

PANDROL



Dual Circuit Power Unit

MODEL 00100K

OPERATION AND MAINTENANCE
MANUAL



ENG_OMM_DUAL_CIRCUIT_POWER_UNIT_P01

09th November 2021

Partners in excellence



Thank you for choosing Dual Circuit Power Unit!
You are now the owner of a quality product from Pandrol.

1. Preface

This manual aims to help you get to know your new Dual Circuit Power Unit, to use it in the best way and to maintain it properly for a long lifetime. It also presents important safety regulations and warnings.

The manual is intended for people who handle and operate the machine. It is originally written in English and translated into the local language by Pandrol.

Pandrol reserves the right to change specifications, equipment, instructions and maintenance guidelines without prior notice.

The manual contains instructions about the following topics:

1. Installation
2. Operation
3. Safety features and warnings
4. Maintenance and troubleshooting

(1) refers to a component in a figure/illustration.

IMPORTANT

This manual contains ordered actions, e.g.

1. Do this
2. ...and then this...
3. ...and finally this

These actions **must** be done in the numerical order presented.

2. Revision

Revision	Date	Comments
P01	2021-08-17	New Manual

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3. Safety Information



3.1. General

- Tool operators and maintenance personnel must always comply with the safety precautions given in this manual, and with all stickers and tags attached to the tool and hoses.
- All safety precautions are given for your safety. Read to understand and follow all safety, maintenance and operation instructions before you use or maintain the tool.
- Review the manual daily before using the tool.
- Follow all safety guidelines given you by your supervisor. Do not use the tool if you have any questions about the operation, safety or maintenance of this tool . Failure to follow these instructions can result in personal injury or equipment damage.
- Pandrol has no control over the tool use or operation once it leaves the plant. Pandrol has no control over operator or maintainer selection. The customer must assume responsibility for the tool suitability for a particular function.
- During use of the tool, good judgement must be used to work safely and efficiently without endangering themselves or bystanders.
- Understanding of the operation and maintenance manual is essential for anyone using or maintaining the tool.
- Warnings and safety precautions described in this document shall only be considered as a minimum. National conditions, standards and regulations override conditions, standards and regulations described in this document.
- Work with the machine is only to be carried out by qualified personnel, well-informed and educated in general railway workmanship and specifically in the conditions, standards and regulations on specific rail track.
- The machine may only be used for its specified purpose.
- Any adjustments or service on the machine is only allowed to be done by qualified personnel that have read and understood this manual and have had training and information from Pandrol.

3.2. Safety actions

- Read and understand all safety regulations and warnings before installation, operating or performing maintenance on this machine.
- Do not operate the tool until you have been thoroughly and properly trained or under the supervision of an instructor.
- Check power source daily to determine if correct flow and pressure are available. Never exceed flows or pressures for the tool being used. Personal injury or damage to the tool can result.
- Operators must clear the work area of non-essential personnel. Flying debris can cause serious injury.
- The operator must be familiar with all prohibited work areas such as unsafe grades, poor footing areas and overhead hazards.
- Use standards and regulations, accident prevention regulations and regulations concerning special ambient conditions (e.g. areas potentially endangered by explosive materials, heavy pollution or corrosive influences).
- Maintain balance and proper footing at all times. Never overreach to the extent that a broken part or sudden movement of the tool can cause you to lose your balance and fall, or cause injury to your self or someone else.

- Do not operate the tool at excessive fluid temperatures operator discomfort and potential burns can result at high oil temperatures.
- Do not clean inspect or repair the tool while connected to the power source. Accidental engagement of the tool can cause serious personal injury.
- Oil injection hazard exists with this tool. Oil injection is a condition where hydraulic oil is injected under the skin from pressure in the line. Always wear gloves and repair any leaks immediately. Never carry a tool by the hoses.
- Do not use damaged equipment. Immediately replace any damaged hoses, fittings, or other components showing wire braid, nicks, cuts, damage or abrasions. Failure to do so may result in equipment damage and / or personal injury or death.
- Clean up any oil or fluid spills immediately.

3.3. Personal/Safety equipment

- Never wear loose clothing that can get entangled in the working parts of the tools or be careless with hands, feet or other body parts around the working parts of the tools. Hydraulic tools exert high torque and force and can cause serious injury or death if improperly used.
- When working near electrical conductors, always assume that the conductors are energized and that hoses and clothing can conduct harmful electricity. Use hoses labeled and certified as nonconductive.
- Always wear safety equipment such as oil injection resistant work gloves, safety glasses, safety boots, ear protection and other safety apparel dictated by your supervisor applicable for the job you are doing and the tool you are using.
- The use of an compressed air, which must be less than 8 BAR (116 PSI), to blow parts clean or to blow them dry after being cleaned with a solvent will cause particles of dirt and/or droplets of the cleaning solvent to be airborne. These conditions may cause skin and/or eye irritation. When using an air jet do not direct it toward another person. Improper use of air jet could result in bodily injury.

3.4. Safety precautions

- Always wear protective equipment such as gloves, safety glasses, ear protection and safety shoes.
- Do not wear clothing which may become entangled in the tool.
- Always keep work area free of tools or any other objects which may impair sound footing.
- Caution oil injection hazard exists with this tool. Oil injection is a condition where the hydraulic oil is forced under the skin through pressure in the line. Always wear gloves, do not carry the tool by hydraulic hoses, and repair leaks immediately.
- Do not operate the power unit until you have been properly trained or under the supervision of a qualified instructor.
- Never store engine oil or hydraulic oil near oxygen tanks or lines.
- Never add engine oil or hydraulic oil when a spill might come in contact with your oxygen lines, torch or fittings.

- Clean up spills immediately.
- Never perform grinding or sawing operations that direct sparks into the close proximity of the power unit or flammable materials.
- Never operate the power unit with any part of the exhaust system or the heat deflector removed.
- Periodically, inspect the fuel tank, fuel line and fittings for cracks or leaks and repair or replace as required.
- Avoid over filling the fuel tank; wipe up any spills immediately and properly dispose of the cleaning rags.
- Always turn power unit "OFF" and disconnect hoses before performing any maintenance.

3.5. Qualified personnel

The machine is only to be used by trained personnel, thoroughly familiar with and trained in general railway workmanship. The equipment should be operated according to the conditions and standard regulations applying to the track they are working on.

The equipment must be serviced, maintained, or in any way modified only by trained personnel, who are familiar with the Operation & Maintenance Manual and have received training and information from Pandrol.

In order to avoid personal injury and/or material damage, everyone involved with assembling, starting-up or overhaul must possess relevant knowledge of the equipment, its use, maintenance requirements and procedures.



WARNING!

- **Touching parts that are subject to high voltage may cause grave damage to health.**
- **All maintenance and service on the electric system is to be carried out by qualified personnel.**

4. Summary

The Pandrol Dual Circuit Power Unit is designed to deliver (2) 5 GPM or (1) 10 GPM circuit at 2000 PSI hydraulic pressure.

A power unit mounted hose reel with a 50 foot hose is available as well as various carts and provisions to move the machine manually or power assisted, (see accessories listed below).



Fig 1.

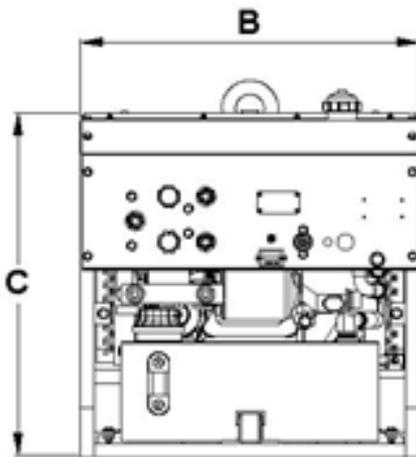


Fig 2.

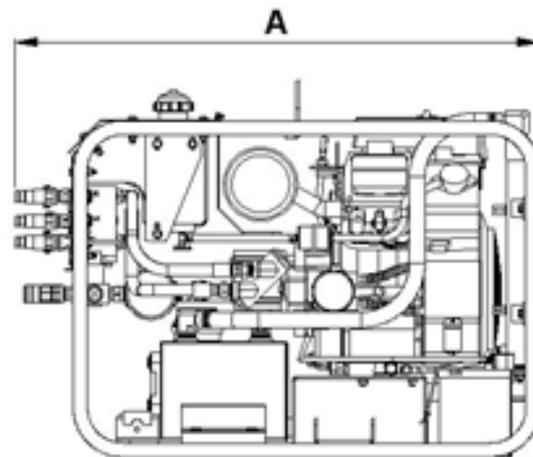


Fig 3.

