



INNOVATECH PRODUCTS & EQUIPMENT. 4701 Allmond Ave, Louisville, KY 40209, USA
Telephone: 1-425-405-9100

RIDE-ON TERMINATORS

T-2200PRO

COMPLETE MANUAL



www.BARTELLGLOBAL.com



Bartell Morrison Inc.
 375 Annagem Boulevard
 Mississauga, Ontario, Canada
 L5T 3A7
 Tel: (647) 953-4100
 Fax: (647) 953-4101

Bartell Morrison USA LLC
 200 Commerce Drive, Unit A
 Freehold, NJ, USA
 07728
 Tel: (848) 225-8100
 Fax: (848) 225-8101

SPE International Ltd
 Honeyholes Lane
 Dunholme, Lincoln, England
 LN2 3SU
 Tel: 01673 860709
 Fax: 01673 861119

Innovatech
 4701 Allmond Ave
 Louisville, Kentucky, USA
 40209
 Tel: (425) 405-9100
 Fax: (425) 405-9101

ORIGINAL LANGUAGE OPERATING MANUAL FOR
 BARTELL RIDE-ON TERMINATORS

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Address inquiries or reference permissions care of: Bartell Morrison Inc., 375 Annagem Blvd., Mississauga, Ontario, Canada L5T 3A7

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SAFETY PRECAUTIONS



DANGER EXPLOSION HAZARD

Never operate the machine in an explosive atmosphere, near combustible materials, or where ventilation does not clear exhaust fumes.



WARNING BURN HAZARD

Never come into contact with the engine or muffler when engine is operating or shortly after it is turned off. Serious burns may occur.



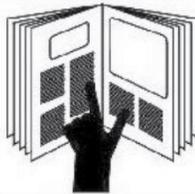
WARNING ROTATING HAZARD

Never place hands or feet inside safety guard rings. Serious injury will result from contact with rotating blades.



CAUTION MOVING PARTS

Before starting the machine, ensure that all guards and safety devices are in place and functioning properly.



ATTENTION READ OWNER'S MANUAL

Read and understand owner's manual before using this machine. Failure to follow operating instructions could result in serious injury or death.

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1. Introduction

The Terminator[®] Carpet and Tile Removal Machine is intended for use on large demolition and asbestos abatement projects as well as smaller floor covering removal jobs. Designed and built by experienced floor covering demolition and installation experts, the machine incorporates several design features that are essential for efficient operation:

- Tricycle wheelbase and short turning radius allows for better turning ability - especially in narrow spaces.
- Jaw position and tool position adjustments allow for changing the angle of the blade for any application.
- Ballasts in the front and rear provides extra traction needed for tile and glue removal.
- Built-in forklift transportation slots allow for easy loading and unloading at job sites.
- Variable displacement hydraulic control for a smooth start and stop.

If operated and cared for as instructed in this Manual, the Terminator[®] provides trouble-free, safe, and efficient performance.

2. About This Manual

This Manual contains the information and procedures to assist you to operate and maintain the Terminator[®] machine safely and correctly. Read this Manual before you operate or service the equipment. If you need additional information or assistance, please get in touch with our Customer Service Department:

Innovatech Products & Equipment Co.
4701 Allmond Ave
Louisville, KY 40209
(425) 402-1881 or 800-267-6682
Fax (425) 402-8547
Email: service@InnovatechProducts.com

NOTE: Throughout this Manual, directional instructions (left, right, up, down, push, pull, etc.) are given from the point of view of the operator performing the action.

3. Important Safety Instructions



WARNING: *When using electric tools, basic safety precautions should always be followed to reduce the risk of fire, electric shock, and personal injury, including the following: **READ ALL INSTRUCTIONS***

1. Safety Instructions for All Tools

- **KEEP GUARDS IN PLACE** and in working order.
- **REMOVE ADJUSTING TOOLS AND WRENCHES.** Form habit of checking to see that keys and adjusting wrenches are removed from the Terminator® before turning tool on.
- **KEEP WORK AREA CLEAN.** Cluttered areas invite accidents.
- **KEEP CHILDREN AWAY.** All visitors should be kept a safe distance from the work area.
- **WEAR PROPPER APPAREL.** No loose clothing, gloves, neckties, rings, bracelets or other jewelry to get caught in moving parts. Non-slip footwear is recommended. Wear protective hair covering to contain long hair.
- **ALWAYS WEAR SAFETY GLASSES.** Also use a face or dust mask if operating in a dusty environment. All users and bystanders must wear eye protection that conforms to ANSI Z87.1. (CAN/CSA Z94.3)
- **MAINTAIN EQUIPMENT WITH CARE.** Keep equipment clean for best and safest performance. Follow instructions for lubrication and changing accessories.
- **DISCONNECT BATTERY** before servicing.
- **REDUCE THE RISK OF UNINTENTIONAL STARTING.** Make sure handles are centered and the engine throttle control is at the lowest setting.
- **USE RECOMMENDED ACCESSORIES.** Consult the instruction manual for recommended accessories.
- **NEVER STAND ON TOOL.** Serious injury could occur if the machine is tipped or rocked.
- **CHECK DAMAGED PARTS.** Before further use of the tool, a guard or other part that is damaged should be carefully checked to determine that it will operate properly and perform its intended function. Check for alignment of moving parts, binding of moving parts, breakage of parts, mounting and any other conditions that may affect its operation. A guard or other part that is damaged should be properly repaired or replaced. Do not use tool if switch does not turn it on and off.
- **NEVER LEAVE EQUIPMENT RUNNING UNATTENDED. TURN POWER OFF.** Don't leave equipment until it comes to a complete stop.
- **DO NOT OPERATE ELECTRIC TOOLS NEAR FLAMABLE LIQUIDS OR GASSES OR EXPLOSIVE ATMOSPHERES.** Motors in these tools may spark and ignite fumes.
- **ALWAYS PROVIDE PROPER VENTILATION.** Ventilation is required when using the Terminator® T2200 PRO. Positive or negative pressure ventilators must be used in any enclosed space where the machine is to be used. Use carbon monoxide (CO) monitoring when the machine is in-use indoors. The CO generated by propane engines can be hazardous to your health if not proper ventilation is not provided.

2. Additional Safety Rules for Riding Floor Scrapers



CAUTION: FAILURE TO HEED THESE WARNINGS MAY RESULT IN SERIOUS PERSONAL INJURY OR DEATH AND SERIOUS DAMAGE TO THE TERMINATOR®.

The Terminator® is to be operated only by qualified, trained personnel.

DON'T attempt to operate the Terminator® if you are not thoroughly familiar with the operation of the Terminator®.

DON'T operate the Terminator® unless every guard, warning notice or sign is in place.

DON'T use the Terminator® on roofs or floors not designed to carry the weight of the machine.

DON'T attempt to operate on anything but the designated voltage.

DON'T wedge anything against the motor fan to hold motor shaft.

DON'T operate equipment without guards in place.

DON'T operate the Terminator® near an open flame or smoking materials.

DON'T stand directly behind or in front of the Terminator® when power is enabled.

DON'T lift the hood, inspect the blade, or otherwise service or maintain the Terminator® while power is enabled.

DON'T operate the Terminator® if the top cover is open.

DON'T overreach. Keep proper footing and balance at all times.

DON'T run the machine into piles of debris, as this may cause the machine to become unstable and tip over.

DON'T sit on or stand next to, under or around the Terminator® when it is being transported in a moving vehicle, whether by itself or with other equipment.

DON'T attempt to use the Terminator® on a non-horizontal surface or turn the Terminator® around on a ramp or hill.

DON'T put your hands or feet in the blade area when the Terminator® is running.

DO turn the power off when not in use.

DO use personal safety equipment such as steel toe shoes, safety glasses, gloves, and ear plugs.

DO use gloves when changing blades and removal tools. Tools may be hot and cause burns.

DO familiarize yourself with all safety features and controls before each use.

DO use the Terminator® only for the purpose for which it was designed. Attempting to alter the Terminator® will invalidate applicable warranties and possibly damage the machine.

DO reduce speed next to walls, machinery and other objects.

DO pre-survey the floor for cracks, ditches, trenches, electrical outlets or bolts, which could catch the blade of the machine.

DO operate the Terminator® at a safe speed.

DO use the seat belt on the machine.

4. General Operating Instructions for the Terminator®

The Terminator® is designed to remove carpet, tile and glue residue from floors.

- When removing product, position removed product so it rolls to the side of the machine or have someone on the side of the machine remove the product. NEVER WALK IN FRONT OF OR BEHIND THE TERMINATOR® WHILE IT IS RUNNING.
- Sharpen blades or dice material into narrower widths if machine slows down or seems to be struggling.
- Do not use the Terminator® within one foot of walls or stationary objects. Damage to objects may occur if the Terminator® strikes them.
- Use safe, OSHA-approved tools and methods for sharpening blades.
- Make sure the Terminator® has a charged fire extinguisher, working backup alarm, and strobe light before operating.

5. Safety Features

The Terminator® is equipped with several features to help ensure your safety and the safety of workers around you.

1. Auto Stop

The Terminator® has two drive levers located to the right and left of the operator seat and a jaw height lever to the left of the operator seat. The drive levers control the forward, reverse, left, and right directions of the machine; the jaw height lever raises and lowers the jaw assembly. You must push (forward) or pull (reverse) and hold the levers in position to drive the machine or move the jaw assembly in the direction desired. When you release a lever, the Terminator® or jaw automatically STOPS and will not move again until you push/pull and hold the levers again. However, these levers are not meant as brakes. Block wheels with a floor block when stopping on a ramp and use the emergency brake. Without the emergency brake the machine may roll forward or backwards on any sloping surface.

2. Warning Light and Back-Up Alarm

An amber light is installed on the top section of the rear battery box. When the ignition is in the ON position, the warning light will flash. When the drive control is set in REVERSE, the back-up alarm will sound.

3. Fire Extinguisher

A fire extinguisher with gauge is installed on the hood behind the operator's seat within the operator's reach. As a safety measure, regularly inspect the gauge and recharge the fire extinguisher as needed to maintain full capacity. Always recharge the extinguisher after each use.

4. Emergency Battery Disconnect

Under the hood at the front of the engine is a battery disconnect that will remove power from the motor and other electrical components. **WARNING:** Removing power from the Terminator® while on a ramp or hill can lead to a dangerous rollaway situation. Always engage the hand brake before disconnecting power.

5. Safety Instructions

The Terminator® is designed for safe operation by trained, designated personnel. To help ensure your safety as a designated operator, read these safety instructions before you operate the equipment. Regardless of your experience with machinery, the Terminator® has unique features and systems which you need to know about and understand before you operate or service the machine.

6. T2200 PRO Terminator® Specifications

Element	English	Metric
Length	66"	1676 mm
Width	27.5"	700 mm
Height	60.5"	1536 mm
Weight*	2310 lbs.	1050 kg
Tires (OD x W)	15" x 8"	381 mm x 203 mm
Motor Power (SAE J1995)	55 HP @ 3600 RPM	41 kW @ 3600 RPM
Max Torque (SAE J1349)	86.3 lb·ft @ 2400 RPM	117 N·m @ 2400 RPM
Motor Operating Speed	1000-3600 RPM	
Engine Type	Kubota WG1605-L-E3	
Engine Oil	SAE 10W or SAE 10W-30	
Engine Oil Capacity	1.59 Gal	6.0 L
Coolant Capacity	1.07 Gal	4.0 L
Hydraulic Oil Type	ISO 46	
Hydraulic Oil Capacity	11 Gal	41.6 L
Hydraulic Relief Valve Pressure	1800 psi	12.4 MPa

*Weight includes the base machine with 4 Rear, 3 Front, and 2 Wheel Weights

1. Tools and Supplies

Maintenance tools and supplies are not provided with the machine. The following are suggested items to have on the job site.

1. 4" or 7" Grinder
2. 10"-15" Crescent Wrench
3. 16-20 oz. Hammer
4. 3/8" or 1/2" Socket Set
5. Grease Gun
6. WD 40
7. 3/4" Open End and Box Wrench
8. Screw Driver Set
9. Safety Glasses
10. Ear Plugs

7. Ventilation Requirements

The Terminator® engine, like all combustion engines, relies on the combustion of fuel and oxygen to produce power. While most of the exhaust produced is in the form of water vapor and carbon dioxide, the engine also produces harmful carbon monoxide (CO). CO is a colorless, odorless, toxic gas that will cause significant illness or death in sufficient concentrations. NEVER run the Terminator® in enclosed or confined areas without sufficient ventilation.

8. Guards, Warning Notices & Signs

The guards, warning notices and signs are placed on the Terminator® for your protection. If one of them becomes damaged or is lost, contact our Customer Service Department to order a replacement.

9. Service Instructions & Personnel

Like other machinery, the Terminator® requires regular inspection and maintenance of the batteries, motor, hydraulic system and other parts. To prolong the safe and efficient operating life of the machine, clean and service it as instructed in the Maintenance section of this manual.

Always use trained personnel to service the equipment. **Never** allow anyone to service the equipment that has not been specifically trained to do so.

If you need help with a service or maintenance problem, contact our Customer Service Department.

10. Replacement Parts & Materials

The Terminator® is designed and engineered to operate safely and efficiently with the parts and materials installed on it in our factory. To ensure the continued safe and efficient operation of the equipment, use replacement parts and materials that meet both of the following requirements:

- Innovatech must solely authorize replacement parts and materials.
- Replacement parts and materials must be identical to the items originally provided with the machine, except as authorized by Innovatech.

Never use “equivalent” or substitute parts, except as expressly authorized by Innovatech.

If you fail to adhere to these instructions, you may cause injury to yourself and/or others, cause damage to the Terminator®, and invalidate applicable warranties.

If you are in doubt about any replacement parts or materials, call our Customer Service Department for assistance.

11. Uncrating and Preparing the Terminator® for Operation

When you receive the Terminator®, inspect the outside of the crate completely, to detect damage to the crate itself. If it is damaged, notify the carrier immediately and follow his/her instructions to file a claim.

Carefully uncrate the machine and inspect it for damage that may have occurred during shipping. If the shipment is damaged, notify the carrier immediately and file a claim in the normal manner.

Check packing slip for complete shipment. If shipment is incomplete, notify our Customer Service Department within 24 hours.

Remove the crate debris, set aside the blades and other packages, and prepare the Terminator® for operation:

CAUTION! If using conventional non-AGM lead acid batteries, wear acid-resistant gloves and safety glasses and use extreme care when checking battery water levels.

1. To remove the Terminator® from a crate with a forklift:

1. Forklift slots have been provided on the sides of the Terminator® for moving the terminator with a forklift.

2. To remove the Terminator® from a crate without a forklift:

1. Turn the Battery Disconnect to the “On” position.
2. Take 2 x 4’s off the edge of the crate and between the wheels.
3. Place 2 x 4’s behind the crate of the rear of the machine.
4. Make a ramp with the 2 x 4’s and the crate material.
5. To start the Terminator®, turn the key.
6. Raise the front wheel 5 inches by using the jaw adjustment slider on the joystick.
7. Pull back both joysticks evenly. The machine will start moving slowly.
8. Ensure that both rear wheels come off the crate evenly. Failure to back off evenly could result in the machine tipping over and harm to the operator.
9. As the machine moves back, ensure that the center wheel clears the crate. If the center wheel does not clear the crate, raise the machine until the wheel clears.
10. Once the machine is on the ramp, slide it all the way to the bottom, then raise the jaw assembly up and set the center wheel down on the ground.

12. Loading/Unloading Procedures

- Do not load or unload the Terminator® on uneven ground.
- Ensure ramps into moving vehicles are stable and square to the ground.
- Always turn off the Terminator® before transporting it.
- Load and unload the machine with a properly weighted forklift or lift-gate.
- Make sure all safety stops are installed on a lift-gate before loading or unloading.
- Never position yourself under/around the machine while moving it with other machinery.
- Park the machine with the jaw completely down after loading.

- Properly secure the machine with chains, tire chocks, and other necessary tie downs.
- Never ride in a moving vehicle next to a Terminator®. It may tip, causing severe injury.

13. Operator Controls

1. Drive/Jaw Controls

The drive and jaw controls are located to the left and right of the operator seat. The drive joysticks (left and right) control the direction of rotation of the rear wheels. The jaw height rocker module (right) controls the vertical position of the jaw assembly. The throttle slider module (left) controls the RPM of the engine.

- Push the left and right joysticks forward **together** and hold them in position to move the machine forward.
- Pull the left and right joysticks back **together** and hold them in position to move the machine in reverse - the alarm will sound.
- Push only the left joystick forward to turn the machine to the right.
- Push only the right joystick forward to turn the machine to the left.
- To move the jaw assembly down, push and hold the jaw rocker upward. To move the jaw assembly up, push and hold the jaw rocker downward.

2. Auto Stop

When you release the drive joysticks, the motor continues to run but the drive or jaw motion automatically stops and will not start again until you push or pull the joysticks.

3. Operator Presence Switch & Safety Grips

The Terminator® is equipped with a trigger switch on the underside of each joystick grip. The operator must also be seated to engage the operator presence switch within the seat. The wheel hydraulics will not function without an operator properly seated and at least one trigger switch held down. **WARNING:** The Terminator® will stop abruptly if both trigger switches are released or if the operator leaves the seat while the machine is moving.

4. Emergency Brake

The Terminator® is supplied with an emergency brake to prevent unintended movement when left unattended. The brake handle is located to the right of the operator seat. Pull the handle up to engage the brake, push the handle down to release the brake. To increase tension on the brake you can rotate the end of the handle in a clockwise direction. Rotate the end of the handle counter clockwise to reduce the tension.

14. Display & Indicators

1. Tachometer & Information Display

The tachometer shows the current RPM. The information display shows the instantaneous readings of selected engine sensors and can also show any active error codes from the engine control unit (ECU).

