

# Auto HANDWAX™

## Maintenance & Parts Manual



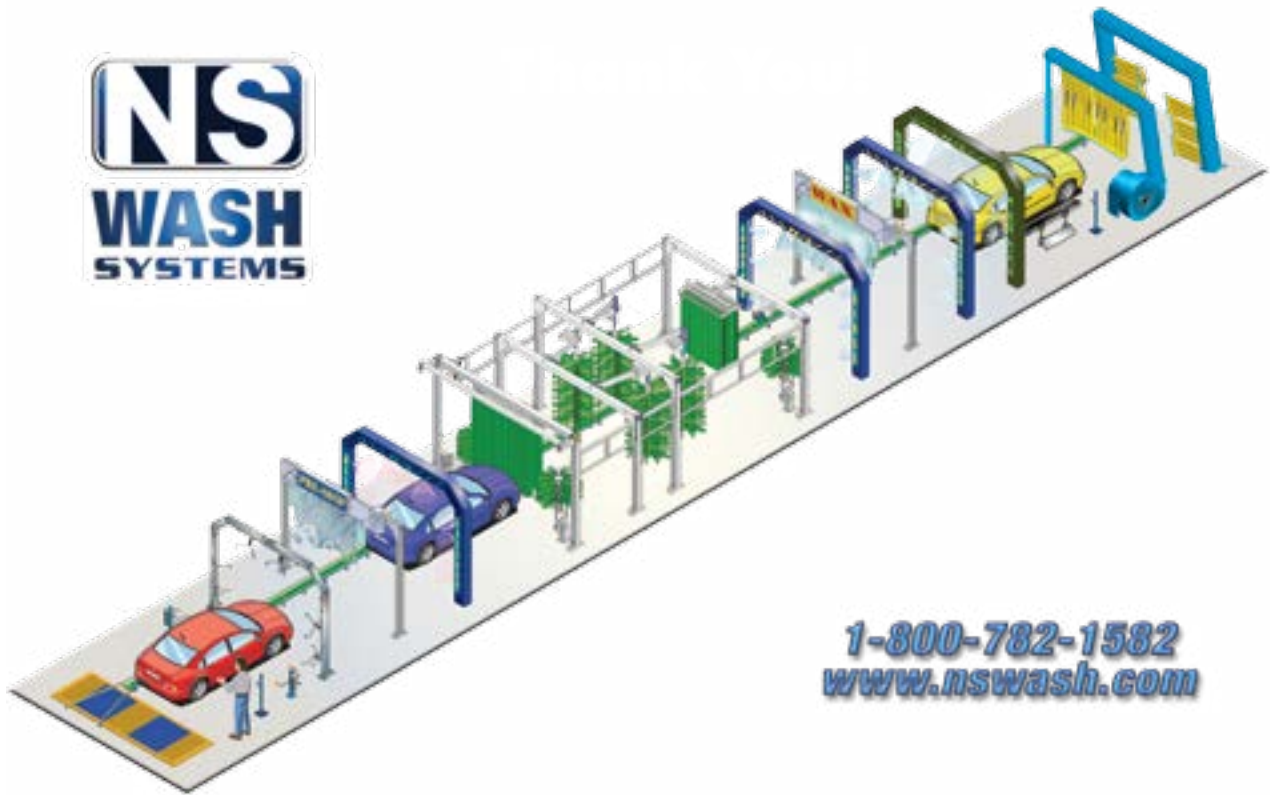
PATENT PENDING



Quality Management System • Certified By DNV • ISO 9001:2008

Manufacturers of Vehicle Cleaning Equipment Since 1961

Rev 02/13



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**T**hanks for your confidence in the NS Corporation and our vehicle washing products. If this is your first time as an NS equipment purchaser we welcome you to our family of customers dating back to 1961.

**T**hank you again if this purchase of equipment is the most recent in your loyal history as an NS customer. We truly appreciate your continued confidence in our company and it's products. Your trust in us is the heart of our on-going success.

**I**n today's market every company, no matter the industry, must be Quality conscious. Our view of Quality goes beyond the delivery of equipment fabricated and assembled with exceptional care. In fact, the entire NS staff is dedicated to provide Quality products and Quality Customer Service. Every member of the NS team, including our worldwide Distributor organization, is committed to this sense of pride and professionalism in our efforts to assist you in achieving success in your vehicle washing business.

**W**e want to hear your comments concerning your entire experience with NS during this most recent purchase. Please contact either one of us, or our Customer Service Director, with your report card on our performance.

**T**hanks again for purchasing your equipment from NS. We appreciate your business.

*Thomas Ennis Sr.*  
*Chief Executive Officer*

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Rev V-02

10/10/13

Updated Warranty Page

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# System Specifications



## EQUIPMENT DIMENSIONS

Length with bubbler top sign 10 feet  
Length without bubbler top sign 9 feet  
Width with leg mounted panel 14 feet  
Width without panel 13 feet  
Overall Height 11 feet

## ELECTRICAL MULTI-VOLTAGE REQUIREMENTS

Brush system(3) .5 HP Motors 208-230/460 three phase, 60Hz, FLA 5.7-6/3  
Bubbler (1) 1.5 HP Motor 115 VAC single phase, FLA 8  
LED Lighting Package 115 VAC single phase, FLA 2  
NOTE: FLA is total per system component

## WATER REQUIREMENTS

Bubbler 15 GPM @ 40 PSI

## PNEUMATIC REQUIREMENTS

SCFM 1



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# Sequence of Operations

## Wax or wax and Polish

*The Auto Hand Wax System is an automatic wax machine that can be set for two types of wash packages or a single full operation wax system. Both instances will require two car wash controller outputs.*

*The first CWC output will control the Bubblizer, LED curtain and Top Sign. This will maximize control of the Bubblizer product to start and stop at each end of the vehicle. This will also give the end user the ability to sell the Bubblizer wax as a package all its own.*

*The second CWC output will control the brush package and both side LED signs. This will lower the curtain reel, start the wrap brushes and activate the wrap brush retract solenoid to extend brushes to the center line of the wash bay. For a complete Auto Hand Wax, both outputs will be activated.*



# Curtain Reel Installation



**W**hen installing the Curtain Reel, do not remove the plastic wrap. The UHMW idler block located on the passenger side of the AHW will need to be disassembled in order to place the Curtain Reel shaft. When you mount the Curtain Reel to the gear reducer hub via the four 3/8"X1-1/4" bolts, be sure to set the reel with the cloth at its maximum rolled up position. The Curtain positioning system (Nylon Sprockets and Sensors) are shipped preset to the "up" position.

**A**fter all electrical connections are done in the control panel (Sensors, Motors, Etc.) you can use the Curtain Reel manual switch located on the front of the control panel to test for the correct rotation of the Curtain Reel. The reel should rotate counter clockwise when viewed from the behind the Positioning Sensor plate. If the rotation is incorrect you will need to change rotation in the control panel. If the rotation is correct allow the system to reach its lowest position where it will stop via the "Down" position sensor.



## Curtain Reel in the Up position.



**Positioning sensor rear view and rotation.**



# Brush and Pneumatic Retract Installation and Adjustment

**T**he brush arms of the Auto Hand Wax are both the same length. When installing the brush arms make sure to install the arms with the motors to the outside furthest away from equipment enter line. For the installation of the arms you will need to remove the top bearing on the mounting base. This will leave the lower bearing accessible so you can place arm pivot shaft into the bearing. Once you have placed the arm into the lower bearing you can attach the top bearing and complete the installation, repeat this process for the other arm. Once both arms have been installed you can hang the Lammscloth brushes which are labeled Driver and Passenger.

**7**

# Brush and Pneumatic Retract

## Installation and Adjustment



**Y**ou can proceed to install the retract air cylinder into the rear trunion mounts located on the top of the brush bulkhead. The shaft end of the cylinder will connect to the drive pin located on top of the brush arm.

**T**he next step will be to run the Poly-Flow tubing from the retract manifold to each cylinder. Connect the ends of blue poly tubing to each of the mini-regulators. Stretch and cut the tubing so you end up with two equal lengths. Connect the yellow poly tube to the poly fitting located on the normally open port of the air valve. Feed the three tubing line thru the machine leg and then thru the bulkhead too come out of the top holes of the bulkhead. Cut the Yellow tube about 12" inches from the outlet of the first hole and attach the supplied 1/4" Y-union connector. Use the remaining yellow tubing to connect from the "Y-union" to the front port of each air cylinder. The "yellow" line will supply air to retract the brushes when the system is deactivated.

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**T**ake the blue poly flow tubing coming from the Mini-regulator located highest on the air manifold to the passenger side air cylinder. Take the poly flow tubing from the other mini-regulator to the driver side air cylinder. These two mini-regulators are used to extend the air cylinder shaft which will move the brushes to the equipment center line.



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# Pneumatic Retract System Adjustment

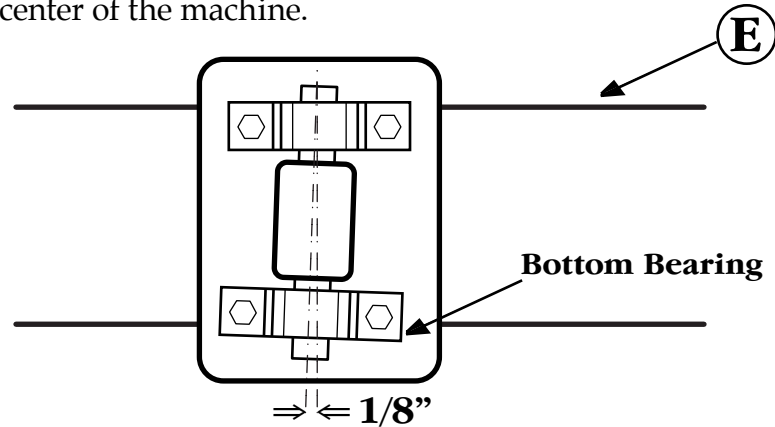
Set the inlet air pressure to 65 psi at the main air regulator, use the Hand Off Auto switch marked brushes on the electrical panel door to activate brushes and the air solenoid manifold. With the system activated set the air pressure of the two mini-regulators between 5 to 10 psi. This will set the brush contact pressure. Deactivate the brush system via the HOA switch. This will retract the brushes to the home position. If the speed of retract is too fast or too slow use the flow control valve located on the rear end of the cylinder to adjust the speed. If the speed is too fast close the valve and if the speed is too slow then open the valve. This will apply to both extend and retract functions of the air cylinder.

When you activate the brush system thru the HOA switch the brushes should move to the equipment center line to start the wax cycle. If the brushes do not extend out DO NOT increase the air pressure of the mini-regulators. Instead follow the brush camber adjustment in the following page. If you set a minimum camber adjustment and the minimum air pressure to extend the brushes, this will maximize the brush extension and minimize excessive contact pressure against the vehicle surface.



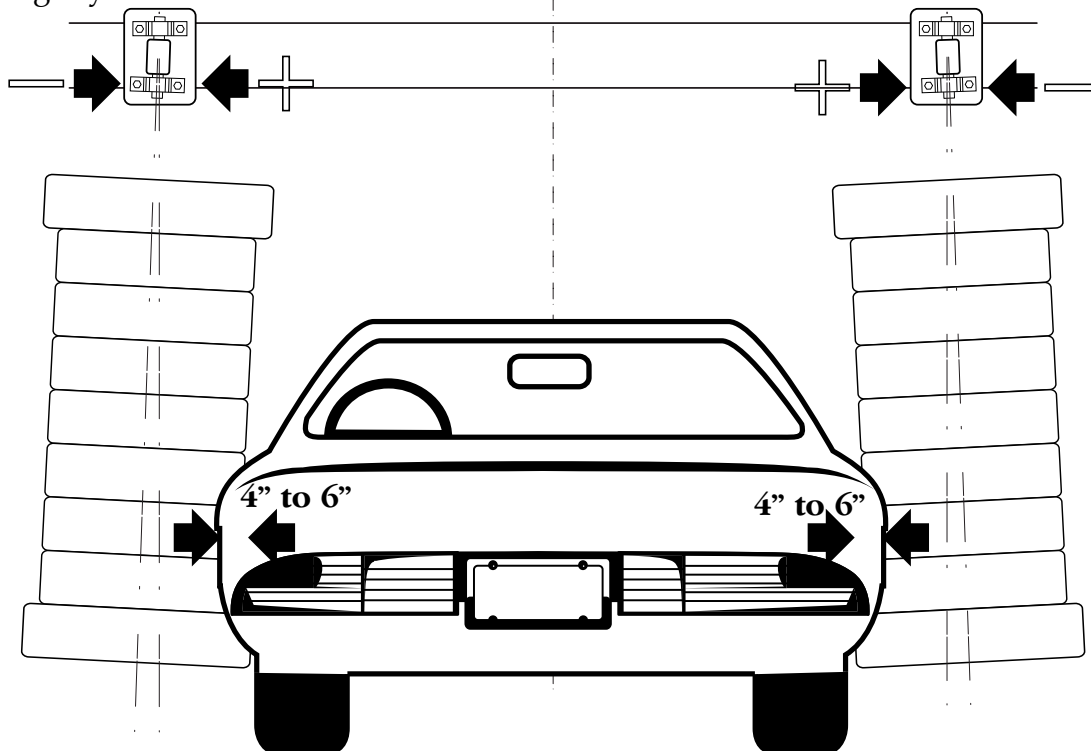
# Brush Pressure Adjustments

The brush pressure adjustment is made at the bearing pillow block bearing mounted to the front frame assembly E. The bottom pillow bearing can be adjusted away from vertical. At the outset, position the bottom pillow block bearings of both brush arms away from true vertical by  $1/8"$ . This camber will give the brush arms a tendency to fall inwards towards the center of the machine.

