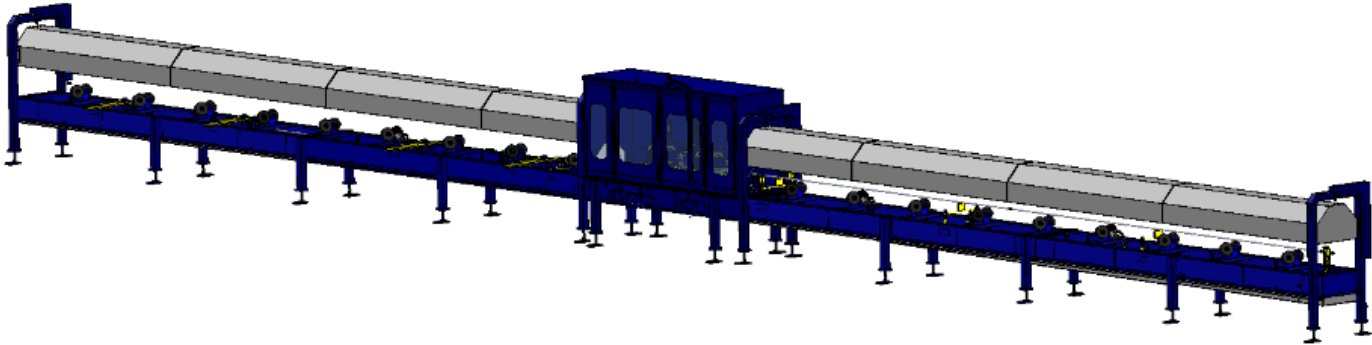




**HUB CITY  
IRON WORKS**  
**EPCM R2/R3**

Operation and Maintenance Manual



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Rayne, LA 70578  
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Job #: \_\_\_\_\_  
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Document # \_\_\_\_\_

## Table of Contents

Introduction.....	3
Safety.....	3
Safety Features Include:.....	4
Machine Specifications.....	5
Standard Features.....	5
Optional Features.....	5
Specifications.....	5
Pipe Plant Requirements.....	5
Machine Setup.....	6
Controls.....	7
Process Setup.....	8
Brush Housing Adjustment.....	8
Automatic Lance Support Adjustment.....	<b>Error! Bookmark not defined.</b>
Automatic Lance Support Adjustment.....	<b>Error! Bookmark not defined.</b>
Sensor Adjustment.....	<b>Error! Bookmark not defined.</b>
Startup.....	8
Process.....	9
Preventative Maintenance Procedure.....	11
Parts List.....	13
Paddle Loader.....	13
Brush Housing Assembly.....	14
Drive Station.....	15
Idler Station.....	15
Rear lance Assembly.....	16
Front Lance Assembly.....	17
Auxiliary Cylinder Assist.....	<b>Error! Bookmark not defined.</b>
Secondary Cylinder (Assist).....	<b>Error! Bookmark not defined.</b>
Recommended Spare Parts.....	23
Electrical Schematics.....	24
480V Electrical Schematics.....	24
PLC Output Schematic.....	24
Relay Schematic.....	25
PLC Input Schematic.....	26
Hydraulic & Pneumatic Schematic.....	27

### Service

Call: 337.334.6969

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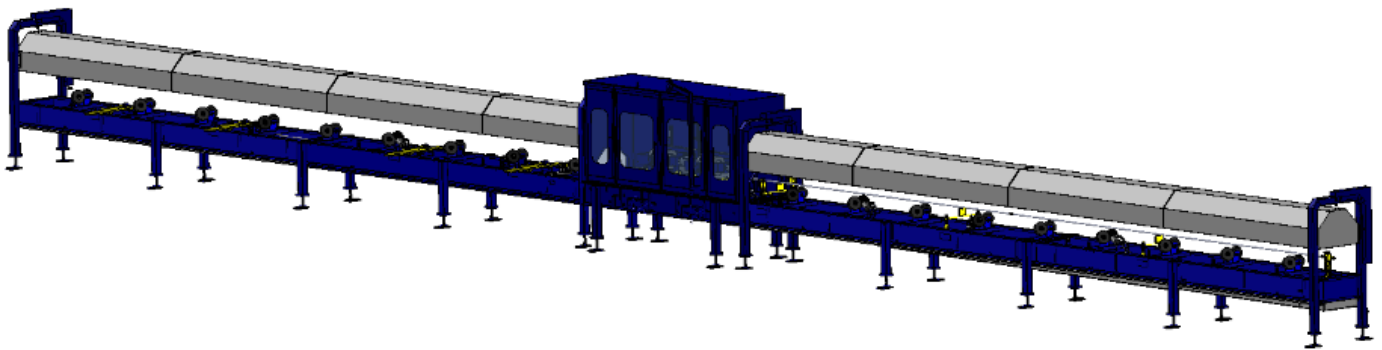
Call: 337.334.6969

Email: [sales@hubcityironworks.com](mailto:sales@hubcityironworks.com)

## Introduction

### EPCM 7625 Enclosed Pipe Cleaning Machine

For environments that noise and dust control are required or desired, Hub City Iron Works' EPCM is an excellent choice. The EPCM effectively cleans tubing, pipe and casing while virtually eliminating dust emissions and reducing noise output to below 100 dB. The standard dual brush housing cleans most pipe in one pass, increasing productivity. The net result is more production, in a cleaner, safer plant environment.



## Safety

- Hub City has provided operating procedures and safety information to ensure the wellbeing of both the operator and the equipment.

This operating manual contains important safety information - please read it thoroughly.

### Safety Features Include:

- Mechanically active components are painted a high visibility yellow.
- Enclosure designed to reduce sound and dust.
- Low oil level indicator protects machinery in the case of a hydraulic line rupture and limits environmental impact.
- Low voltage operator interface (24vdc)
- Electronic collar stop on the load side designed to protect enclosure from impact.
- Equipment safety labels.
- Adjustable control station allows the operator to position themselves in the best location for the task while keeping a safe distance from the work area
- Totally enclosed for dust & noise reduction
- Mechanical interlocks deter access to machine hazards
- Interior Table lighting for operator visibility



## Machine Specifications

### Standard Features

- Dual Wire Brush for outside diameter cleaning
- “Floating” Brush System to accommodate upsets
- Rattling Motor Lance for inside diameter cleaning
- Adjustable drive speed
- Dust Collection/Filtration System
- Dual pump hydraulic power supply
- Left or Right hand pipe loading configurations
- 6’ Roller Station Spacing
- Range 2 pipe capability
- Fully enclosed machine
- Noise reduction to below 90 dB

### Optional Features

- Outside diameter Descaler
- Range 3 pipe capability
- 4’ Roller Station Spacing
- Water blasting system
- Debris conveyor
- Operator control booth

### Specifications

Category	Min Tube OD	Max Tube OD	Max Tool Joint OD
Drill Pipe/ Tubing	2.-3/8”	6-5/8”	8-1/2”
Casing	4-1/2”	7-5/8”	8-1/2”

NOTE: Conveying performance can be diminished by larger pipe sizes and water blasting

- Overall length 84’
- Width 30”
- Height 7’
- Drive station spacing 6’
- Weight 10,000 lbs.

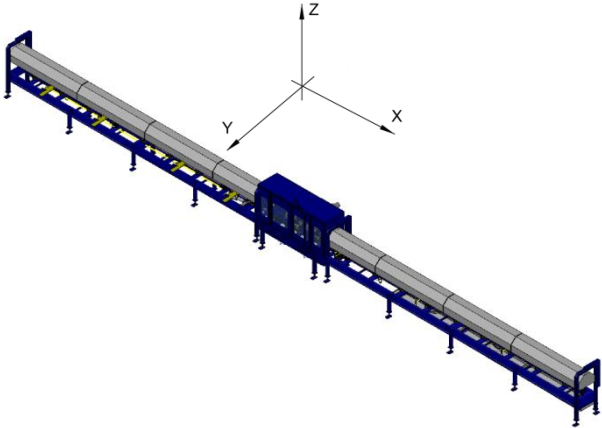
### Pipe Plant Requirements

- Electrical 230/480V, 3 Phase, 60 Hz (Others available upon request)
- Compressed air 100 PSI Plant Air System Required @ 150 CFM
- Rack height 36”- 44”

# Machine Setup

For proper operation, the machine must be installed straight and coplanar horizontally level.

