



VP WALK-BEHIND POWER TROWEL

OPERATIONS & PARTS MANUAL

MANUAL PART #: 056547 | REVISION: D

NOTICE

This manual, or a copy of it, must be kept with the machine at all times.
There is a manual storage container located on the machine for your convenience.

Walk Behind Trowel

OPERATIONS - PARTS

MANUAL

This manual covers the products listed below:

<u>Part No.</u>	<u>Description</u>
056521	VP-424 WALKER,HO GX120 W/HANDLE
056522A	VP-436 WALKER, HO GX160 W/HANDLE
056523	VP-436 WALKER, VANGUARD 6.5 W/HANDLE
056524	VP-446 WALKER, HO GX270 W/HANDLE
056526	VP-436 WALKER, HO GX160 W/O HANDLE
056527	VP-436 WALKER VANGUARD 6.5 W/O HNDL
056528	VP-446 WALKER, HO GX270 W/O HANDLE
056530	HANDLE VP WALKER STD ADJ FINE PITCH
056531	HANDLE VP WALKER STD ADJ POS PITCH

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Allen Products are covered under one or more of the following patent numbers:

U.S. Design Patents: 344,736; 400,542; 400,544; 402,998; 402,999; 403,332; 404,041; 404,042; 410,931; 413,127; 416,564; 465,897; 466,909; 474,203.

U.S. Utility Patents: 5,108,220; 5,238,323; 5,328,295; 5,352,063; 5,405,216; 5,476,342; 5,480,257; 5,480,258; 5,533,831; 5,562,361; 5,567,075; 5,613,801; 5,658,089; 5,685,667; 5,803,658; 5,816,739; 5,816,740; 5,890,833; 5,934,823; 5,967,696; 5,988,938; 5,988,939; 6,019,433; 6,019,545; 6,048,130; 6,053,660; 6,089,786; 6,106,193; 6,857,815; 5,288,166; 6,582,153 B1, 7,108,449; 7,114,876; 7,316,523; 7,690,864 B2

Canadian Patents: 2,039,893.

Printed in U.S.A.

Limited Warranty

LIMITED WARRANTY and LIMITATION OF LIABILITY

Allen Engineering Corporation ("Allen") warrants its products to be free of defects in material or workmanship for the following periods:

- A. New Machines and Parts One Year**
- B. New Gear Boxes Two Years**

The above listed warranty periods are effective for Allen Machines with a first day of use by End User on April 1, 2007 or later.

Warranty period begins on first day of use by End User. This first day of use is established by the date of a completed Allen Warranty Card or a Bill of Sale to the End User. All warranty is based on the following limited warranty terms and conditions, including the disclaimer of implied warranties and consequential damages.

1. Allen's obligation and liability under this warranty is limited to repairing or replacing parts if, after Allen's inspection, there is determined to be a defect in material or workmanship. Allen reserves the choice to repair or replace.
2. If Allen chooses to replace the part, it will be at no cost to the customer and will be made available to the Allen Distributor, Dealer, or Rental Center from whom the End User purchased the product.
3. Replacement or repair parts, installed in the product, are warranted only for the remainder of warranty period of the product as though they were the original parts.
4. Allen does not warranty engines. Engine warranty claims should be made directly to an authorized factory service center for the particular engine manufacturer.
5. Allen's warranty does not cover the normal maintenance of products or its components (such as engine tune-ups and oil & filter changes). The warranty also does not cover normal wear and tear items (such as belts and consumables).
6. Allen's warranty will be void if it is determined that the defect resulted from operator abuse, failure to perform normal maintenance on the product, modification to product, alterations or repairs made to the product without the written approval of Allen. Allen specifically excludes from warranty any damage to any trowels resulting from an impact to the rotors.
7. Impact damage is not covered under the Allen Gear Box warranty.
8. Allen will pay shop labor on warranty items at the Allen Shop Labor Rate in existence on the date of the warranty claim. An Allen Labor Chart will determine the time allowed to complete a repair and will govern the shop labor hours that will be allowed.
9. Allen will pay freight on warranty replacement parts at worldwide standard ground rates. No warranty replacement parts will be shipped air freight at the expense of Allen. Allen only pays outbound freight charges when sending warranty replacement parts to the customer via ground service. Allen does not pay any inbound freight. However, if Allen determines this to be a warranted item, only then will Allen reimburse the customer for inbound freight at standard ground rates.
10. ALLEN ENGINEERING CORPORATION'S WARRANTY POLICY WILL NOT COVER THE FOLLOWING: TAXES; SHOP SUPPLIES; ENVIRONMENTAL SURCHARGES; AIR FREIGHT; TRAVEL TIME; LOSS OF TIME; INCONVENIENCE; LOSS OF RENTAL REVENUE; RENTAL COSTS OF EQUIPMENT USED TO REPLACE THE PRODUCT BEING REPAIRED; LOSS OF USE OF THE PRODUCT; COMMERCIAL LOSS; OR ANY OTHER CHARGES WHATSOEVER OR ANY LIABILITIES FOR DIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGE OR DELAY.
11. ALLEN ENGINEERING CORPORATION MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED. THIS LIMITED WARRANTY IS IN LIEU OF THE WARRANTY OF MERCHANTABILITY AND FITNESS. THERE ARE NO OTHER WARRANTIES THAT EXTEND BEYOND THE DESCRIPTION ON THIS DOCUMENT.
12. No Allen employee or representative is authorized to change this warranty in any way or grant any other warranty unless such change is made in writing and signed by an officer of Allen Engineering Corporation.

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Information Contained in this Manual



This manual provides information and procedures to safely operate and maintain the Allen Machine.

For your own safety and protection from personal injury, carefully read, understand, and observe the safety instructions described in this manual. Keep this manual or a copy of it with the machine at all times.

Always operate this machine in accordance with the instructions described in this manual. A well maintained piece of equipment will provide many years of trouble free operation.

This manual is divided into the following sections:

**SECTION 1
SAFETY**

**SECTION 2
OPERATIONS**

**SECTION 3
SERVICE**

**SECTION 4
PARTS**

Complete any warranty requirements as specified by the engine manufacturer in their instructions found inside the manual box located on the operator's control panel.

Your engine is not manufactured by Allen Engineering Corporation, Inc, and therefore is not covered under Allen Engineering Corporation, Inc warranty.

Your engine manufacturer should be contacted if you wish to purchase a parts manual or a repair manual for your engine.

Refer to enclosed owners engine manual for complete O&M instructions. See your battery manufacturer for battery warranty.

Dealer Information

Your Dealer has Allen Engineering Corporation trained mechanics and original Allen replacement parts. Always contact the Allen Dealer who sold you this machine for Allen Certified repairs and replacement parts.

Place Allen Dealer information below for future reference.

Dealer Name: _____

Phone #: (____) - ____ - _____

Address: _____

City: _____ State: _____ Zip: _____

Salesman: _____ Mobile Phone _____

Additional Comments: _____



Ordering Parts

Section 4 contains illustrated parts lists for help in ordering replacement parts for your machine. Follow the instructions below when ordering parts to insure prompt and accurate delivery:

1. All orders for service parts - include the serial number for the machine. Shipment will be delayed if this information is not available.
2. Include correct description and part number from the "PARTS" section of this manual.
3. Specify exact shipping instructions, including the preferred routing and complete destination address.
4. DO NOT return parts to AEC without receiving written authorization from AEC. All authorized returns must be shipped pre-paid.
5. When placing an order, please contact the AEC dealer nearest you.



All information, specifications, and illustrations in this manual are subject to change without notice and are based on the latest information at the time of publication.

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Model Number - Serial Number Codes

Manufacturer's Codes:

When ordering parts or requesting service information, you will always be asked to specify the model and serial numbers of the machine. The legends below specifically defines each significant character or group of characters of the Model Number and Serial Number codes.

Model Number

VALUE 430

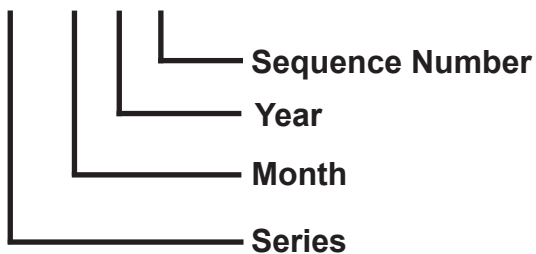


Serial Number

The serial number found on the identification plate is a ten digit format. The model number identifies your machine and will ensure that you receive the correct replacement parts.

Serial Number Example

436 01 11 005



Unit Identification

Unit Identification Plate Location:

An identification plate listing the model number and the serial number is attached to each unit and is located on the top left corner of the operator end handle. See image below for serial number plate location. This plate should not be removed at any time.

Please record the information found on this plate below so it will be available should the identification plate become lost or damaged. When ordering parts or requesting service information, you will always be asked to specify the model and serial numbers of the machine.

FILL IN FOR FUTURE REFERENCE

Model Number: _____

Serial Number: _____

Date Purchased: _____

Purchased From: _____

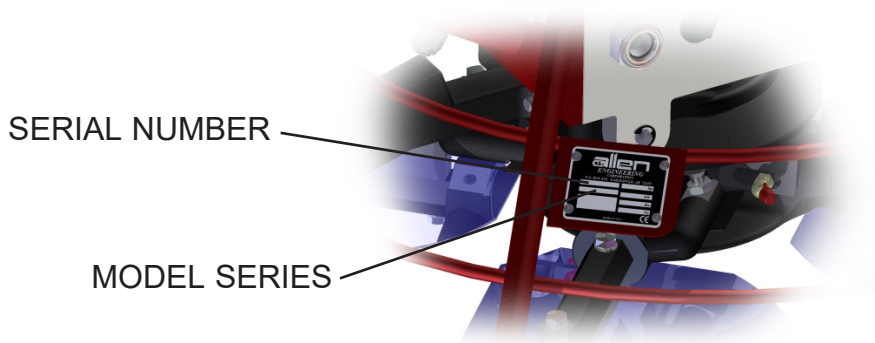


Figure 1
Serial Number Location

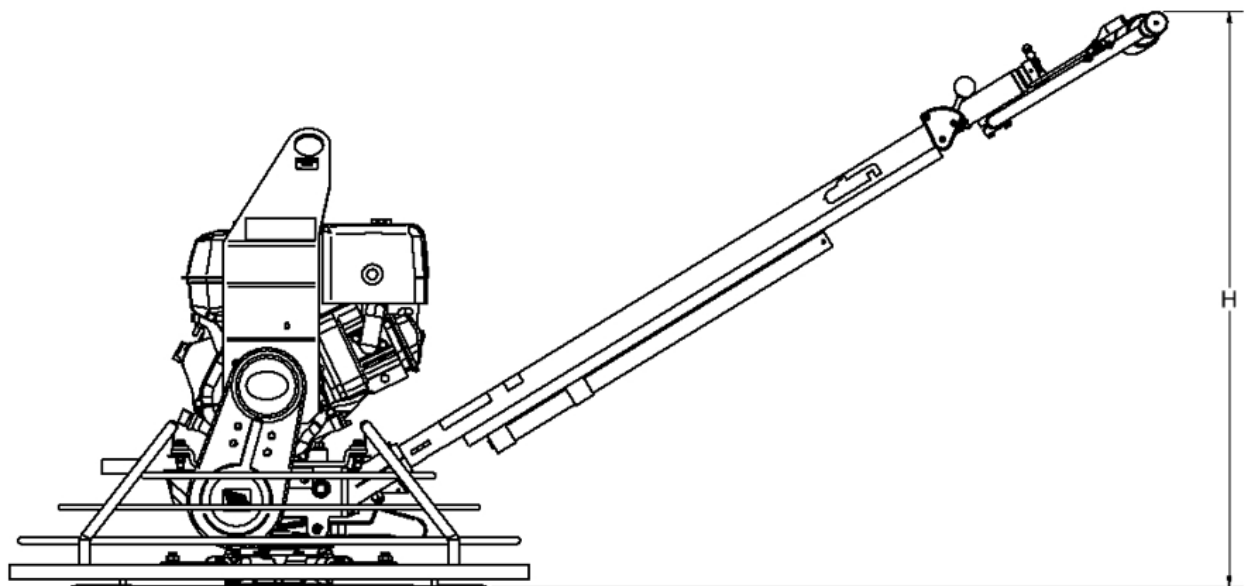
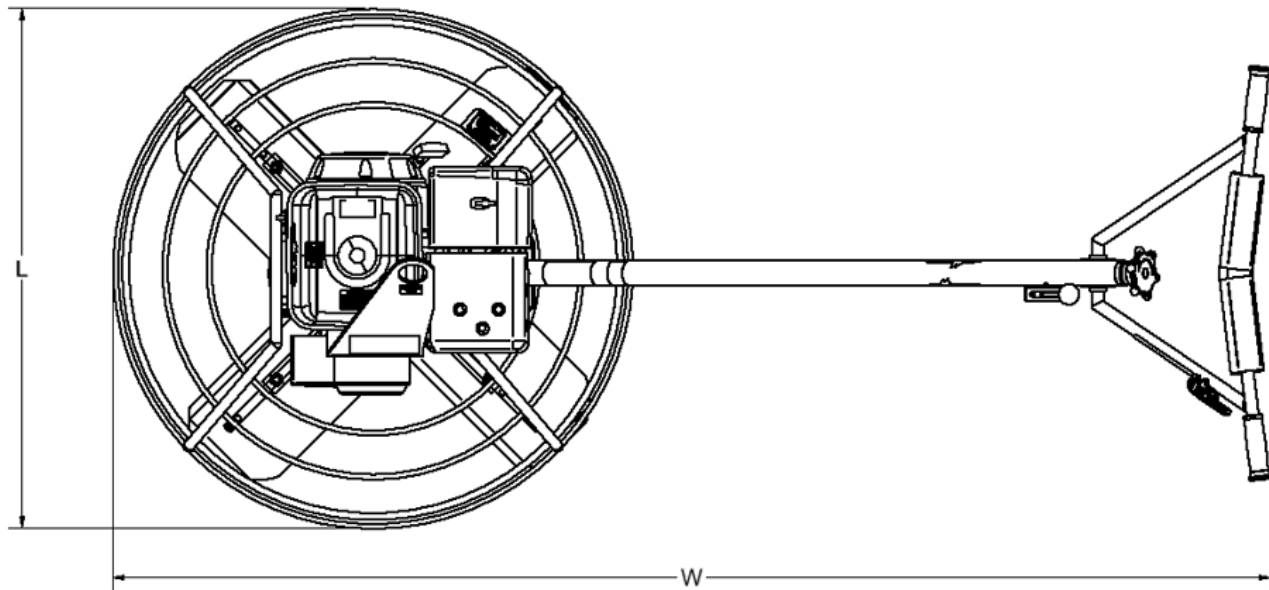
Technical Specifications

Measurements in this manual are in U.S. units and their customary metric units (i.e., metric units contained within brackets [8 mm]).