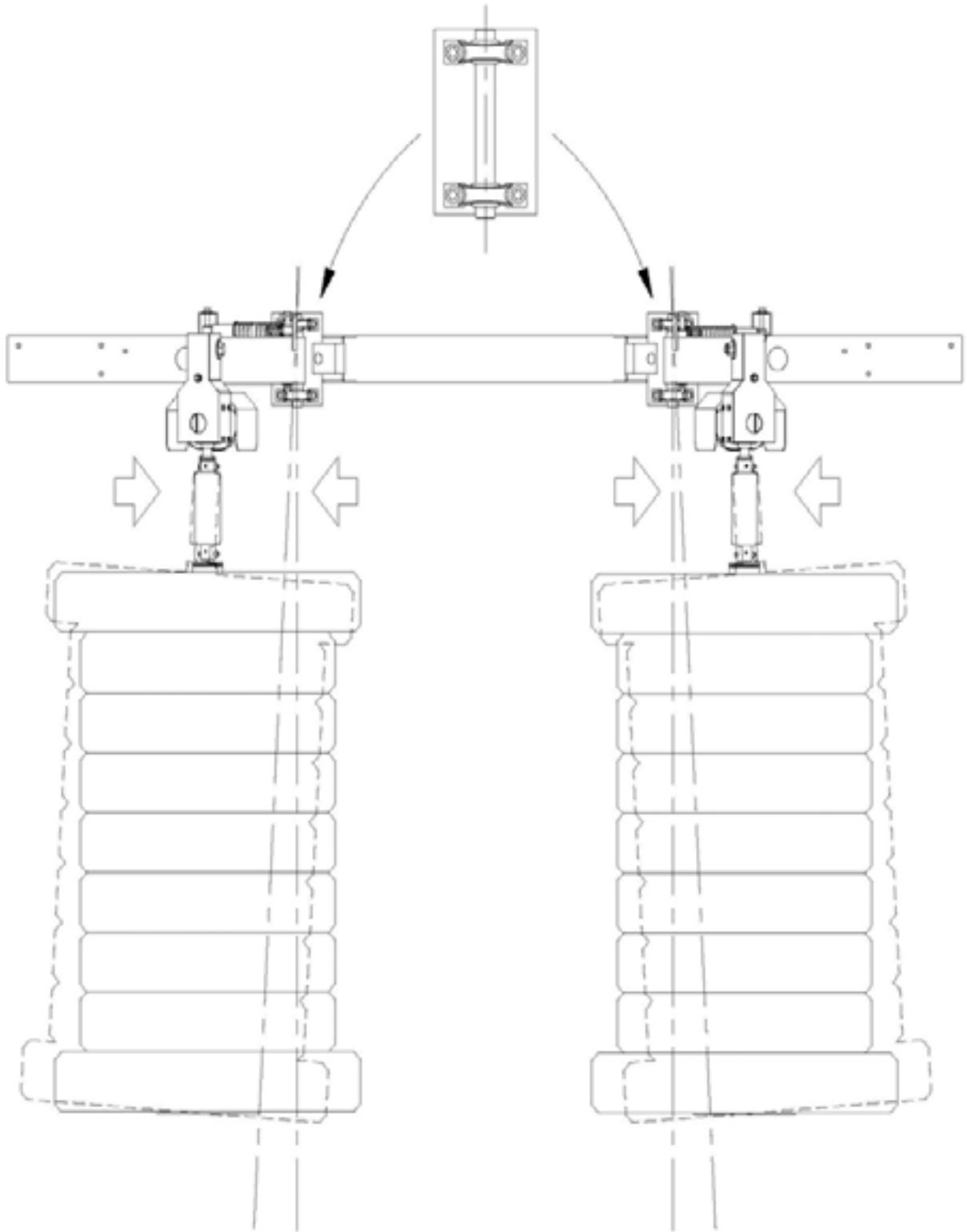


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The final camber adjustment is made by moving the bottom pillow block bearing away from the centerline of the system to provide more brush pressure or towards the center for less pressure. The brush arms must have enough pressure to flair  $4"$  to  $6"$  into the body of the vehicle and lightly contact the side window area.