1. Remove the lance if it is installed on the machine.
2. Position frame components and loosely bolt them together.
3. Level the machine in the Z direction. To do this, establish a base line from a stationary object (such as installed pipe racks) and adjust the frame elevation of the load / unload side of the machine. The other frame components elevation is adjusted via the jack screws mounted to the feet. The elevation tolerance from the reference is  $\pm 1/8''$ .
4. Align the frame components in the X direction. Alignment tolerance is  $Y \pm 1/8''$  as measured from the machines axial center line through the length of the entire machine at the component joints and perpendicular to the pipe racks.
5. Anchor bolt the feet to the foundation. The minimum foundation thickness is 4" concrete. The anchor bolts may be left loose and tightened after full testing.
6. Verify that the machine is straight (along the X axis), within the elevation tolerance (the Z axis) and reasonably flat to the X-Y plane.
7. Tighten the frame connector bolts without disturbing the alignment. Torque the bolts to 120 ft.-lb..
8. Tighten the machine feet to the torque value recommended by the anchor bolt manufacturer.
9. Proceed with electrical and hydraulic installation. (See pages 28-31 for electrical and hydraulic schematics.)
10. Install duct collection system according to the manufacturer's procedures manual.

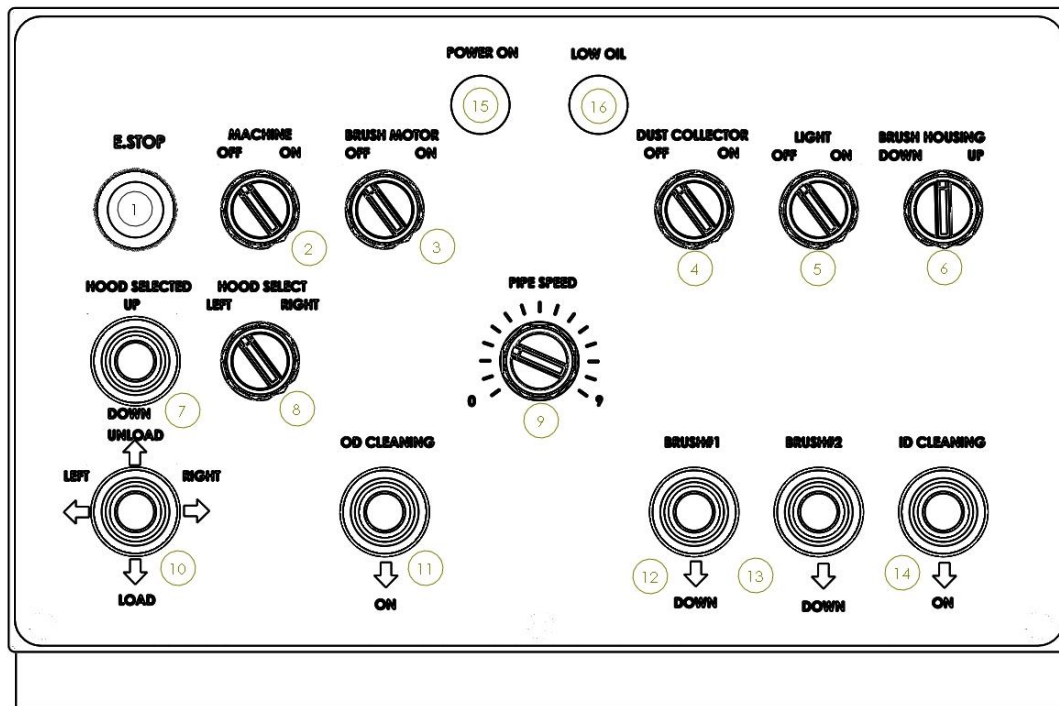


|-----Load/Unload-----|---Table---|-----Lance Side-----|



## Controls

### Standard EPCM 7625 Layout



(Control panel may vary with custom machines.)

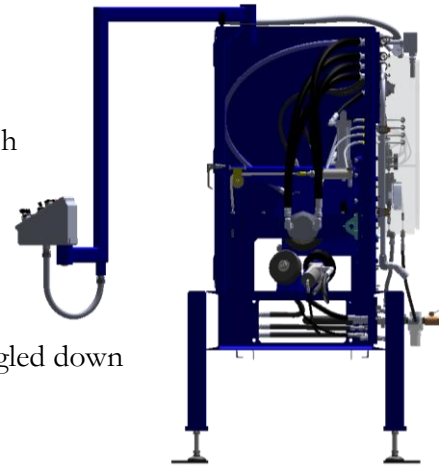
	Function	Description / Comments
1	Emergency Stop	Push to shut off power to machine
2	Machine (on/off) Switch	Turns on/off power to machine
3	Brush Motor	Turns brush motor on and off
4	Dust collector	Turns dust collector on and off
5	Table Lights Switch	Turns table lights on and off
6	Brush housing adjustment	Adjusts brush housing elevation
7	Hood Control	Raises and lowers selected hood
8	Hood Controls Switch	3 position detented. Determines what side(s) the "hood joystick" will control.
9	Pipe Speed	Controls linear speed of pipe
10	Control Joystick	Moves pipe from left to right and loads/unloads
11	OD Cleaning (If equipped)	Turn on additional OD cleaning device (If equipped)
12	Brush #1	Engages brush #1
13	Brush #2	Engages brush #2
14	ID Cleaning	Turns on ID cleaning device
15	Power On	Lights up when power is on
16	Low Oil	Lights up when oil is low in power supply

## Process Setup

*Prior to operating this machine, ensure that the front and rear brush housing adjustments are positioned to effectively process the pipe. Failure to do so could result in damage to the machinery or a decrease in efficiency.*

### Brush Housing Adjustment

1. When loading the first pipe, or changing pipe sizes, the brush housing will need to be adjusted accordingly.
2. Move the joint of pipe under the brush.
3. Engage brush #1 & #2 by moving the joysticks down.  
(Control #12 & #13)
4. Adjust rear brush switch (Control #6) to proper height.  
When brushes are engaged, the brush housing should be angled down slightly (2-3 degrees).



### Startup

1. Before starting, ensure that all daily maintenance is completed.
2. Install appropriate rattler motor and cleaning head.
3. Turn the **Machine Control** ON (control #2).
4. Turn the **Dust Collector Control** ON (control #4).
5. Ensure that the **Rattler Motor Control** (control #14) is in the OFF position.
6. Ensure that the **OD Scraper Control** (control #11) is in the UP position. (If equipped)
7. Ensure that the **Brush Housing Controls** (control #12/13) are in the UP position.
8. Load the first joint of pipe onto the machine.
9. Locate collar stop pins so that only one joint is picked up from paddles.
10. Move Brush #1 Joystick down (Control #12) as it moves over pipe.
11. Move Brush #2 Joystick down (Control #13) as it moves over pipe.

