was left on the unit and must be relieves before attempting to connect hose lines. **Quick disconnects are universally the largest reason related to preventable downtime.**



Display:
RPM
Engine Hours
Oil Pressure
Throttle control settings

Alarms:
Indicator lights for engine shutoff conditions. Oil level, oil temp, return filter dirty, ect..



Clamp Switch
Clamp Open or Clamp Close.

DRIVE SWITCH
For Vibros:
Drive Forward = Vibro ON/OFF
Reverse = Cooling circuit
For Drills:
Forward and Reverse on the drill.

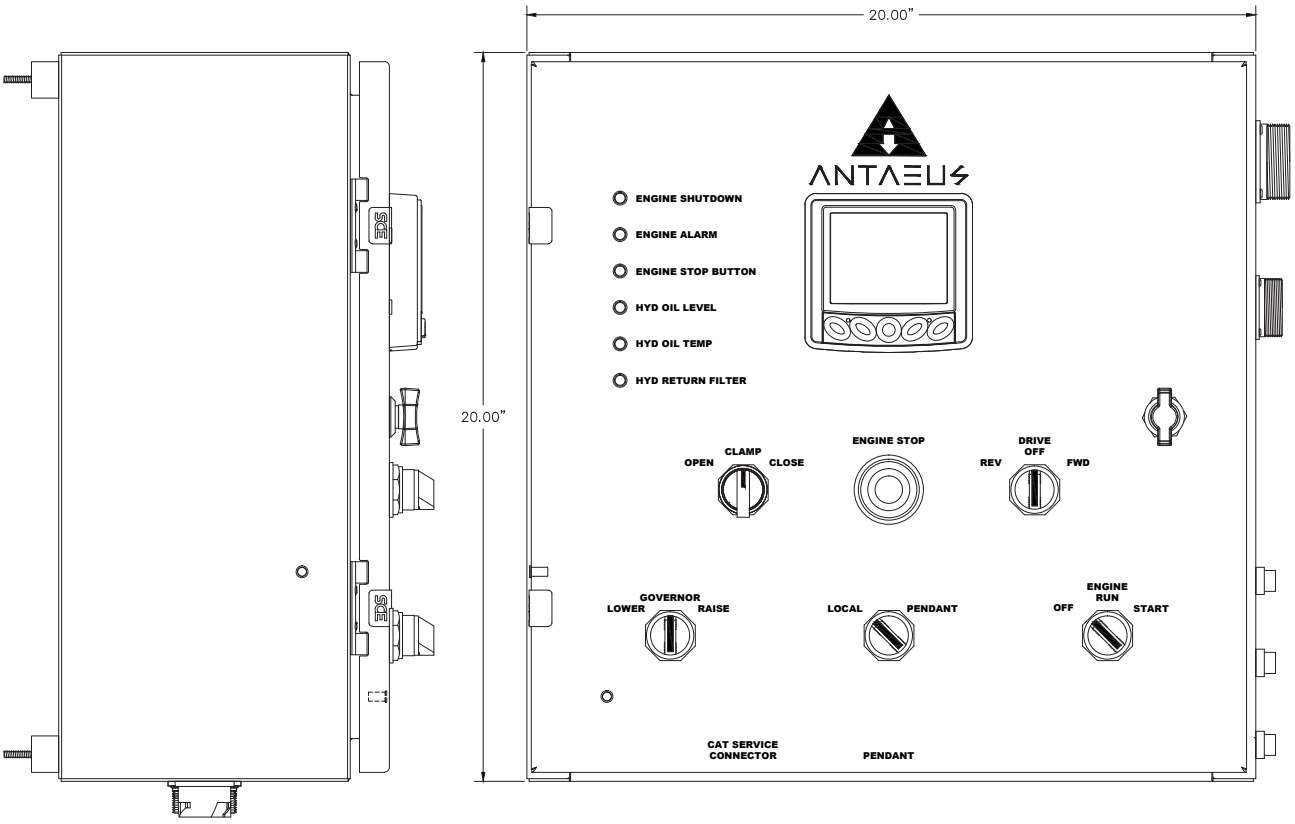
Governor
RPM Up and Down
Note: Best to start vibro at about 1600 vpm for normal pile driving. Ramp higher or lower after startup.

See pile driving guide for more information

Local / Pendant
Switches control from the local pendant to the remote pendant if one is installed.

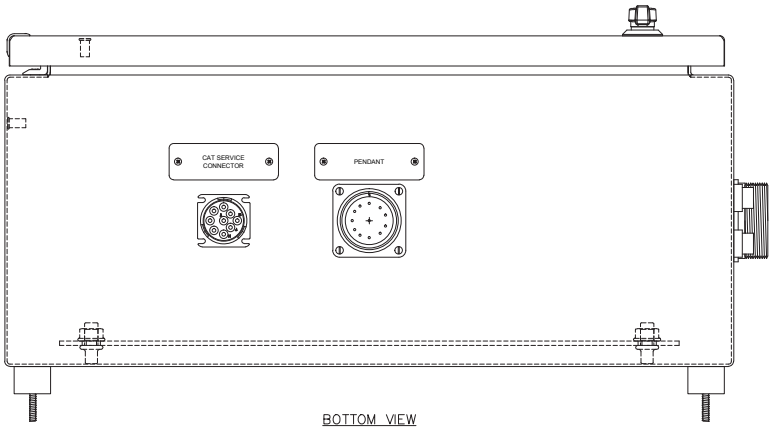
Antaeus units do not require a remote pendant to be plugged into operate.

Engine Off, Run, Start
Starts and stops the engine.