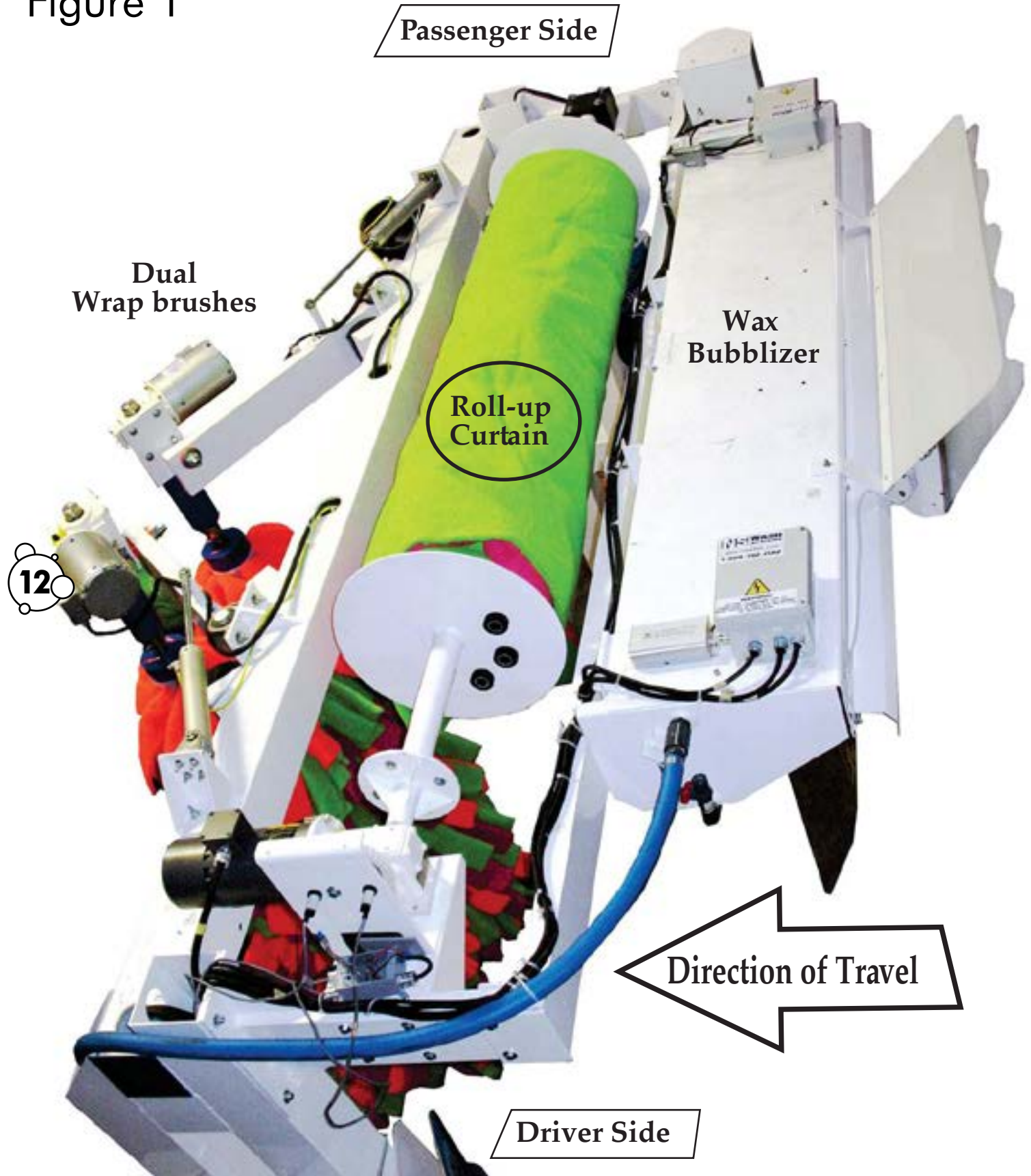


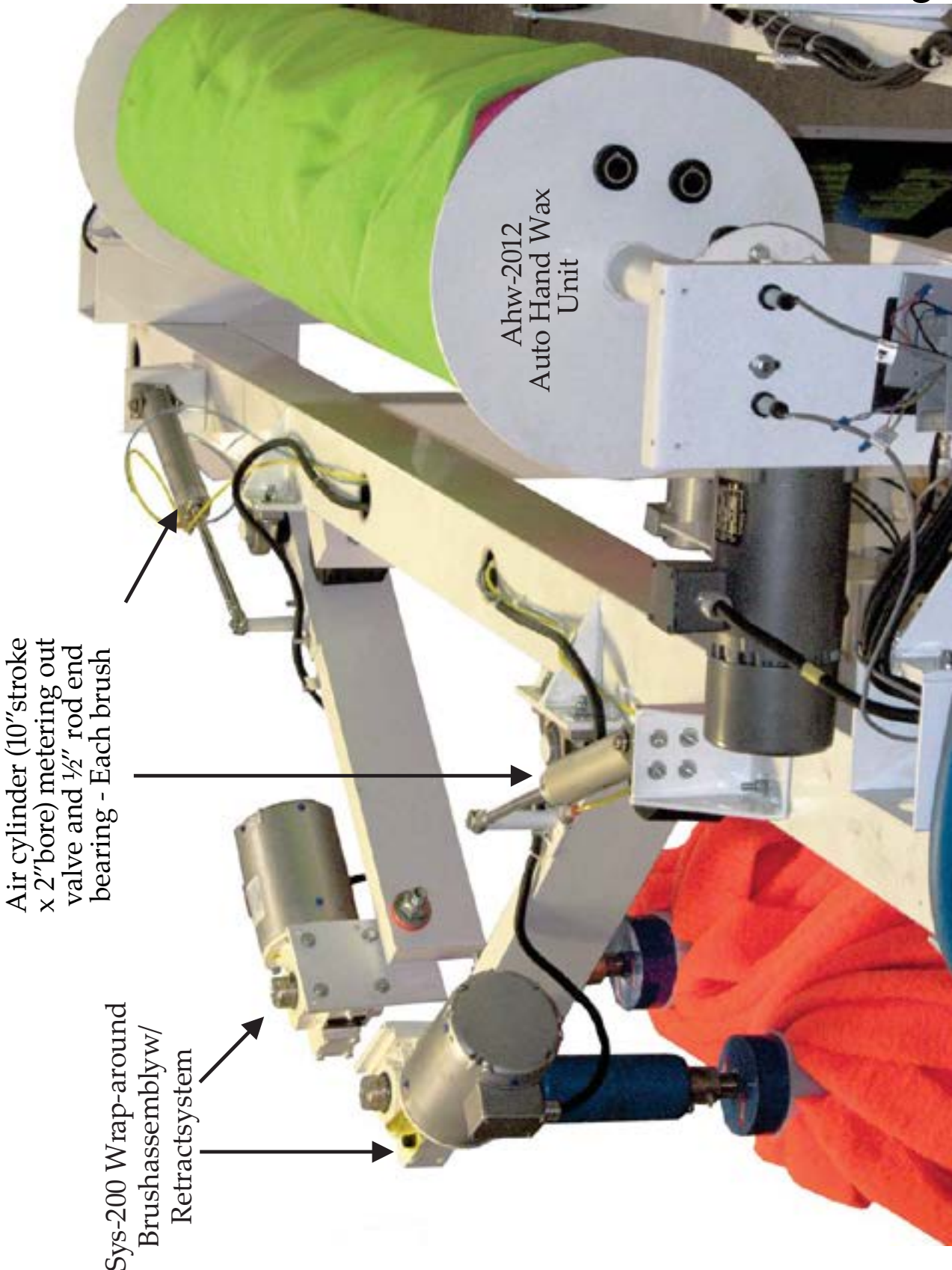
# Wrap Around Brushes Camber Adjustment

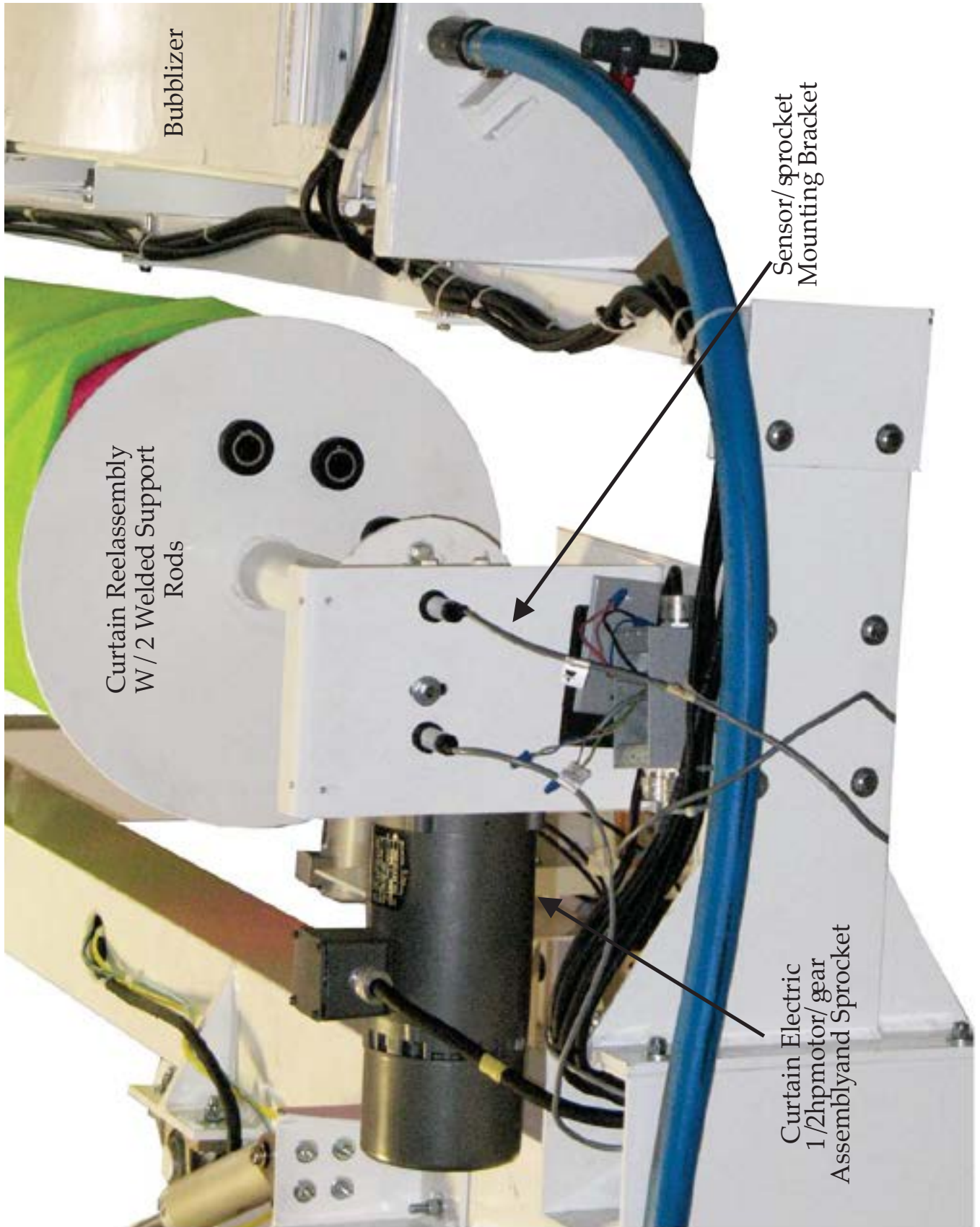


# Top View

Figure 1







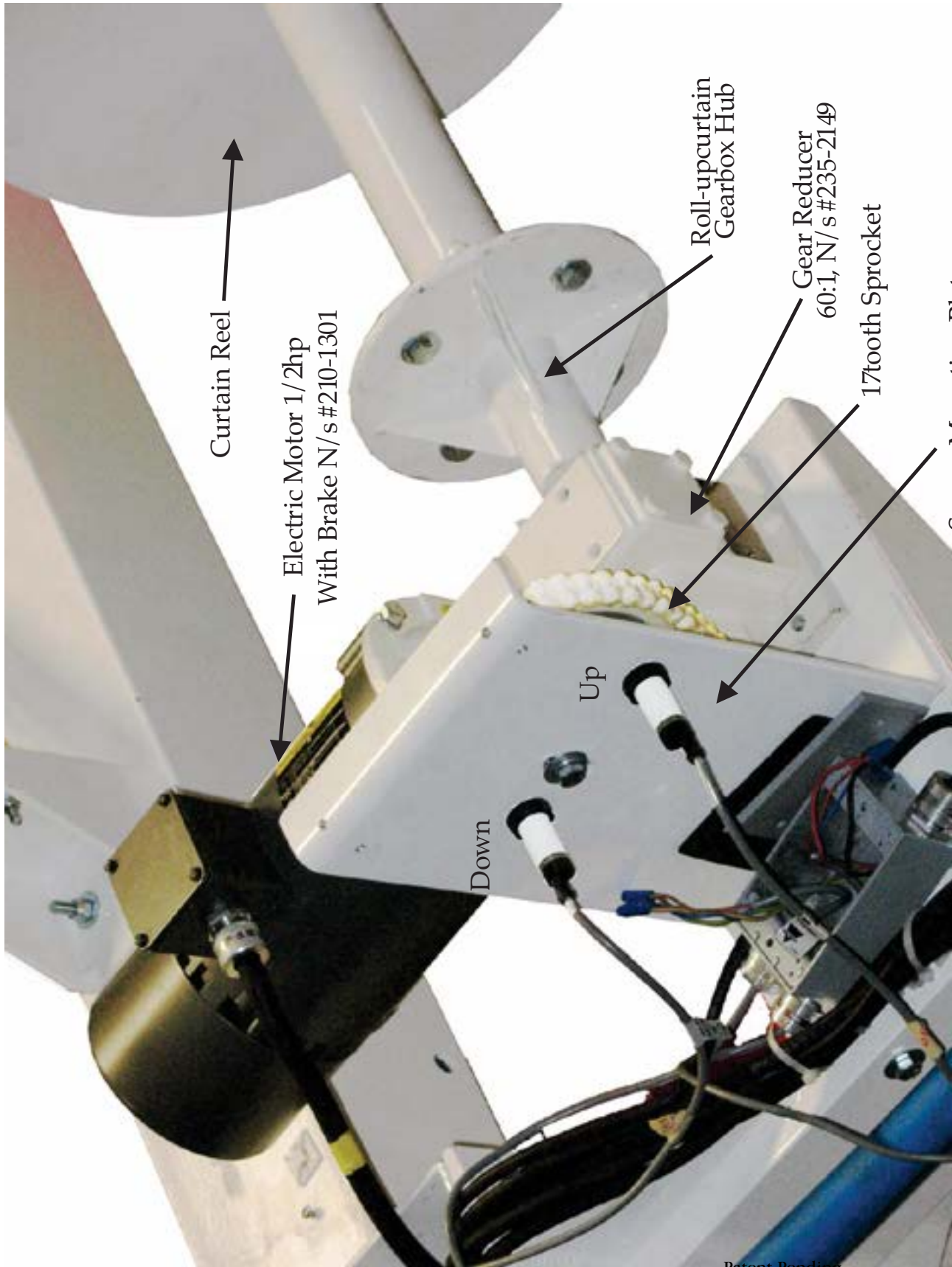
14

Bubbler

Curtain Reelassembly  
W / 2 Welded Support  
Rods

Sensor / sprocket  
Mounting Bracket

Curtain Electric  
1 / 2hp motor / gear  
Assembly and Sprocket



Curtain Reel

Electric Motor 1/2hp  
With Brake N/s #210-1301

Roll-upcurtain  
Gearbox Hub

Gear Reducer  
60:1, N/s #235-2149

17tooth Sprocket

Sensor Mounting Plate  
W/2 Proximitysensors  
N/s #950-0025

Up

Down

15

Patent Pending

# Curtain Positioning

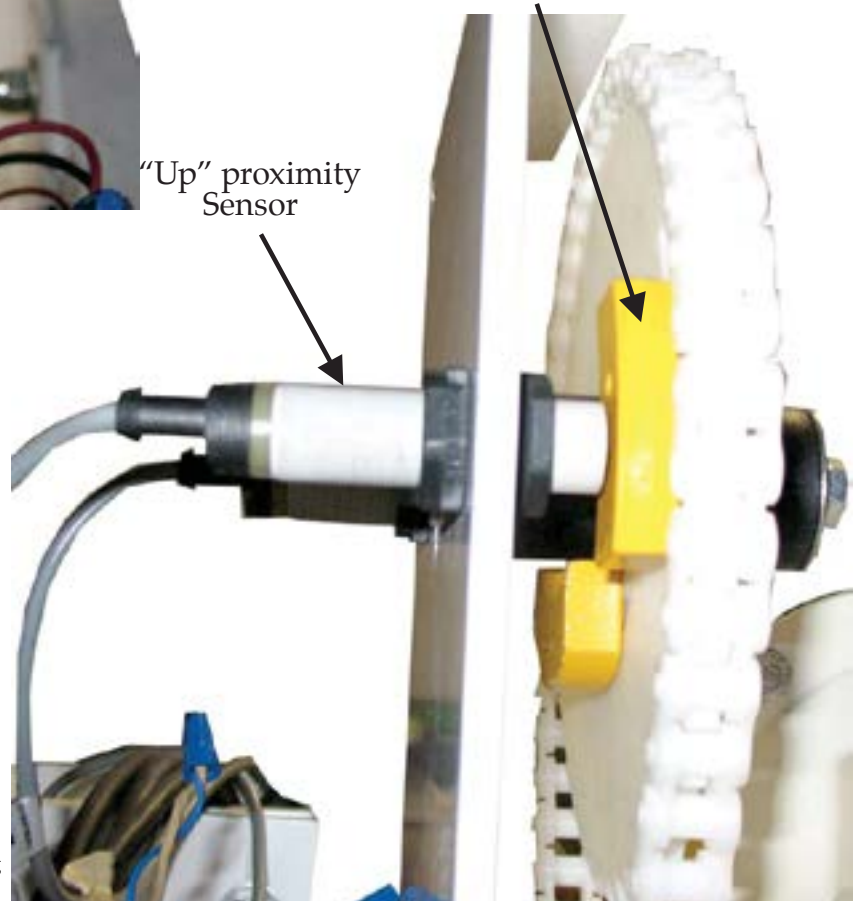
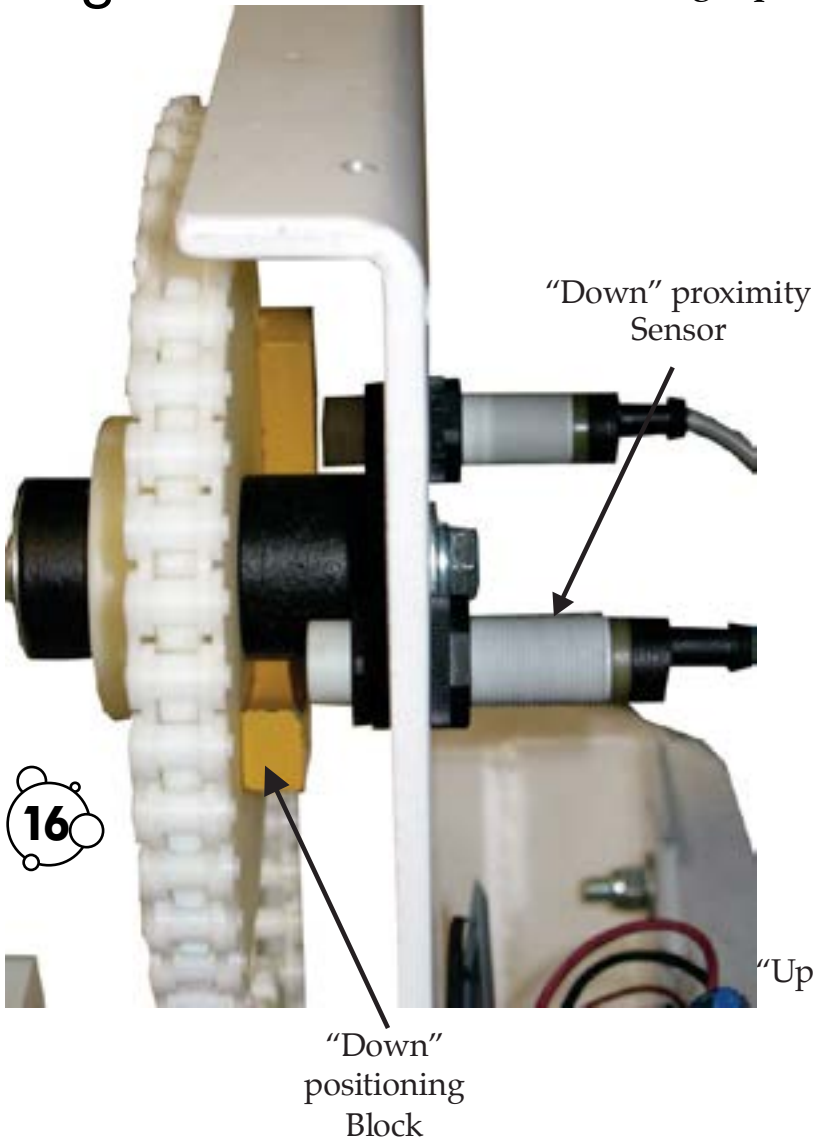


Figure 5

Curtain Positioning “up and “down” Proximity switches

## Note:

*When “down” proximity Sensor and “down” Positioning block are on target, downward Rotation of curtain reel Will stop.*



## Note:

*“Up”curtain Positioning Block Shown in “up”position With Sensor Ontarget. Curtain Reel will stop in Its Upward Movement when this Occurs.*