2. Malfunction Indicator Light

The Malfunction Indicator Light (MIL) will illuminate when the engine is running out of specification. The illumination of the MIL will typically be accompanied by an error code, which can be accessed and displayed on the information display.

3. Hydraulic Filter Clog Indicator

The hydraulic oil filter is equipped with a clog indicator which will illuminate when the hydraulic oil filter is clogged. The indicator may briefly illuminate in cases of extreme cold and will turn off when the hydraulic oil was warmed to a normal operating temperature.

15. Acceptable Carbon Monoxide Levels

IMPORTANT! OSHA Requirement – What Service Personnel Should Know!

The CO level shall not exceed 35 parts per million (PPM) measured over an 8-hour period in the work environment. 1,000,000 PPM is equivalent to 100% of all exhaust gases. For each one one-hundredth of one percent, you will have 100 PPM.

With adequate ventilation and following the enclosed adjustment instructions, you should be able to keep the CO level below the OSHA requirement. Innovatech strongly recommends the use of a CO analyzer.

16. Blade Assembly

Blades are available in different configurations and thickness. An assortment of blades is included in the purchase price of the Terminator®. Extra blades are available upon request from Innovatech Products & Equipment Co., Inc.

Installing a Blade:

1. Raise the jaw assembly to maximum up position.
2. Unwrap the pre-sharpened blades and select the blade thickness and length you need for the job.
3. Loosen the 7 holding bolts.
4. Insert the sharpened blade.
5. Tighten bolts firmly, starting from the center and working out. Bolts should be snug but not over-tightened.

17. Taking Up Floor Coverings

1. Insert the blade. (See Blade Assembly)
2. Lower the jaw assembly to the floor. Lift the caster wheel off the floor 1/4 inch. Use previous procedures to drive forward.
3. As the Terminator® is removing flooring material, it is recommended to have another person at the side of the machine removing accumulating debris.

18. Ballast

The T2200 PRO Terminator® can be equipped with weight plates in the front (30 lbs. each) and in the rear (75 lbs. each) to provide traction for tough jobs. These weights can be easily removed to reduce traction or assist in transportation. Wear gloves whenever handling the weights to reduce the risk of injury, following OSHA approved lifting techniques.

19. Tricycle or Caster Wheelbase and Tires

The tricycle wheelbase is designed for a better turning ability. The wheel bearings on the front caster roller require lubrication with grease every 30 hours of machine operation. There are three fittings, two on the wheel and one on the housing. When running over debris such as carpet, the carpet yarn will get caught between the wheel and the housing. Clean out wheel and housing regularly.

The rear tires are solid rubber, tubeless, and require no maintenance. Over time, they may wear out and need replacing. Before each job, inspect the rear tires and lug bolts. Tighten the lug bolts as needed to 70 ft.-lbs. torque – it is important to keep the lug bolts tight.

The wheel hubs should be tightened from 310 to 350 ft.-lbs. Inspect and re-torque every 60 hours of operation. Lift the machine off the floor so no weight is on the wheel when re-torquing the pack nut.

20. Carbon Monoxide Information

U.S. Department of Labor – Program Highlights
Fact Sheet No. OSHA 92-11

1. What is Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless, tasteless gas, and is a common industrial hazard. Mild poisoning can cause such symptoms as nausea, dizziness, or headaches while severe poisoning can result in brain or heart damage, or even death. The incomplete burning of any material containing carbon, such as gasoline, natural gas, oil, propane, coal, or wood, produces this poisonous gas. Forges, blast furnaces, and coke ovens all produce CO, but one of the most common sources of exposure in the workplace is the internal combustion engine.

Be suspicious of CO poisoning if you develop dizziness, a flushed face, headaches, or general weakness. Although CO is itself odorless, it may mix with other gases that do have an odor. Therefore, be aware that the smell of other gases does not automatically exclude the presence of CO.

2. Are You Likely to Be Poisoned?

If you have a heart condition, your condition may be aggravated by CO exposure. Ingestion of barbiturates or alcohol may increase the effects of CO exposure. Smokers have a higher carboxyhemoglobin than non-smokers, and therefore face a greater risk of CO exposure on the job.

Harmful levels of CO are a potential danger to workers of: acetylene workers, blast furnace workers, boiler room workers, brewery workers, carbon black makers, coke oven workers, diesel engine operators, dock workers, garage mechanics, metal oxide reducers, miners, organic chemical synthesizers, petroleum refinery workers, pulp and paper workers, steel workers, toll booth and tunnel attendants, and warehouse workers.

3. What Are the Symptoms?

Large amounts of CO can kill in minutes. The more CO in the air and the longer you are exposed to it, the greater the danger. Any one or more of the following symptoms can signal CO poisoning: headaches, tightness across the chest, nausea, drowsiness, inattention, or fatigue. As the amount of CO in the air increases, symptoms that are more serious may develop such as lack of coordination, weakness, and confusion. The poisoning can be reversed if caught in time. However, even if you recover, acute poisoning can result in permanent damage to the parts of the body that require oxygen, such as the heart and brain. There is a significant reproductive risk involved with CO. An American Journal of Industrial Medicine article quotes two studies showing that acute CO exposures that were non-lethal to the mother were associated with fetal loss.

4. What Can You Do About CO?

If you suspect CO, get out of the area and into the open fresh air. Remove anyone overcome by the gas immediately and give the person artificial respiration. Call for a doctor and continue the artificial respiration until the doctor arrives or the person recovers. Prompt action can make the difference between life and death.

5. Employers

- Install an effective ventilation system to remove poisonous CO from the area.
- Maintain appliances and equipment in good order, adjusting flames, burners, and drafts to reduce the formation of CO.
- Consider switching from fossil fuel-powered equipment to battery-powered machinery when possible.
- Provide approved respirators for emergency use. Regular respirators (negative pressure) will not work in this atmosphere. If necessary, provide an independent air supply to workers.
- Install CO monitors or regularly test air in areas when CO is generated or used.
- Provide pre-placement and periodic medical examinations for workers who may be exposed to CO. If possible, transfer affected workers to other jobs.
- Inform workers of the hazards of CO and train them in the proper use of respirators.

6. Workers

- Report to your employer any condition that might make CO form or accumulate.
- Be alert to ventilation problems, especially in enclosed areas where gases of burning fuels may be released.
- Report complaints early. Do not overexert yourself if you suspect CO poisoning. Physical activity increases the body's need for oxygen, increasing the danger of poisoning.
- If you get sick, tell your doctor about the possibility of exposure to CO.
- Think carefully about your smoking habits. Tobacco, when burned, releases CO which reduces the oxygen-carrying ability of the blood even before any industrial exposure is factored in.

7. Federal Standards

The Occupational Safety and Health Administration (OHSA) standard for exposure to CO prohibits workers' exposure to more than 50 parts of gas per million parts of air (PPM), averaged over an 8-hour work day. There is also a ceiling limit of 200 PPM measured over a 15-minute period.

21. Propane Safety

Liquid petroleum gas (propane) is flammable and potentially explosive. Always obey proper handling, lighting, and ventilating procedures provided by the manufacturer. Obey the safety warnings and procedures below, which are provided to supplement, not replace or substitute, the manufacturer's instructions.

NOTE: All new propane tanks must be purged before use.

1. Precautions & Warnings

- Wear insulated gloves when you handle propane tanks.
- Do not attempt to adjust the pressure regulator because the manufacturer sets it. Only a qualified liquid petroleum gas service technician should make adjustments.
- Inspect the fuel lines and connectors before each job or at the beginning of the day to detect any possible problems. Never check for propane leaks with an open flame.
- Never use ammoniated household-type detergents to detect leaks or to clean any portion of the fuel system or the tank. These substances can cause cracks on brass fittings and on the fuel line. If the leak cannot be located, take the tank to a certified liquid petroleum gas service representative.
- Never store or carry propane containers in a closed space or inside your passenger vehicle. Propane containers are equipped with safety devices that relieve excessive pressure by discharging gas to the atmosphere.
- Never fill a tank more than 80% of capacity. Overfilling can cause uncontrolled gas flow, which in turn can cause fire and/or an explosion.

2. What to Do If You Smell Gas

- Immediately extinguish any open flames, pilot lights, and all smoking materials.
- Turn the engine OFF; do not touch any electrical switches or other devices that may produce a spark.
- Shut OFF the fuel flow switch.
- Open all doors and windows to allow maximum ventilation.
- Leave the area until the odor clears.
- Inspect the fuel lines and connectors to determine the source of the leak. Correct the problem before you use the Terminator® again.

22. Maintenance Procedures

1. Change Hydraulic Oil every 18 months with NUTO H 46 or ISO 46 or if fluid is overheated 200°F or higher.
2. Change hydraulic filter every 50 hours initially.

3. Clean Caster Wheel and Back Tires with wire wheel when necessary.
4. Look for leaks, find and tighten fittings. Do not over-tighten fittings.
5. Check all hoses and clamps once a week.
6. Inspect rear tires and lug bolts. Tighten lug bolts as needed to 70 ft.-lbs. torque.
7. Check wheel hub every 60 hours of operation. Wheel hub pack nut should be torqued from 310 to 350 ft.-lbs.

Procedure / Hours	Every 8 Hours (daily)	Every 50 Hours (weekly)	Every 100 Hours	Every 200 Hours	Every 1000 Hours	Every 2000 Hours	Yearly	Each 2 Years
Check Hydraulic Oil Level	•							
Change Hydraulic Oil Filter		(initially)		•				
Change Hydraulic Oil					•			
Check Brake Pad Wear			•					
Adjust Emergency Brake as needed	•							
Replace Brake Pads (as needed)							•	
Re-torque Wheel Lugs		•						
Re-torque Pack Nuts		•						
Adjust Wheel Scrapers		•						
Grease Caster Wheel		•						
Check Engine Oil/Replenish	•							
Change Engine Oil		(Initially)	•					
Clean Spark Plug and Adjust if Necessary			•					
Replace Spark Plug							•	
Check Air Cleaner	•							
Clean Air Cleaner			•					
Replace Air Cleaner^					•			
Replace Intake Pipe/Clamp Bands								•
Check Fuel Filter			•					
Replace Fuel Filter			As needed					
Fuel Line Clamps/Hoses	•							
Check for Fuel Leakage		•						
Replace LPG Hoses								•

Procedure / Hours	Every 8 Hours (daily)	Every 50 Hours (weekly)	Every 100 Hours	Every 200 Hours	Every 1000 Hours	Every 2000 Hours	Yearly	Every 2 Years
Change Breather Tube								•
Check PCV Valve					•			
Check LPG Vaporizer Regulator					•			
Change LPG Vaporizer Water Hoses								•
Check LPG Vaporizer Regulator Inner Parts*								•
LPG Lockoff Valve					•		•	
Check Radiator Coolant	•							
Change Radiator Coolant								•
Check Radiator Hoses and Clamp Bands				•				
Change Radiator Hoses and Clamp Bands								•
Clean Radiator and Water Jacket							•	
Check Fan Belt Tension			•					
Adjust Fan Belt Tension			As needed					
Adjust Valve Clearance *					•			

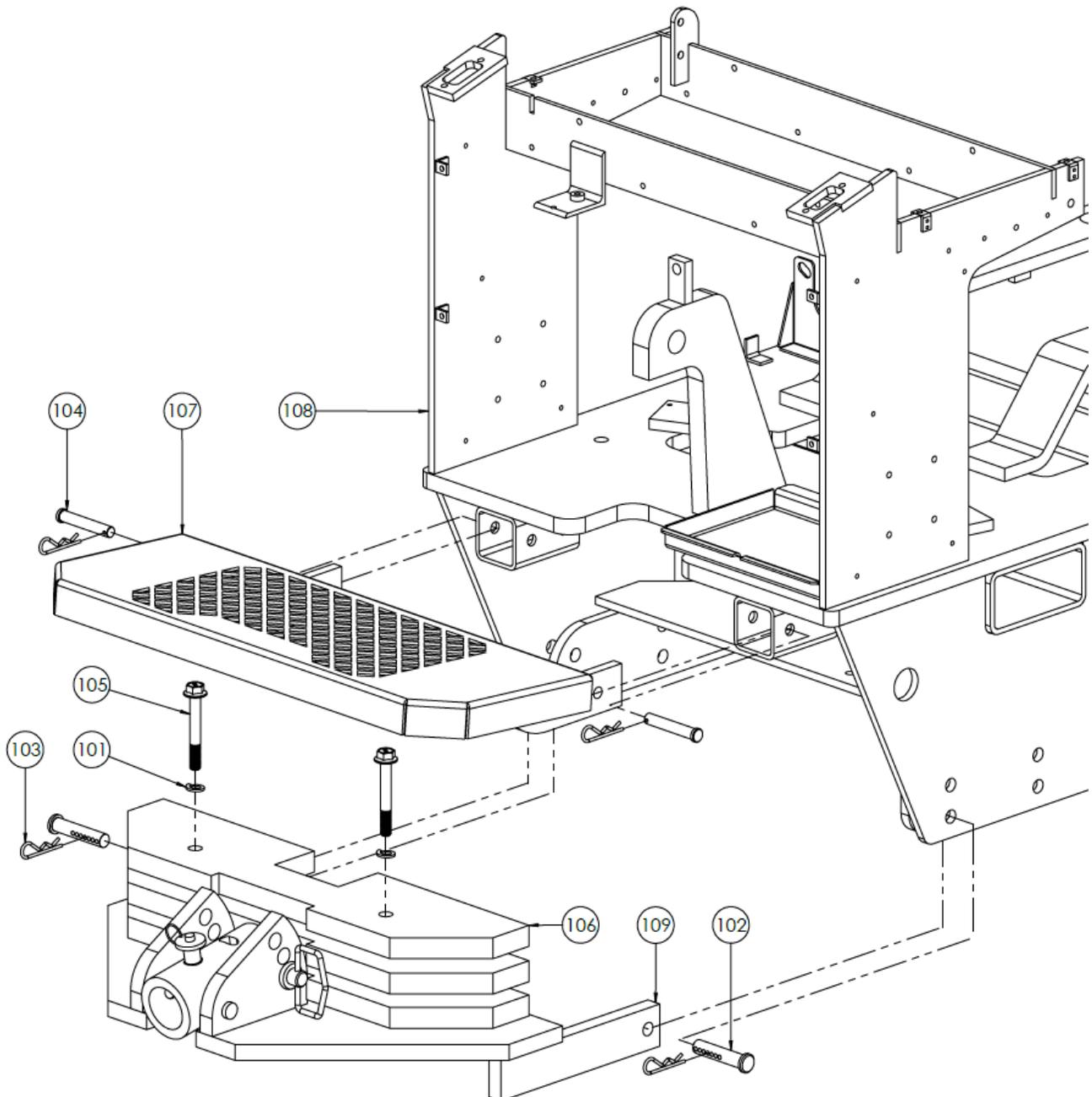
23. Parts List

T2200 PRO Terminator



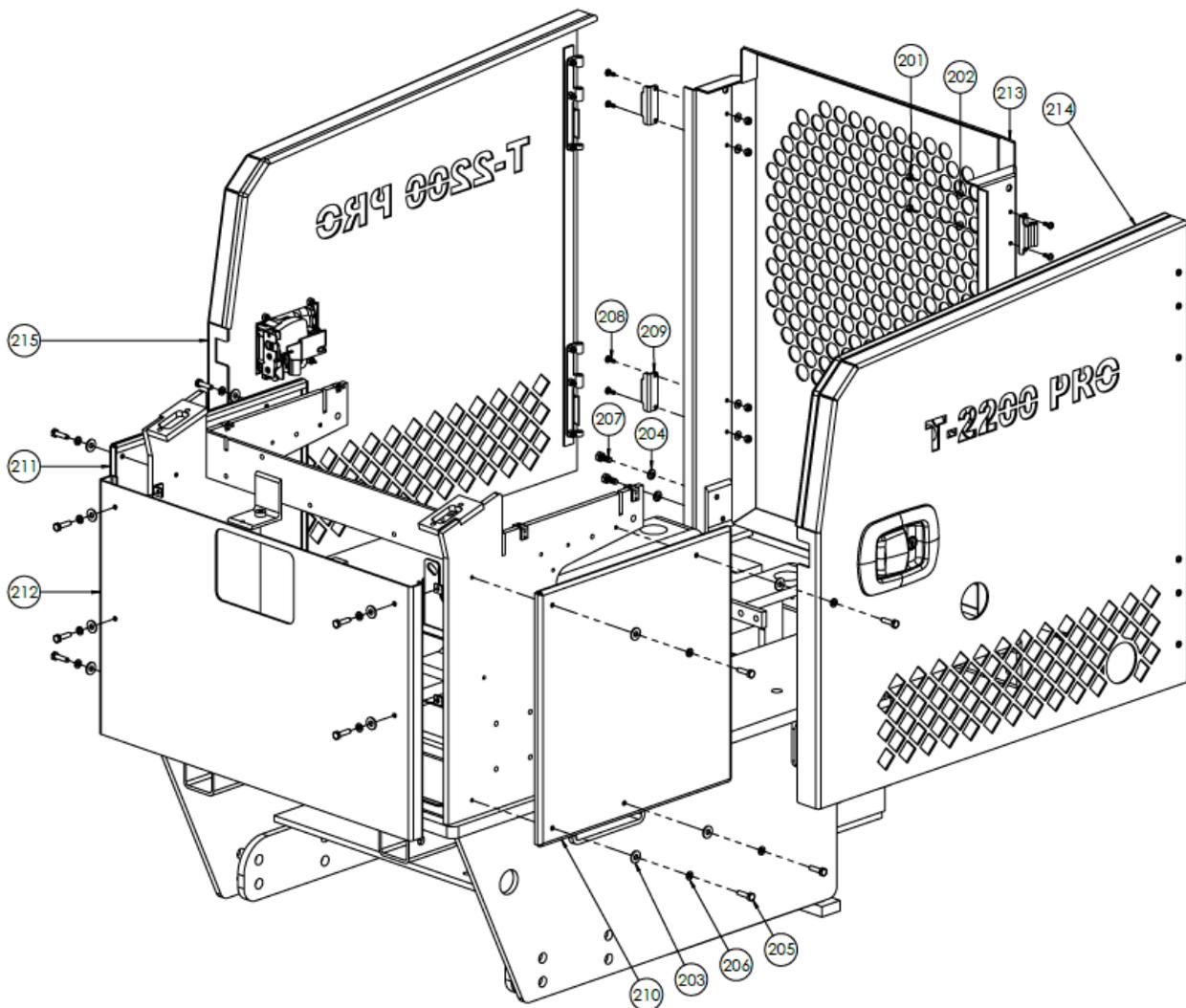
Jaw & Footrest Breakdown

Item No.	Part Number	Description	Qty.
101	11-0041	Lock Washer, 1/2"	2
102	11-0045	Adjustable Clevis Pin, 5/8" x 3" L	2
103	11-0052	Hitch Pin	4
104	11-0236	Clevis Pin, 1/2" x 3" L	2
105	12-0046	Flange Head Cap Screw, M12-1.75 x 90mm	2
106	51-1070	Uni-Frame Pivoting Jaw Weight	3
107	53-0117	PRO Footrest	1
108	53-0295	T2200PRO Frame Assembly	1
109	96-0386	Pivoting Jaw Assembly	1