**Note: Reference page 7 for control panel layout.**

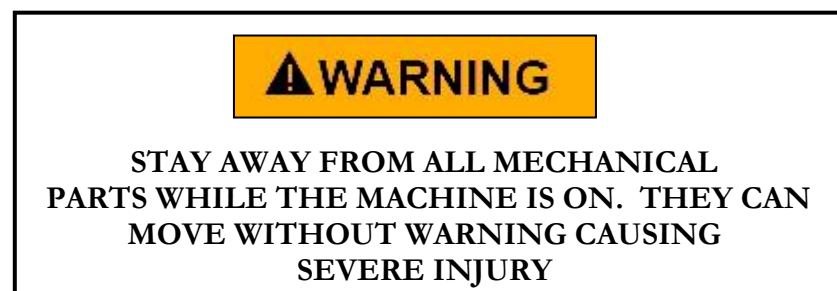


## Process

1. With the pipe on the rack, ACTUATE the **Pipe Index Load (Control #10)**. This will load the pipe onto the machine.

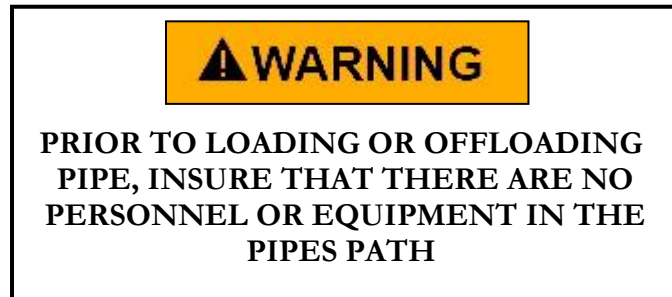


2. Using the **Motor Directional Control (Control #10)**, CONVEY the pipe toward the Table Section.
3. Adjust the drive motor speed as required with the **Pipe Speed Control (Control #9)**.
4. If required, LOWER the **OD Scraper (Control #11)**, after the pipe is under the Scraper Head.
5. *After* the pipe is under the Brush Housing Assembly, the **Brush Housing** can be placed in the DOWN position (**Control #12/13**).
6. Turn the **Rattler Motor ON (Control #14)** *after* the rattler motor is inside the pipe.
7. If the pipe has traveled beyond the Brush Housing Assembly, ensure that the **Brush Housing** is in the UP position (**Control #12/13**), prior to conveying the pipe back toward it.
8. If the pipe has traveled beyond the OD Scraper, ensure that the **OD Scraper** head is in the UP position, (**Control #11**) prior to conveying the pipe back toward it.
9. Using the **Motor Directional Control, (Control #10)**, CONVEY the pipe toward the Table Section.



10. If required, LOWER the **OD Scraper** via (**Control #11**), *after* the pipe is under the Scraper Head.
11. *After* the pipe is under the Brush Housing Assembly, the **Brush Housing** can be placed in the DOWN position (**Control #12/13**).
12. Turn the **Rattler Motor OFF (Control #14)**, *prior* to the Lance exiting the pipe.

13. After the pipe has been processed, convey the pipe back to the load side of the machine.
14. Be sure to properly collar the pipe prior to offloading.
15. After the pipe has been properly collared, ACTUATE the **Pipe Index Load** (**Control #10**). This will offload the processed pipe, and load the next pipe onto the machine.
16. Repeat when changing pipe size.



# Preventative Maintenance Procedure



## EPCM 7625 Daily Preventative Maintenance

Company: \_\_\_\_\_  
 Location: \_\_\_\_\_  
 Machine No.: \_\_\_\_\_  
 Week of: \_\_\_\_\_

Instructions:  
 Inspect each item at the start of each shift - initial next to block after task is complete  
 For more detailed information consult operators manual.

Day	Inspect control console wires and proper function (2)switches and joysticks for loose and/or broken wires	Inspect j-boxes wires (1)loose	Inspect load/unload paddles (1)cracks, bent parts, and excessive wear (2)broken bearings or loose grease fittings (3)hydraulic cylinder and hoses for leaks (4)Grease paddle bearings w/ synthetic HD grease (NLGI #2, GC/LB or equivalent)	Inspect Dust Collector (1)Loose wires (2)Debris level. Empty as needed	Inspect Drive System (1)Drive/idler wheels for wear. Min. dia. is 6" (2)Hydraulic hose for wear/leaks (3)Grease idler bearings w/ synthetic HD grease (NLGI #2, GC/LB or equivalent)	Inspect Enclosure System (1)Clean outside/inside of windows on table. Inspect for cracks (2)Check tray & belt for debris. Empty as needed. (3)Check hood for damage & function	Inspect Cleaning System (1)Inspect brush wheels for excessive wear. Replace if >50% missing (2)Check brush housing support cylinder oil lubricator bowls. Make sure airline lubricator containers are full. Recommended dial setting is b/t 2 & 4. (Refill w/ SAE Gr. 20, viscosity 46 or equivalent) (3)Grease brush housing pivot bearings & brush shaft bearings with synthetic HD grease (NLGI #2, GC/LB or equivalent)	Inspect power supply (1)all fittings and hoses for leaks (2)electrical panel for loose wires (3)low oil switch functions properly (4)Check oil levels in hydraulic reservoir (5)Check return filter pressure gauge while conveyor/brush motors are operating
1								
2								
3								
4								
5								
6								
7								

Comments:

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



## EPCM 7625 Yearly Preventative Maintenance

Company: \_\_\_\_\_  
 Location: \_\_\_\_\_  
 Machine No.: \_\_\_\_\_  
 Week of: \_\_\_\_\_

Instructions:  
 Inspect each item at the start of each shift - initial next to block after task is complete  
 For more detailed information consult operators manual.

Year	<b>Power Supply</b> (1) Drain hydraulic reservoir & clean w/ suitable solvent. (2) Remove suction strainer & clean w/ solvent (3) Change hydraulic filters	<b>Machine Alignment</b> (1) Verify machine is aligned properly. Correct if necessary							

Comments:

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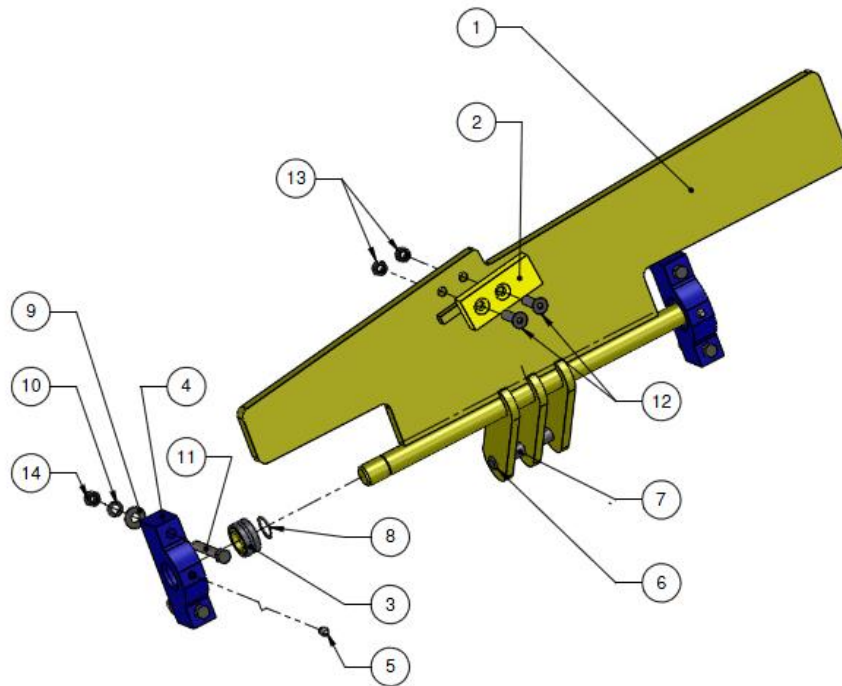
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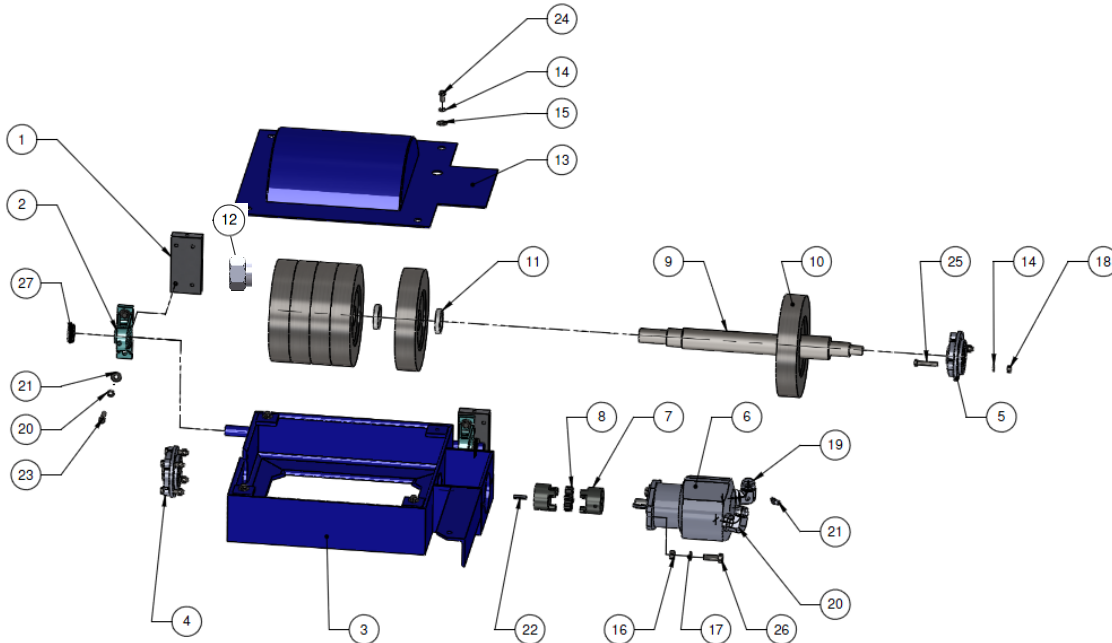
## Parts List