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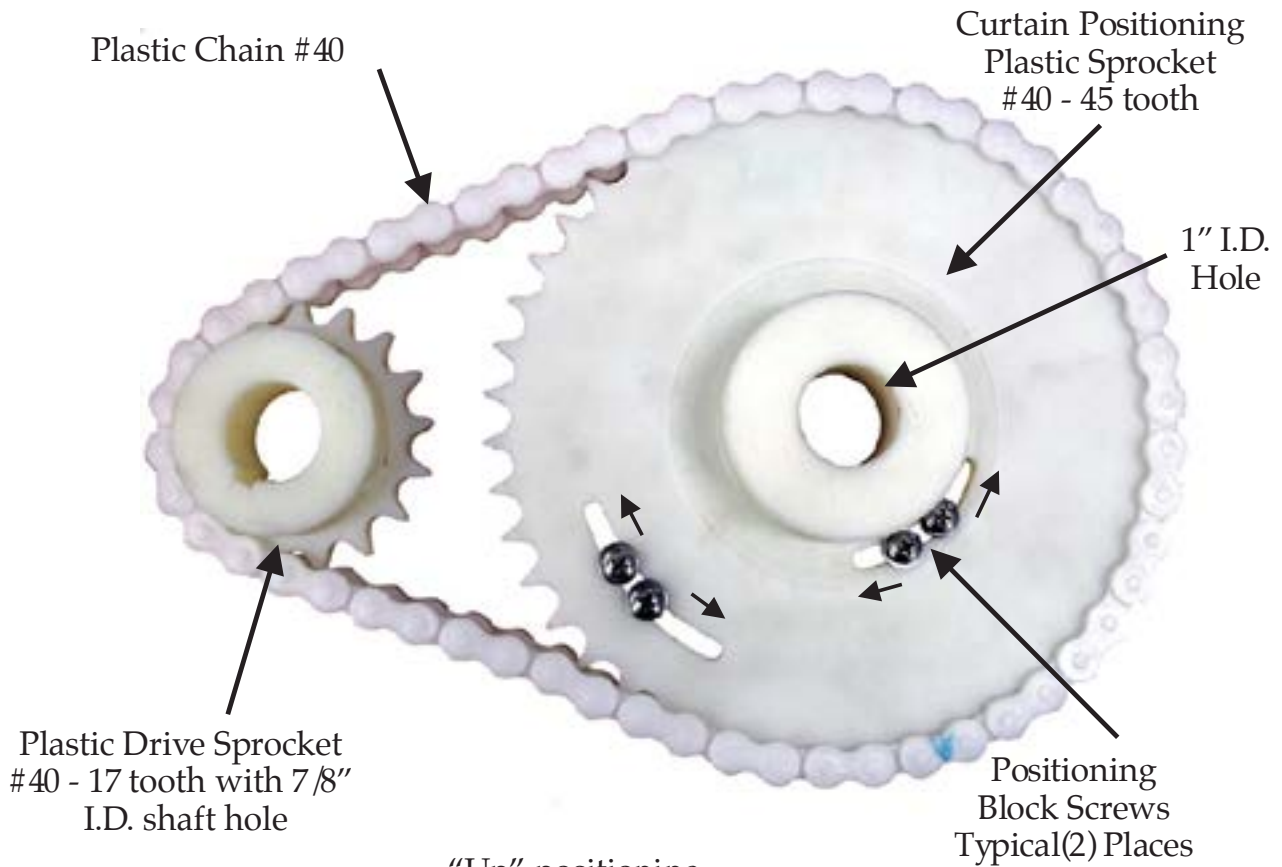
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# Sprockets and Position Blocks

Figure 6

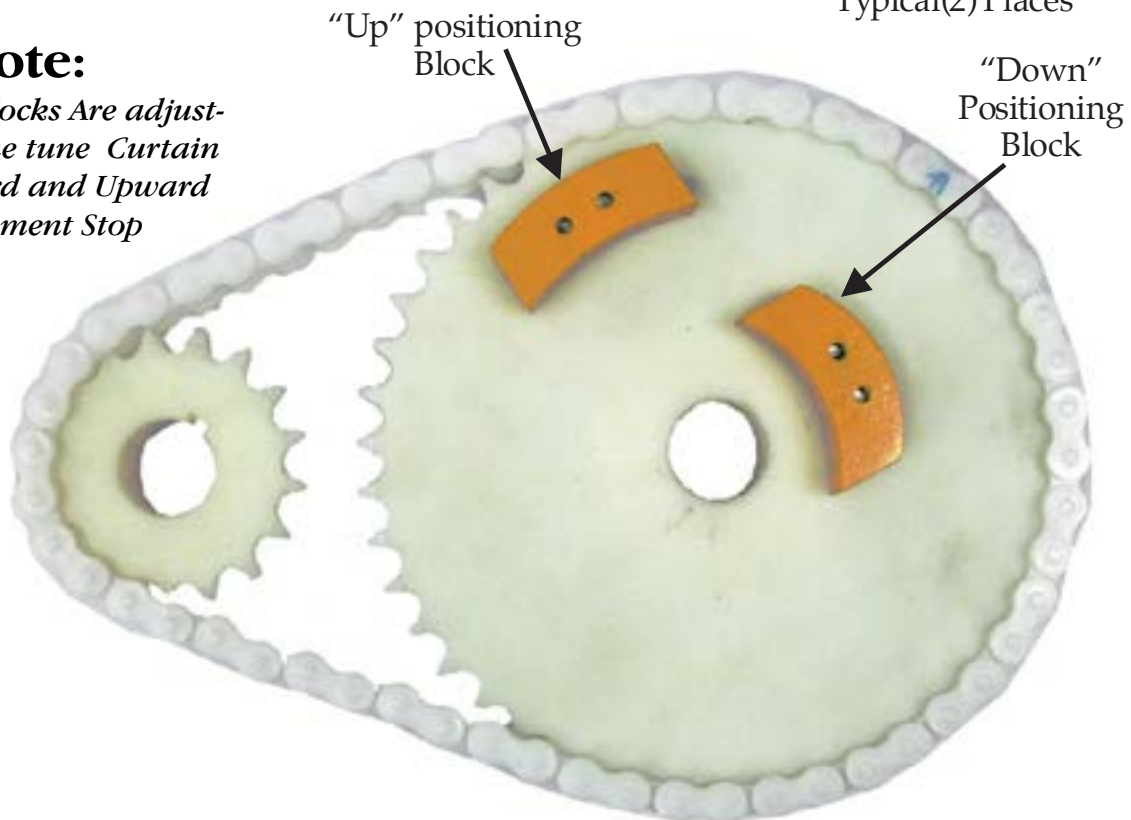
Plastic Sprockets and adjustable position blocks



17

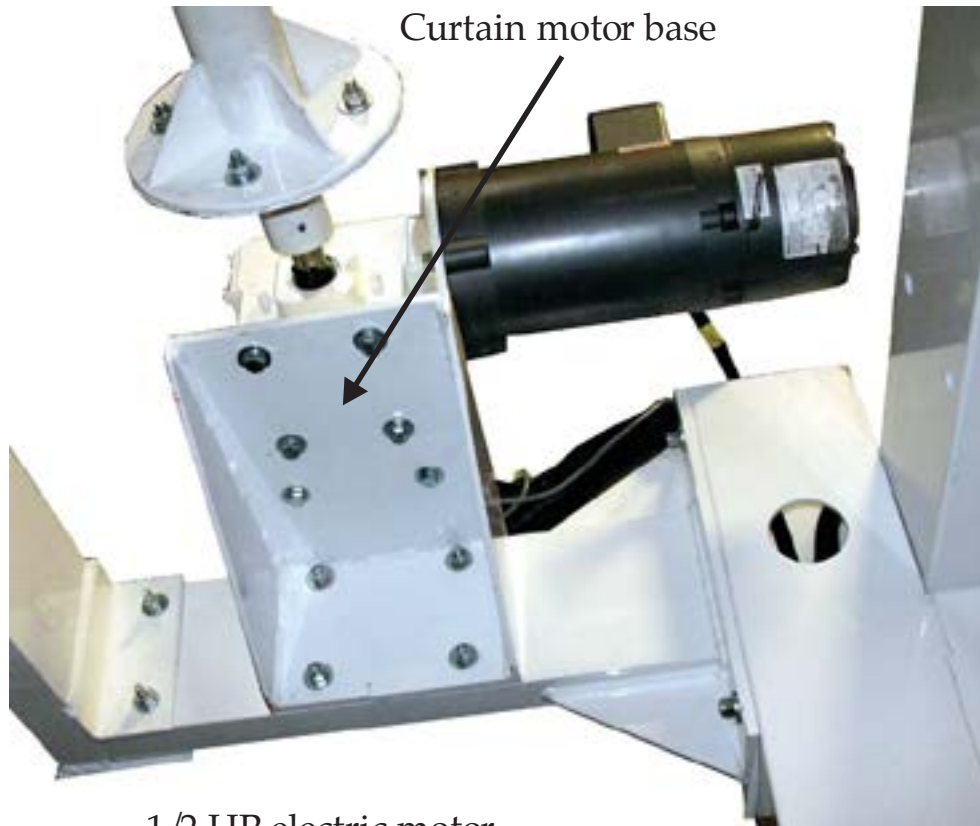
**Note:**

*Position Blocks Are adjustable to Fine tune Curtain Downward and Upward Movement Stop*

