



## **NEXUS® Lane Machine**

Service, Operation, and Service Parts Manual

June 2026 / 14-900123-000

**Caution: Read this instruction manual before using the NEXUS® Lane machine.**

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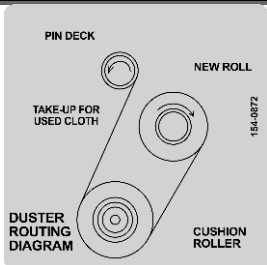
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## Section 1 – Safety Information

This section provides essential safety information, including the meaning, placement, and purpose of all product safety labels and warnings, along with required precautions for safe operation and maintenance. Review this information carefully to prevent accidents, injuries, or equipment damage before using the product.

### 1.1 Safety Labels Overview

This manual will outline proper operation and maintenance of the NEXUS Lane Machine. For clarification, contact a qualified professional or Brunswick Technical Support (BTS) at 1-800-YES-BOWL (1-800-937-2695), via email at [techsupport@brunswickbowling.com](mailto:techsupport@brunswickbowling.com) , or through the Help Center for non-emergency support, documentation, and troubleshooting: <https://support.brunswickbowling.com/hc/en-us>

| Machine and Safety Labels                                                           |                                                                                      |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
|  |  |
| <b>Duster Cloth Routing Diagram</b>                                                 | <b>No Hands / Hand Crush Warning</b>                                                 |
|  |  |
| <b>Caution / General Danger Warning</b>                                             | <b>Tanks Overfilling / Moving Parts Warning</b>                                      |

## 1.2 Important Safety Information

**WARNING! Follow these precautions to avoid severe injury or damage to the machine, facility, or other equipment.**

- Read this manual before use. Operate only by authorized, trained personnel; prevent unauthorized use by engaging the emergency stop and storing securely.
- Turn off pinspotters before conditioning lanes. Do not run if anyone is on the lane or near the pinspotter. Stay clear of the machine's path, especially at the foul line.
- Use only for cleaning and conditioning bowling lanes. Do not use to collect hazardous dust (e.g., resurfacing or construction debris).
- Use only approved, non-flammable, non-toxic cleaners and conditioners. Avoid spills when filling tanks; do not fill oil tanks on the approach. Follow product labels; flush eyes with water for 15 minutes if contact occurs.
- Turn off the machine if foam or liquid exits the vacuum exhaust.
- The machine is heavy—use team aid when moving and prevent tipping. Secure when not in use. Be aware of slip hazards on wet surfaces.
- Charge only on a properly rated, dedicated, grounded circuit.
- Do not operate with the hood open except for troubleshooting. Use caution when lids are open; components may be hot. Ensure all lids are closed and latched before storage.
- Keep hands, loose clothing, hair, and personal items clear of moving parts (linkages, gears, chains, belts).
- Do not change wiring, components, or safety devices except by qualified technicians; restore all safeguards before operation. Use only Brunswick-approved parts.
- Do not use, clean, or store the machine outdoors or in wet conditions.
- Remain aware of others nearby during operation, especially children.
- Dispose of waste (oil, cleaner, debris) per local, state, and federal regulations. Do not discharge into septic or sewer systems; consult local waste authorities.

### 1.3 Technical Terms & Abbreviations

Quick reference for terms used in operation and maintenance.

| Term                     | Definition                                          |
|--------------------------|-----------------------------------------------------|
| <b>NEXUS®</b>            | Complete lane machine unit                          |
| <b>Fatal Error</b>       | Stops operation, resets components, returns to idle |
| <b>Non-Fatal Error</b>   | Operation continues; notification displayed         |
| <b>Controller</b>        | Main system computer                                |
| <b>Control Board</b>     | I/O circuit boards                                  |
| <b>LDS</b>               | Lane Distance Sensor                                |
| <b>UI</b>                | User Interface                                      |
| <b>IPS</b>               | Inches per second                                   |
| <b>Ft / Cm</b>           | Distance units (feet / centimeter)                  |
| <b>mL</b>                | Volume (milliliter)                                 |
| <b>V / Amp / Ah</b>      | Electrical units (Voltage / Ampere / Amp-Hour)      |
| <b>DC</b>                | Direct current                                      |
| <b>Specs</b>             | Specifications                                      |
| <b>Oil / Conditioner</b> | Lane treatment product (terms used interchangeably) |

## Section 2 – Introduction

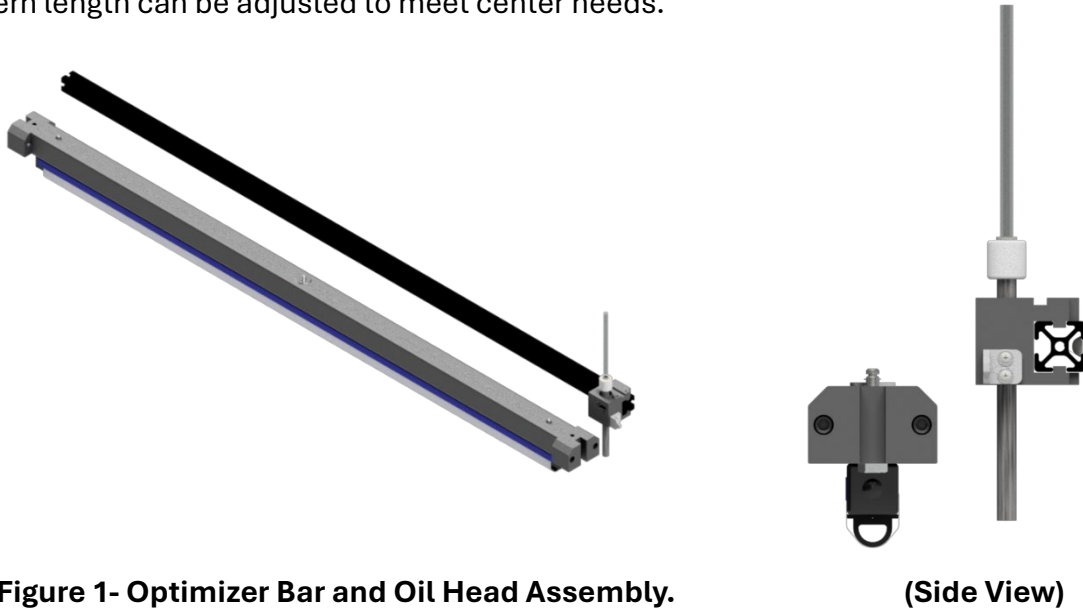
This manual provides essential instructions for the safe, efficient operation, maintenance, and troubleshooting of the NEXUS Lane Machine. NEXUS is a multifunctional lane maintenance system designed to clean and condition bowling lanes: its cleaning function removes dirt and oil and can be used independently or with conditioning, while its conditioning function applies oil to create a consistent lane pattern.

### 2.1.1 Cleaning

The cleaning operation sprays solution through front nozzles at a preset rate and pattern to fully cover the lane without gutter overspray. A cloth and cushion roller work the solution into existing oil to form an emulsion, which is then removed by the squeegee and vacuum and collected in a recovery tank. Cleaning occurs only during the forward pass and can be bypassed using the “Oil Only” option.

### 2.1.2 Conditioning

The conditioning system (Figure 1) applies oil from the tank via a side-to-side oscillating oil head during the forward pass. The optimizer bar then smooths the oil across the lane surface during both forward and reverse passes. Factory default settings apply lighter oil to the outer 7 boards (~7.5 in / 19 cm), slightly more to boards 8–10 (~3.25 in / 8 cm, the “track”), and heavier oil across the middle 20 boards, creating a typical house pattern. Pattern length can be adjusted to meet center needs.



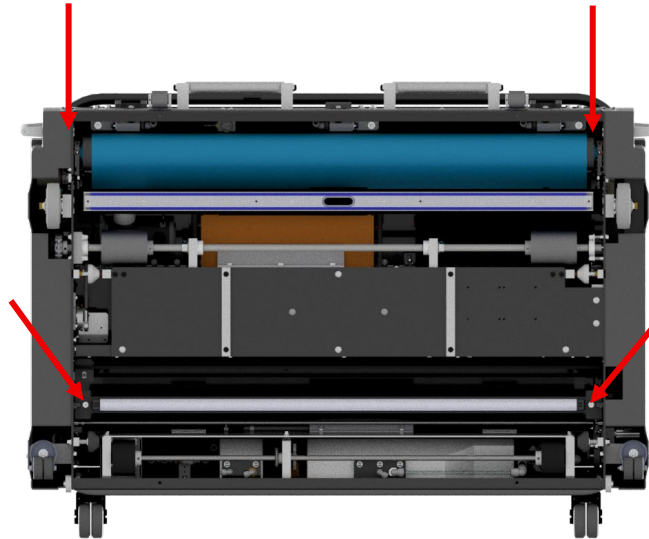
### 2.1.3 Factory Programming

NEXUS performs a single pass per lane with forward and reverse segments. During the forward pass, the lane is cleaned, then oiled and smoothed per the selected pattern. During the reverse pass, the lane is smoothed again; no cleaning or oiling occurs. All patterns allow on-demand modes: Clean & Oil, Clean Only, or Oil Only, and can be adjusted in length. The machine includes five factory patterns: A,B,C, & D for full length lanes (~60 ft) and a SHORT LANE pattern for lanes between 30-50 feet. See Section 3.10 for more details on factory settings and adjustments.

### 2.2 Uncrating

Before uncrating, inspect the machine for any shipping damage and file claims directly with the freight carrier; Brunswick is not responsible for transit damage. Verify all components are included and undamaged and become familiar with machine components.

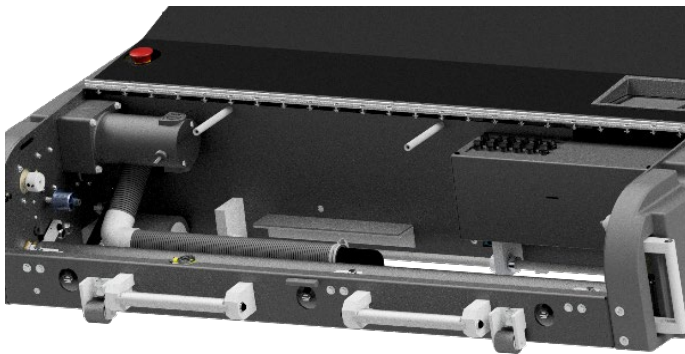
**IMPORTANT:** The cushion roller assembly and optimizer bar are secured with wire ties for shipping protection. Before using the machine, in the standing (transport) position, remove the two wire ties secured at each end of the cushion roller, and each end of the optimizer bar (Figure 2).



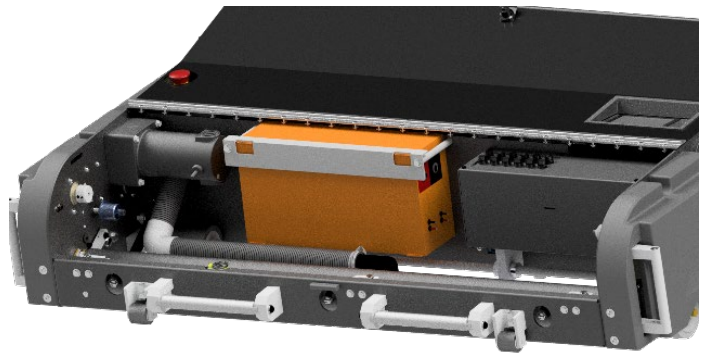
**Figure 2 – Wire tie**

Complete the following steps prior to first operation if NEXUS battery shipped separately:

1. Place the machine in the operating position.
2. Open the cleaner-side compartment and find the battery mounting area.
3. Remove the fasteners and support brackets from the battery posts using a 7/16" socket.
4. Position the battery in place.
5. Reinstall the holding bracket onto the posts to secure the battery.



**Figure 3 - NEXUS® before battery installation**



**Figure 42 – NEXUS® after battery installation**

## 2.3 Specifications, Dimensions, and Capacities

The below table summarizes the NEXUS® Lane Machine's electrical system, weight, dimensions, and tank capacities.

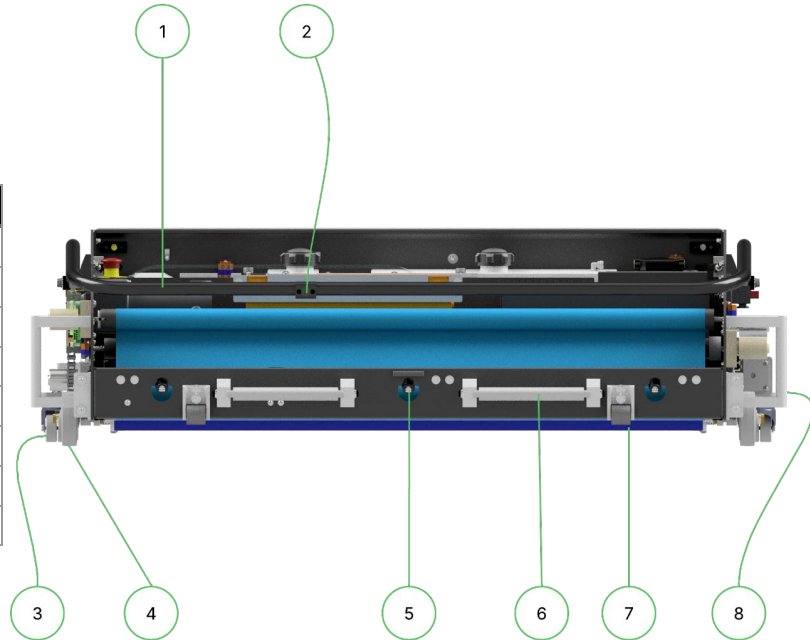
| Property                                    | Specification                                                                                                                   |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Electrical                                  | 24V DC battery, 45 Ah nominal                                                                                                   |
| Overcurrent Protection                      | Individual fuses for motors/controls; battery includes internal protection and temporary disconnects during high current events |
| Machine Weight                              | 246 lb. (111.5 kg) without battery                                                                                              |
| Battery Weight                              | 29 lb. (13.1 kg)                                                                                                                |
| Dimensions (H × W × L)                      | 15.5 in (39.37 cm) × 55.25 in (140.34 cm) × 38.75 in (98.43 cm)                                                                 |
| Empty Crate Weight & Dimensions (H × W × L) | 275 lb. (124.74 kg)<br>24 in (60.96 cm) × 48.50 in (123.19 cm) × 79.50 in (201.93 cm)                                           |
| Cleaner Tank                                | 1.78 gal (6.73 L), ~16 lanes (on approach start)                                                                                |
| Recovery Tank                               | ~1.73 gal (6.54 L), up to 16 lanes                                                                                              |
| Oil Tank                                    | 0.30 gal (1.15 L), up to 24 lanes (less with higher output patterns)                                                            |

## 2.4 NEXUS Components Overview

The following sections provide an overview of the NEXUS Lane Machine's core components to support understanding of its structure and function. Illustrations intentionally omit lids and panels to show internal and external components clearly and help familiarize users with the machine layout. Components are shown from multiple views (top, bottom, front, 7-pin, and 10-pin), with each image highlighting only the relevant parts for clarity. For detailed information on component functions, operation, maintenance, and parts, refer to the appropriate sections of this manual.

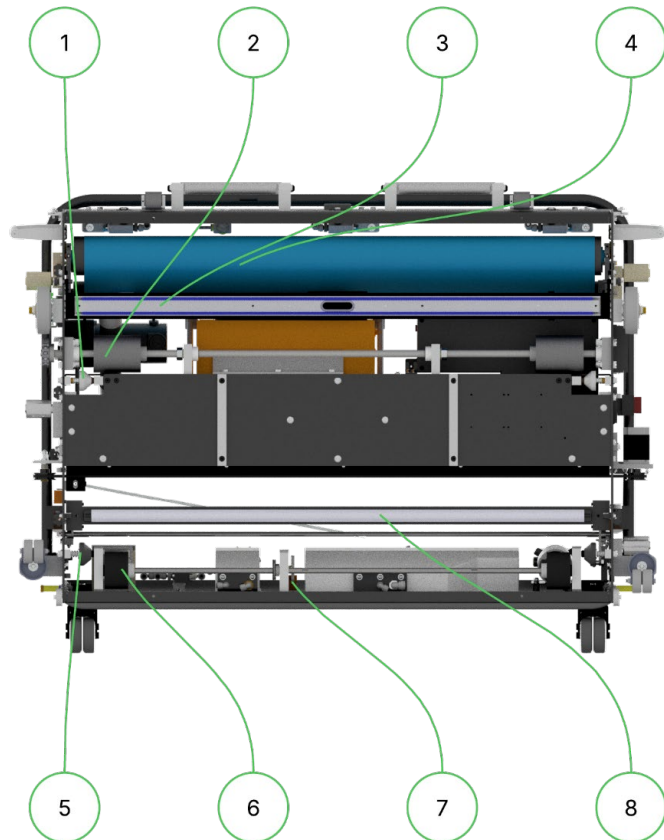
### 2.4.1 Front View

| # | Description           |
|---|-----------------------|
| 1 | Handle                |
| 2 | Handle Button         |
| 3 | Back Wheels Casters   |
| 4 | Front Wheels          |
| 5 | Cleaner Spray Nozzles |
| 6 | Front Lifting Handles |
| 7 | Momentary Wheels      |
| 8 | Transport Handles     |

