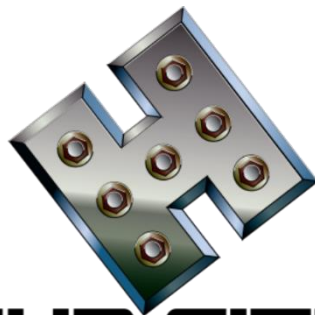




HUB CITY IRON WORKS

PCM-7625 R2/R3

Operation and Maintenance Manual



Hub City Iron Works
700 E Texas Ave.
Rayne, LA 70578
Phone: (337) 334-6969
Fax: (337) 365-6565
www.hubcityironworks.com

Customer: _____

Location: _____

Job #: _____

Local Rep: _____

Rep Phone # _____

Document # _____

Table of Contents

Introduction	2
Safety	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
Startup	9
Process	9
Preventative Maintenance Procedure	11
Parts List	13
Paddle Loader	13
Brush Housing Assembly	14
Drive Station	15
Idler Station	16
Rear lance Assembly	17
Front Lance Assembly	18
Revision: C	18
Auxiliary Cylinder Assist	19
Secondary Cylinder Assist	20
Hose Schedule	21
Recommended Spare Parts	22
Electrical Schematics	23
Power Supply Panel Schematic	23
Control Head 1	24
Control Head 2	25
Relay Schematic 1	26
Relay Schematic 2	27
Hydraulic & Pneumatic Schematic	28

Service

Call: 337.334.6969

Email: servicerequest@hubcityironworks.com

Spare Parts

Call: 337.334.6969

Visit: www.hubcityironworks.com

Sales

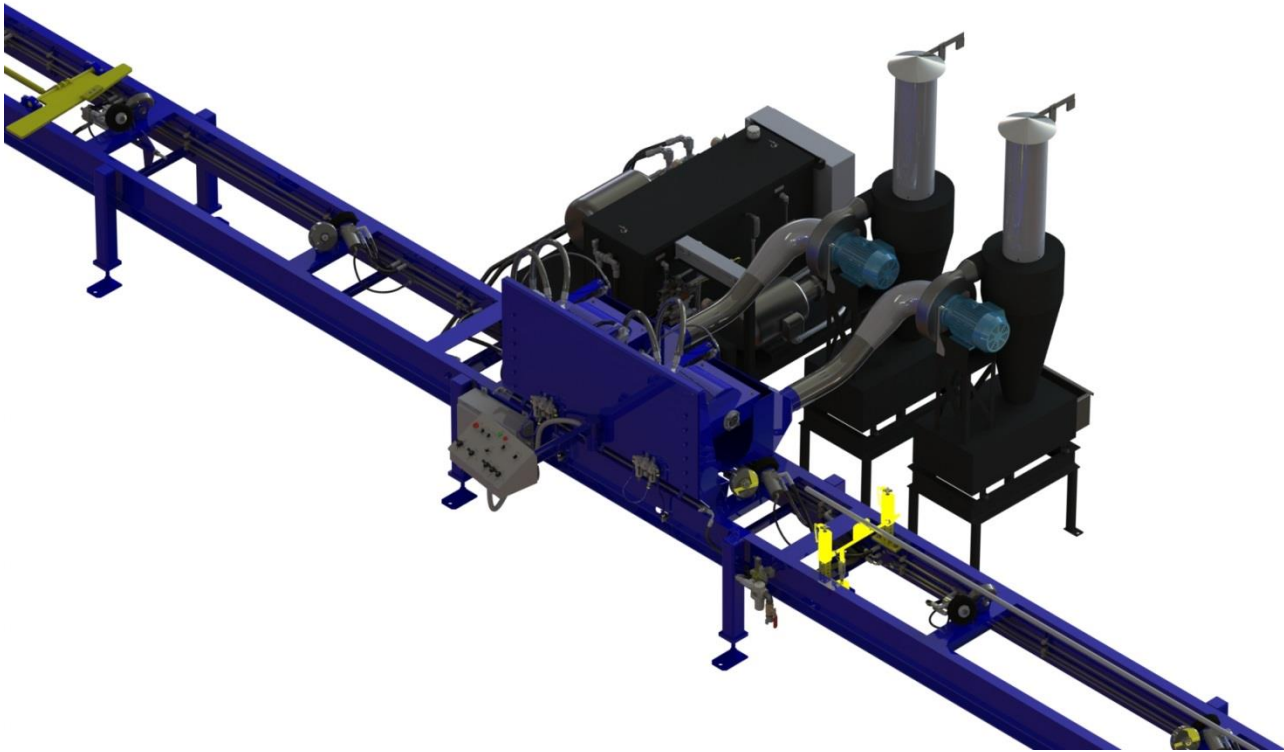
Call: 337.334.6969

Email: sales@hubcityironworks.com

Introduction

PCM 7625 Pipe Cleaning Machine

The Hub City Iron Works PCM 7625 provides OD and ID cleaning for oilfield tubing, drill pipe and sucker rods. It comes equipped with steel brushes for cleaning the OD of the pipe and a rattling motor for ID scale removal. The robust design has repeatedly proven itself to be a reliable and effective product that meets the demands of today's harsh work environments.



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.
- Low oil level indicator protects machinery in the case of a hydraulic line rupture and limits environmental impact.
- Low voltage operator interface (24vdc)
- Equipment safety labels.



Machine Specifications

Standard Features

- Dual wire brush for outside diameter cleaning
- Lance for inside diameter cleaning
- Dual hydraulic power supply
 - One hydraulic pump for conveyor motors & auxiliary equipment
 - One for wire brushes
- Range 2 pipe
- Left or right hand pipe loading configuration

Optional Features

- Outside diameter descender
- Grip enhancer
- Range 3
 - Accommodates pipe lengths up to 48'
 - 24' added to overall length of machine

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' (108' for R3)
- Width 30"
- Height 7'
- Drive station spacing 6' (4' option available)
- Weight 7,000 lbs. (Max Gross Weight)

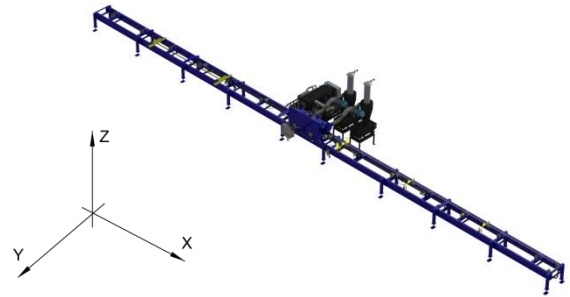
Pipe Plant Requirements

- 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, coplanar and 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 machine's 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.
10. Install duct collection system according to the manufacturer's procedures manual.



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



Controls

Standard PCM 7625 Layout



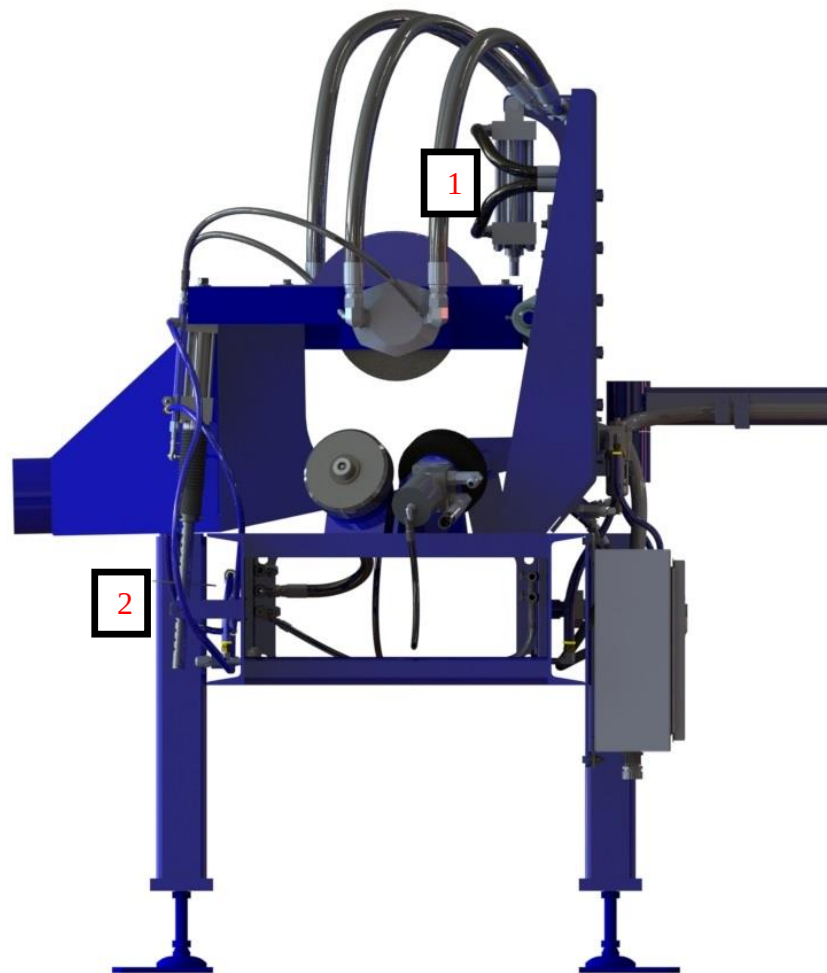
(Standard Control Layout – Specific Control Locations May Change)