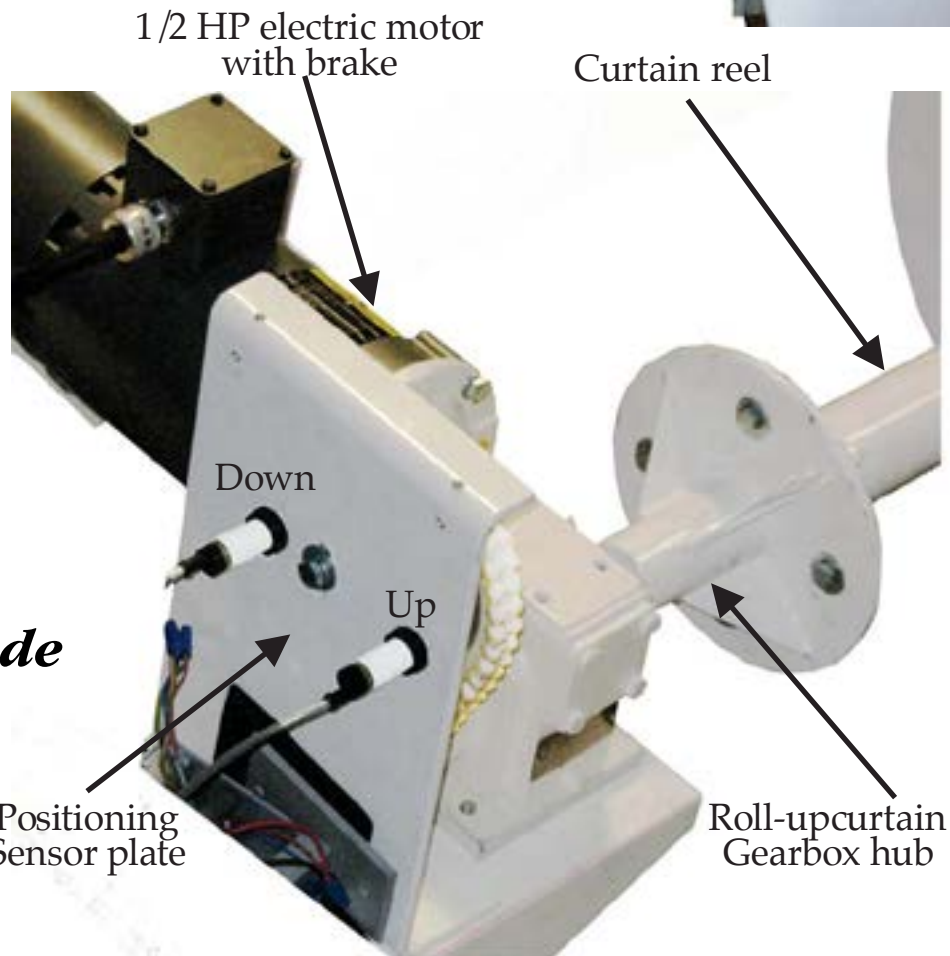


# Gearbox Mounting

Figure 7

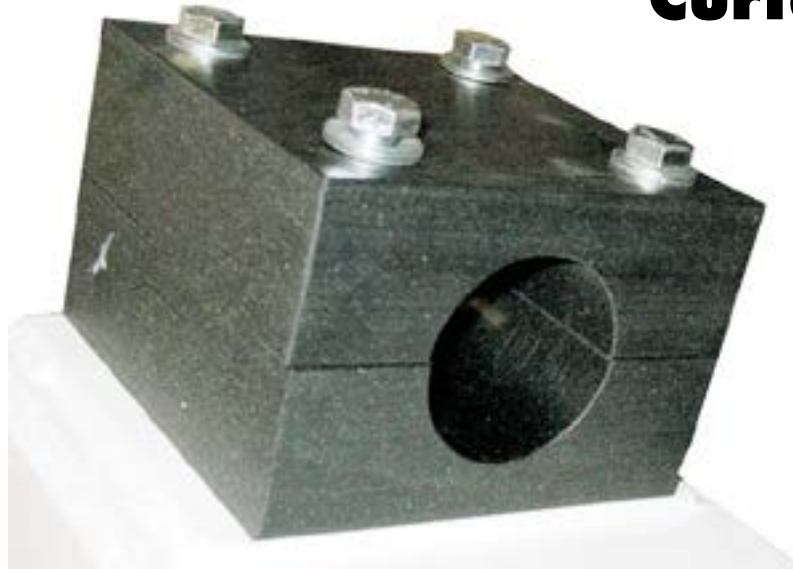


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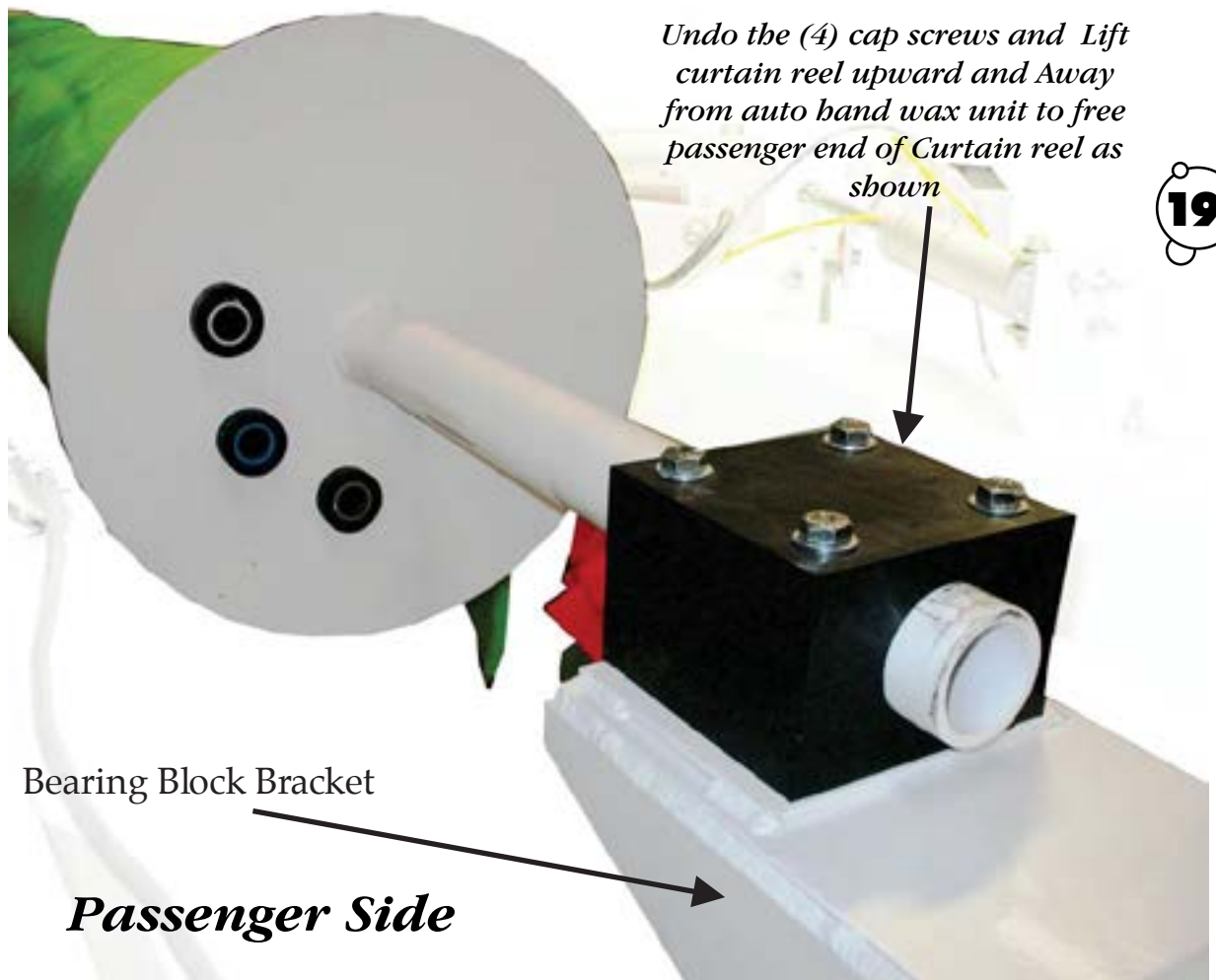


# Curtain Reel

Figure 8

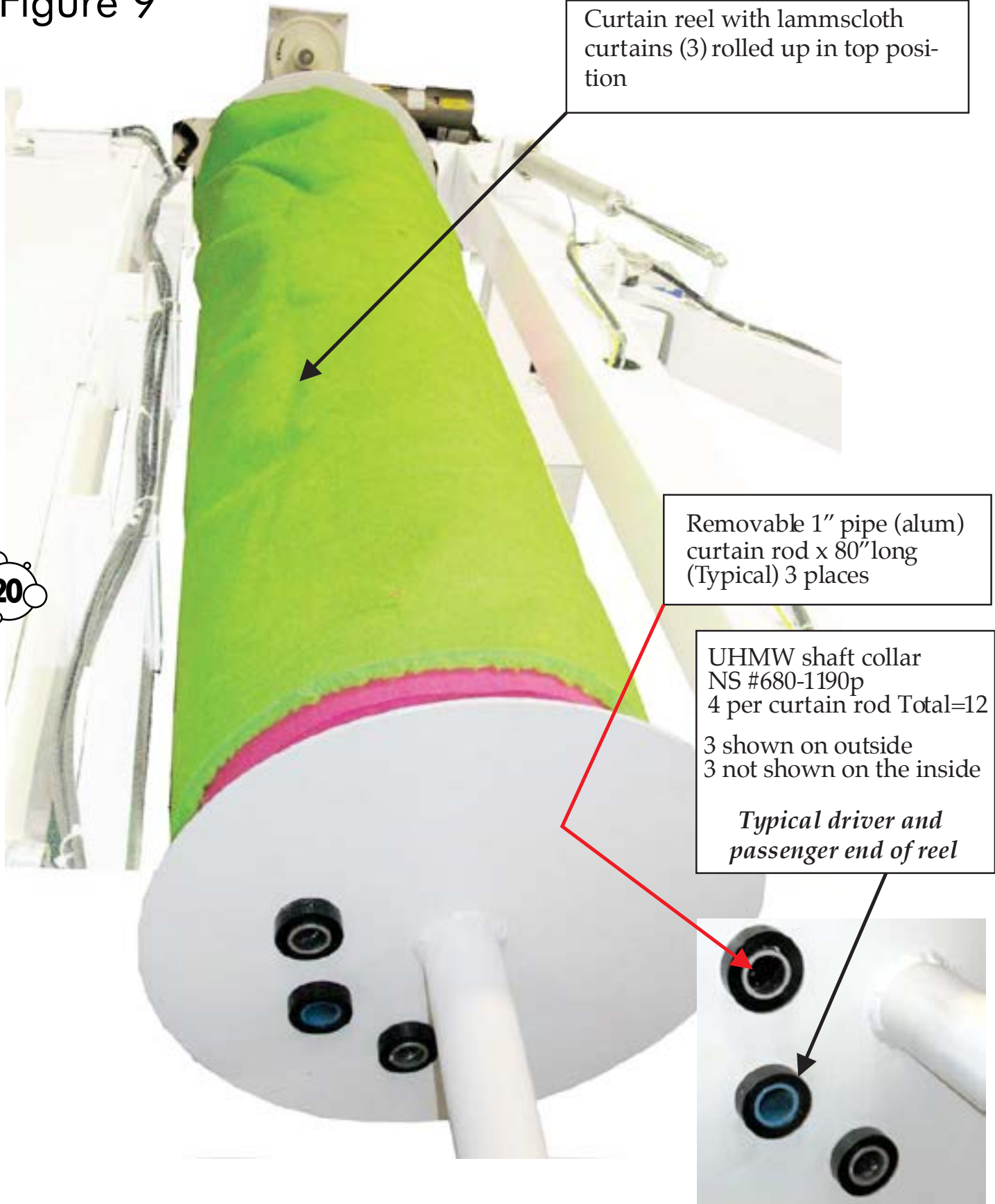


UHMW bearing block  
NS #175-2006



# Curtain Reel Top View

Figure 9



Curtain reel with lammscloth curtains (3) rolled up in top position

Removable 1" pipe (alum) curtain rod x 80" long (Typical) 3 places

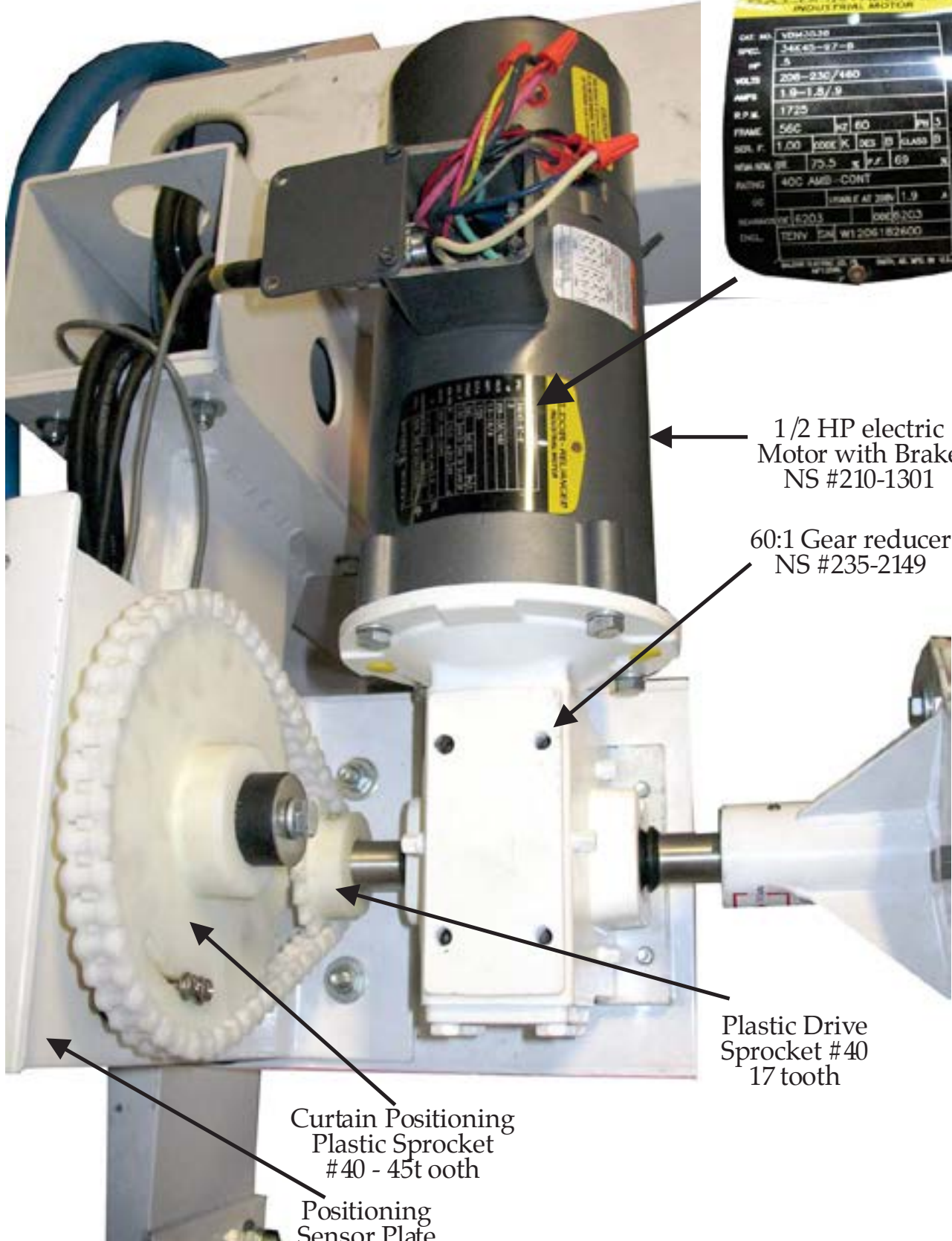
UHMW shaft collar  
NS #680-1190p  
4 per curtain rod Total=12  
3 shown on outside  
3 not shown on the inside

*Typical driver and passenger end of reel*

20

# Roller Call-Up Curtain

Figure 9A



TRALE-CONTR-REL-ANCEP INDUSTRIAL MOTOR				
DEF. NO.	Y0M-0030			
WPC.	34K43-97-9			
HP	1/2			
VOLTS	208-230/480			
AMPS	1.9-1.5/9			
R.P.M.	1725			
FRAC.	56C	HT 60	PH 3	
SER. F.	1.00	100K K	DES B	CLASS D
WEAR ON BE	75.5	% P.F.	69	N
PROT.	40C AMB - CONT			
IG	LIPABLE AT 200 1.9 A			
REVISION	01/2003	06/05/03		
ENCL.	TECH	CM	W1206182600	