Machine Features:

- Dimensions (L x W x H) inch [mm]77.5x40.5x54
(guard ring/long handle).....[1969x1029x1372]
- 430.....72x32x36
.....[1829x813x914]
- 436.....72x38x36
.....[1829x965x914]
- 446.....78x48x39
.....[1981x1219x990]
- Rotor Speed (RPM).....110 - 135
- Finish Blade.....Standard
- Gearbox.....Standard Duty (STD)
- Fixed Guard Rings.....Standard
- Fixed Seat Frame.....Standard
- Powered Retardant Spray System.....Standard
- Spray System Capacity gal [L].....6 [23]
- Steering System.....Dual Levers
- Gearbox Rotation.....Standard
- Battery.....12 Volt
- Safety Shutdown Switch.....Centrifugal / Dead Man
- Fuel Capacity gal [L].....1.6 [6.05]
- Run Time (Approximate) hr.....2.5
- Transmission Type.....Clutch
- Drive Belt Type.....Kevlar Vee

Machine Dimensional Specifications



Engine Specifications

Honda GX160 Engine Information (5.5 HP)

Engine Type:	Air-cooled 4-stroke OHV
Bore x Stroke:	68 X 45 mm
Displacement:	163 cm ³
Net Power Output:	4.8 HP (3.6 kW) @ 3,600 rpm
Net Torque:	7.6 lb-ft (10.3 Nm) @ 2,500 rpm
Compression Ratio:	8.5:1
Carburetor:	Float Type
Starting System:	Recoil
Governor System:	Centrifugal Mechanical
Fuel:	Unleaded 86 octane or higher
Dry Weight:	28.7 to 39.7 lb (13 to 18 kg)
Length (min):	12.0" (305mm)
Width (min):	13.4" (341mm)
Height (min):	12.5" (318mm)

Honda GX270 Engine Information (9 HP)

Engine Type	Air-cooled 4-stroke OHV
Bore x Stroke	77 X 58 mm
Displacement	270 cm ³
Net Power Output*	8.5 HP (6.3 kW) @ 3,600 rpm
Net Torque	14.1 lb-ft (19.1 Nm) @ 2,500 rpm
PTO Shaft Rotation	Counterclockwise (from PTO shaft side)
Compression Ratio	8.5:1
Carburetor	Butterfly Float Type
Ignition System	Digital CDI with variable ignition timing
Starting System	Recoil/electric
Governor System	Centrifugal Mass Type
Air cleaner	Dual element
Fuel Tank Capacity	5.6 U.S. qts (5.3 liters)
Fuel	Unleaded 86 octane or higher
Dry Weight	55 lb (25 kg)

Honda GX340 Engine Information (11 HP)

Engine Type	Air-cooled 4-stroke OHV
Bore x Stroke	88 X 64 mm
Displacement	389 cm ³
Net Power Output*	10.7 HP (8.0 kW) @ 3,600 rpm
Net Torque	19.5 lb-ft (26.4 Nm) @ 2,500 rpm
PTO Shaft Rotation	Counterclockwise (from PTO shaft side)
Compression Ratio	8.2:1
Lamp/Charge coil options	25W, 50W / 1A, 3A, 10A, 18A
Carburetor	Butterfly Float Type
Starting System	Recoil/electric
Governor System	Centrifugal Mass Type
Air cleaner	Dual element
Fuel Tank Capacity	6.4 U.S. qts (6.1 liters)
Fuel	Unleaded 86 octane or higher
Dry Weight	69 lb (31.5 kg)



WARNING



CALIFORNIA — Proposition 65 Warning

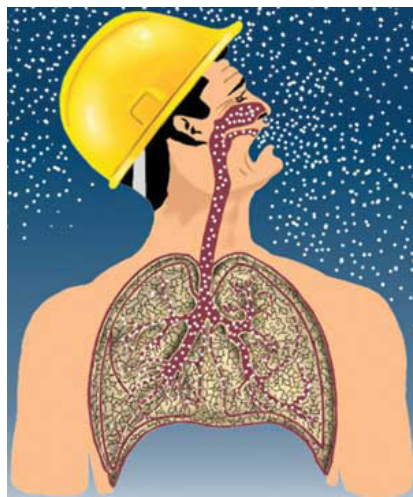
Engine exhaust and some of its constituents, and some dust created by power sanding, sawing, grinding, drilling and other construction activities contains chemicals known to the State of California to cause cancer, birth defects and other reproductive harm. Some examples of these chemicals are:

- Lead from lead-based paints.
- Crystalline silica from bricks.
- Cement and other masonry products.
- Arsenic and chromium from chemically treated lumber.

Your risk from these exposures varies, depending on how often you do this type of work. To reduce your exposure to these chemicals: **ALWAYS** work in a well ventilated area, and work with approved safety equipment, such as dust masks that are specially designed to filter out microscopic particles.

SECTION 1 SAFETY

Federal Regulations Respiratory Hazards



WARNING

RESPIRATORY HAZARDS

Grinding/cutting/drilling of masonry, concrete, metal and other materials can generate dust, mists and fumes containing chemicals known to cause serious or fatal injury or illness, such as respiratory disease, cancer, birth defects or other reproductive harm. If you are unfamiliar with the risks associated with the particular process and/or material being cut or the composition of the tool being used, review the material safety data sheet and/or consult your employer, the material manufacturer/supplier, governmental agencies such as OSHA and NIOSH and other sources on hazardous materials. California and some other authorities, for instance, have published lists of substances known to cause cancer, reproductive toxicity, or other harmful effects.

Control dust, mist and fumes at the source where possible. In this regard use good work practices and follow the recommendations of the manufacturers or suppliers, OSHA/NIOSH, and occupational and trade associations. Water should be used for dust suppression when wet cutting is feasible. When the hazards from inhalation of dust, mists and fumes cannot be eliminated, the operator and any bystanders should always wear a respirator approved by NIOSH/MSHA for the materials being used.

WARNING

SILICOSIS WARNING

Grinding/cutting/drilling of masonry, concrete, metal and other materials with silica in their composition may give off dust or mists containing crystalline silica. Silica is a basic component of sand, quartz, brick clay, granite and numerous other minerals and rocks. Repeated and/or substantial inhalation of airborne crystalline silica can cause serious or fatal respiratory diseases, including silicosis. In addition, California and some other authorities have listed respirable crystalline silica as a substance known to cause cancer. When cutting such materials, always follow the respiratory precautions mentioned above.

Do not operate or service the equipment before reading the entire manual. Safety precautions should be followed at all times when operating this equipment. Failure to read and understand the safety messages and operating instructions could result in injury to yourself and others.

SAFETY NOTES

The four safety notes shown below will inform you about potential hazards that could injure you or others. The safety notes specifically address the level of exposure to the operator and are preceded by one of four words: DANGER, WARNING, CAUTION or NOTICE.



Indicates a hazardous situation which, if not avoided, **will** result in death or serious injury.



Indicates a hazardous situation which, if not avoided, **could** result in death or serious injury.



Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.



Addresses practices not related to personal injury.



Identification of safety equipment, first aid, or emergency egress locations.



SECTION 1 SAFETY

Safety Symbols

Potential hazards associated with the operation of this equipment will be referenced with hazard symbols which may appear throughout this manual in conjunction with safety notes.

Symbol	Safety Hazard
	Lethal exhaust gas hazards
	Explosive fuel hazards
	Burn hazards
	Rotating parts/crush hazards
	Pressurized fluid hazards
	Hydraulic fluid hazards

Laws Pertaining to Spark Arrestors

Some states require that in certain locations arrestors be used on internal combustion engines. A spark arrester is a device designed to prevent the discharge of spark or flames from the engine exhaust. It is often required when operating equipment on forested land to prevent the risk of fires. Consult the engine distributor or local authorities and make sure that you comply with regulations regarding spark arrestors.

SECTION 1 SAFETY

General Safety

CAUTION

• **NEVER** operate this equipment without proper protective clothing, safety glasses, respiratory protection, hearing protection, steel-toed boots and other protective devices required by the job or city and state regulations.



• Avoid wearing jewelry or loose fitting clothes that may get caught on the controls or moving parts as this can cause serious injury.

• **NEVER** operate this equipment when not feeling well due to fatigue, illness or when under medication.



• **NEVER** operate this equipment under the influence of drugs or alcohol.



• **ALWAYS** clear the work area of any debris, tools, etc. that would constitute a hazard while the equipment is in operation.

• No one other than the operator is to be in the working area when the equipment is in operation.

• **DO NOT** use the equipment for any purpose other than its intended purposes or applications.

• This equipment should only be operated by trained and qualified personnel 18 years of age and older.

• Whenever necessary, replace nameplate, operation and safety decals when they become difficult to read.

• AEC does not assume responsibility for any accident due to equipment modifications. Unauthorized equipment modification will void all warranties.

• **NEVER** use accessories or attachments that are not recommended by AEC for this equipment. Damage to the equipment and/or injury to user may result.

- **ALWAYS** know the location of the nearest fire extinguisher.



- **ALWAYS** know the location of the nearest first aid kit.



- **ALWAYS** know the location of the nearest phone or keep a phone on the job site. Also, know the phone numbers of the nearest ambulance, doctor and fire department. This information will be invaluable in the case of an emergency.



- Engine fuel exhaust gases contain very poisonous carbon monoxide. This gas is colorless and odorless, and can cause death if inhaled.

- The engine of this equipment requires an adequate free flow of cooling air. **NEVER** operate this equipment in any enclosed or narrow area where free flow of the air is restricted. If the air flow is restricted it will cause injury to people and property and serious damage to the equipment or engine.



- **NEVER** operate the equipment in an explosive atmosphere or near combustible materials. An explosion or fire could result causing severe bodily harm or even death.



- **ALWAYS** keep clear of rotating or moving parts while operating the trowel.



- **DO NOT** start or operate the trowel if the drive train will not disengage. Centrifugal force between the trowel and surface when starting can cause uncontrolled handle movement that can cause serious injury. The handle must not move while pulling the engine recoil starter.

SECTION 1 SAFETY

General Safety (cont.)

- **NEVER** disconnect any emergency or safety devices. These devices are intended for operator safety. Disconnection of these devices can cause severe injury, bodily harm or even death. Disconnection of any of these devices will void all warranties.

CAUTION

- **NEVER** stand on trowel during operation.
- **NEVER** lubricate components or attempt service on a running machine.
- **NEVER** place your feet or hands inside the guard rings while starting or operating this equipment.

NOTE

- **ALWAYS** keep the machine in proper running condition.
- Fix damage to machine and replace any broken parts immediately.
- **ALWAYS** store equipment properly when it is not being used. Equipment should be stored in a clean, dry location out of the reach of children and unauthorized personnel.
- A safety manual for operating and maintenance personnel of concrete power trowels produced by the Association of Equipment Manufacturers (AEM) can be obtained for a fee by ordering through their website at www.aem.org.

WARNING

- **DO NOT** place hands or fingers inside engine compartment when engine is running.
- **NEVER** operate the engine with heat shields or guards removed.
- Keep fingers, hands hair and clothing away from all moving parts to prevent injury.
- **DO NOT** remove the radiator cap while the engine is hot. High pressure boiling water will gush out of the radiator and severely scald any persons in the general area of the trowel.
- **DO NOT** remove the engine oil drain plug while the engine is hot. Hot oil will gush out of the oil tank and severely scald any persons in the general area of the trowel.



CAUTION

- **NEVER** touch the hot exhaust manifold, muffler or cylinder. Allow these parts to cool before servicing equipment.



- **NEVER** run engine without an air filter or with a dirty air filter. Severe engine damage may occur. Service air filter frequently to prevent engine malfunction.
- **NEVER** tamper with the factory settings of the engine or engine governor. Damage to the engine or equipment can result if operating in speed ranges above the maximum allowable.
- **ALWAYS** use extreme caution when working with flammable liquids.
- **DO NOT** start the engine near spilled fuel or combustible fluids. Fuel is extremely flammable and its vapors can cause an explosion if ignited.
- **ALWAYS** refuel in a well-ventilated area, away from sparks and open flames.
- **NEVER** use fuel as a cleaning agent.
- **DO NOT** smoke around or near the equipment. Fire or explosion could result from fuel vapors or if fuel is spilled on a hot engine.

SECTION 1 SAFETY

Transportation Safety

- NEVER** allow any person or animal to stand underneath the equipment while lifting.



NOTICE

- Some walk-behind trowels can be lifted or moved by two people utilizing lifting tubes or other special attachments. Generally, however, they must be lifted using lifting bales and cranes, hoists, or forklifts.
- NEVER** transport trowel with float pans attached unless safety catches are used and are specifically cleared for such transport by the manufacturer.
- Before lifting, make sure that the lifting bales are not damaged.
- NEVER** hoist the trowel more than three feet off the ground with float pans attached.
- Always make sure crane or lifting device has been properly secured to the lifting bales of the equipment.
- DO NOT** lift machine to unnecessary heights.
- ALWAYS** shutdown engine before transporting.
- NEVER** lift the equipment while the engine is running.
- Use adequate lifting cable (wire or rope) of sufficient strength.
- ALWAYS** tie down equipment during transport by securing the equipment with rope.

The safety and operation labels shown in this section are placed in important areas on the machine to draw attention to potential safety hazards and service information. Should any of these labels become unreadable or damaged, replacement labels can be ordered from your distributor.

CAUTION

This is a multi-purpose label that requires the operator to have maximum eye, hearing, hand, and feet protection. Also, it highly recommends that the operator reads the manual.



WARNING

This label identifies the lift locations on the machine. No other locations or features on the machine are to be used as lifting points. This will cause damage to the machine.



NOTE

This label identifies the tank used for retardant spray agents (i.e., water-based retardants) only on the machine. **NO OTHER** non-retardant chemicals nor fuel is to be in this tank.



CAUTION

For gasoline-fueled machines, this label identifies the tank used for **GASOLINE** fuel only in the machine. **NO OTHER** type of fuel is to be used in this tank.



SECTION 1 SAFETY

Safety and Operation Labels (cont.)

NOTE

This label is a maintenance reminder to grease the thrust bearing daily. This will ensure that the life span of the bearings will be maintained at their optimal performance level.

**GREASE THRUST
BEARING DAILY**

039778

This label cautions against allowing cleaning agents, surface treatments, or other foreign substances to contaminate drive components.

The drive components could be damaged from the contaminants and cause the drive system to fail.

CAUTION

DO NOT ALLOW CLEANING AGENTS,
SURFACE TREATMENTS, OR FOREIGN
SUBSTANCES TO CONTAMINATE
DRIVE COMPONENTS

DRIVE COMPONENTS COULD BE DAMAGED
AND CAUSE THE DRIVE SYSTEM TO FAIL

047878

WARNING

This label warns of the risk hazards associated with engine exhaust fumes causing health issues as identified by the State of California.

WARNING

CALIFORNIA
PROPOSITION 65
WARNING

Engine exhaust and
some of its constituents
contains chemicals
known to the State of
California to cause
cancer, birth defects and
other reproductive harm.

=====

ALWAYS work in a well
ventilated area and use
approved safety
equipment.

048181

Description

The Walk-behind trowel is a modern high production machine. Finishing rates will vary depending on the operators skill and job conditions. This trowel has four finishing blades. Walk-behind trowels are designed for the floating and finishing of concrete slabs.

The standard duty gearbox is designed to provide exceptional performance with low maintenance and trouble free use under some of the worst conditions. Power is transferred from the engine to the gearbox input shaft via a V-belt pulley drive system. The pulley engages using a clutch. See the Parts section of this manual.

All Allen Engineering **Walk-behinds** are equipped with a safety shutdown switch.

Operating time between fuel refills is approximately 2-1/2 to 3 hours with a rotor speeds of 110 to 135 RPM.

The **Walk-behinds** are the most technically advanced riding trowels on the market today. With proper maintenance and use, your trowel will provide you with exceptional service and dependability.

SECTION 2 OPERATIONS

Start Up Procedures

Before Starting Procedures

Fuel Check

1. Remove the gasoline cap located on top of fuel tank.
2. Visually inspect to see if fuel level is low. If fuel is low, replenish with unleaded fuel.
3. When refueling, be sure to use a strainer for filtration. DO NOT top-off fuel. Wipe up any spilled fuel.

Gearbox Oil

1. Determine if the gearbox oil is low by removing the oil plug located on the side of the gearbox. The correct level of the lubrication oil should be to the bottom of the fill plug.
2. If lubrication oil begins to seep out as the drain plug is being removed, then it can be assumed that the gearbox has a sufficient amount of oil.
3. If lubrication oil does not seep out as the drain plug is being removed, fill with type Allen Oil Kit P/N 048386 gearbox lubricant oil until the oil filler hole overflows.

V-Belt Check

A worn or damaged V-belt can adversely affect the performance of the trowel. If a V-belt is defective or worn simply replace the Vbelt as outlined in the maintenance section of this manual.