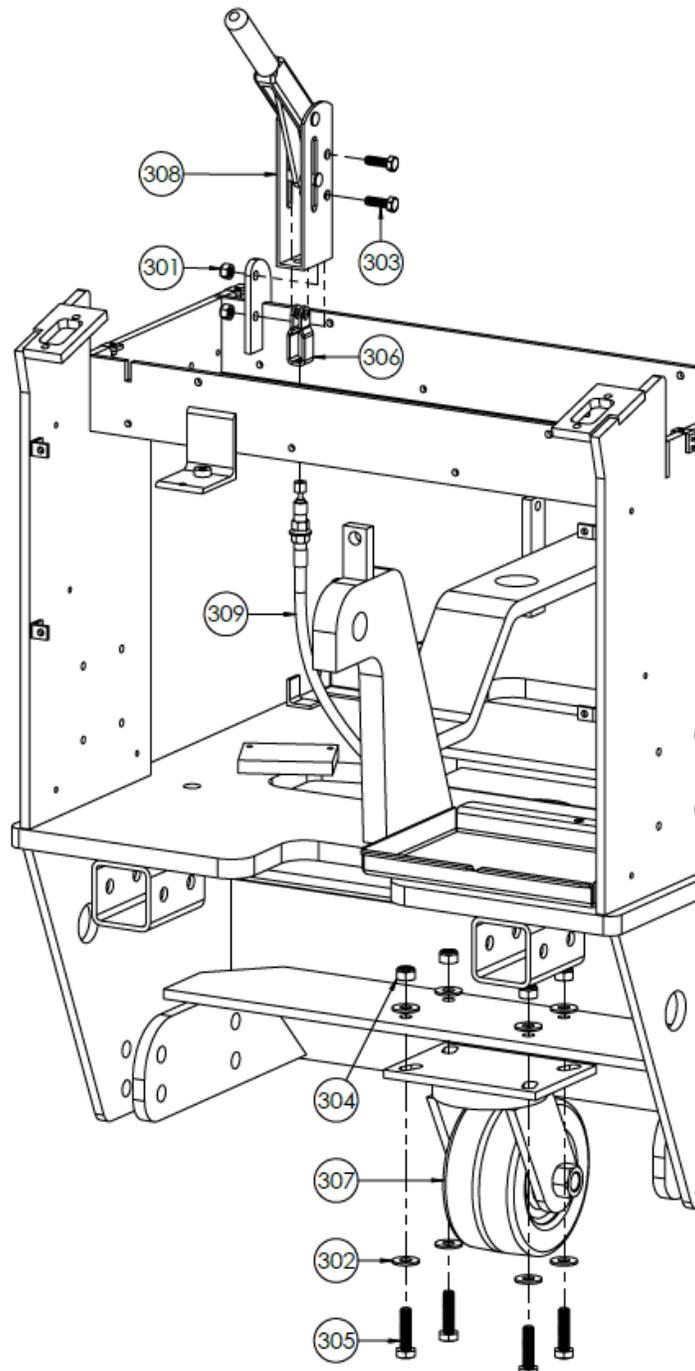
Doors & Panels Breakdown

Item No.	Part Number	Description	Qty.
201	11-0023	Nyloc Nut, #10-24	8
202	11-0030	SAE Flat Washer, #10	8
203	11-0033	USS Flat Washer, 1/4"	12
204	11-0040	Lock Washer, 5/16"	4
205	11-0059	Hex Head Cap Screw, 1/4"-20 x 1"	12
206	11-0069	Lock Washer, 1/4"	12
207	11-0118	Hex Head Cap Screw, 5/16"-18 x 3/4"	4
208	11-0250-08	Pan Head Philips Screw, #10-24 x 1/2"	8
209	13-0232	Concealed Hinge	4
210	53-0135	PRO Left Console Panel	1
211	53-0136	PRO Right Console Panel	1
212	53-0138	PRO Front Console Panel	1
213	53-0319	PRO Rear Cover	1
214	96-0290	PRO Left Door Assembly	1
215	96-0291	PRO Right Door Assembly	1



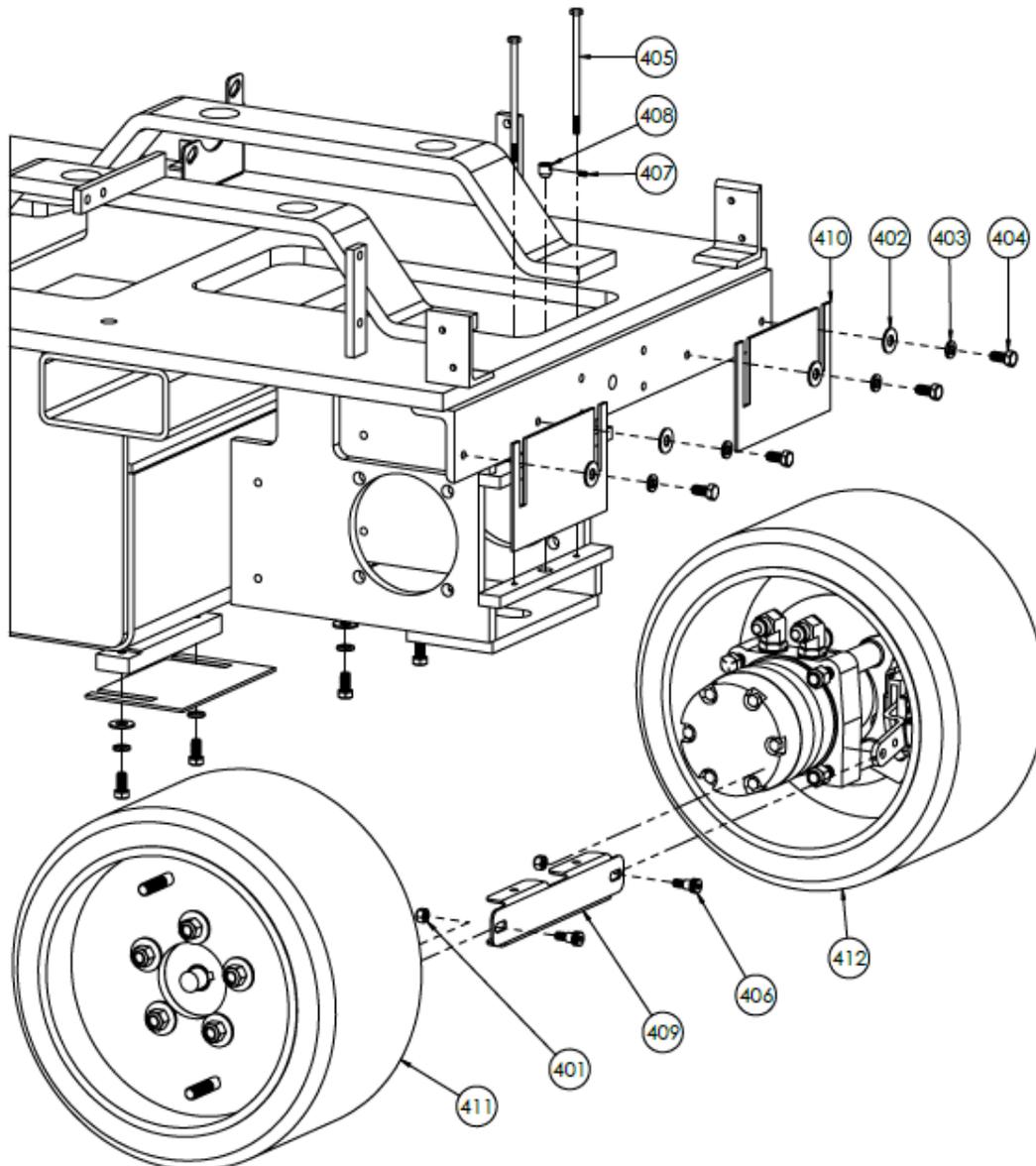
Front Wheels & Brake Breakdown

Item No.	Part Number	Description	Qty.
301	11-0025	Nyloc Nut, 5/16"-18	2
302	11-0035	USS Flat Washer, 3/8"	8
303	11-0132	Hex Head Cap Screw, 5/16"-18 x 1"	2
304	12-0021-10	Nyloc Nut, M10-1.5	4
305	12-0034-40	Hex Head Cap Screw, M10-1.5 x 40mm	4
306	13-0027	Brake Cable Clevis	1
307	13-0041	Caster Wheel Replacement	1
308	13-0050-1	Modified Brake Lever	1
309	13-0302	PRO Brake Cable	1



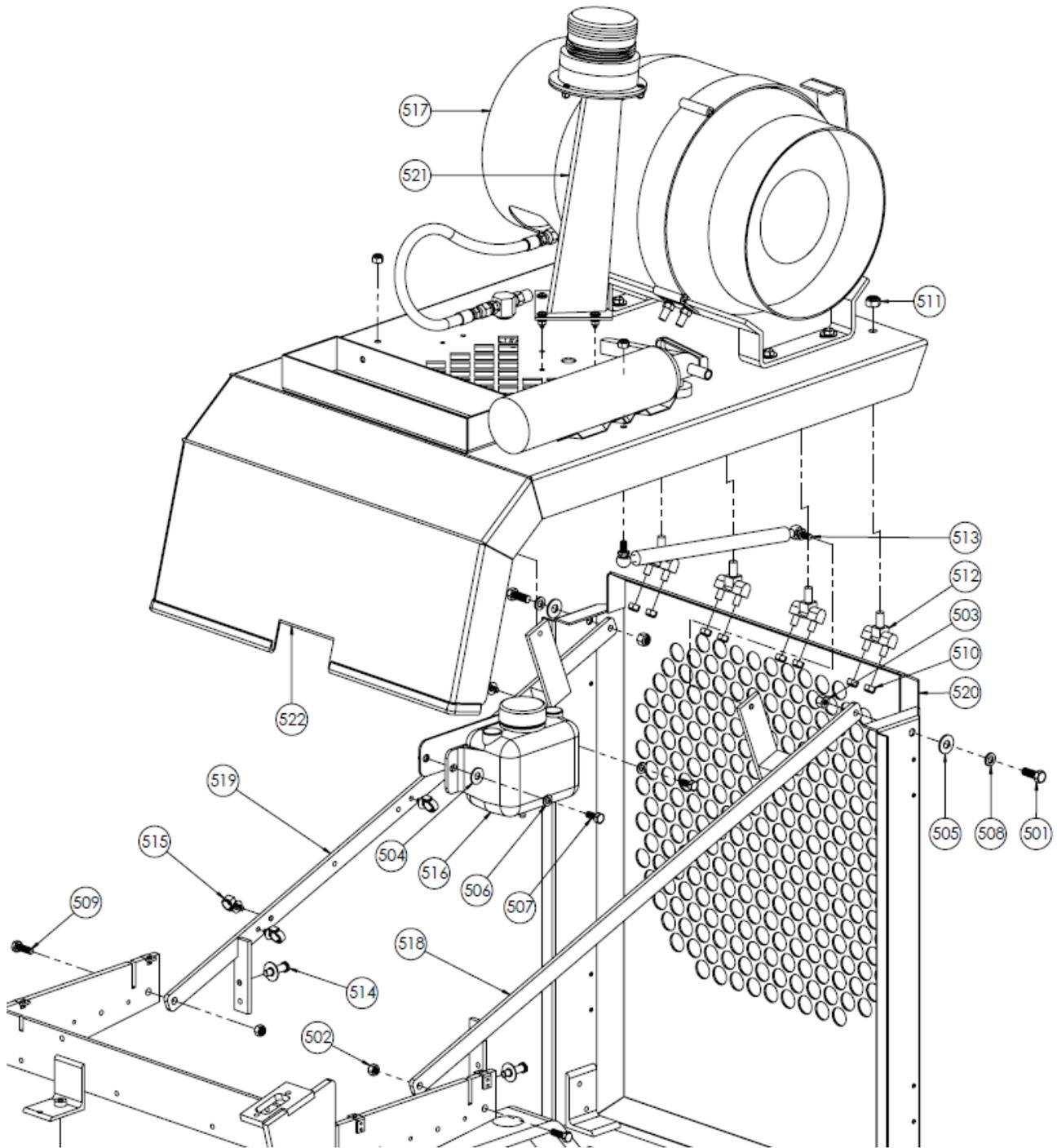
Rear Wheels Breakdown

Item No.	Part Number	Description	Qty.
401	11-0025	Nyloc Nut, 5/16"-18	2
402	11-0035	USS Flat Washer, 3/8"	8
403	11-0129	Lock Washer, 3/8"	8
404	11-0130	Hex Head Cap Screw, 3/8"-16 x 3/4"	8
405	11-0279-88	Hex Head Cap Screw, 1/4"-20 x 5 1/2"	2
406	11-0287	Socket Head Shoulder Screw, 3/8" x 3/8", 5/16"-18	2
407	11-0353	Set Screw, #10-32 x 3/8"	1
408	51-0513	Cable Clamp	1
409	53-0134	Brake Actuator	1
410	81-0091	Wheel Scraper Blade, 7.5" x 4.5"	4
411	96-0395	PRO Left Wheel Assembly	1
412	96-0396	PRO Right Wheel Assembly	1



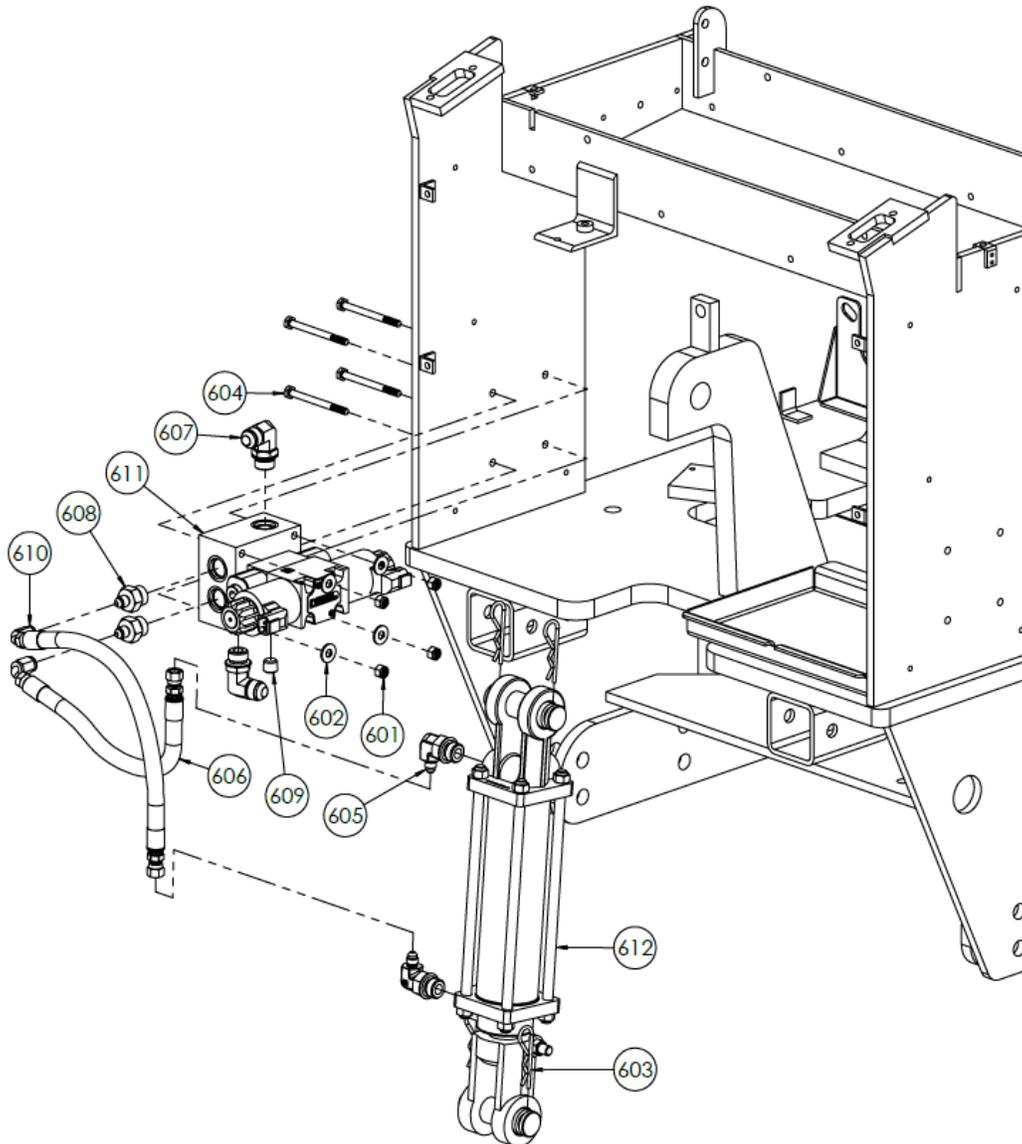
Top Cover & Support Breakdown

Item No.	Part Number	Description	Qty.
501	11-0007	Hex Head Cap Screw, 3/8"-16 x 1"	2
502	11-0025	Nyloc Nut, 5/16"-18	4
503	11-0026	Nyloc Nut, 3/8"-16	2
504	11-0034	USS Flat Washer, 5/16"	2
505	11-0035	USS Flat Washer, 3/8"	2
506	11-0040	Lock Washer, 5/16"	2
507	11-0118	Hex Head Cap Screw, 5/16"-18 x 3/4"	2
508	11-0129	Lock Washer, 3/8"	2
509	11-0132	Hex Head Cap Screw, 5/16"-18 x 1"	2
510	12-0021-08	Nyloc Nut, M8-1.25	8
511	12-0021-10	Nyloc Nut, M10-1.5	4
512	13-0234	In-line Hinge	4
513	13-0256	Gas Spring	2
514	13-0341	Striker Bolt	2
515	13-0374	Wire Clip	4
516	43-0196-10	Coolant Overflow Tank	1
517	44-0046	Propane Tank, #20	1
518	53-0314	PRO Left Support Member	1
519	53-0315	PRO Right Support Member	1
520	53-0319	PRO Rear Cover	1
521	96-0329	Strobe Light Assembly Kit	1
522	96-0394	PRO Top Cover Assembly	1