Engine	Hydraulics	Dimensions	Weight
23 HP Kohler Fuel: Gasoline Start: 12 V electrics	(2) 5 GPM (19 LPM) or (1) 10 GPM (38 LPM) 2000 PSI (140 bar) Fluid: Hydraulic 5 US gallons (18.9 liters)	A - 34" (86.36 cm) B - 24" (60.96 cm) C - 24" (60.96 cm)	313 lbs (142 kg)

Accessories:

06300— Power unit mobility cart

06327— Power unit mobility kit

00187— Lift handle kit

02326—Hose reel equipped with 50' transmission hose and mounting bracket.

5. Power Unit Mobility Cart

The Pandrol Mobility Cart is light weight and highly versatile. It is simple to set up and allows the operator to easily maneuver a power unit on and off the rail. It can also be used as a tool trolley. The unit folds down for compact storage.

Shown with Pandrol 00100K power unit (off track mobility) fig 4



Fig 4.

Shown folded down and on track mobility, fig 5, fig 6.



Fig 5.



Fig 6.

6. Operation

To start the power unit, check to make sure that both control valves are in the "OFF" position.

- Set the engine kill switch to the "ON" position.
- Pull the choke all the way "out".
- Push the starter button.
- Allow the engine to warm up until it will run smoothly with the choke all the way "in".
- Connect the power transmission hose to either the 5 GPM (19 LPM) or 10 GPM (38 LPM) ports, depending on the flow required for the tool you will be using.
- Connect the tool(s) to the power transmission hose before turning on control valves at power unit "ON".
- Rotate appropriate flow control valves. (see valve positioning this manual).

In cold weather start power unit and allow oil to circulate before using a tool. In extreme cold weather refer to cold weather operation section of this manual.

During warm weather turn oil cooler fan "ON" for additional cooling capacity, if equipped.

To shut down the power unit or to change tools, turn the control valves to the "OFF" position.

Flow	(2) 5 GPM Ports (19 LPM) OR (1) 10 GPM Port (38 LPM)
Pressure	2000 PSI (140 BAR)

Before starting the power unit, check all fluid levels, add fuel, motor oil and hydraulic oil as required

6.1. Valve positioning

The 00100K power unit is designed to operate either one tool at 10 GPM (38 LPM) or 2 tools simultaneously, at 5 GPM (19 LPM). Refer to operating instructions for each tool to determine flow requirements.



NOTE!

- **When operating a 10 GPM tool you cannot have any other tool connected to the 5 GPM ports, even if the tool is not being used.**

5 GPM tools:

To operate a 5 GPM tool, connect both tools to the ports marked 5 GPM and turn "ON" the valve corresponding to each tool port.

10 GPM tools:

To operate a 10 GPM tool, connect it to the port marked 10 GPM and turn on both control valves.

6.2. Changing tools

- Turn the control knobs to the "OFF" position before disconnecting hoses.
- Once the tool has been changed, turn the valves to the "ON" position depending on flow requirements of the tool to be used.

6.3. Cold weather operation

The power unit and tools will perform well in extreme cold weather if the warmup procedures are followed. These procedures should be used anytime the temperature is below 40 degrees Fahrenheit (4.4c)

In extremely cold climates, changing to an aircraft quality hydraulic oil (mil. spec.h-5606) will reduce the warmup time required. When warm weather returns, be sure to change back to a higher viscosity hydraulic oil.



NOTE!

- **Refer to operating procedures of this manual before starting**

- Start the power unit and let it run until it is running smoothly with the choke all the way "in".
- Connect the power transmission hoses to the power unit and couple the power transmission hose tool ends together forming a "loop".
- Turn a tool control valve "ON" to circulate oil through the hose.
- When the oil reaches 50 degrees Fahrenheit (10 c) you may begin to operate the tool.

7. Trouble shooting guide

Before any troubleshooting, check all fluid levels, and add fuel, motor oil and/or hydraulic oil as required.

Repair any leaks or obvious damage to power unit.

Maintenance to be performed by qualified maintenance personnel only. Read operation manual to understand operational characteristics before making any adjustments.

Problem: power unit runs, but engine quits when under load.

Check system relief pressure - valve (part #00139) should be set at 2000-2100 PSI. Check flow should be no greater than 10 GPM on 10 GPM port.

If flow and pressure are ok, but engine still quits under load:

Drain gas and check for water or contamination.

Tune engine (if muffler has holes, valves may be burned)

Note: if adjustments are to be made, refer to calibration system section.

Problem: power unit flow greater or less than 10 GPM.

Check flow rate under load. With flow and pressure test gauge (part #03600) attached to power unit, slowly “dial in” 1500 PSI. Power unit should still deliver 9.5 – 10 GPM on the 10 GPM port with both control valves on.

Problem: bottom 5 GPM port drops flow under load, and won't deliver 2000 PSI relief pressure, other ports

Adjust flow control valve (part #0141-01). See flow control setting from calibration procedures.

Service precaution: do not take system relief valve and flow control valves out and install them in the wrong holes. If you do, damage to the pump will result.

Problem: hydraulic oil overheats.

Check temperature with thermal measurement device. If over 140 degrees f. (60 Degrees celsius), check the following:

Hydraulic oil to full mark in tank

Adequate clearance for air circulation around power unit.

Power unit should be moved so unrestricted air movement is available in front, rear and sides of unit. Remember, the cooler draws air from around the power unit. If the cooler can only draw hot exhaust, captured air next to bulkhead, or superheated air in truck body hot hydraulic oil will be the result.

Check tool flow rate. Operate 5 GPM tools only on 5 GPM. Excess flow at 10 GPM can cause over speeding of the tool or heat buildup depending on the tool design.

Make certain that only the control knobs needed for the tool being used are turned on. Having both knobs turned on and only using one 5 GPM tool will allow fluid to be forced over the relief causing over heating.

Check system for excessive back pressure. Back pressure should not exceed 250 PSI - see back pressure section.

8. Calibration procedures for 00100k manifold

A flow and pressure test gauge is required for calibrating hydraulic power sources. Pandrol part number 03600 flow and pressure test gauge.

Note: procedures should only be performed after the engine has been warmed and the hydraulic oil has reached approximately 70-90 degrees (21-32 celsius).

8.1. Flow calibration

Connect the 03600 female coupling onto the 10 GPM (male) port, and the male coupling into the return (female) port. Open top and bottom control valves and read the flow meter, make certain the needle valve is open not restricting flow. You should have a reading of 10 GPM. (As shown)



Fig 7.



Fig 8.

9. Relief pressure calibration

With flow and pressure test gauge connected to the 10 GPM port, close the needle valve, and turn on top control valve noting the pressure shown on the gauge. Proper relief setting will be 2000-2100 PSI. (Turn valve off after checking pressure)

If you need to adjust the 00139 pressure relief valve. Loosen the jam nut on the 00139 relief valve with a 3/4" deep socket. (Or similar tool) turn the adjustment screw clockwise to increase relief setting. (A 1/4" hex key will be needed for adjustment) turn top valve on noting the pressure on the gauge. After relief pressure has been reached, tighten the jam nut on the 00139 relief valve being careful not to turn pressure adjustment screw. Turn the valve off after setting pressure.



Fig 9.



Fig 10.

10. Flow control setting

You will need the pressure test gauge connected to the 10 GPM port. Using the 3/4" deep socket (or similar tool) and 1/4" hex key, loosen jam nut on the 00141-01 flow control valve and turn adjustment screw clockwise until it seats. (Do not over tighten)



Fig 11.

Turn bottom control valve on and off until pressure remains on gauge. (Approximately 1500 PSI) this pressure will remain on the gauge until the 00141-01 flow control valve is adjusted.

Slowly turn the adjustment screw counterclockwise until pressure suddenly drops to zero. Tighten the jam nut on the 00141-01 flow control valve being careful not to turn the adjustment screw. Check the initial setting by turning the control valve on (full relief 2000-2100 PSI) and off making sure that the pressure drops to zero.