Belt Guard Check

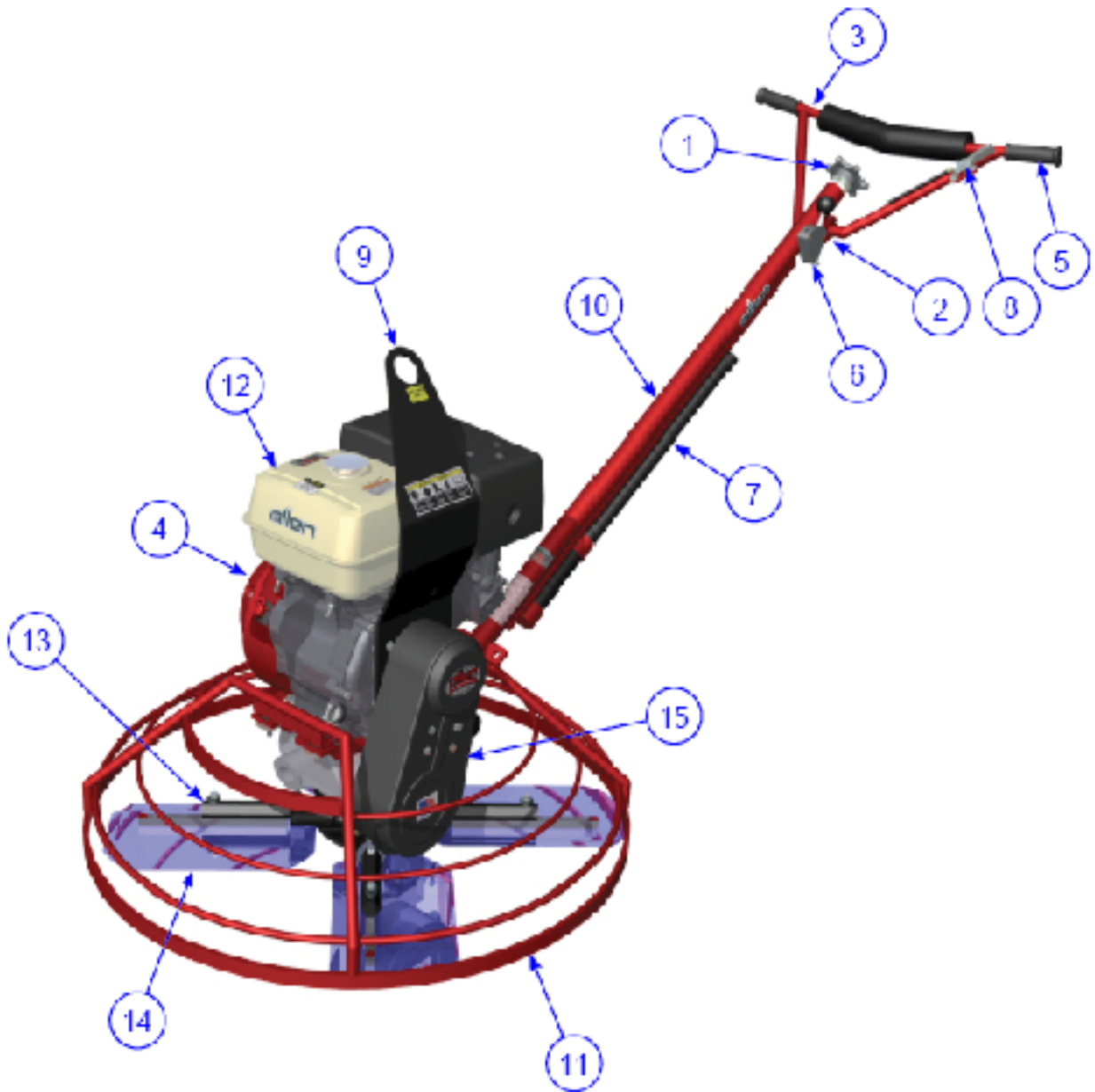
Check for damage, loose or missing hardware.

Blade Check

Check for worn or damaged blades. Check to see if a blade is worn out while the others look new. If this is the case there could be a blade pitch issue. Replace any worn blades.

Engine Oil Check

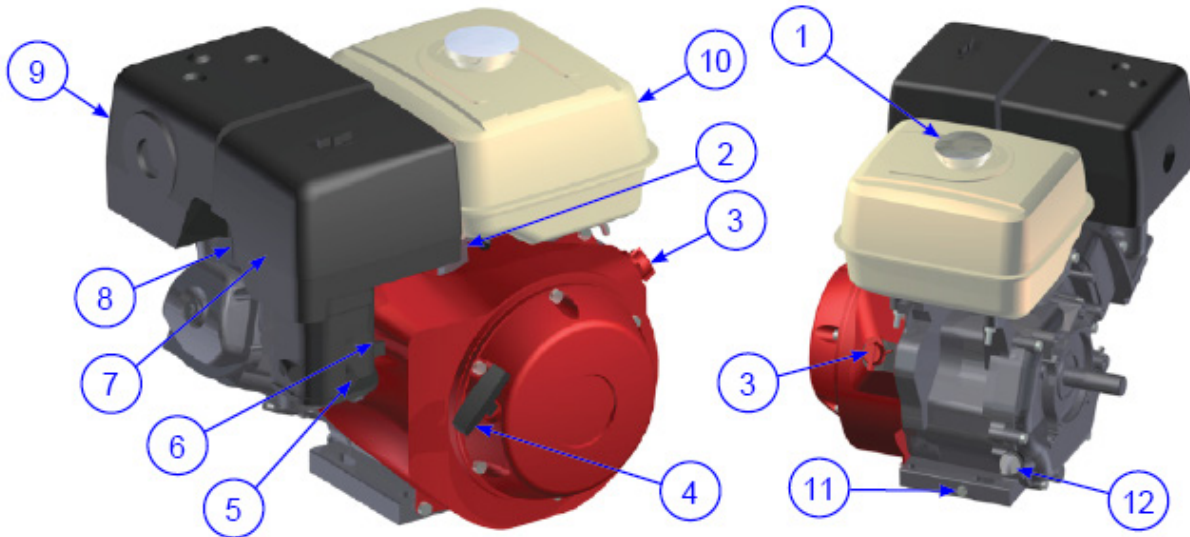
1. To check the engine oil level, place the trowel on secure level ground with the engine stopped.
2. Remove the filler dipstick from the engine oil filler hole and wipe clean.



SECTION 2 OPERATIONS

Controls (cont.)

- 1. Fine Pitch Control Handle** – To adjust the pitch of the blades, turn the handle either clockwise or counter-clockwise to achieve the desired blade pitch.
- 2. Handlebar Adjuster** – Change the angle/height of the handle bars by loosening bolts, adjust handlebars to desired location, tighten bolts firmly to hold handlebars in that position.
- 3. Handle Bar** – When operating the trowel, place both hands on each grip to maneuver the trowel.
- 4. Recoil Starter Housing** – Automatically spools the recoil starter rope when using to start the engine.
- 5. Hand Grip** – Replace hand grips when they become worn or damaged.
- 6. Centrifugal “Kill” Switch** – In the event the operator loses control of the trowel, this switch will shut-down the engine.
- 7. Lifting Tube** - Use this tube to lift the trowel onto a slab. Tube is to be inserted into socket located in front of the gearbox.
- 8. Throttle Lever** – Controls engine speed. Returns engine to idle when released.
- 9. Trowel Lifting Point** – The trowel is equipped with a lifting bail that can be used to safely lift and move the trowel.
- 10. Main Tube** - When disassembling components inside the tube exercise caution.
- 11. Guard Ring** - NEVER! put hands or feet inside guard ring while the machine is running.
- 12. Engine** – This trowel uses a Honda engine.
- 13. Trowel Arm** – NEVER operate the trowel with a bent, broken or out of adjustment trowel arm. If the blades show uneven wear patterns or some blades wear out faster than others, the trowel arm may need to be adjusted. Use the trowel arm alignment tool P/N 016863 to adjust the trowel arms.
- 14. Blades** – This trowel is equipped with combination blades. These blades are versatile and should take care of most troweling needs. In addition pans can be attached to the trowel arms that will allow the trowel to float on “wet” concrete.
- 18. Belt Cover** – Remove this cover to gain access to the drive belt. NEVER operate the trowel with this cover removed.



1. Fuel Filler Cap – Remove this cap to add unleaded gasoline to the fuel tank. Make sure cap is tightened securely. DO NOT over fill.

2. Throttle Lever – Used to adjust engine RPM speed (lever advanced forward SLOW, lever back toward operator FAST).

3. Engine ON/OFF Switch – ON position permits engine starting, OFF position stops engine operation.

4. Recoil Starter (pull rope) – Manual-starting method. Pull the starter grip until resistance is felt, then pull briskly and smoothly.

5. Fuel Valve Lever – OPEN to let fuel flow, CLOSE to stop the flow of fuel.

6. Choke Lever – Used in the starting of a cold engine, or in cold weather conditions. The choke enriches the fuel mixture.

7. Air Cleaner – Prevents dirt and other debris from entering the fuel system. Remove wing-nut on top of air filter canister to gain access to filter element.

8. Spark Plug – Provides spark to the ignition system. Set spark plug gap according to engine manufacturer's instructions. Clean spark plug once a week.

9. Muffler – Used to reduce noise and emissions.

10. Fuel Tank – Holds unleaded gasoline.

11. Oil Drain Plug – Remove this plug to remove oil from the engine's crankcase.

12. Dipstick/Oil Filler Cap – Remove this cap to determine if the engine oil is low.

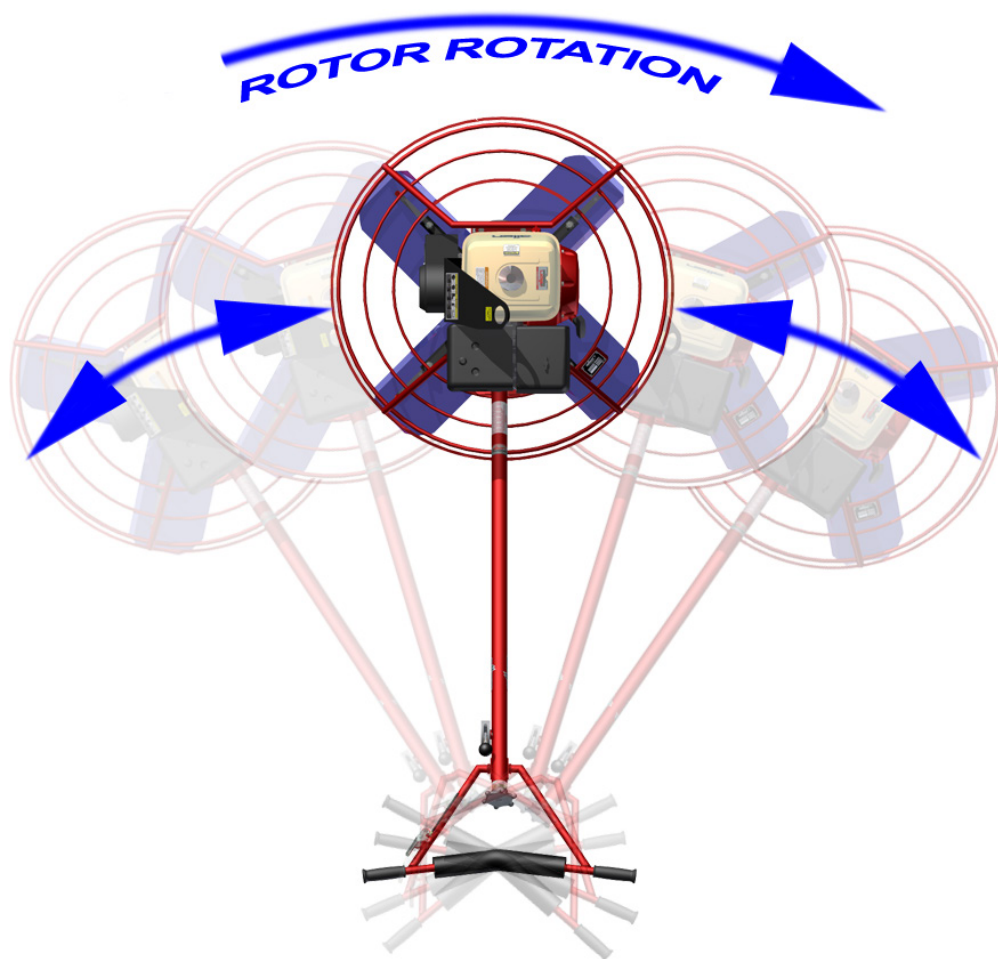
Operating The Trowel

The following steps are intended as a basic guide to machine operation, and are not to be considered a complete guide to concrete finishing. We suggest that all operators (experienced and novice) read "Slabs on Grade" published by the American Concrete Institute, Detroit, Michigan. Read the "Training" section of this manual for more information.

1. Get into the operator's position behind the handle. With a secure foothold and a firm grasp on the handles slowly increase the engine speed until the desired blade speed is obtained.
2. To maneuver the trowel, gently lift up on or press down on the main trowel handle. To move the machine to the operator's left, lift up on the handle, to move machine to the right, push down on the handle.
3. The best method for finishing concrete is to slowly walk backwards with the trowel, guiding the trowel from side to side. This will cover all footprints on wet concrete.
4. Remember that if you let go of the trowel, just step away and let the trowel come to a complete stop before trying to recover the trowel.

Stopping The Engine

1. Move the throttle lever to the IDLE or SLOW position and run the engine for three minutes at low speed.
2. After the engine cools, turn the engine start/stop switch to the "OFF" position.



Push down on the handle to move the rotor assembly to the right.

Pull up on the handle assembly to move the rotor assembly to the left.

Pitch Adjustment

Different pitch angles are needed as you work the different stages of the concrete. When changing or setting pitch (angle of trowel blades), slow the machine down, set the desired degree of pitch on the left side of the machine and then adjust the right side to match.

To increase the pitch, turn the pitch control clockwise use the pitch indicator to adjust pitch equally on both right and left trowel blades.

SECTION 3 SERVICE

Periodic Maintenance

Periodic Maintenance Schedule

The table below list basic trowel and engine maintenance. Refer to OEM engine manufacturer's Operation Manual for additional information on engine maintenance. A copy of the engine operator's manual was supplied with the machine when it was shipped. To service the engine pull the seat locking pin out and tilt seat back.

TABLE 3.1.1 CHECK LIST					
ITEM	DAILY	EVERY 20 HRS	EVERY 50 HRS	EVERY 100 HRS	EVERY 300 HRS
Grease towel arms	✓				
Check oil level in gearbox	✓				
Check engine oil level	✓				
Check & tighten external hardware	✓				
Check drive belt for wear		✓			
Check valve clearance					✓
Change engine oil				✓	
Replace engine oil filter				✓	
Grease trowel gearbox					✓
Replace spark plug					✓

Trowel Gearbox Maintenance

Check Oil levels in the gearbox daily (every 8 hours) Add oil if oil level is below the check sight glass.

- 1) To add oil tilt gearbox to the side and remove the fill plug. Add oil through hole opening. Replace fill plug after proper level has been achieved. Fill so that there is oil 1/2 way in the sight glass. Use Allen Oil only.
- 2) Each Gearbox has a grease fitting on top cover that must be greased (2 SHOTS ONLY) every 300 operating hours. Use only Mobilith SHC 220 Extended pressure grease.