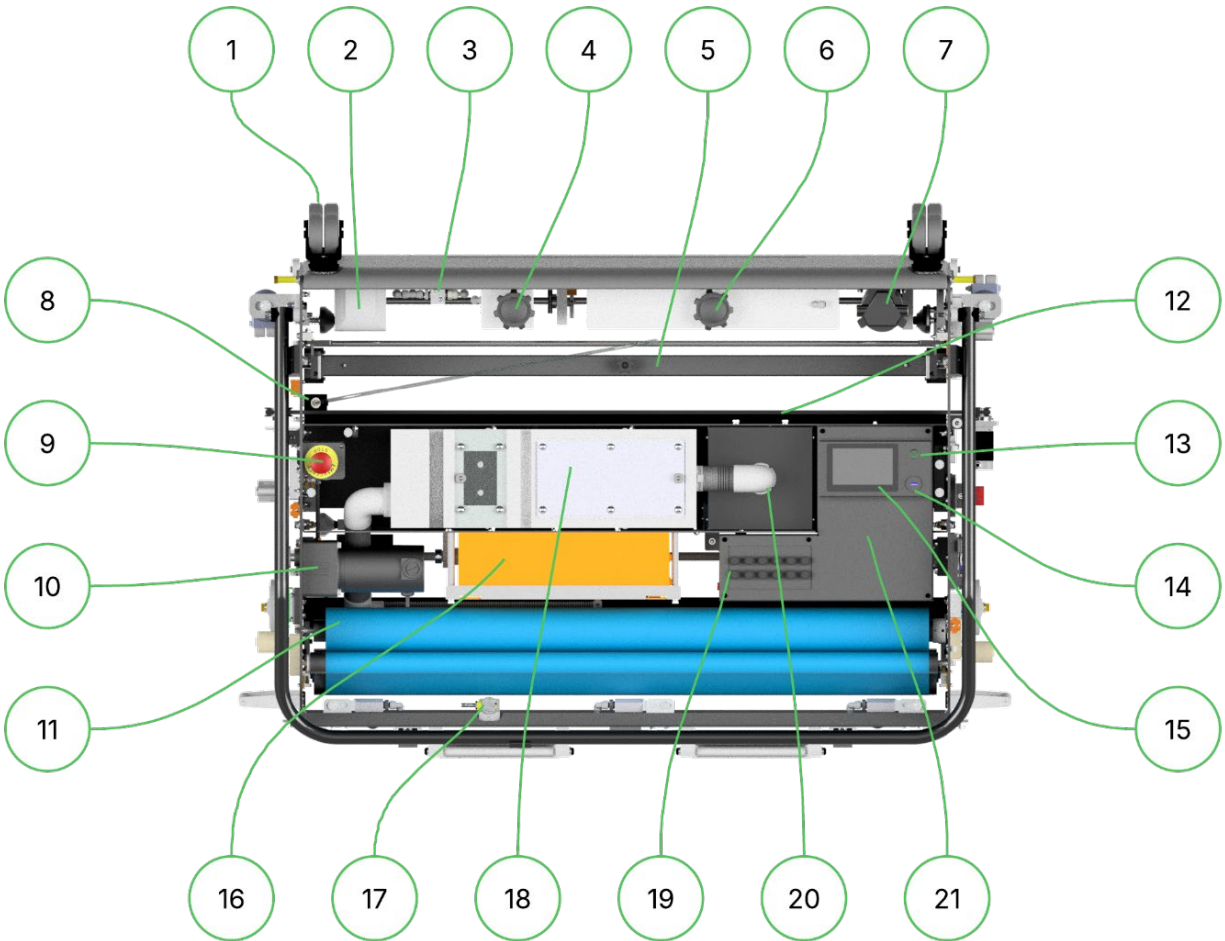


### 2.4.2 Bottom View

| # | Description                   |
|---|-------------------------------|
| 1 | Front Guide Rollers           |
| 2 | Drive Wheels                  |
| 3 | Squeegee Cartridge            |
| 4 | Cushion Roller & Duster Cloth |
| 5 | Rear2Guide Rollers            |
| 6 | LDS Wheels                    |
| 7 | LDS                           |
| 8 | Optimizer Bar                 |



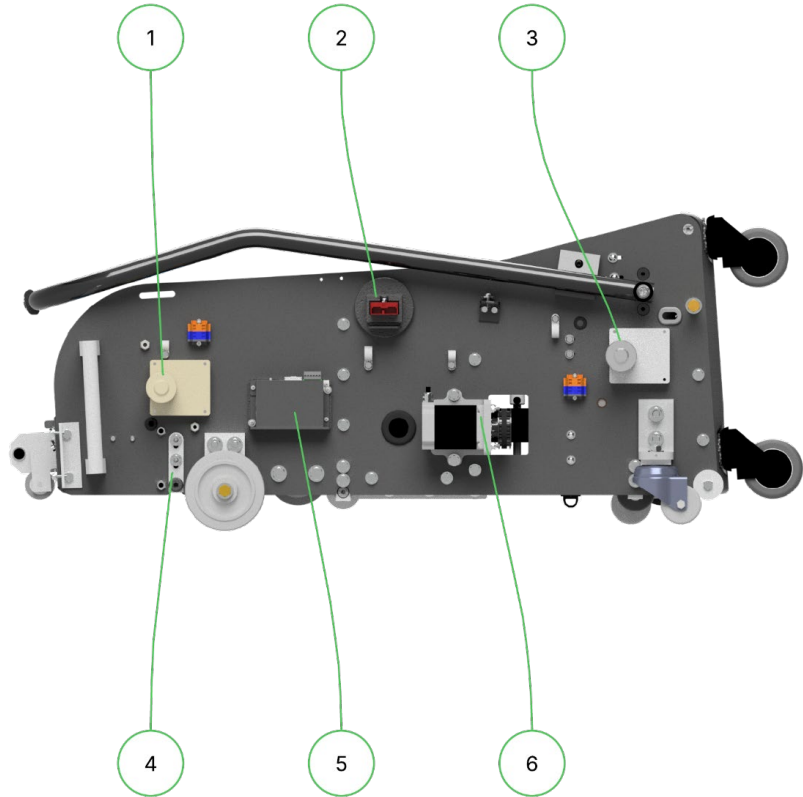
### 2.4.3 Top View



| #  | Description         | #  | Description            |
|----|---------------------|----|------------------------|
| 1  | Transport Wheels    | 12 | Oil Head Bar           |
| 2  | Oil Pump            | 13 | Power Button           |
| 3  | Three-way Oil Valve | 14 | USB Port               |
| 4  | Oil Tank            | 15 | Touchscreen            |
| 5  | Optimizer Bar       | 16 | Battery                |
| 6  | Cleaner Tank        | 17 | End of Lane Sensor     |
| 7  | Cleaner Pump        | 18 | Recovery Tank          |
| 8  | Oil Head            | 19 | Fuses                  |
| 9  | E-Stop              | 20 | Vacuum Motor           |
| 10 | Drive Motor         | 21 | Electrical Control Box |
| 11 | Duster Cloth        |    |                        |

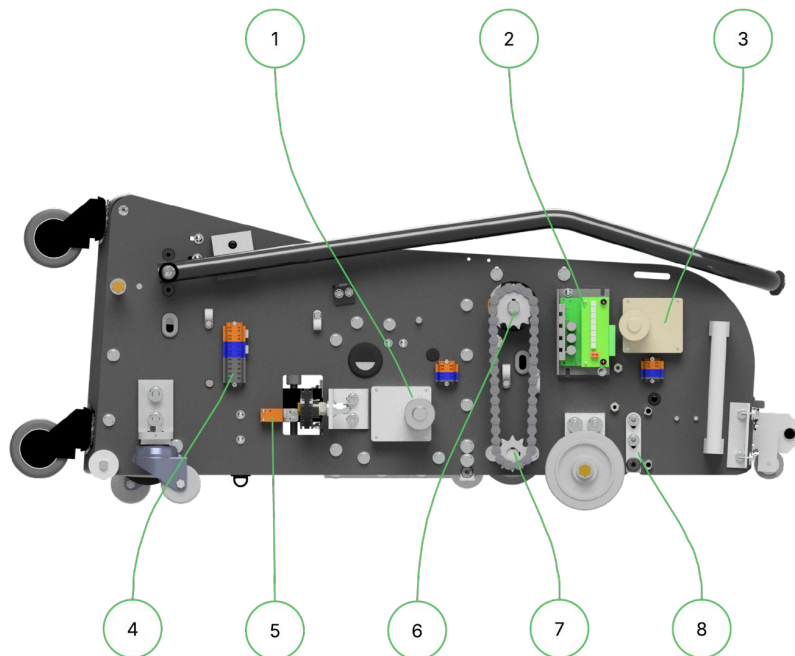
#### 2.4.4 Seven Pin Side

| # | Description              |
|---|--------------------------|
| 1 | Duster Unwind Motor      |
| 2 | Battery Charging Plug    |
| 3 | Optimizer Bar Lift Motor |
| 4 | Squeegee Adjustment      |
| 5 | Oil Head Driver          |
| 6 | Oil Head Motor           |



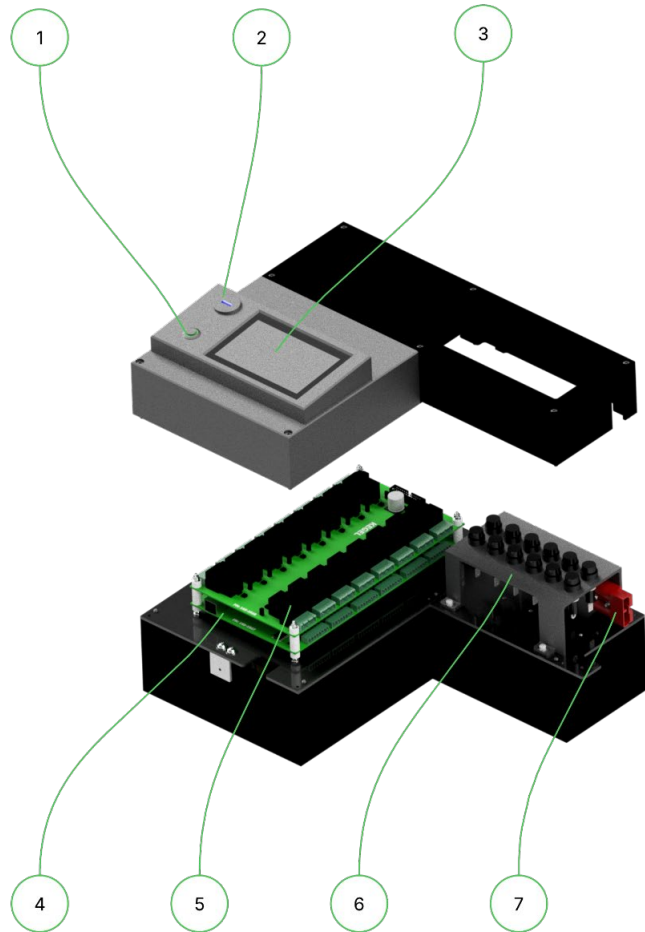
#### 2.4.5 Ten Pin Side

| # | Description              |
|---|--------------------------|
| 1 | Squeegee Lift Motor      |
| 2 | Drive Speed Control      |
| 3 | Duster Windup Motor      |
| 4 | Power Distribution Block |
| 5 | Oil Head Home Sensor     |
| 6 | Drive Motor              |
| 7 | Drive Shaft              |
| 8 | Squeegee Adjustment      |



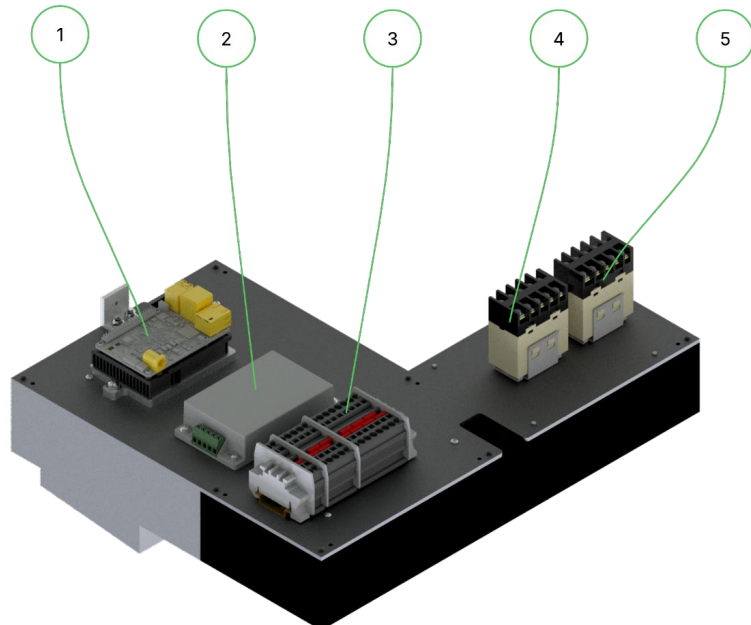
## 2.4.6 Top Electrical Control Box

| # | Description                    |
|---|--------------------------------|
| 1 | Power Button                   |
| 2 | USB Port                       |
| 3 | Touchscreen                    |
| 4 | Inputs & Analogs Outputs Board |
| 5 | Relay Board                    |
| 6 | Fuses                          |
| 7 | Power Port                     |



## 2.4.7 Bottom Electrical Control Box

| # | Description                       |
|---|-----------------------------------|
| 1 | Controller                        |
| 2 | 24v to 12v Step Down              |
| 3 | Power Distribution Terminal Block |
| 4 | Power Contactor                   |
| 5 | Vacuum Contactor                  |



## Section 3 – Operation

This section provides step-by-step instructions, safety precautions, and best practices for safe, efficient operation of the NEXUS Lane Machine.

### Basic Operation Steps:

1. Fill cleaner and oil tanks; empty the recovery tank.
2. Close all lids and covers.
3. Power on the machine.
4. Select operation mode and pattern.
5. Follow on-screen prompts or press Start.
6. Press the handle button once to deploy the duster cloth, lower the squeegee, and activate the oil pump.
7. Place the machine on the lane.
8. Press the handle button again to begin operation.
9. Empty the recovery tank every 16 lanes or less.

### 3.1 Operation Summary

- The NEXUS uses two systems: cleaning and conditioning. During cleaning, solution is pumped from the tank to spray nozzles, applied in controlled intervals (default every 2.5 ft for .2 seconds up to a set distance), mixed with lane oil, agitated by the duster cloth, and removed by the squeegee and vacuum into the recovery tank. Cleaning occurs only during forward travel when selected. Cleaning and conditioning may be performed independently or together, with cleaning limited to the forward pass. During conditioning, an oscillating oil head applies conditioner based on programmed patterns, regulated by a software-controlled valve. The optimizer bar smooths the oil into a uniform film, then lifts once application is complete.
- The machine is driven by a DC motor and guided by rollers, a front optical sensor (detects end of lane), and the Lane Distance Sensor (LDS), which tracks position and controls when operations start and stop. The machine travels forward to clean and/or oil, then reverses back to the foul line. In Oil-Only mode, it reverses at the end of the programmed pattern distance.
- The battery will require charging after prolonged use. After 15 minutes of no use, NEXUS will enter a sleep mode to preserve battery capacity. When charging is required, use the provided wall charger – ensuring the outlet is on a properly rated, dedicated, grounded circuit.

### 3.2 NEXUS Lane Machine Controls

The NEXUS is controlled via a touchscreen interface and a single handle-mounted push button. The touchscreen (Figure 3) allows users to navigate settings and control functions, while the handle button provides direct input for key actions. Power is controlled by the emergency stop (E-Stop – Figure 4) and the touchscreen power button. Engaging the E-Stop immediately cuts power and halts operation. To power on, disengage the E-Stop (rotate clockwise) and press the power button near touchscreen.

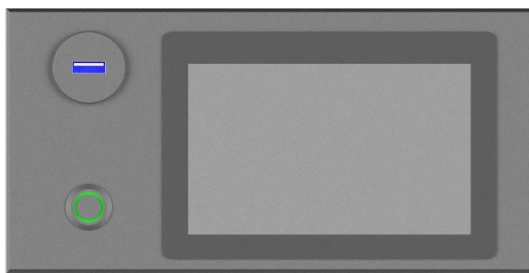


Figure 3 – Touchscreen, Power ON Button, and USB Port



Figure 43 - Emergency Stop (E-Stop)

#### 3.2.1 Touchscreen Overview

##### Home Screen: (Figure 5)

Primary access point for operation and settings. The green crown button reveals cleaning and conditioning options; the settings button opens machine settings and diagnostic tests. It also displays software version (date-based format) and battery status (green >24V, red <24V with warning).



Figure 5 - Home Screen

##### Conditioning Screen: (Figure 6)

Allows selection of patterns A–D (fixed names), each with adjustable oil distance (within defined ranges) and start distance (20–30 in). Displays pattern details and supports three modes: Clean & Oil, Clean Only, or Oil Only. Press Start to begin operation.

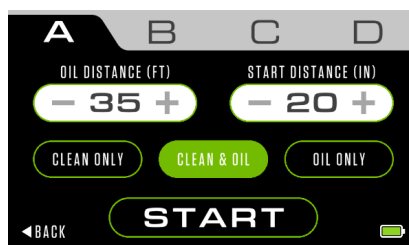


Figure 6 - Conditioning Screen

##### Short Lane Mode: (Figure 7)

Enabled in settings for lanes under 50 ft. Uses a fixed pattern (14–20 ft oil distance, adjustable; start distance 20–30 in) with the same three operating modes.

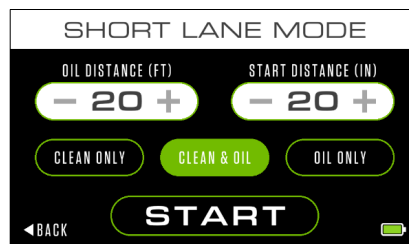


Figure 7 - Short Lane Mode Screen

### Running Screen: (Figure 8)

Displays active pattern, distance from foul line, target/actual speed (IPS), lane count, oil distance, start distance, and selected mode. A STOP button halts operation, resets the machine, and returns to the home screen.

#### 3.2.1.5 Machine Settings Screen: (Figure 9)

Allows operators to adjust NEXUS operation, reset the duster cloth, and restore factory defaults.

##### Key Settings:

- **Machine Start Guide:** Enables on-screen prompts during operation (default: enabled).
- **Present Unwind Time:** Duster unwind duration (ms), auto-increases 2 ms per lane to compensate for roll diameter changes as cloth is consumed.
- **# of Lanes on Roll:** Remaining duster cloth capacity; decreases per lane. Warning appears below 16; error at 0.
- **Short Lane Mode:** Enables fixed short-lane pattern and bypasses standard pattern selection (recommended <50 ft).
- **Cleaning Distance:** Sets cleaner application distance only (default: 50 ft).

##### Functions:

- **Reset Cloth:** Resets *Present Unwind Time* (800 ms) and *# of Lanes on Roll* (380) after replacing duster cloth.
- **Factory Defaults:** Restores all settings to default except *Present Unwind Time* and *# of Lanes on Roll*.

#### 3.2.1.6 Machine Info Screen: (Figure 10)

Displays read-only system data including software version, QC date, and total lanes serviced.

#### 3.2.1.7 Drive Calibration Screen: (Figure 11)

Adjusts drive motor behavior, including:

- **Drive Speeds:** Range (2000-2450): Motor speed (mV ranges; higher = faster). (Range = 2900 – 3300)/
- **Backend Speed:** Speed from pattern end to 50 ft. (Range = 1000 – 5000).
- **Pin Deck Speed:** Speed at 50 ft. (Range = 2000 – 2500)
- **Return Rang Speed:** Range (1000-5000)

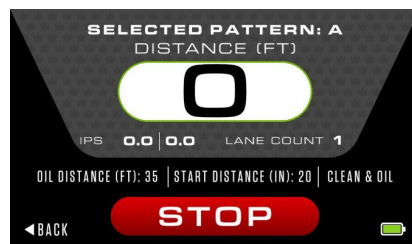


Figure 8 - Running Screen

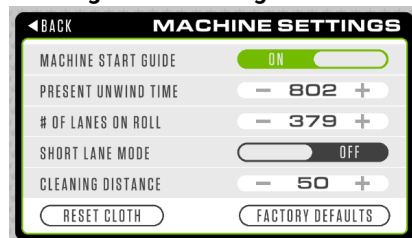


Figure 9 - Machine Settings Screen

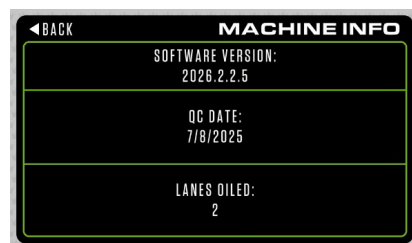


Figure 10 - Machine Info Screen



Figure 11 - Drive Calibration Screen

#### 3.2.1.8 Input Tests Screen: (Figure 12)

Read-only display of all inputs; indicators illuminate green when active and black when inactive. Used for verification and troubleshooting.