11. Final calibration and double check

Connect the test gauge to the top 5 GPM port. With needle valve opened, turn on top control valve. Flow meter should read 5 GPM. Turn needle valve in to pressurize system to 1500 PSI and note the flow meter. You should not see more than 1/2 a GPM drop. (4 1/2 GPM flow) the bottom 5 GPM port will be tested in the same manner. (Using the bottom control valve)

If the bottom 5 GPM port reads any less than 4 1/2 GPM, then you will have to recalibrate the 00141-01 flow control valve. Loosen jam nut and very slightly turn adjustment nut clockwise and tighten jam nut. Remove the gauge and turn valves on and off, connect it to the 10 GPM port. If it goes on easily, adjustment is complete.

Move the gauge to the 10 GPM port and turn both control valves on. Flow meter should read 10 GPM turn needle valve in to pressurize system to 1500 PSI and note the flow meter. You should not see more than 1/2 a GPM drop. (9 1/2 GPM flow)



Fig 13.



Fig 12.

This completes the calibration procedure. If any problems are encountered, please contact Pandrol for technical service.

12. Review of hydraulic principles

Tool circuit

12.1. Hydraulic formulas

GPM =	$\frac{\text{CID X RPM}}{231}$	HP =	$\frac{\text{GPM X PSI}}{1714 (.85)}$ 1456.9
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Example: HP required to deliver 10 GPM at 1500 PSI.

$\frac{10 \text{ GPM X } 1500 \text{ PSI}}{1456.9}$	$= \frac{15000}{1456.9} = 10.3 \text{ HP}$	(subtract back pressure for tool HP)
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Estimated HP delivered by pump or used by tool

GPM	500	1000	1500	PSI	2000	2500	3000
3	1.03	2.06	3.09	4.12	5.15	6.18	
5	1.72	3.43	5.15	6.86	8.58	10.30	
10	3.43	6.86	10.30	13.70	17.20	20.60	
15	5.15	10.30	15.40	20.60	25.70	30.90	

12.2. Back pressure

Back pressure measured at the tool return port must not exceed the manufacturers back pressure rating. Most manufacturers list the maximum back pressure for their hydraulic tools at 250 PSI. Back pressure measured on the return side of the tool is the force required to get the oil back to the tank. In almost all cases the lower the back pressure the better the tool performance. First, the back pressure is subtracted from the maximum tool pressure to arrive at a maximum tool operating pressure. For example, tools with 2000 PSI operating pressure are installed on a system with 250 PSI back pressure. This leaves 1750 PSI as a maximum tool pressure. Imagine a system with 500 PSI back pressure. 2000 Minus 500 PSI back pressure leaves only 1500 PSI for the tool. Second, tools are designed for pressure to build on the pressure side of the tool. If too much pressure builds on the return side, not only is performance effected, but seals may blow. This is why it is very important to direct the flow into the tool correctly. Reversing the hoses to test may result in blown seals, damage to the tool, and personal injury.

13. Maintenance

13.1. General

**Maintenance and overhaul is to be carried out by qualified personnel only
Warranty is based on parts and spares delivered by Pandrol.**

Check tools DAILY for proper operation, leaks, or damage.

Inspect hoses DAILY. Replace cut, burned, or otherwise damaged hoses.

Keep quick disconnect couplers clean and lubricated.

Use hydraulic fluids that comply with HTMA Specification 5.7, The hydraulic fluid should have a viscosity between 100 and 400 SSU (20-82 centistokes) at the maximum and minimum expected operating temperatures. Petroleum based hydraulic fluids with anti-wear properties and a viscosity index of over 140 work for a wide range of operating conditions.

The following oils meet HTMA Specification 5.7

AMOCO RYKON MV
SUNVIS 706
CHEVRON EP-MV

CITGO A/W ALL TEMP
MOBIL D.T.E. 13
TEXACO "RANDO" HDAZ

Other fluids that meet or exceed this specification can be used.

* See cold weather operation hydraulic oil note.

Have tool inspected, at least annually, by Pandrol or a Pandrol qualified service representative to determine if tool is in need of safety changes or worn part replacement.

Contact Pandrol on a periodic basis, at least annually, for service Bulletins, safety notices, or other important information pertaining to this tool.



WARNING!

- **All adjustments work, overhaul and service must take place with the machine turned off. Failure to do so could lead to fatal injury.**
- **It is of great importance that qualified personnel accomplish all service and overhaul**

13.2. Warning labels and information symbols

Below are examples of warning labels and information symbols on the machine. If any of these labels become damaged or lost, they are to be replaced with new original warning labels that are available from Pandrol.



PANDROL

**MODEL 00100K
HYDRAULIC POWER UNIT
2000 P.S.I. OPERATING PRESSURE**

STARTING INSTRUCTIONS

- Hydraulic control valve in "OFF" position.
- Move ignition switch to "ON" position.
- Pull choke control out.
- Push start button to start engine.
- With engine running push choke control in.

DCL-1005A

TOOL	MAX BACK PRESSURE PSI / BAR	OPERATING FLOW GPM / LPM
RAIL SAWS	250/17	10/38
IMPACT WRENCH-01600A	150/10	5/19
IMPACT WRENCH-02500	250/17	10/38
SPIKE DRIVER	150/10	5-10/19-38
SPIKE PULLER	150/10	5-10/19-38
GRINDER	250/17	10/38
TAMPER	150-10	5/19
WELD SHEAR	250/17	5/19
1/2 IMPACT/ TIE DRILL	150/10	5/19
RAIL DRILL- MANUAL	250/17	5/19
RAIL DRILL- SELF FEED	400/28	10/38

MAXIMUM OPERATING PRESSURE FOR ALL RAIL TECH HYDRAULIC, INC. 100.5 250PSI/140 BAR

UNLEADED FUEL ONLY



HYDRAULIC CONTROLS OPERATION

- This power unit offers two individual 5 GPM supplies or one combined 10 GPM supply.
- Turn control knobs to "off" position before attaching hoses, changing tools, or detaching hoses.
- To operate a 10 GPM tool - connect hose to 10 GPM supply and turn both valve control knobs to "on".
- To operate a 5 GPM tool - connect hose to a 5 GPM supply and turn adjacent valve control knob "on". Two 5 GPM tools may be operated at the same time.
- NOTE: If you are using one service hose, or one tool at a time, it is not necessary to switch the hose between the 10 GPM port and a 5 GPM port. Hook the service hose to the 10 GPM port and a 5 or 10 GPM tool. Turn on the top valve only for 5 GPM flow. Turn on both valves for a 10 GPM flow.

CAUTION

- Refer to maintenance manual for cold weather operation.
- Never operate the power unit with any part of the exhaust system or heat deflector removed!
- Operate in a ventilated area only!
- Keep clear of open flames or sparks!

DCL-1005

13.3. Engine maintenance

Follow the hourly or calendar intervals, whichever occur first. More frequent service is required when operating in adverse conditions noted below.

- Check oil level every 5 hours or daily
- Service air cleaner every 25 hours or season*
- Change oil every 50 hours or season*
- Change oil filter and spark plugs every 100 hours or season*
- Service air cleaner cartridge every 100 hours or season**
- Clean cooling system every 100 hours or season**
- Replace in-line fuel filter every 50 hours or season
- Change oil after first 5 hours then after every 50 or season

* Change oil more often when operating under heavy load or high temperatures.

** Clean more often under dusty conditions or when airborne debris is present.

Replace air cleaner parts if very dirty.

It is very important that the service intervals are thoroughly followed to guarantee the safety and the performance of the machine

14. Limited warranty

Pandrol, INC warrants to the original purchase of this product that the product will be free from defects in material and workmanship for the period of one (1) year after the delivery of such product to the customer. Other equipment and parts used, but not manufactured by Pandrol are covered directly by the warranty of the manufacturer of those products. Proof of purchase must be documented including reference to a serial number located on each tool. The purchaser's only remedies under this limited warranty shall be limited at Pandrol's sole option to the following: repair, replacement or refund of the purchase price of the defective products. Each of these remedies requires timely notification of the defect in the product and substantiation that the product has been properly stored, maintained and used. Pandrol's obligations hereunder extend only to the purchaser of the product and not to any third party.

As a condition precedent to Pandrol's obligation hereunder, the defective product must not have been altered or modified without the express written approval of Pandrol. The product must not have been subjected to deliberate damage, shipping damage, neglect, tampering by unauthorized personnel or damage by improper use, storage or maintenance. Serial numbers must not have been altered, defaced or removed. Such action voids limited warranty.