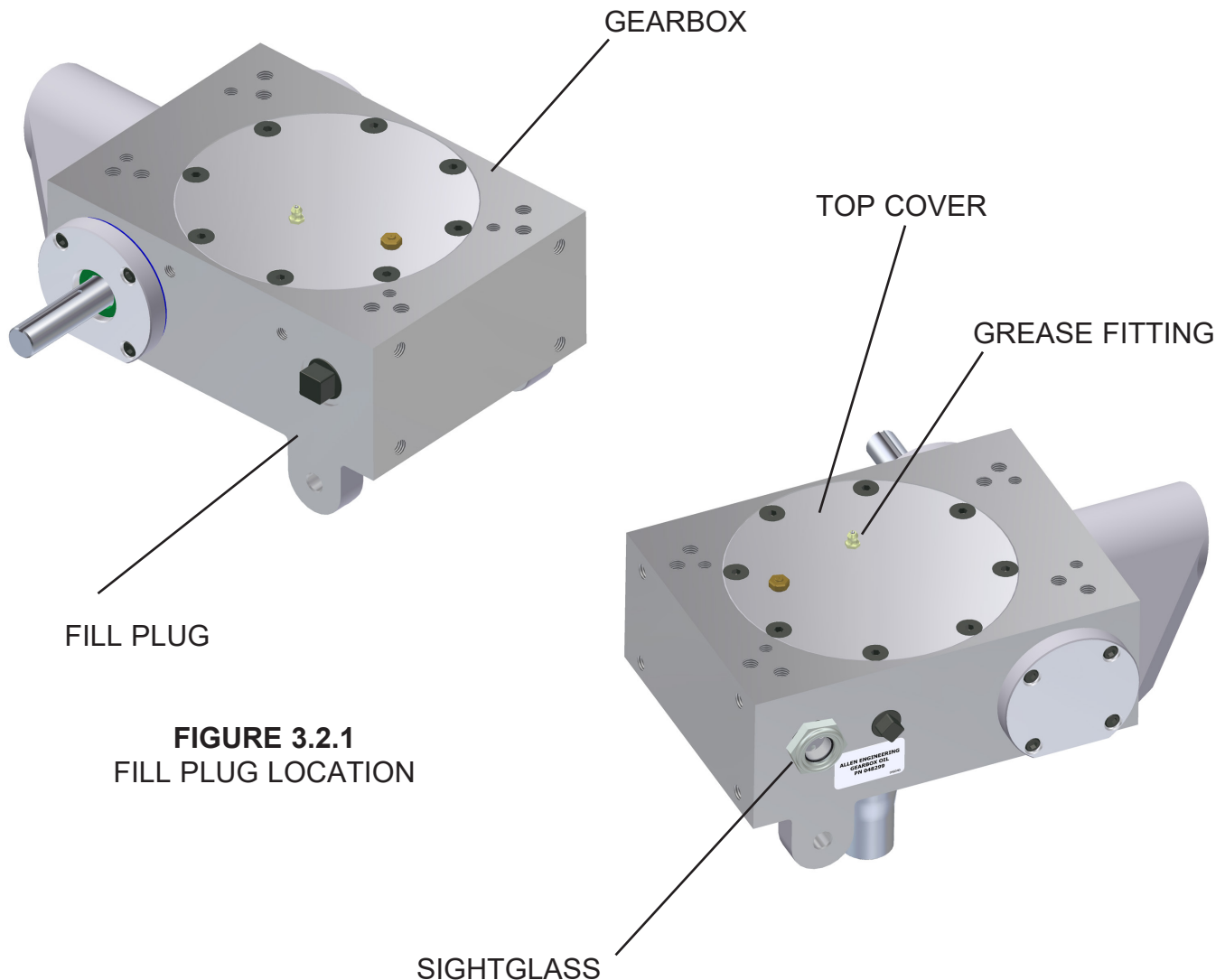


FIGURE 3.2.1
FILL PLUG LOCATION

FIGURE 3.2.2
GREASE FITTING LOCATION

Lift Lever Adjustment Procedure

Damage to and/or replacement of a trowel arm can change the adjustment of the lift lever. This can unbalance the trowel arms and cause the riding trowel to wobble during operation. To operate smoothly the lift lever on all trowel arms must be adjusted the same to ensure that the riding trowel is balanced correctly.

Adjusting the trowel arms is accomplished by using the optional trowel arm alignment jig AEC PN 016863. The service manual that is included with the alignment jig describes in detail the steps to perform this procedure and to check the flatness and straightness of the trowel arms.

The steps below describe the general procedure to remove the trowel arms to be aligned.



NOTE

Make sure that there is no pitch in the blades before attempting to remove a trowel arm.

- 1) Block up pressure plate **[A]** using a wooden block.
- 2) Remove stabilizer ring from spider assembly (only on available models).
- 3) Remove blades from trowel arms.
- 4) Loosen hex head cap screw **[B]** and remove it and the external star washer from the spider boss.
- 5) Remove trowel arms from spider boss with lift levers in place.
- 6) Clean flats on trowel arm before placing it in the trowel arm jig (PN 016863).
- 7) Perform the alignment procedures as outlined in the alignment jig service manual (PN 047427).
- 8) Re-attach trowel arm to spider boss and blades to trowel arms.
- 9) Tighten down hex head cap screw to secure trowel arm in place.
- 10) Reattach stabilizer ring (only on available models).

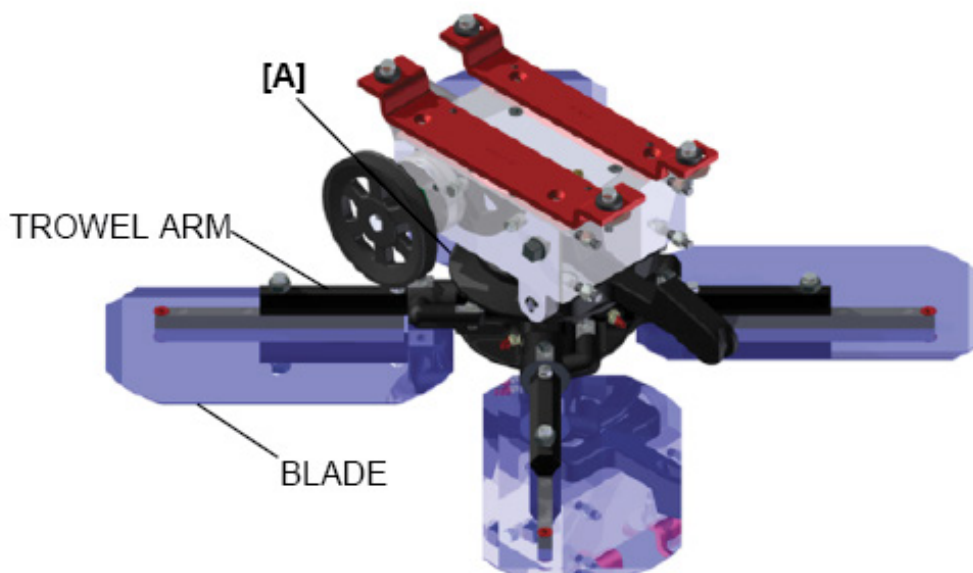


FIGURE 3.6.1
PRESSURE PLATE LOCATION

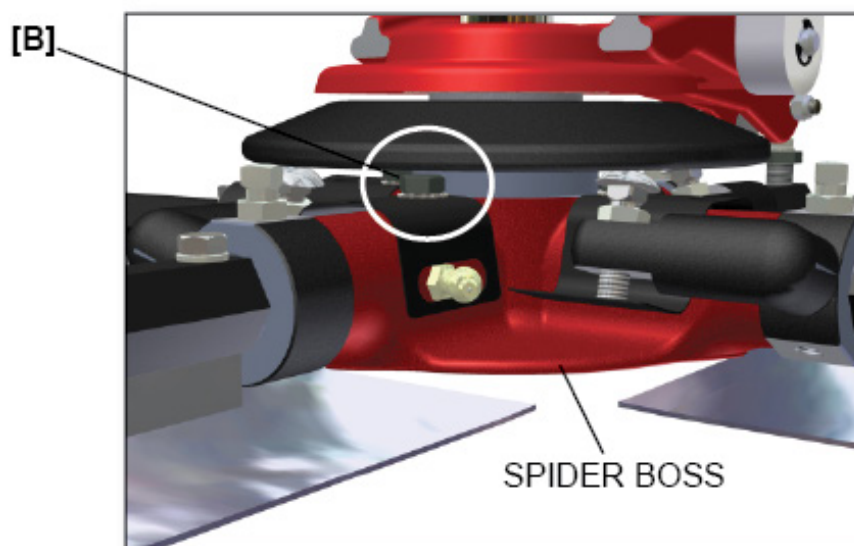


FIGURE 3.6.2
FASTENER HARDWARE REMOVAL

SECTION 3 SERVICE

Transporting Trowel

Transporting Trowel Procedures

Extra care should be taken when lifting the trowel off the ground. Serious damage to the machine or personal injury could be caused by dropping a trowel.

CAUTION

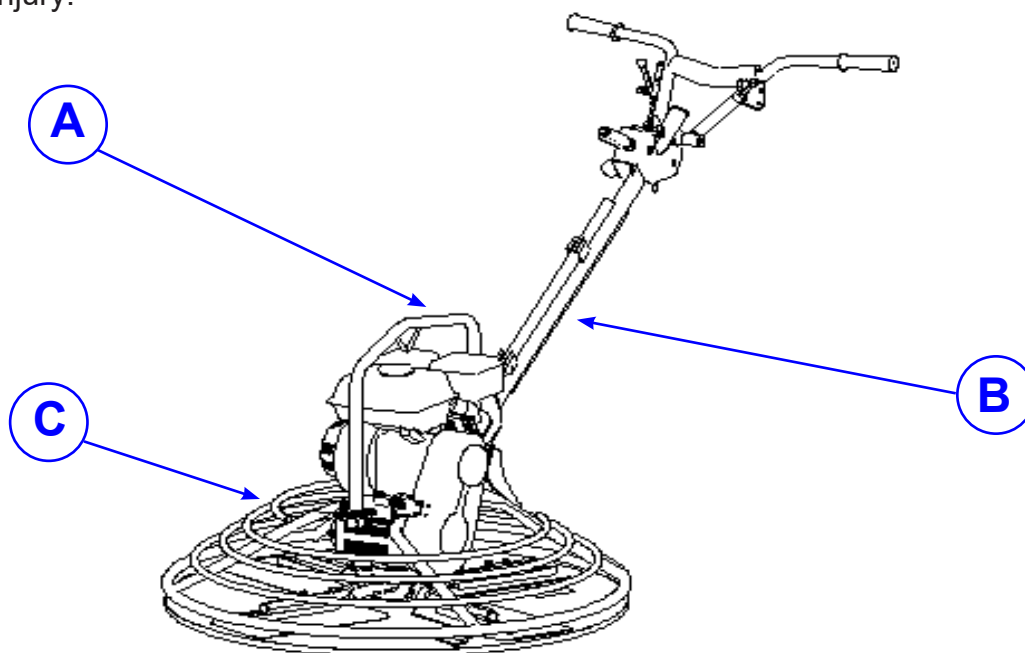
The trowel is heavy and awkward to move around. Use proper heavy lifting procedures and DO NOT lift the trowel by the guard rings.

The lift bale(A) provides an optimal lift point for moving the trowel. A forklift can be used to lift a trowel up onto a building. Using a crane to move a machine with a lift bale is highly recommended, and is perfectly safe for the machine. Extra care should be taken when lifting the machine off the ground, however. Serious damage to the machine or personal injury could be caused by dropping a trowel.

Remove the auxiliary lifting tube(B) located on the bottom of the main handle. Insert the tube into the socket(C) located on the opposite side of the gearbox from the handle. Make sure that the hole in the tube engages with the socket. With one person lifting from the main handle, and another lifting from the auxiliary lifting tube pick up the machine to move it onto a slab.

CAUTION

The trowel must be stabilized by the person carrying the operator's handle. If it is not stabilized properly, the handle could swing around and flip the trowel, causing damage to the trowel and also bodily injury.



NOTES	SECTION 3 SERVICE
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NOTES	SECTION 3 SERVICE
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SECTION 4 PARTS

Factory Service Information

This section contains the illustrated drawings and parts list for help in identifying and/or ordering replacement parts for your machine. Follow the instructions in the front section of this manual “Ordering Parts” when ordering replacement parts to insure prompt and accurate delivery.

The FRONT and/or REAR orientations are defined from the operator’s view of sitting on machine (SOM).



! NOTE

All set screws have blue (LOC-TITE™) applied at the factory. If set screw is removed or loosened for any reason re-apply blue (LOC-TITE™).



! NOTE

All grease fittings are capped with CAP PLUG GC-5 (AEC PN 015692) to protect the fitting. If cap becomes missing or damaged replace it as soon as possible.



! NOTE

Anti-Seize is applied at the factory to drive line couplings, and moving components. If these parts are disassembled re-apply a light coat of a graphite based anti-seize.

We recommend AEC quality replacement parts, available from the AEC Customer Service Department or your nearest AEC Dealer.

Part numbers are subject to change without notice. Part numbers might be different outside of the United States of America. Use part numbers listed in the applicable parts list table when you place your order. If a part number changes, the AEC Customer Service Department or your nearest AEC dealer will have the latest part number for the replacement part.

Remember when you order replacement parts, you will need your model number and serial number. These are the numbers that you have recorded in the UNIT ID section of this manual. Please order replacement parts by the appropriate part number, not the key number.

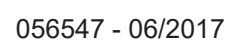
This manual contains an illustrated parts list for help in ordering replacement parts for your machine. Follow the instructions below when ordering parts to insure prompt and accurate delivery:

1. All orders for service parts - include the serial number for the machine. Shipment will be delayed if this information is not available.
2. Include correct description and part number from the “PARTS” Section 4.
3. Specify exact shipping instructions, including the preferred routing and complete destination address.
4. DO NOT return parts to AEC without receiving written authorization from AEC. All authorized returns must be shipped pre-paid.
5. When placing an order, please contact the AEC Dealer nearest you.



All information, specifications, and illustrations in this manual are subject to change without notice and are based on the latest information at the time of publication.

Spider Assembly - VP436 Illustration



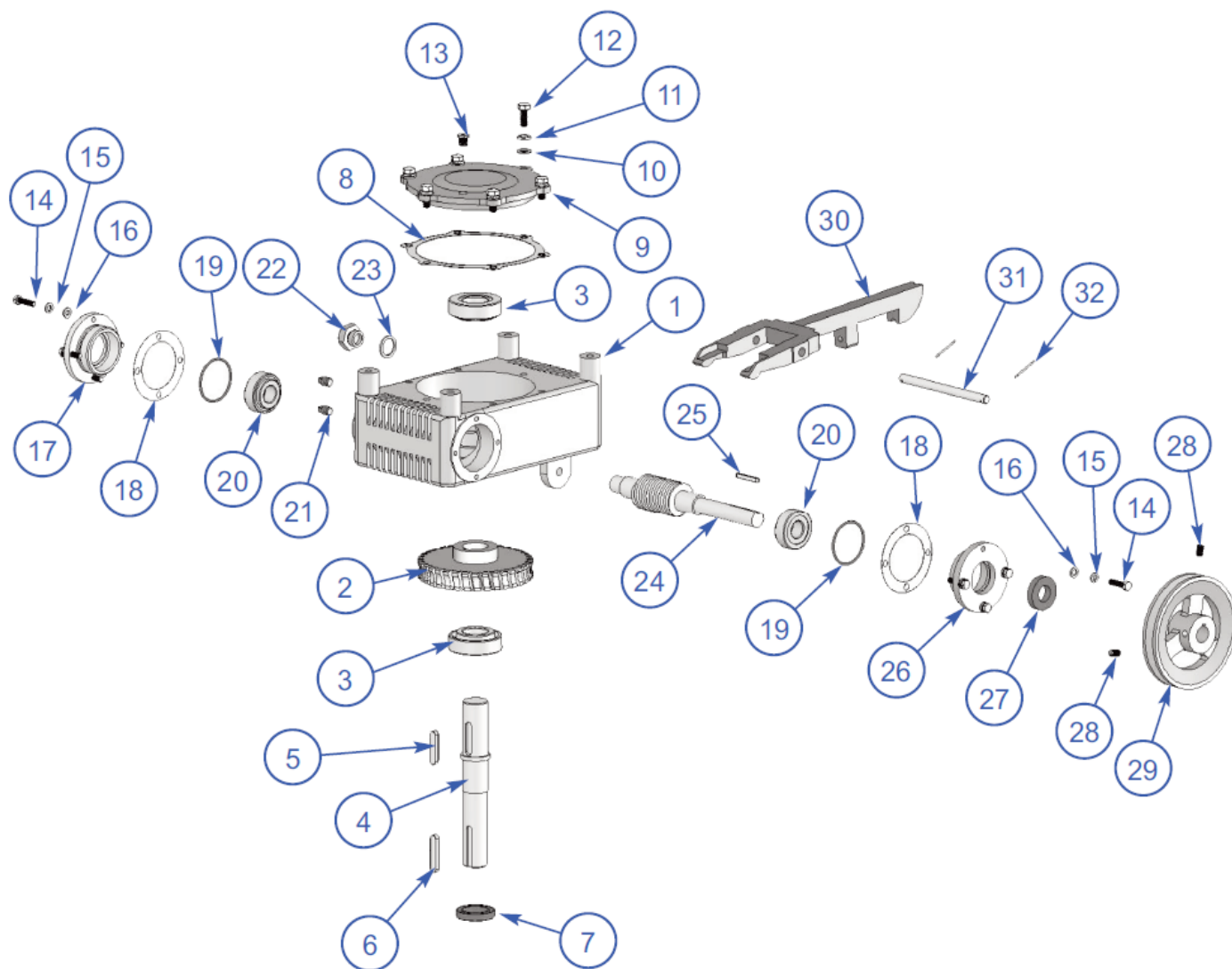
Spider Assembly - VP436 Parts List

SECTION 4 PARTS

ITEM	PART NO.	DESCRIPTION	QTY
1	059141	SPIDER	1
2	059142	TILT PLATE	1
3	059143	BEARING	1
4	059144	BEARING HOUSING	1
5	059145	GREASE NIPPLE	4
6	059146	NUT	8
7	059118	BOLT	4
8	059147	O-RING	4
9	059148	BOLT	4
10	059149	SPRING WASHER	4
11	059150	SPRING SLICE	4
12	059151	BOLT	4
13	059152	SPRING PIN	4
14	059007	TILT ARM, 36"+46"	4
15	015890	BLADE	4
16	059154	SPIDER ARM, 36"	4
17	000000	WASHER	4
18	000000	SPRING WASHER	8
19	059155	BOLT	9
20	059156	THIN NUT	8
21	059109	BOLT	4
22	059157	WASHER	4
23	059158	BOLT	1
24	059159	RUBBER WASHER	1
25	059160	INTERNAL CIRCLIP	1