### Paddle Loader



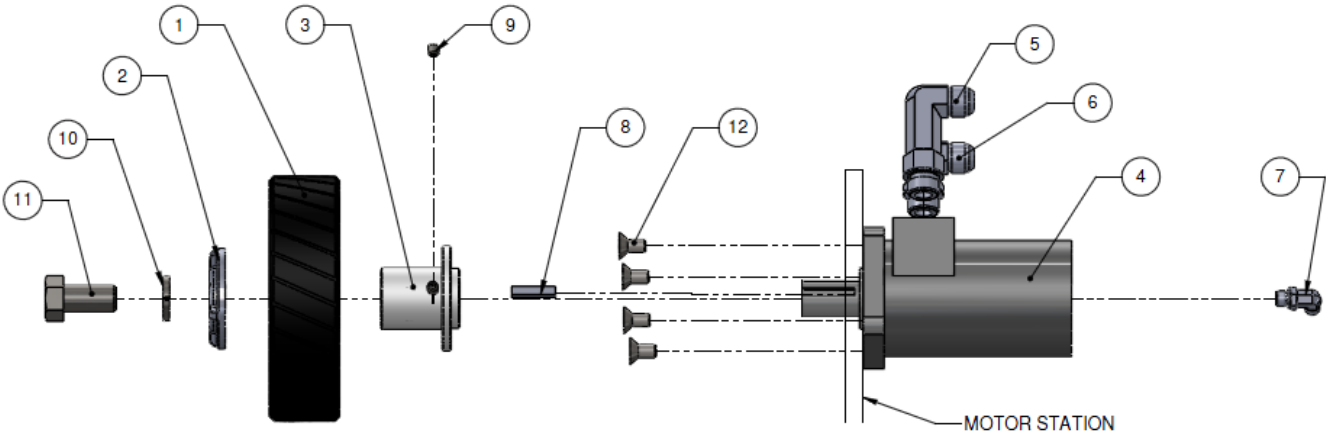
Item #	Part #	Description	Quantity
1	13606	PADDLE FAB ASSY	1
2	13592	PADDLE WEAR PAD	1
3	14645	BEARING, SPHERICAL BRG	2
4	13609	BRG BLOCK	2
5	16086	GREASE FITG, .125 NPT	2
6	17234	RING, EXT, .75"	2
7	22033	DRAG LINK/CYLINDER PIN	2
8	17053	RING, EXT, 1.25" BLACK OXIDE	2
9	17649	WASHER, FLAT, .50"	4
10	14140	WASHER, LOCK, .50"	4
11	14361	BOLT, HHCS, .50" X 3.50" NC	4
12	14460	BOLT, SHCS, .50"-13 X 2	4
13	14124	NUT, HEX, .50"-13NC	4
14	16522	NUT, JAM, .50" NC	2

## Brush Housing Assembly



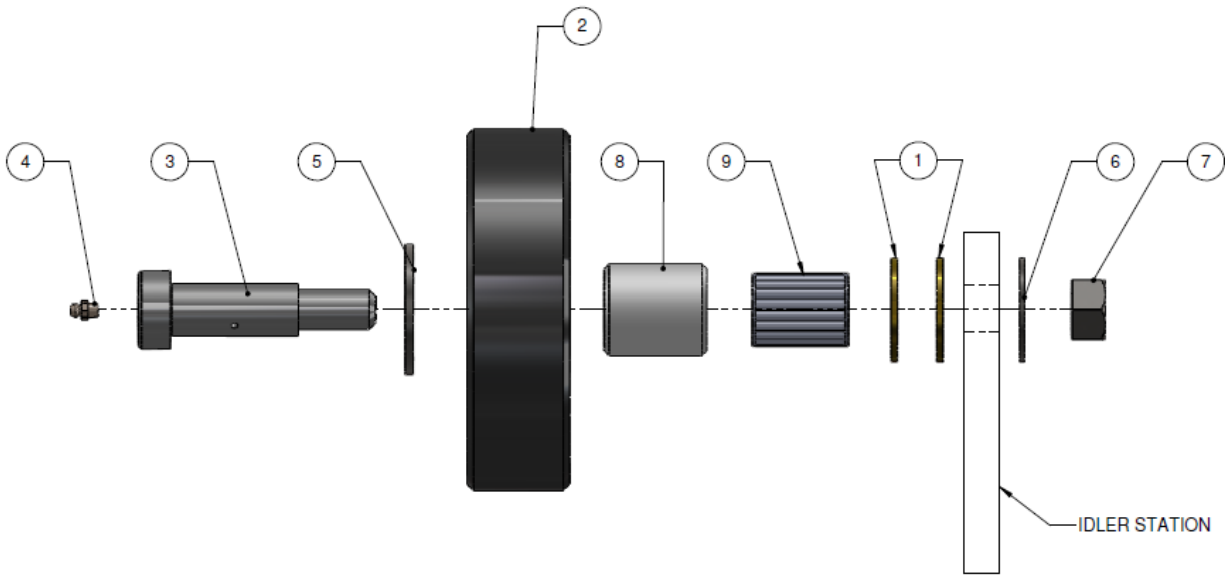
Item #	Part #	Description	Quantity
1	13570	MOUNT, B11582 BEARING MOUNT	1
2	14613	BEARING	2
3	16016	FRAME, BRUSH HOUSING	1
4	14588	BEARING REG	1
5	14589	BEARING CUT MACHINED	1
6	16383	MOTOR	1
7	15012	HUB, L-JAW	1
8	15027	SPIDER	1
9	13909	SHAFT, BRUSH	1
10	14683	WHEEL, WIRE	6
11	13915	SPACER, 2.375" X .375" SCH40	5
12	14680	NUT, MOTOIFIED FOR BRUSH SHAFT	1
13	13651	COVER, BRUSH HOUSING	1
14	14145	WASHER, LOCK, .375"	14
15	17656	WASHER, FLAT, .375"	6
16	14124	NUT, HEX, .50"-13 NC	2
17	14140	WASHER, LOCK, .50"	2
18	16531	NUT, LOCK, .375" NC	6
19	15742	FTTG, HYD, 2062-16-16 MODIFIED	1
20	15595	FTTG, HYD, 2062-16-16	1
21	15580	FTTG, HYD, 2023-2-4	1
22	16298	KEY, MACHINE, .25" X 1.25"	2
23	14307	BOLT, HHCS, .375" X 1.50" NC	4
24	14132	BOLT, HHCS, .375" X 1" NC	4
25	14321	BOLT, HHCS, .375" X 2" NC	6
26	14310	BOLT, HHCS, .50" X 1.50" NC	2
27	17272	COLLAR, 1" SPLIT	2