1/2 HP electric Motor with Brake  
NS #210-1301

60:1 Gear reducer  
NS #235-2149

**21**

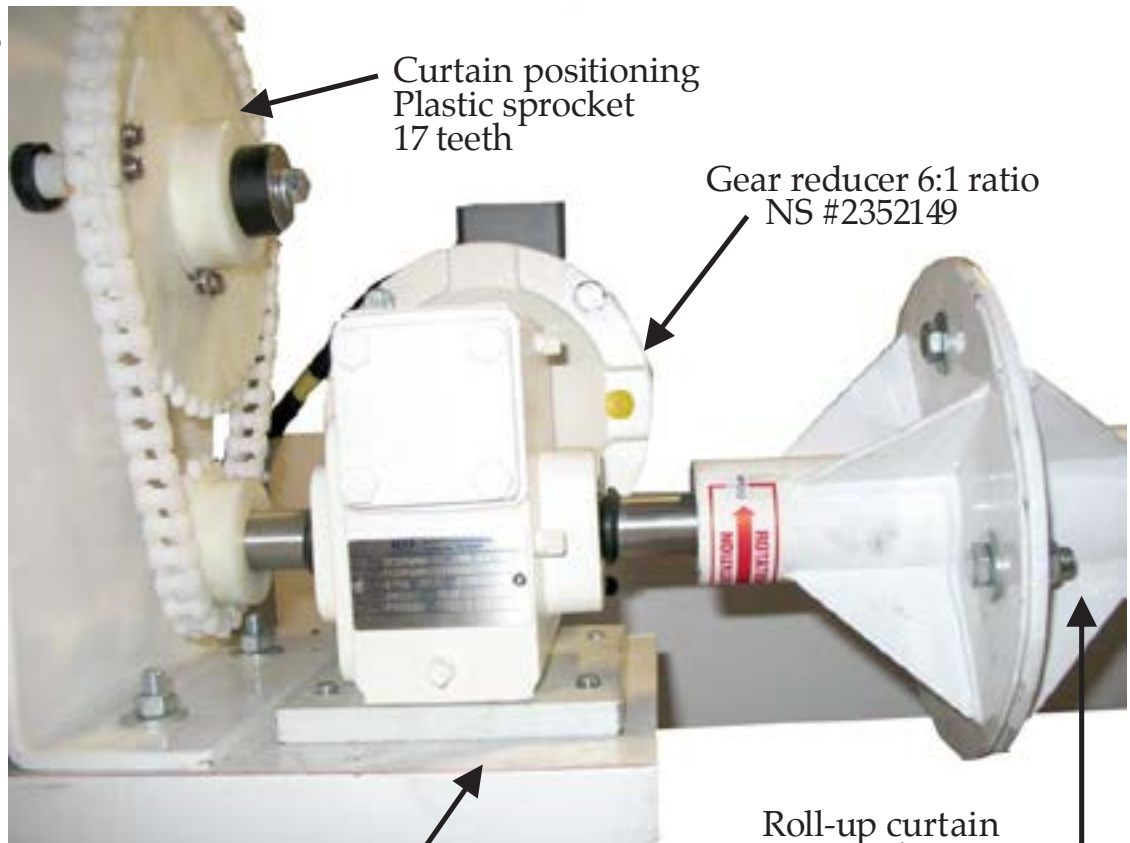
Plastic Drive Sprocket #40  
17 tooth

Curtain Positioning Plastic Sprocket  
#40 - 45t ooth

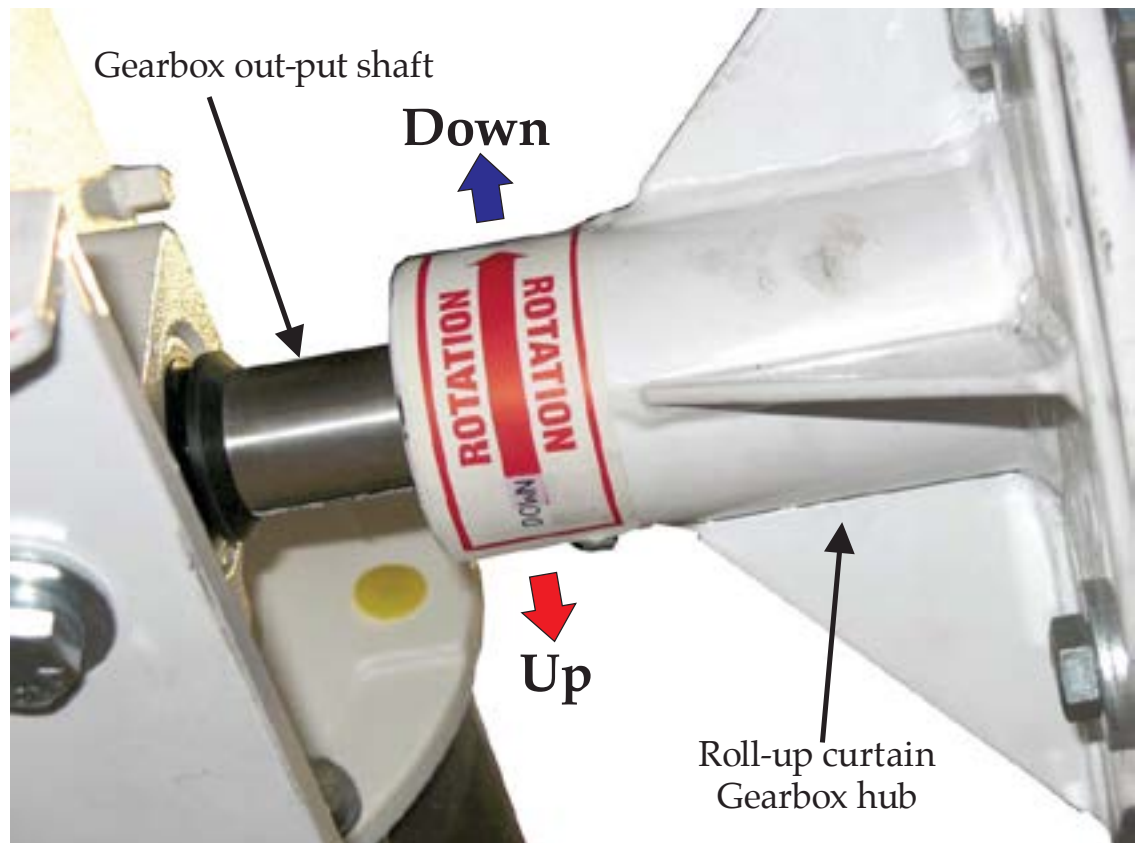
Positioning Sensor Plate

# Gearbox Mounting

Figure 9B



22



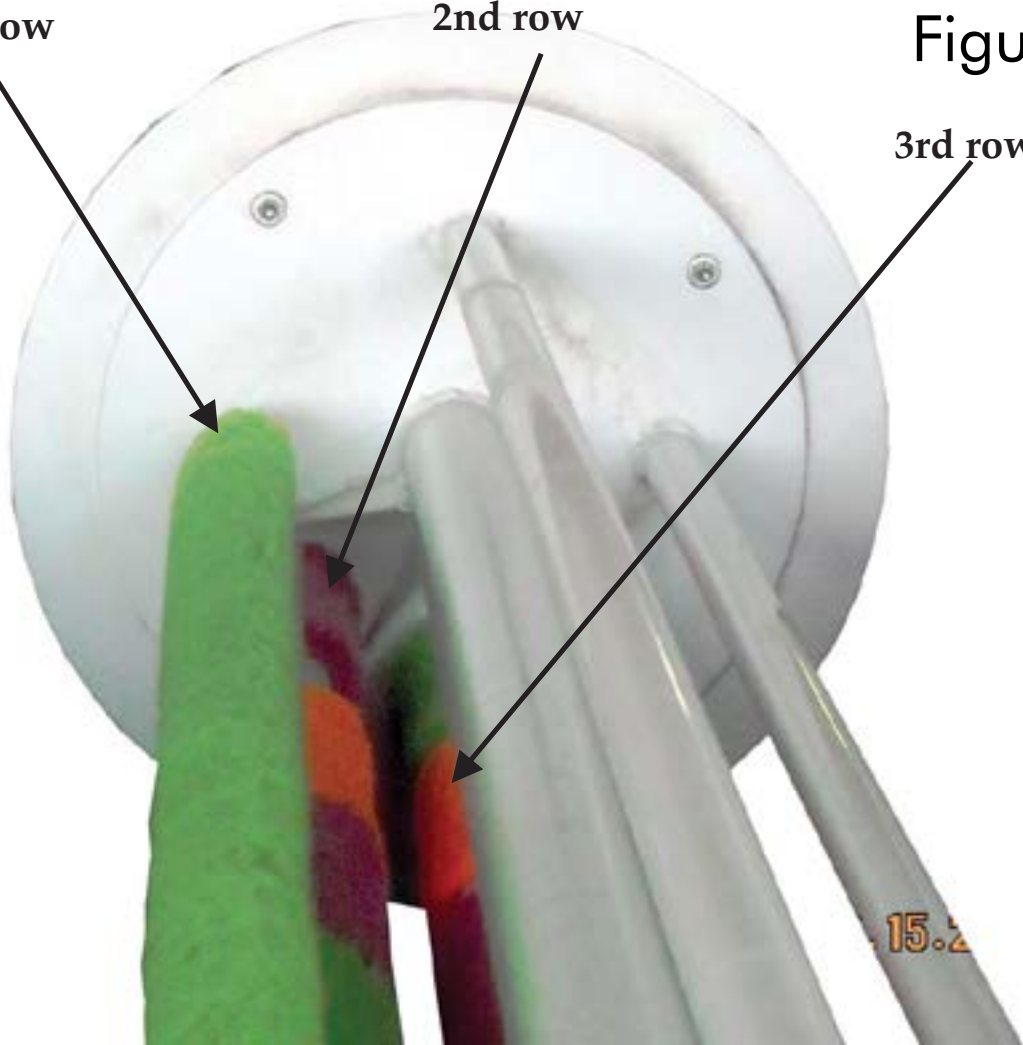
# Curtain Reel Pellets

Figure 9C

First row

2nd row

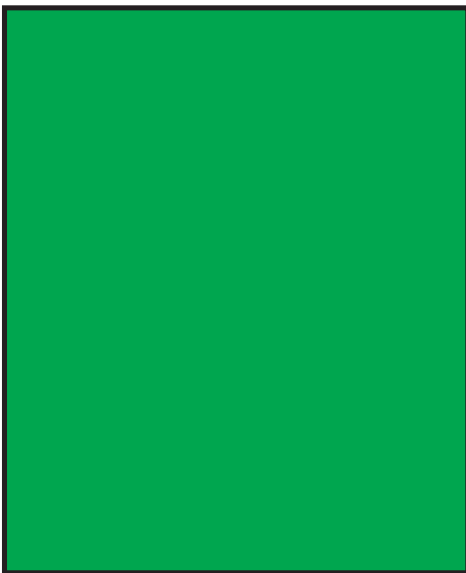
3rd row



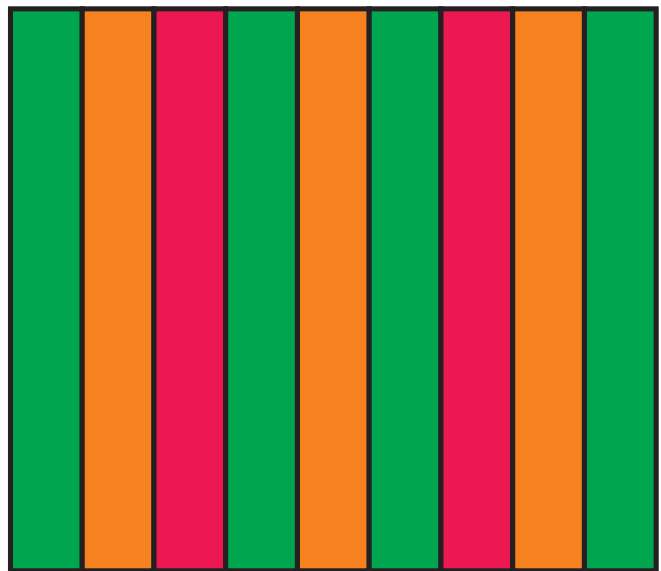
6' width

(9) 8" wide strips

72" Long



First row (solid color)



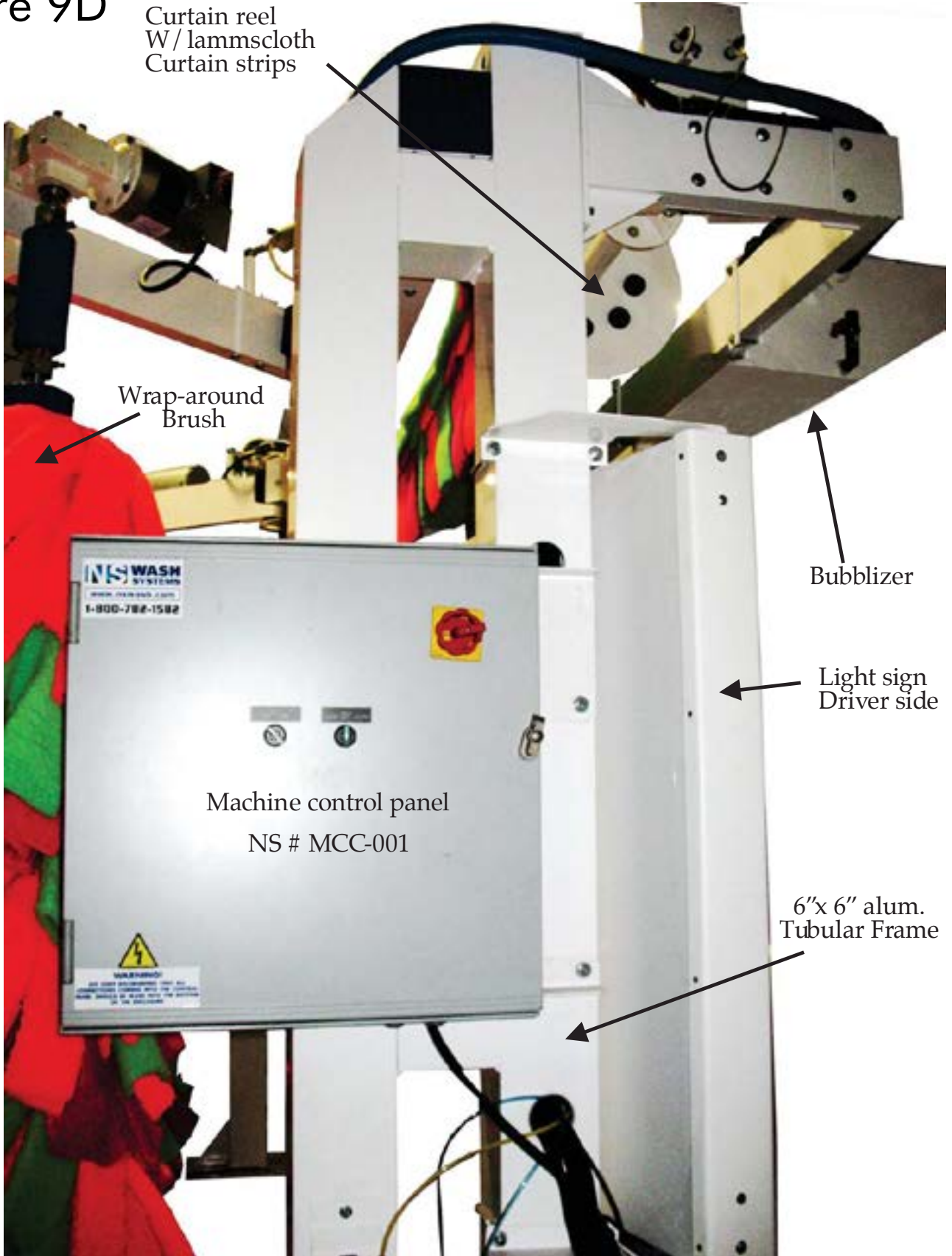
72" Long

2nd & 3rd row (multi colored)