14.1. Exclusions to limited warranty

This limited warranty is exclusive and is in lieu of any other warranty, written or oral, expressed or implied, including, without limitation, any implied warranty or merchantability or fitness for a particular purpose.

Limited warranty does not cover normal wear and tear items such as filters, hoses, couplers, bits, sockets, augers, and batteries

14.2. Limitation of liability

Except as provided above, Pandrol shall in no event be liable or responsible for any injury, loss or damage, direct, incidental or consequential, arising out of the use or misuse or inability to use the product, however caused and on any theory of liability including, without limitations, breach of contract, tort, (including negligence or street liability) and not withstanding any failure of any remedy herein of its essential purpose, even if Pandrol was aware of this possibility of such damage. Pandrol's limited warranty as set forth above shall not be enlarged, diminished or affected by, and no obligation or liability shall arise or go out of the rendering of technical advice or service by Pandrol or its agents. The foregoing may not be changed except by written agreement signed by an authorized officer of Pandrol, the remedies set forth herein are exclusive.



15. Customer information

Name _____

Company _____

Serial # of your Pandrol tool _____

Upon receiving your Pandrol tool, make sure to list serial number above so that a good record is kept for order information.

Pandrol hydraulic tool list

All Pandrol Hydraulic Tools operate at 5 GPM (19 LPM) or 10 GPM (38 LPM) @ 2000 PSI (140 BAR)

Power units:

00100K – Gasoline powered (1) 10 GPM or (2) 5 GPM circuits

02900A – Diesel (1) 10 GPM or (2) 5 GPM circuits (optional catalytic exhaust)

05500 – Twin power dual circuit (1) 10 GPM or (2) 5 GPM circuits & 5000 watt generator

02050RM – Modular power unit (1) 9 GPM

03700A – Electric power (1) 10 GPM or (2) 5 GPM circuits

Grinders:

09200A – Precision frog grinder

06000 – Profile grinder

06950 & 06950A – Multi-purpose grinder

05900 – Frog/profile grinder (trigger version available)

00700 – Rail surfacing guide

04600 – Straight stone grinder cw rotation (trigger version available)

04700 – Straight stone grinder ccw rotation (trigger version available)

07500 – Chamfer tool

04800 – 6" Cup stone grinder (trigger version available)

00600 – 8" Cup stone grinder

05400 – Angle grinder

09300 - Head wash grinder

Track tools:

03900A – Reversing rail saw
05100A & 05100B – Power weld shear
03500 – Self feed rail drill
04500D – 1/2” Hydraulic drill impact wrench
08200 – Tamper
02800A – 60 Ton bridge spreader
01200 – Spring anchor applicator
01100A – Spike puller (Single, 2 stage & trigger versions available)
00800A – 16” Rail saw
05000 – Hand pump weld shear
02500 – 10 GPM 1” Impact wrench
08300 – Spike driver
01600A – 5 GPM 1” Impact wrench
01100RM – Light-weight spike puller

Other products:

Hydraulic manifolds
Hydraulic test gauges
Hose reels
Hydraulic hoses

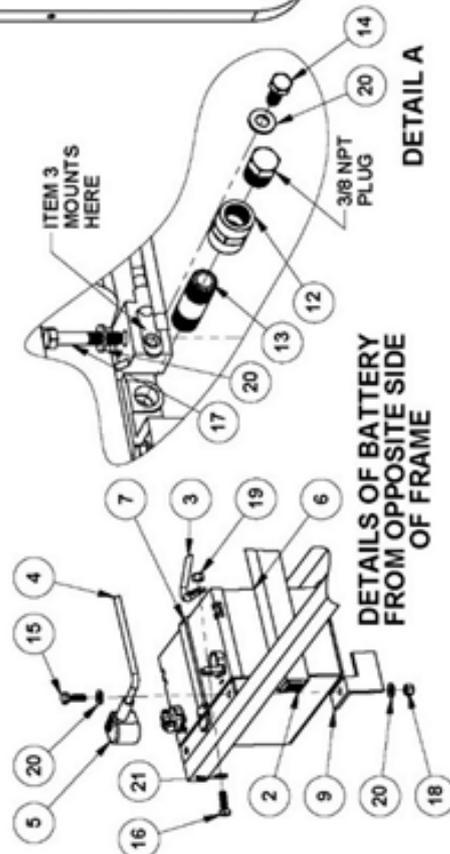
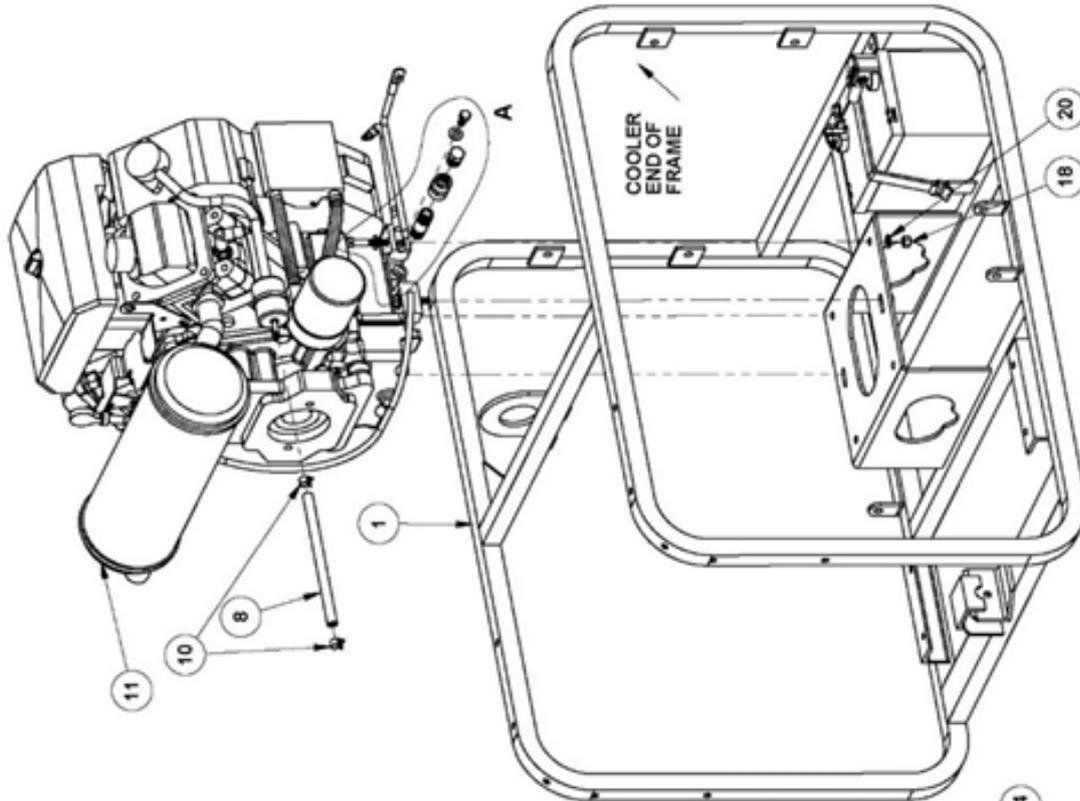
Accessories