#### 3.2.1.9 Output Tests Screen: (Figure 13)

Allows manual activation of machine components; button presses toggle outputs (green = active). Use caution, as components may move or dispense fluids when activated.

#### 3.2.2 Handle Button:

- Press handle button once (on approach) to lower duster, squeegee, and optimizer bar.
- Push machine onto the lane, ensuring it's centered.
- Press handle button again to begin operation.
- When idle, the handle button will operate the drive motor in reverse.

#### 3.2.3 E-Stop & Power:

The E-Stop immediately cuts power when engaged. To power ON the machine, disengage (rotate clockwise), then press the power button and wait for system initialization.

#### 3.3 Positioning

Move the machine to the approach while in the transport position. Orient the bottom of the machine towards the foul line and carefully lower the machine into the operation position.

#### 3.4 Handle

Used to move the machine between lanes and start operation. When the machine travels down the lane, lower the handle gently to ensure clearance with the pinspotter.

#### 3.5 End of Lane

The NEXUS uses an end-of-lane sensor to detect lane surface presence. When running lanes, it recognizes the lane at the foul line, triggering a pulse of cleaner to spray. When the machine reaches the pin deck and the lane's surface is no longer detected (end of lane/pin deck), the machine automatically reverses and returns to the foul line.

#### 3.6 Preparing for Use

Proper setup includes safely filling the cleaner and oil tanks to prevent spills or damage.

##### Adding Cleaner:

Place the machine in operating position, remove the cleaner tank cap, insert a funnel (with towel at base), and fill with pre-mixed cleaner to ~1 in (25.4 mm) below the top.

##### Adding Oil:

Repeat the same process for the oil tank, filling to ~1 in (25.4 mm) below the top.

#### 3.7 Cleaning the Lane Head Area

In Clean Only or Clean & Oil modes, a small line of cleaner residue may appear near the foul line from the Squeegee Blades. Wipe it off with a clean towel for best results.

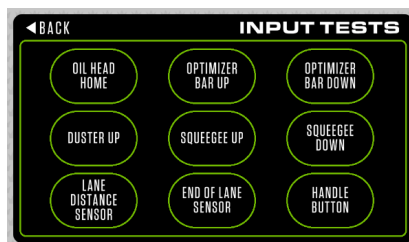


Figure 12 - Input Tests Screen

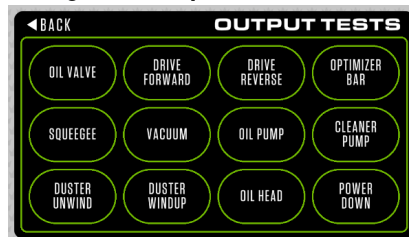


Figure 13 - Output Tests Screen

## Section 4 – Maintenance and Adjustments

Routine maintenance ensures the NEXUS Lane Machine proper operation and consistent lane conditioning. This section covers periodic maintenance, performance adjustment/testing, and replacement of worn parts. Always turn off power before servicing.

### 4.1 After-Use Maintenance

Clean the machine after each conditioning session to prepare for the next session. Tasks may be done in any order (recommended sequence below). **Prevent oil from entering cleaning components and cleaning solution from entering oiling components.**

#### 4.1.1 Operating Position Tasks:

##### Oiling Area

- Check and refill conditioner and cleaner levels as needed.
- Secure both caps.

##### Cleaning Area

- Ensure sufficient duster cloth is available on the supply roll.

##### Recovery Tank

- Remove, empty (per local environmental regulations\*), rinse, and reinstall.  
**\*Do not dump recovery tank in a septic tank or sanitary sewer system.**

##### Frame & Exterior

- Wipe frame and transport casters.

#### 4.1.2 Upright Storage Position Tasks:

##### Cleaning Area

- Clean squeegee blades with clean towel; inspect for damage.
- Inspect cushion roller assembly for damage.

##### Oiling Area

- Wipe optimizer bar (clean, dry cloth).
- Clean LDS wheels, drive wheels, and all four guide wheels.

##### Exterior Components

- Wipe all external surfaces, including casters, wheels, top, sides, base plate, and both cleaning and oiling areas.

### 4.2 Weekly Maintenance

In addition to after-use maintenance, perform these weekly tasks:

- Evaluate machine performance.
- Clean the exterior of the cleaner tank, oil tank, and surrounding areas.
- Clean the exterior of the recovery tank, optimizer bar, and surrounding areas.
- Blow out the machine thoroughly with an air compressor.

#### 4.2.1 Performance Testing

Verify cleaning and conditioning functions to ensure proper setup and operation.

##### Cleaning Function Check

- Run Clean Only on 2–3 lanes and inspect results.

#### 4.2.2 Cleaning the Optimizer Bar

- Clean after each use with a dry cloth, wiping side to side.

**Do not use cleaning solutions.**

#### 4.3 Occasional Maintenance

##### 4.3.1 Adjusting the Squeegee Assembly

Proper adjustment ensures effective cleaning over lane surface irregularities:

- Too high → cleaner puddles will appear on lane surface.
- Too low → haze and streaks will be left on lane surface.

##### Adjustment Steps - Height

1. Remove 7- and 10-pin side guards; raise machine into transport position.
2. Lower squeegee from SETTINGS -> OUTPUT TESTS menu; place a straight edge from blades to lane distance wheels.
  - Gap to drive wheels: **1/8"–3/16" (3.18–4.76 mm)** on both sides.
3. If incorrect, loosen pivot bolts (two per side).
4. Adjust pivot height evenly on both sides, then tighten bolts.

##### Adjustment Steps – Pitch

1. Locate the squeegee motor on the right side. The cam, rod end, and rod control the squeegee movement.
2. Loosen the jam nut on the rod and remove bolt from rod to cam.
3. Rotate the rod end to adjust pitch (do not shorten the linkage too much) and reinstall.
4. Check the gap between the straight edge and drive wheels and tighten nut.

##### 4.3.2 Adjusting Cleaner Spray Nozzles

The machine uses three stainless steel jets that spray cleaner in a “V” pattern across the lane. Though factory-set, adjustments may be needed to ensure full coverage without channel overspray.

- **Too narrow (edges not covered):** raise spray tips slightly or rotate jets outward.
- **Too wide (overspray):** angle tips downward or toward center.

##### Adjustment Steps

1. Loosen the hex bolt on the spray jet assembly and rotate the jet as needed.
2. Adjust the middle jet ( $\approx 45^\circ$  or  $135^\circ$ ) for best coverage pattern, then tighten.
3. Angle outer jets slightly inward to prevent channel overspray; tips should be mostly vertical. **Do NOT overtighten retaining nuts. Hand tight only.**

### 4.3.3 Adjusting the Optimizer Bar Assembly

Proper adjustment ensures uniform oil coverage over lane surface imperfections and maintains proper traction of the lane machine during operation:

- Too high -> oil puddles appear on lane surface.
- Too low -> traction issues while traveling on the lane.

#### Adjustment Steps

1. Raise machine into transport position.
2. Locate the two adjustment bolts on the bottom of the Optimizer Bar Assembly.
  - If the jam nuts are not bottomed out on the head of the bolt, loosen them.
  - To raise the assembly, back the bolts out evenly in ¼ to ½ turn increments.
  - To lower the assembly, turn the bolts inward evenly in ¼ to ½ turn increments.
  - Once Adjusted, tighten the jam nuts against the Optimizer Bar Assembly.
3. Run the machine and verify proper traction and uniform oil smoothing across the lane surface.

### 4.3.4 Fuse Replacement

The NEXUS Lane Machine uses **12 fuses** (found on top of the control box) to protect electrical components. Push down and turn counterclockwise on fuse cover and pull straight out to remove or replace fuse.

#### Fuse Ratings:

|                                     |                                      |                                            |                                     |
|-------------------------------------|--------------------------------------|--------------------------------------------|-------------------------------------|
| <b>Vacuum Motor</b><br><b>20.0A</b> | <b>Squeegee Motor</b><br><b>3.2A</b> | <b>Optimizer Lift Motor</b><br><b>3.2A</b> | <b>Duster Windup</b><br><b>0.5A</b> |
| <b>Oil Pump</b><br><b>0.75A</b>     | <b>Cleaner Pump</b><br><b>3.2A</b>   | <b>12V Power Supply</b><br><b>4.0A</b>     | <b>Duster Unwind</b><br><b>0.5A</b> |
| <b>Drive Board</b><br><b>7.5A</b>   | <b>Control Board</b><br><b>1.0A</b>  | <b>Oil Head Motor</b><br><b>3.2A</b>       | <b>Controller</b><br><b>2.25A</b>   |

## 4.4 Replacing Parts

### 4.4.1 Duster Cloth Replacement

The machine uses a ratcheting cloth system with two brake motors: one feeds cloth and lowers the cushion roller; the other winds the used cloth and lifts the roller, preventing dirt lines and manages cloth control.

#### Replacement Steps

1. Remove and discard used cloth. Clean the compartment while accessible.
2. Transfer pipe to new core, unroll ~3 ft, and install new roll. Route cloth per diagram (10-pin wall), between squeegee and cushion roller, then under the roller.
3. Pull excess cloth through and wrap 3–4 turns evenly on the take-up reel. Install the take-up reel.

4. Use the duster motor control to unwind/rewind until cloth is tight and even. Reset cloth usage in Settings by selecting “Reset Cloth.”

#### **4.4.2 Squeegee Blade Replacement**

The squeegee assembly is critical for cleaning performance. Inspect after each use.

- At 4,500 lanes, rotate cartridge 180° to use the fresh edge. Replace both after 9,000 lanes. Replace immediately if blades are torn, brittle, or warped.

Steps (machine in transport position):

1. Remove four hex bolts; take out cartridge.
2. Remove four Allen bolts from squeegee channel.
3. Remove channel insert, discard blades, and clean/dry all parts.
4. Install new blades evenly, ribbed sides out. Reinstall insert and secure with Allen bolts from Step 2. Install new gasket and remount assembly.

#### **4.4.3 Cushion Roller Replacement** (Remove duster cloth first for access.)

1. Remove side guards. In transport position, remove hardware from one pivot arm on either side of the machine. Remove only one side and keep 5/16" spacer washer for future use.
2. Pull roller out carefully from the underside of the machine, avoiding microswitches. Transfer the removed arm to the new roller; shim new roller until stems are flush with bearings. Reinstall with spacer washer and hardware.

## **Section 5 – Troubleshooting**

This section outlines common NEXUS Lane Machine problems, solutions, and steps to follow if the machine stops mid-operation. If machine errors are unresolved or not listed, contact Brunswick Technical Support (1-800-YES-BOWL / 1-800-937-2695, [techsupport@brunswickbowling.com](mailto:techsupport@brunswickbowling.com)). **Note:** Repairs should only be performed by experienced operators. Do not attempt procedures that are not fully understood.

### **5.1 Operational Problems and Solutions**

Problems are grouped into six categories:

- **General operation (no error code):** Non-specific issues.
- **General operation (with error code):** Non-specific issues with codes.
- **Cleaning operation (no error code):** Cleaning-related issues.
- **Cleaning operation (with error code):** Cleaning issues with codes.
- **Conditioning operation (no error code):** Conditioning-related issues.
- **Conditioning operation (with error code):** Conditioning issues with codes.

#### **5.1.1 General Operation (No Error Code)**

**Machine won't turn on:**

- Low battery, poor connection, or E-Stop engaged.

### 5.1.2 General Operation (With Error Code)

- **Forward travel:** Faulty/loose relay, bad drive fuse, loose wiring/fuse holder, bad LDS sensor, or shaft issue
- **Reverse travel:** Same as forward travel causes.
- **Machine stuck at end:** Drive wheels past tail plank.
- **Short lane:** Ran short-lane mode on standard lane.
- **End-of-lane sensor:** Dirty or defective sensor.
- **Control board connection:** Faulty board, Ethernet connection, or cable.
- **Low battery:** Not charged or poor connection.

### 5.1.3 Cleaning Operation (No Error Code)

- **Pump runs, no cleaner:** Empty tank or clogged filter.
- **Pump won't run:** Blown fuse or bad relay.
- **Low pump output:** Clogged tank filter.
- **Cleaner left on lane:** Squeegee too high, lane depressions, damaged blades, or missing recovery tank.
- **Oil streaks:** Duster not contacting lane or insufficient cloth feed/reset issue. No Cleaner.
- **Cleans only where sprayed:** Duster not contacting lane.
- **Drips from squeegee:** Rear squeegee misaligned, clogged recovery filter/hose, or weak vacuum motor.
- **Cleaner pushed into gutters:** Missing tank, disconnected hose, or excess cleaner.
- **Cleaner leak:** Tank fitting leak or overfill.
- **Uneven duster cloth:** Improper winding, misadjusted switches, or faulty motor brake.

### 5.1.4 Cleaning Operation (With Error Code)

- **Duster unwind:** Empty cloth, bad/stuck up switch, bad fuse, duster unwind motor faulty, duster unwind relay faulty. Duster not contacting the lane surface.
- **Duster wind-up:** Bad fuse, faulty motor/relay, bad/stuck up switch, slipping hub.
- **Squeegee up/down:** Bad fuse, faulty relay, motor or loose cam.
- **Low duster cloth:** <16 lanes of cloth left on supply roll.

### 5.1.5 Conditioning System (No Error Code)

- **Oil pump runs, no pressure:** Clogged filter or empty tank.
- **Oil pump won't run:** Bad fuse or motor.
- **Conditioner leak:** Tank fitting leak or overfill.

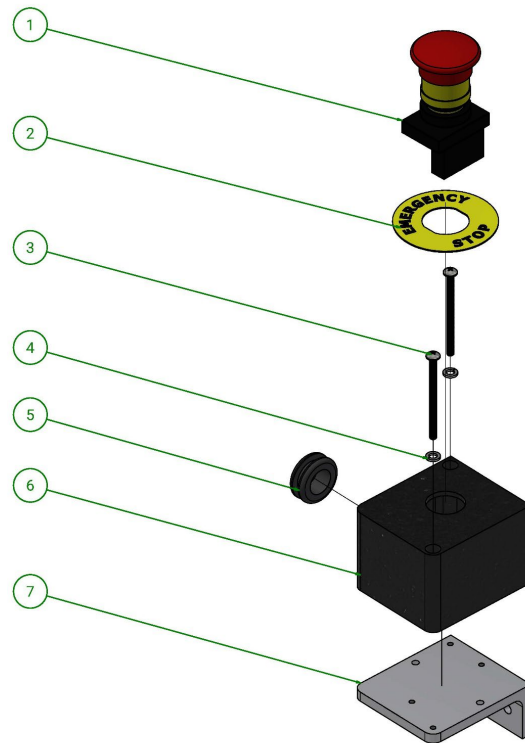
### 5.1.6 Conditioning System (With Error Code)

**Oil head drive:** Bad fuse, faulty home proximity sensor, or low battery.

- **Optimizer up/down:** Bad/stuck switch, bad fuse, faulty motor, defective lift relay or loose cam.

## Section 6 – Parts Diagrams

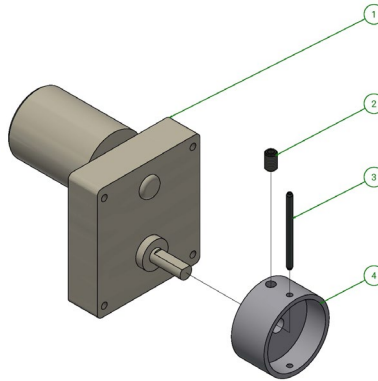
### 6.1 E-Stop Assembly



#### E-STOP ASSEMBLY

| Index Number | Qty. | Part Number | Description                 | UOM |
|--------------|------|-------------|-----------------------------|-----|
| 1            | 1    | 164-1223    | E-Stop Switch Box           | EA. |
| 2            | 1    | 155-1234    | E-Stop Label                | EA. |
| 3            | 2    | 153-2557    | MS Phillips – 8-32 x 2-1/4" | EA. |
| 4            | 2    | 153-2013    | Lock Washer - #10           | EA. |
| 5            | 1    | 153-2934    | Grommet                     | EA. |
| 6            | 1    | 166-6062    | E-Stop Enclosure            | EA. |
| 7            | 1    | 154-6273    | E-Stop Mount Bracket        | EA. |

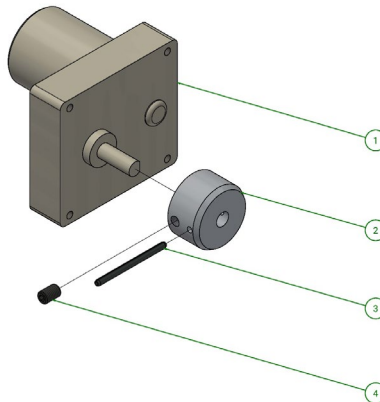
## 6.2 7-Pin Duster Motor Assembly



### 7-PIN DUSTER ASSEMBLY

| Index Number | Qty. | Part Number | Description               | UOM |
|--------------|------|-------------|---------------------------|-----|
| 1            | 1    | 166-8011    | Duster Motor Assembly     | EA. |
| 2            | 1    | 153-2050    | Set Screw – 1/4-28 x 3/8" | EA. |
| 3            | 1    | 153-2037    | Roll Pin – 1/8 x 1-3/4"   | EA. |
| 4            | 1    | 153-6225B   | Duster Cloth Hub          | EA. |