	<u>Function</u>
1	Emergency Stop
2	Machine (on/off) Switch
3	Brush Motor Off/On
4	Dust Collector Off/On
5	Rear Brush Adjustment up/down
6	Pipe Speed Control
7	Pipe Load/Unload – Conveyor Direction
8	OD Scraper Engage (if equipped)
9	Brush #1 Engage
10	Brush #2 Engage
11	Rattler Motor On

Process Setup

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 under the brush housing frame, engage the brush and adjust the rear adjustment cylinder (1) with the control switch (Control #6) and rear pin (2) so that the brush housing frame is level when contacting the pipe.
 - a. 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.



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 #3**).
4. Turn the **Dust Collector Control** ON (**Control #4**).
5. Ensure that the **Rattler Motor Control** (**Control #10**) is in the OFF position.
6. Ensure that the **Brush Housing Controls** (**Control #9**) are in the disengaged position.
7. Load the first joint of pipe onto the machine (**Control #7**).
8. Locate collar stop pins so that only one joint is picked up with the paddles.
9. Adjust brush frame so that it is level when brush is engaging pipe.
10. Turn the **Brush Motors Button** ON (**Control #8**).

Note: Reference page 7 for control panel layout.

Process

1. With the pipe on the rack, actuate the **Pipe Index Load** (**Control #7**). This will load the pipe onto the machine.



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



11. If required, LOWER the **OD Scraper**, after the pipe is under the Scraper Head.

12. After the pipe is under the Brush Housing Assembly, the **Brush Housing** can be placed in the engaged position (**Control #9**).
13. Turn the **Rattler Motor** OFF (**Control #11**), prior to the ID Scraper exiting the pipe. (Failure to do so can result in both personal injury and damage to equipment)
14. After the pipe has been processed, convey the pipe back to the load side of the machine.
15. Be sure to properly collar the pipe prior to offloading.
16. After the pipe has been properly collared, ACTUATE the **Pipe Index Load** (**Control #7**). This will offload the processed pipe and load the next pipe onto the machine.
17. Repeat as required

Preventative Maintenance Procedure

	PCM 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 (1) Loose wires and proper function (2) switches and joysticks for loose and/or broken wires	Inspect j-boxes (1) loose wires	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 pad/die 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 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:							



PCM 7625 Yearly Preventative Maintenance

Company: _____
 Location: _____
 Machine No.: _____
 Week of: _____

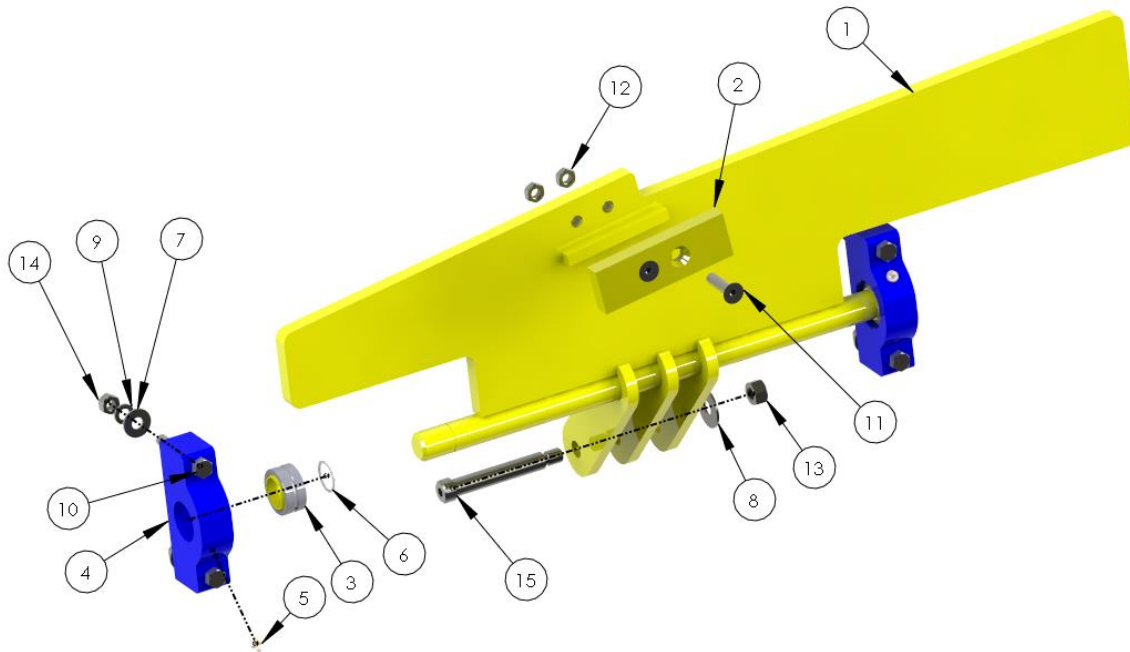
Year	Power Supply (1) Drain hydraulic reservoir & clean w/ suitable solvent. (2) Remove suction strainer & clean w/ solvent (3) Change hydraulic filters	Machine Alignment (1) Verify machine is aligned properly. Correct if necessary								

Comments:

Parts List

Paddle Loader

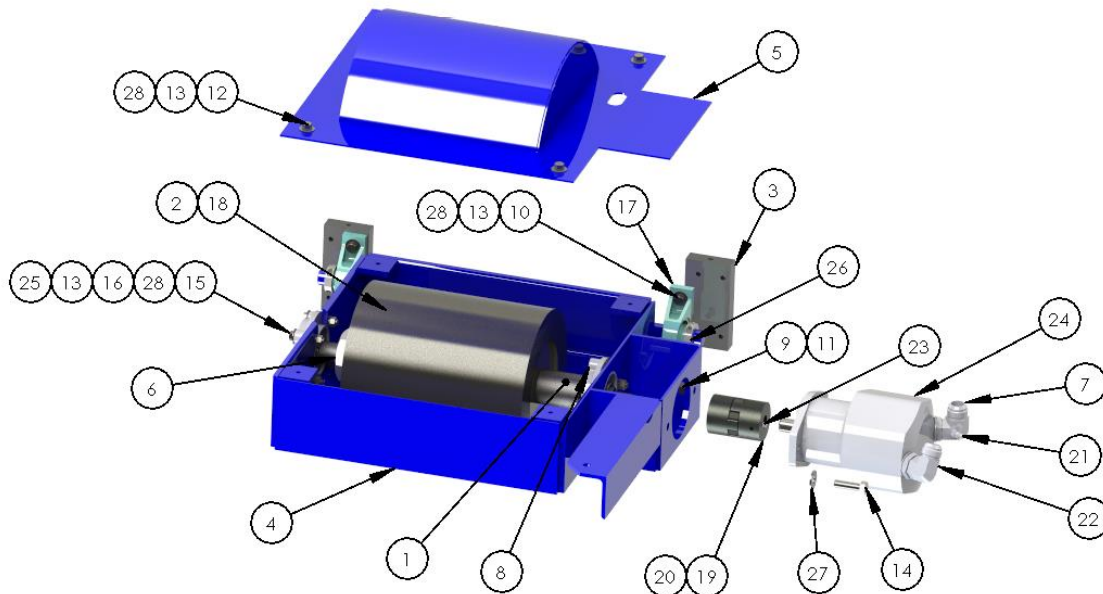
Revision: B



Item #	Part #	Description	Quantity
1	13606	PADDLE FAB ASSEM	1
2	13592	PADDLE WEAR PAD	1
3	14645	SPHERICAL BEARING	2
4	13609	BEARING BLOCK	2
5	16086	GREASE ZERK, 1/8 NPT	2
6	17053	EXTERNAL RETAINING RING, 1 1/4"	2
7	17649	WASHER, FLAT, .50"	4
8	17651	WASHER, FLAT, .625"	1
9	14140	WASHER, LOCK, .50"	4
10	14361	BOLT, HHCS, .50" X 3.50" NC GR5	4
11	14495	BOLT, FHSCS, .50" X 2"	2
12	16524	NUT, JAM LOCK, .50"	2
13	16532	NUT, LOCK, .625" NC NYLOCK	1
14	14124	NUT, HEX, .5" NC	4
15	38707	BOLT, SHOULDER, .75 X 4.25 X .625-11	1