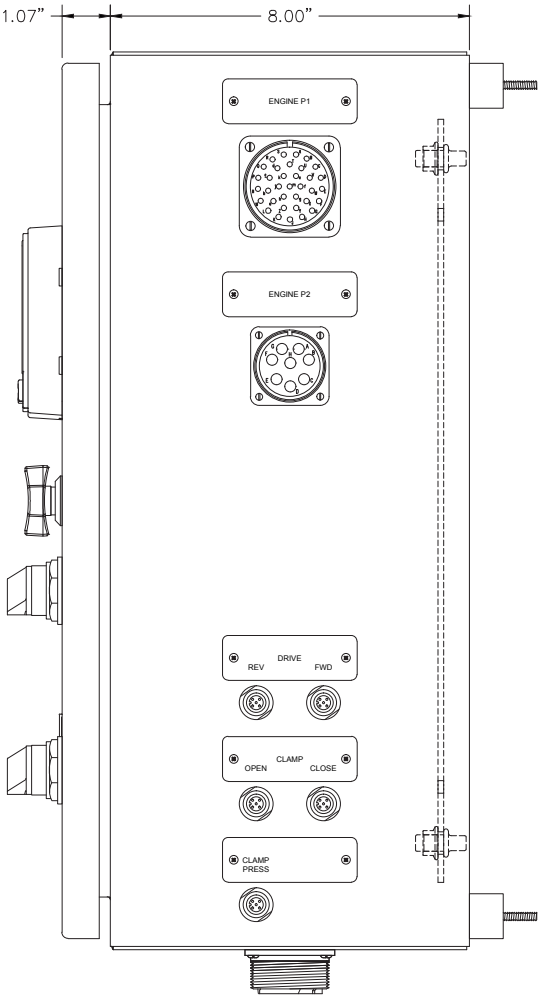


LEFT SIDE VIEW

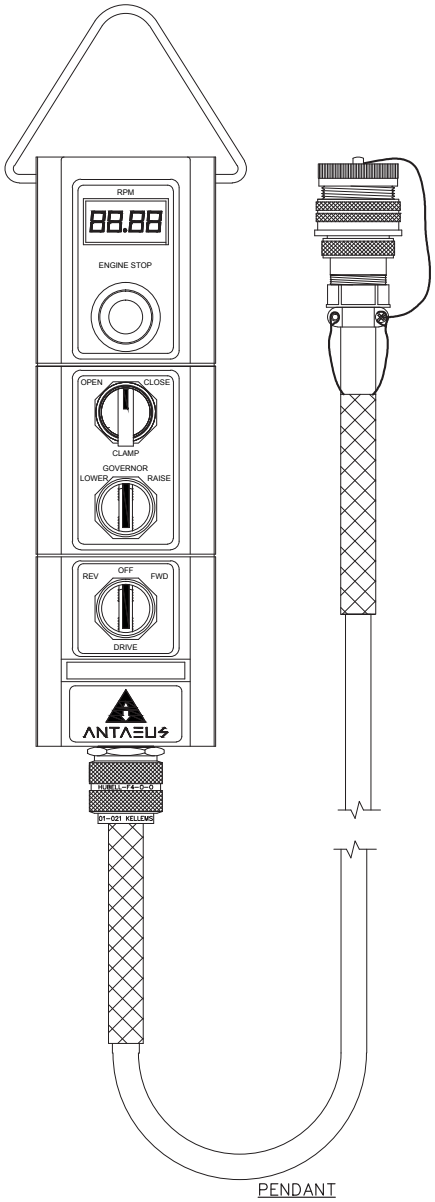
ELEVATION VIEW



BOTTOM VIEW

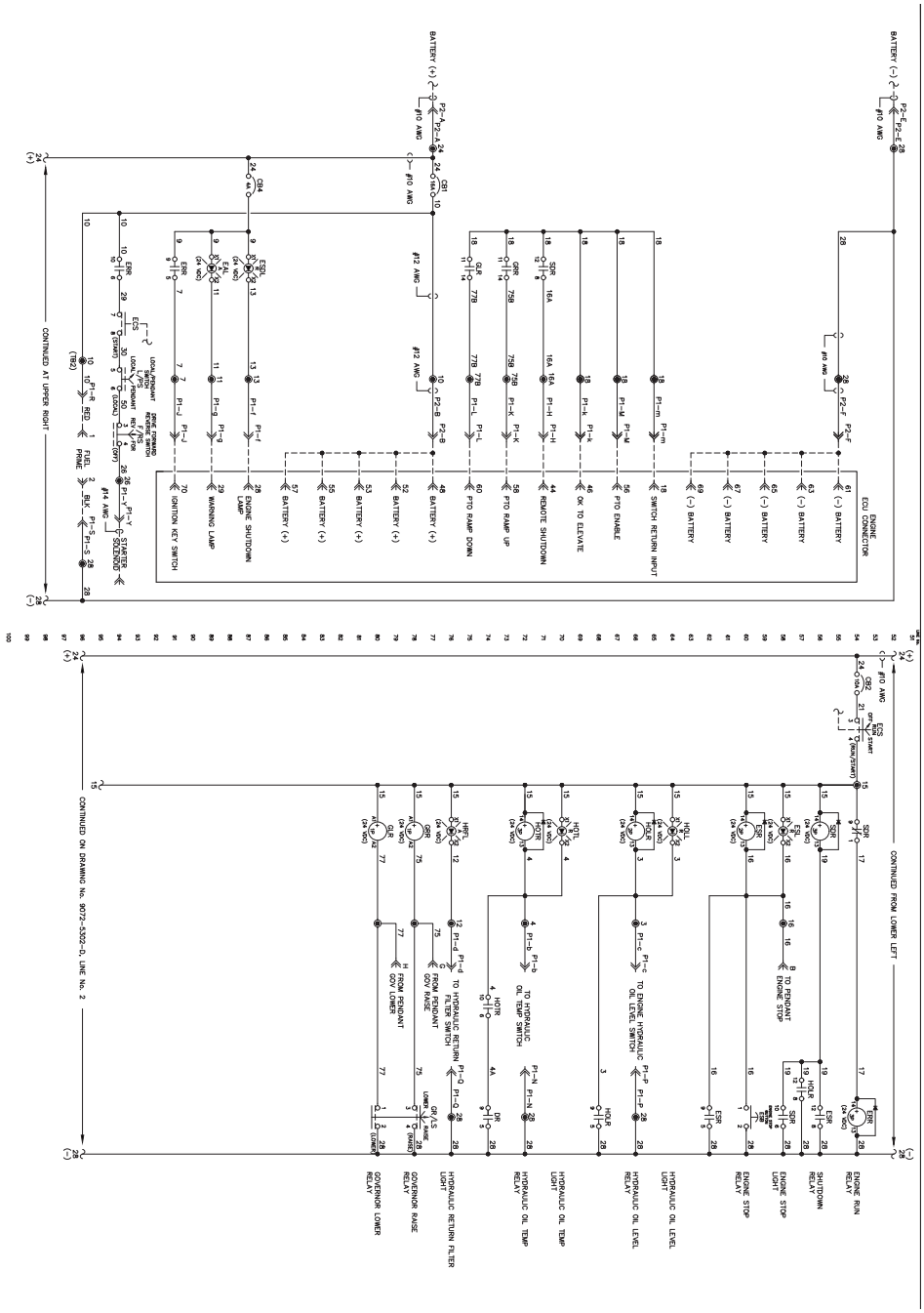


RIGHT SIDE VIEW

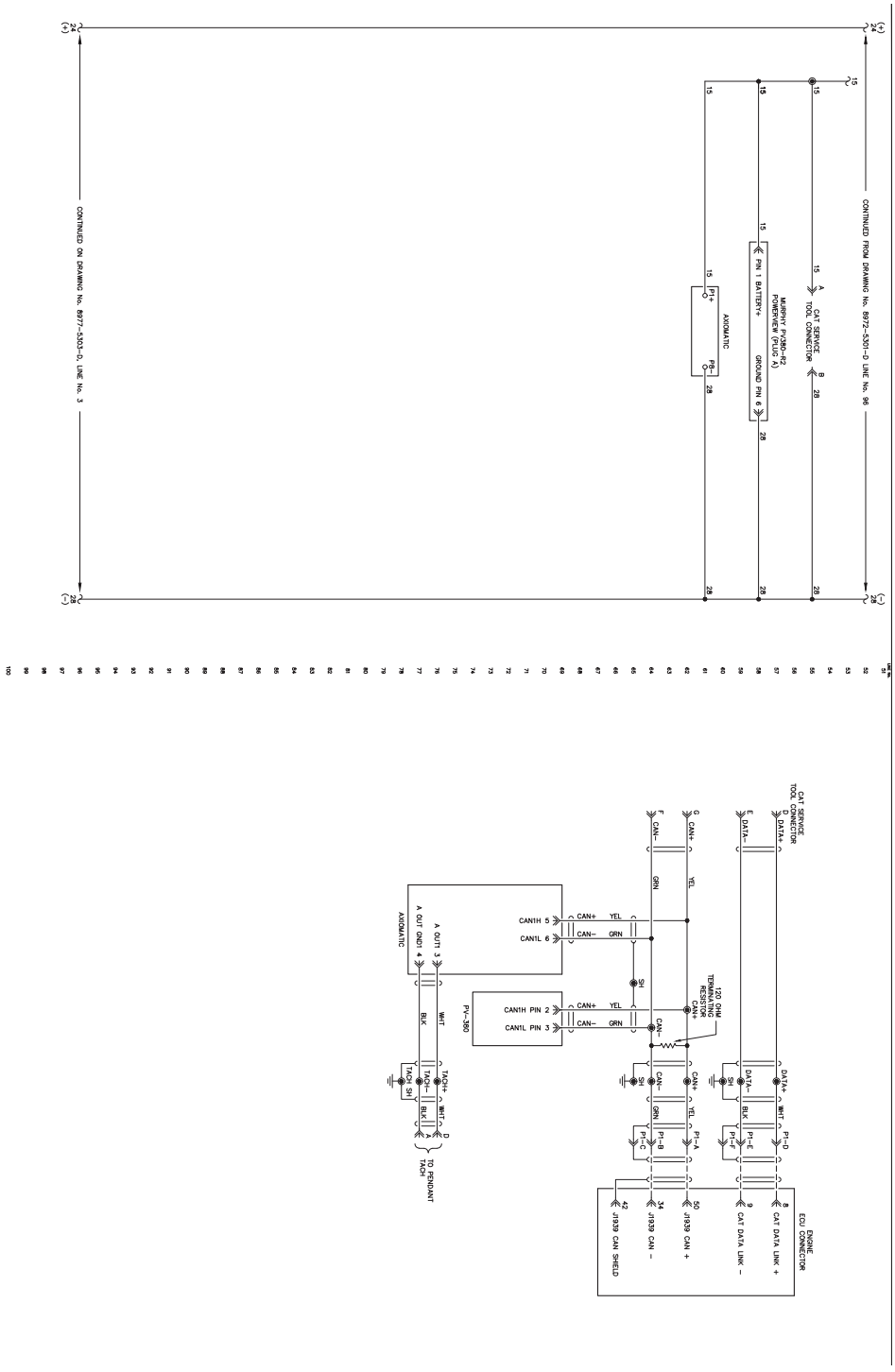


PENDANT

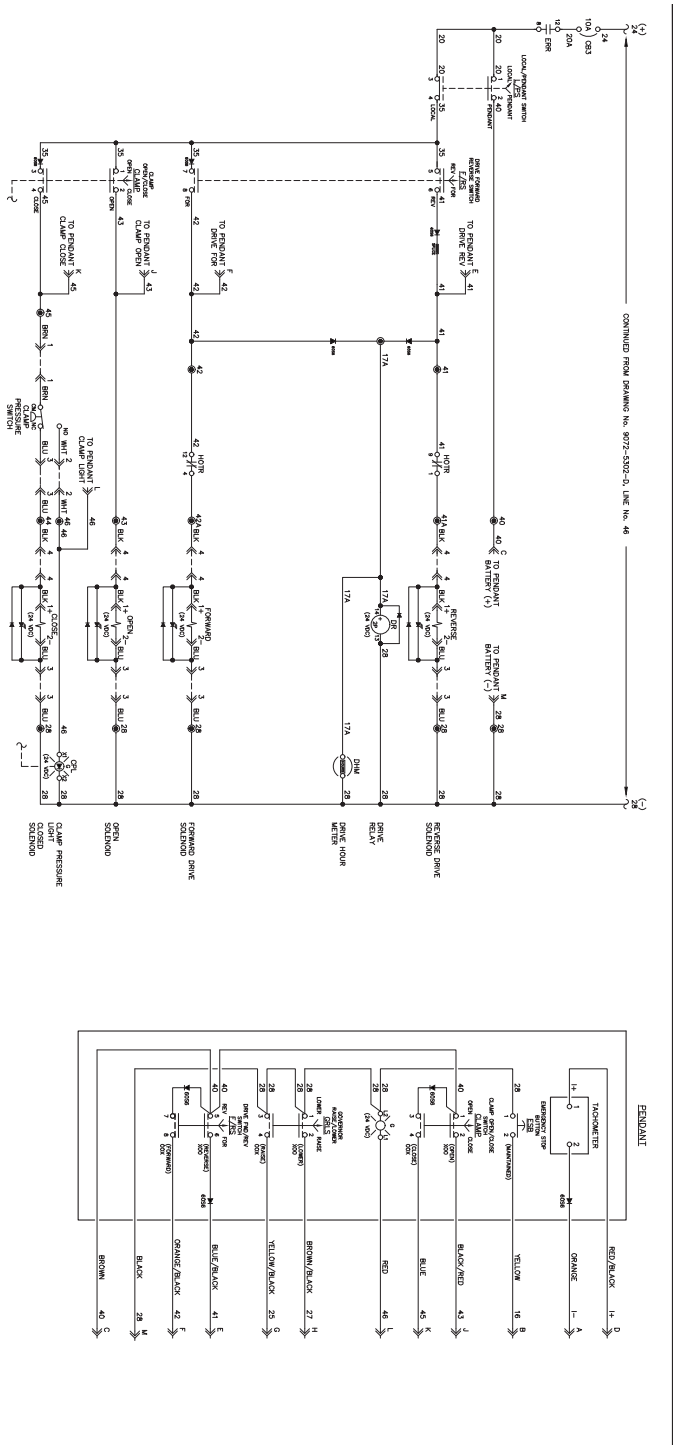
Main Circuit



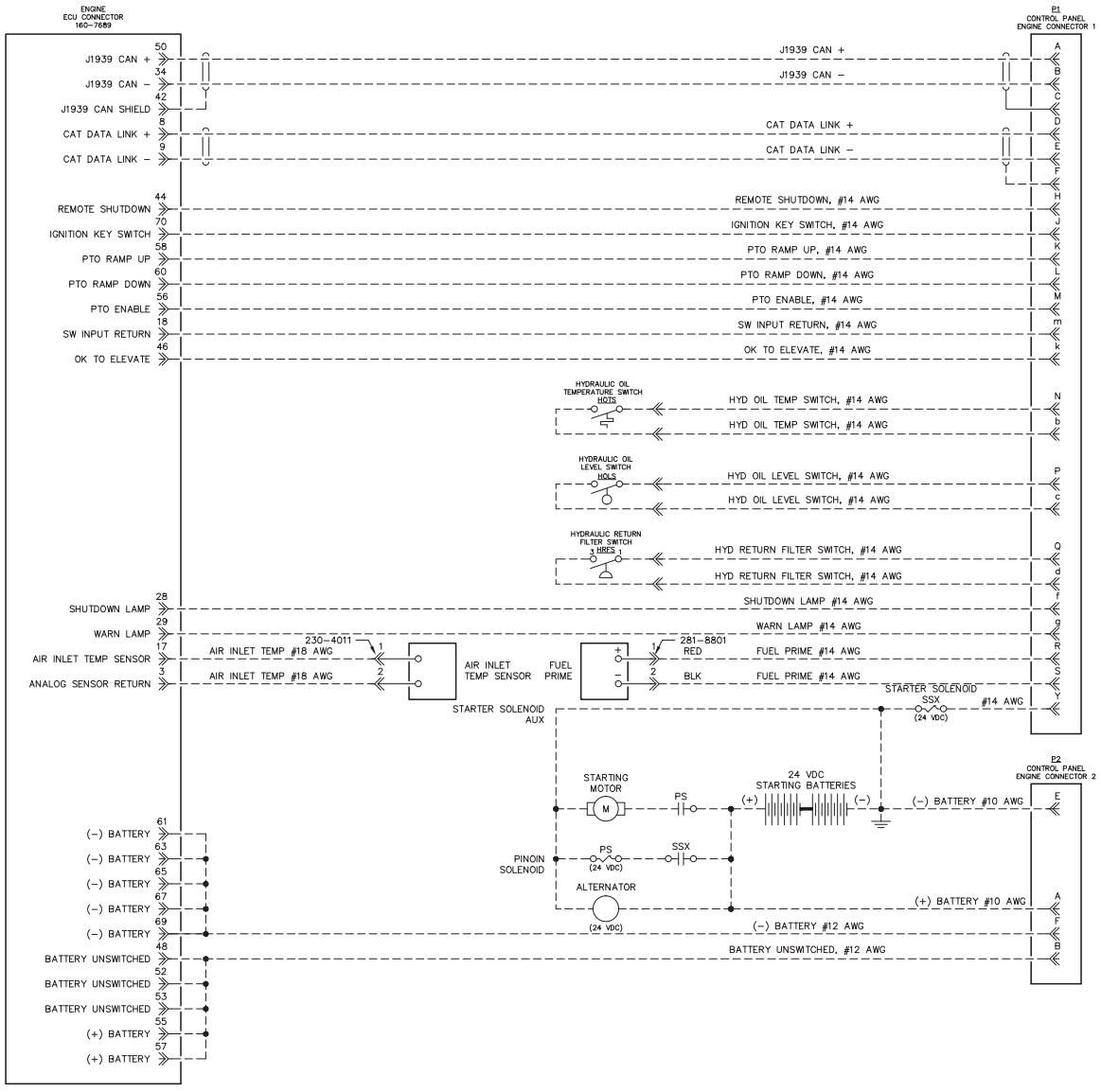
Main Circuit + ECU



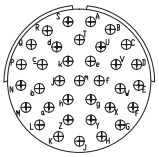
Remote Pendant



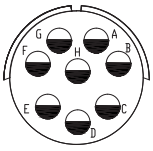
Engine [P1 + P2] Wiring Diagram for Amphenol Plug