## 6.3 10-Pin Duster Assembly

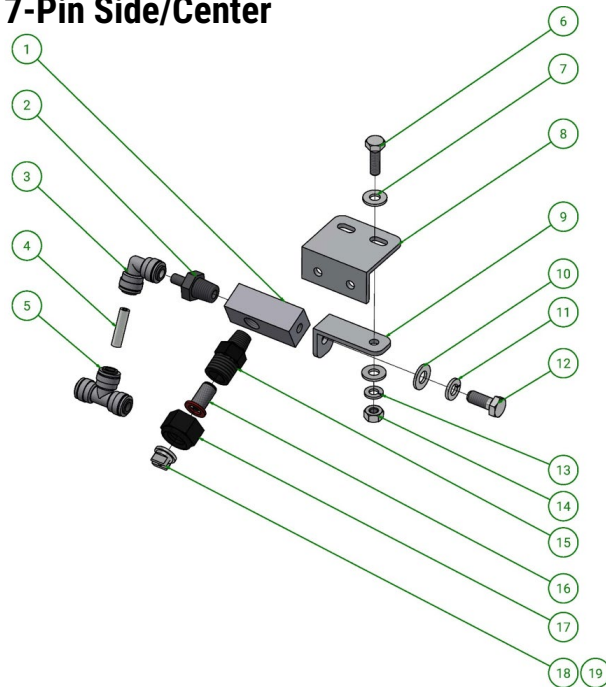


### 10-PIN DUSTER ASSEMBLY

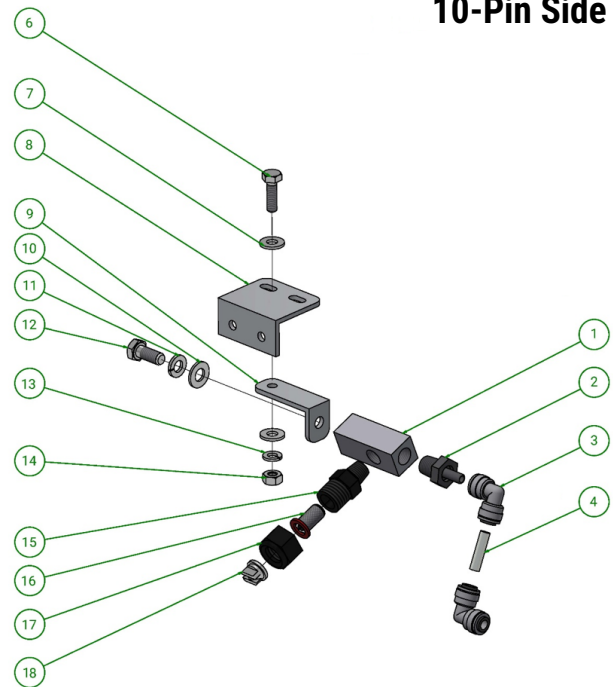
| Index Number | Qty. | Part Number | Description               | UOM |
|--------------|------|-------------|---------------------------|-----|
| 1            | 1    | 166-8011    | Duster Motor Assembly     | EA. |
| 2            | 1    | 153-6263B   | Duster Cloth Hub          | EA. |
| 3            | 1    | 153-2037    | Roll Pin – 1/8 x 1-3/4"   | EA. |
| 4            | 1    | 153-2050    | Set Screw – 1/4-28 x 3/8" | EA. |

## 6.4 Spray Jet Assemblies

### 7-Pin Side/Center



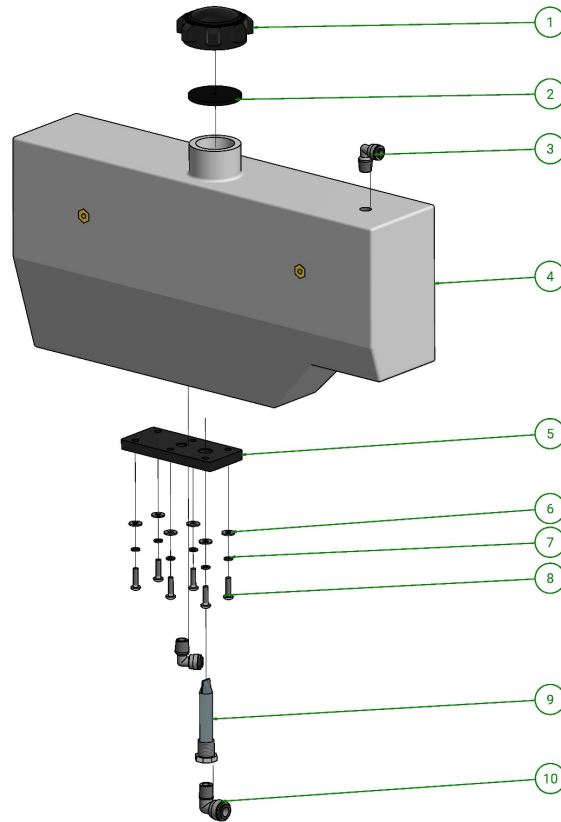
### 10-Pin Side



### SPRAY JET ASSEMBLIES

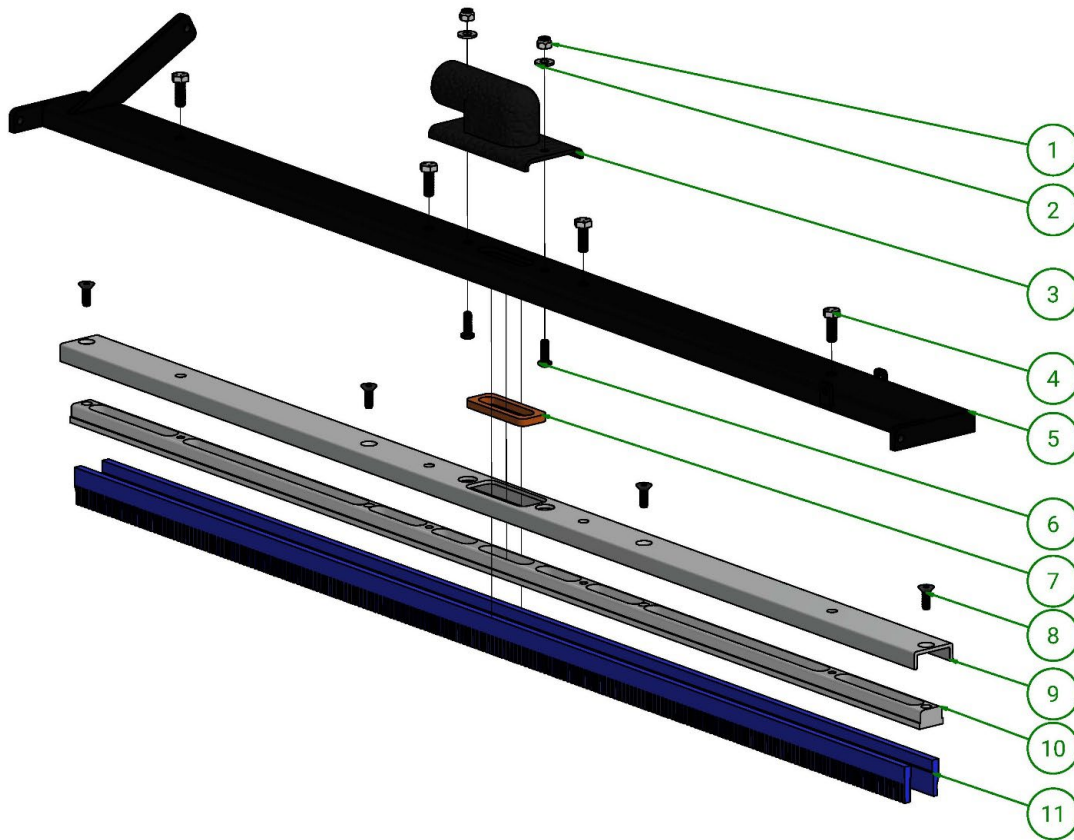
| Index Number | Qty. | Part Number | Description                              | UOM  |
|--------------|------|-------------|------------------------------------------|------|
| 1            | 1    | 153-6252    | Spray Jet Body                           | EA.  |
| 2            | 1    | 154-0243S   | Stem Adapter – ¼" x ¼"                   | EA.  |
| 3            | 1    | 154-0243    | Elbow (90 Degree) ¼" x ¼"                | EA.  |
| 4            | 1    | 153-0208S   | Tubing – ¼"                              | 1.75 |
| 5            | 1    | 153-0815    | Union Tee – ¼" ¼" x ¼"                   | EA.  |
| 6            | 1    | 153-2052    | HHCS – ¼-20 x 7/8"                       | EA.  |
| 7            | 2    | 153-2004    | Flat washer – ¼"                         | EA.  |
| 8            | 1    | 158-6231    | Spray Jet Mount Angle                    | EA.  |
| 9            | 1    | 153-6251S   | Spray Jet Swivel Mounting Angle          | EA.  |
| 10           | 1    | 153-2005    | Flat washer – 5/16"                      | EA.  |
| 11           | 1    | 153-2015    | Lock washer – 5/16"                      | EA.  |
| 12           | 1    | 153-2602    | HHCS – 5/16-18 x ¾"                      | EA.  |
| 13           | 1    | 153-2014    | Lock washer – ¼"                         | EA.  |
| 14           | 1    | 153-2023    | Hex nut – ¼-20                           | EA.  |
| 15           | 1    | 153-0217    | Male Body – ¼"                           | EA.  |
| 16           | 1    | 153-0220    | Screen Check Valve                       | EA.  |
| 17           | 1    | 153-0218    | Tip Retainer Cap                         | EA.  |
| 18           | 1    | 154-0007    | Spray Tip Assembly – 1501 (L&R)          | EA.  |
| 19           | 1    | 153-0207A   | Spray Tip Assembly – 11003 (Center only) | EA.  |

## 6.5 Cleaner Tank Assembly



| CLEANER TANK ASSEMBLY |      |             |                                        |     |
|-----------------------|------|-------------|----------------------------------------|-----|
| Item Number           | Qty. | Part Number | Description                            | UOM |
| 1                     | 1    | 164-6018    | Kelch Cap                              | EA. |
| 2                     | 1    | 164-0021    | Kelch Cap Gasket                       | EA. |
| 3                     | 2    | 154-0223    | Elbow (90 Degree) - 1/4 NPT x 1/4 Tube | EA. |
| 4                     | 1    | 165-6091M   | Water Tank                             | EA. |
| 5                     | 1    | 166-6039    | Cleaner Tank Plate                     | EA. |
| 6                     | 6    | 153-2003    | Flat washer - #10                      | EA. |
| 7                     | 6    | 153-2013    | Lock washer - #10                      | EA. |
| 8                     | 6    | 153-2091    | MS Phillips - 10-32 X 3/4              | EA. |
| 9                     | 1    | 154-0212B   | Filter – Cleaner Supply Tank (3 IN SS) | EA. |
| 10                    | 1    | 154-0225    | Elbow - 3/8 Tube OD x 1/4 NPT          | EA. |

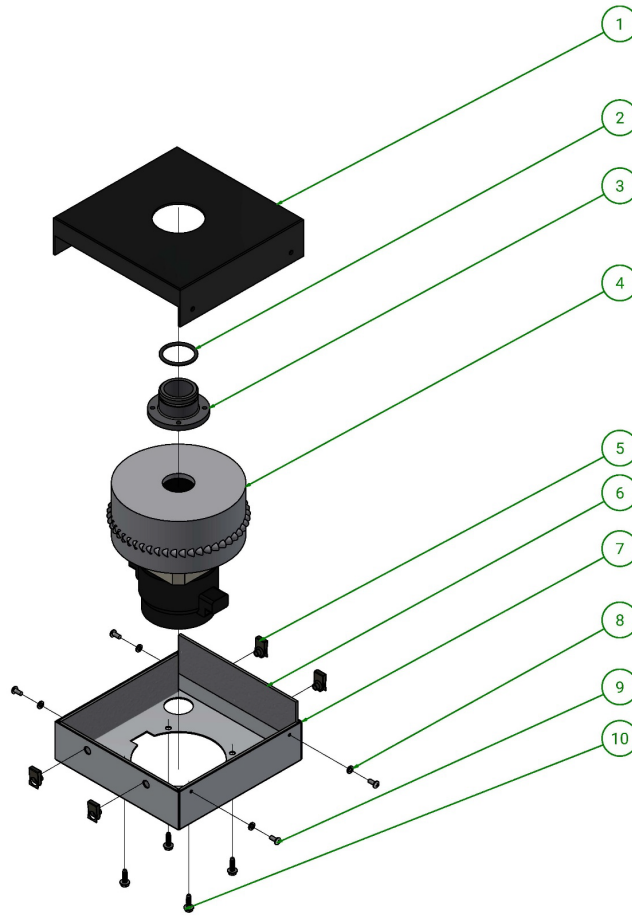
## 6.6 Squeegee Assembly



### SQUEEGEE ASSEMBLY

| Index Number | Qty. | Part Number   | Description                  | UOM |
|--------------|------|---------------|------------------------------|-----|
| 1            | 2    | 153-2020A     | Locknut – ¼-20 (Stover)      | EA. |
| 2            | 2    | 153-2004      | Flat washer – ¼"             | EA. |
| 3            | 1    | 154-6677A     | Squeegee Hose Adapter        | EA. |
| 4            | 4    | 164-2097      | HHCS – 5/16-18 x 7/8"        | EA. |
| 5            | 1    | 154-6339-2850 | Squeegee Mount Angle - Black | EA. |
| 6            | 4    | 153-2968      | FHSCS – ¼-20 x ¾"            | EA. |
| 7            | 2    | 164-2023      | BHCS – ¼-20 x ¾"             | EA. |
| 8            | 1    | 164-0003      | Squeegee Gasket              | EA. |
| 9            | 1    | 164-6074      | Squeegee Channel             | EA. |
| 10           | 1    | 164-6075      | Machined Squeegee Channel    | EA. |
| 11           | 1    | 164-8038K     | Squeegee Replacement Blades  | KIT |

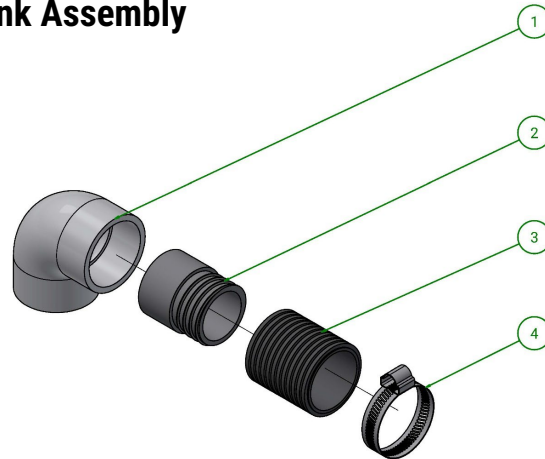
## 6.7 Vacuum Motor Assembly



### VACUUM MOTOR ASSEMBLY

| Index Number | Qty. | Part Number   | Description                          | UOM |
|--------------|------|---------------|--------------------------------------|-----|
| 1            | 1    | 166-6011-2850 | Vacuum Motor Top Plate               | EA. |
| 2            | 1    | 165-2013      | O-Ring - 1-3/8 ID X 1/8 Dia.         | EA. |
| 3            | 1    | 166-6023      | Vacuum Motor Inlet                   | EA. |
| 4            | 1    | 158-1421      | Vacuum Motor Assembly - 24v          | EA. |
| 5            | 4    | 153-2907      | Spring Nut - 1/4-20                  | EA. |
| 6            | 4    | 154-0628S     | Felt – Gray – 9" x 3/8"              | EA. |
| 7            | 1    | 158-6211      | Vacuum Motor Housing                 | EA. |
| 8            | 4    | 153-2013      | Lock Washer - #10                    | EA. |
| 9            | 4    | 153-2113      | MS Phillips - 8-32 x 3/8"            | EA. |
| 10           | 4    | 153-2830      | Hex Head Self Tap Screw - #10 x 5/8" | EA. |

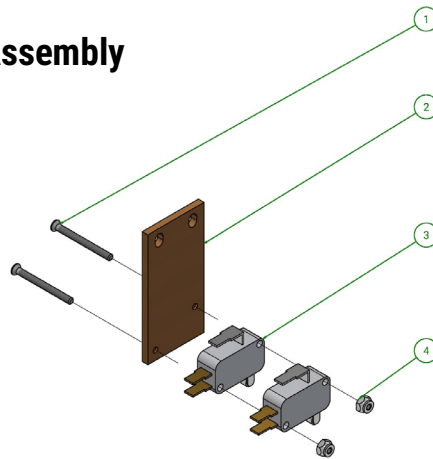
## 6.8 Vacuum Hose to Tank Assembly



### VACUUM HOSE TO TANK ASSEMBLY

| Index Number | Qty. | Part Number | Description                        | UOM |
|--------------|------|-------------|------------------------------------|-----|
| 1            | 1    | 164-0220    | PVC 90 Degree Elbow                | EA, |
| 2            | 1    | 164-6293    | Threaded Insert - 1"               | EA. |
| 3            | 1    | 154-0260    | Flexible Vacuum Hose Grey - 1-1/2" | IN. |
| 4            | 1    | 153-2406    | Hose Clamp - 2"                    | EA. |

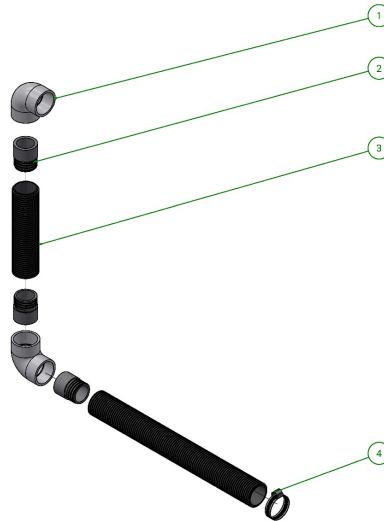
## 6.9 Squeegee Cam Plate Assembly



### SQUEEGEE CAM SWITCH ASSEMBLY

| Index Number | Qty. | Part Number | Description          | UOM |
|--------------|------|-------------|----------------------|-----|
| 1            | 2    | 153-2727    | FHMS - 4-40 x 1-1/4" | EA. |
| 2            | 1    | 154-6824    | Cam Switch Plate     | EA. |
| 3            | 2    | 153-1203    | Microswitch w/roller | EA. |
| 4            | 1    | 153-2231    | Locknut - 4-40       | EA. |

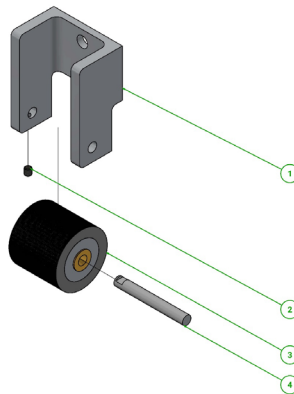
## 6.10 Squeegee Hose to Tank



### SQUEEGEE HOSE TO TANK ASSEMBLY

| Index Number | Qty. | Part Number | Description                        | UOM |
|--------------|------|-------------|------------------------------------|-----|
| 1            | 2    | 164-0220    | PVC 90 Degree Elbow                | EA. |
| 2            | 3    | 164-6293    | Threaded Insert - 1"               | EA. |
| 3            | 1    | 154-0260    | Flexible Vacuum Hose Grey - 1-1/2" | IN. |
| 4            | 1    | 153-2406    | Hose Clamp - 2"                    | EA. |