Brush Housing Assembly

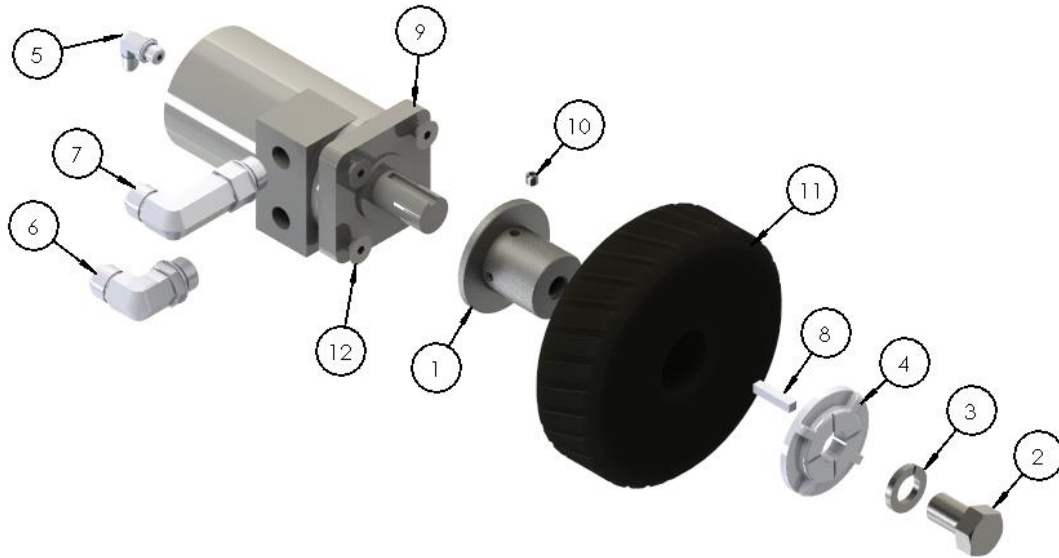
Revision: B



Item #	Part #	Description	Quantity
1	13909	BRUSH SHAFT	1
2	13915	BRUSH SPACER	5
3	13570	BEARING MOUNT	2
4	16016	BRUSH HOUSING MACHINE WORK	1
5	13651	BRUSH HOUSING COVER	1
6	14680	BRUSH SHAFT NUT	1
7	15742	DRILL & TAP 15595	1
8	14589	CUT BRUSH SHAFT BEARING	1
9	14124	NUT, HEX, .5" NC	2
10	14132	BOLT, HHCS, .375" X 1" NC GR5	4
11	14140	WASHER, LOCK, .50"	2
12	14144	HHCS, .375" x .75" NC	4
13	14145	WASHER, LOCK, .375"	14
14	14311	BOLT, HHCS, .50" X 1.75" NC GR5	2
15	14321	BOLT, HHCS, .375" X 2" NC GR5	6
16	14588	BRUSH SHAFT BEARING	1
17	14613	BEARING SEALMASTER, NP-16C	2
18	14683	WIRE BRUSH	6
19	15012	7/8" ID SPIDER COUPLING HALF	2
20	15027	L099NP BUNA-N SPIDER	1
21	15580	# 2 MNPT X # 4 MJIC 45 EL, (2023-2-4)	1
22	15595	# 16 MSAE X # 16 MJIC 90° ELBOW	1
23	16298	1/4" x 1-1/4" KEY	2
24	16383	BRUSH MOTOR	1
25	16487	NUT, HEX, .375" NC	6
26	16772	SPLIT COLLAR 1" BORE	2
27	17649	WASHER, FLAT, .50"	2
28	17656	WASHER, FLAT, .375"	14

Drive Station

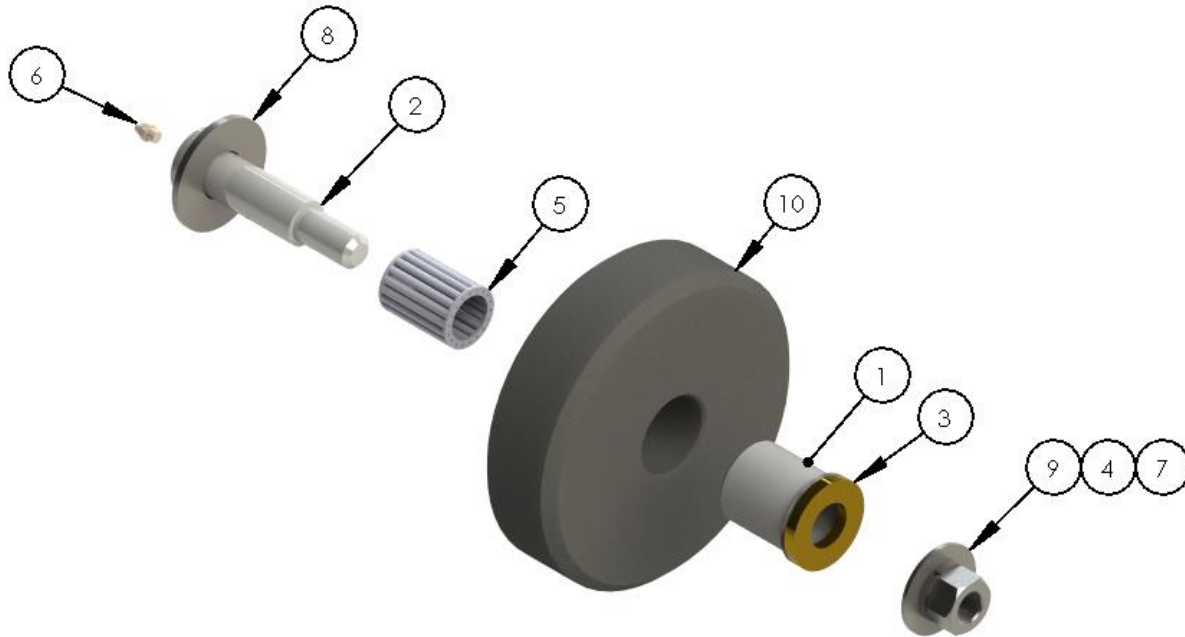
Revision: C



Item #	Part	Description	Quantity
1	13566	DRIVE HUB (020-00024)	1
2	14131	BOLT, HHCS, .75" X 1.25"	1
3	14133	WASHER, LOCK, .75"	1
4	14134	LOCK WASHER CASTING	1
5	15612	# 4 MSAE X # 4 MJIC 90° ELBOW, (2062-4-4)	1
6	15739	# 10 MSAE X #10 MJIC 90° ELBOW, (2062-10-10)	1
7	15790	# 10 MSAE X # 10 MJIC LONG 90° ELBOW	1
8	16298	1/4" x 1-1/4" KEY	1
9	16391	CHARLYNN HYD MOTOR P/N - 101-2435009 (HT)	1
10	17149	SET SCREW, .3125"-18 X .3125"	2
11	22510	WHEEL, 18001JT, GROOVED	1