P1
AMPHENOL
MS3102A36-15P
FRONT VIEW

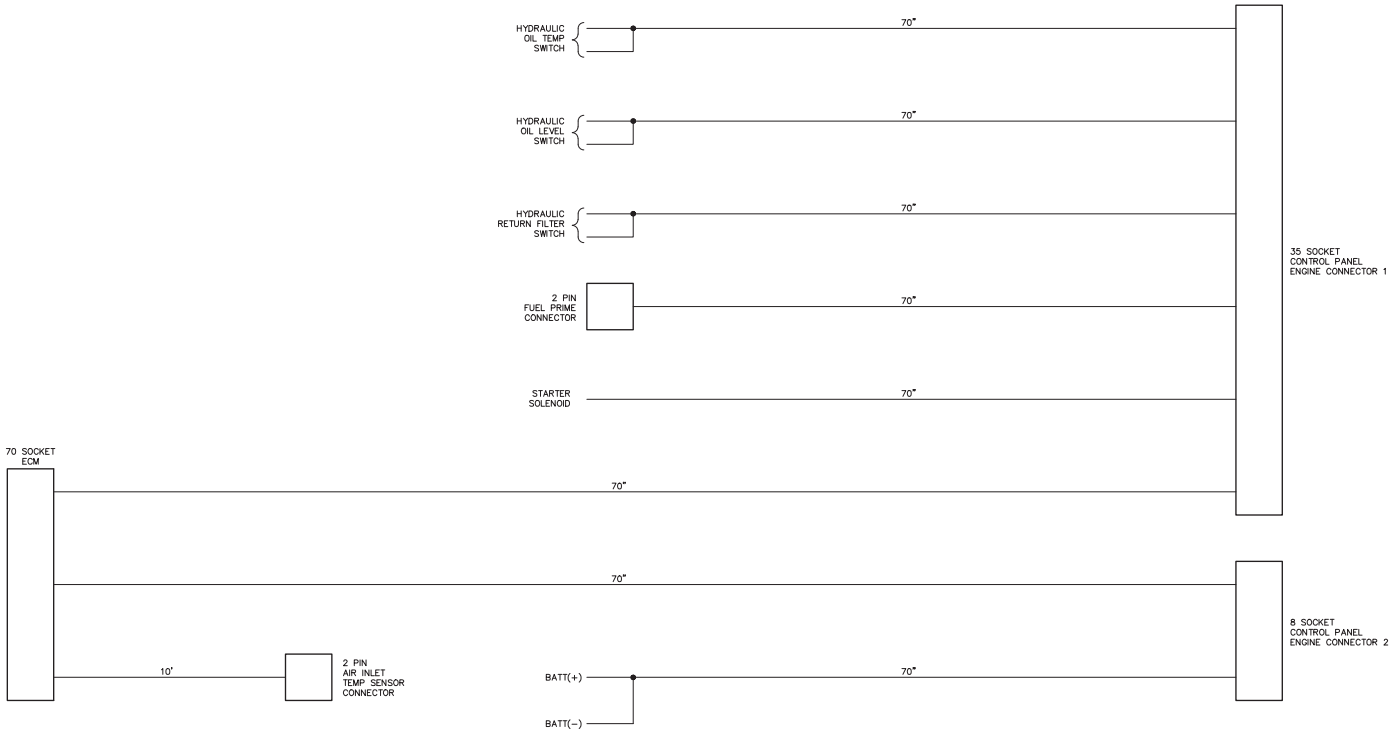


P2
AMPHENOL
MS3102A24-6P
FRONT VIEW



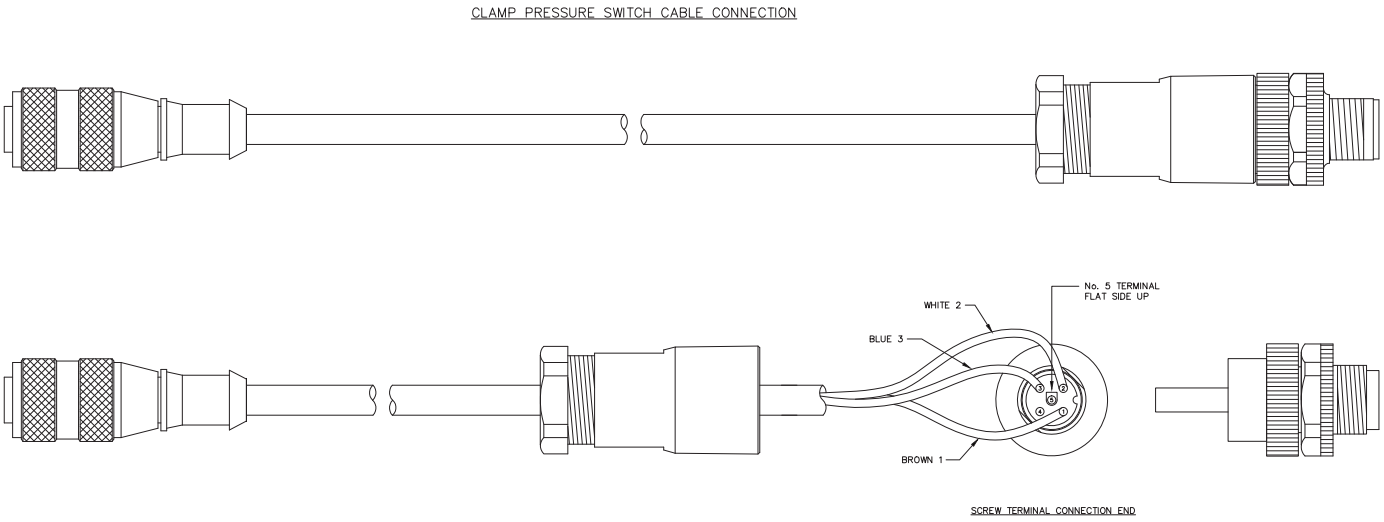
Engine [P1 + P2] Amphenol Plug to Sensor wire lengths

Note: Antaeus 2025+ Power Units are now using Deutsch Connectors instead of Turck. Common in automotive and mobile construction equipment, Deutsch connectors are IP68+ waterproof, snap-lock, positive latch retention, and are easy to crimp and work with. If you are interested to upgrade to Deutsch please consult the factory.



Clamp Pressure Switch Cable Connection For Factory Turck Wire (www.turck.us)

Note: Antaeus 2025+ Power Units are now using Deutsch Connectors instead of Turck. Common in automotive and mobile construction equipment, Deutsch connectors are IP68+ waterproof, snap-lock, positive latch retention, and are easy to crimp and work with. If you are interested to upgrade to Deutsch please consult the factory.



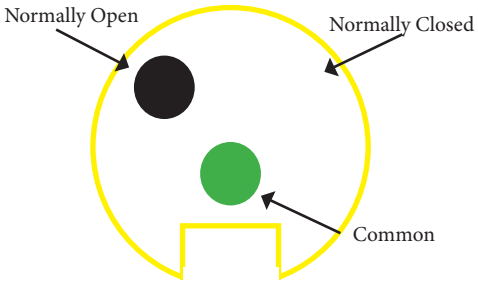
Pressure Switch Information / Field Conversation information

The pressure switch is ONLY used on the clamp circuit. Its function is to switch the clamp manifold back to neutral after the clamps are pressurized. When functioning correctly, after clamp close PSI reaches at least 4,500 PSI the switch will stop power to the clamp manifold CLOSE circuit AND power a green light instead to indicate the clamps are ready. [**PLEASE READ THE SAFETY SECTION ON HOW THE CLAMPS WORK OR SERIOUS INJURY OR DEATH CAN OCCUR IF THE SECTION IS IGNORED OR NOT UNDERSTOOD BY THE CREW.**] **THE GREEN LIGHT DOES NOT MEAN IT IS SAFE TO DRIVE PILE, IT ONLY MEANS THE PRESSURE SETTING HAS BEEN REACHED ON THE PRESSURE SWITCH. MORE INFO ON CLAMP SECTION.**

Quick Info:
WIRE 45 = COMMON / POWER 24VCD (Brown)
WIRE 44 = NORMALLY CLOSED (White)
WIRE 46 = NORMALLY OPEN (Black)

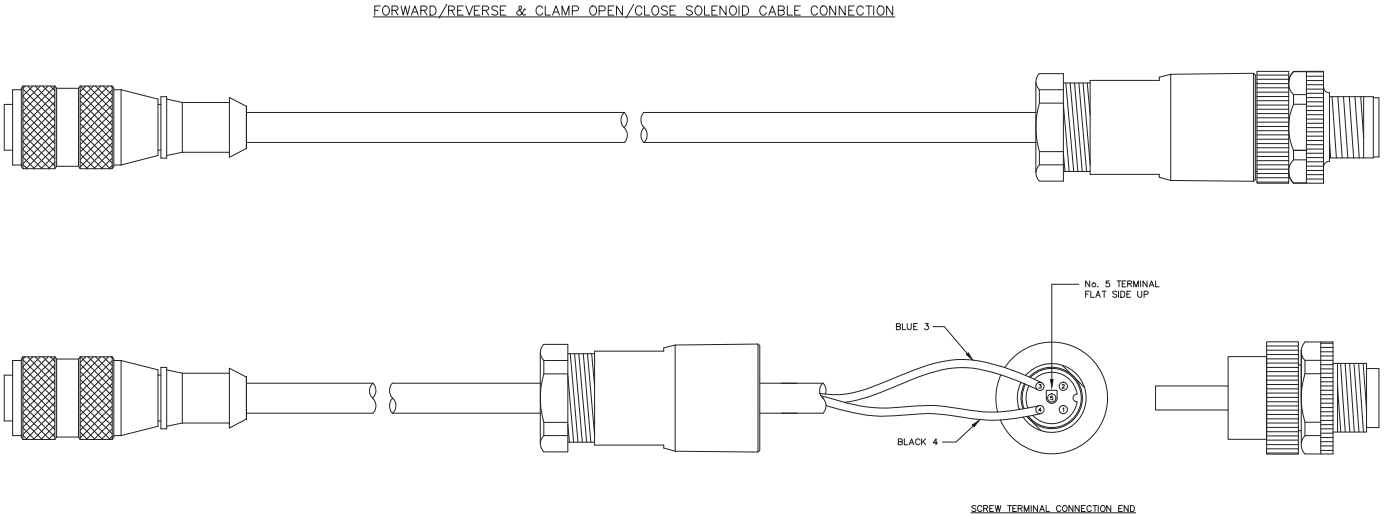
Power flow in words:
(1) 24V flows FROM Control panel wire #45 TO the Pressure switch via brown wire to COMMON on Pressure switch. **(2)** 24V then flows through THROUGH the pressure switch to Normally Closed (white wire) and makes its way to the CLAMP CLOSED Coil on the Manifolds. It then completes the circuit back to the Control Panel via wire#44 (blue wire). Wire 45 and 44 power the clamp coil with 24V and the power flows through the pressure switch to do so. It should power the coil when power unit engine is not running and power is on. **(3)** IF Pressure switch reaches the set pressure, it will then SHUT OFF wire#44, which will de-energize the clamp close coil, and it will then provide 24V instead to wire #46 (normally open), and power the green light on the control panel. Note: #46 will only see power if the pressure switch is working and see's pressure.