Drill bits
Shear Blades
Saw Blades
Grinding Stones
Sockets

16. Assembly

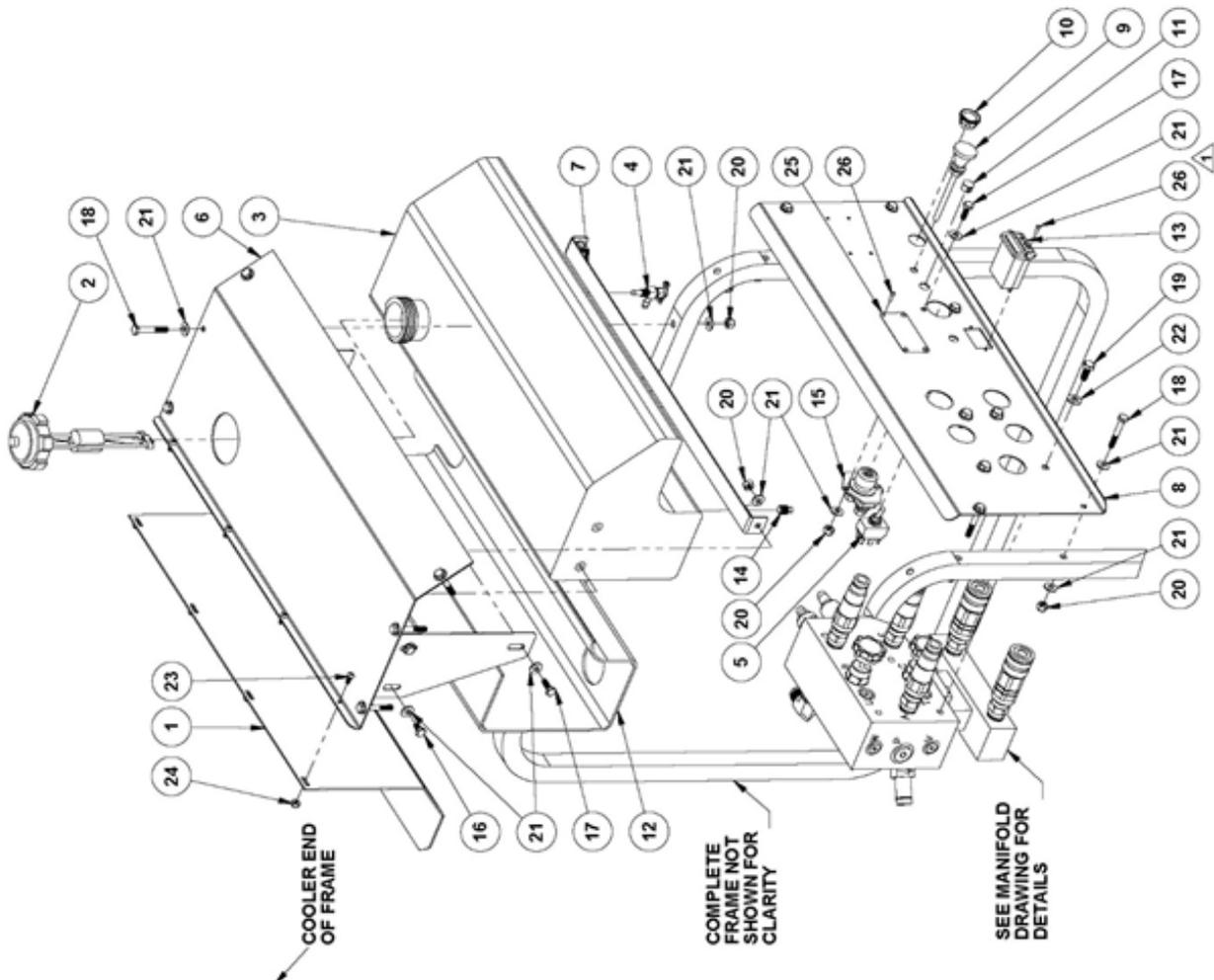
16.1. Engine & Frame

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	00104	POWER UNIT FRAME	1
2	00114	PLASTIC SQUARE PLUG	1
3	00120	NEGATIVE BATTERY CABLE	1
4	00121-02	POSITIVE BATTERY CABLE	1
5	00121-02-1	POSITIVE BATTERY COVER	1
6	00122	BATTERY	1
7	00123	BATTERY STRAP	1
8	00130	FUEL HOSE	1
9	00172	BATTERY RETAINER CLIP	1
10	01031	FUEL HOSE CLAMP	2
11	05501	GASOLINE ENGINE	1
12	309-06	3/8 NPT HEX COUPLER	1
13	3/8 X 2 -80	3/8 NPT x 2 SCH. 80 NIPPLE	1
14	A1021	5/16-18 x 3/4 HEX HEAD BOLT	1
15	A1022	5/16-18 x 1 HEX HEAD BOLT	1
16	A1022B	5/16-18 x 1 BRASS HEX HEAD BOLT	2
17	A1025	5/16-18 x 1 3/4 HEX HEAD BOLT	4
18	A2048	5/16-18 NYLOCK NUT	5
19	A2048B	5/16-18 BRASS NYLOCK NUT	2
20	A2191	5/16 SAE FLAT WASHER	11
21	A2191B	5/16 BRASS FLAT WASHER	2



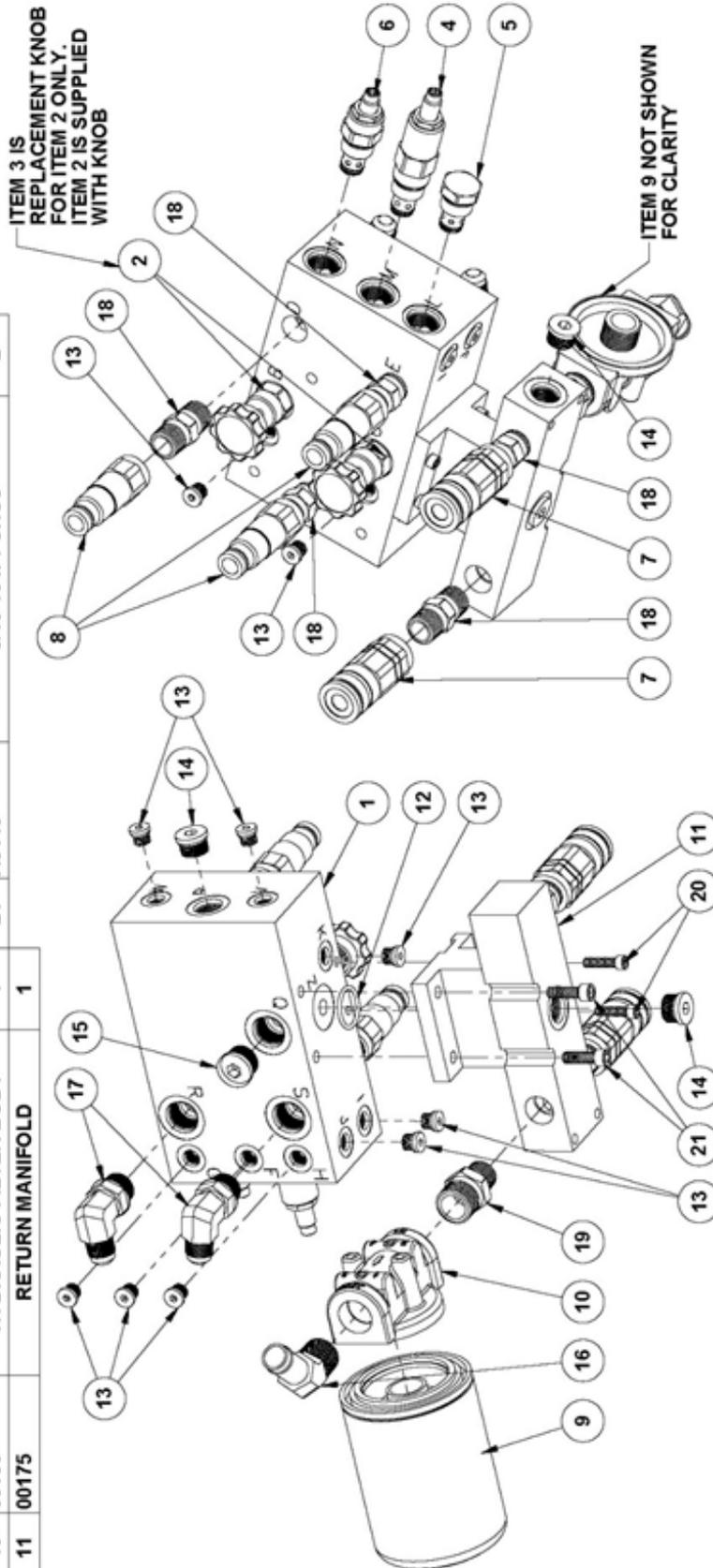
16.2. Power unit control panel

ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	00116-01	EXHAUST DEFLECTOR	1
2	00127	FUEL CAP	1
3	00128	FUEL TANK	1
4	00129	FUEL VALVE	1
5	01032	IGNITION SWITCH	1
6	00153	UPPER CONSOLE ASSEMBLY	1
7	00154	FUEL TANK STRAP	1
8	00155	LOWER CONSOLE PANEL	1
9	00157K	CHOKE CABLE	1
10	00158	STEEL PLUG	1
11	00159	PLASTIC PLUG	1
12	00180	FUEL TANK INSULATION	1
13	02903	HOUR METER	1
14	5406-SHP-2	1/8 NPT SQ. HEAD PLUG	1
15	692303	STARTER SWITCH	1
16	A1000	1/4-20 x 1/2 HEX HEAD BOLT	4
17	A1001	1/4-20 x 3/4 HEX HEAD BOLT	4
18	A1005	1/4-20 x 1 3/4 HEX HEAD BOLT	10
19	A1021	5/16-18 x 3/4 HEX HEAD BOLT	4
20	A2046	1/4-20 NYLOCK NUT	14
21	A2190	1/4 SAE FLAT WASHER	32
22	A2191	5/16 SAE FLAT WASHER	4
23	A6325	#10-24 X 1/2 BHCS	4
24	A6699	#10-24 NYLOCK NUT	4
25	SERIAL TAG	MATWELD SERIAL TAG	1
26	SSB4-6S	DIA. 1/8 x 3/8 POP RIVOT	6