Idler Station

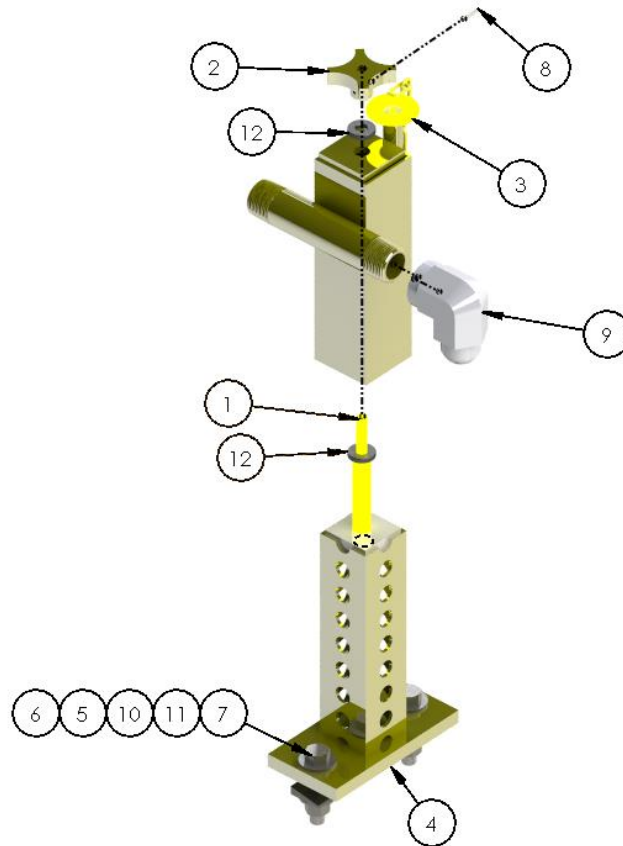
Revision: C



Item #	Part	Description	Quantity
1	28991	NEEDLE BEARING RACER, W. FLANGE	1
2	14435	1" X 2.5" SHOULDER BOLT	1
3	13979	WASHER, FLAT, 1" X 2" X .125" BRASS	2
4	14133	WASHER, LOCK, .75"	1
5	14641	Needle Bearing (J32-1264)	1
6	16082	GREASE FITG, .25"-28 X .75"	1
7	16485	NUT, HEX, .75" NC	1
8	17652	WASHER, FLAT, 1"	1
9	17653	WASHER, FLAT, .75"	1

Rear lance Assembly

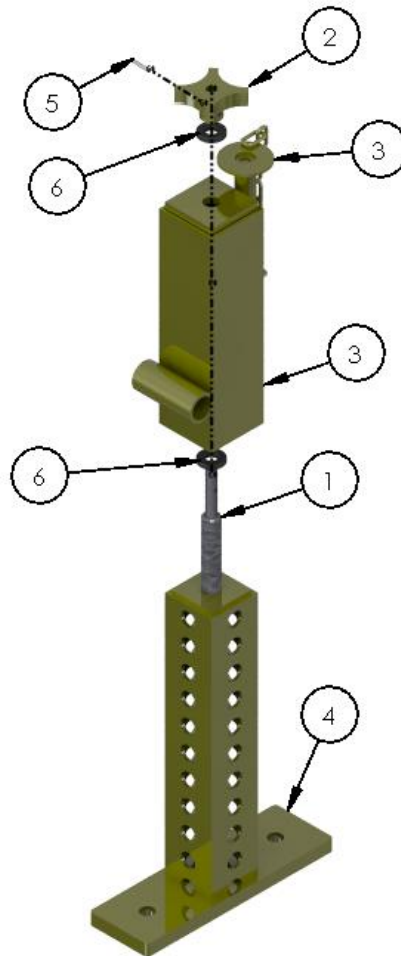
Revision: B



Item #	Part #	Description	Quantity
1	13596	ADJUSTMENT SCREW	1
2	43669	KNOB, .375" STAR TRUTROL (MODIFIED)	1
3	13602	ELEVATION ADJUSTMENT COVER	1
4	13604	PERFORATED TUBE ASSEMBLY (REAR)	1
5	14124	NUT, HEX, .5" NC	2
6	14140	WASHER, LOCK, .50"	2
7	14359	BOLT, HHCS, .50" X 2.50" NC GR5	2
8	15288	ROLL PIN, 1/8 " X 3/4"	1
9	15653	# 16 FNPT X #16 MJIC 90° ELBOW, (2025-16-16)	1
10	17218	LEVELING SHIM (BEVEL WASHER) 9115A033	2

Front Lance Assembly

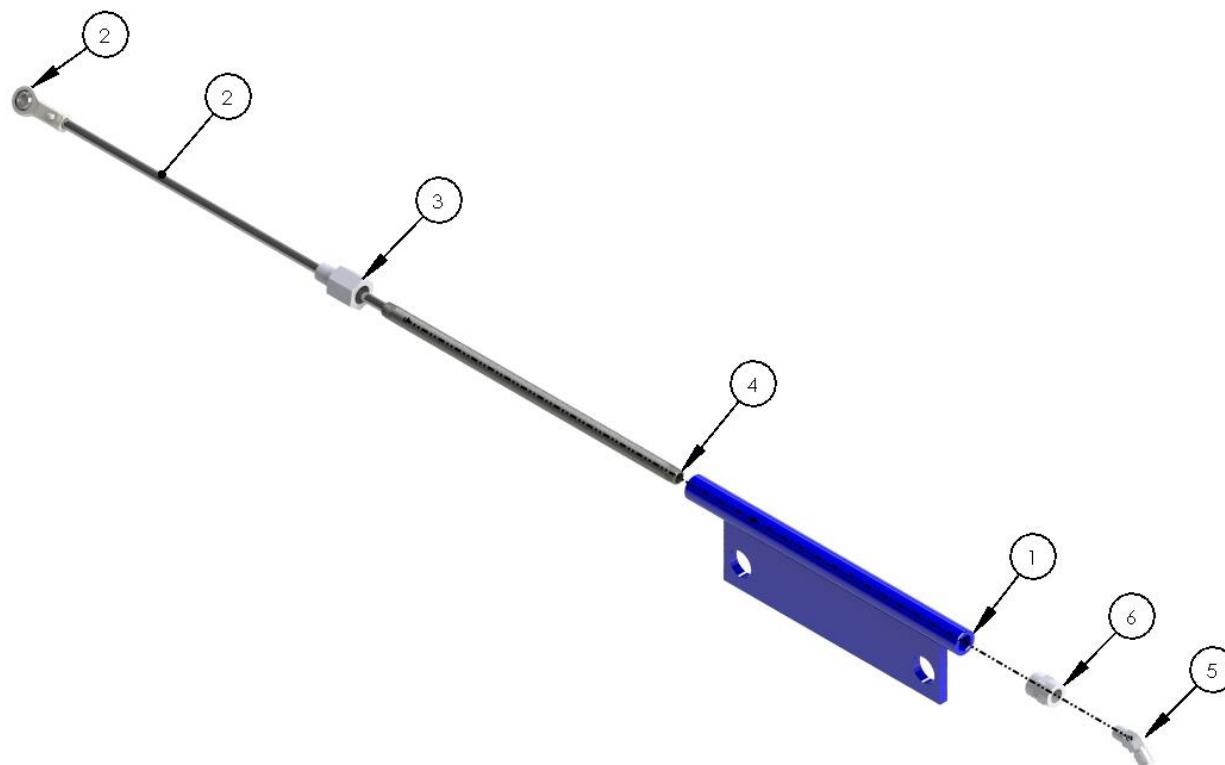
Revision: C



Item #	Part #	Description	Quantity
1	13596	ADJUSTMENT SCREW	1
2	43669	KNOB, .375" STAR TRUTROL (MODIFIED)	1
3	13603	ELEVATION ADJUSTMENT COVER	1
4	21207	PERFORATED TUBE ASSEMBLY	1
5	15288	ROLL PIN, 1/8 " X 3/4"	1
6	22246	WASHER, FLAT, .375" FW-3	2