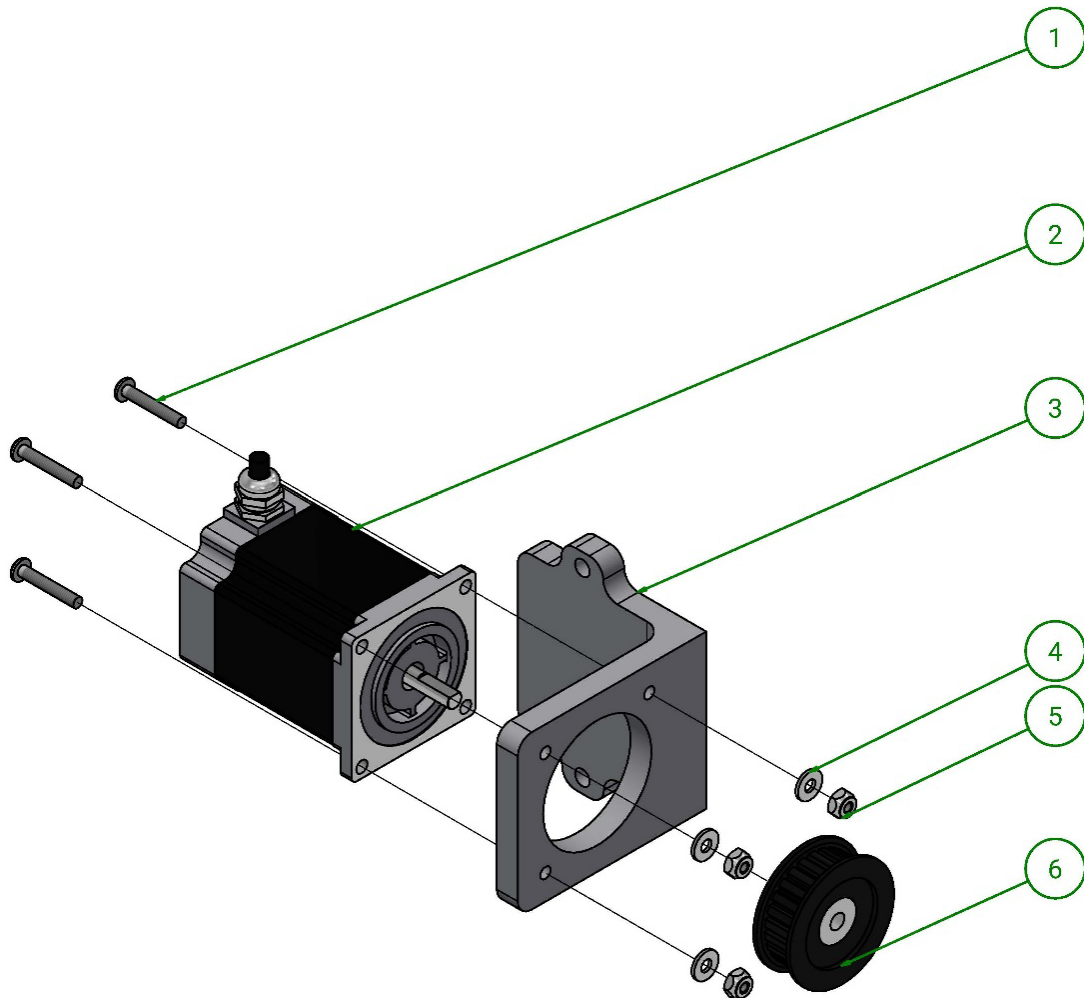
## 6.11 Momentary Wheel Assembly



### MOMENTARY WHEEL ASSEMBLY

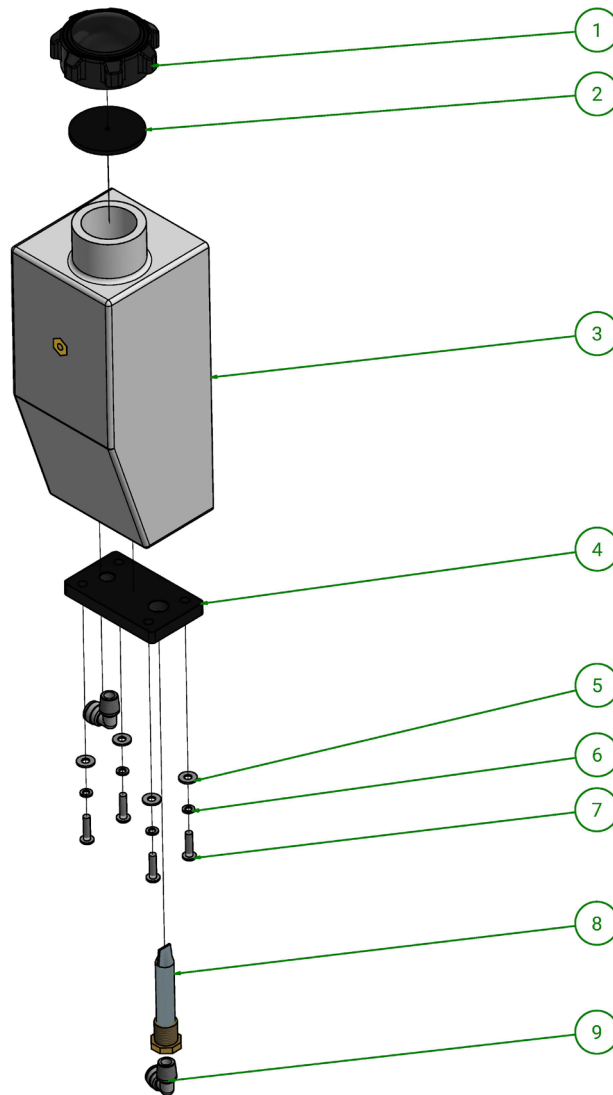
| Index Number | Qty. | Part Number | Description              | UOM |
|--------------|------|-------------|--------------------------|-----|
| 1            | 1    | 164-6053    | Momentary Wheel housing  | EA. |
| 2            | 1    | 153-2049    | Set Screw – 8-32 x 3/16" | EA. |
| 3            | 1    | 153-7005    | Momentary Wheel          | EA. |
| 4            | 1    | 153-6006    | Lane Roller Shaft        | EA. |

## 6.12 Oil Head Motor Assembly



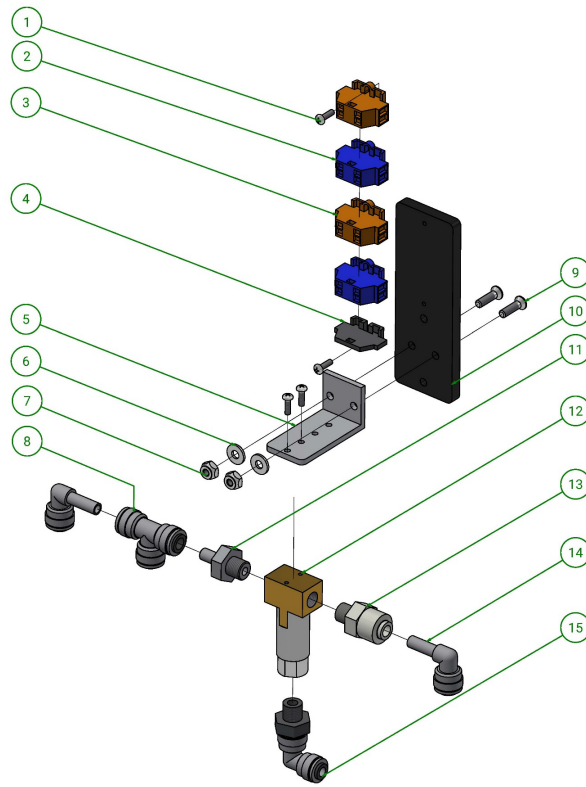
| OIL HEAD MOTOR ASSEMBLY |      |             |                                            |     |
|-------------------------|------|-------------|--------------------------------------------|-----|
| Index Number            | Qty. | Part Number | Description                                | UOM |
| 1                       | 3    | 153-2089    | MS Phillips - 8-32 X 1"                    | EA. |
| 2                       | 1    | 164-1263    | Stepper Motor                              | EA. |
| 3                       | 1    | 166-6041    | Head Motor Mount                           | EA. |
| 4                       | 3    | 153-2002    | Flat Washer - #8                           | EA. |
| 5                       | 3    | 153-2019    | Locknut (Nylok) - 8-32                     | EA. |
| 6                       | 1    | 154-9207    | Pulley (24XL037DF 1/4" Bore with set screw | EA. |

## 6.13 Oil Tank Assembly



| OIL TANK ASSEMBLY |      |             |                                        |     |
|-------------------|------|-------------|----------------------------------------|-----|
| Item Number       | Qty. | Part Number | Description                            | UOM |
| 1                 | 1    | 164-6018    | Kelch Cap                              | EA. |
| 2                 | 1    | 164-0021    | Kelch Cap Gasket                       | EA. |
| 3                 | 1    | 165-6097M   | Oil Tank                               | EA. |
| 4                 | 1    | 166-6038    | Small Oil Tank Float Plate             | EA. |
| 5                 | 4    | 153-2003    | Flat washer - #10                      | EA. |
| 6                 | 4    | 153-2013    | Lock washer - #10                      | EA. |
| 7                 | 4    | 153-2091    | MS Phillips - 10-32 X 3/4              | EA. |
| 8                 | 1    | 154-0212    | Tank Filter (3" SS) For Oil Tank       | EA. |
| 9                 | 3    | 154-0223    | Elbow - 90 Degree - 1/4 NPT x 1/4 Tube | EA. |

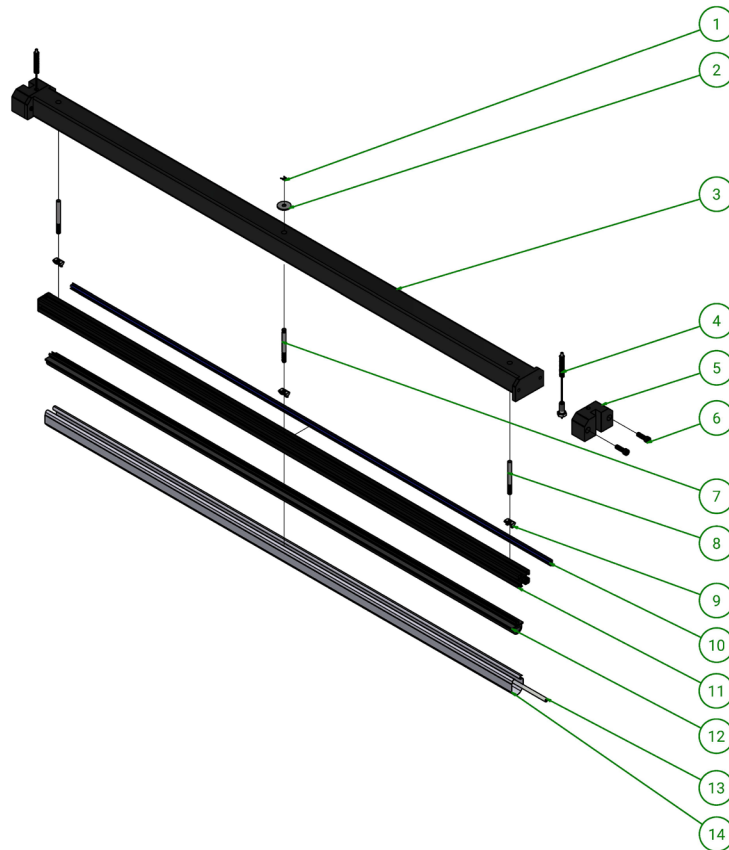
## 6.14 Oil Valve Assembly



**Oil Valve Assembly**

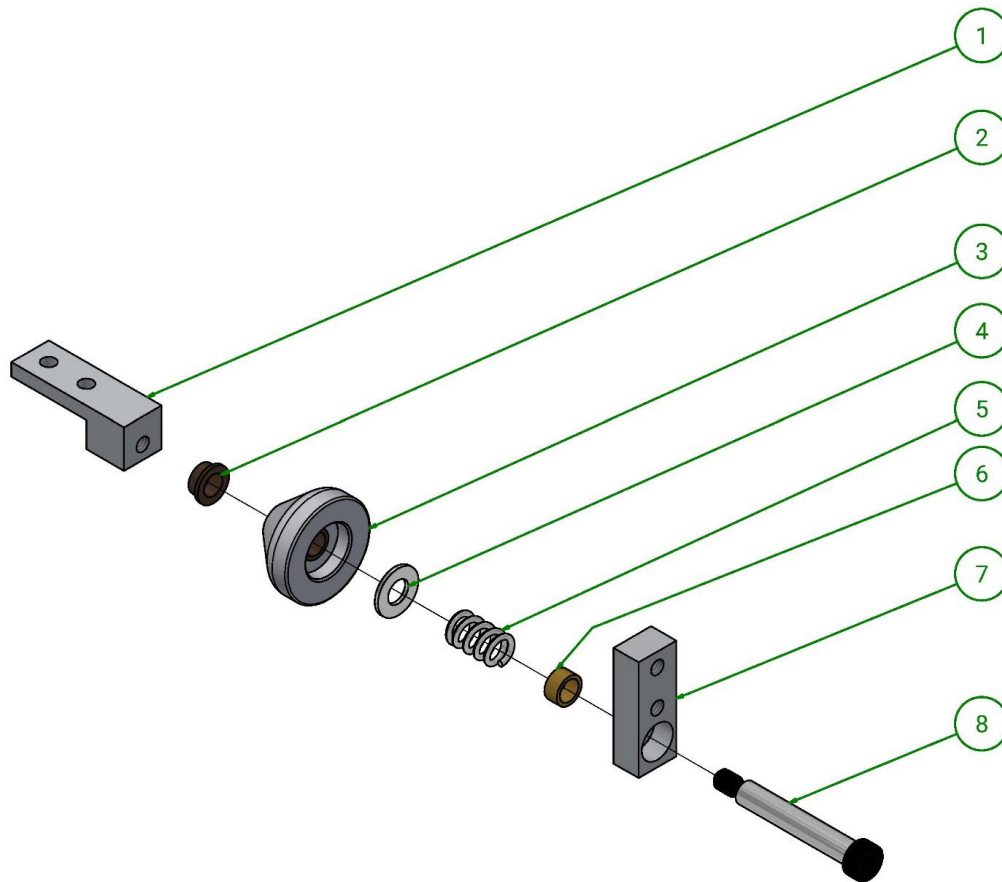
| Index Number | Qty. | Part Number | Description                                | UOM |
|--------------|------|-------------|--------------------------------------------|-----|
| 1            | 4    | 153-2504    | MS Phillips - 4-40 X 3/8                   | EA. |
| 2            | 2    | 154-1245    | Terminal Block - Orange 4 Conductor (Wago) | EA. |
| 3            | 2    | 154-1244    | Terminal Block - Blue 4 Conductor (Wago)   | EA. |
| 4            | 1    | 154-1247    | End Plate for Terminal Block (Wago)        | EA. |
| 5            | 2    | 153-2086A   | MS Phillips - 8-32 X 3/8                   | EA. |
| 6            | 2    | 153-2013    | Lock washer - #10                          | EA. |
| 7            | 4    | 153-2002    | Flat washer - #8                           | EA. |
| 8            | 1    | 166-6063    | Oil Valve Mount Angle                      | EA. |
| 9            | 2    | 153-2019    | Locknut - 8-32 (Nylok)                     | EA. |
| 10           | 1    | 153-0815    | Union Tee - ¼ x ¼ x ¼ - Quick Disconnect   | EA. |
| 11           | 2    | 153-2806    | Flat head Phillips – 8-32 x 5/8            | EA. |
| 12           | 1    | 166-6043    | Oil Valve Mount                            | EA. |
| 13           | 1    | 166-0013    | Stem Adapter - 1/4 X 1/8                   | EA. |
| 14           | 1    | 166-1013    | Oil Valve -                                | EA. |
| 15           | 1    | 154-0224    | Male Connector - ¼ Tube x 1/8 NPT          | EA. |
| 16           | 2    | 154-0222    | Elbow - ¼ Stem x ¼ Tubing OD               | EA. |

## 6.15 Optimizer Bar Assembly



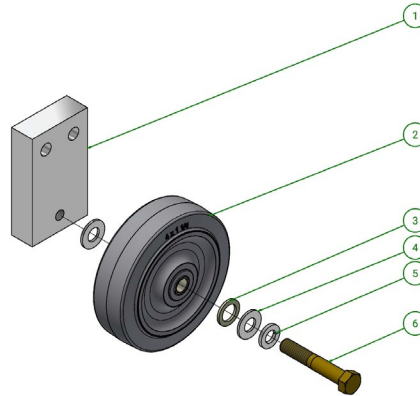
| Optimizer Bar Assembly |      |               |                                          |       |
|------------------------|------|---------------|------------------------------------------|-------|
| Index Number           | Qty. | Part Number   | Description                              | UOM   |
| 1                      | 1    | 162-2037      | X-Washer                                 | EA.   |
| 2                      | 1    | 162-2013      | Washer                                   | EA.   |
| 3                      | 1    | 166-6024-2850 | Optimizer Support Bar                    | EA.   |
| 4                      | 2    | 166-8037      | Optimizer Bar Cable                      | EA.   |
| 5                      | 2    | 166-6020      | Optimizer Bar End Block                  | EA.   |
| 6                      | 4    | 153-2956      | Screw – 1/4-20 x 3/4" Skt Head Cap Screw | EA.   |
| 7                      | 1    | 166-2001M     | Optimizer Mount Bar Locating Pin         | EA.   |
| 8                      | 2    | 166-2001      | 1/4-20 x 2-1/2 Stud                      | EA.   |
| 9                      | 3    | 165-2009      | Spring Tab Nut                           | EA.   |
| 10                     | 1    | 166-0017      | T-Slot Cover                             | EA.   |
| 11                     | 1    | 166-6025      | Optimizer Mount Bar                      | EA.   |
| 12                     | 1    | 166-0008      | Rubber Seal                              | EA.   |
| 13                     | 1    | 154-0202A     | Pencil Tubing Stock – 1/4OD x 1/8ID      | 41.5" |
| 14                     | 1    | 166-0007      | Optimizer Pad Cloth                      | EA.   |