SECTION 4 PARTS

Gearbox for VP436 and VP446 Illustration



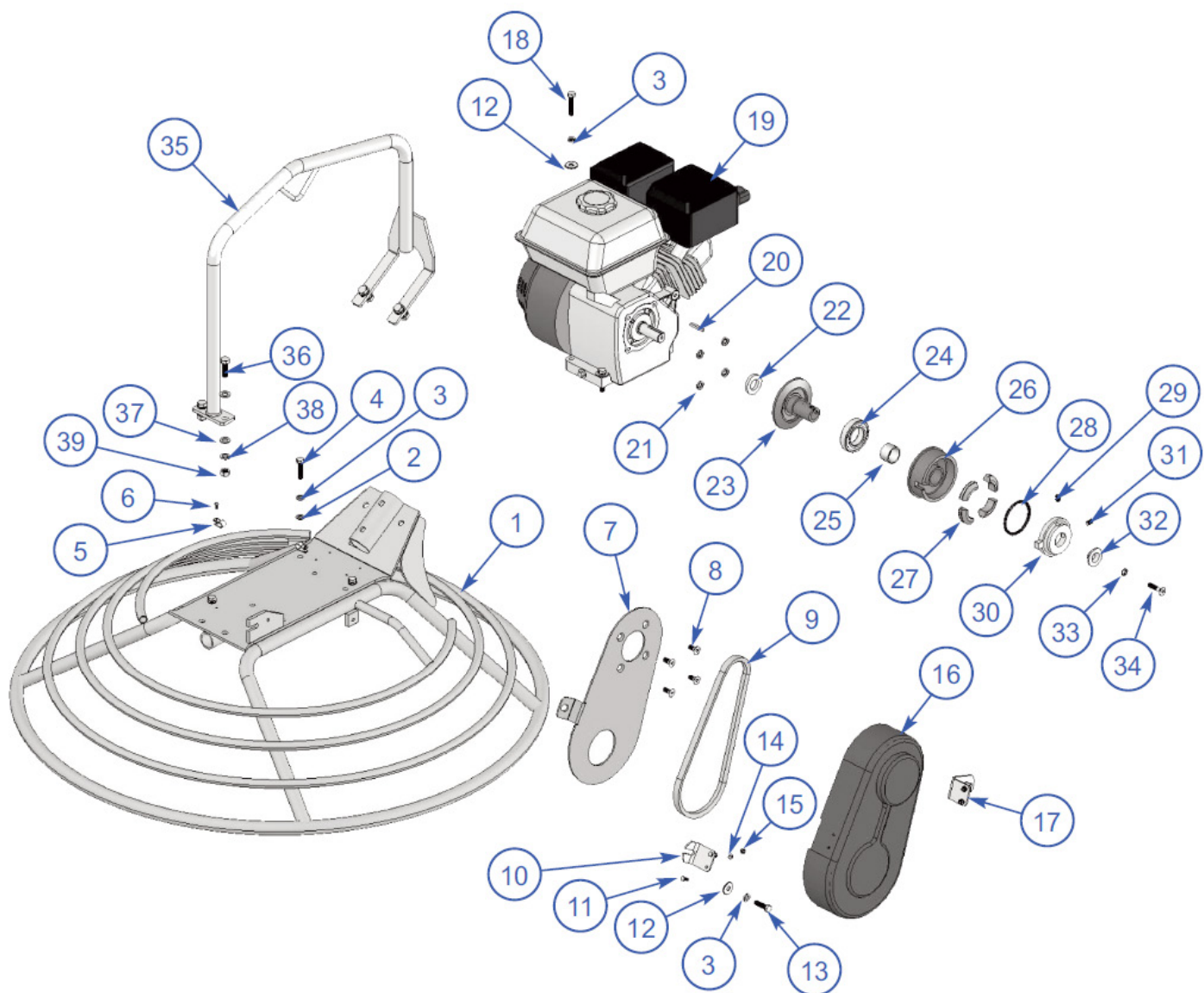
Gearbox for VP436 and VP446 Parts List

SECTION 4 PARTS

ITEM	PART NO.	DESCRIPTION	QTY
	059502	436 COMPLETE GEARBOX ASSEMBLY	
	059503	446 COMPLETE GEARBOX ASSEMBLY	
1	000000	WORM GEAR BOX	1
2	073551	WORM GEAR	1
3	073552	BEARING	2
4	073553	WORM GEAR SHAFT	1
5	073554	KEY	1
6	000000	KEY	1
7	073555	OIL SEAL	1
8	000000	SEAL, TOP COVER	1
9	000000	TOP COVER	1
10	000000	WASHER	6
11	000000	SPRING WASHER	6
12	000000	BOLT	6
13	000000	VENT SCREW	1
14	000000	BOLT	8
15	000000	SPRING WASHER	8
16	000000	WASHER	8
17	000000	CLOSE COVER	1
18	073556	SEAL, SIDE COVER	2
19	073557	O-RING	2
20	073558	BEARING	2
21	000000	STOPPER	2
22	000000	OIL GAUGE	1
23	000000	WASHER	1
24	073559	WORM	1
25	073560	KEY	1
26	000000	SIDE COVER	1
27	073561	OIL SEAL	1
28	000000	GRUB SCREW	2
29	059137	PULLEY	1
30	059138	TILT YOKE	1
31	059139	SHAFT	1
32	059140	SPLIT PIN	2

SECTION 4 PARTS

Engine Clutch Assembly - VP436 Illustration



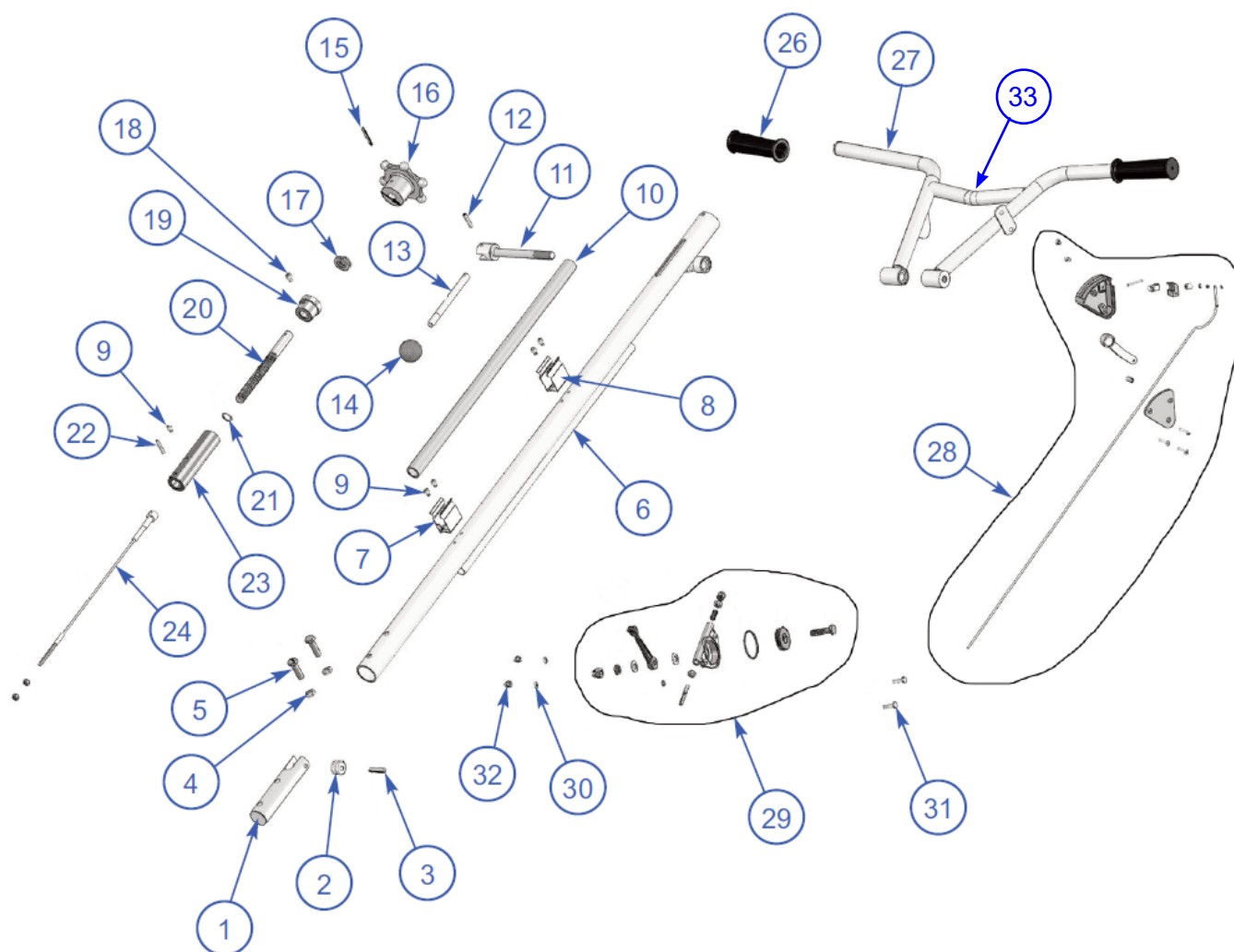
Engine Clutch Assembly - VP436 Parts List

SECTION 4 PARTS

ITEM	PART NO.	DESCRIPTION	QTY
A	061038	Clutch Assembly for VP436	1
1	059106	GUARD RING	1
2	059107	WASHER	4
3	059108	SPRING WASHER	10
4	059109	BOLT	4
5	059110	CABLE CLAMP	1
6	059111	PAN HEAD SCREW	1
7	059112	BACK PLATE	1
8	059113	SOCKET COUNTERSUNK HEAD SCREW	4
9	059114	V-BELT	1
10	059115	BRACKET 1	1
11	059116	BOLT	4
12	059117	WASHER	6
13	059118	BOLT	2
14	059119	WASHER	4
15	059120	LOCK NUT	4
16	059121	BELT GUARD	1
17	059122	BRACKET 2	1
18	059123	BOLT	4
19	018961	ENGINE, HONDA 5.5 HP	1
	059220	ENGINE, VANGUARD 6.5 HP	1
20	059124	KEY	1
21	059125	BUSH	4
22	059126	BUSH, PTO	1
23	000000	SHAFT	1
24	000000	BEARING	1
25	000000	BUSH	1
26	000000	CLUTCH DRUM	1
27	059127	CLUTCH BLOCK	4
28	059128	SPRING WASHER	1
29	059136	GRUB SCREW	1
30	000000	CLUTCH PLATE	1
31	000000	SOCKET HEAD SCREW	1
32	059129	END CAP	1
33	000000	C'SINK EXTERNAL TOOTH LOCK WASHER	1
34	000000	SOCKET C'SINK HEAD SCREW	1
35	000000	LIFTING HANDLE	1
36	000000	BOLT	4
37	000000	WASHER	8
38	059165	SPRING WASHER	4
39	000000	NUT	4