Auxiliary Cylinder Assist

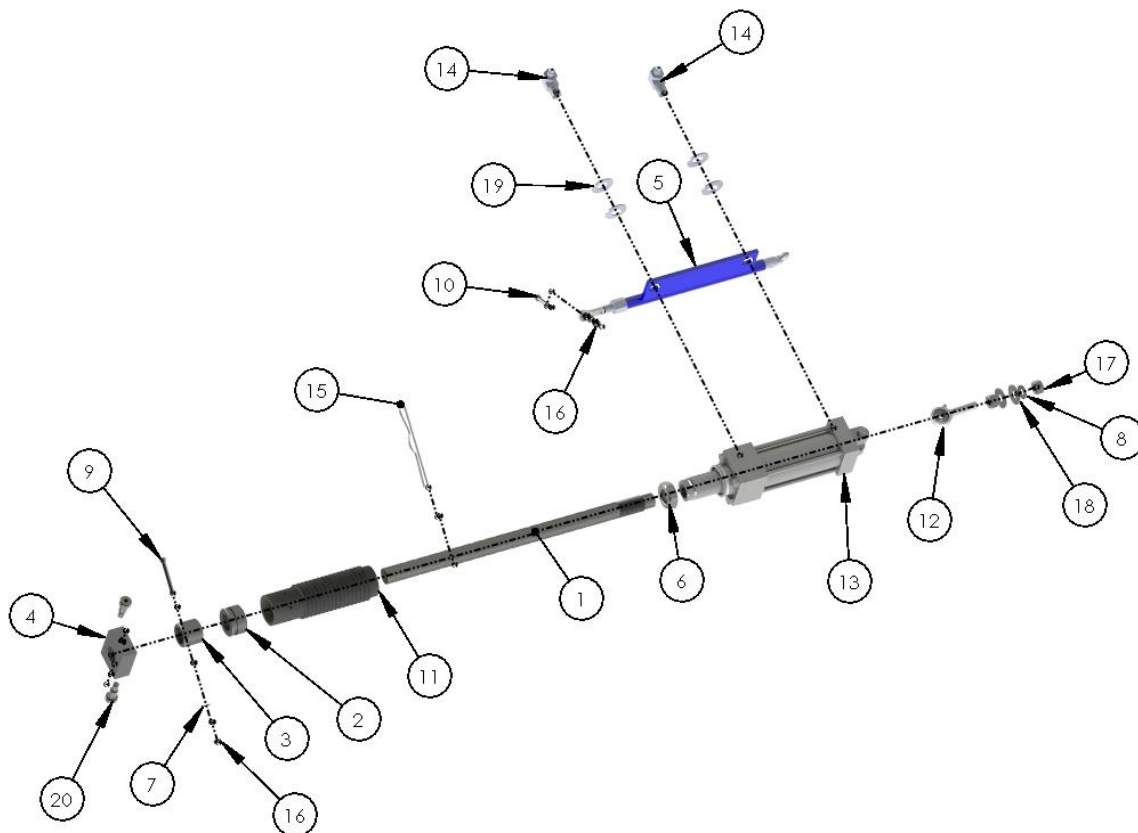
Revision: B



Item #	Part #	Description	Quantity
1	20563	GUIDE, ADAPTER GUIDE	1
2	13959	AUXILIARY CYLINDER ROD & ROD END	1
3	14037	FITG, HYD	1
4	15450	FITG, HYD	1
5	15580	FITG, HYD	1
6	15607	FITG, HYD	1

Secondary Cylinder Assist

Revision: D



ITEM #	PART NUMBER	DESCRIPTION	QTY.
1	13567	ROD EXTENSION	1
2	13568	BOOT ANCHOR	1
3	13569	ROD SPACER	1
4	14166	ROD GUIDE	1
5	107-701-008-00	AUXILLIARY CYLINDER ASSIST	1
6	14135	NUT, JAM, 1" NF	1
7	14138	WASHER, LOCK, .25"	1
8	14140	WASHER, LOCK, .50"	1
9	14492	BOLT, SHCS, .25" X 2" GR5	1
10	14504	BOLT, SHCS, .25" X 1.75" NC GR5	1
11	14513	HONDA # 51611-459-880 RUBBER BOOT	1
12	14629	BEARING ROD END	1
13	15098	MODIFIED AIR CYL	1
14	15582	3/8" MP X 1/4" MJIC 90 DEG (2024-6-4)	2
15	16098	HAIR PIN COTTER .243 X 5-1/4 LG	1
16	16483	NUT, HEX, .25" NC	3
17	16511	NUT, HEX, .5" NF	2
18	17649	WASHER, FLAT, .50"	2
19	17681	WASHER, SPRING, 0.375	4
20	23129	BOLT, SHOULDER, .5"x.75"x.375"-16	2

Hose Schedule

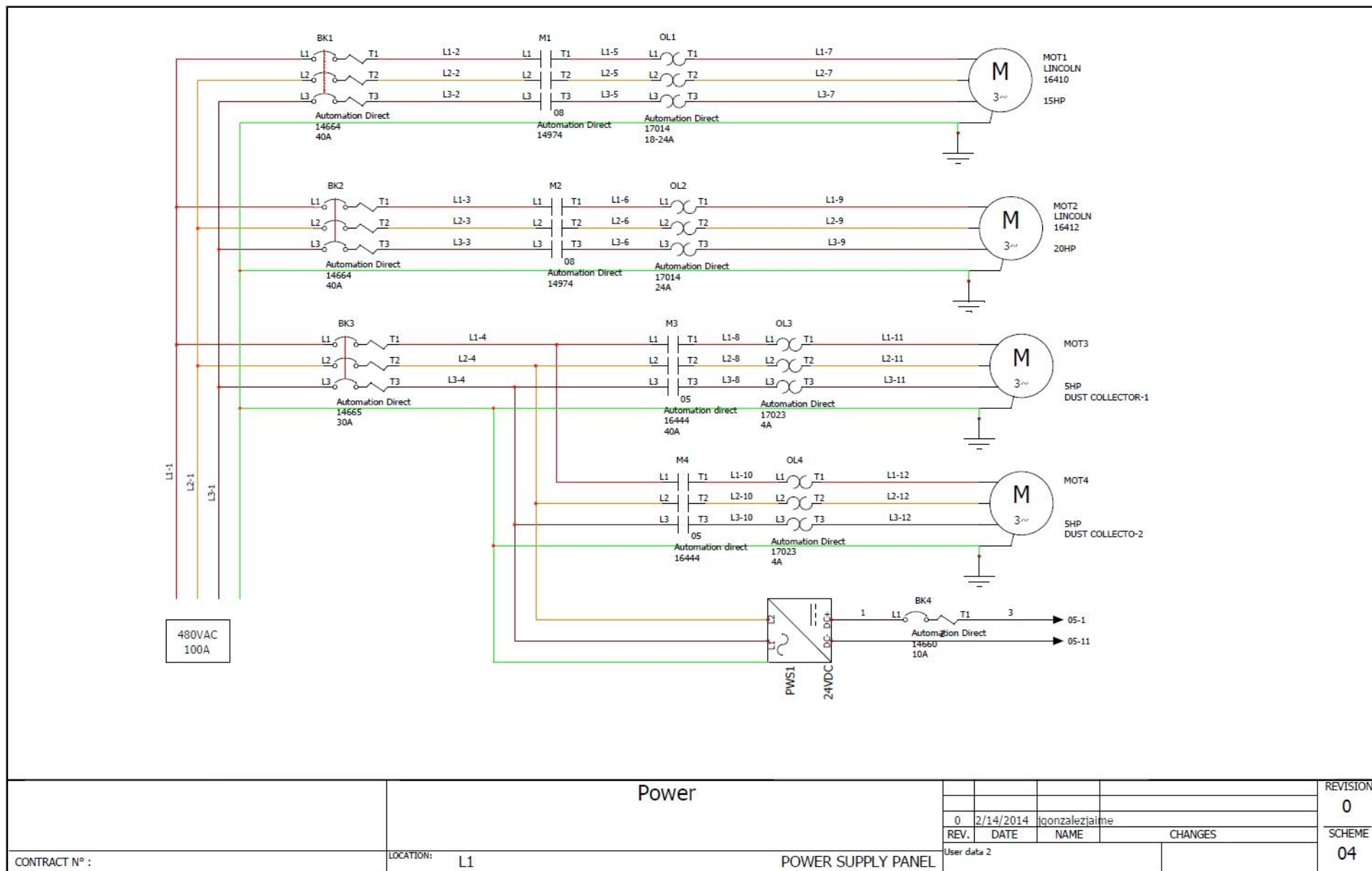
Hose #	From	To	Additional Notes	Description	Qty
107-610-129-00	Front table paddle tubing	Front load side tubing	Short jumper hose from table to load side frames	15547, HOSE 16234 7" LG, 15562, 15796	2
107-610-131-00	Top motor tubing	Hydraulic motor		15562, HOSE 16234 35" LG, 15562	8
107-610-133-00	Rear table motor tubing	Rear load/lance frame tubing	Short jumper hose from table to load/lance frames	15547, HOSE 16234 13" LG, 15562, 15796	4
107-610-137-00	Brush motor	Tank	Please specify length when ordering	15560, HOSE 16233 LENGTH TBD, 15560	2
107-610-138-00	Brush motor pump	Brush motor	Please specify length when ordering	15560, HOSE 16233 LENGTH TBD, 15555	2
107-610-141-00	Case drain tubing	Tank	Please specify length when ordering	15562, HOSE 16234 LENGTH TBD, 15562	1
107-610-142-00	Manifold station 3	Brush lift cylinder piping	Hoses are identical for P & T	15562, HOSE 16234 LENGTH TBD, 15568	2
107-610-144-00	Manifold station 1	Paddle tubing	Please specify length when ordering	15562, HOSE 16234 LENGTH TBD, 15562	2
107-610-146-00	Manifold station 2	Motor circuit	Please specify length when ordering	15562, HOSE 16234 LENGTH TBD, 15562	2
107-610-101-00	Brush motor piping	Brush motor		15560, HOSE 16233 45" LG, 15555	4
107-610-105-00	Brush motor	Auxiliary assist cylinder		15538, HOSE 16228 30" LG, 15538	2
107-610-107-00	Front table air tubing	Regulator/Lubricator/Filter Assembly	Air hose	15610, HOSE 13973 17" LG, 15610	2
107-610-110-00	Regulator/Lubricator/Filter Assembly	Bottom table air tubing	Air hose	15610, HOSE 13973 17" LG, 15610	2
107-610-115-00	Bottom table air tubing	Air valve assembly	Air hose	15610, HOSE 13973 8" LG, 15610	2
107-610-116-00	Air valve assembly	Brush air cylinder, A Port	Air hose	15610, HOSE 13973 75" LG, 15610	2
107-610-117-00	Air valve assembly	Brush air cylinder, B Port	Air hose	15610, HOSE 13973 43" LG, 15610	2
107-610-119-00	Hydraulic Motor	Case drain tubing		15538, HOSE 16228 29" LG, 15538	8
107-610-121-00	Bottom motor tubing	Hydraulic Motor		15562, HOSE 16234 21" LG, 15562	8
107-610-184-00	Brush lift cylinder piping	Brush lift cylinder		15562, HOSE 16234 15" LG, 15562	2
107-610-187-00	IB lance air piping	OB lance air piping		15560, HOSE 16233 31" LG, 15560	1
107-610-193-00	OB lance air piping	Rear lance support		15560, HOSE 16233 39" LG, 15549	1