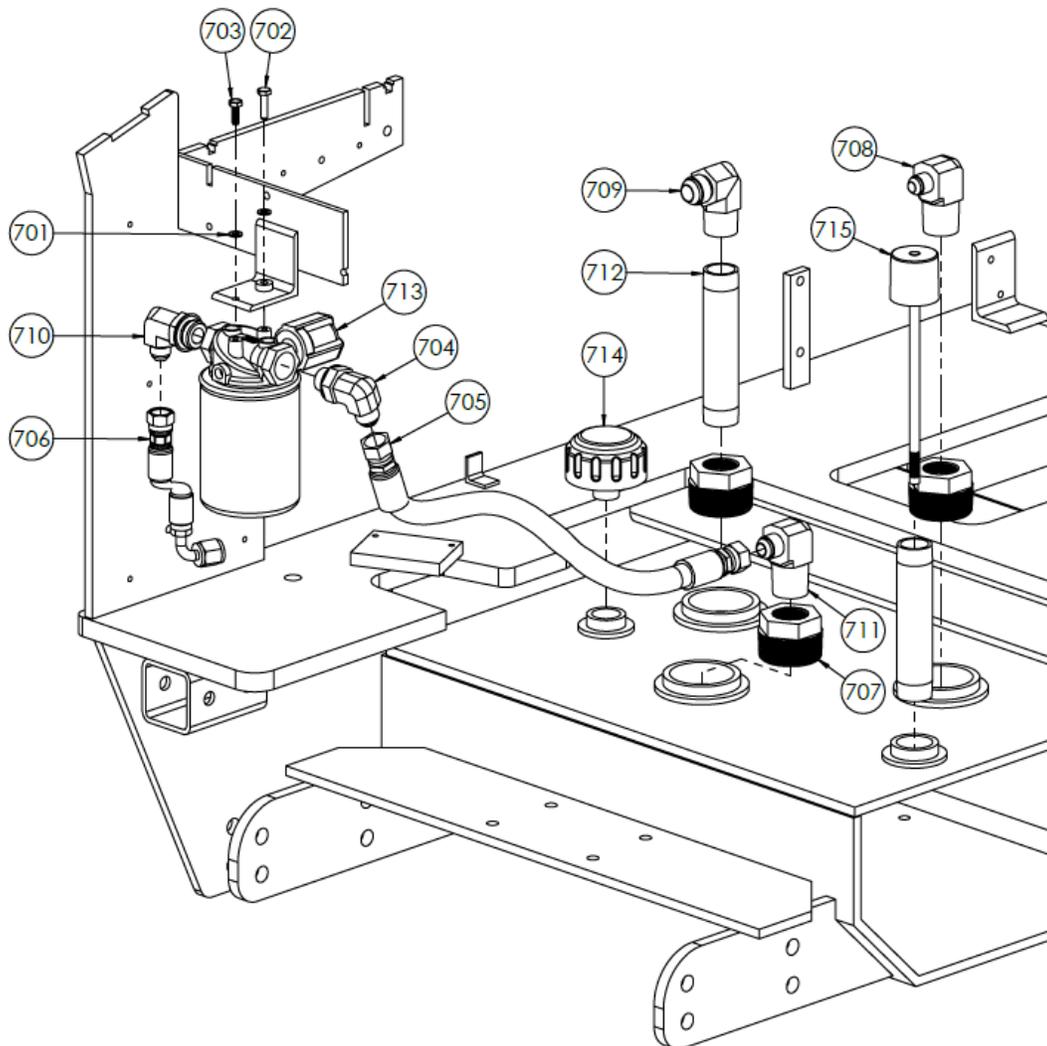
Cylinder & Valve Breakdown

Item No.	Part Number	Description	Qty.
601	11-0024	Nyloc Nut, 1/4"-20	4
602	11-0033	USS Flat Washer, 1/4"	4
603	11-0052	Hitch Pin	4
604	11-0279-48	Hex Head Cap Screw, 1/4"-20 x 3"	4
605	31-0043	Hydraulic Fitting, 90 deg 4 JIC – 8 SAE	2
606	31-0088	Hose Assembly, PRO, Valve to Cylinder 1	1
607	31-0094	Hydraulic Fitting, 90 deg 8 JIC – 8 SAE	2
608	31-0163	Hydraulic Fitting, Flow Reducer 4 JIC – 8 SAE	2
609	31-0188	Hydraulic Fitting, 1/4" NPTF Plug	1
610	31-0231	Hose Assembly, PRO, Valve to Cylinder 2	1
611	32-0023	3-Position Solenoid Valve	1
612	34-0008	Front Hydraulic Ram	1



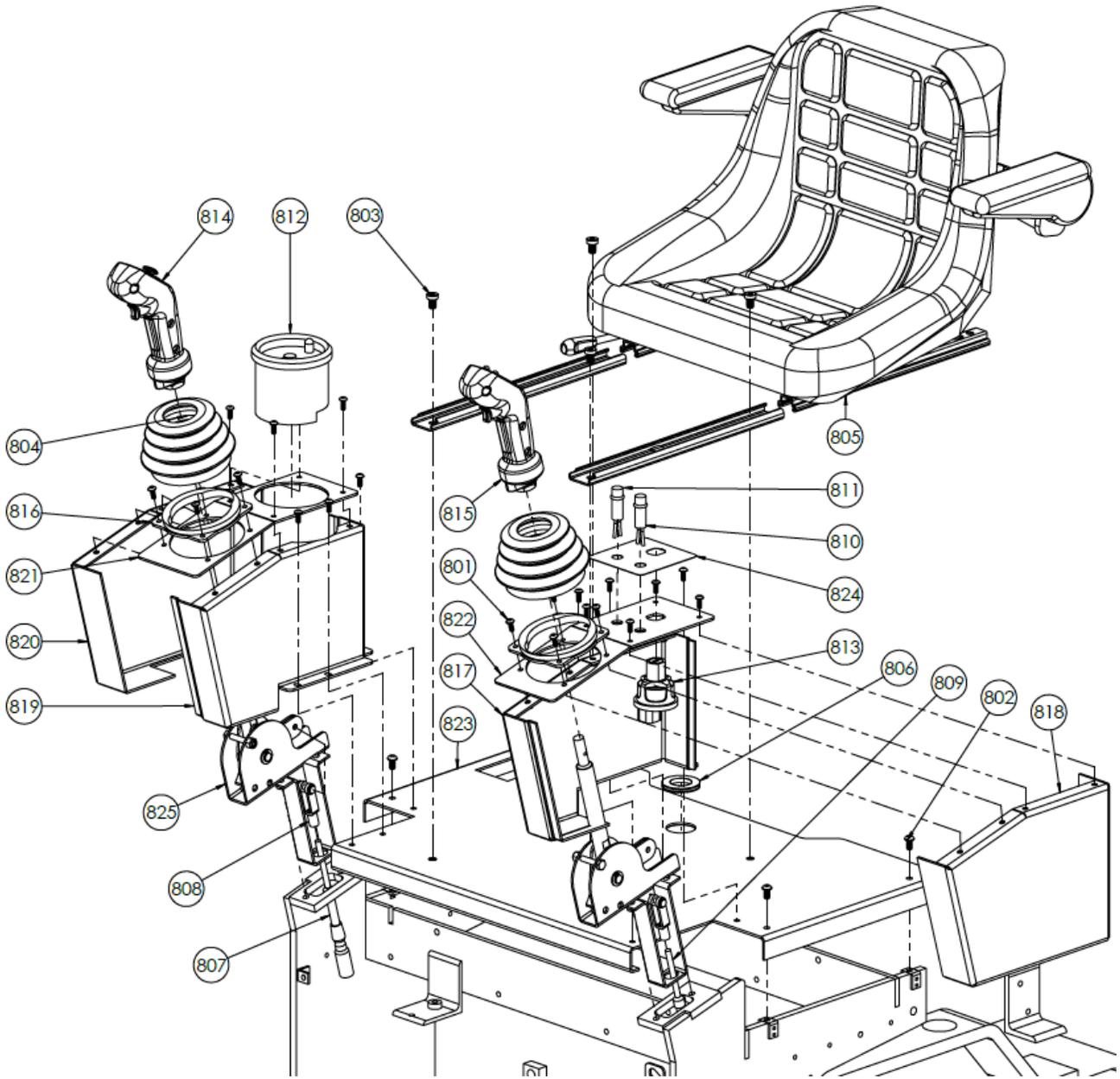
Filter & Fittings Breakdown

Item No.	Part Number	Description	Qty.
701	11-0069	Lock Washer, 1/4"	2
702	11-0121	Hex Head Cap Screw, 1/4"-20 x 1"	1
703	11-0133	Hex Head Cap Screw, 1/4"-20 x 3/4"	1
704	31-0052	Hydraulic Fitting, 90 deg 10 JIC – 12 SAE	1
705	31-0084	Hose Assembly, PRO, Return to Rank 2	1
706	31-0090	Hose Assembly, PRO, Valve to Filter	1
707	31-0124	Threaded Tank Fitting, 2" Male NPT	3
708	31-0127	Hydraulic Fitting, 90 deg 8 JIC – 1" NPTF Male	1
709	31-0128	Hydraulic Fitting, 90 deg 12 JIC – 1" NPTF Male	1
710	31-0162	Hydraulic Fitting, 90 deg 8 JIC – 12 SAE	1
711	31-0191	Hydraulic Fitting, 90 deg 10 JIC – 1" NPT Male	1
712	35-0004	Pipe Nipple, 1" NPT x 6" L	2
713	35-0037	Hydraulic Oil Filter Replacement	1
714	35-0052	Hydraulic Breather Cap	1
715	53-0159	PRO/XME Dip Stick	1



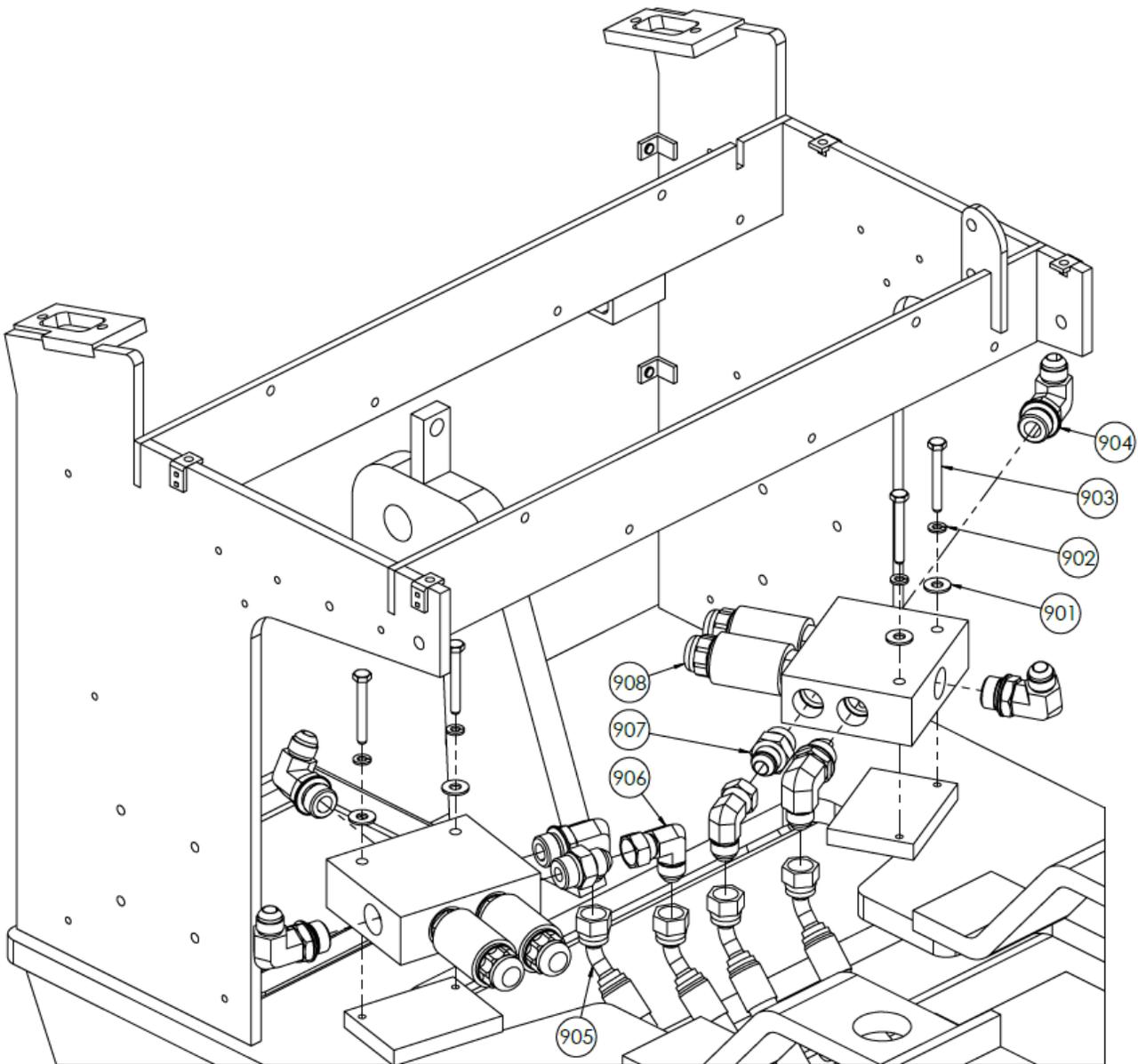
Seat & Joysticks Breakdown

Item No.	Part Number	Description	Qty.
801	11-0134	Button Head Socket Screw, #10-24 x 1/2"	22
802	11-0176	Button Head Socket Screw, 1/4"-20 x 1/2"	4
803	12-0023-12	Low Head Socket Screw, M8-1.25 x 12mm	4
804	13-0194	PRO Joystick Boot	2
805	13-0257	GT50 Seat w/ microswitch	1
806	13-0269	Push-in Grommet for 1 3/8" hole	1
807	13-0277	Push-Pull Cable, 28"	1
808	13-0279	Yoke End, 1/2" Thread	2
809	13-0281	Push-Pull Cable, 29.5"	1
810	21-0007	Red Indicator Light	1
811	21-0008	Amber Indicator Light	1
812	21-0019	VDO RPM Gauge/Information Display	1
813	22-0058	4-Position Ignition Switch	1
814	24-0077	PRO Right Joystick w/ Harness	1
815	24-0078	PRO Left Joystick w/ Harness	1
816	51-0936	Modified Boot Adapter	2
817	53-0127	Joystick Cover, Left Inside	1
818	53-0128	Joystick Cover, Left Outside	1
819	53-0129	Joystick Cover, Right Inside	1
820	53-0130	Joystick Cover, Right Outside	1
821	53-0131	Joystick Cover, Right Top	1
822	53-0132	Joystick Cover, Left Top	1
823	53-0137	PRO Top Console Panel	1
824	61-0062	PRO Decal, Instrument Panel	1
825	96-0140	PRO Joystick Base	2