**Drive Station**

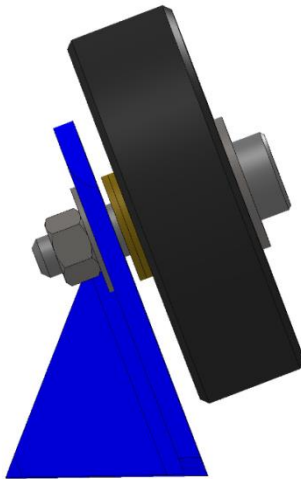


Item #	Part	Description	Quantity
1	17719	WHEEL, NBR, GROOVED	1
2	14134	WASHER, FLAT, .75" CAST IRON	1
3	13566	DRIVE HUB	1
4	16391	MOTOR	1
5	15790	FITG, HYD	1
6	15739	FITG, HYD	1
7	15612	FITG, HYD	1
8	15235	KEY, WOODRUFF, .25"W X 1" 808	1
9	17160	SET SCREW, .3125"-18 X .3125" KNURLED	2
10	14133	WASHER, LOCK, .75"	1
11	14332	BOLT, HHCS, .75" X 1.50" NC	1

**Idler Station**

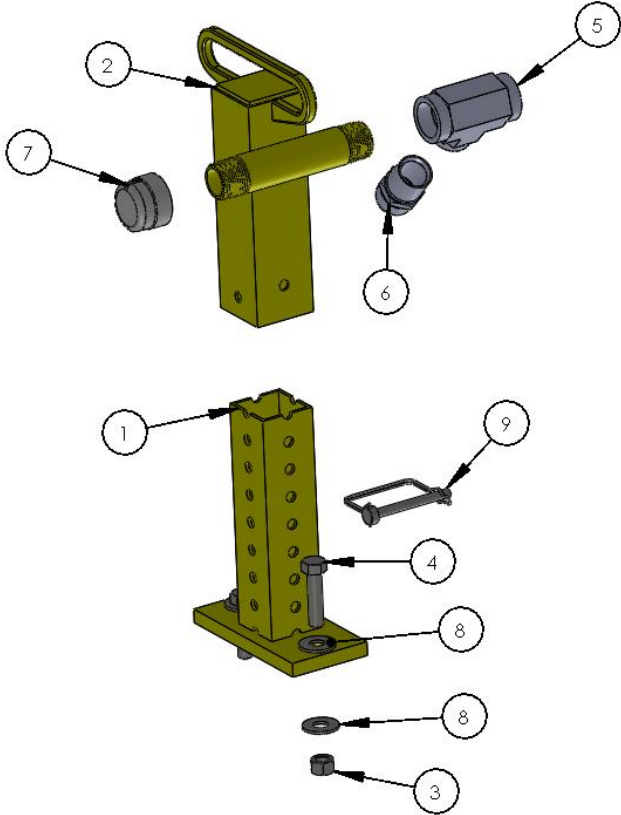


Item #	Part	Description	Quantity
1	13979	WASHER, FLAT, 1" X 2" X .125" BRASS	2
2	17718	WHEEL, SMOOTH	1
3	14435	BOLT, SHOULDER, 1" X 2.50"	1
4	17776	GREASE FITG, .25"-28	1
5	17652	WASHER, FLAT, 1"	1
6	17653	WASHER, FLAT, .75"	1
7	16485	NUT, HEX, .75" NC	1
8	13610	RACER, BRG	1
9	14641	BEARING, NEEDLE, 1" X 1-3/8 X 2"	1



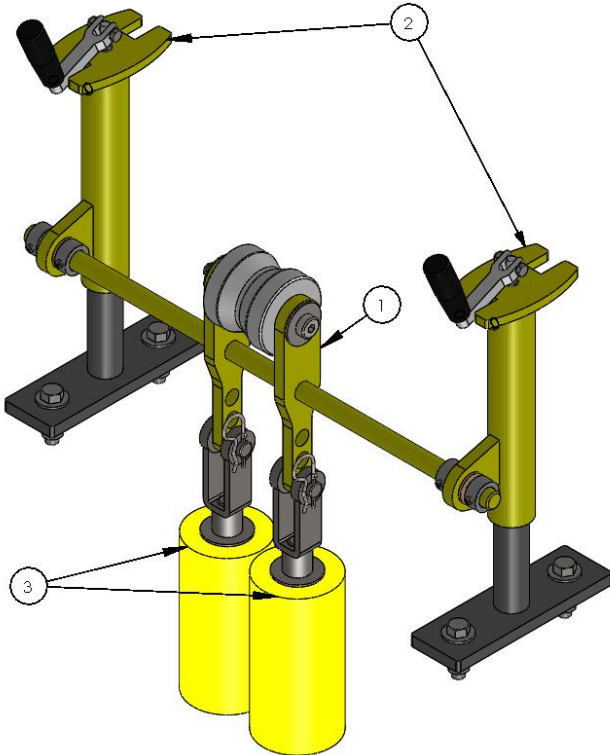


Rear lance Assembly



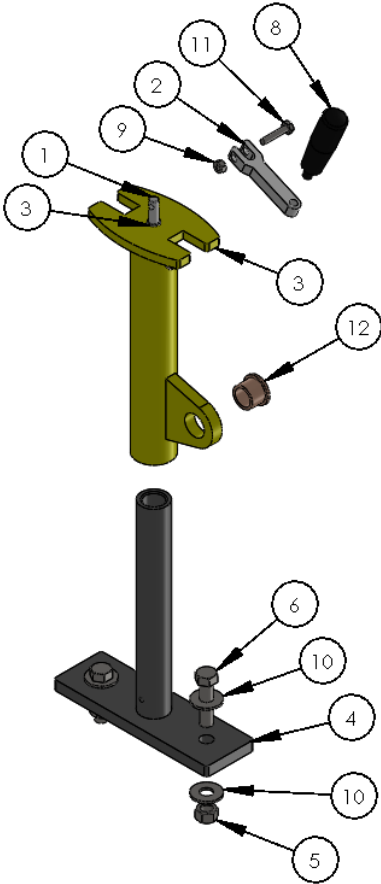
Item #	Part #	Description	Quantity
1	117-700-012-00	PERFORATED TUBE ASSEMBLY (REAR PINED TYPE)	1
2	117-700-029-00	REAR ELEVATION COVER (PINED TYPE)	1
3	14124	NUT, HEX, .5" NC	2
4	14312	BOLT, HHCS, .50" X 2" NC GR5	2
5	15599	# 16 FNPT TEE, ( 2090-16-16)	1
6	15667	# 16 MNPT X # 16 MJIC ADAPTOR, (2021-16-16)	1
7	16642	1" NPT PIPE CAP, (4638K256)	1
8	17649	WASHER, FLAT, .50"	4
9	49619	PIN, SS LOCKING , 5/16" X 2-1/2"	1

### Front Lance Support Assembly



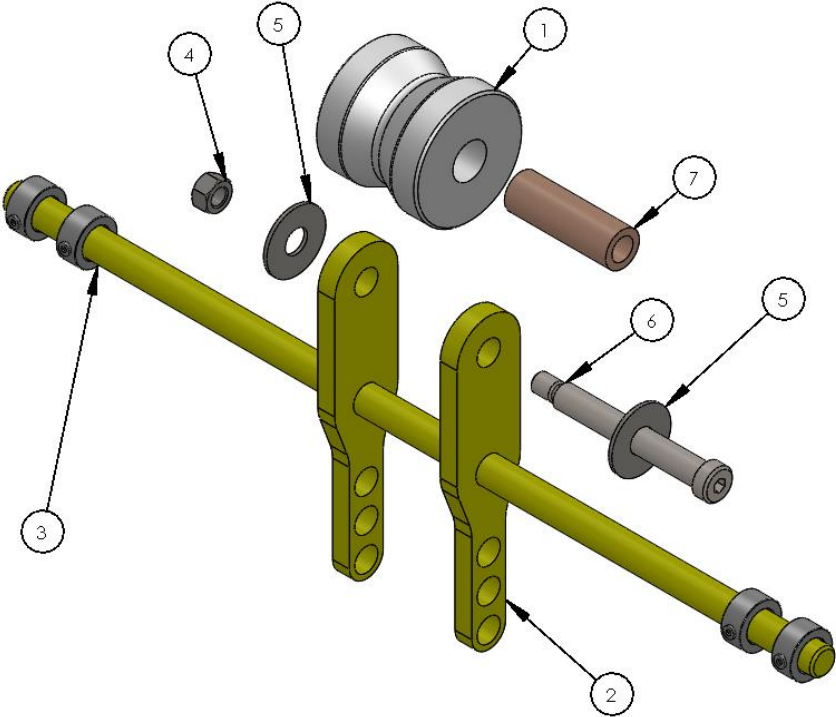
Item #	Part #	Description	Quantity
1	107-701-907-00	FLS, SHAFT ASSEMBLY	1
2	107-701-912-00	FLS, UPPER SUPPORT ASSEMBLY	2
3	107-701-915-00	18LB CW ASM	2