Recommended Spare Parts

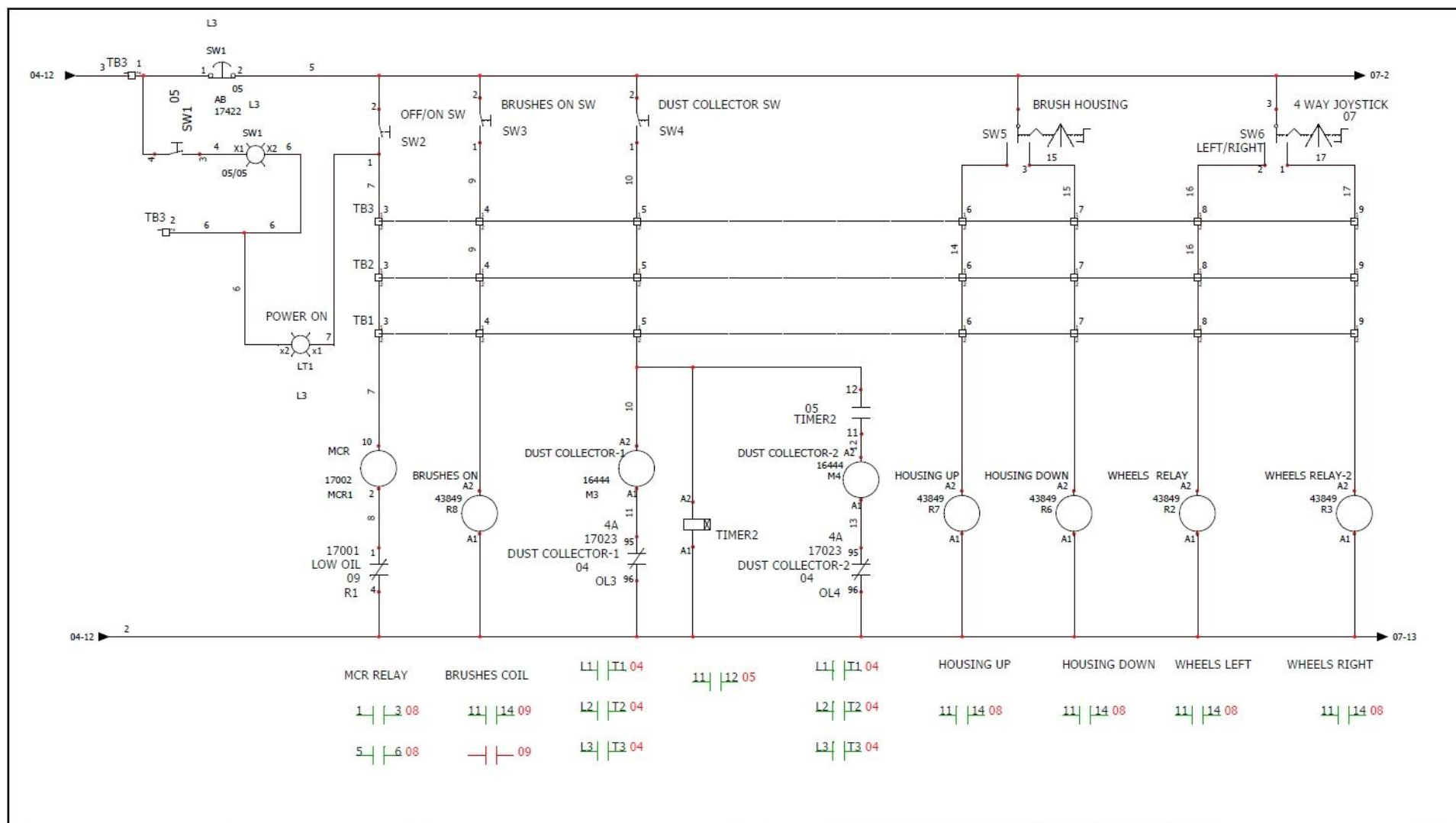
Level A Items (Stocked On Site)		
Part #	Description	Qty
48129	OD Brush	8
17719	Drive Wheels	10
13592	Paddle Wear Pad	4
17718	Idler Wheel	6
16734	Power Supply,	1
14974	Contactora, 24vdc coil ;25HP,42A	1
17014	Thermal Overload relay (18-26A)	1
14203	Amplifier, WhiteOak 600mA	1
Level B Items (1-3 Day Delivery)		
14037	Lenz Fitg	2
14683	Chrome Rod	2
14435	Idler Shoulder Bolt	6
14641	Needle Bearing	3
13979	1" Brass Washer	6
16391 (16392)	High Torque Hydraulic Motor (High Speed Motor)	1
16444	Contactora, 24vdc coil ; 5hp,32A	1
13989	Select Switch, Two Position	1
17391	Joystick, 4 Way Joystick 800T-	1
17314	Joystick, 1 Way Joystick Maint	1
24950	Potentiometer, 5K Potentiometer	1
38616	Timer Relay ,H3DS-AL-24/230ac	1
16030	Fuse, 1-1/2A MDL-	5
Level C Items (0-120 Day Delivery)		
42131	Hydraulic Pump (Brush)	1
22353	Hydraulic Pump (Auxiliary)	1