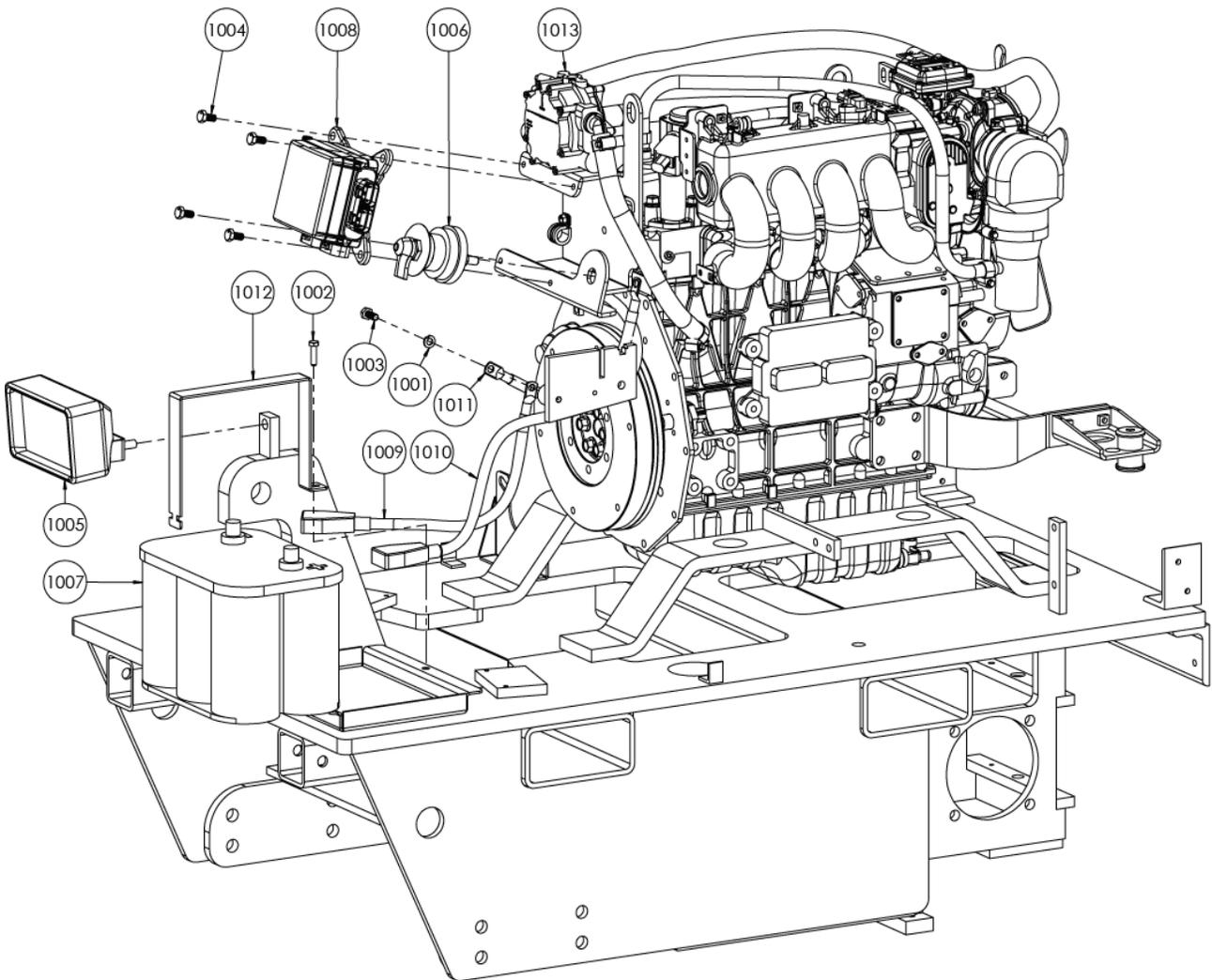
Lockoff Valves Breakdown

Item No.	Part Number	Description	Qty.
901	11-0033	USS Flat Washer, 1/4"	4
902	11-0069	Lock Washer, 1/4"	4
903	11-0121	Hex Head Cap Screw, 1/4"-20 x 1"	4
904	31-0053	Hydraulic Fitting, 90 deg 8 JIC – 10 SAE	6
905	31-0092	Hose Assembly, PRO, Wheel (Universal)	4
906	31-0186	Hydraulic Fitting, 90 deg 8 JIC – 8 JIC	2
907	31-0187	Hydraulic Fitting, Straight 8 JIC – 10 SAE	2
908	32-0024	2-Position Solenoid Valve	2



Engine & Electrical Breakdown

Item No.	Part Number	Description	Qty.
1001	11-0040	Lock Washer, 5/16"	1
1002	11-0059	Hex Head Cap Screw, 1/4"-20 x 1"	1
1003	11-0118	Hex Head Cap Screw, 5/16"-18 x 3/4"	1
1004	12-0032-16	Hex Head Cap Screw, M8-1.25 x 16mm	4
1005	22-0004	Headlight	1
1006	22-0059	Battery Disconnect Switch	1
1007	23-0011	Battery	1
1008	23-0138	PRO Electrical Center	1
1009	24-0070	Wire Assembly, PRO, Negative Battery Cable	1
1010	24-0170	Wire Assembly, PRO, Battery to Disconnect Cable	1
1011	24-0176	Wire Assembly, PRO, Negative Battery Jumper	1
1012	53-0214	PRO Battery Hold-Down Strap	1
1013	96-0274	Engine Assembly	1



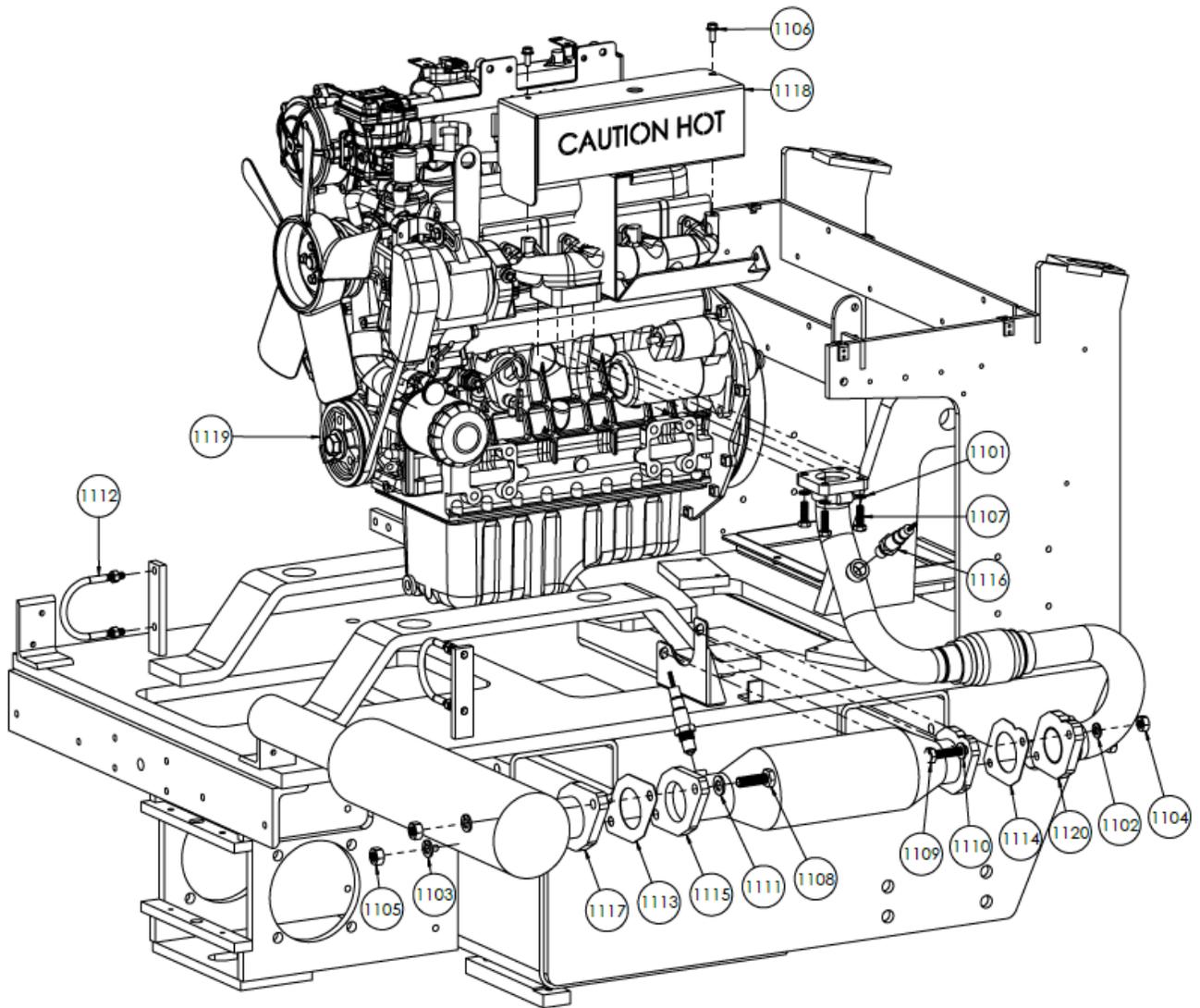
Engine & Muffler Breakdown

Item No.	Part Number	Description	Qty.
1101	12-0018-08	Lock Washer, M8	4
1102	12-0018-10	Lock Washer, M10	2
1103	12-0018-12	Lock Washer, M12	2
1104	12-0027-10	Hex Nut, M10-1.5	2
1105	12-0027-12	Hex Nut, M12-1.75	2
1106	12-0031-16	Flange Head Cap Screw, M6-1.0 x 16mm, Black	2
1107~	12-0032-25	Hex Head Cap Screw, M8-1.25 x 25mm	4
1108^	12-0033-40	Hex Head Cap Screw, M12-1.75 x 40mm	2
1109^	12-0034-40	Hex Head Cap Screw, M10-1.5 x 40mm	2
1110	12-0035-10	Flat Washer, M10	2
1111	12-0035-12	Flat Washer, M12	2
1112	13-0340	U-Bolt, 5/16"-18 x 1", 2.5" OD	2
1113	43-0188	Exhaust Gasket, 110mm Spacing	1
1114	43-0189	Exhaust Gasket, 92mm Spacing	1
1115	43-0191	Catalytic Converter	1
1116*	43-0192	Heated O ₂ Sensor	2
1117	53-0312	Muffler Assembly	1
1118	53-0414	Exhaust Hear Shield	1
1119	96-0274	Engine Assembly	1
1120	96-0352	Exhaust Pipe Assembly	1

~ Tightening Torque: 21.7 – 25.2 ft·lb (29.4 – 34.3 Nm)

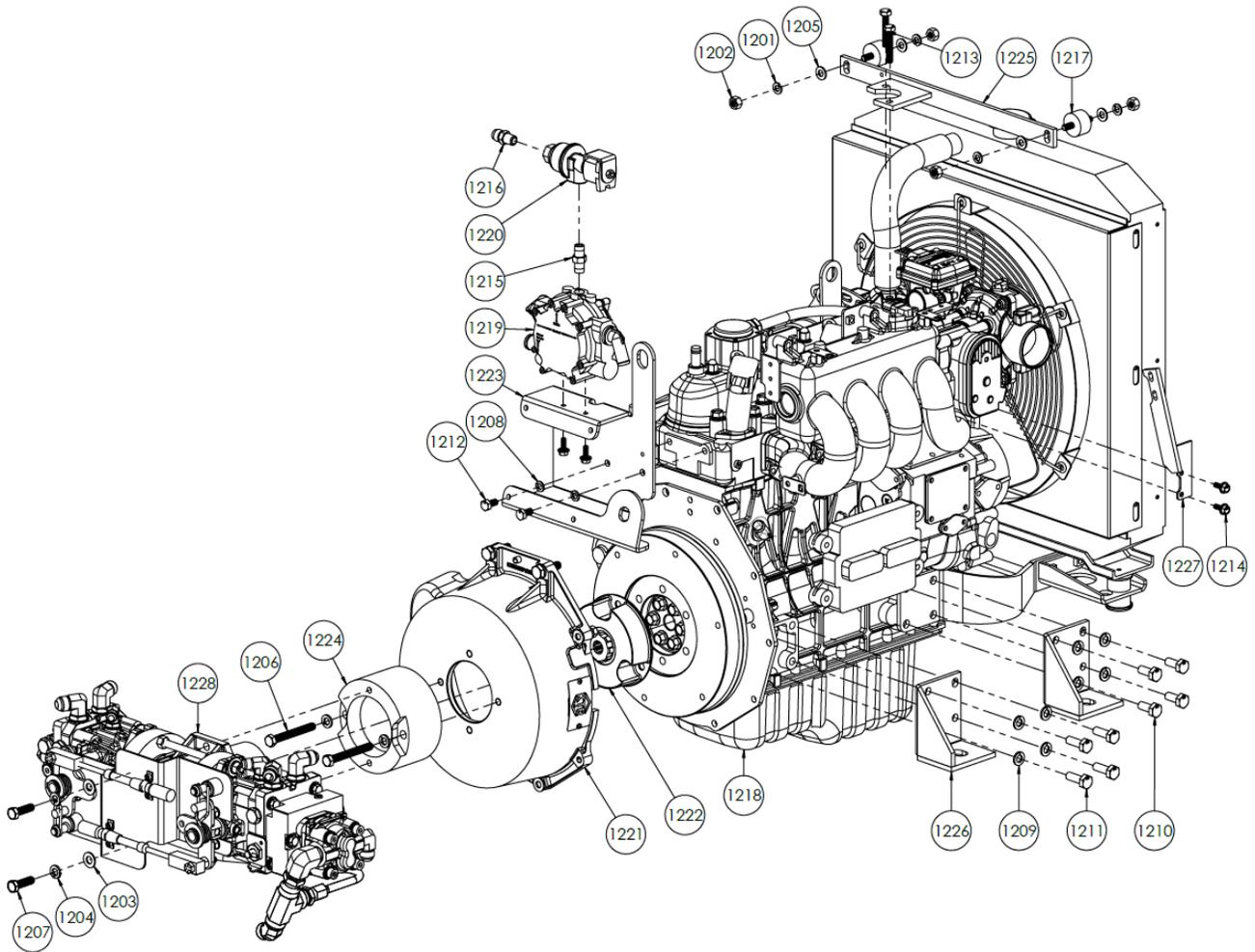
^ Tightening Torque: 35.5 – 41.2 ft·lb (48.1 – 55.9 Nm)

* Tightening Torque: 29.6 – 44.3 ft·lb (40.0 – 60.0 Nm)



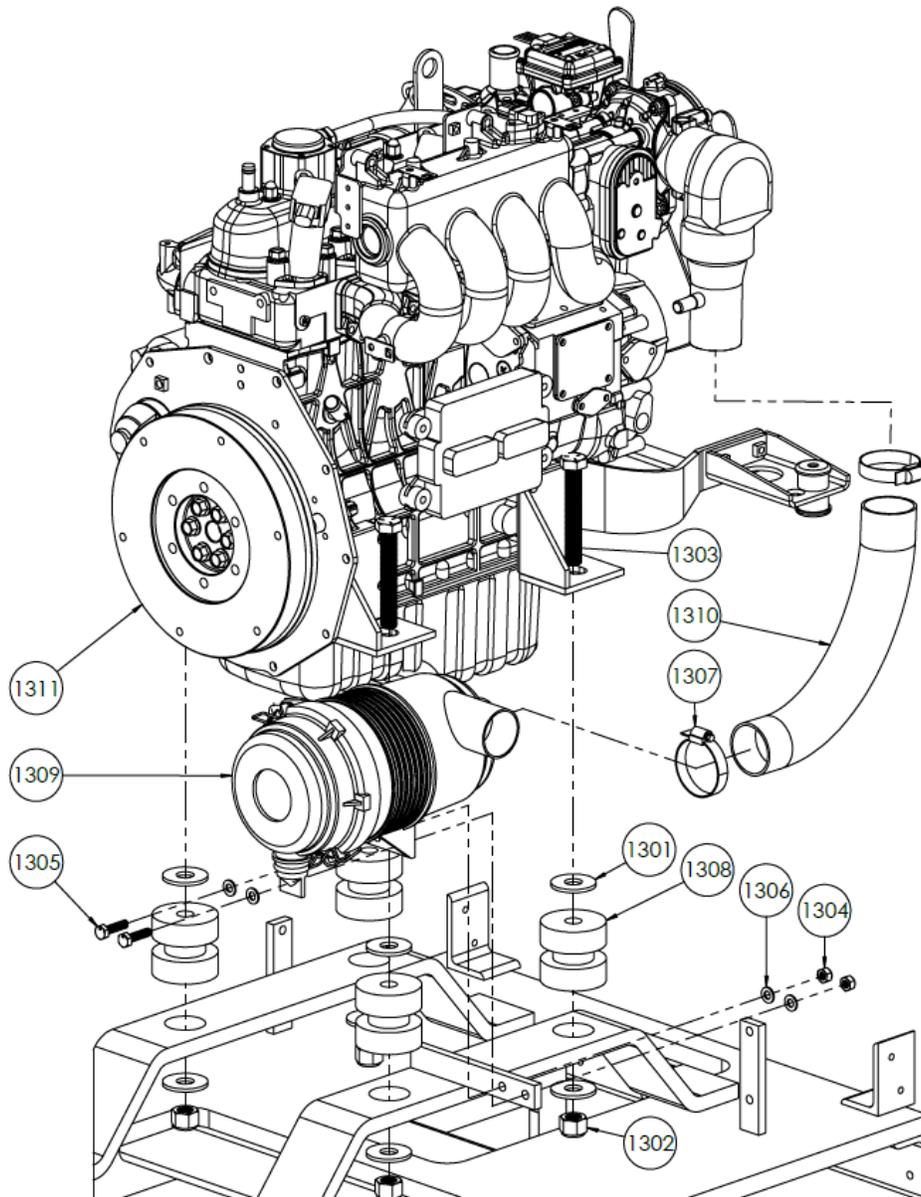
Engine & Pump Breakdown

Item No.	Part Number	Description	Qty.
1201	11-0040	Lock Washer, 5/16"	4
1202	11-0067	Hex Nut, 5/16"-18	4
1203	11-0126	SAE Flat Washer, 3/8"	2
1204	11-0129	Lock Washer, 3/8"	4
1205	11-0139	SAE Flat Washer, 5/16"	4
1206	11-0256	Hex Head Cap Screw, 3/8"-16 x 3"	2
1207	11-0290	Hex Head Cap Screw, 3/8"-16 x 1 1/4"	2
1208	12-0018-08	Lock Washer, M8	2
1209	12-0018-10	Lock Washer, M10	16
1210	12-0028-25	Hex Head Cap Screw, M10-1.25 x 25mm	8
1211	12-0028-30	Hex Head Cap Screw, M10-1.25 x 30mm	8
1212	12-0032-16	Hex Head Cap Screw, M8-1.25 x 16mm	2
1213	12-0032-45	Hex Head Cap Screw, M8-1.25 x 45mm	2
1214	12-0043-16	Serrated Flange Cap Screw, M6-1.0 x 16mm	4
1215	31-0157	Brass Fitting, 1/4" NPTF	1
1216	41-0014	Brass Fitting, 1/4" NPT – 6 SAE	1
1217	43-0171	Radiator Vibration Mount	2
1218	43-0181	Kubota Engine, 1.6L	1
1219	43-0182	Propane Regulator Assembly	1
1220	43-0183	Propane Fuel Lockoff	1
1221	43-0184	Bell Housing Kit	1
1222	43-0185	Flywheel Adapter	1
1223	51-0849	Regulator Mount Bracket	1
1224	53-0216	T-Drive Mounting Adapter	1
1225	53-0299	Radiator Bracket	1
1226	53-0301	Engine Mount Bracket	4
1227	53-0334	DEPR Support Bracket	1
1228	96-0177	Pump & Gearbox Assembly	1