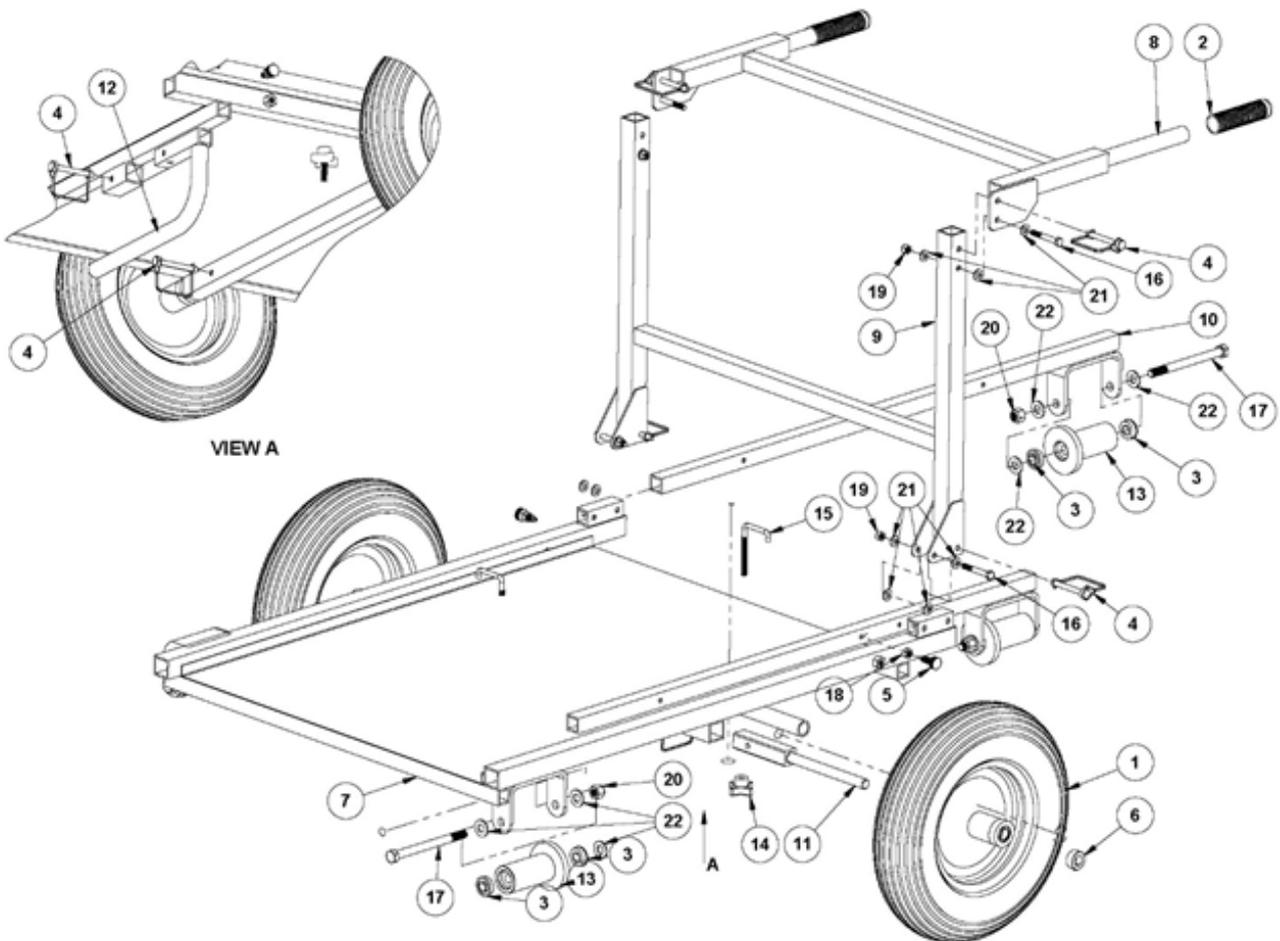
16.3. Power unit manifold

ITEM NO.	PART NUMBER	DESCRIPTION	QTY	ITEM NO.	PART NUMBER	DESCRIPTION	QTY
1	00136	POWER UNIT MANIFOLD	1	12	00183	-120 O-RING	1
2	00137	CONTROL VALVE w/KNOB	2	13	231P-04	-04 O-RING PLUG	10
3	00138A	REPLACEMENT KNOB ONLY	2	14	231P-08	-08 O-RING PLUG	3
4	00139	RELIEF VALVE	1	15	231P-10	-10 O-RING PLUG	1
5	00140	CHECK VALVE	1	16	4503-12-12	3/4 BARB x 3/4 NPT 45 ELBOW	1
6	00141-01	FLOW CONTROL VALVE	1	17	515-08-10	-08 JIC x -10 O-RING 90 ELBOW	2
7	00145	QUICK DISCONNECT COUPLER	2	18	69-08-08	1/2 NPT x 1/2 NPT HEX NIPPLE	5
8	00146	QUICK DISCONNECT NIPPLE	3	19	69-12-08	3/4 x 1/2 NPT HEX NIPPLE	1
9	00149	HYDRAULIC OIL FILTER	1	20	A5435	1/4-20 x 1 SHCS	2
10	00150	HYDRAULIC FILTER BODY	1	21	A5448	5/16-18 x 1 SHCS	2
11	00175	RETURN MANIFOLD	1				