Electrical Schematics

Power Supply Panel Schematic



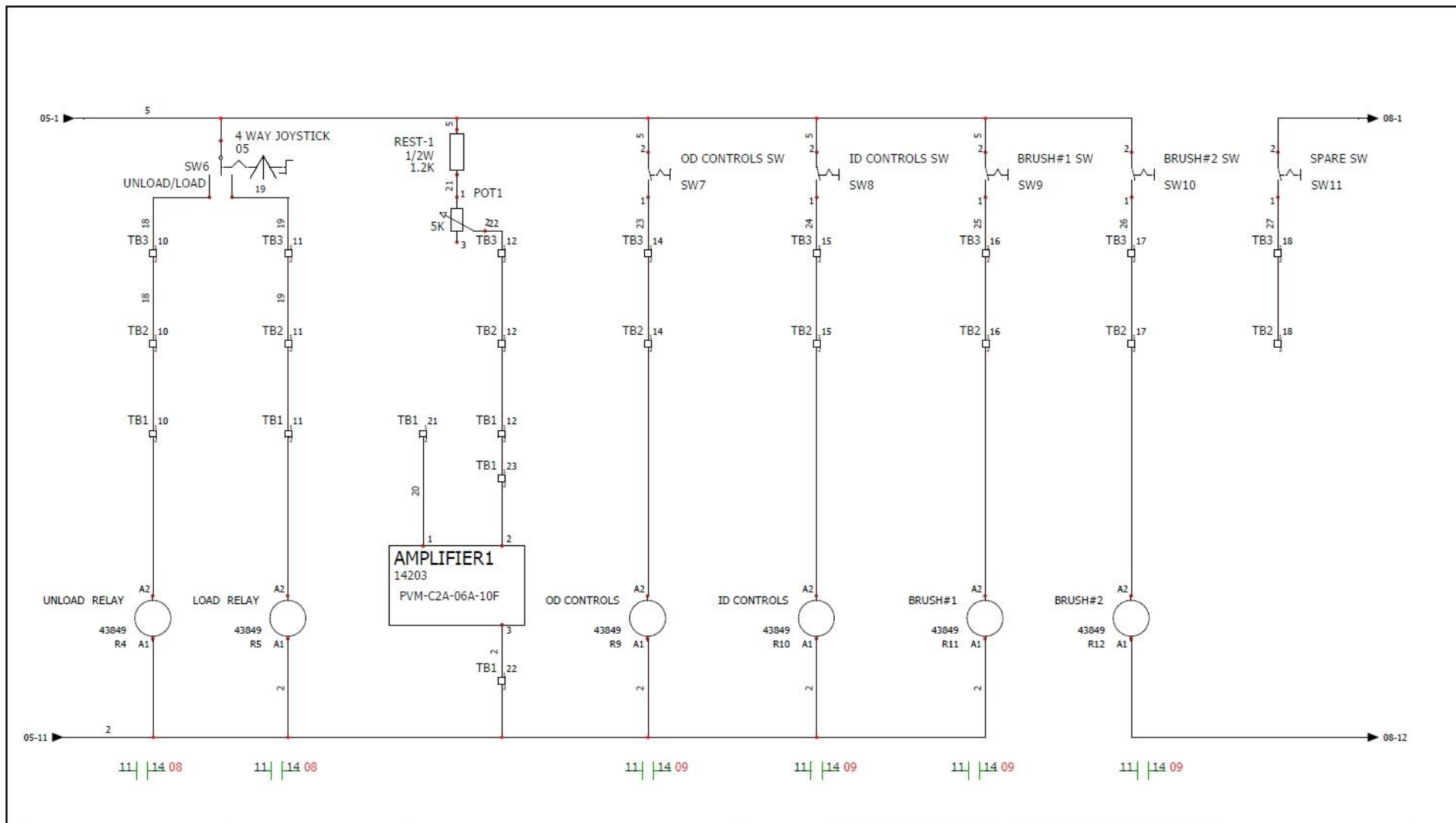
Control Head 1



CONTROL HEAD-1

	CONTROL HEAD-1								REVISION
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	0	2/14/2014	jgonzalezjalme						
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									05
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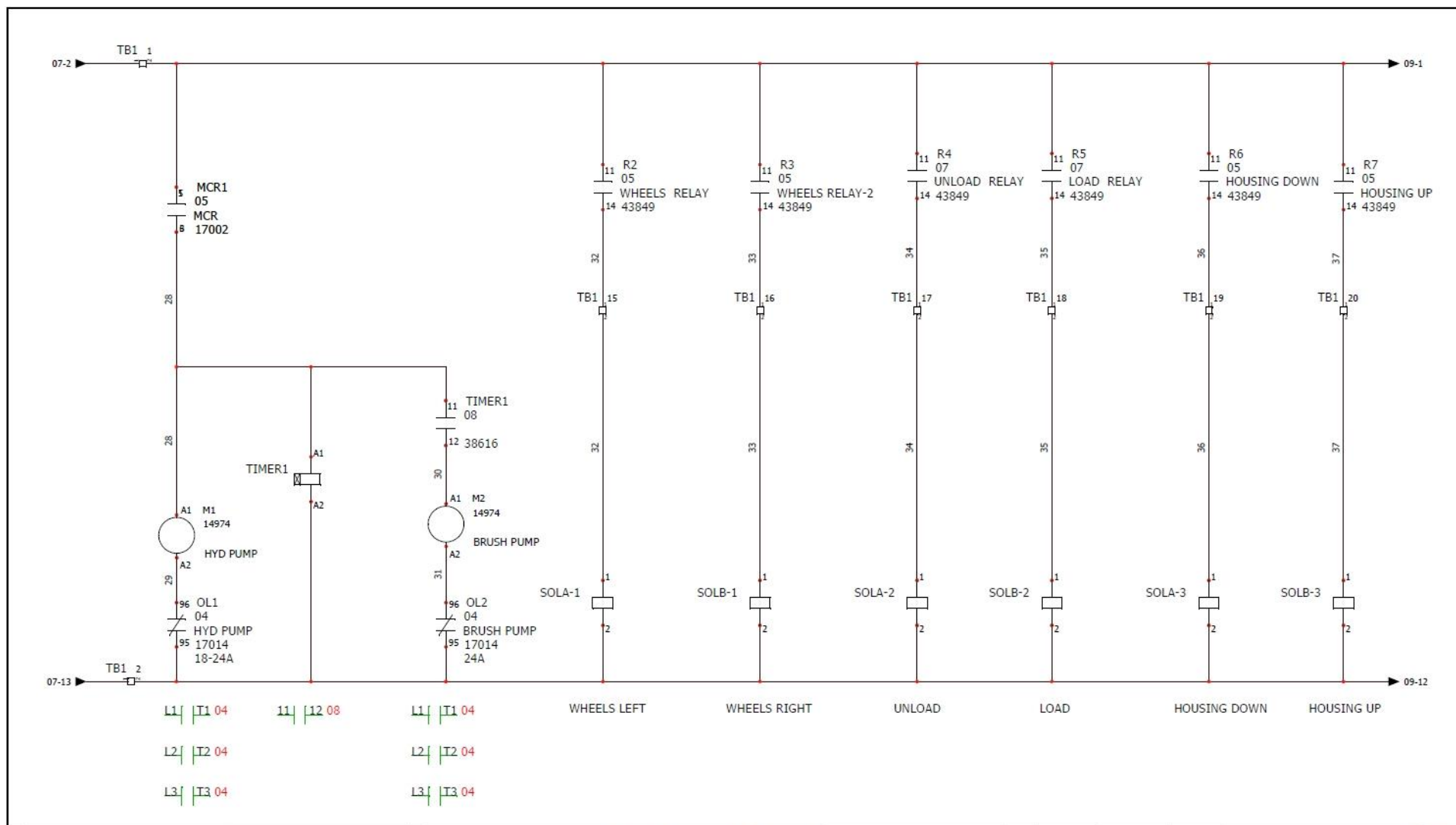
Control Head 2



CONTROL HEAD-2

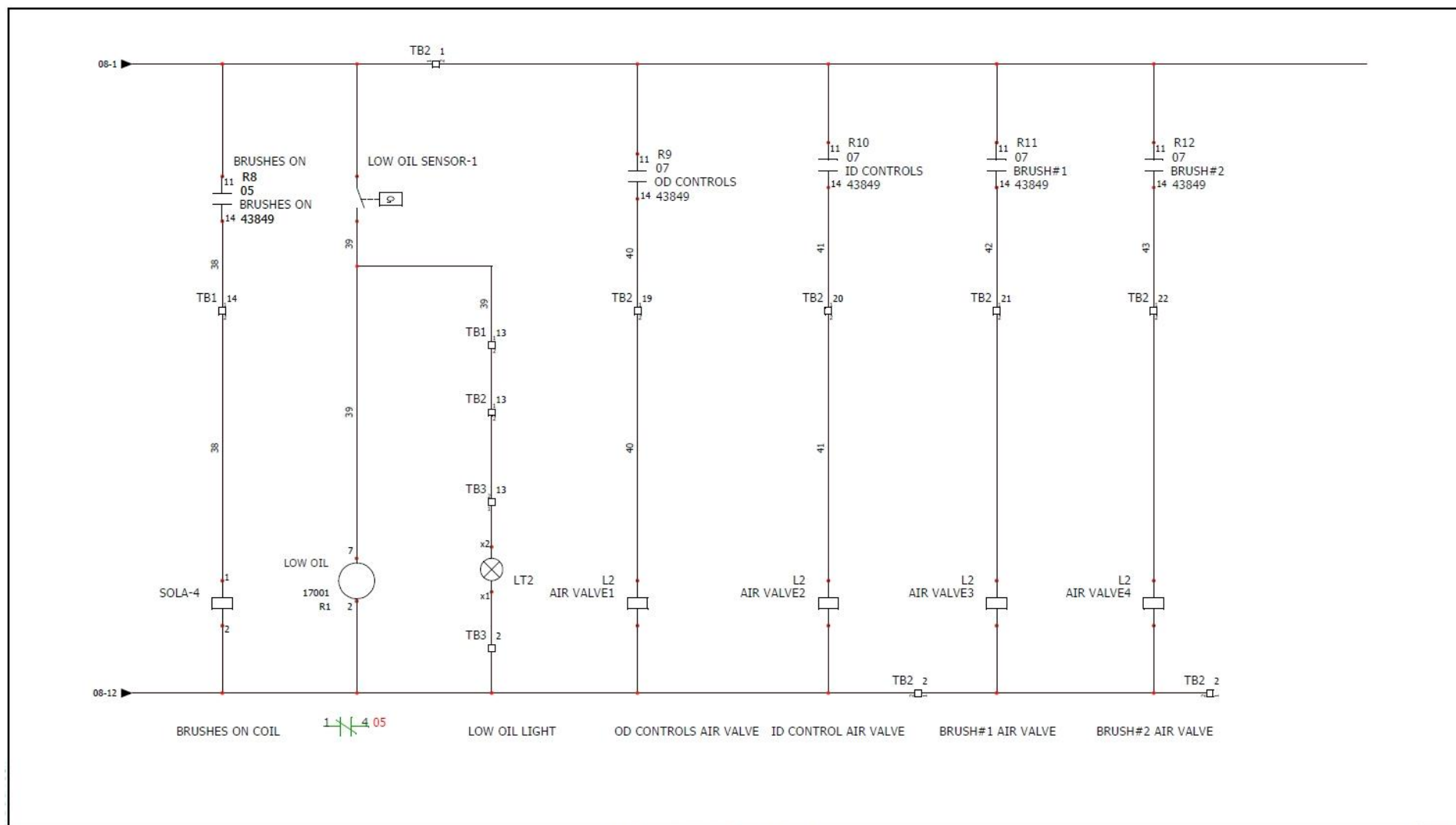
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			SCHEME			
			07			