## 6.16 Front Guide Wheel Assembly



| FRONT GUIDE WHEEL ASSEMBLY |      |             |                                        |     |
|----------------------------|------|-------------|----------------------------------------|-----|
| Index Number               | Qty. | Part Number | Description                            | UOM |
| 1                          | 1    | 154-6870    | Front Guide Roller Block               | EA. |
| 2                          | 1    | 153-9803    | Flanged Bushing – 3/8" x 1/2" x 1/4"   | EA. |
| 3                          | 1    | 153-8410    | Guide Roller Assembly                  | EA. |
| 4                          | 1    | 153-2006    | Flat washer – 3/8"                     | EA. |
| 5                          | 1    | 153-2401    | Spring - .54 OD x .75                  | EA. |
| 6                          | 1    | 153-9034    | Plain Bushing – 3/8 x 1/2 x 1/4"       | EA. |
| 7                          | 1    | 154-6652    | Guide Roller Mount Block               | EA. |
| 8                          | 1    | 153-2527    | Shoulder Bolt – 3/8 x 2-1/4" – 5/16-18 | EA. |

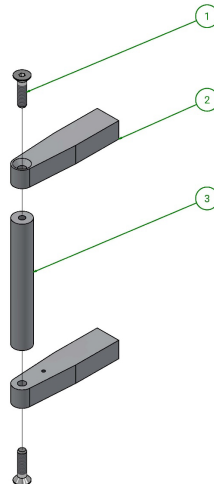
## 6.17 Front Caster Assembly



### FRONT CASTER ASSEMBLY

| Index Number | Qty. | Part Number | Description                  | UOM |
|--------------|------|-------------|------------------------------|-----|
| 1            | 1    | 166-6045    | Caster Mount Block – 4"      | EA. |
| 2            | 1    | 166-0004    | Caster Assembly              | EA. |
| 3            | 1    | 153-2010A   | Flat Washer – Nylon ½ x .060 | EA. |
| 4            | 2    | 153-2006    | Flat Washer – 3/8"           | EA. |
| 5            | 1    | 153-2016    | Lock Washer – 3/8"           | EA. |
| 6            | 1    | 153-2815    | HHCS – 3/8-16 x 2-1/4"       | EA. |

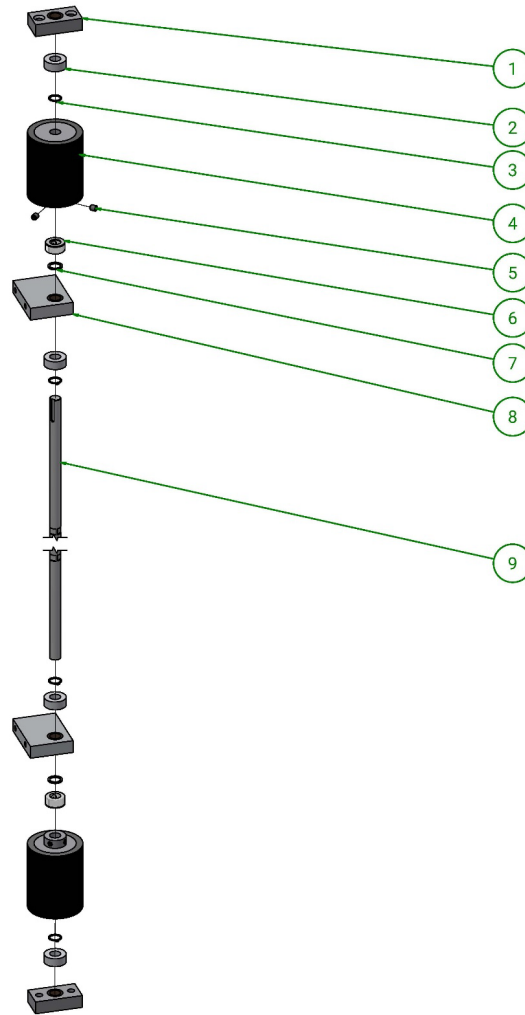
## 6.18 Side Handle Assembly



### SIDE HANDLE ASSEMBLY

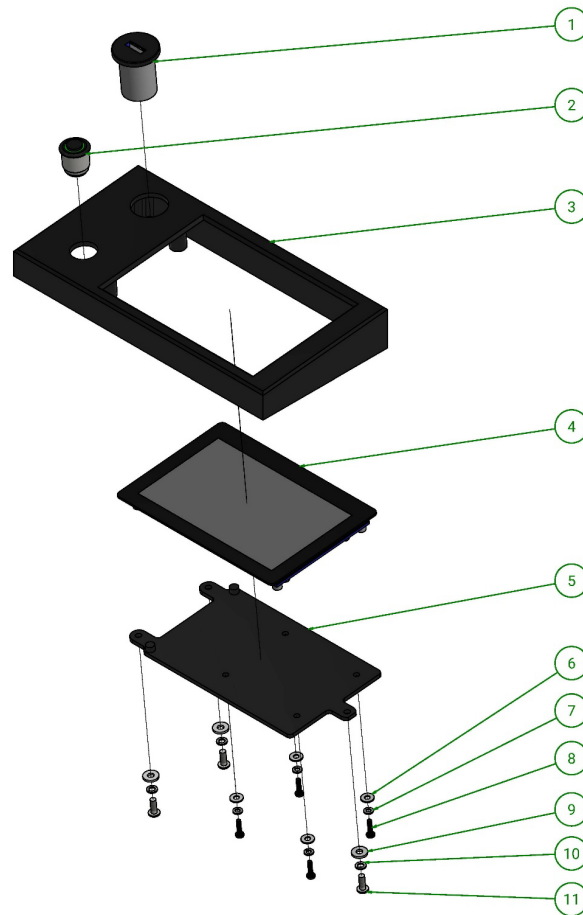
| Index Number | Qty. | Part Number | Description             | UOM |
|--------------|------|-------------|-------------------------|-----|
| 1            | 2    | 153-2503    | FHSS – 5/16-18 x 1-1/4" | EA. |
| 2            | 2    | 158-6241    | Side Handle Mount Bar   | EA. |
| 3            | 1    | 154-6627    | Side Handle Bar         | EA. |

## 6.19 Drive Shaft Assembly



| DRIVE SHAFT ASSEMBLY |      |             |                                     |     |
|----------------------|------|-------------|-------------------------------------|-----|
| Index Number         | Qty. | Part Number | Description                         | UOM |
| 1                    | 2    | 154-8007    | Side Plate Pillow Block Assembly    | EA. |
| 2                    | 4    | 153-0043    | Felt Washer – 5/8"                  | EA. |
| 3                    | 4    | 153-2036    | Snap Ring – 5/8"                    | EA. |
| 4                    | 2    | 153-7013    | Urethane Drive Wheel Assembly       | EA. |
| 5                    | 4    | 153-2819    | Set Screw – 5/16-24 x 3/8"          | EA. |
| 6                    | 2    | 153-2045    | Steel Collar – 5/8" x 1-1/8" x 1/2" | EA. |
| 7                    | 2    | 153-2011    | Flat Washer (Nylon) – 5/8" x .060   | EA. |
| 8                    | 2    | 166-6060    | Drive Shaft Pillow Block            | EA. |
| 9                    | 1    | 158-6237    | Drive Shaft Assembly                | EA. |

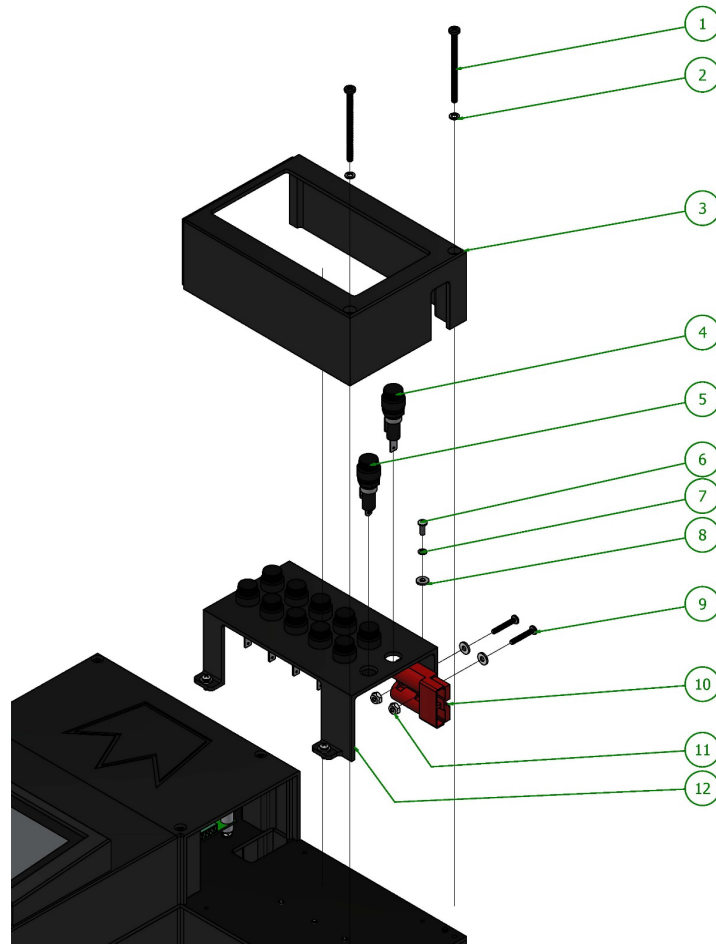
## 6.20 Touchscreen Assembly



### TOUCHSCREEN ASSEMBLY

| Index Number | Qty. | Part Number | Description               | UOM |
|--------------|------|-------------|---------------------------|-----|
| 1            | 1    | 166-1005    | Panel Mount USB Jack      | EA. |
| 2            | 1    | 166-1006    | Button Green – 3v         | EA. |
| 3            | 1    | 166-6031    | Screen Mount Assembly     | EA. |
| 4            | 1    | 166-1001    | LCD Screen Assembly       | EA. |
| 5            | 1    | 166-6033    | Screen Backplate          | EA. |
| 6            | 4    | 165-2004    | Washer - #4               | EA. |
| 7            | 4    | 166-2006    | Lock Washer - #4          | EA. |
| 8            | 4    | 166-2010    | Screw – M2.5 x 10         | EA. |
| 9            | 3    | 153-2001    | Flat Washer - #6          | EA. |
| 10           | 3    | 166-2005    | Lock Washer - #6          | EA. |
| 11           | 3    | 153-2721    | MS Phillips – 6-32 x 3/8" | EA. |

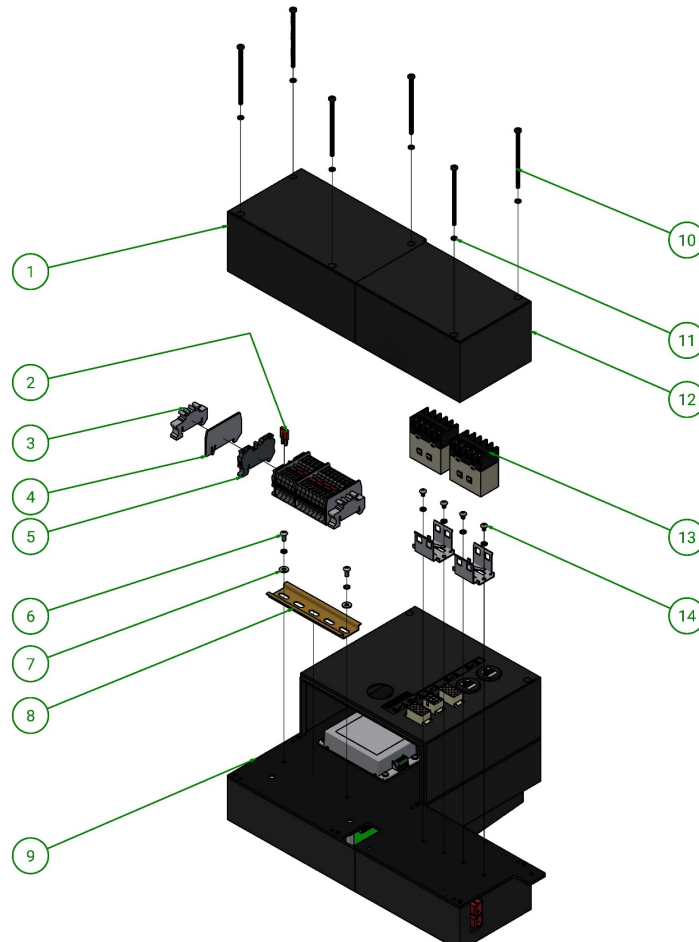
## 6.21 Electrical Enclosure Assembly (Fuses)



### ELECTRICAL ENCLOSURE ASSEMBLY (FUSES)

| Index Number | Qty. | Part Number | Description                       | UOM |
|--------------|------|-------------|-----------------------------------|-----|
| 1            | 2    | 166-2013    | MS Phillips (Oxide) - 8-32 x 2.5" | EA. |
| 2            | 2    | 166-2012    | Lock Washer - #8                  | EA. |
| 3            | 1    | 166-6066    | Electrical Enclosure Fuse Cover   | EA. |
| 4            | 11   | 165-1021    | Fuse Holder                       | EA. |
| 5            | 1    | 164-1268    | Panel Mount Fuse Holder - 30A     | EA. |
| 6            | 4    | 153-2721    | MS Phillips - 6-32 x 3/8"         | EA. |
| 7            | 4    | 166-2005    | Lock Washer - #6                  | EA. |
| 8            | 6    | 153-2001    | Flat Washer - #6                  | EA. |
| 9            | 2    | 153-2083    | MS Phillips - 6-32 x 7/8"         | EA. |
| 10           | 1    | 158-1407    | Battery Connector - Red           | EA. |
| 11           | 2    | 153-2018    | Lock Nut - 6-32 (Nylock)          | EA. |
| 12           | 1    | 166-6070    | Electrical Enclosure Fuse Plate   | EA. |

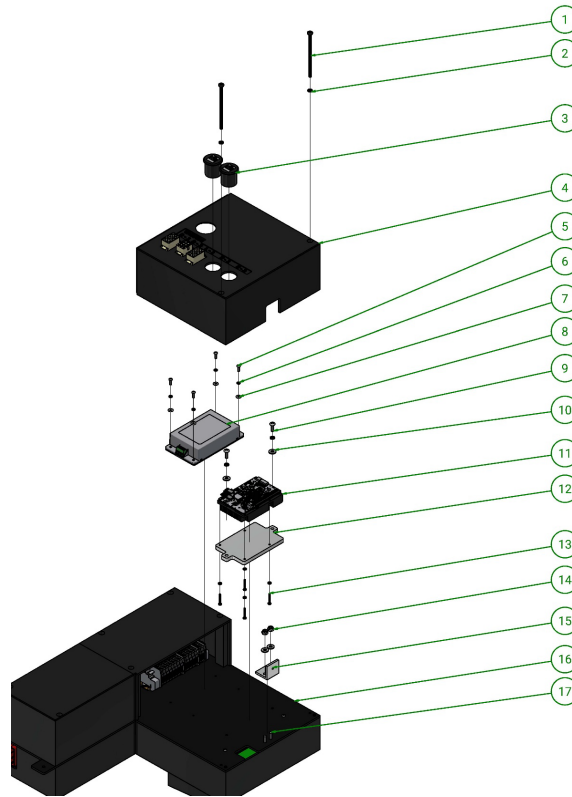
## 6.22 Electrical Enclosure Assembly (Contactor & Terminal Block)



### ELECTRICAL ENCLOSURE ASSEMBLY (CONTACTOR & TERMINAL BLOCK)

| Index Number | Qty. | Part Number   | Description                            | UOM |
|--------------|------|---------------|----------------------------------------|-----|
| 1            | 1    | 166-6067      | Enclosure Bottom Rear                  | EA. |
| 2            | 12   | 158-1417      | Terminal Block Jumper                  | EA. |
| 3            | 2    | 158-1430      | Terminal Strip End Bracket             | EA. |
| 4            | 4    | 158-1416      | Terminal Block Divider Plate           | EA. |
| 5            | 15   | 158-1415      | Terminal Block - 2 Conductor Grey      | EA. |
| 6            | 2    | 153-2541      | MS Phillips - 8-32 X 1/2"              | EA. |
| 7            | 2    | 153-2002      | Flat Washer - #8                       | EA. |
| 8            | 1    | 153-1809D     | Din Rail - 5.75 in.                    | EA. |
| 9            | 1    | 166-6013-2850 | Electrical Plate - NEXUS               | EA. |
| 10           | 6    | 166-2014      | MS Phillips - 8-32 X 3.250 Black Oxide | EA. |
| 11           | 12   | 166-2012      | Lock Washer - #8                       | EA. |
| 12           | 1    | 166-6069 US   | Enclosure Contactor Cover              | EA. |
| 13           | 2    | 158-1465      | Contactor 24DC                         | EA. |
| 14           | 4    | 166-2008      | MS Phillips - 8-32 X 1/4"              | EA. |

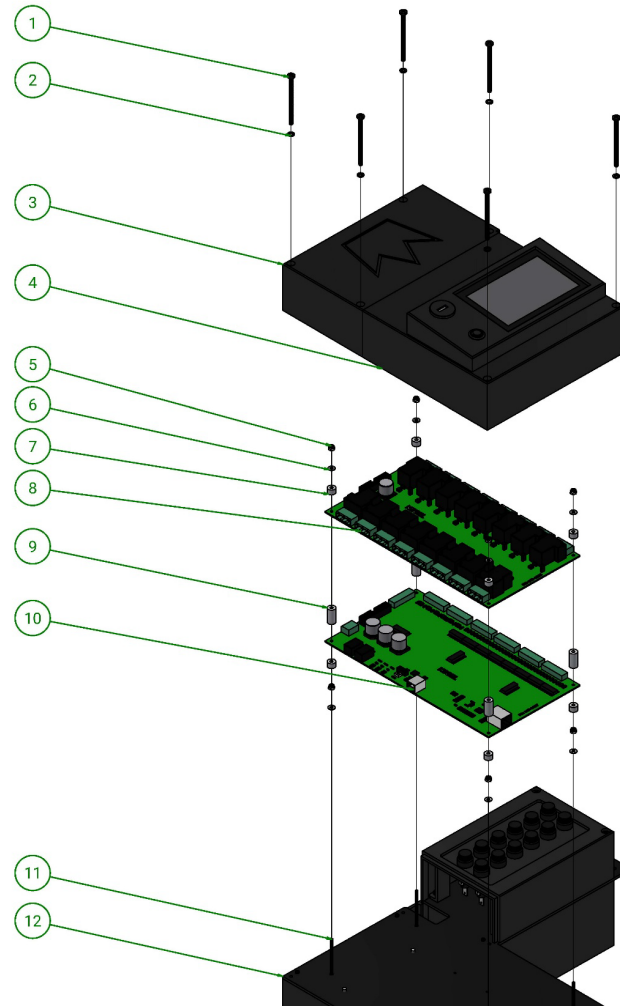
## 6.23 Electrical Enclosure Assembly (Lower Main Section)