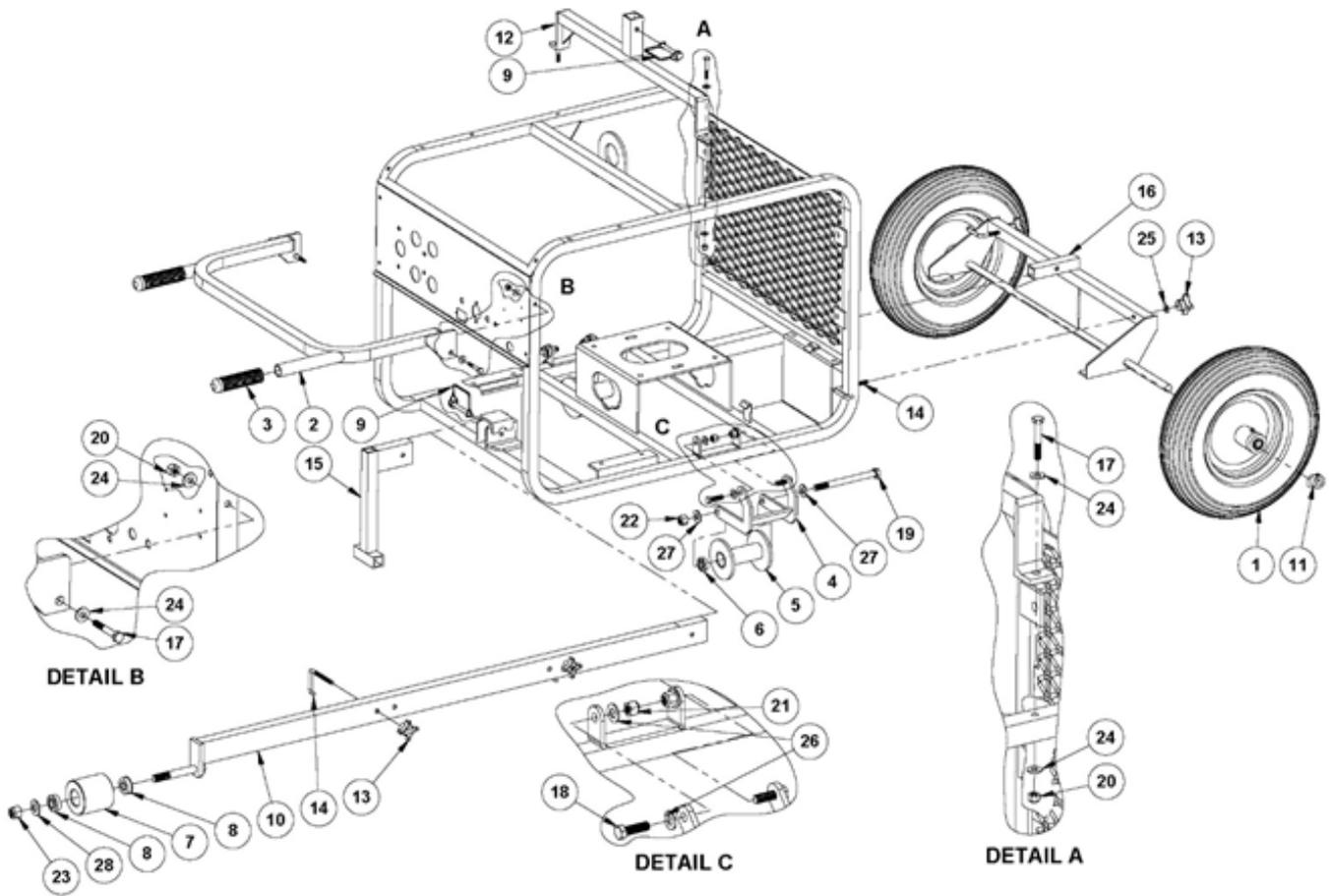
16.4. Power unit mobility cart

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	00101	RUBBER TIRE	2
2	00106	GRIP	2
3	00109	RAIL WHEEL BEARING	8
4	00174	LOCKING PIN	7
5	00608	SPRING LOCK	2
6	01505	5/8" LOCK COLLAR	2
7	06301	BASE FRAME	1
8	06302	HANDLE ASSEMBLY	1
9	06303	HANDLE EXTENSION FRAME	1
10	06304	GAUGE ADJUSTMENT FRAME	2
11	06305	STUB AXLE	2
12	06306	PROP LEG	1
13	06307	INSULATED TRACK ROLLER	4
14	06328	KNOB	2
15	06329	J-BOLT	2
16	A1027	5/16-18 x 2 1/4 HEX HEAD BOLT	4
17	A1098	1/2-13 x 6 HEX HEAD BOLT	4
18	A1454	3/8-16 HEX JAM NUT	2
19	A2048	5/16-18 NYLOCK NUT	4
20	A2054	1/2-13 NYLOCK NUT	4
21	A2191	5/16 SAE FLAT WASHER	14
22	A2194	1/2 SAE FLAT WASHER	12

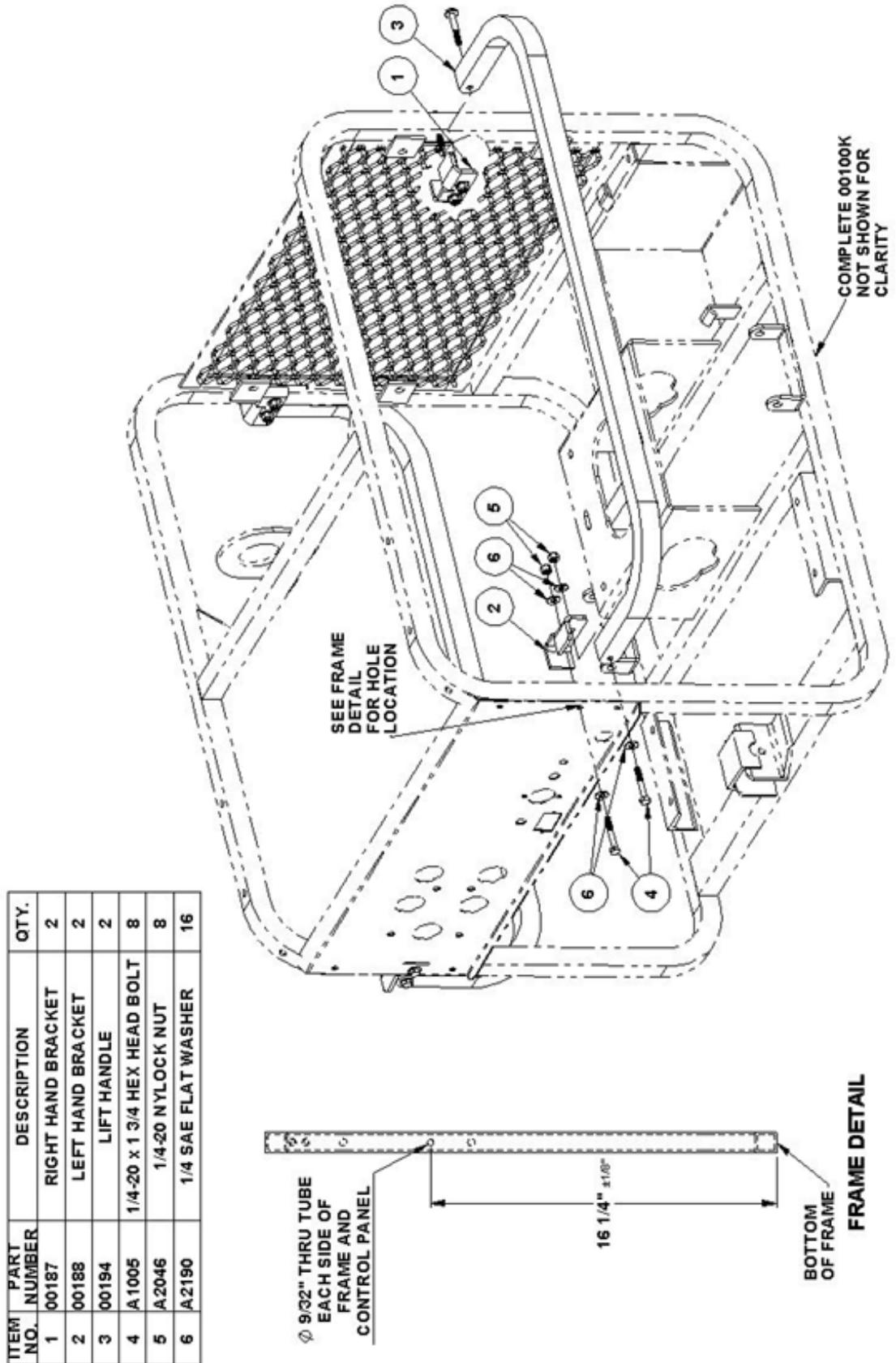


16.5. Power unit mobility kit

ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	00101	RUBBER TIRE	2
2	00105	HANDLE ARRANGEMENT	1
3	00106	GRIP	2
4	00107	WHEEL BRACKET	2
5	00108	RAIL WHEEL	2
6	00109	RAIL WHEEL BEARING	4
7	00112	OUTRIGGER ROLLER	1
8	00113	RAIL WHEEL BEARING	2
9	00174	LOCKING PIN	2
10	00179B	OUTRIGGER CROSSMEMBER BRAZIL 1600mm	1
11	01505	5/8" LOCK COLLAR	2
12	02332A	TOP MOUNT BRACKET	1
13	06328	KNOB	4
14	06329	J-BOLT	4
15	06332	PROP LEG	1
16	06335	MOBILITY KIT FRAME	1
17	A1005	1/4-20 x 1 3/4 HEX HEAD BOLT	4
18	A1043	3/8-16 x 1 1/4 HEX HEAD BOLT	4
19	A1098	1/2-13 x 6 HEX HEAD BOLT	2
20	A2046	1/4-20 NYLOCK NUT	4
21	A2050	3/8-16 NYLOCK NUT	4
22	A2054	1/2-13 NYLOCK NUT	2
23	A2058	5/8-11 NYLOCK NUT	1
24	A2190	1/4 SAE FLAT WASHER	8
25	A2191	5/16 SAE FLAT WASHER	2
26	A2192	3/8 SAE FLAT WASHER	8
27	A2194	1/2 SAE FLAT WASHER	4
28	A2196	5/8 SAE FLAT WASHER	1