SECTION 4 PARTS

Handle For VP436 and VP446 Illustration



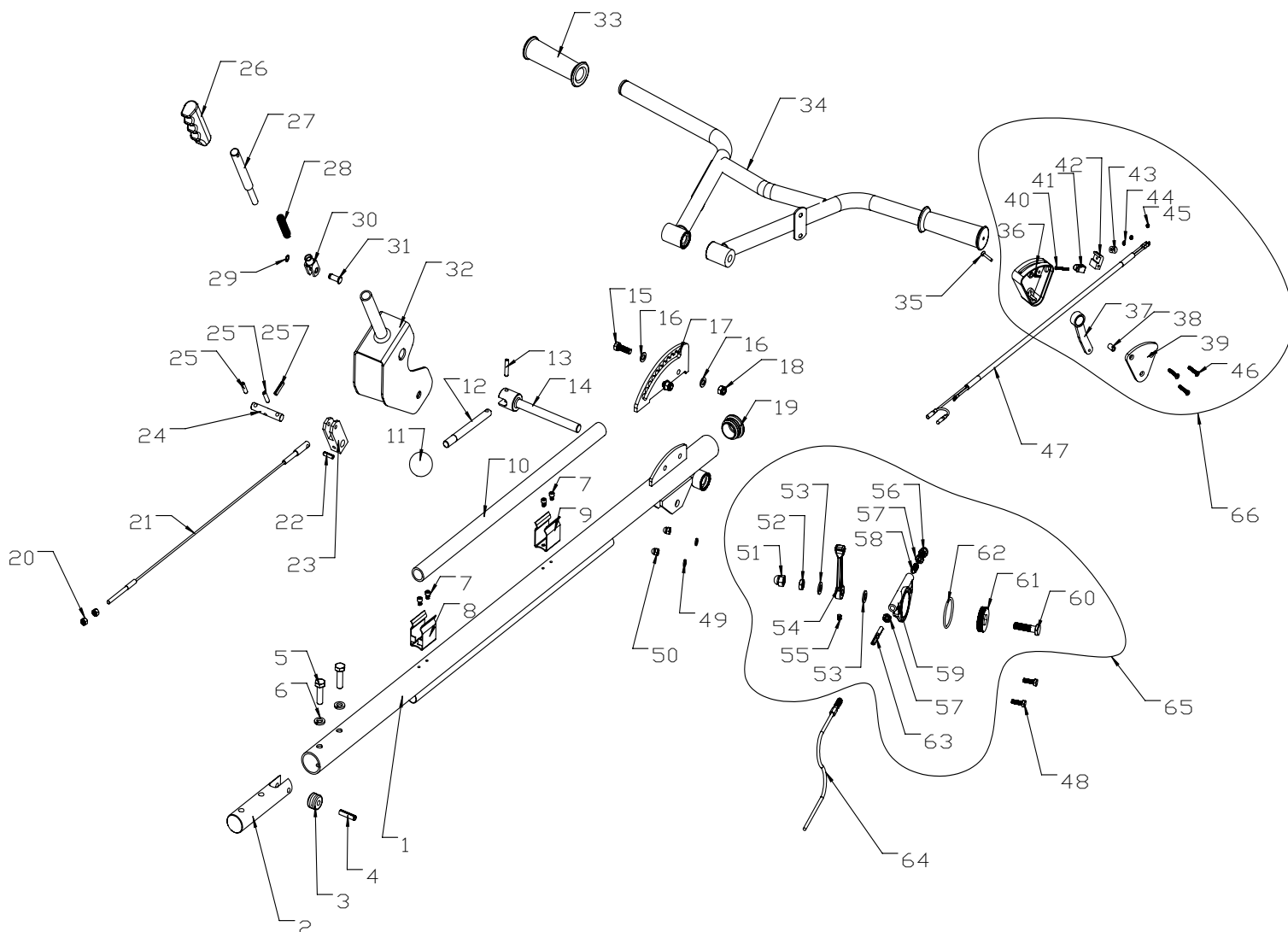
Handle For VP436 and VP446 Parts List

SECTION 4 PARTS

ITEM	PART NO.	DESCRIPTION	QTY
1	059162	WHEEL BLOCK	1
2	059163	WHEEL	1
3	059164	SPRING PIN 8X32	1
4	059165	FSTN, LW W10-DIN-1	2
5	059166	FSTN, HHCS M10X35-8.8-DIN-1	2
6	059161	HANDLE BOTTOM	1
7	059167	SPRING CLIP 2	1
8	059169	SPRING CLIP 1	1
9	059168	FSTN, SCREW M5X8-8.8-GB-1	5
10	059170	LIFTING TIBE	1
11	059171	SCREW - TOMMY BAR	1
12	059172	SPRING PIN 6*30	1
13	059173	BAR	1
14	059073	GRIP BALL	1
15	059087	SPRING PIN 5X40	1
16	059088	PITCH CONTROL KNOB	1
17	059086	BEARING	1
18	059084	FSTN, M6X8-8.8-GB-1	1
19	059174	BEARING COVER	1
20	059083	ADJUSTING SCREW	1
21	059082	EXTERNAL CIRCLIP	1
22	059176	SPRING PIN 5X30	1
23	059175	SLIDE BUSHING	1
24	064402	DEPTH CONTROL CABLE FP VP436/46 52"	1
	064643	DEPTH CONTROL CABLE FP VP436/46 50 1/4"	1
25	059077	FSTN, NUT M6	2
26	059184	HANDLE COVER	2
27	059185	HANDLEBAR	1
28	065106	SWITCH, VP CENTRIFUGAL KILL	2
29	059105	ASSY, THROTTLE LEVER F/VP WALKER	1
30	059149	FSTN, LW W6-DIN-2	2
31	059028	FSTN, HHCS M6X20-8.8-DIN-2	2
32	062606	FSTN, CAP NUT M6-DIN-2	2
33	065733	COVER, WB HANDLE BELLY PAD UHC	1

SECTION 4 PARTS

Quick Pitch Handle Assembly Illustration



ITEM	PART NO.	DESCRIPTION	QTY
1	061011	HANDLE ASSEMBLY, QUICK PITCH WB	1
2	059162	WHEEL BLOCK VP WALKER	1
3	059163	WHEEL VP WALKER	1
4	059164	SPRING PIN VP WALKER	1
5	059166	BOLT VP WALKER	2
6	059165	SPRING WASHER VP WALKER	2
7	059168	SCREW VP WALKER	4
8	059167	SPRING CLIP VP WALKER	1
9	059169	SPRING CLIP VP WALKER	1
10	059170	LIFTING TUBE VP WALKER	1
11	059073	GRIP BALL VP WALKER	1
12	065055	STEM, HANDLE ADJUSTMENT (2016)	1
13	059172	SPRING PIN VP WALKER	1
14	059171	SCREWD-TOMMY BAR VP WALKER	1
15	059040	BOLT VP WALKER	2
16	059107	WASHER VP WALKER	4
17	000000	ADJUSTER RING	1

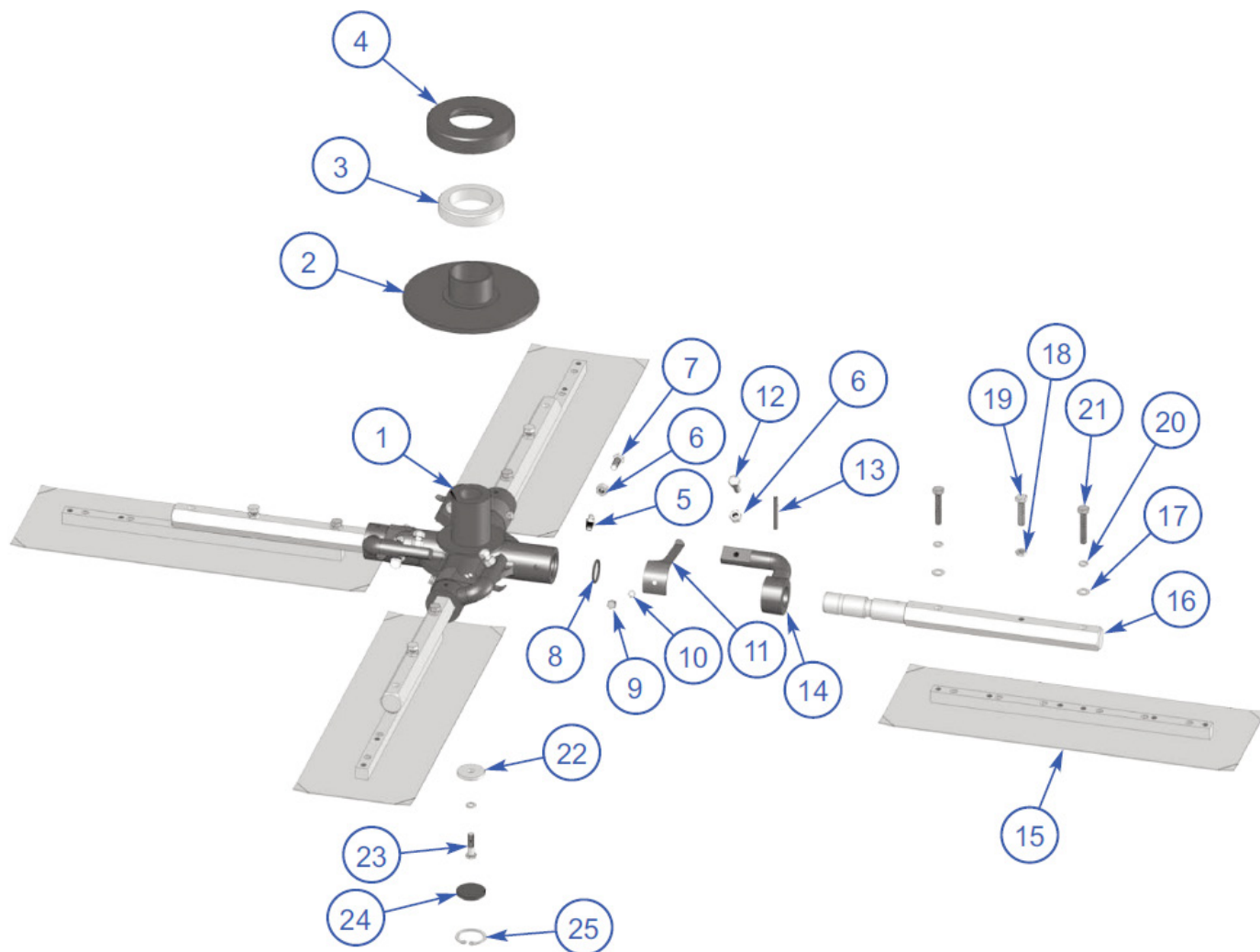
Quick Pitch Handle Assembly Parts List

SECTION 4 PARTS

ITEM	PART NO.	DESCRIPTION	QTY
18	063703	FSTN, LOCK NUT M8-DIN-1	2
19	000000	ESI PITCH INSERT	1
20	061825	NUT, RAMMER	2
21	065058	CABLE, PITCH CONTRL (2016)	1
22	000000	SPRING PIN	1
23	000000	CALE MOUNT	1
24	000000	PIVOT SHAFT	1
25	000000	SPRING PIN	3
26	061642	RIGHT FRICTION WHL LEVER	1
27	065568	PIN QUICK PITCH	1
28	065569	SPRING QUICK PITCH	1
29	059035	EXTERNAL CIRCLIP VP WALKER (VP424)	1
30	061017	CLEVIS, QUICK PITCH	1
31	000000	ADJUSTER PIN	1
32	000000	MECHANISM FORK	1
33	063136	HANDLE COVER	2
34	066046	HANDLEBAR, FINE 2016	1
35	059116	BOLT VP WALKER	2
36	see 66	CUTOUT SWITCH SHELL	1
37	see 66	CUTOUT SWITCH LEVER	1
38	see 66	CUTOUT SWITCH BUSH	1
39	see 66	CUTOUT COVER	1
40	see 66	COUNTERSUNK HEAD SCREW	1
41	see 66	CUTOUT SWITCH REED	1
42	see 66	CUTOUT SWITCH OUTLET	1
43	see 66	CUTOUT SWITCH WASHER	1
44	see 66	WASHER	1
45	see 66	NUT	2
46	see 66	COUNTERSUNK HEAD SCREW	3
47	065059	WIRE, KILL SWITCH (2016)	1
48	065441	BOLT, THROTTLE LEVER ASSY	2
49	063149	SPRING WASHER, TANG ENDS	2
50	065443	NUT, CAP THROTTLE LEVER ASY	2
51	061771	CAP NUT	1
52	062709	HEXAGON THIN NUT VIBRATORY	1
53	061586	FSTN WASHER	2
54	061773	THROTTLE LEVER	1
55	063178	SOCKET SCREW W FLAT HEAD	1
56	061782	CAP NUT	1
57	061781	HEXAGON THIN NUT	2
58	061616	SOCKET SCREW W FLAT HD	1
59	061779	THROTTLE BODY	1
60	061776	BOLT	1
61	061780	THROTTLE GEAR	1
62	062612	O-RING, VIBRATORY PLATE	1
63	062715	SLIDER, VIBRATORY PLATE	1
64	059104	CABLE, THROTTLE VP424	1
65	059105	THROTTLE LEVER ASSY	
66	065106	SWITCH, VP CENTRIFUGAL KILL	

SECTION 4 PARTS

Spider Assembly - VP446 Parts List



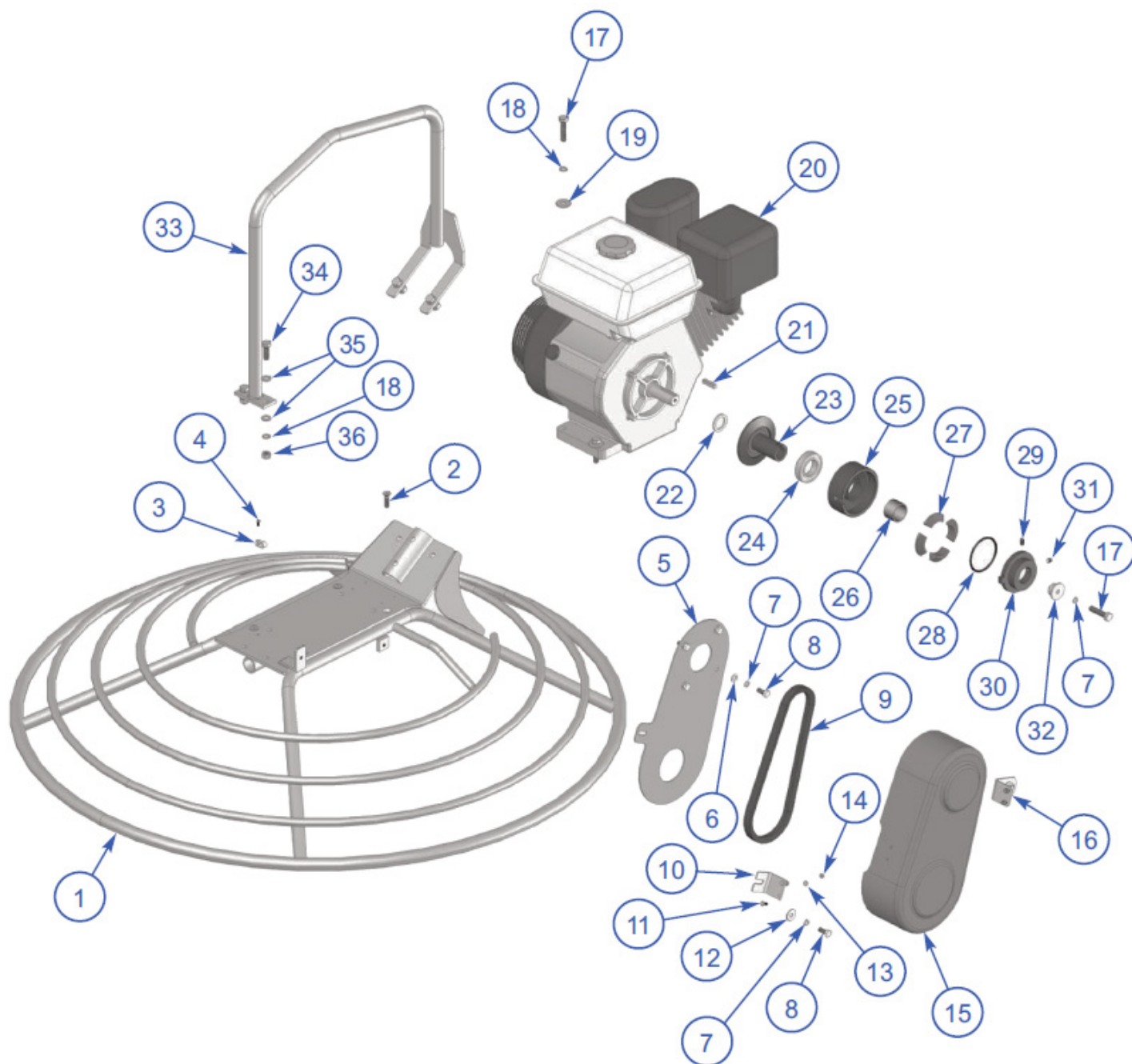
Spider Assembly - VP446 Parts List

SECTION 4 PARTS

ITEM	PART NO.	DESCRIPTION	QTY
1	059141	SPIDER	1
2	059142	TILT PLATE	1
3	059143	BEARING	1
4	059144	BEARING HOUSING	1
5	059145	GREASE NIPPLE	4
6	059146	NUT	8
7	059118	BOLT	4
8	059147	O-RING	4
9	059148	BOLT	4
10	059149	SPRING WASHER	4
11	059150	SPRING SLICE	4
12	059151	BOLT	4
13	059152	SPRING PIN	4
14	059007	TILT ARM, 36"+46"	4
15	015695	BLADE	4
16	059507	SPIDER ARM, 46"	4
17	000000	WASHER	4
18	000000	SPRNG WASHER	8
19	059155	BOLT	9
20	059156	THIN NUT	8
21	059109	BOLT	4
22	059157	WASHER	4
23	059158	BOLT	1
24	059159	RUBBER WASHER	1
25	059160	INTERNAL CIRCLIP	1