### ELECTRICAL ENCLOSURE ASSEMBLY (LOWER MAIN)

| Index Number | Qty. | Part Number   | Description                            | UOM |
|--------------|------|---------------|----------------------------------------|-----|
| 1            | 2    | 166-2014      | MS Phillips - 8-32 X 3.250 Black Oxide | EA. |
| 2            | 4    | 166-2012      | Lock Washer - #8                       | EA. |
| 3            | 2    | 166-1004      | Panel Mount Network Jack               | EA. |
| 4            | 1    | 166-6068      | Enclosure Bottom Front                 | EA. |
| 5            | 4    | 153-2504      | MS Phillips - 4-40 x 3/8"              | EA. |
| 6            | 4    | 166-2006      | Lock Washer - #4                       | EA. |
| 7            | 4    | 165-2004      | Flat Washer - #4                       | EA. |
| 8            | 1    | 166-1002      | Power Supply - 3.3A                    | EA. |
| 9            | 2    | 153-2541      | MS Phillips - 8-32 x 1/2"              | EA. |
| 10           | 4    | 153-2002      | Flat Washer - #8                       | EA. |
| 11           | 1    | 166-1012      | Controller Assembly                    | EA. |
| 12           | 1    | 166-6027      | Controller Plate                       | EA. |
| 13           | 1    | 166-2009      | Screw - M2.5 x 18                      | EA. |
| 14           | 2    | 153-2019      | Locknut (Nylock) - 8-32                | EA. |
| 15           | 1    | 166-6028      | Electrical Plate Mount Tab             | EA. |
| 16           | 1    | 166-6013-2850 | Electrical Plate                       | EA. |
| 17           | 2    | 153-2086      | MS Phillips - 8-32 x 5/8"              | EA. |

## 6.24 Electrical Enclosure Assembly (Upper Main Section)

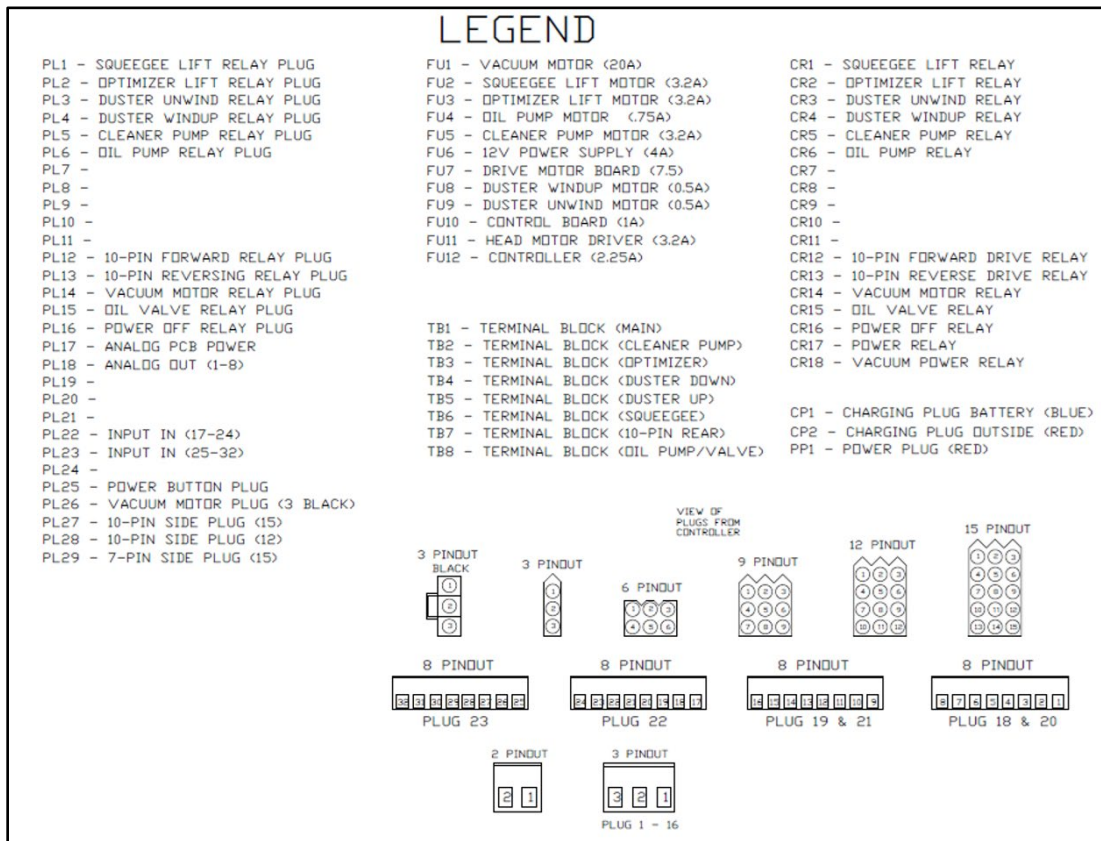


| ELECTRICAL ENCLOSURE ASSEMBLY (UPPER MAIN) |      |               |                                      |     |
|--------------------------------------------|------|---------------|--------------------------------------|-----|
| Index Number                               | Qty. | Part Number   | Description                          | UOM |
| 1                                          | 6    | 166-2013      | MS Phillips - 8-32 X 2.5 Black Oxide | EA. |
| 2                                          | 6    | 166-2012      | Lock Washer - #8                     | EA. |
| 3                                          | 1    | 166-6064      | Enclosure Top Rear                   | EA. |
| 4                                          | 1    | 166-6065      | Enclosure Top Front                  | EA. |
| 5                                          | 8    | 153-2231      | Locknut - 4-40                       | EA. |
| 6                                          | 8    | 165-2004      | Flat Washer - #4                     | EA. |
| 7                                          | 8    | 165-2002      | Nylon Spacer - #6 x 1/4"             | EA. |
| 8                                          | 1    | 165-1028      | Relay Board                          | EA. |
| 9                                          | 4    | 165-2003      | Nylon Spacer - #6 x 3/4"             | EA. |
| 10                                         | 1    | 165-1027      | I/O Control Board                    | EA. |
| 11                                         | 4    | 165-2005      | MS Phillips - 4-40 x 2"              | EA. |
| 12                                         | 1    | 166-6013-2850 | Electrical Plate                     | EA. |

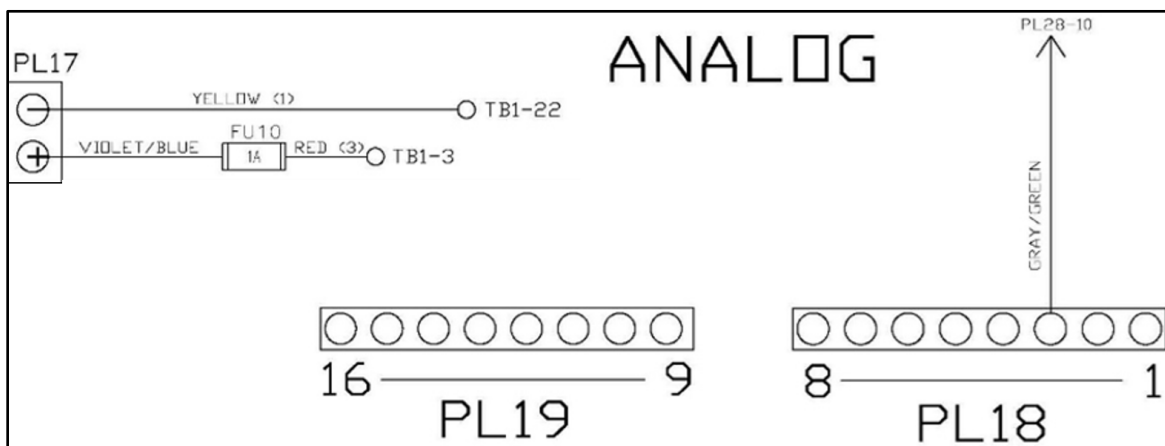
## Section 7 – Electrical Schematics

Electrical schematics are standardized visual representations that illustrate the connections, components, and functionality of an electrical system. This section provides the electrical schematics of the circuits and systems used in the NEXUS. They can be a useful tool for troubleshooting and maintaining your equipment.

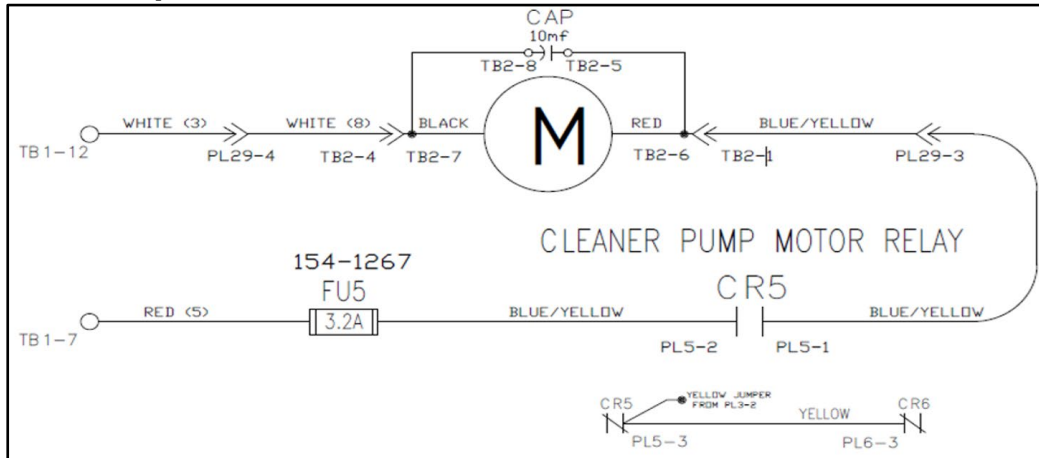
### 7.1 Legend



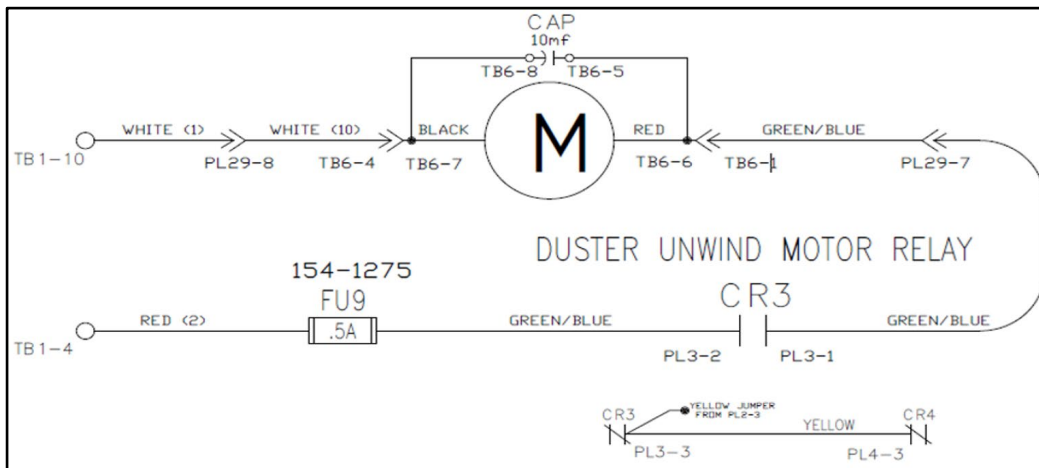
### 7.2 Analog Wiring



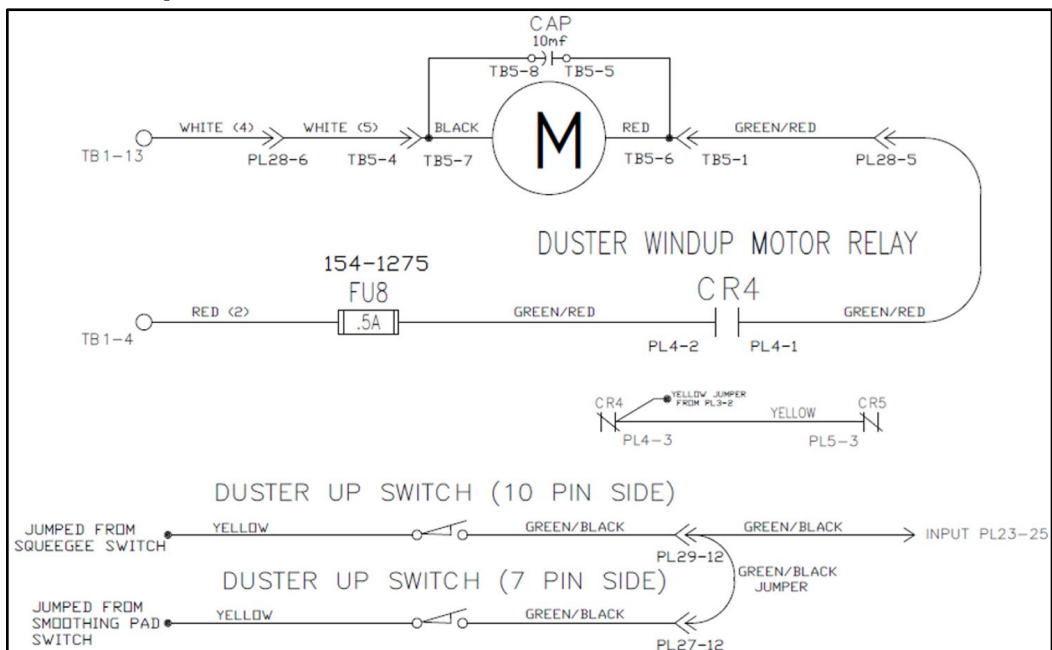
### 7.3 Cleaner Pump Motor



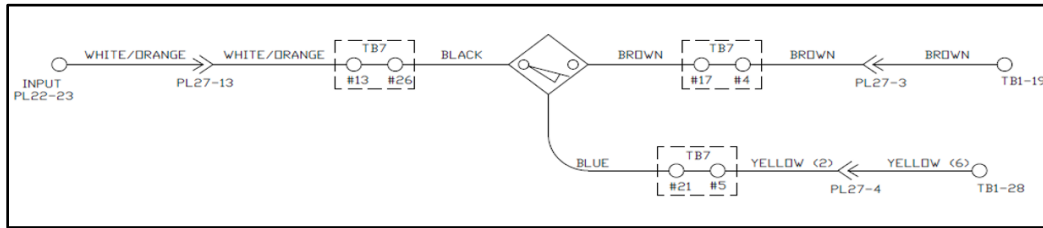
### 7.4 Duster Unwind Motor & Switch



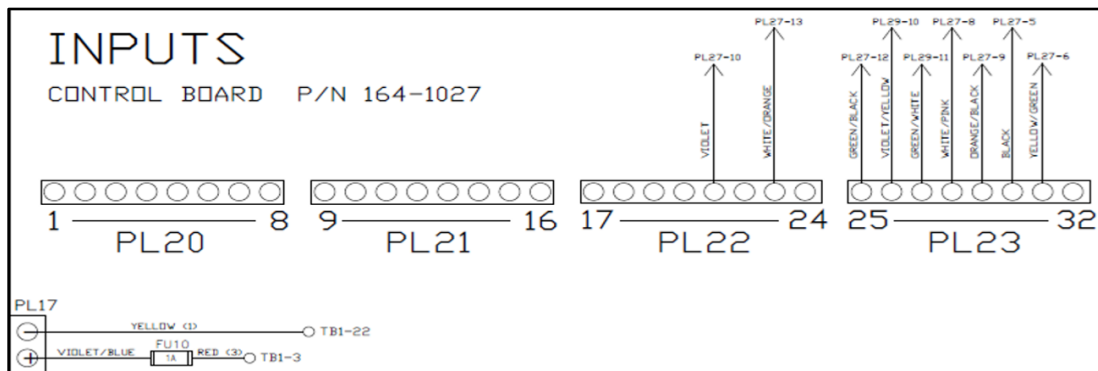
### 7.5 Duster Windup Motor



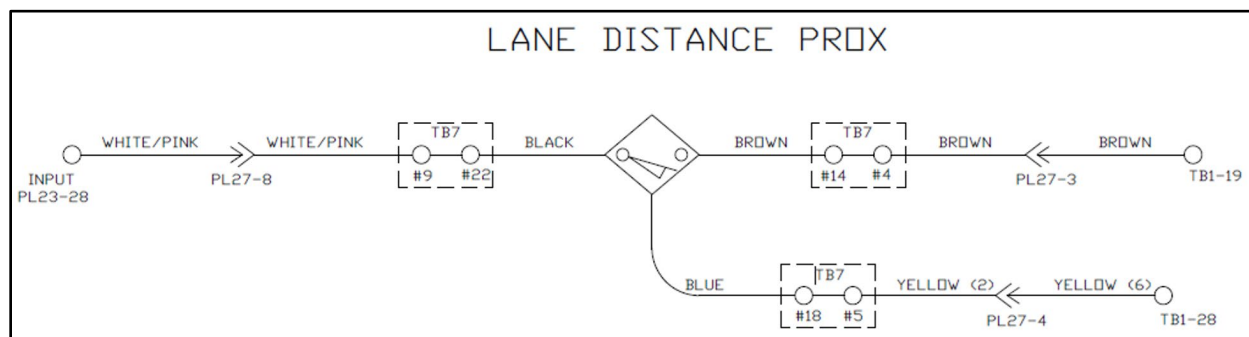
## 7.6 End of Lane Sensor



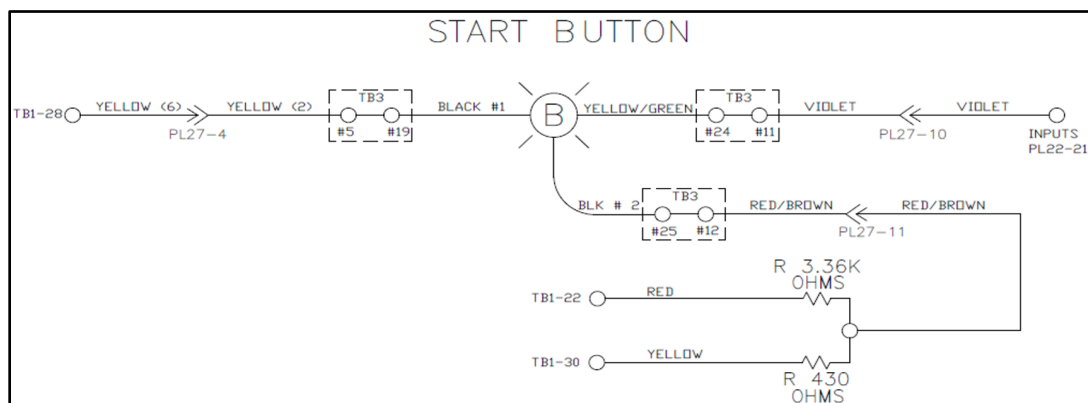
## 7.7 Inputs



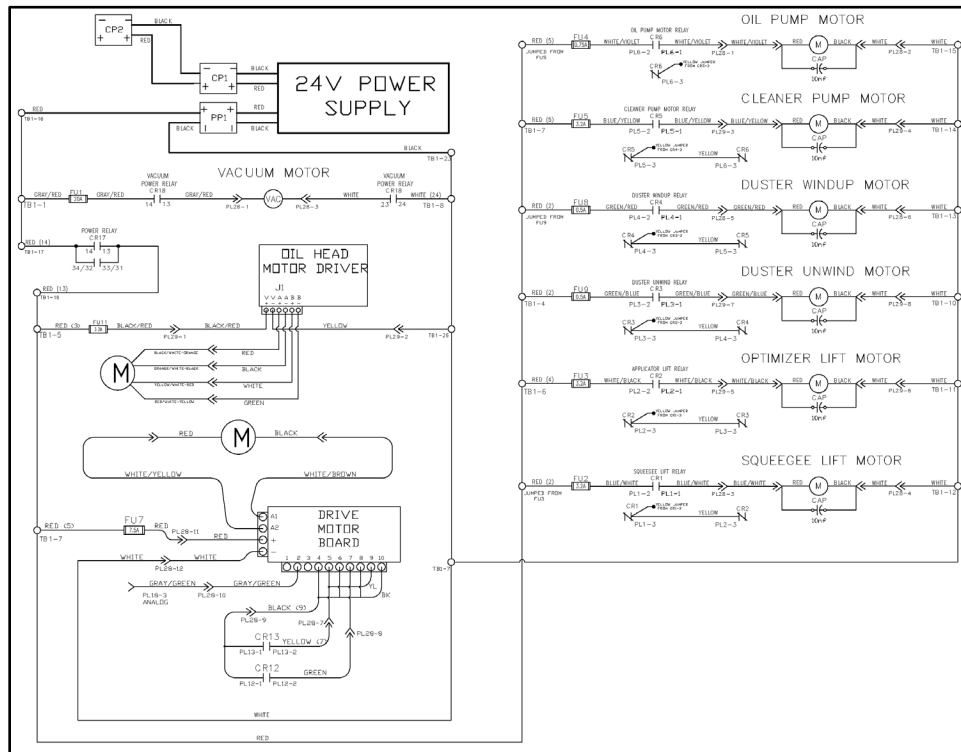
## 7.8 Lane Distance Sensor Proximity Sensor