Antaeus Turck to SO Cord Conversion:
Field Conversion kit information:
Turck Cords to SO cord conversion Gems/Oil Dyne:
Brown Turck (45) -> Green SO (Common)
Blue Turck (44) -> White SO (Normally Closed)
White Turck (46) -> Black SO (Normally Open)



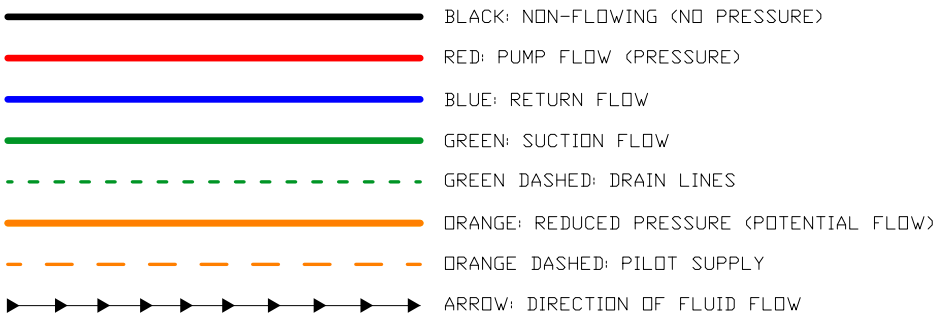
SO Cord End

Forward / Reverse and Clamp Open / Close Diagram For Factory Turck Wire (www.turck.us)



Shown below in the idle/neutral state

COLOR LEGEND



ELECTRICAL DEVICE FUNCTIONAL DESCRIPTIONS

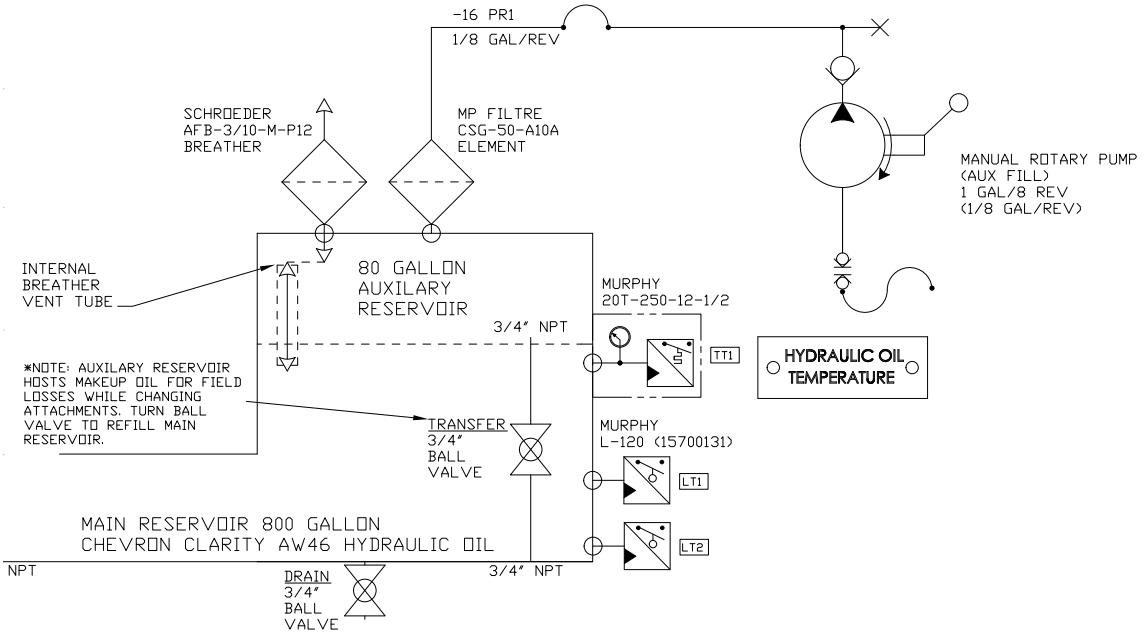
DEVICE	FUNCTIONAL DESCRIPTION
SOL1	CLAMP ATTACHMENT WORK PORT A, CLAMP CLOSE.
SOL2	CLAMP ATTACHMENT WORK PORT B, CLAMP OPEN.
SOL3	DRIVE UNIT MANIFOLD WORK PORT A, ENERGIZE FOR VIBRO HEAD FORWARD ACTIVATION.
SOL4	DRIVE UNIT MANIFOLD WORK PORT B, ENERGIZE FOR VIBRO HEAD REVERSE ACTIVATION.
SOL5	DRIVE UNIT PROPORTIONAL RELIEF VALVE.
TT1	RESERVOIR OIL TEMPERATURE SWITCH AND GUAGE, SHUTS ENGINE DOWN WHEN ACTIVATED.
LT1	N.O. SWITCH, RESERVOIR OIL LEVEL SWITCH, SENDS LOW OIL LEVEL WARNING WHEN ACTIVATED.
LT2	N.O. SWITCH, RESERVOIR OIL LEVEL SWITCH, SHUTS ENGINE DOWN WHEN ACTIVATED.
PSHD1	CONDITIONING LOOP FILTER SERVICE INDICATOR.
PT1	PRESSURE TRANSDUCER, CLAMP ATTACHMENT PRESSURE MONITORING.

HOSE PRESSURE LEGEND

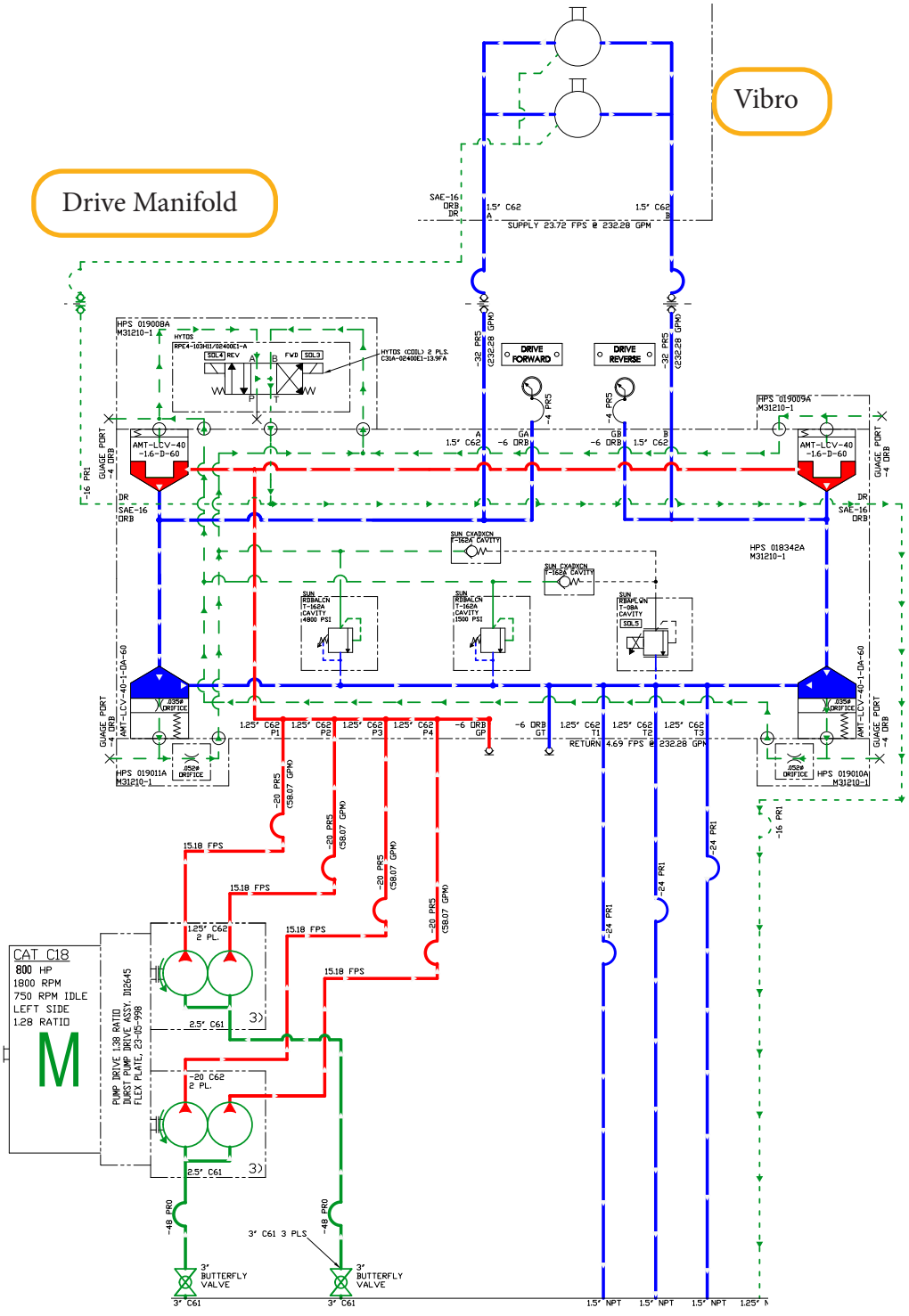
PR0	SUCTION
PR1	0-1000 PSI
PR2	2000-3000 PSI
PR3	3000-4000 PSI
PR4	4000-5000 PSI
PR5	5000-6000 PSI
PR6	6000-7000 PSI

Filtration and Cooling Circuit
“Kidney Loop system”

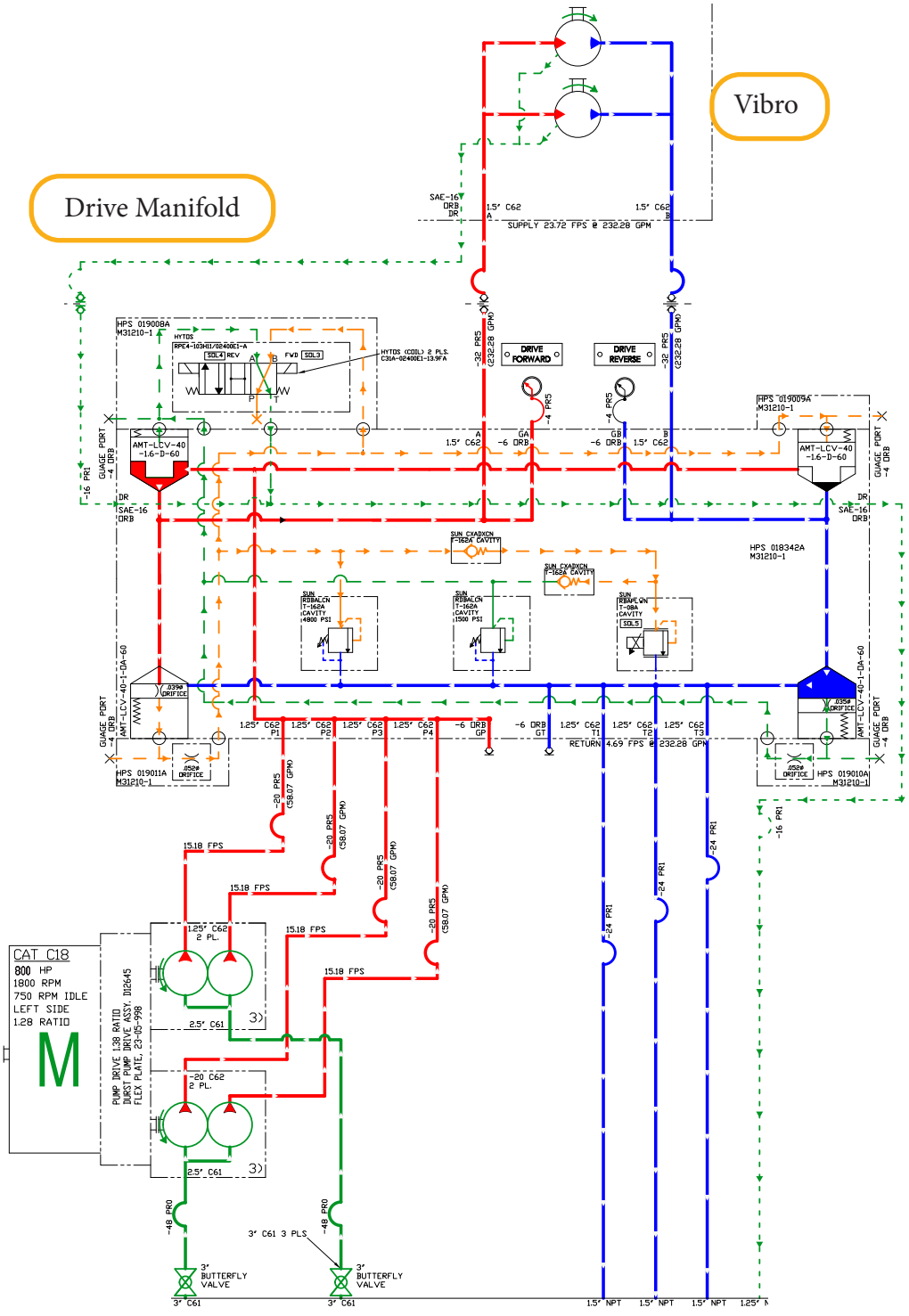
The cooling system is an independent pump system from the main drive and clamp system. As long as the engine is running the cooling and filtration system is also running. Unlike competitors who choose to use return oil from the vibro to send to the cooling circuit the Antaeus system keeps the circuits independent. Keeping the circuits independent dramatically increases durability and keeps more systems out of the main loop for easy debugging.