# Driver Side



Figure 9D

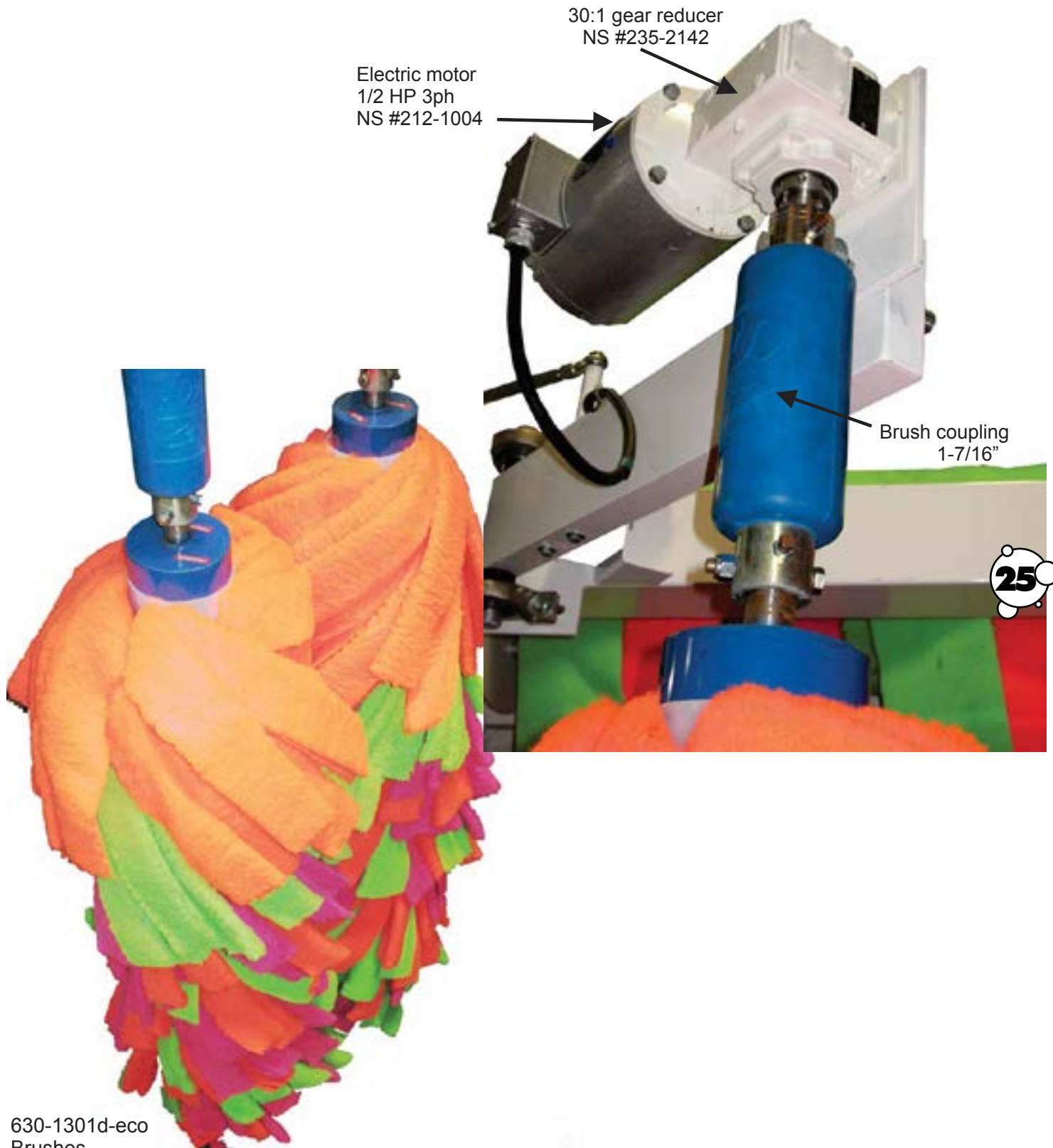


24



# Wrap Around Brush

## Figure 10



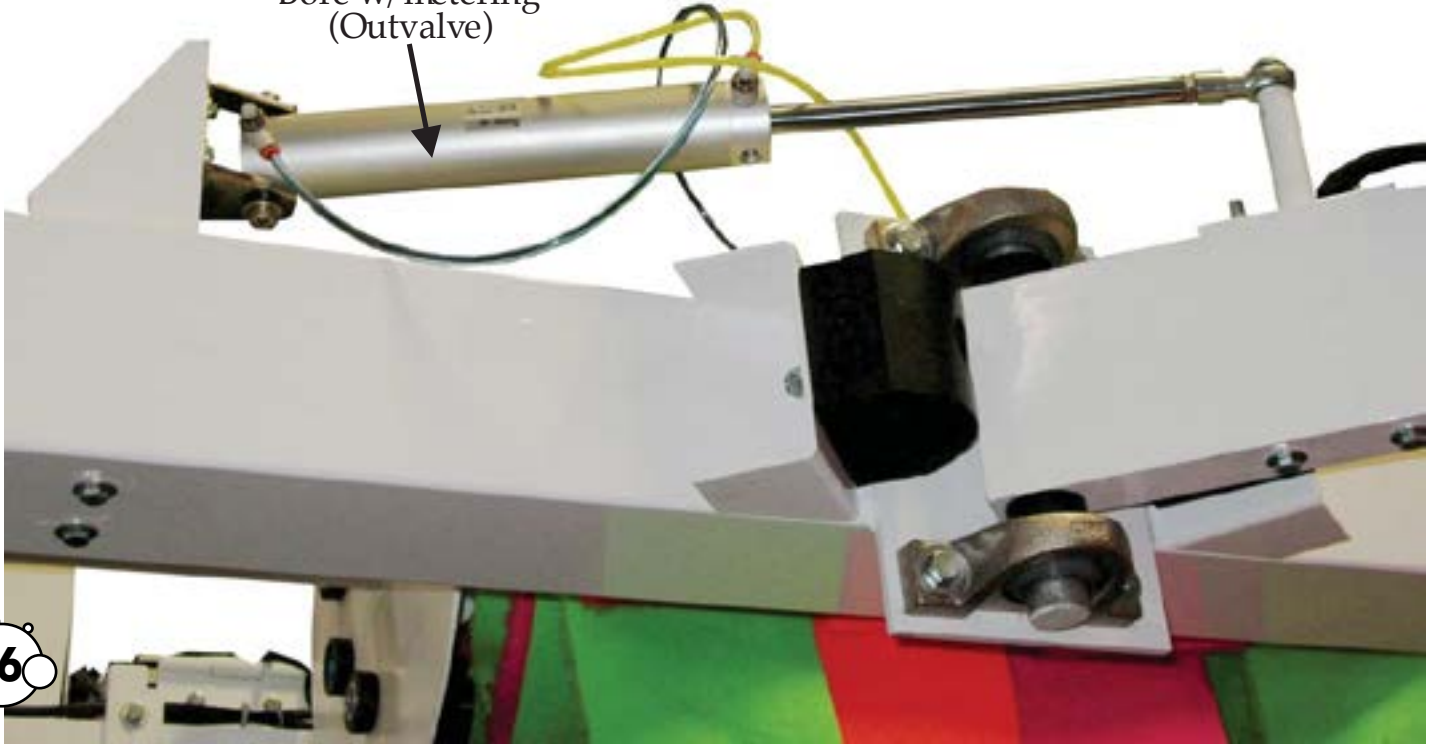
630-1301d-eco  
Brushes  
Multi-colored  
Lammscloth

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# Retract Cylinder

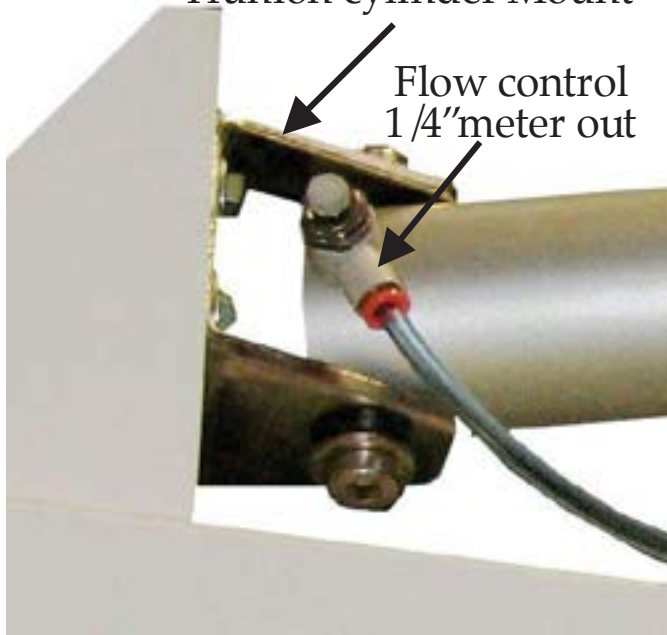
Figure 11

Air cylinder  
10" stroke x 2"  
Bore w/metering  
(Outvalve)