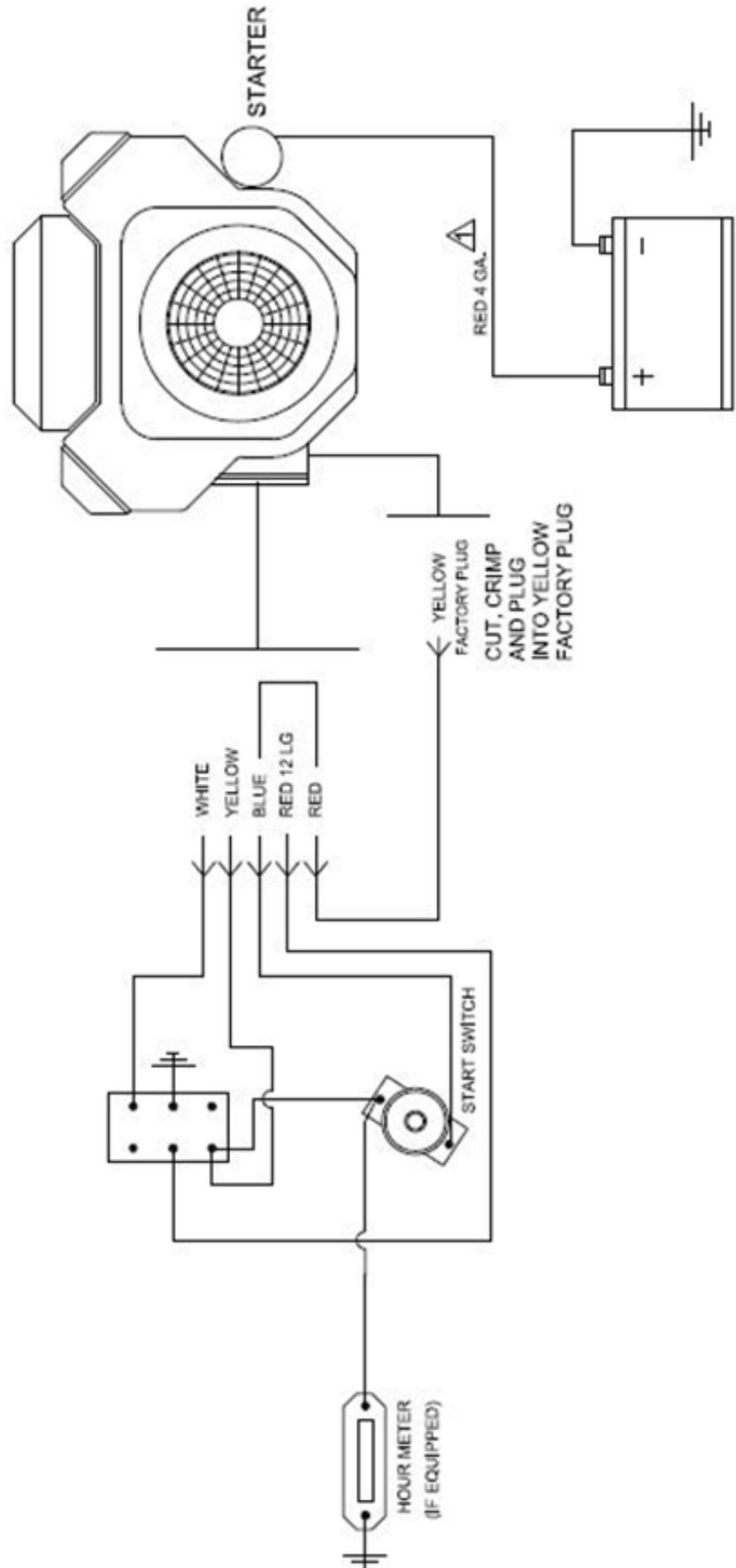


16.6. 00187-KIT Power Unit Lift handle kit

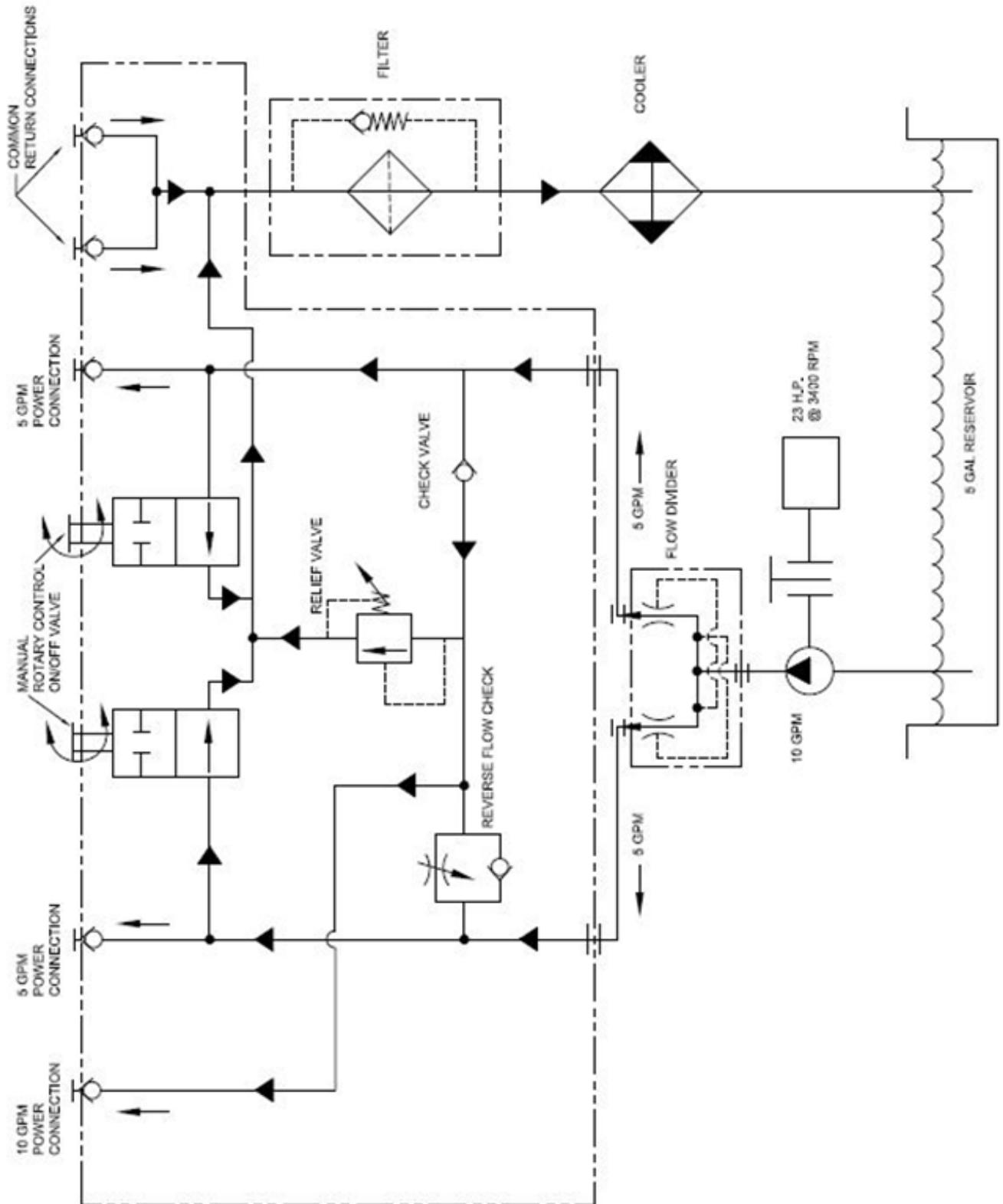


ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	00187	RIGHT HAND BRACKET	2
2	00188	LEFT HAND BRACKET	2
3	00194	LIFT HANDLE	2
4	A1005	1/4-20 x 1 3/4 HEX HEAD BOLT	8
5	A2046	1/4-20 NYLOCK NUT	8
6	A2190	1/4 SAE FLAT WASHER	16

16.7. Power unit wiring schematic



16.8. Power unit flow diagram



17. Disclaimer

Pandrol exempts itself from liability in the event of usage that deviates from that recommended in this manual.

18. Contact

Address	Phone	Internet and E-mail
		www.Pandrol.com

19. Recycling and Environment

Sustainable environment is a great part of Pandrol.

All components of the product can either be:

- Recycled
- Taken care of
- Be re-used



We recommend you to follow your local region regulations of environmental and recycling policies.

PANDROL

Find out more at
pandrol.com

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