SECTION 4 PARTS

Engine Clutch Assembly - VP446 Illustration



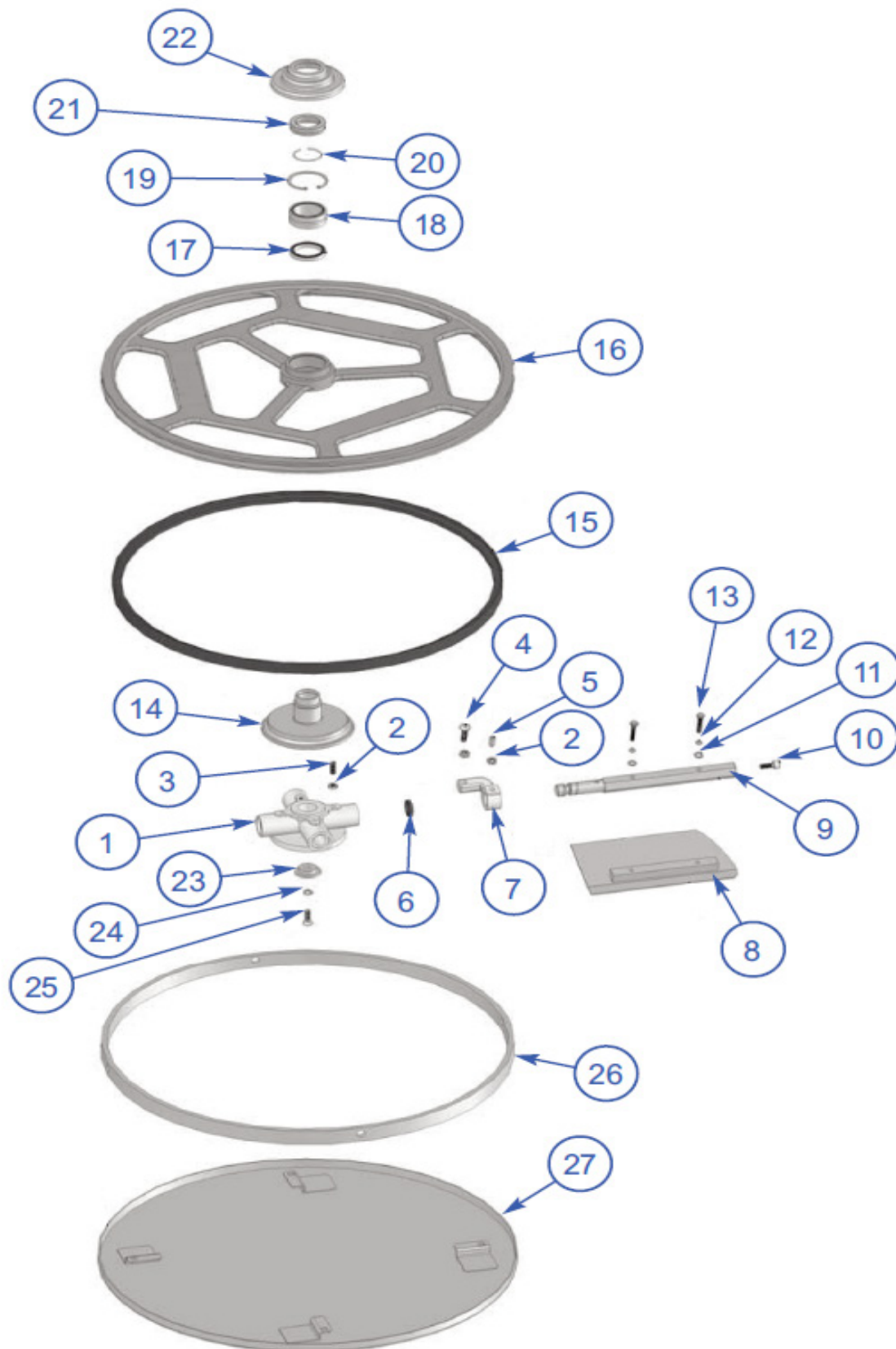
Engine Clutch Assembly- VP446 Parts List

SECTION 4 PARTS

ITEM	PART NO.	DESCRIPTION	QTY
A	061039	VP446 - Clutch Assembly	1
1	059191	GUARD RING	1
2	059192	SOCKET C'SINK HEAD SCREW	4
3	059110	CABLE CLAMP	1
4	059111	PAN HEAD SCREW	1
5	059193	BACK PLATE	1
6	059045	WASHER	8
7	059046	SPRING WASHER	9
8	059047	BOLT	6
9	059195	V-BELT	1
10	059196	BRACKET 1	1
11	059116	BOLT	4
12	059117	WASHER	2
13	059119	WASHER	4
14	059120	LOCK NUT	4
15	059197	BELT GUARD	1
16	059201	BRACKET 2	1
17	059199	BOLT	5
18	059165	SPRING WASHER	6
19	000000	WASHER	4
20	042481	ENGINE	1
21	059200	KEY	1
22	059201	BUSH, PTO	1
	047843	CLUTCH, 1" BORE NR WE25	1
23	000000	SHAFT	1
24	000000	BEARING	1
25	000000	CLUTCH HOUSING	1
26	000000	BUSH	1
27	059202	CLUTCH BLOCK	4
28	059203	SPRING WASHER	1
29	059136	GRUB SCREW	1
30	000000	CLUTCH PLATE	1
31	059031	SOCKET HEAD SCREW	1
32	059204	END CAP	1
33	059115	LIFTING HANDLE	1
34	010036	BOLT	4
35	010091	WASHER	4
36	010102	NUT	4

SECTION 4 PARTS

424 Edging Power Unit Illustration



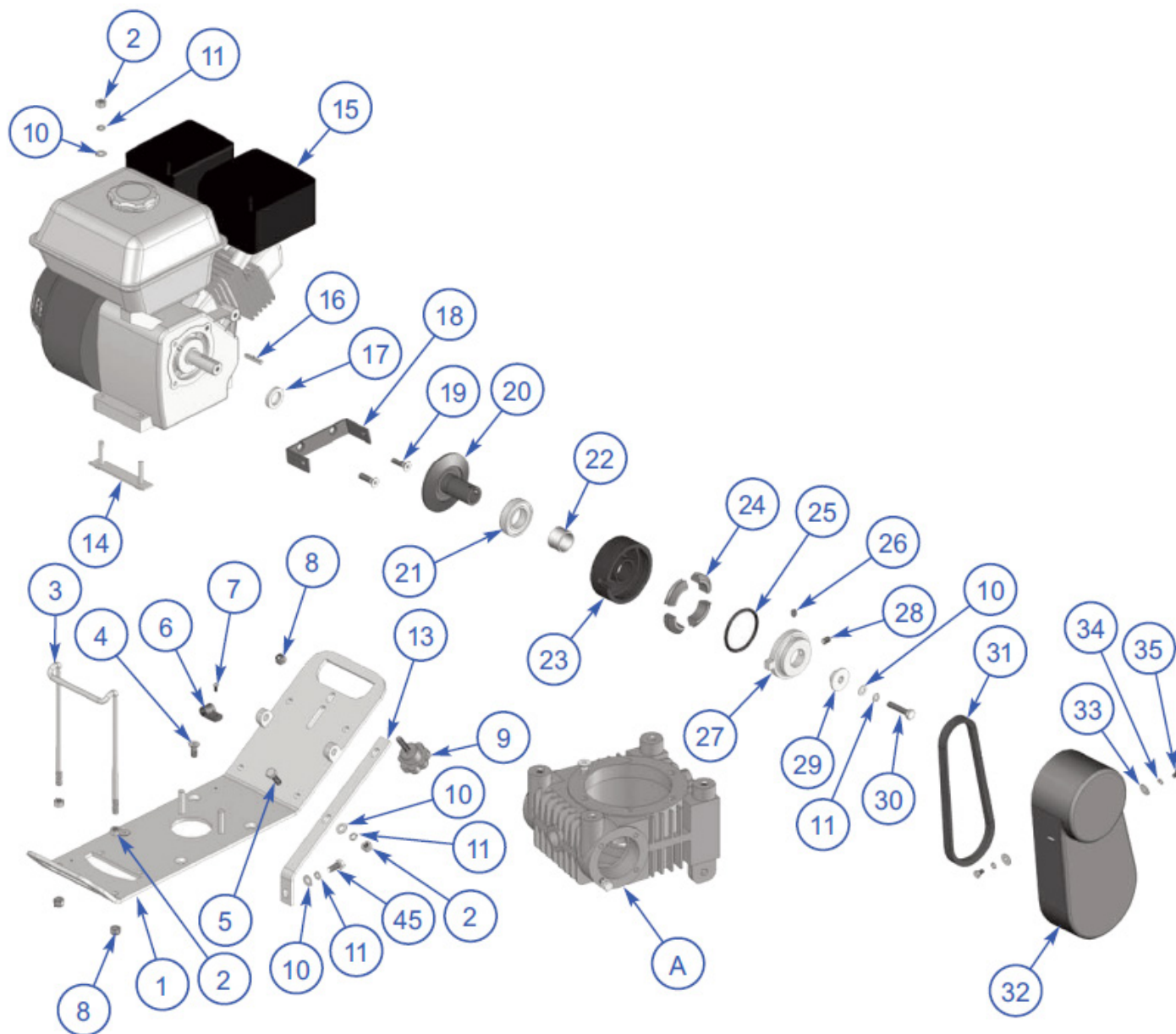
424 Edging Power Unit Parts List

SECTION 4 PARTS

ITEM	PART NO.	DESCRIPTION	QTY
1	059001	SPIDER	1
2	059002	THIN NUT	12
3	059003	SOCKET SCREW WITH FLAT HEAD	4
4	059004	BOLT	4
5	059005	SOCKET SCREW WITH CYL HEAD	4
6	059006	OIL SEAL	4
7	059153	TILT ARM	4
8	059008	BLADE	4
9	059009	SPIDER ARM	4
10	059010	SCREW	4
11	059011	WASHER	8
12	059012	SPRING WASHER	8
13	059013	BOLT	8
14	059014	TILT PLATE	1
15	059015	RUBBER RING	1
16	059016	GUARD PLATE	1
17	059017	BEARING	1
18	059018	BEARING	1
19	059019	INTERNAL CIRCLIP	1
20	059020	EXTERNAL CIRCLIP	1
21	059021	BEARING	1
22	059022	BEARING COVER	1
23	059023	END CAP	1
24	059024	C'SINK EXT TOOTH LOCK WASHER	1
25	059025	SOCKET C'SING HEAD SCREW	1
26	059026	GUARD RING	1
27	000000	ROUND PAN	1
28	059033	TILT YOKE VP WALER (VP424)	1

SECTION 4 PARTS

Engine Clutch Assembly - VP424 Illustration



Engine Clutch Assembly- VP424

Parts List

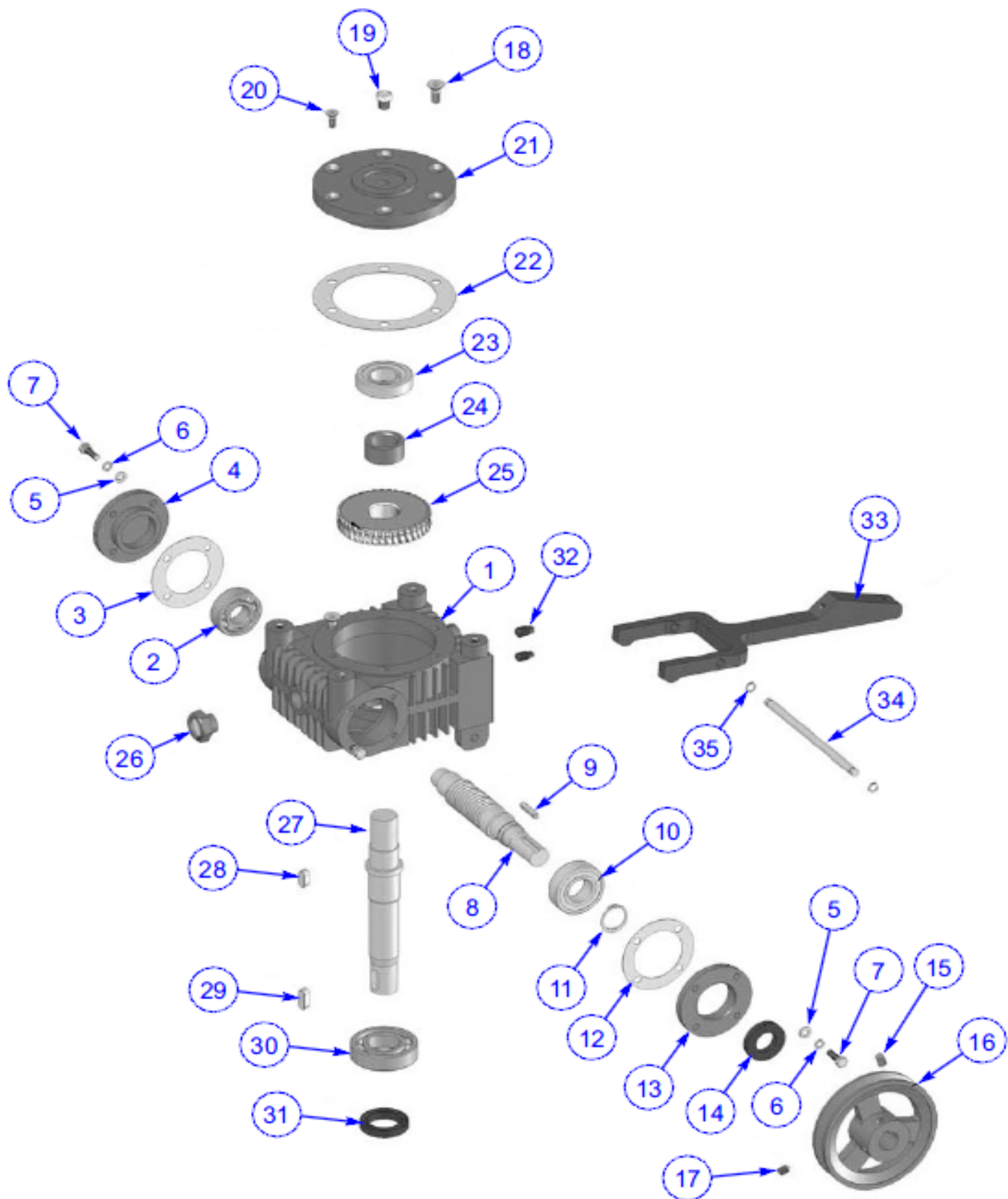
SECTION 4

PARTS

ITEM	PART NO.	DESCRIPTION	QTY
A	059501	GEARBOX, VP424	1
1	059036	ENGINE BASE	1
2	059037	NUT	10
3	059038	HOOK	1
4	059039	SOCKET C'SUNK HEAD SCREW	4
5	059040	BOLT	4
6	059041	CLIP	2
7	059042	PAN HEAD SCREW	2
8	059043	CHECK NUT	3
9	059044	STAR GRIP KNOB	1
10	059045	WASHER	11
11	059046	SPRING WASHER	11
12	059047	BOLT	2
13	059048	BRACKET	2
14	059049	BOLT	1
15	018961	ENGINE BASE	1
16	059050	KEY	1
17	059051	BUSH	1
18	059052	BRACKET	1
19	059053	SOCKET C'SUNK HEAD SCREW	2
	070064	CLUTCH, 3/4" BORE NR WE	1
20	000000	SHAFT	1
21	000000	BEARING	1
22	000000	BUSH	1
23	000000	CLUTCH DRUM	1
24	000000	CLUTCH BLOCK	4
25	000000	SPRING WASHER	1
26	059031	SOCKET HEAD SCREW	1
27	000000	CLUTCH PLATE	1
28	059029	GRUB SCREW	1
29	000000	WASHER	1
30	059123	BOLT	1
31	059056	V-BELT	1
32	059057	BELT COVER	1
33	059058	WASHER	2
34	059059	SPRING WASHER	2
35	059060	BOLT	2