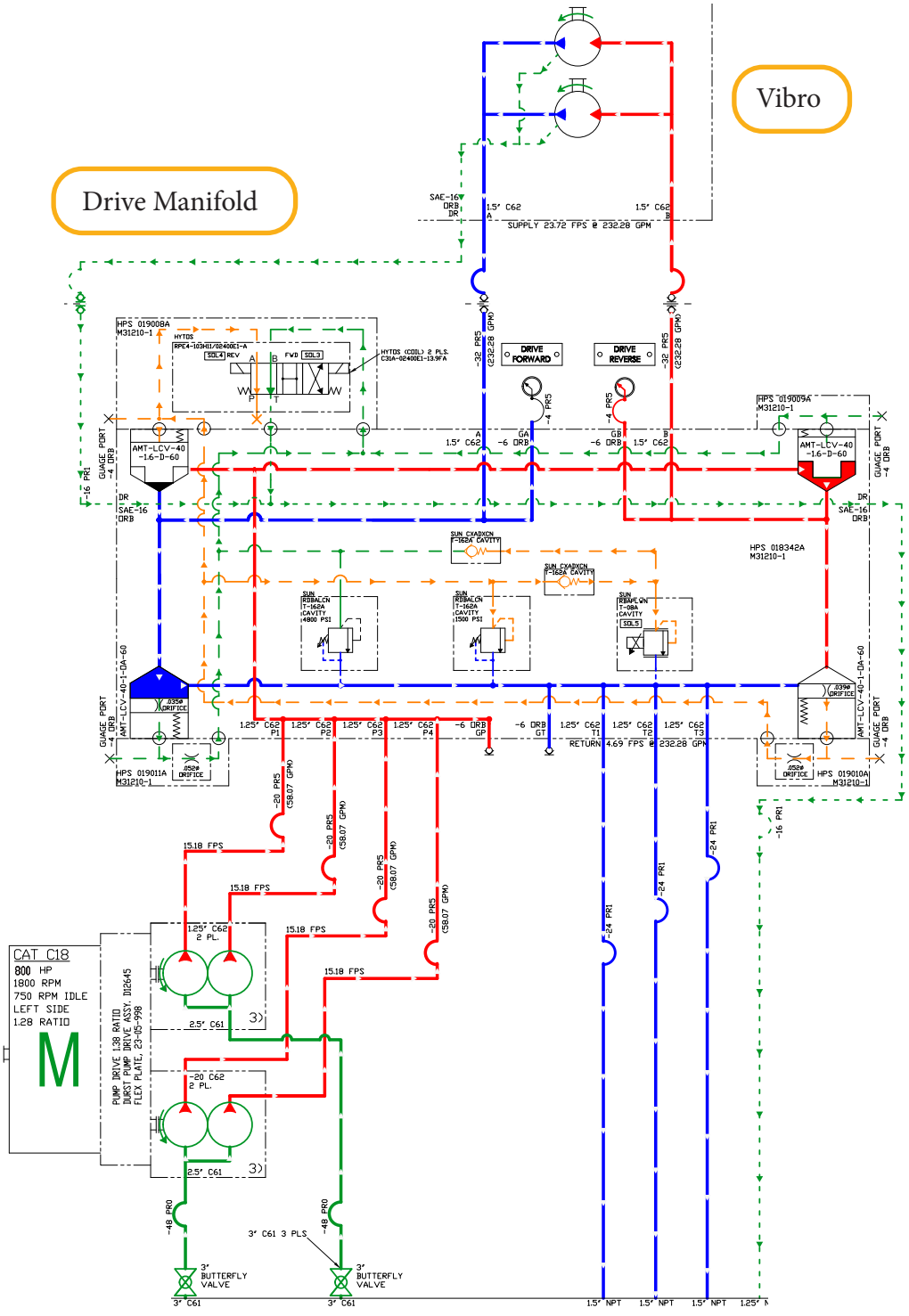
Shown below in the idle/neutral state



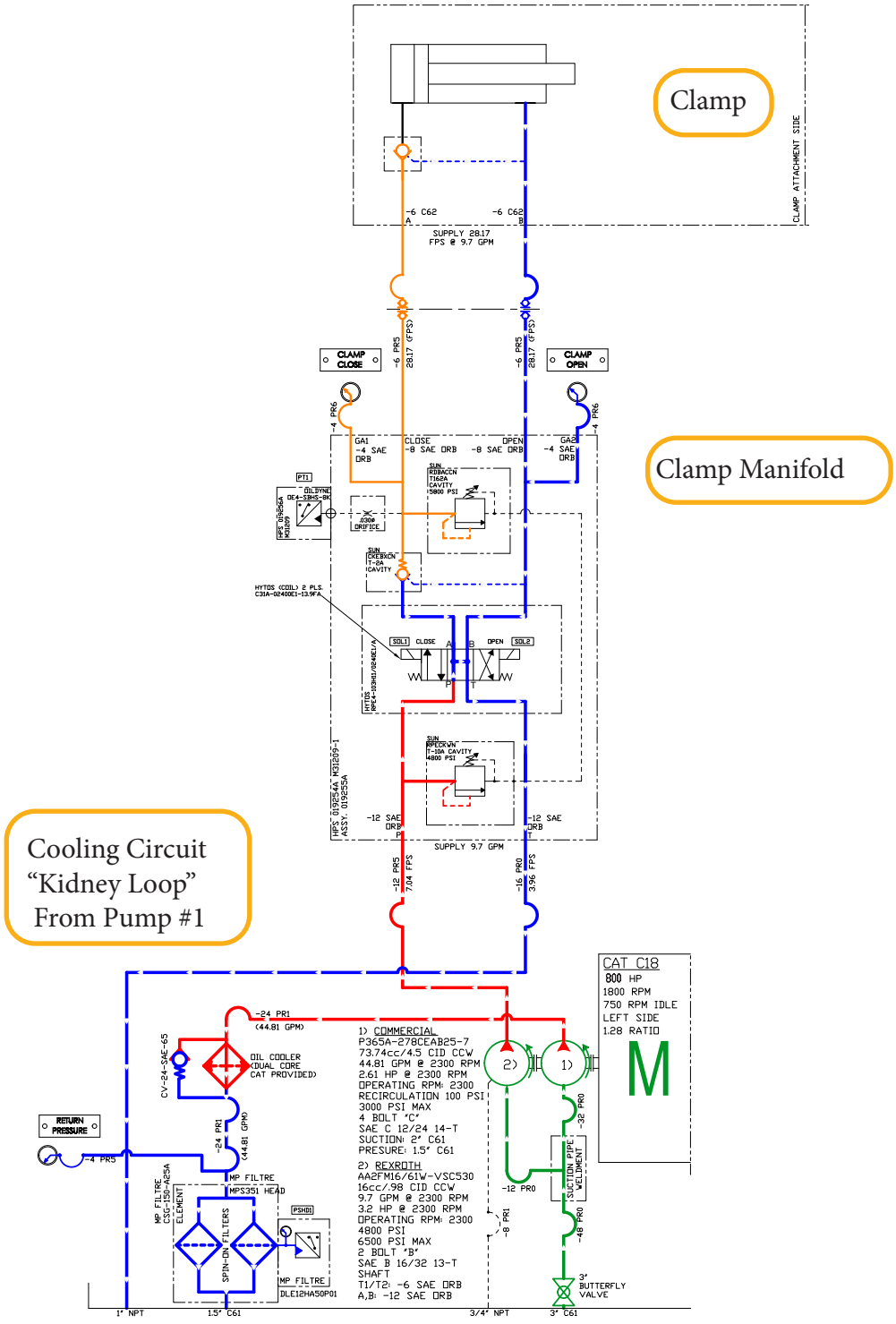
Shown below in the **DRIVE FORWARD** state



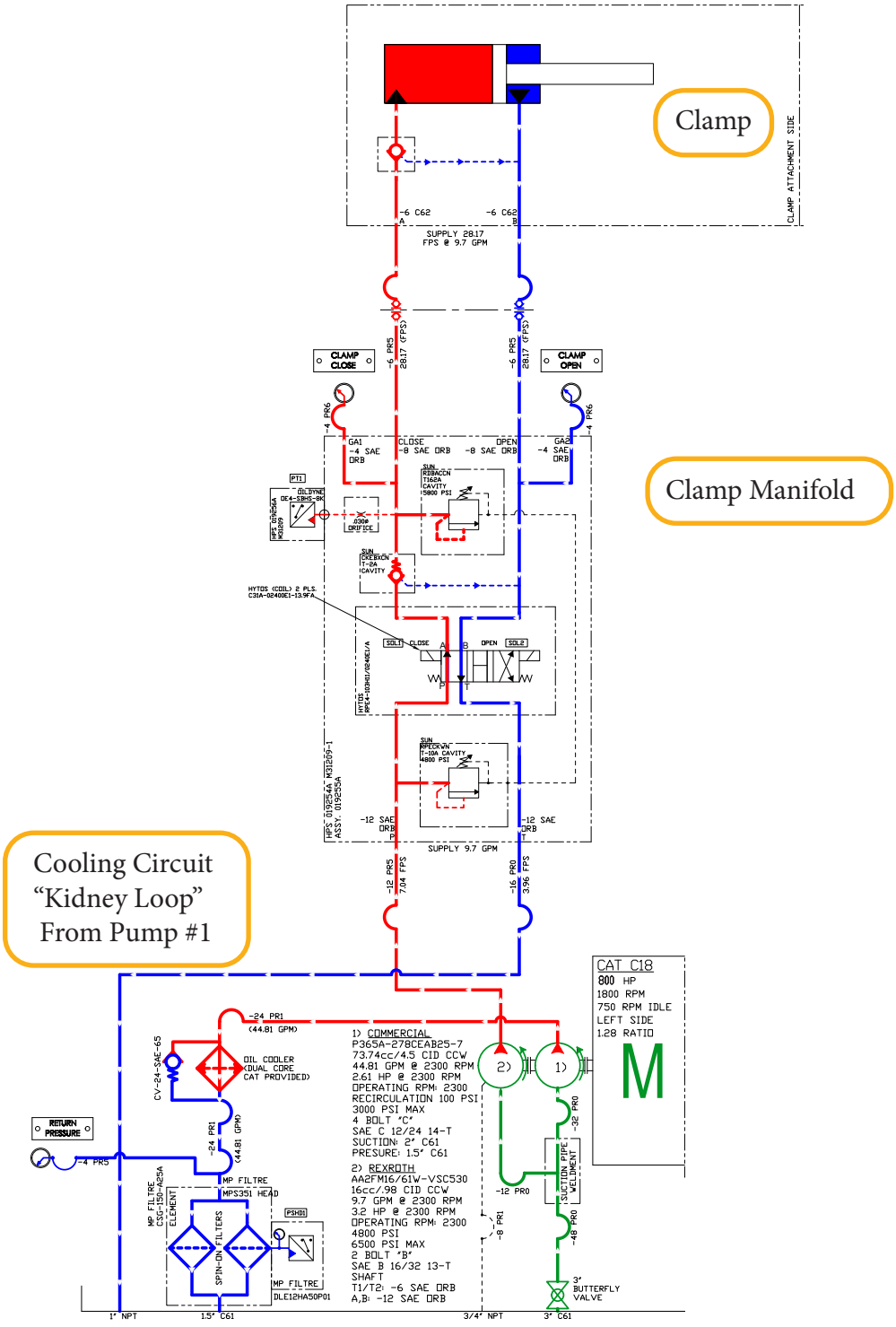
Shown below in the **DRIVE REVERSE** state