**Front Lance Support Post Assembly**



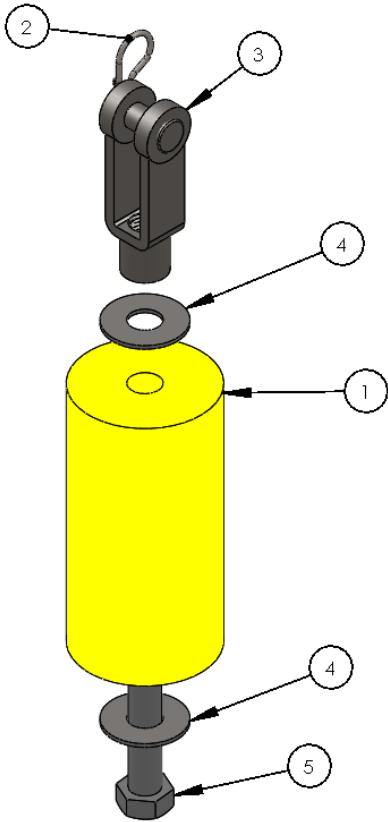
Item #	Part #	Description	Quantity
1	107-551-911-XXX	ADJUSTMENT SCREW, SS	1
2	107-551-917-018	HANDLE LEVER	1
3	107-700-904-00	FLS, UPPER SUPPORT FAB ASM	1
4	107-700-905-00	FLS, LOWER SUPPORT FAB ASM R2	1
5	14124	NUT, HEX, .5" NC	2
6	14312	BOLT, HHCS, .50" X 2" NC GR5	2
7	16086	GREASE ZERK, 1/8 NPT	1
8	16113	BRUSH HOUSING LIFT HANDLE	1
9	16483	NUT, HEX, .25" NC	1
10	17649	WASHER, FLAT, .50"	4
11	23172	BOLT, HHCS, .25" X 1.25" GR 5	1
12	48511	BEARING, .7874"X1.023" FLG BRONZE SLEEVE	1
13	49670	BEARING, FLANGE .375 ID	1
14	49681	NUT, HEX, ACME .625	1

**Front Lance Support Roller Assembly**



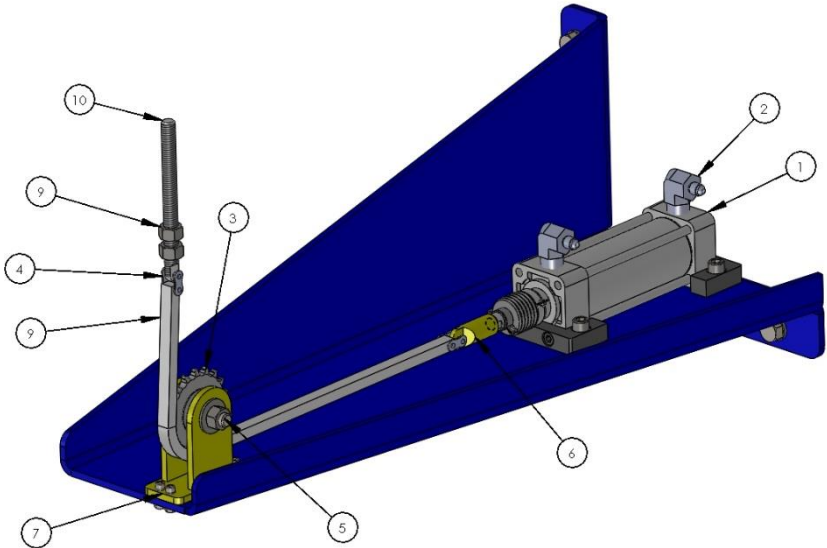
Item #	Part #	Description	Quantity
1	107-551-918-018	FLS, ROLLER, UNIVERSAL	1
2	107-700-902-00	FLS, SHAFT FAB ASM	1
3	14038	1-3/16 SHAFT COLLAR	4
4	14124	NUT, HEX, .5" NC	1
5	17651	WASHER, FLAT, .625"	2
6	27322	BOLT, SHOULDER, .625" X 4.25" X .5-13	1
7	49614	BEARING, .625" SH 1" OD X 3" OIL EMBEDDED	1

### Front Lance Support Counter Weight



Item #	Part #	Description	Quantity
1	48588	LANCE SUPPORT WEIGHT, SINGLE	1
2	16101	HAIR PIN COTTER PIN (98335A067)	1
3	17653	WASHER, FLAT, .75"	2
4	49748	ROD END, STEEL CLEVIS .75-10 FEMALE X 4"	1
5	49749	BOLT, SHOULDER, .75" X 8.50"	1

**Brush Housing Chain Lift**



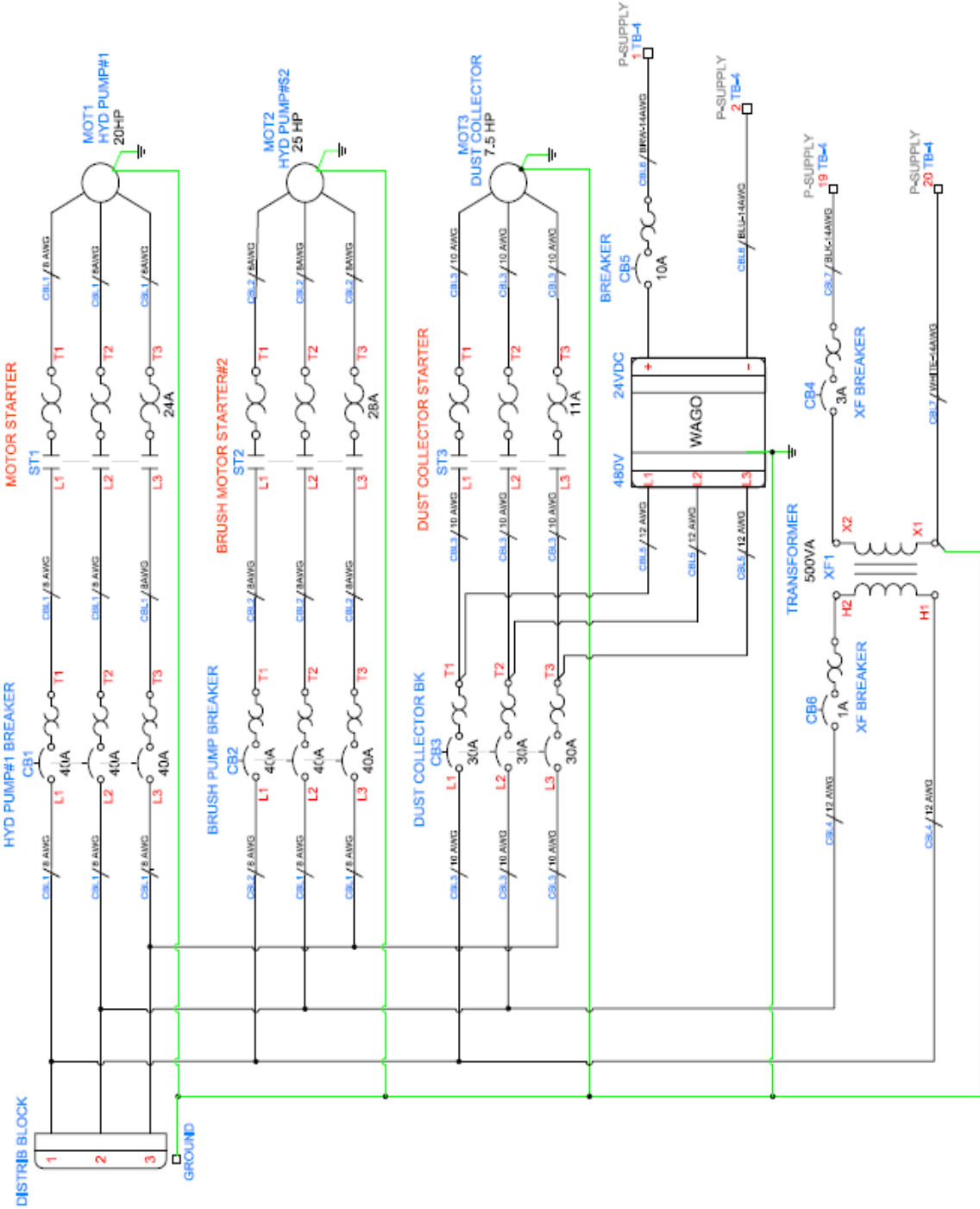
Item #	Part #	Description	Quantity
1	28310	CYLINDER, AIR	1
2	15677	# 8 MNPT X # 4 MJIC 90° ELBOW	2
3	36129	SPROCKET, IDLER	1
4	16756	#40 ROLLER CHAIN CONNECTING LINK	2
5	45396	BOLT, SHOULDER, .625" X 1.50" X .5-13	1
6	45497	BRUSH CHAIN CONNECTOR	1
7	45498	#40 CHAIN SPROCKET BRACKET	1
8	45499	SPROCKET SPACER	2
9	38283	#40 CHAIN, REF. 20" LG.	1
10	45496	CHAIN ADJUSTMENT SCREW	1