SECTION 4 PARTS

Gearbox Assembly - VP424 Illustration



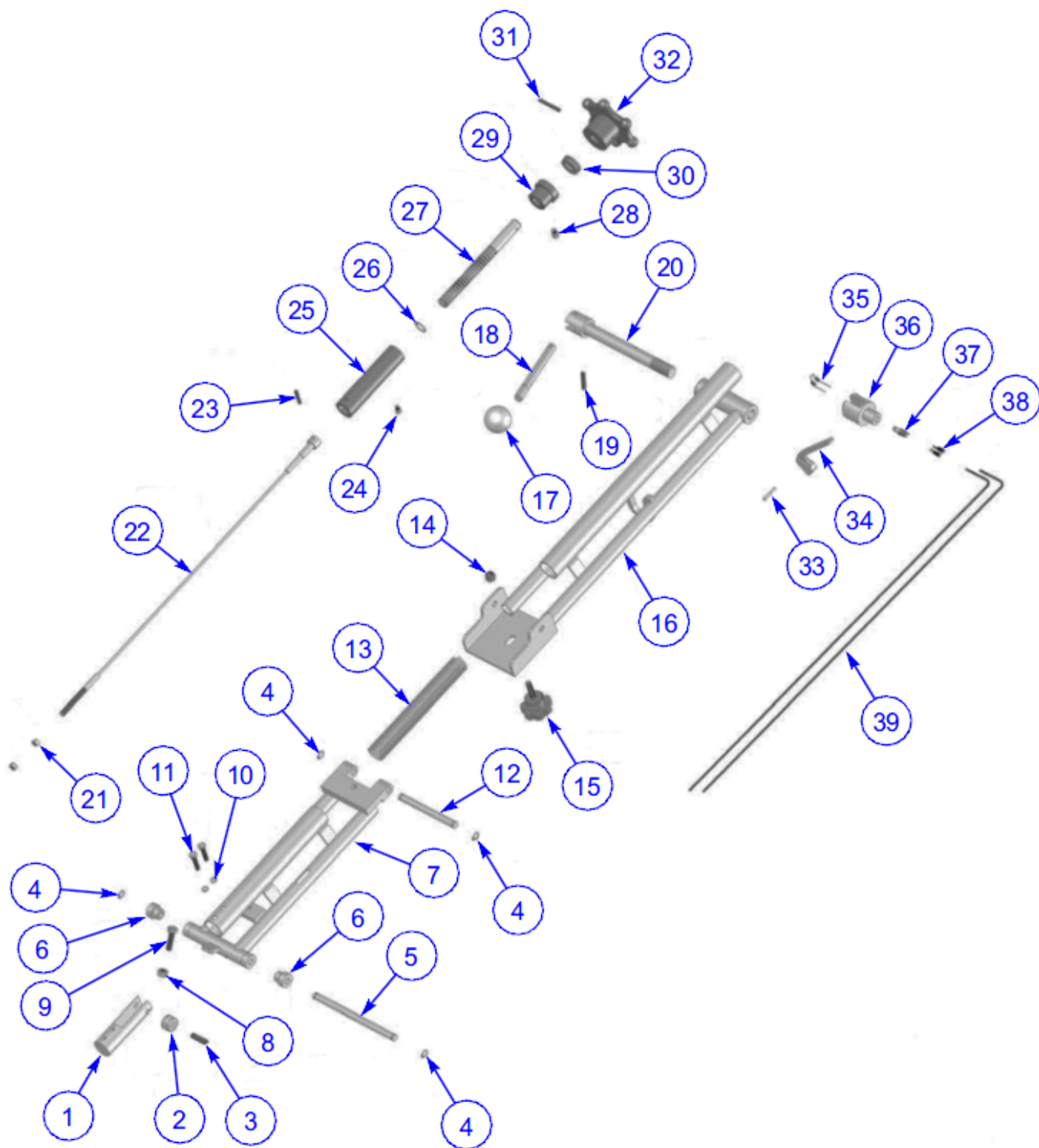
Gearbox Assembly - VP424 Parts List

SECTION 4 PARTS

ITEM	PART NO.	DESCRIPTION	QTY
1	059501	WORM GEAR BOX	1
2	000000	BEARING	1
3	000000	SEAL, CLOSE COVER	1
4	000000	CLOSE COVER	1
5	000000	WASHER	8
6	000000	SPRING WASHER	8
7	000000	BOLT	8
8	000000	WORM	1
9	000000	KEY	1
10	000000	BEARING	1
11	000000	EXTERNAL CIRCLIP	1
12	000000	SEAL, SIDE COVER	1
13	000000	SIDE COVER	1
14	000000	OIL SEAL	1
15	000000	GRUB SCREW	1
16	000000	PULLEY	1
17	000000	SOCKET HEAD SCREW	1
18	000000	SOCKET COUNTERSUNK HEAD SCREW	
19	000000	BENT SCREW	1
20	000000	SOCKET COUNTERSUNK HEAD SCREW	1
21	000000	TOP COVER	1
22	000000	SEAL, TOP COVER	1
23	000000	BEARING	1
24	000000	BUSH	1
25	000000	WORM GEAR BOX	1
26	000000	OIL GAUGE	1
27	000000	WORM GEAR SHAFT	1
28	000000	KEY	1
29	000000	KEY	1
30	000000	BEARING	1
31	000000	OIL SEAL	1
32	000000	STOPPER	2
33	059033	TILT YOKE	1
34	059034	PIN	1
35	059035	EXTERNAL CIRCLIP	2
36	059092	SWITCH LID	1
37	059093	SWITCH	1
38	059094	WIRE TEMINAL	1

SECTION 4 PARTS

Handle For VP424 Illustration



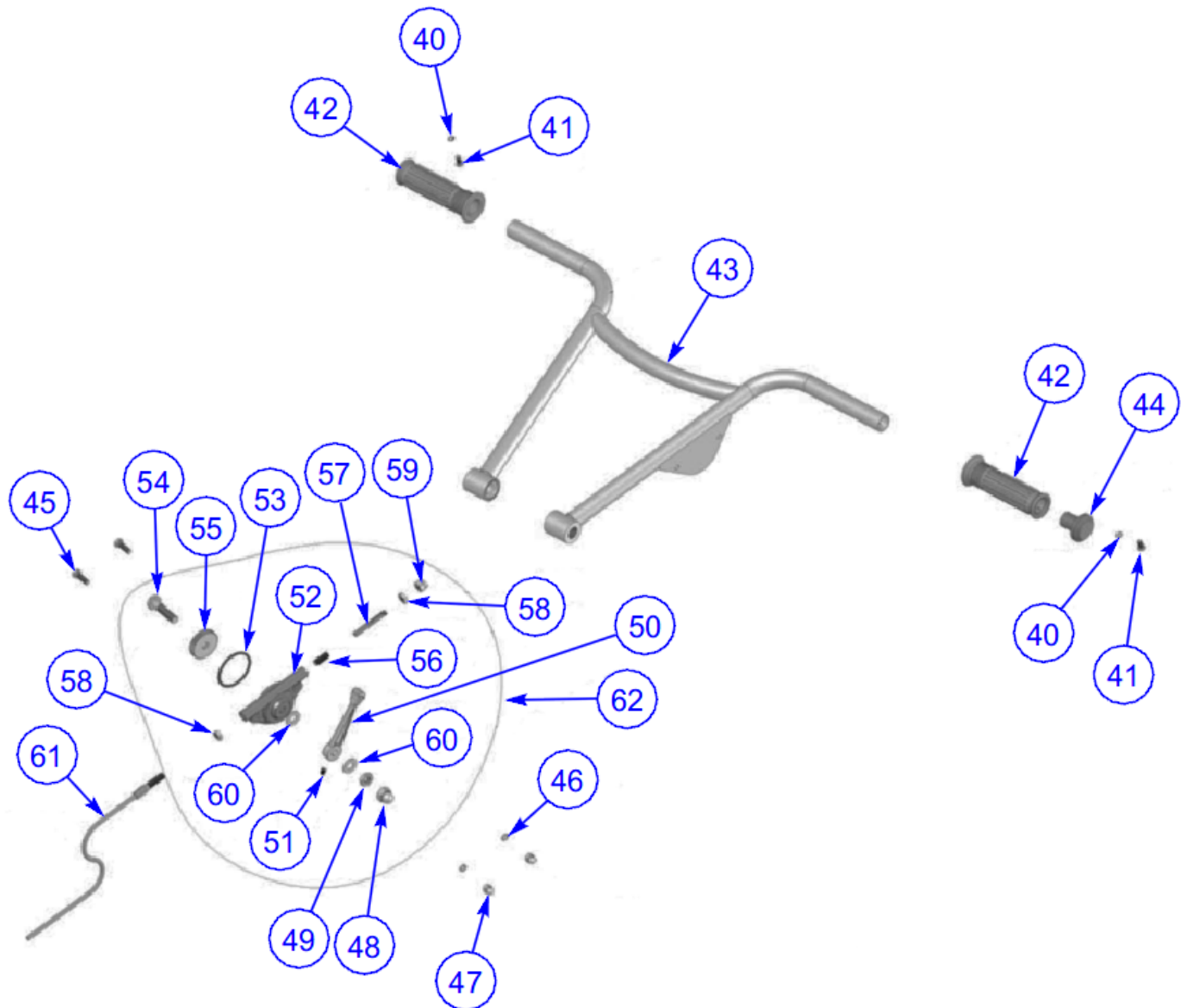
Handle For VP424 Parts List

SECTION 4 PARTS

ITEM	PART NO.	DESCRIPTION	QTY
1	059061	WHEEL BRACKET	1
2	059062	WHEEL	1
3	059063	PIN-SPRING	1
4	059064	EXTERNAL CIRCLIP	4
5	059065	PIN	1
6	059066	BUSH	2
7	059067	HANDLE BOTTOM	1
8	059037	NUT	1
9	059068	BOLT	1
10	059012	SPRING WASHER	2
11	059069	BOLT	2
12	059070	PIN	1
13	059071	SPRING	1
14	059043	CHECK NUT	1
15	059044	STAR GRIP KNOB	1
16	059072	HANDLE TOP	1
17	059073	GRIP BALL	1
18	059074	HANDLE STICK	1
19	059075	PIN-SPRING	1
20	059076	SCREW	1
21	059077	SLIDE BUSH	2
22	059078	DEPTH CONTROL CABLE	1
23	059079	ADJUSTING SCREW	1
24	059080	SCREW	1
25	059081	SLIDE BUSH	1
26	059082	EXTERNAL CIRCLIP	1
27	059083	ADJUSTING SCREW	1
28	059084	SCREW	1
29	059085	BEARING COVER	1
30	059086	BEARING	1
31	059087	PIN-SPRING	1
32	059088	PITCH CONTROL KNOB	1
33	059089	PIN-DOWEL	1
34	059090	SWITCH HANDLE	1
35	059091	SPRING	1
36	059092	SWITCH LID	1
37	059093	SWITCH	1
38	059094	WIRE TEMINAL	1

SECTION 4 PARTS

Handle For VP424 (cont.) Illustration



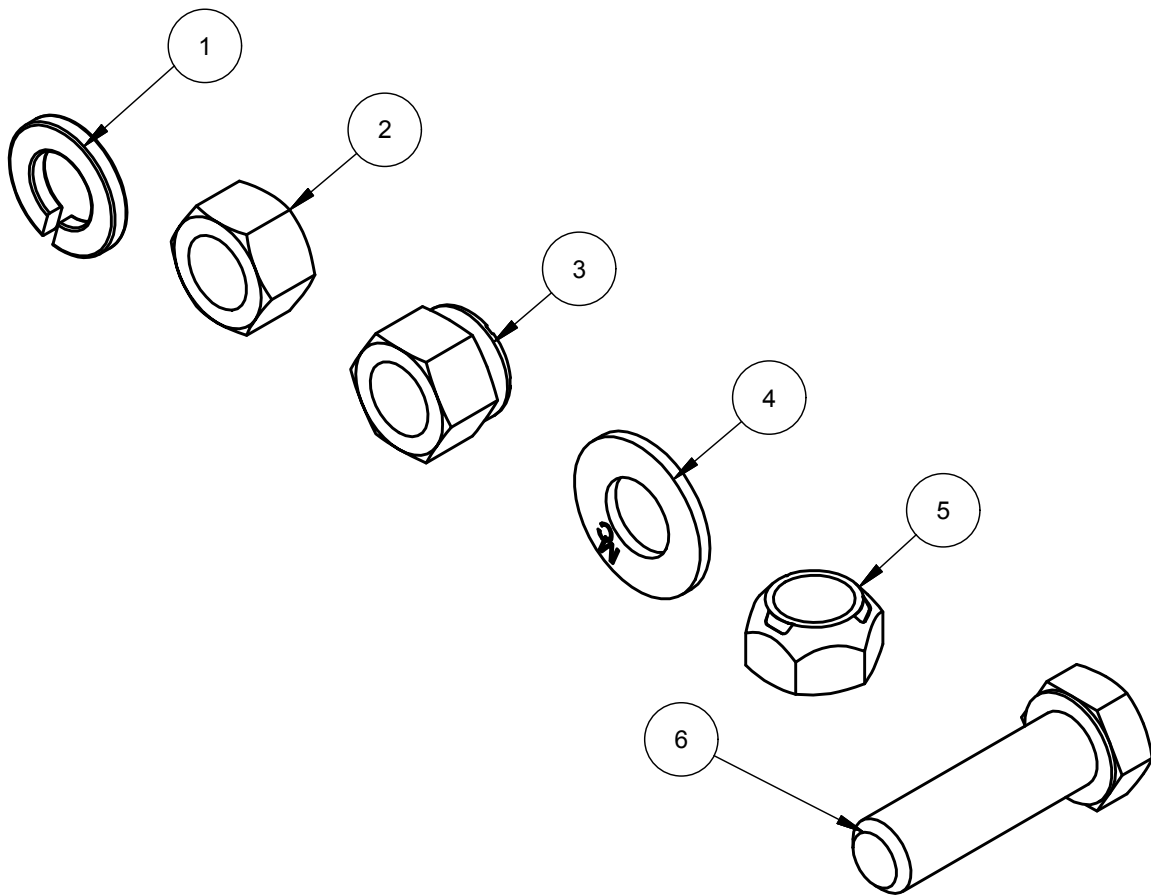
Handle For VP424 (cont.) Parts List

SECTION 4 PARTS

ITEM	PART NO.	DESCRIPTION	QTY
39	059095	WIRE	2
40	059096	SPRING WASHER	2
41	059097	PAN HEAD SCREW	1
42	059098	HANDLE GRIP	2
43	059099	HANDLE	1
44	0590100	THROTTLE LEVER HANDLE	1
45	0590101	BOLT	2
46	0590102	SPRING WASHER	2
47	059103	CAP NUT	2
48	000000	CAP NUT	1
49	000000	THIN NUT	1
50	066792	THROTTLE LEVER	1
51	000000	SOCKET SCREW WITH FLAT HEAD	1
52	000000	THROTTLE BODY	1
53	000000	O-RING	1
54	000000	BOLT	1
55	000000	THROTTLE GEAR	1
56	059003	SOCKET SCREW WITH FLAT HEAD	1
57	000000	SLIDER	1
58	059002	THIN NUT	2
59	000000	CAP NUT	1
60	000000	WASHER	2
61	059104	THROTTLE CABLE	1
62	059105	THROTTLE CABLE LEVER ASS'Y	1

SECTION 4 PARTS

Handle Kit Illustration



Handle Kit Parts List

SECTION 4 PARTS

ITEM	PART NO.	DESCRIPTION	QTY
-	065824	HANDLE KIT	1
1	010091	FSTN, LW 3/8	2
2	010102	FSTN, NUT HEX 3/8-16	2
3	010464	FSTN, NUT NYLOK 3/8-16	5
4	017751	FSTN, FW HARD A325 3/8 (p)	4
5	020514	FSTN, NUT STOVER LOCK 3/8-16	1
6	032875	FSTN, HHCS 3/8-16 X 1-1/4 GR 8	2

SECTION 4 PARTS

Filter Kits

VP436 - GX120			
ITEM	PART NO.	DESCRIPTION	QTY
-	066572	KIT, FILTER F/ VP436 5.5 HP	1
1	066587	FILTER, PRO436 5.5HP GX160.	1
2	066437	FILTER, FUEL F/ AR16 BUGGY	1

VP436 - GX270			
ITEM	PART NO.	DESCRIPTION	QTY
-	066576	KIT, FILTER F/ VP436 9 HP GX270	1
1	066588	FILTER, PRO436 9HP GX270	1
2	066437	FILTER, FUEL F/ AR16 BUGGY	1

VP424			
ITEM	PART NO.	DESCRIPTION	QTY
-	066570	KIT, FILTER F/ VP424-GX120	1
1	066431	FILTER, VP424 GX120 AIR	1
2	066437	FILTER, FUEL F/ AR16 BUGGY	1

SECTION 4 PARTS

MANUAL REVISION DETAIL

REVISION #	REVISION DATE	REVISION REFERENCE #	REVISION BY
-	09/2014	Initial Release	AW
A	06/2017	-	AW
B	05/2018	MN 18-006, 18-007, 18-049	MW
C	06/2018	MN 18-067	MW
D	07/2020	MN 20-029	MW



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