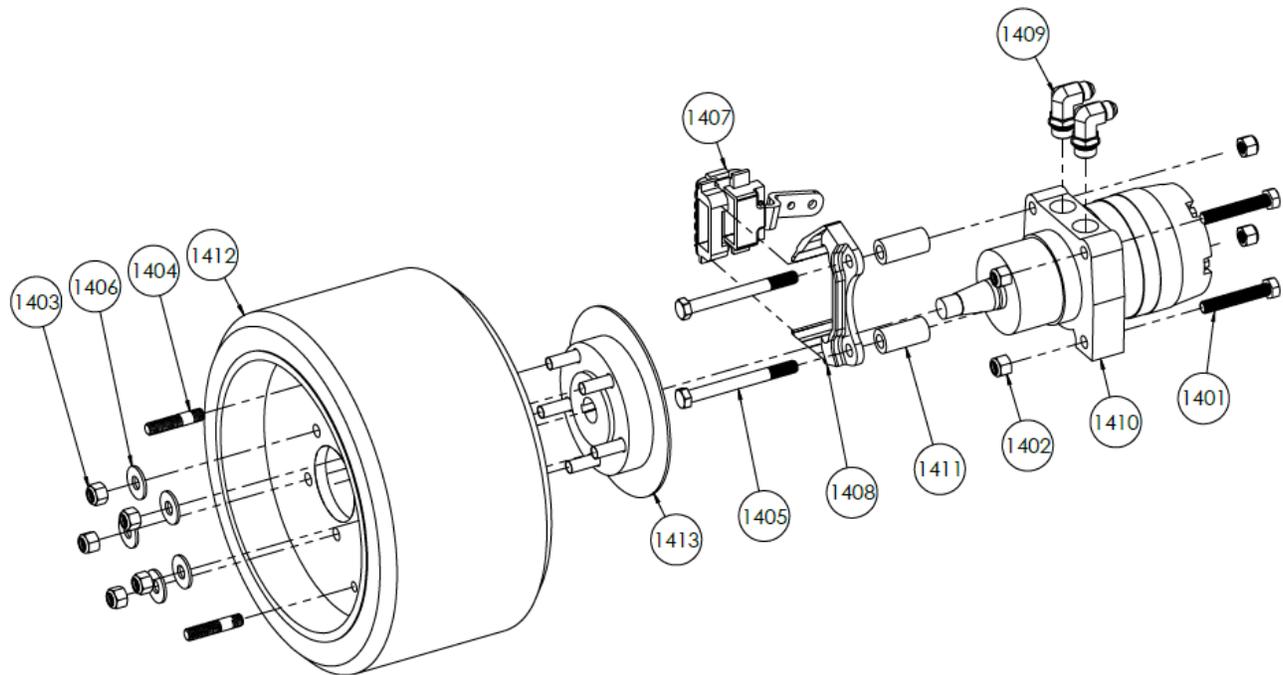
Engine & Air Cleaner Breakdown

Item No.	Part Number	Description	Qty.
1301	11-0148	USS Flat Washer, 5/8"	8
1302	11-0331	Nyloc Nut, 5/8"-18	4
1303	11-0332-64	Hex Head Cap Screw, 5/8"-18 x 4"	4
1304	12-0021-08	Nyloc Nut, M8-1.25	2
1305	12-0032-30	Hex Head Cap Screw, M8-1.25 x 30mm	2
1306	12-0035-08	Flat Washer, M8	4
1307	13-0274	Hose Clamp, SAE 36	2
1308	13-0339	Vibration Damping Mount	4
1309	43-0186	Air Cleaner Assembly	1
1310	44-0027	Air Hose, 12.5" L	1
1311	96-0274	Engine Assembly	1



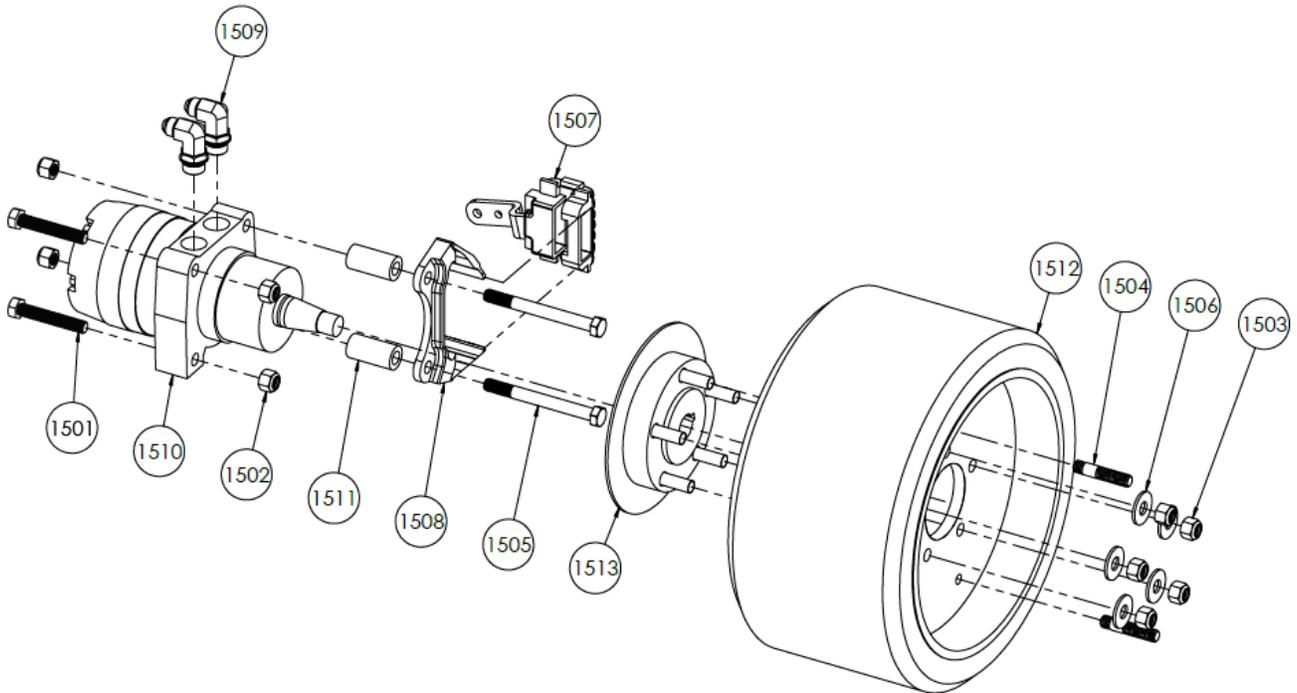
96-0396 – PRO Right Wheel Assembly

Item No.	Part Number	Description	Qty.
1401	11-0013	Hex Head Cap Screw, 1/2"-13 x 3"	2
1402	11-0028	Nyloc Nut, 1/2"-13	4
1403	11-0029	Nyloc Nut, 1/2"-20	5
1404	11-0187	Double Ended Stud, 1/2"-13 x 2 1/2"	2
1405	11-0228	Hex Head Cap Screw, 1/2"-13 x 5"	2
1406	11-0230	USS Flat Washer, 1/2"	5
1407	13-0021	Right Brake Caliper	1
1408	13-0022	Brake Mounting Bracket	1
1409	31-0053	Hydraulic Fitting, 90 deg 8 JIC – 10 SAE	2
1410	33-0003	Right Wheel Motor	1
1411	51-0491	Brake Spacer Standoff	2
1412	53-0208	Wheel and Tire Assembly	1
1413	70-0016	Wheel Hub with Brake Disc	1



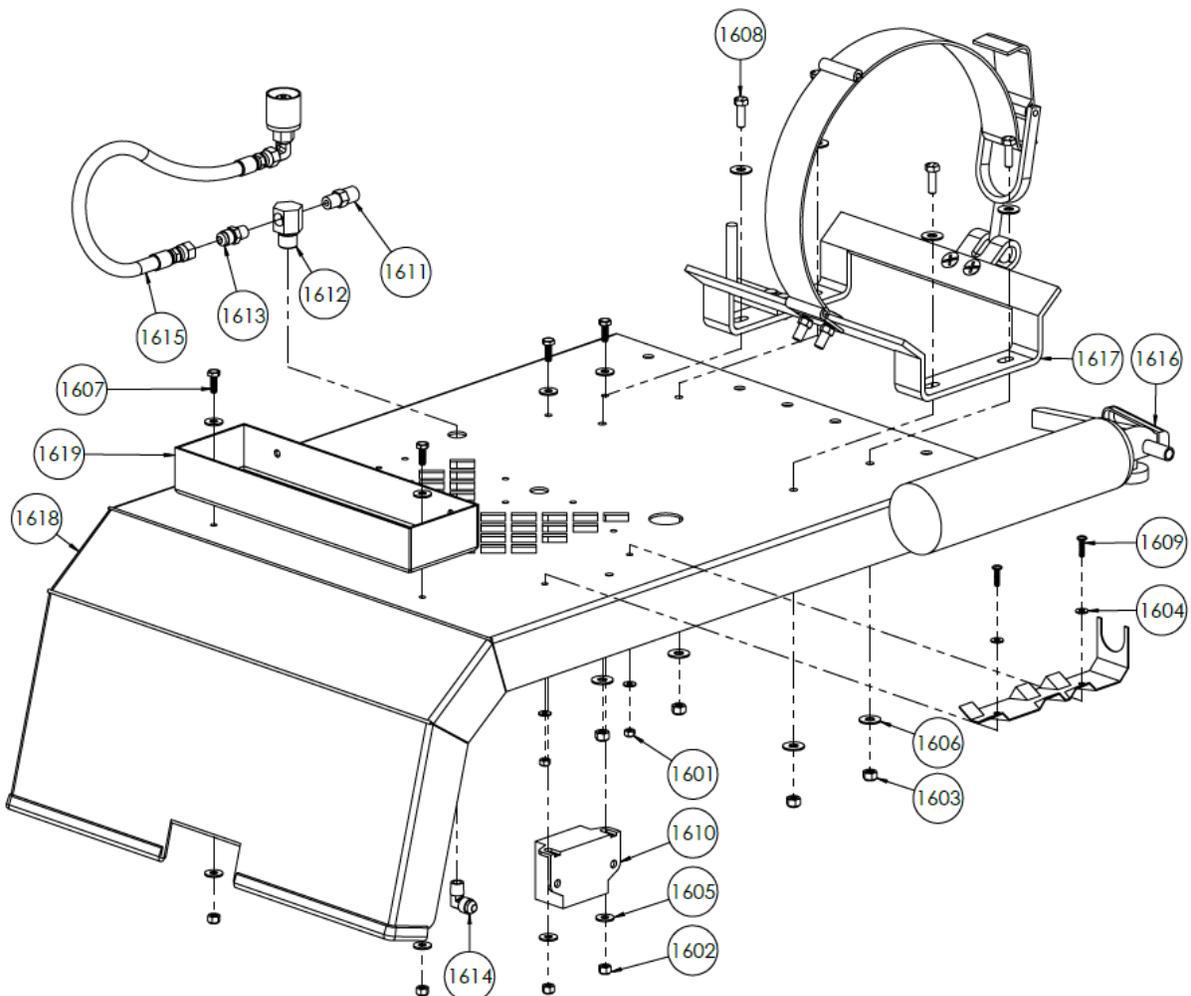
96-0395 – PRO Left Wheel Assembly

Item No.	Part Number	Description	Qty.
1501	11-0013	Hex Head Cap Screw, 1/2"-13 x 3"	2
1502	11-0028	Nyloc Nut, 1/2"-13	4
1503	11-0029	Nyloc Nut, 1/2"-20	5
1504	11-0187	Double Ended Stud, 1/2"-13 x 2 1/2"	2
1505	11-0228	Hex Head Cap Screw, 1/2"-13 x 5"	2
1506	11-0230	USS Flat Washer, 1/2"	5
1507	13-0020	Left Brake Caliper	1
1508	13-0022	Brake Mounting Bracket	1
1509	31-0053	Hydraulic Fitting, 90 deg 8 JIC – 10 SAE	2
1510	33-0002	Left Wheel Motor	1
1511	51-0491	Brake Spacer Standoff	2
1512	53-0208	Wheel and Tire Assembly	1
1513	70-0016	Wheel Hub with Brake Disc	1



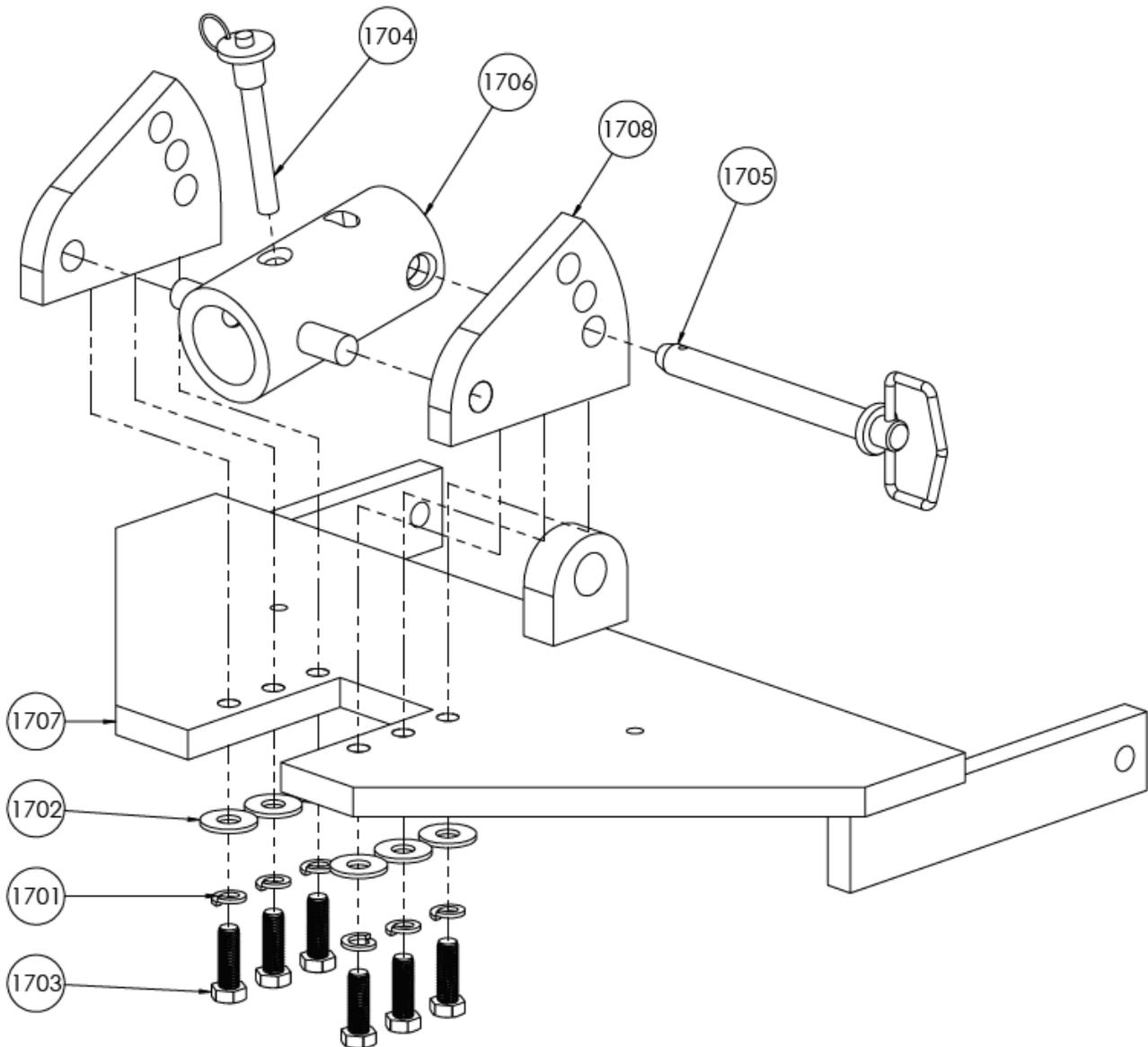
96-0394 – PRO Top Cover Assembly

Item No.	Part Number	Description	Qty.
1601	11-0023	Nyloc Nut, #10-24	2
1602	11-0024	Nyloc Nut, 1/4"-20	4
1603	11-0025	Nyloc Nut, 5/16"-18	4
1604	11-0030	SAE Flat Washer, #10	4
1605	11-0033	USS Flat Washer, 1/4"	8
1606	11-0034	USS Flat Washer, 5/16"	8
1607	11-0133	Hex Head Cap Screw, 1/4"-20 x 3/4"	4
1608	11-0192	Hex Head Cap Screw, 5/16"-18 x 1"	4
1609	11-0250-12	Pan Head Philips Screw, #10-24 x 3/4"	2
1610	22-0073	Backup Alarm, 87 dB	1
1611	41-0005	Pressure Relief Valve	1
1612	41-0006	Bulkhead Fitting	1
1613	41-0014	Brass Fitting, 1/4" NPT – 6 SAE	1
1614	41-0016	Brass Fitting, 90 deg 1/4" NPT – 6 SAE	1
1615	41-0026	Fuel Hose, Tank to Bulkhead	1
1616	42-0001	Fire Extinguisher	1
1617	44-0047	Propane Tank Bracket	1
1618	53-0099	PRO Top Cover	1
1619	53-0177	Tool Tray	1