## Recommended Spare Parts

Level A Items (Stocked on site)		
Description	Qty	SAP#
PADDLE WEAR PAD	4	13592
BEARING, SPHERICAL BRG	4	14645
GREASE FITG, .125 NPT	2	16086
RING, EXT, 1.25"	4	17053
WHEEL, WIRE	20	14683
WHEEL, NBR, GROOVED	20	17719
WHEEL, NBR, SMOOTH	20	17718
BEARING, 1F4 ROD END F EYE AGSV	2	13959
FITG, HYD	2	14037
Potentiometer,10K Potentiometer	1	16729
Joystick, 2 Way Spring Return	1	17309
Thermal Overload Relay(24-36A)	1	17022
Thermal Overload Relay(18-24A)	1	17014
Contact,25Hp,50A,24vdc Coil	1	14974
Relay, 8 pins 2 Pole 24vdc coil	1	17001
Fuse, 1.5 A 120vac	5	16027
Level B Items (1-3 Day Delivery)		
BEARING REG	2	14613
BEARING CUT MACHINED	2	14589
BRUSH MOTOR SEAL, KIT	2	14082 & 14083
HUB, L-JAW	2	15012
SPIDER	2	15027
SHAFT, BRUSH	1	13909
KEY, MACHINE, .25" X 1.25"	2	16298
NUT, MODIFIED FOR BRUSH SHAFT	2	14680
WASHER, FLAT, .75" CAST IRON	5	14134
DRIVE HUB	5	13566
MOTOR	3	16391
BOLT, SHOULDER, 1" X 2.50"	5	14435
RACER, BRG	5	13610
BEARING, NEEDLE, 1" X 1-3/8 X 2"	5	14641
1" Brass Washer	5	13979
CYLINDER, AIR	1	28310
Hydraulic Power Unit Filter	1	21011
Socket relay, 8 pins 2 Pole Socket	1	17246
Transformer, 500VA 460v/120v	1	17515
Breaker, 3A 1 pole 277v	1	14661
Amplifier, WhiteOak 600mA 24vdc	1	14203
Prox Sensor, 75mm Turck (M1623801)	1	17207
Prox Sensor, 18mm 24vdc 12mm C-Box	1	16934
Contact, Kit for joystick	1	14278
Level C Items (0-120 Day Delivery)		
BRUSH MOTOR	1	16383
PLC, 60 I/O CPIL	1	16835
Push Button,E.Stop Button 24v light	1	17422
Select switch,3 Position spring return	1	16289
Select swich, 3 Posision maintained	1	17407
Joystick, 1 Way Joystick Maint	1	17314
Select Swich, 2 Position Swich	1	13989
Pilot Light, Red Light	1	17378
Joystick, 4 Way Joystick	1	17391
Select Swich, 2 position spring return	1	16287
22mm Pilot Light, 24vRed	1	16599
22mm Pilot Light, 24vGreen	1	16598
Cable Sensor, 6' long 3 wires	1	20561