Relay Schematic 1



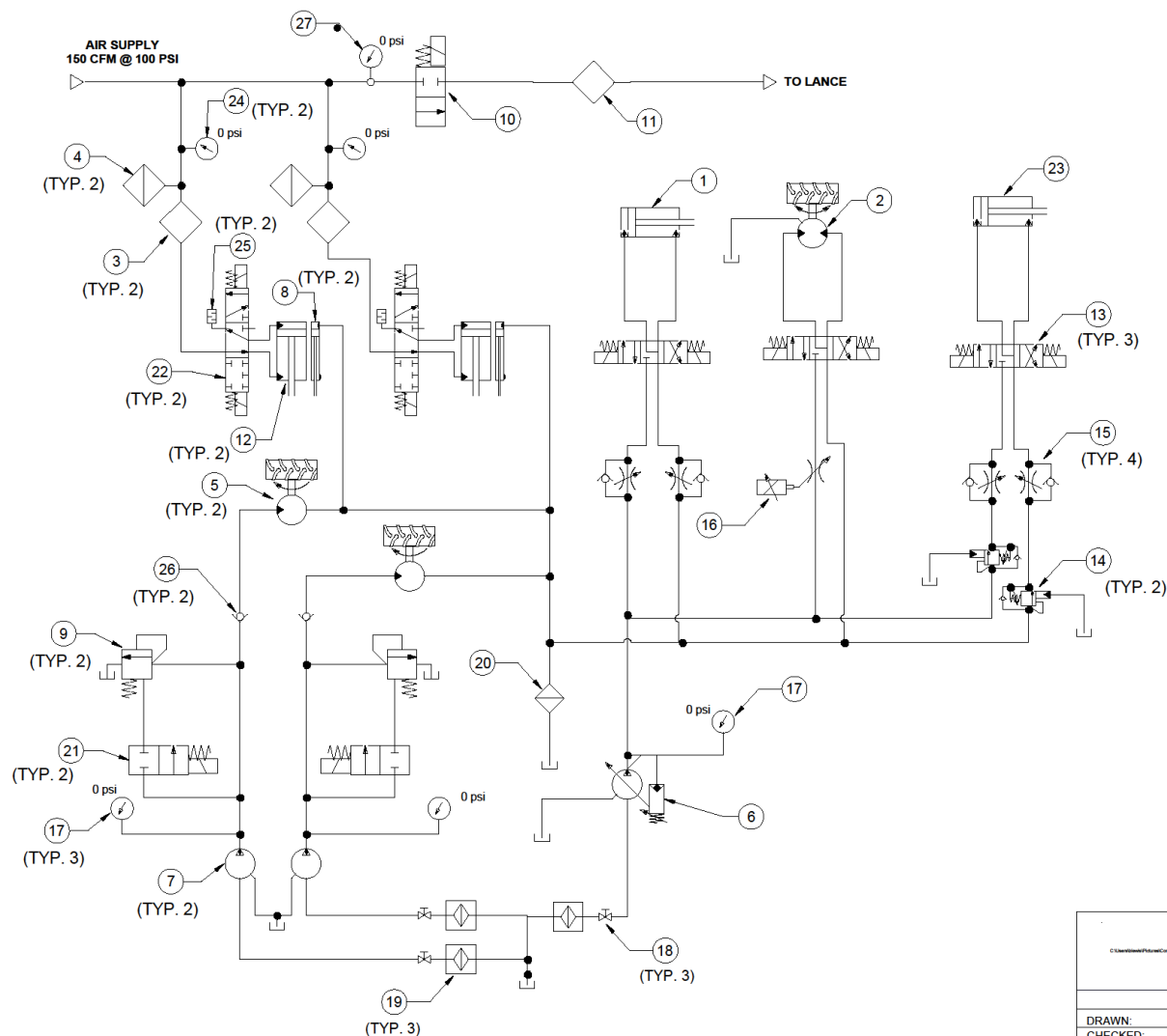
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				2/21/2014
				igonzalezjaim
				NAME
				CHANGES
				08
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POWER SUPPLY PANEL				User data 2

Relay Schematic 2



RELAY SCHEMATIC-2				REVISION
				0
				SCHEME
				09
CONTRACT N° :	LOCATION: L1	POWER SUPPLY PANEL		User data 2
REV.	DATE	NAME	CHANGES	
0	2/21/2014	jgonzalezjalme		

Hydraulic & Pneumatic Schematic



ITEM	QTY.	DESCRIPTION	PART NO.
1	1	PADDLE CYLINDER	15157
2	1	CONVEYOR HYD. MOTOR, 9.7 in3	16392
3	2	LUBRICATOR	16326
4	2	FILTER	15313
5	2	BRUSH MOTOR	16383
6	1	HYDRAULIC PUMP	XXXXX1
7	2	BRUSH PUMP	24063
8	2	AUX. HYD. CYLINDER	15098
9	2	RELIEF VALVE	21016
9.1	2	BODY, RELIEF VALVE	37715
10	1	RATTLER MOTOR VALVE	17565
11	1	RATTLER MOTOR LUBRICATOR	16327
12	2	BRUSH FRAME AIR CYLINDER	15097
13	3	HYD. DIRECTIONAL VALVE	17600
14	2	COUNTER BLANCE CARTRIDGE	24159
14.1	2	COUNTER BLANCE BODY	14757
15	4	FULLY ADJUSTABLE NEEDLE WITH REVERSE FLOW CHECK CARTRIDGE	14765
15.1	2	REVERSE FLOW CHECK BODY	14754
16	1	PROPORTIONAL FLOW CONTROL VALVE	14802
17	3	PRESSURE GAUGE	16066
18	3	N.C. SHUT OFF VALVE (2-WAY)	29257
19	3	SCREEN CARTRIDGE	40575
20	1	FILTER	40477
21	2	HYDRAULIC DIRECTIONAL VALVE	40577
21.1	2	BODY, 2 WAY DIVERTER	40576
22	2	HYDRAULIC DIRECTIONAL VALVE	17602
23	1	REAR BRUSH CYLINDER	15164
24	2	REGULATOR	16023
25	2	MUFFLER	16448
26	2	CHECK VALVE	22382
26.1	2	BODY, SUN DAL	14804
27	1	REGULATOR	16987

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			TITLE: PCM 7625 HYDRAULIC SCHEMATIC		
			DWG. No: 107-800-001-00		
			REV: A		
DRAWN:	BL	DATE:	02/19/13	WT:	LBS
CHECKED:	JBB	DATE:	04/16/13	SHEET 1 OF 1	
APPROVED:	JBB	DATE:	04/16/13		