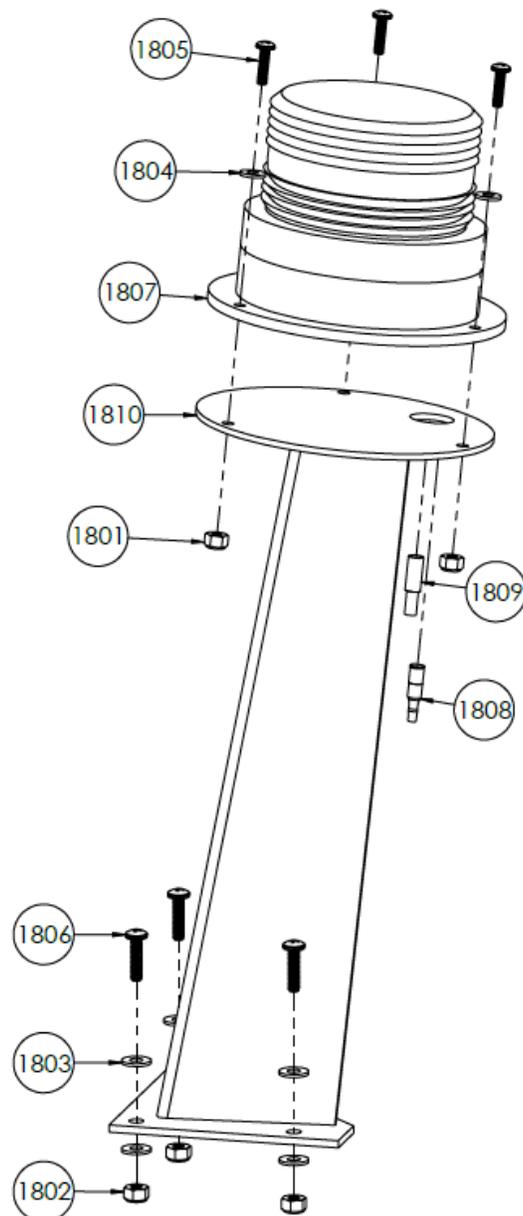
96-0386 – Pivoting Jaw Assembly

Item No.	Part Number	Description	Qty.
1701	11-0041	Lock Washer, 1/2"	6
1702	11-0230	USS Flat Washer, 1/2"	6
1703	11-0296	Hex Head Cap Screw, 1/2"-13 x 1 1/2"	6
1704	13-0035	Pin, 1/2" x 3" L	1
1705	13-0386	Pivoting Jaw Position Pin	1
1706	53-0407	Uni-Frame Receiving Tube	1
1707	53-0411	Uni-Frame Pivoting Jaw Weld Assembly	1
1708	53-0428	Uni-Frame Jaw Pivot Plate	2



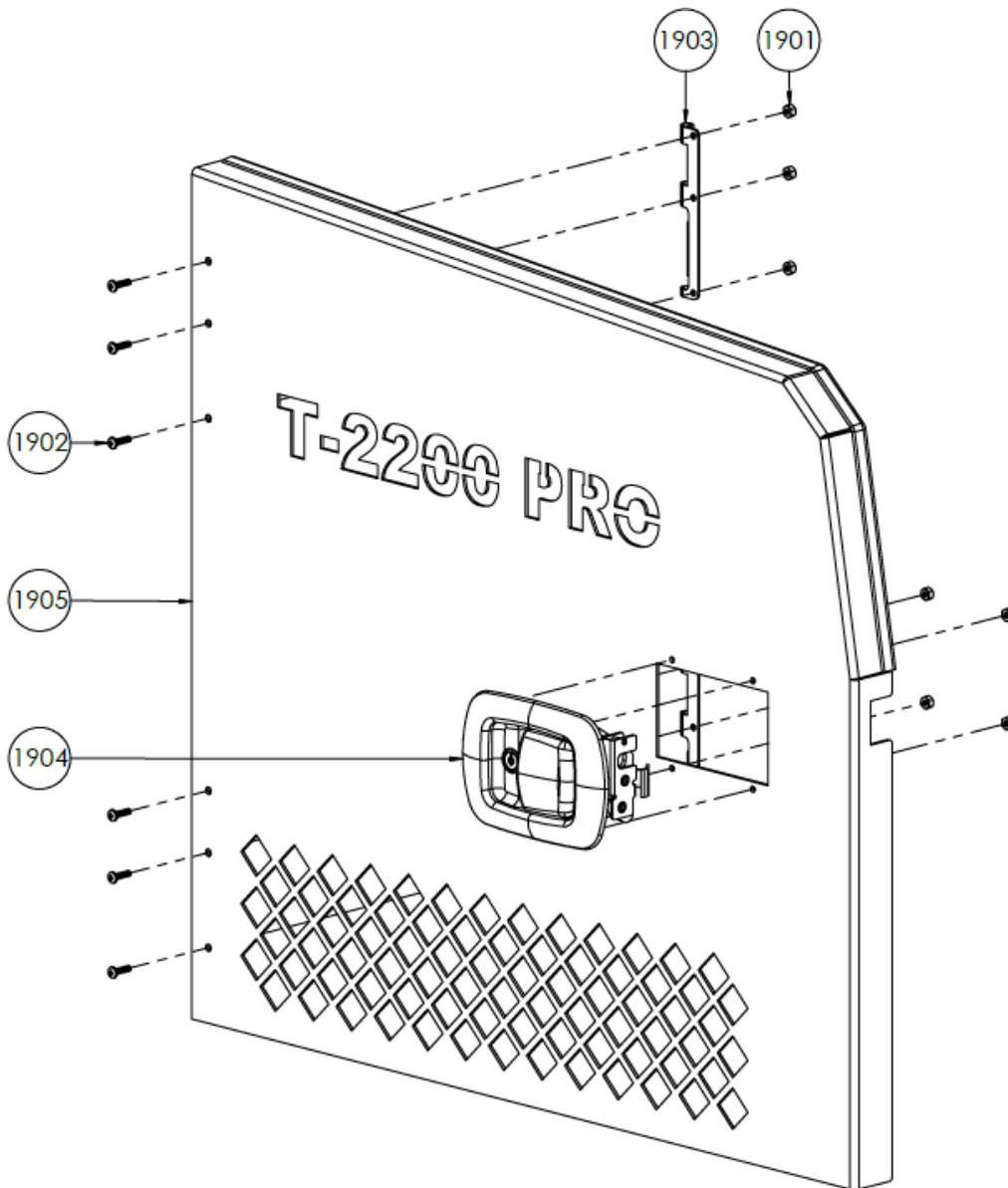
96-0329 – Strobe Light Assembly Kit

Item No.	Part Number	Description	Qty.
1801	11-0022	Nyloc Nut, #8-32	3
1802	11-0023	Nyloc Nut, #10-24	3
1803	11-0030	SAE Flat Washer, #10	6
1804	11-0031	SAE Flat Washer, #8	3
1805	11-0102	Pan Head Philips Screw, #8-32 x 5/8"	3
1806	11-0250-12	Pan Head Philips Screw, #10-24 x 3/4"	3
1807	22-0006	Strobe Light	1
1808	25-0135	Bullet Connector, Male, 22-18ga	1
1809	25-0136	Bullet Connector, Female, 22-18ga	1
1810	53-0077	Strobe Light Bracket	1



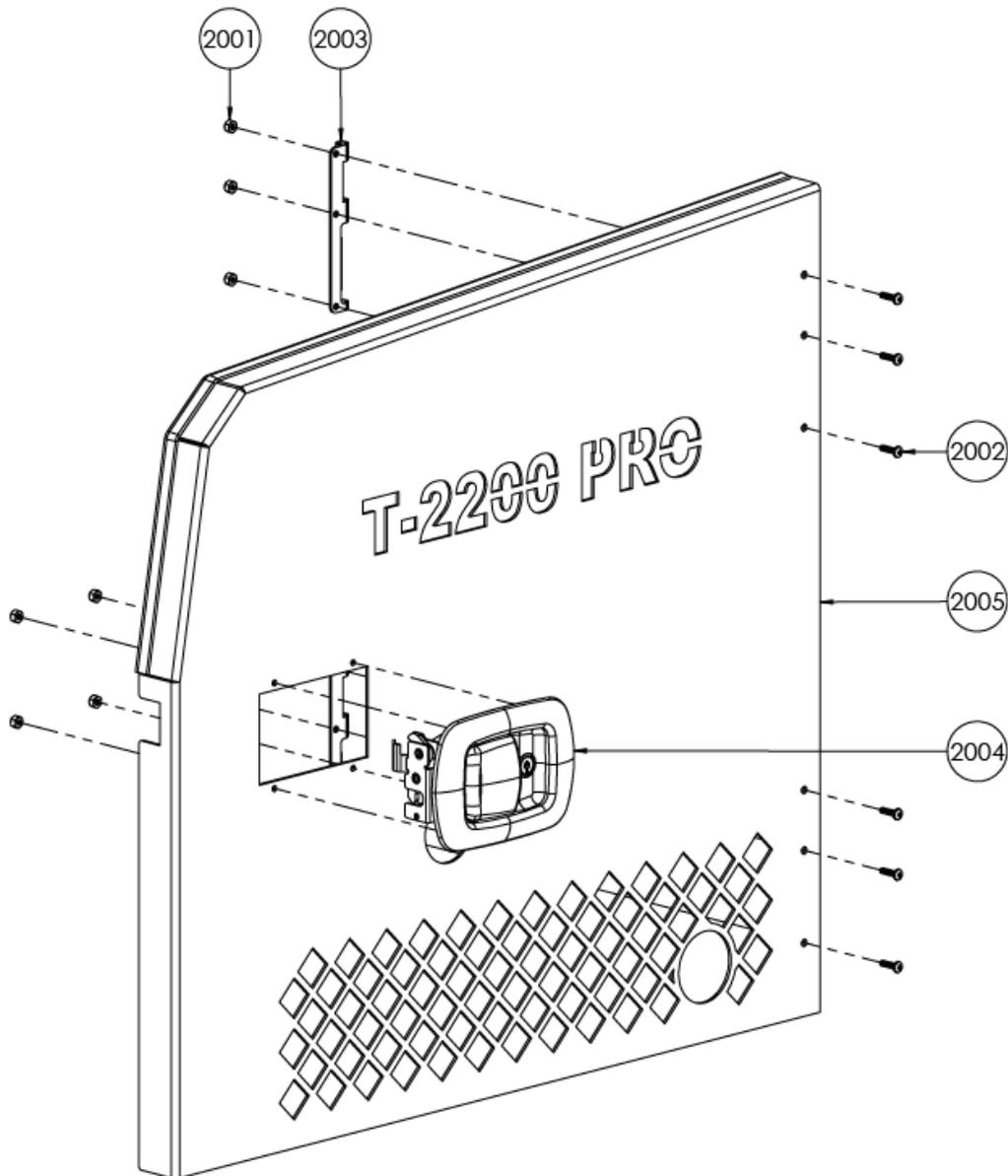
96-0291 – PRO Right Door Assembly

Item No.	Part Number	Description	Qty.
1901	11-0023	Nyloc Nut, #10-24	10
1902	11-0250-12	Pan Head Philips Screw, #10-24 x 3/4"	6
1903	13-0231	Concealed Hinge, Type B	2
1904	13-0337	Door Latch	1
1905	53-0311	PRO Right Door Panel	1



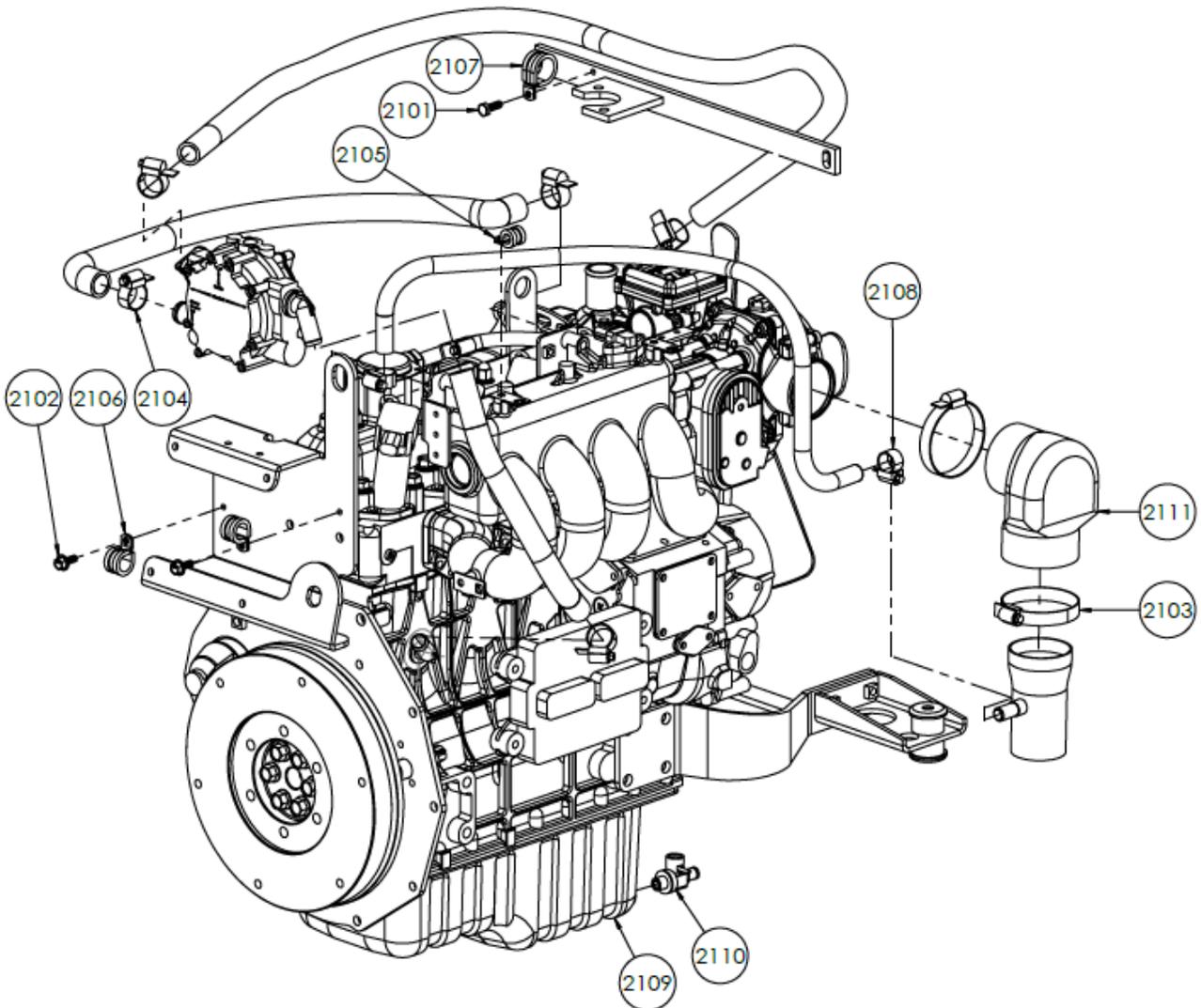
96-0290 – PRO Left Door Assembly

Item No.	Part Number	Description	Qty.
2001	11-0023	Nyloc Nut, #10-24	10
2002	11-0250-12	Pan Head Philips Screw, #10-24 x 3/4"	6
2003	13-0230	Concealed Hinge, Type A	2
2004	13-0337	Door Latch	1
2005	53-0310	PRO Left Door Panel	1