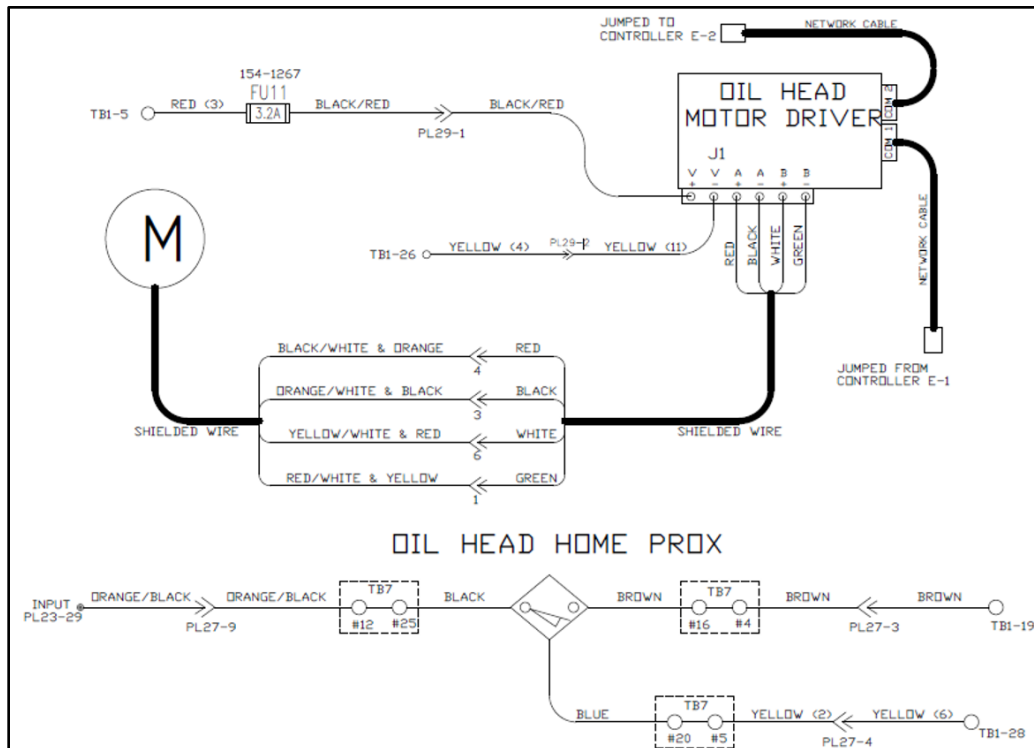
## 7.9 Handle Start Button



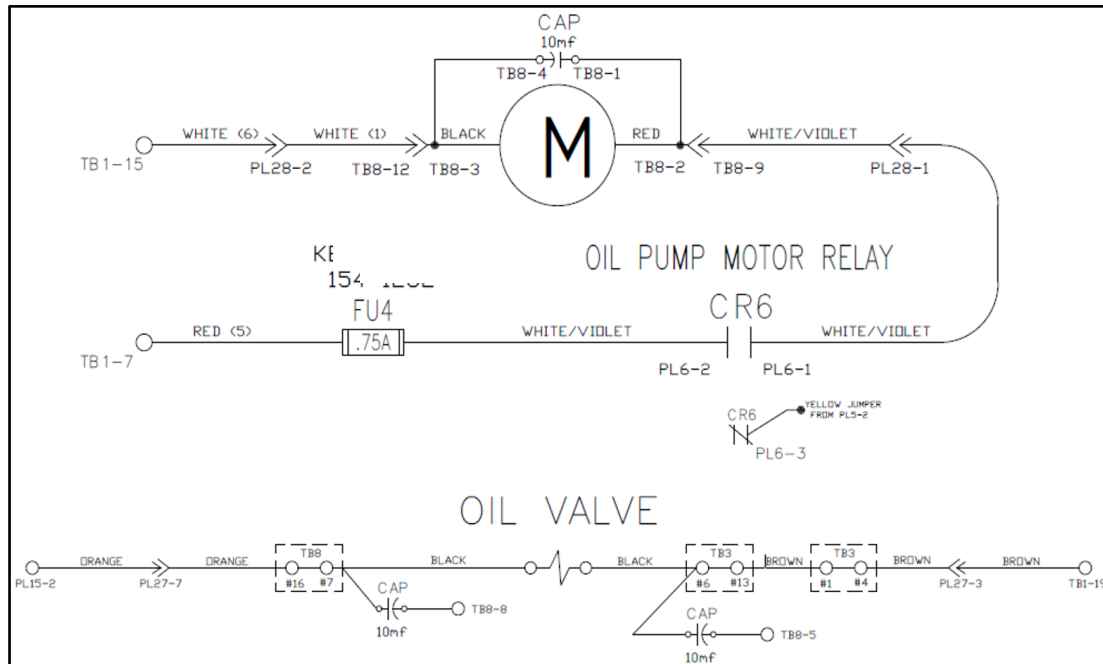
## 7.10 Motors



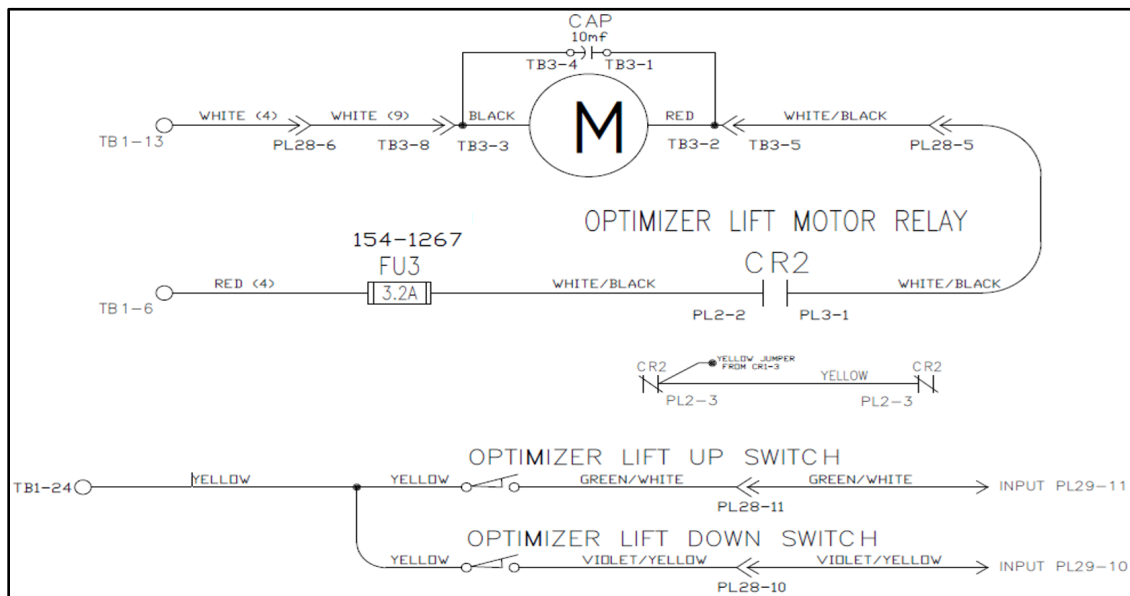
## 7.11 Head Motor & Head Home Proximity Sensor



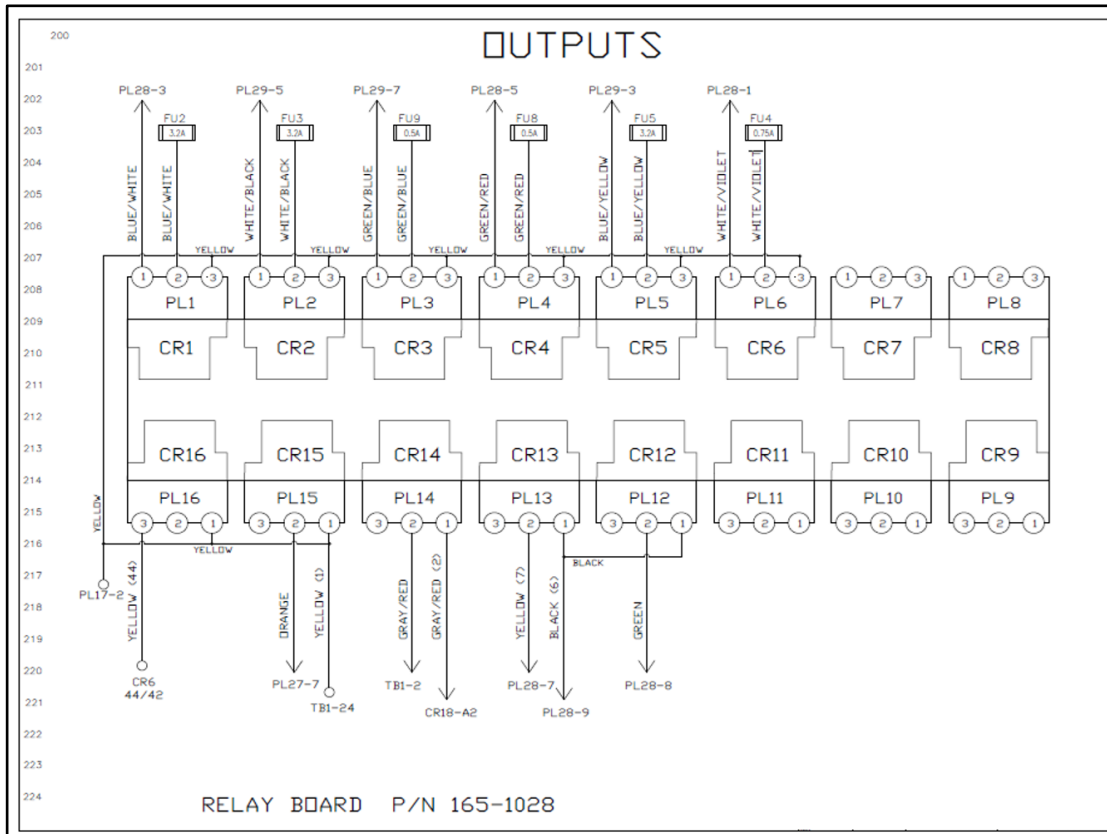
## 7.12 Oil Pump Motor and Valve



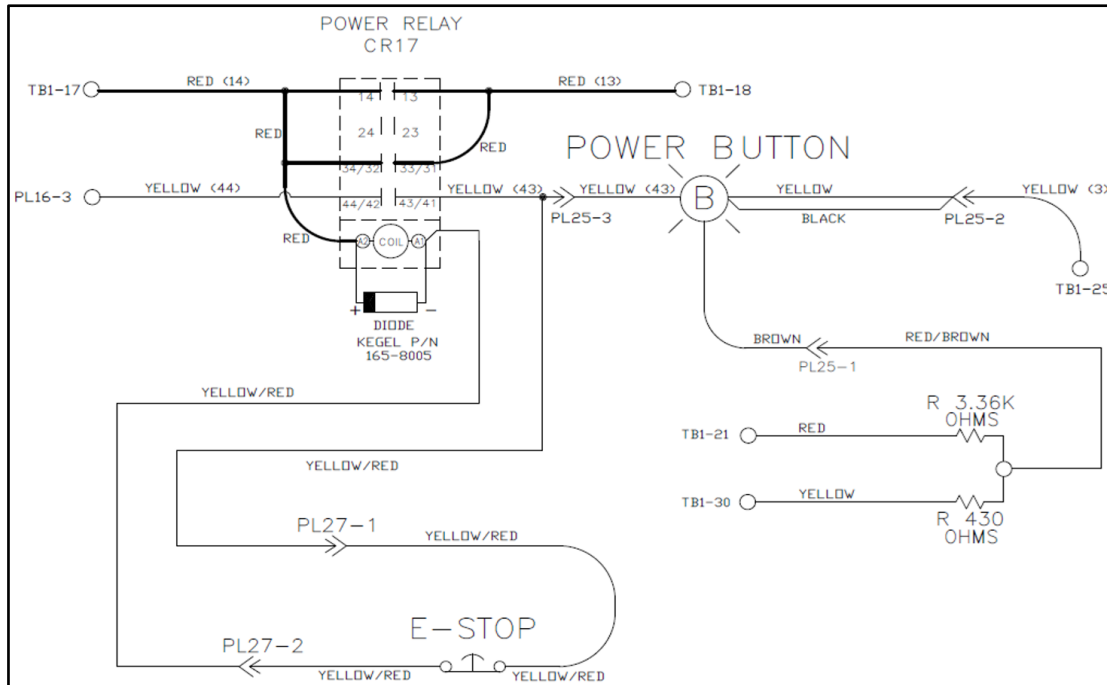
### 7.13 Optimizer Lift Motor and Switch



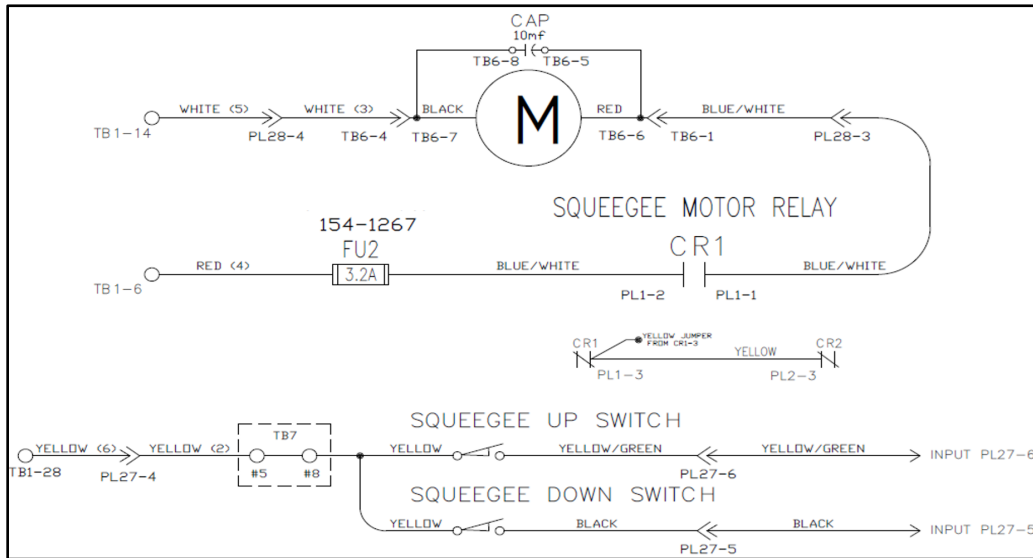
## 7.14 Outputs



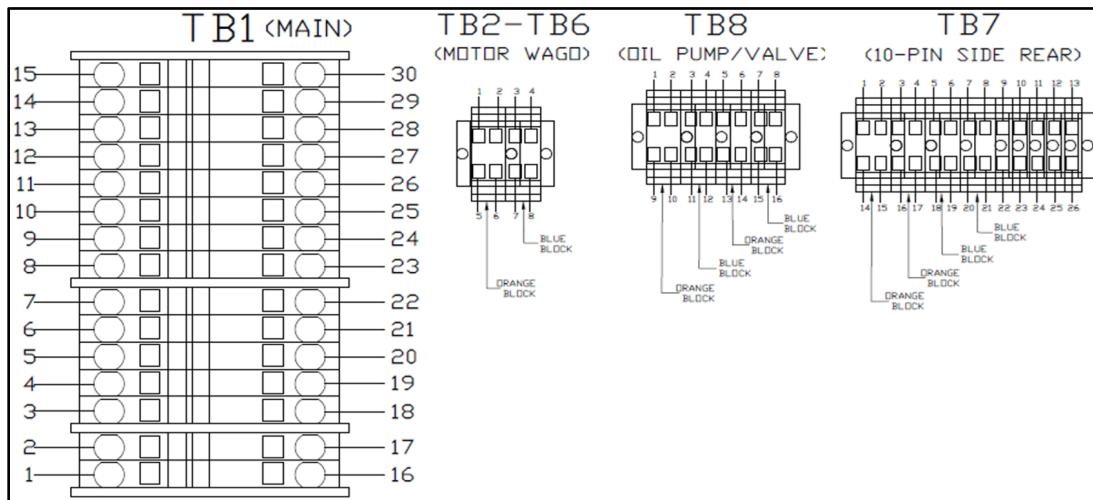
## 7.15 Power Relay and Power Button



## 7.16 Squeegee Lift Motor & Switch



## 7.17 Terminal Blocks



## 7.18 Vacuum Motor