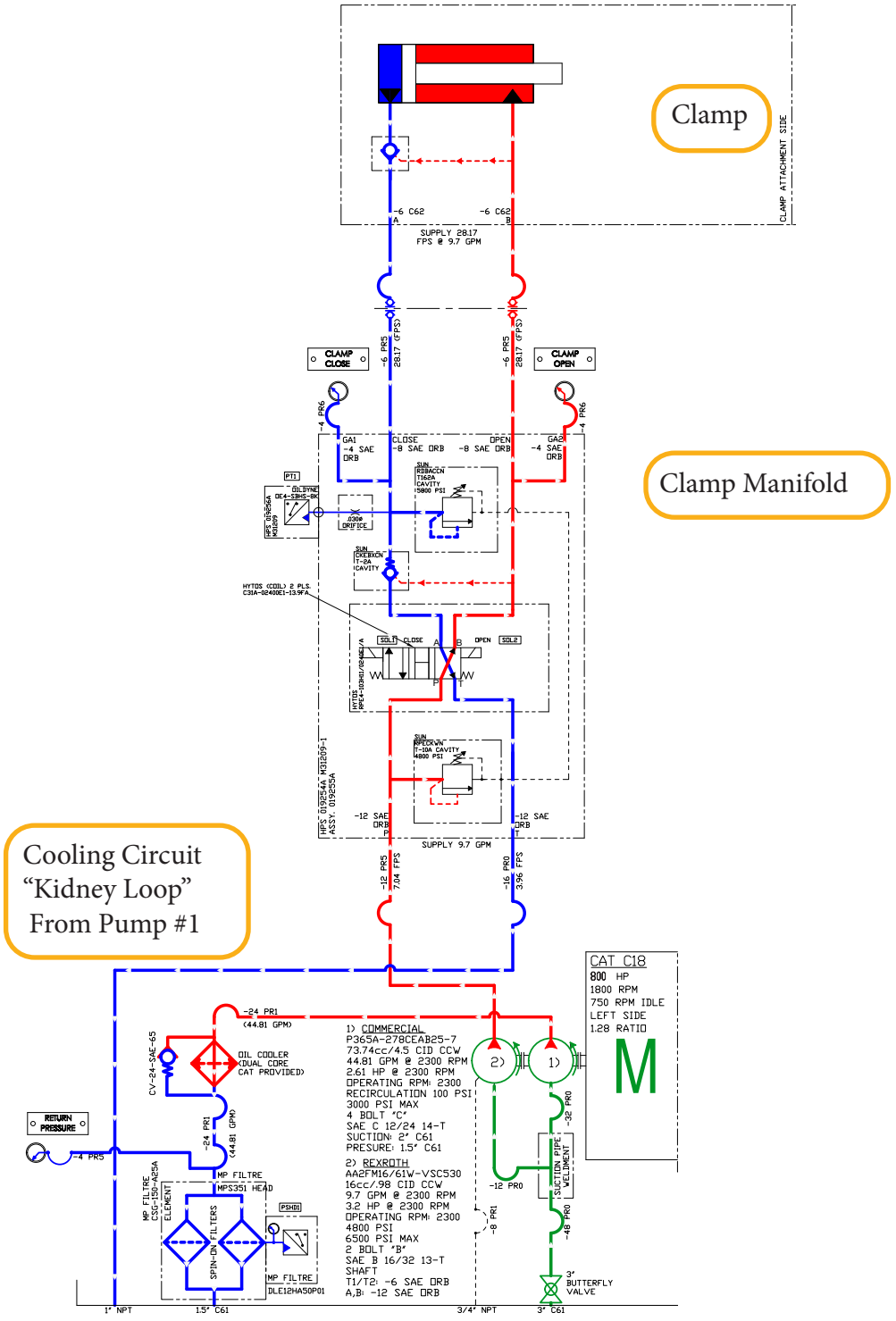
Shown below in the **IDLE/NEUTRAL** state



Shown below in **CLAMP CLOSE** state.



Shown below in **CLAMP OPEN** state.



8 FOOT BEAM LARGEST PILE

Largest Diameter: 68” OD
Max Pile Thickness: 1.95”
Beam weight: 1780 lbs
Clamp 1: 1,475 lbs
Clamp 2: 1,475 lbs
Total Weight: 4,730 lbs



10 FOOT BEAM LARGEST PILE

Largest Diameter: 96” OD
Max Pile Thickness: 1.95”
Beam weight: 2225 lbs
Clamp 1: 1,475 lbs
Clamp 2: 1,475 lbs
Total Weight: 5,175 lbs



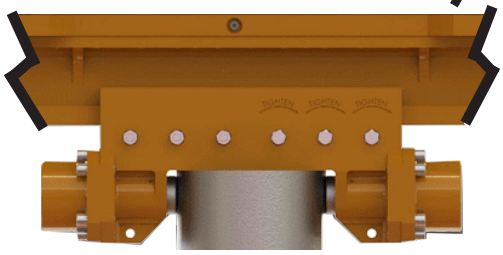
11 FOOT BEAM LARGEST PILE

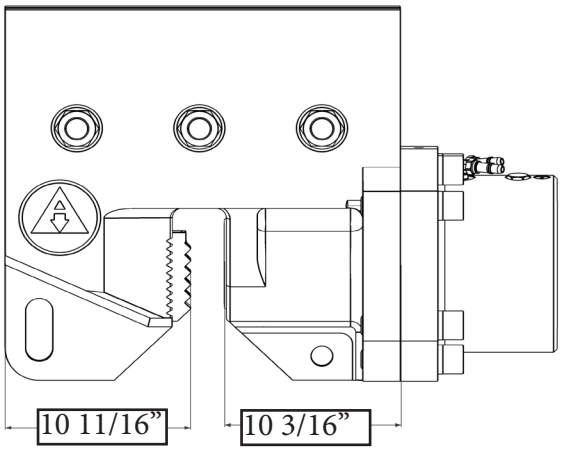
Largest Diameter: 108” OD
Max Pile Thickness: 1.95”
Beam weight: 2447.5 lbs
Clamp 1: 1,475 lbs
Clamp 2: 1,475 lbs
Total Weight: 5,397.5 lbs



SMALLEST PILE (ALL SINGLE BEAMS)

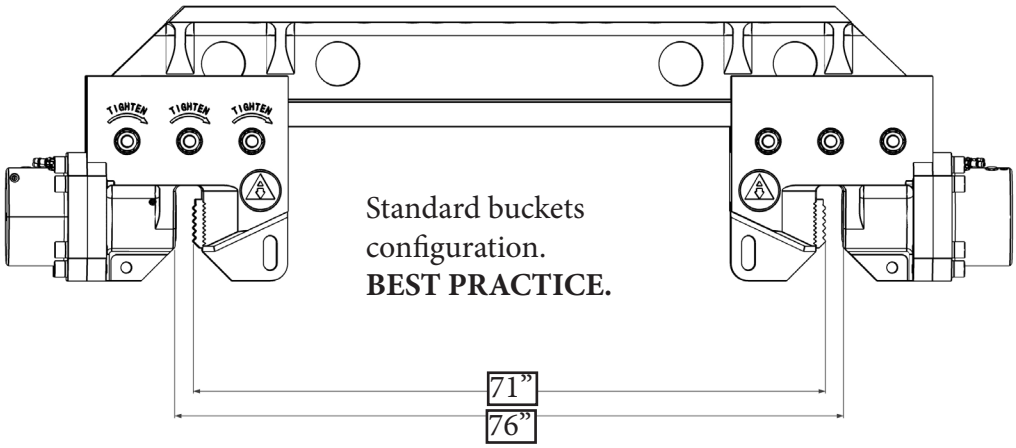
Minimum Pile ID: 21.6”
Pile thickness: 1.9”



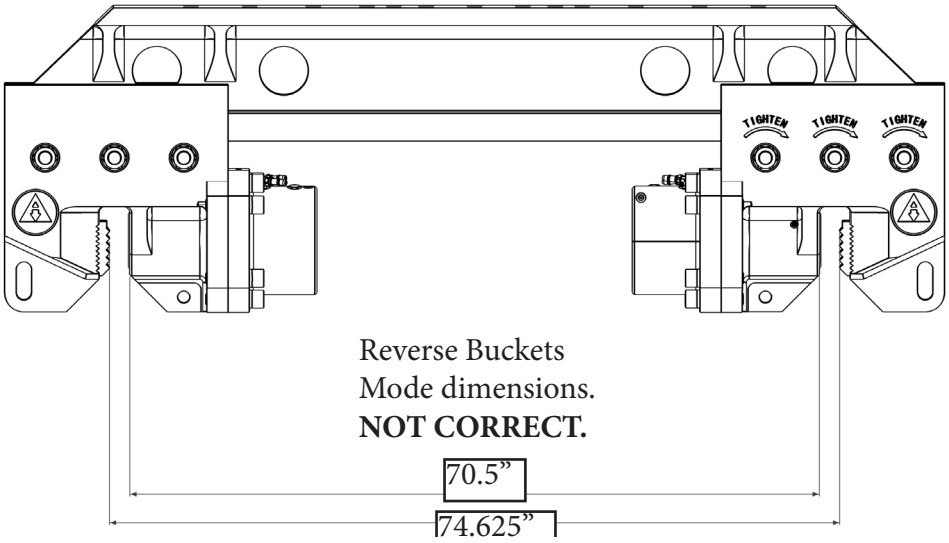


Antaeus Clamp castings are nearly identical in size on the movable and fixed casting or forging.

The largest pile an 8 foot beam can drive with two clamps is 71 inches (1.8m) An old pile driving trick was to switch the clamps around to gain a few more inches/cm however as seen below the Antaeus design is best without flipping clamps around backwards.



Standard buckets configuration.
BEST PRACTICE.



Reverse Buckets Mode dimensions.
NOT CORRECT.

START UP PROCEDURE

1. TURN ON RED BATTERY NIGHT SWITCH. (UNDER CONTROL PANEL)
2. CHECK FLUIDS: ENGINE OIL, RADIATOR COOLANT, PUMP DRIVE, HYDRAULIC OIL LEVEL, FUEL LEVEL.
3. CHECK THAT UNIT IS SITTING AS LEVEL AS POSSIBLE.
4. CHECK ENGINE EXHAUST RAIN CAP. (IT'S SOMETIMES TAPED CLOSED FOR LONG HAUL TRUCKING)
5. CONFIRM "DRIVE OFF" IS SET. (NOT IN FORWARD OR REVERSE)
6. CONFIRM "LOCAL" MODE IS ON. (NOT IN "PENDANT" MODE FOR START UP)
7. CONFIRM "CLAMP" SWITCH IS FACING UP, NOT IN CLOSED POSITION.
8. CONFIRM NO PERSON IS NEAR OR WORKING AROUND THE RADIATOR FAN.
9. CONFIRM ALL QUICK DISCONNECTS ARE FULLY TIGHT.
10. SWITCH TO "RUN" POSITION MOMENTARILY, THEN HOLD TO START UNTIL ENGINE IS RUNNING.

SAFETY WARNING: BEFORE SWITCHING TO PENDANT MODE MAKE SURE ALL SWITCHES ON THE PENDANT ARE IN THE DESIRED POSITION BEFORE SWITCHING OVER TO REMOTE PENDANT MODE.