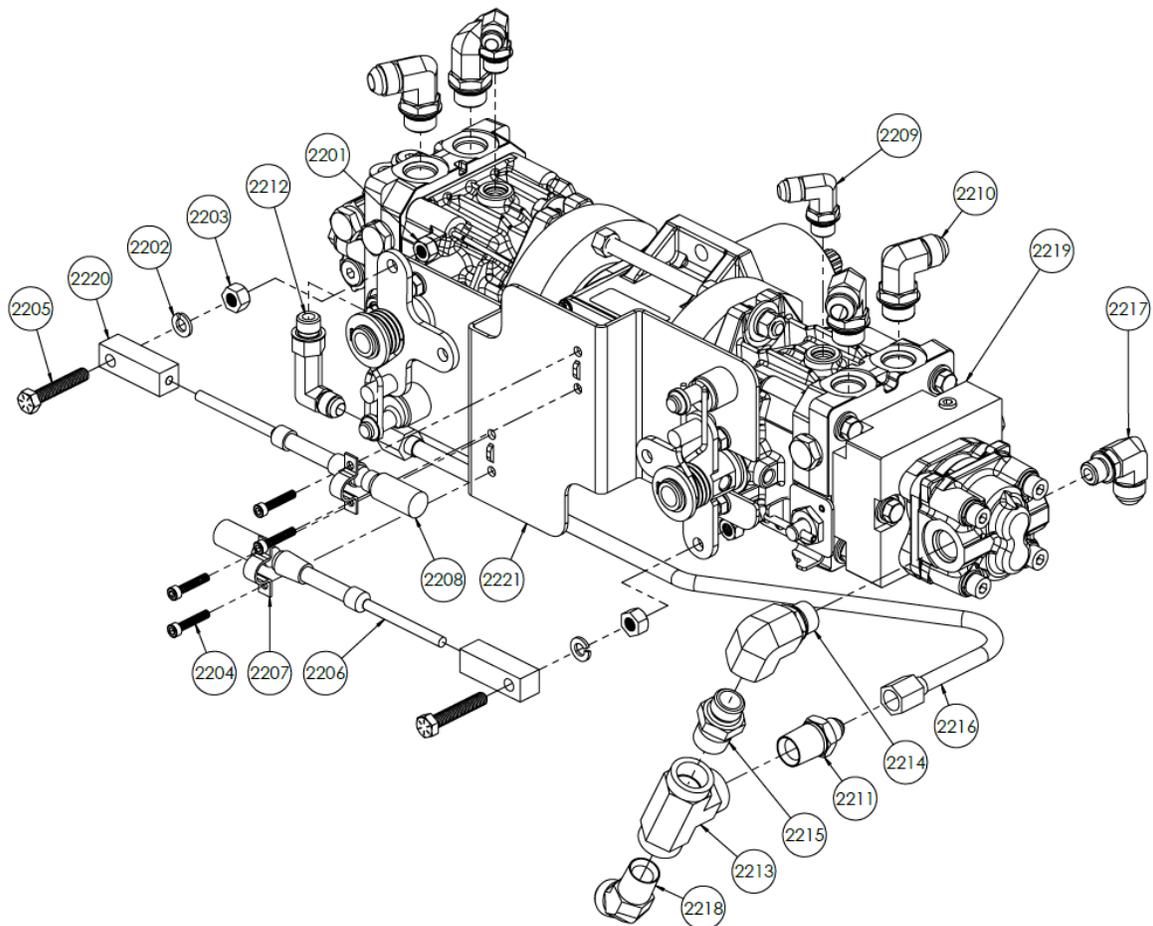
96-0274 – Engine Assembly

Item No.	Part Number	Description	Qty.
2101	11-0133	Hex Head Cap Screw, 1/4"-20 x 3/4"	1
2102	12-0043-16	Serrated Flange Cap Screw, M6-1.0 x 16mm	2
2103	13-0274	Hose Clamp, SAE 36	2
2104	13-0275	Hose Clamp, SAE 12	6
2105	13-0285-03	Loop Clamp, 3/8"	1
2106	13-0285-05	Loop Clamp, 5/8"	2
2107	13-0285-07	Loop Clamp, 7/8"	1
2108	41-0036	Hose Clamp, SAE 6	2
2109	43-0181	Kubota Engine, 1.6L	1
2110	43-0195	Drain Pan Valve	1
2111	44-0050	Intake Adapter	1



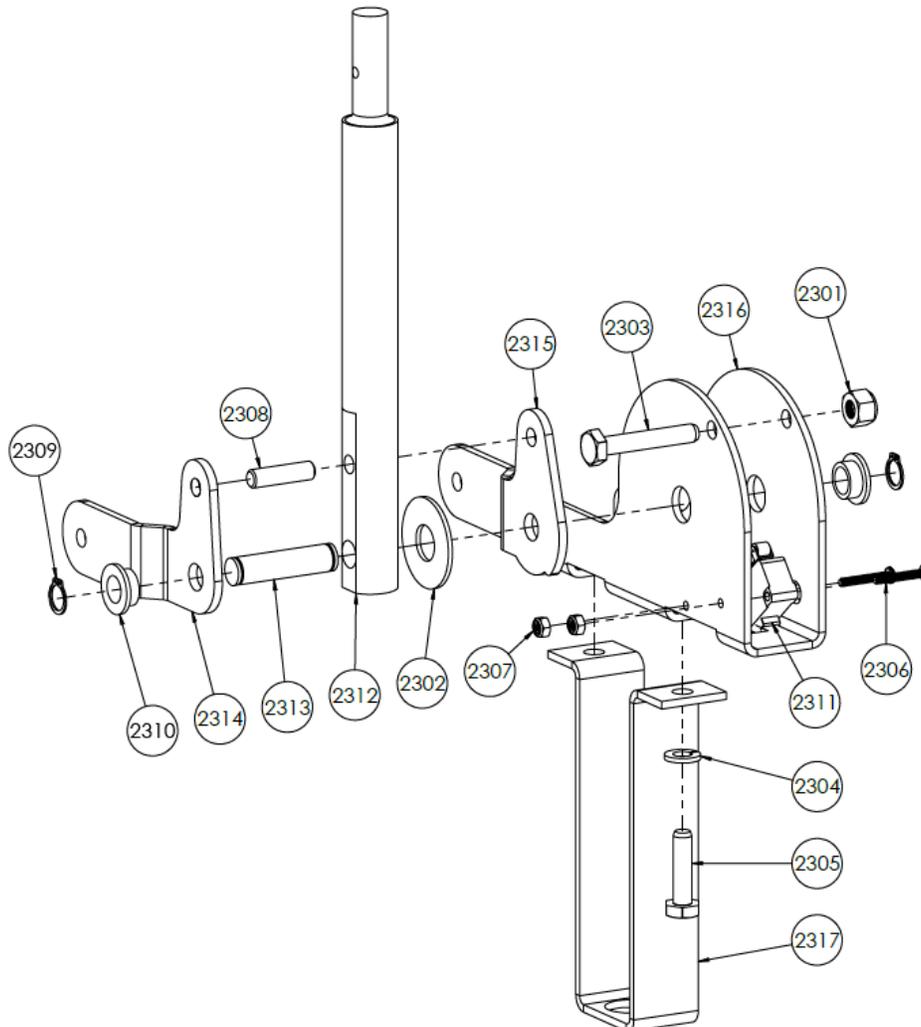
96-0177 – Pump & Gearbox Assembly

Item No.	Part Number	Description	Qty.
2201	11-0025	Nyloc Nut, 5/16"-18	2
2202	11-0040	Lock Washer, 5/16"	2
2203	11-0067	Hex Nut, 5/16"-18	2
2204	11-0297	Socket Head Cap Screw, #10-24 x 1"	4
2205	11-0321	Hex Head Cap Screw, 5/16"-18 x 1 3/4"	2
2206	13-0277	Push-Pull Cable, 28"	1
2207	13-0278	Conduit Clamp	2
2208	13-0281	Push-Pull Cable, 29.5"	1
2209	31-0056	Hydraulic Fitting, 90 deg 6 JIC – 6 SAE	2
2210	31-0094	Hydraulic Fitting, 90 deg 8 JIC – 8 SAE	4
2211	31-0101	Hydraulic Fitting, Straight 6 JIC – 1/2" NPTF Male	1
2212	31-0102	Hydraulic Fitting, Long 90 deg 6 JIC – 6 SAE	1
2213	31-0165	Hydraulic Fitting, Straight 8 SAE – 1/2" NPT Male	1
2214	31-0192	Hydraulic Fitting, 90 deg 8 SAE – 8 SAE	1
2215	31-0193	Hydraulic Fitting, Straight 8 SAE – 1/2" NPT Male	1
2216	31-0194	PRO Suction Tube Assembly	1
2217	31-0195	Hydraulic Fitting, 90 deg 8 JIC – 6 SAE	1
2218	31-0236	Hydraulic Fitting, 45 deg 10 JIC – 1/2" NPTF Male	1
2219	33-0018	Hydraulic Pump with Gear Pump & T-Gearbox	1
2220	51-0833	Joystick Cable End	2
2221	53-0100	Push-Pull Cable Mount	1



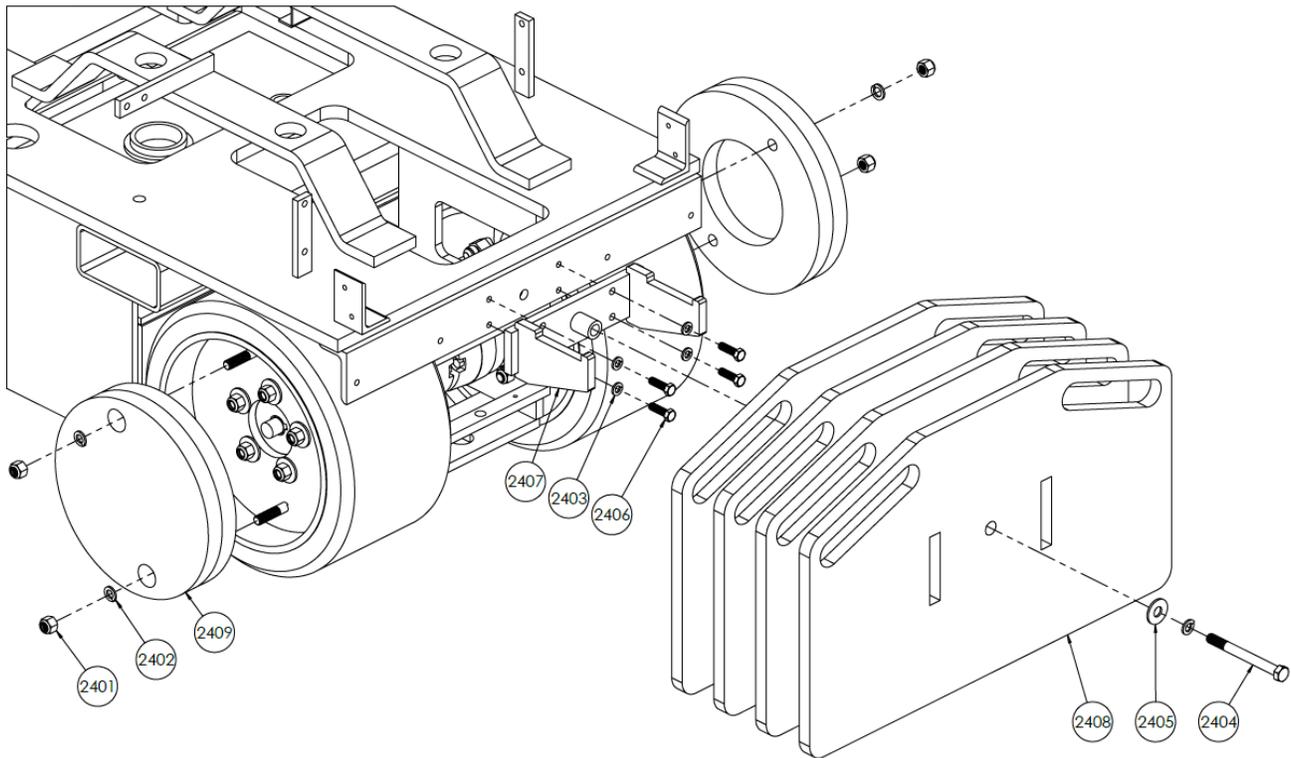
96-0140 – PRO Joystick Base

Item No.	Part Number	Description	Qty.
2301	11-0024	Nyloc Nut, 1/4"-20	1
2302	11-0036	USS Flat Washer, 7/16"	1
2303	11-0055	Hex Head Cap Screw, 1/4"-20 x 1 1/2"	1
2304	11-0069	Lock Washer, 1/4"	2
2305	11-0121	Hex Head Cap Screw, 1/4"-20 x 1"	2
2306	11-0247-12	Pan Head Philips Screw, #4-40 x 3/4"	2
2307	11-0249	Nyloc Nut, #4-40	2
2308	13-0134	Dowel Pin	1
2309	13-0157	Retaining Ring, 3/8"	2
2310	13-0355	Sleeve Bearing	2
2311	22-0025	Momentary Switch	1
2312	53-0217	Joystick Lever	1
2313	53-0218	Joystick Shaft	1
2314	53-0219	Joystick Cable Lever, Right	1
2315	53-0220	Joystick Cable Lever, Left	1
2316	53-0260	Joystick Body	1
2317	53-0261	Joystick Cable Mount	1



Rear & Wheel Weights Breakdown

Item No.	Part Number	Description	Qty.
2401	11-0019	Hex Nut, 1/2"-13	4
2402	11-0041	Lock Washer, 1/2"	5
2403	11-0129	Lock Washer, 3/8"	4
2404	11-0228	Hex Head Cap Screw, 1/2"-13 x 5"	1
2405	11-0230	USS Flat Washer, 1/2"	1
2406	11-0290	Hex Head Cap Screw, 3/8"-16 x 1 1/4"	4
2407	53-0113	Rear Weight Holder	1
2408	53-0119	Rear Weight	4
2409	53-0212	Wheel Weight	2



24. Warranty

Innovatech warrants to the original buyer, for a period of one (1) year or 300 operating hours (whichever comes first) from the date of delivery, that the Equipment is free from defects in materials and workmanship and that the Equipment conforms to the operating specifications supplied with the Equipment. The foregoing warranty is subject to proper operation and maintenance of the Equipment in accordance with the operating instruction and manual supplied to Buyer with the Equipment.

Warranty claims shall be made by Buyer in writing. Innovatech's sole obligation under the foregoing warranty, where it appears to Innovatech's satisfaction that the defect was present at the time of delivery, is at Innovatech's sole option, to repair, replace or correct any such defect.

EXCEPT AS STATED ABOVE THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED. INNOVATECH EXPRESSLY DISCLAIMS ANY WARRANTY, EXPRESS OR IMPLIED, THAT EQUIPMENT SOLD HERE UNDER IS OF MERCHANTABLE QUALITY OR THAT IT CAN BE USED FOR OR IS FIT FOR ANY PARTICULAR PURPOSE. ANY DESCRIPTION OF THE EQUIPMENT IN THIS AGREEMENT OR IN MANUALS, BROCHURES OR LITERATURE AND ANY USE OF ANY SAMPLE, MODEL OR PROTOTYPE OF THE EQUIPMENT IS FOR THE SOLE PURPOSE OF IDENTIFYING OR ILLUSTRATING THE EQUIPMENT, IS NOT PART OF THE BASIS OF THE AGREEMENT BETWEEN INNOVATECH AND BUYER, AND DOES NOT CONSTITUTE A WARRANTY THAT THE EQUIPMENT, AS SUPPLIED, WILL CONFORM TO ANY DESCRIPTION OR TO ANY SAMPLE, MODEL OR PROTOTYPE. INNOVATECH DISCLAIMS ANY WARRANTY RESPECTING OPERATING CAPACITY OR CAPABILITY OF THE EQUIPMENT OR THE ABILITY OF THE EQUIPMENT TO MEET ANY PARTICULAR NEEDS OF THE BUYER. THE EQUIPMENT IS POWERED TO OPERATE AS STATED IN THE OPERATING SPECIFICATIONS SUPPLIED WITH THE EQUIPMENT BUT IT IS UNDERSTOOD AND AGREED TO BUY BUYER THAT ACTUAL OPERATING CAPABILITIES VARY UNDER DIFFERENT OPERATING CONDITIONS FOR WHICH INNOVATECH CAN ASSUME NO RESPONSIBILITY.

BUYER'S EXCLUSIVE REMEDY FOR CLAIMS ARISING UNDER THIS AGREEMENT SHALL BE FOR REPAIR OR, AT INNOVATECH'S SOLE OPTION, REPLACEMENT OF ANY ITEM OF DEFECTIVE EQUIPMENT. INNOVATECH'S LIABILITY FOR ANY LOSSES OR DAMAGE, WHETHER ON ACCOUNT OF NEGLIGENCE, BREACH, AND WARRANTY OR OTHERWISE SHALL IN NO EVENT EXCEED THE PURCHASE PRICE OF THE PARTICULAR ITEM OF EQUIPMENT WITH RESPECT TO WHICH SUCH LOSSES OR DAMAGE OCCURRED.

IN NO EVENT WILL INNOVATECH BE LIABLE FOR ANY DAMAGES CAUSED BY BUYER'S FAILURE TO PERFORM BUYER'S RESPONSIBILITIES, OR FOR ANY LOST PROFITS, LOST PRODUCTION, LOSS OF ANTICIPATED PROFITS OF OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES, EVEN IF INNOVATECH HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

IN NO EVENT WILL INNOVATECH BE LIABLE FOR ANY DAMAGES RESULTING FROM ANY CLAIM AGAINST BUYER BY ANY OTHER PARTY.

FACTORY SERVICE

A warranty will not be valid unless a written claim authorization comes with returned parts. Innovatech will not provide for any shipping costs for items returned for repair. To obtain warranty repairs, buyer must prepay shipment and return all warranty parts to Innovatech. Damage occurring during shipment is deemed the responsibility of the carrier and claims should be made directly with such carrier.

It will be the customer's responsibility to pay for any non-warranty replacement parts plus the current hourly labor rates for any work done on any machine or part. Service is available upon request; call Innovatech for current labor rates.

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BARTELL GLOBAL



Bartell Morrison Inc.
 375 Annagem Boulevard
 Mississauga, Ontario, Canada
 L5T 3A7
 Tel: 1-647-953-4100
 Fax: 1-647-953-4101



Bartell Morrison (USA) LLC
 200 Commerce Drive, Unit A
 Freehold, New Jersey, USA
 07728
 Tel: 1-848-225-8100
 Fax: 1-848-225-8101



Innovatech
 4701 Allmond Ave
 Louisville, Kentucky, USA
 40209
 Tel: 1-425-405-9100
 Fax: 1-425-405-9101



SPE International
 Honeyholes Lane
 Dunholme, Lincoln, UK
 LN2 3SU
 Tel: +44 (0)1673 860709
 Fax: +44 (0)1673 861119

WWW.BARTELLGLOBAL.COM