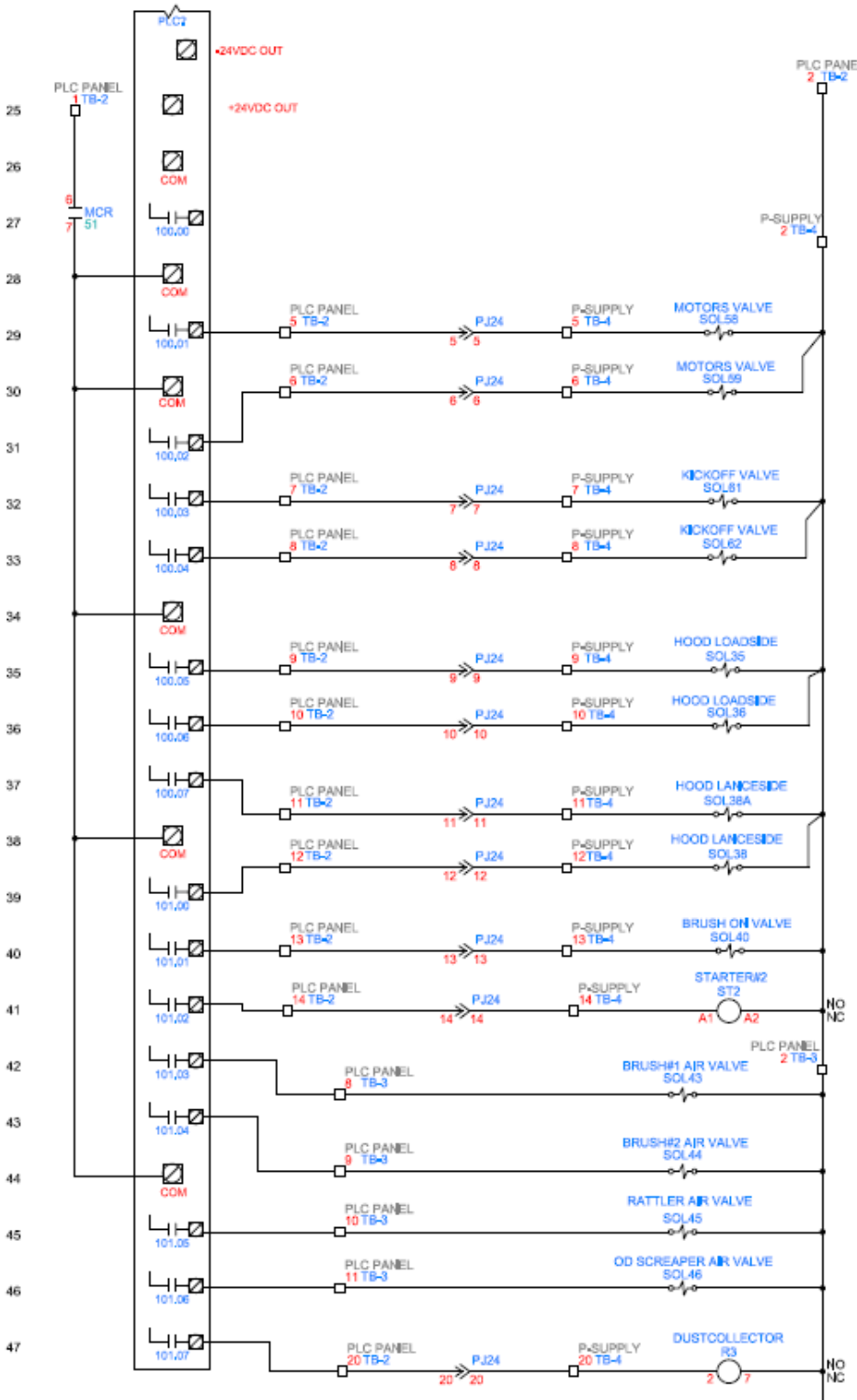
# Electrical Schematics

## 480V Electrical Schematics

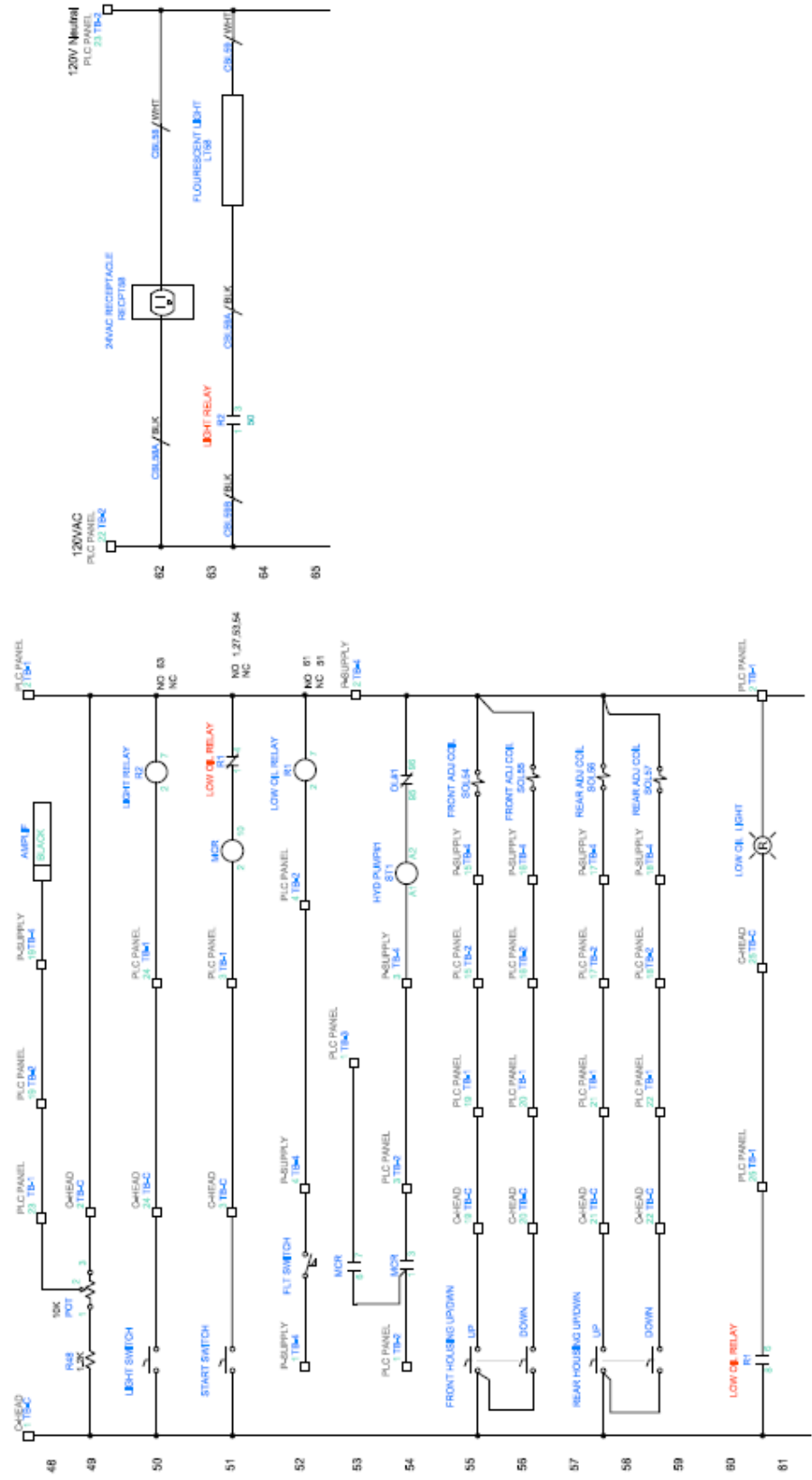




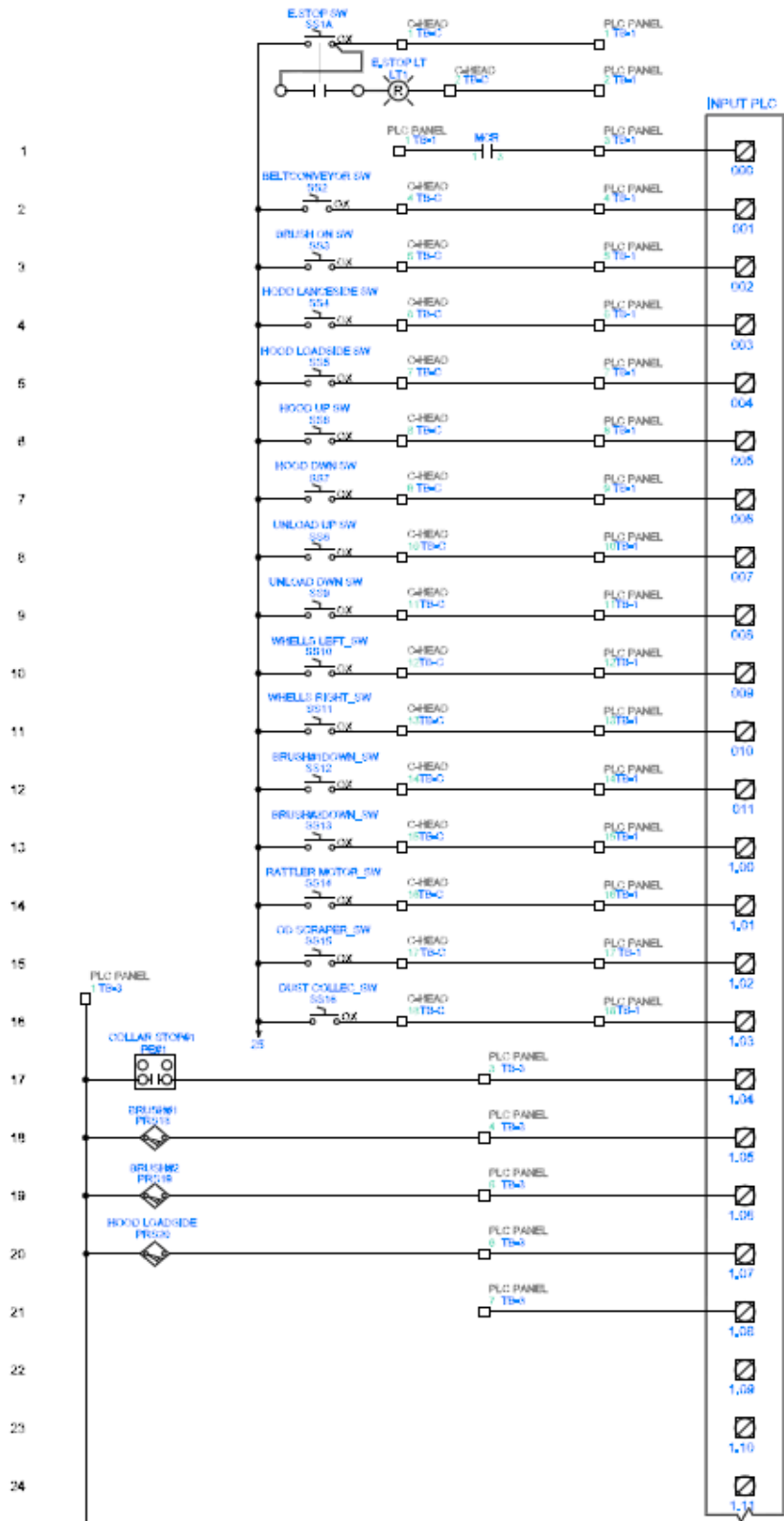
### PLC Output Schematic



### Relay Schematic



### PLC Input Schematic



### Hydraulic & Pneumatic Schematic