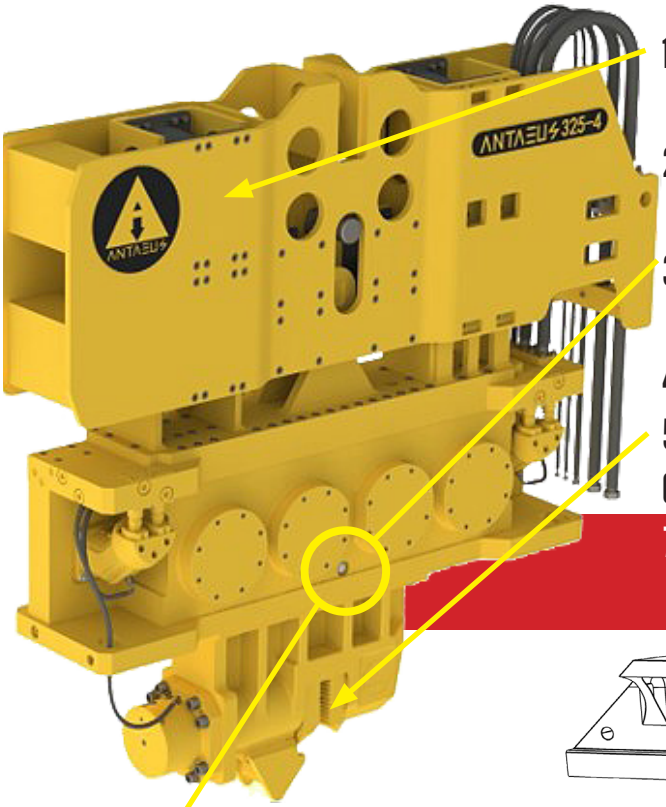
ENGINE HEALTH TIP: ONLY SHUT THE ENGINE OFF AFTER THE ENGINE HAS RUN AT IDLE FOR 10 MINUTES. SHUTTING THE ENGINE DOWN WHILE AT HIGH RPM WILL LOWER THE LIFE OF THE ENGINE. THE ENGINE TURBO IS ONLY LUBRICATED WHILE THE ENGINE IS RUNNING, IF THE ENGINE IS SHUT OFF AT HIGH RPM IT MUST WIND DOWN WITH LIMITED LUBRICATION. NEVER PUSH THE EMERGENCY STOP SWITCH UNLESS IT IS AN EMERGENCY. TIER 4 ENGINES WILL FLAG A FAULT CODE STOPPING YOUR JOB IF ENGINE SEES TOO MANY EMERGENCY STOPS.

DONE FOR THE DAY?: REMEMBER TO SWITCH THE BATTERY SWITCH OFF.

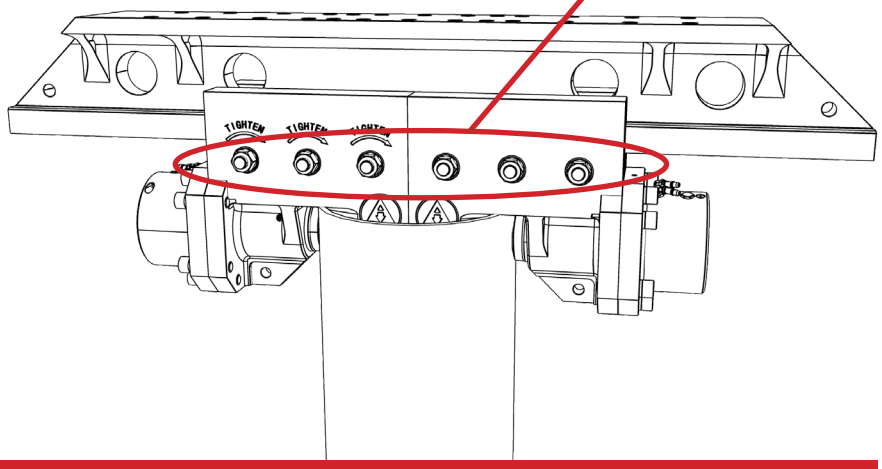
RPM WON'T RAMP UP? PRESS GOVERNOR DOWN FOR 1 SECOND, THEN TRY TO RAMP BACK UP.
NO POWER? CHECK BATTERY NIGHT SWITCH UNDER THE CONTROL PANEL.

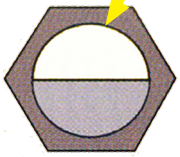
FULL VIDEO OF HOW TO STARTUP IS HERE →

OPEN YOUR IPHONE OR ANDROID CAMERA APP, POINT IT AT THE QR CODE, CLICK THE LINK WHEN IT POPS UP.



1. CHECK ELASTOMERS (RUBBER SPRINGS) BOTH LARGE AND SMALL AND MAKE SURE NONE HAVE CRACKS.
2. CHECK FOR ANY LOOSE FASTENERS. ESSPECIALLY CHECK THE BOLTS THAT HOLD ON THE CLAMP OR BEAM.
3. INSPECT SIGHT GAUGE. MAKE SURE OIL IS IN CENTER OF THE SIGHT GLASS. CONFIRM NO MILKY OIL. MILKY = WATER + OIL
4. INSPECT WIRE ROPE AND RIGGING FOR DAMAGE.
5. INSPECT JAWS AND MAKE SURE THEY ARE NOT WORN OUT.
6. LOOK FOR ANY OIL LEAKS OR LOOSE HYDRAULIC FITTINGS.
7. IF USING BEAM AND CLAMPS MAKE SURE WEDGE BOLTS ARE TIGHT. BEST TO CHECK EACH PILE.



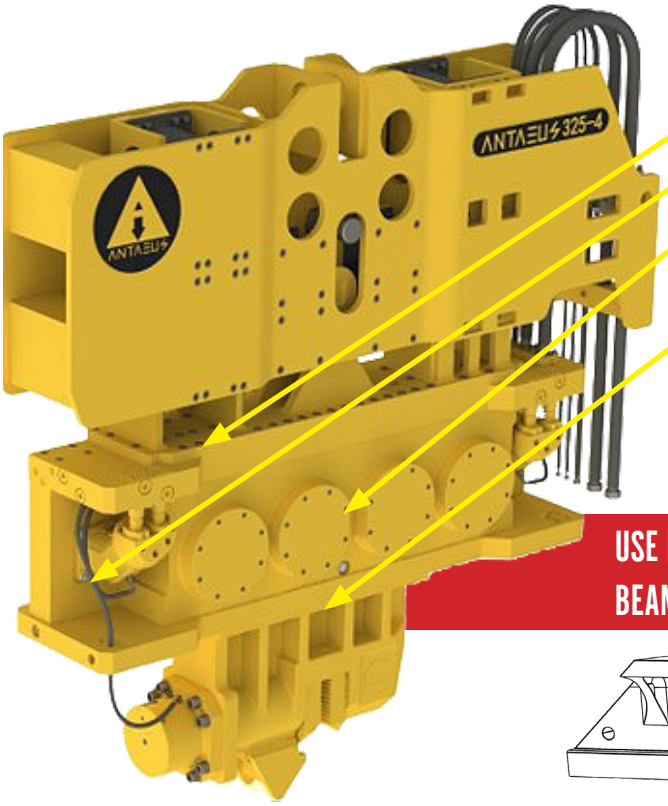


Schaeffer's SINCE 1839 SPECIALIZED LUBRICANTS

FILL GEAR OIL TO HALF WAY ON SIGHT GLASS.
STANDARD OIL = SCHAEFFER 268

REMEMBER: DO NOT USE THIS MACHINE OR ANY VIBRATORY HAMMER AS A PILE LIFTING DEVICE. ALWAYS HAVE A SAFE LINE ATTACHED TO THE PILE. DEATH OR SERIOUS INJURY CAN OCCUR IF THE PILE DROPS, PROTECT YOUR CREW!

DO NOT EXCEED 225F ON THE BEARING COVERS. IT'S BEST TO HAVE A HEAT GUN TO CHECK TEMPERATURE AFTER EACH PILE. IF VIBRO BECOMES HOT LET REST UNTIL COOL. DIPPING IN OCEAN OR LAKE / SPRAYING WATER TO COOL IS OKAY.
THIS MACHINE CAN GO 150' UNDERWATER WITHOUT MODIFICATION. GOING DEEPER? CALL FACTORY.
THIS MACHINE CAN DRIVE BATTER PILES WITHOUT MODIFICATION.
THIS MACHINE CAN BE SAFELY BE USED ON A HYDRAULIC TELESCOPIC CRANE WITHOUT MODIFICATION.



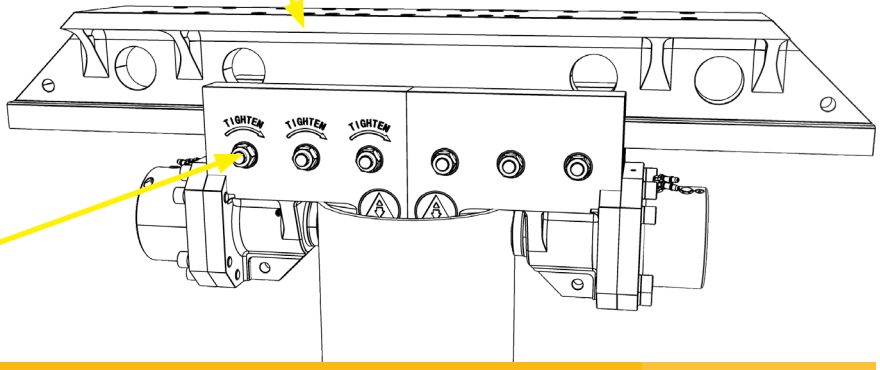
BOLT TORQUE:
TOP PLATE BOLTS = 100FT/LBS
MOTOR TO GEARBOX = 100 FT/LBS
BEARING COVERS = 60 FT/LBS



BEAM OR SHEET CLAMP BOLTS:
1,900 - 2,000 FT/LBS
(THE 1.5" X 3.5" BOLTS)



USE LOCTITE 263 ON ALL FASTENERS EXCEPT THE CLAMP BOLTS.
BEAMS AND CLAMP BOLTS (1.5" X 3.5") USE ANTI-SEIZE.

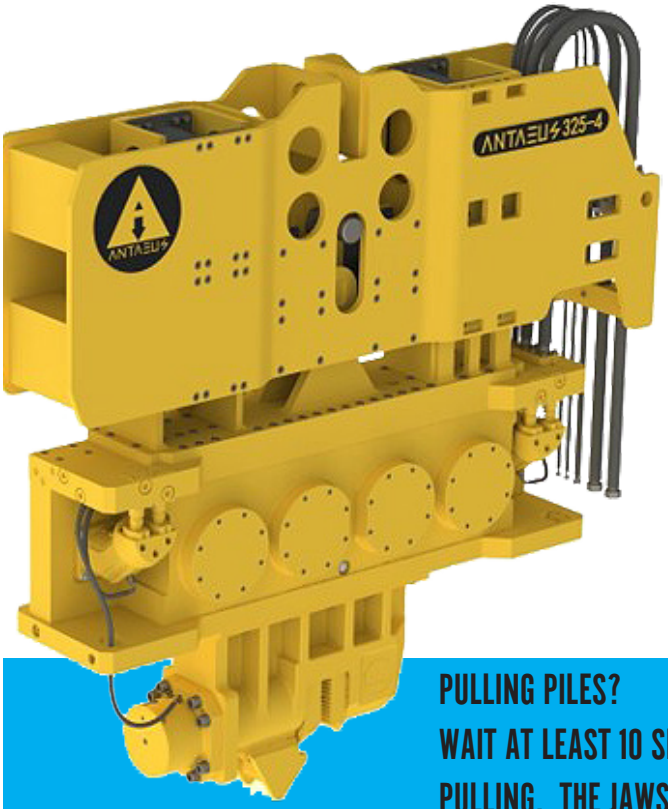




TIP FOR TIGHTENING WEDGES: USE 2" SLUGGING WRENCH WITH SLEDGE HAMMER. WHEN YOU FEEL THE SLEDGE HAMMER BOUNCING BACK AFTER A SOLID HIT THEN THE WEDGE IS TIGHT. USE CONTROL AND CAUTION WHEN TIGHTENING. UNDER TIGHTENING THESE BOLTS COULD RESULT IN THE CLAMP SLIPPING OR BROKEN INTERNAL COMPONENTS. GET IT TIGHT.
BEST PRACTICE IS TO CHECK THESE BOLTS BEFORE EACH PILE.



LOCTITE TIP: YOU DON'T NEED A LOT, A FEW THREADS GOES A LONG WAY.



THIS VIBRO SPINS 1350 VPM AT FULL 1800 RPM ON THE POWER UNIT. THE HIGHER THE RPM ON THE POWER UNIT THE HIGHER THE VPM ON THE VIBRO.

MOST PILES WILL REQUIRE LESS THAN 1350 VPM. AFTER START UP LOWER THE RPM DOWN IF MAX VPM IS NOT REQUIRED. LOWER VPM WILL ALLOW THE MACHINE TO RUN LONGER AND GET LESS HOT, IT WILL ALSO PRESERVE THE LIFE OF YOUR GEAR OIL. IT'S RARE THAT EVERY PILE REQUIRES FULL 1350 VPM, IF THIS IS THE CASE YOU LIKEY REQUIRE A BIGGER MACHINE.

PULLING PILES?

WAIT AT LEAST 10 SECONDS FOR THE VIBRO TO COME UP TO SPEED BEFORE PULLING. THE JAWS NEED 5 TO 10 SECONDS TO SINK THEMSELVES INTO THE PILE, IF YOU PULL TOO EARLY YOU WILL PREMATURELY WEAR OUT YOUR JAWS OR SLIP ON A PILE.

RPM TO VPM CHART

RPM = POWER UNIT RPM

VPM = VIBRATIONS PER MINUTE

RPM @ 1800 = VPM 1350
RPM @ 1700 = VPM 1275
RPM @ 1600 = VPM 1200
RPM @ 1500 = VPM 1125
RPM @ 1400 = VPM 1050
RPM @ 1300 = VPM 975

STUCK PILE?

VIBRATE ON THE PILE AT MEDIUM VPM FOR 5 TO 10 MINUTES AND "WAKE THE PILE UP" BEFORE ATTEMPTING TO PULL.

VERY STUCK PILE?

PULL UP ON THE CRANE FOR 2 MINUTES, THEN ALLOW PILE TO DRIVE BACK DOWN A FOOT, THEN PULL FOR 2 MINUTES AND REPEAT. TRY LOWER VPMS. FOR ICY CONDITIONS A LOWER VPM CAN OFTEN WORK BETTER THAN HIGHER VPM. FEEL THE GROUND AND FIND THE FREQUENCY THAT FITS YOUR SOIL.
CALL FACTORY FOR MORE TRICKS.

MANUFACTURER'S TECHNICAL STATEMENT

Vibratory refusal criteria

Antaeus 400 Poseidon Vibratory Driver/Extractor.

REFUSAL

Pile moves less than

1 FT

in

30 SEC

of continuous vibratory operation,
driving or extracting,
at full speed and within
rated operating parameters

WHEN YOU HIT REFUSAL

1. Stop vibratory operation.
2. Document the refusal: pile, depth, time and operating speed.
3. Evaluate alternative methods with the project engineer.

ANTAEUS

Antaeus Foundation Equipment LLC, manufacturer of the 400 Poseidon vibratory driver/extractor, establishes the following recommended refusal criteria for vibratory pile driving and extraction operations.

REFUSAL CRITERIA

> **Refusal is defined as the condition in which a pile fails to move at least one (1) foot within thirty (30) consecutive seconds of continuous vibratory operation, whether driving or extracting, with the equipment operating at full speed and within its rated operating parameters.**

When refusal is encountered, vibratory operation should be discontinued and alternative methods evaluated.

PROCEDURE UPON REFUSAL

Upon reaching refusal, Antaeus recommends discontinuing operation with the 400 Poseidon vibratory driver/extractor and evaluating alternative methods, including the use of larger equipment or other procedures approved by the project engineer.

Continued operation under refusal conditions may subject the vibratory driver/extractor, clamps, rigging, and supporting equipment to unnecessary mechanical stress.

MANUFACTURER'S STATEMENT

The above criterion establishes the recommended operational refusal threshold for the Antaeus 400 Poseidon vibratory driver/extractor.

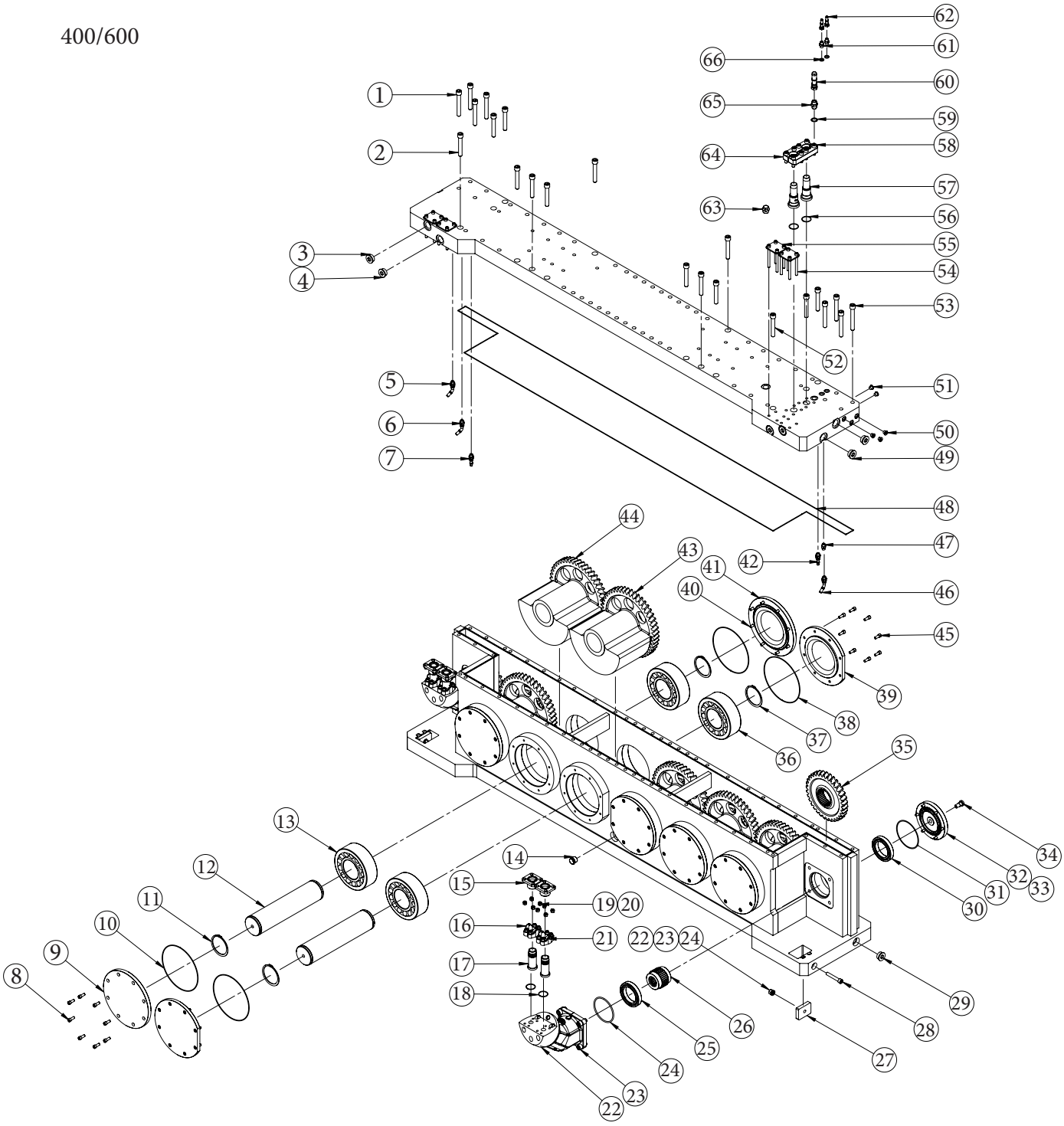
This statement may be used to support documentation of pile refusal and requests for alternative removal methods, including cutting piles at an approved elevation.

Final authorization for pile cutting, abandonment, or alternative removal procedures remains subject to the approval of the project engineer or designated authority.

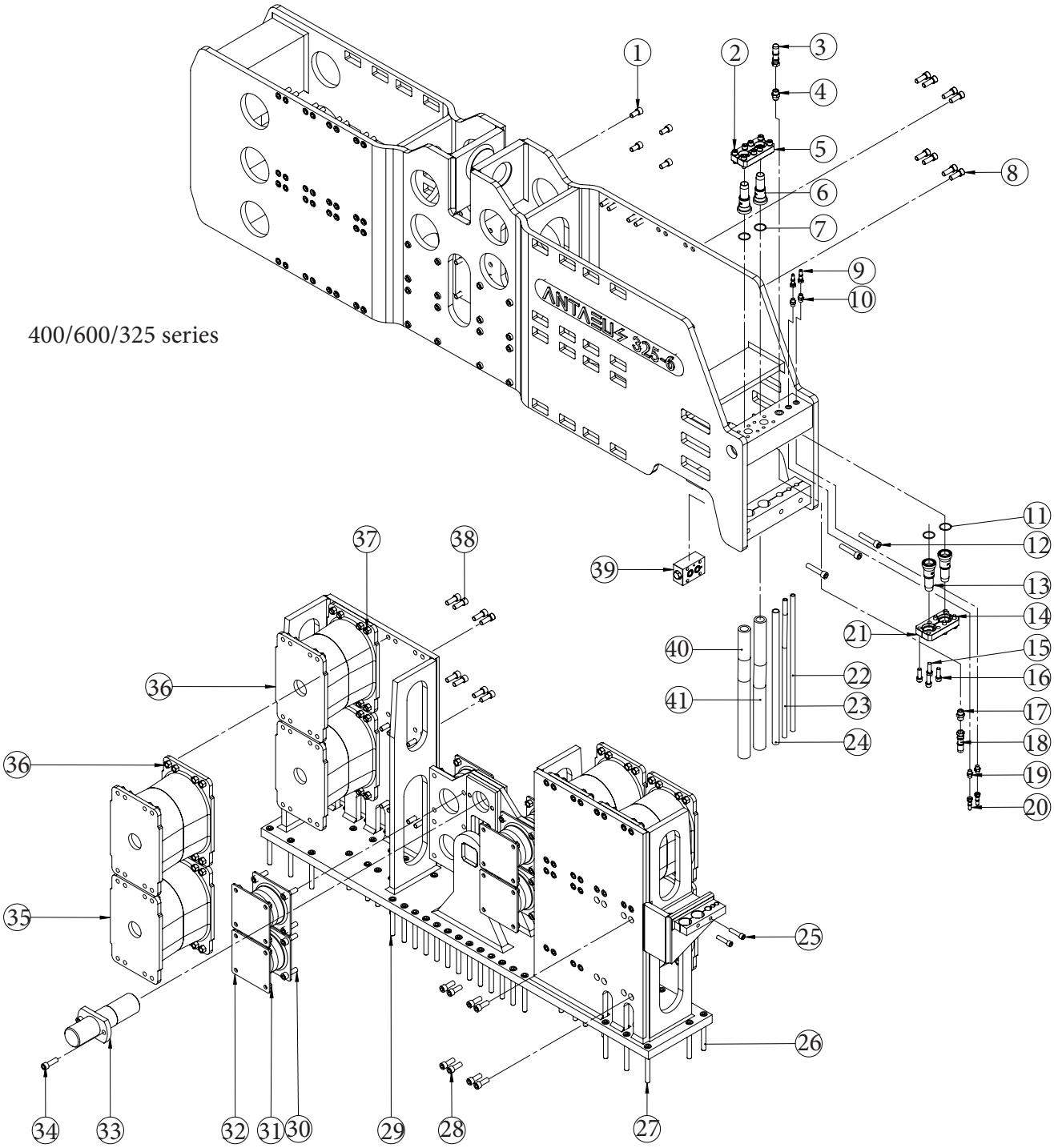
MANUFACTURER'S CERTIFICATION

Antaeus Foundation Equipment LLC, as manufacturer of the 400 Poseidon vibratory driver/extractor, certifies that the refusal criteria stated on this page are the manufacturer's recommended criteria for this equipment.

400/600


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400/600/325 series





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