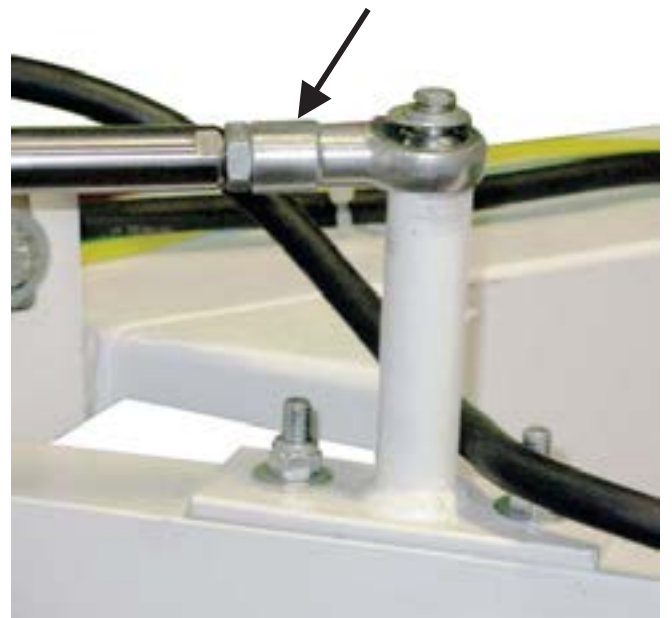
26

Trunion cylinder Mount



Flow control  
1/4" meter out

Rod end bearing  
NS #610-1405





Chemical to  
Bubblizer tank

# Dosing & Air Panels

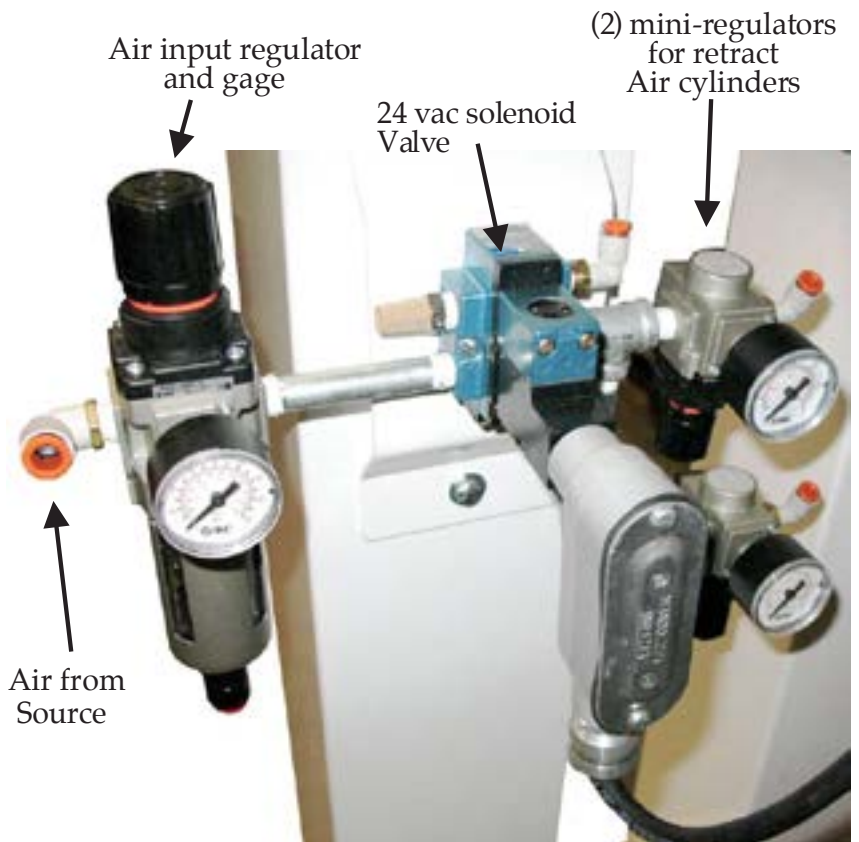
## Figure 12



*Dosing Pump/ Chemical Board*



*Air Retract Panel*



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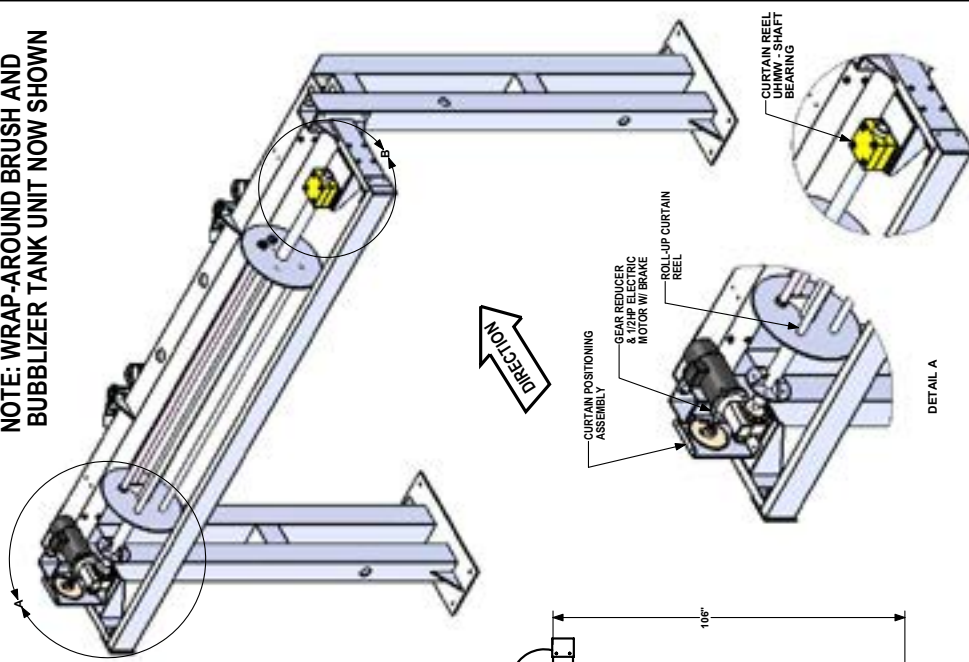
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# Auto Hand Wax

## Layout



NOTE: WRAP-AROUND BRUSH AND BUBBLIZER TANK UNIT NOW SHOWN



DETAIL B

DETAIL A

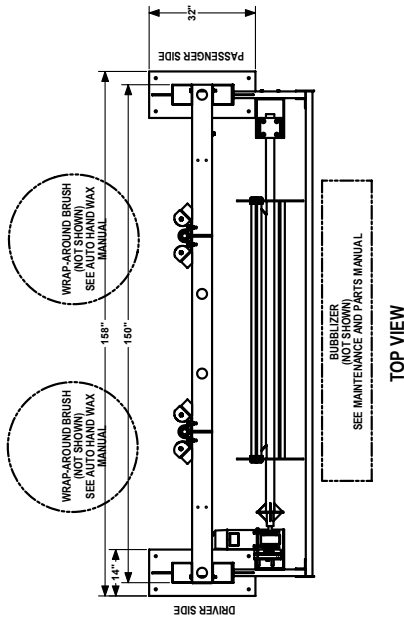
Drawing No. **ASM-01**  
SHEET

TITLE **AUTO HAND WAX MACHINE ROLL-UP CURTAIN FRAME**

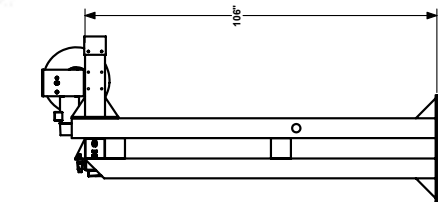
**N/S** CORPORATION

REVISED BY: **RJM**  
DATE: **02/13/13**  
BY: **100730222**

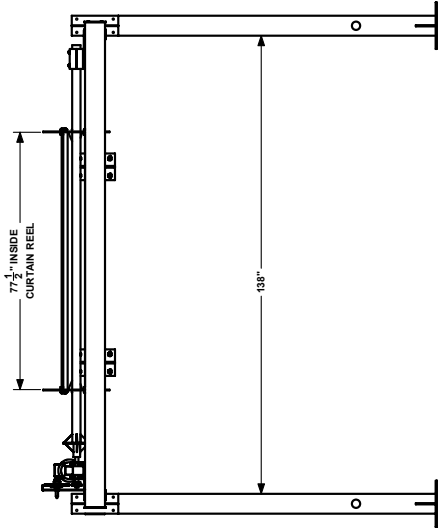
28



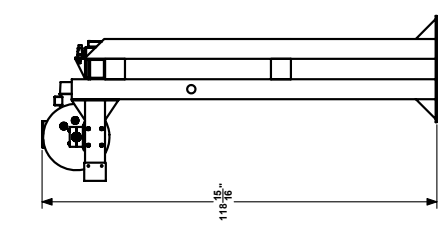
TOP VIEW



DRIVER SIDE



ENTRANCE ELEVATION



PASSENGER SIDE

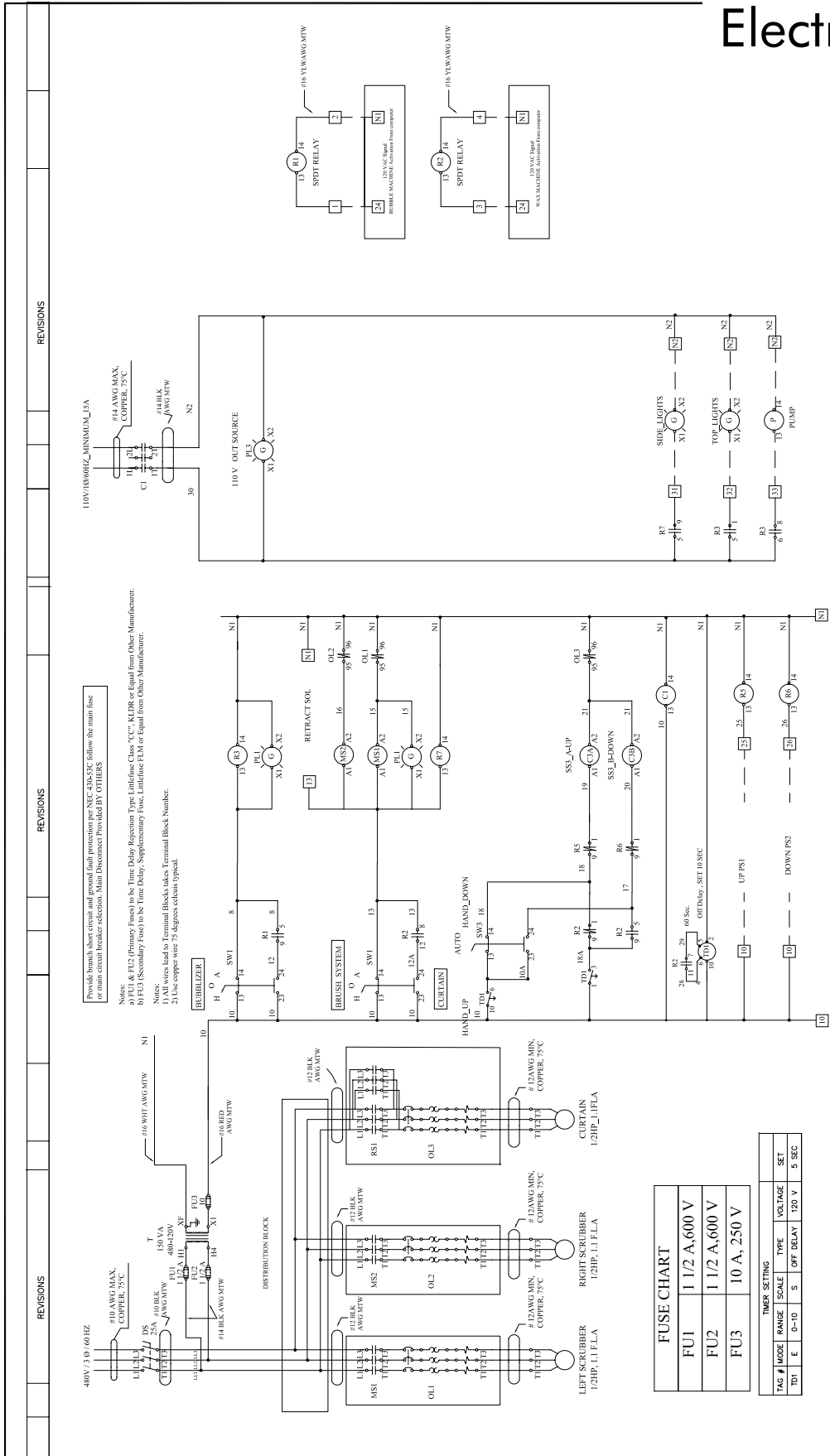
DIMENSIONS ARE IN INCHES  
MATERIAL: **Q355** STEEL  
FUNCTIONALITY: **1.1/4\"** FINISH: **Q355** POWER COIL  
TWO FACE: **1.1/4\"** FINISH: **Q355** FINISH: **Q355**  
THREE FACE: **1.1/4\"** FINISH: **Q355** FINISH: **Q355**

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110V/10/60HZ, MINIMUM 1/4" #14 AWG MAX. COPPER, 75°C  
#14 AWG MTW  
#14 BK AWG MTW

Provide branch short circuit and ground fault protection per NEC 430.53C follow the main fuse or main circuit breaker selection. Main Disconnect Provided BY OTHERS

Notes:  
a) FU1 & FU2 (Primary Fuses) to be Time Delay Rejection Type, Lint/Incase Class "CC", KIDR or Equal from Other Manufacturer.  
b) FU3 (Secondary Fuses) to be Time Delay, Supplementary Fuse, Lint/Incase FLM or Equal from Other Manufacturer.

Notes:  
1) All wires lead to Terminal Blocks takes Terminal Block Number.  
2) Use copper wire, 75 degree column typical.

TAG #	MODE	RANGE	SCALE	TYPE	VOLTAGE	SET
FU1	E	0-10	S	OFF DELAY	120 V	5 SEC.
FU2	E	0-10	S	OFF DELAY	120 V	5 SEC.
FU3	E	0-10	S	OFF DELAY	120 V	5 SEC.

**NS WASH** SYSTEMS

successful manufacturing of vehicle wash equipment since 1967

NS CORP. JOB NO.: 8225  
NS CORP. JOB NAME: JERRY EXPRESS  
NS CORP. PART NO.: CP-AHV-480-4

235 WEST FLORENCE AVENUE  
INGLEWOOD, CALIFORNIA 90301

TELEPHONE: (310) 412-7074  
FAX: (310) 673-0276  
web site: www.nswash.com e-mail: info@nswash.com

Manufactured by  
**NS CORP Corporation**

DR. BY AR DATE 12/10/12  
CHK. BY FT DATE 12/10/12  
APP. BY AR DATE 12/10/12

PANEL\_SCHEMATIC SHEET 1

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## Standard Manufacturer's Limited Warranty

**EXPRESSED WARRANTY:** N/S Corporation's manufactured vehicle wash equipment is guaranteed for one (1) year commencing the first day following installation, or thirty (30) days from the original invoice date, whichever ever occurs first. Equipment not manufactured by N/S Corporation and electrical parts are guaranteed for ninety (90) days. The equipment is guaranteed against manufacturing defects on material and workmanship, which develop in the service for which it was designed, provided that the equipment is installed and used in accordance with all applicable instructions and limitations as issued by N/S Corporation.

Pursuant to the above expressed warranty, N/S Corporation at its sole discretion, will repair goods or replace defective materials, free of charge excluding labor, provided that such goods or materials are returned as specified by N/S Corporation and found to be defective based upon N/S Corporation's inspection process. This limited warranty is non-cumulative.

N/S Corporation does not warrant: (1) labor; (2) transportation, charges, which shall be submitted to the carrier of damaged product; (3) installation, adjustment, or other expenses which may arise in connection with such equipment or parts; (4) site related/ operation based problems; (5) damage due to accident; (6) damage due to misuse, negligence, or overloading; (7) lack of proper maintenance; (8) maintenance items, including but not limited to lubricating grease/oils, filters, cloth, materials, bearings, rollers, etc; (9) nor any items therein which show signs of neglect. Repairs and service provided by unauthorized N/S personnel voids warranty.

**LIMITED LIABILITY:** N/S Corporation shall not be liable (1) for any incidental, special, consequential, or exemplary damages; (2) for commercial loss; (3) for inconvenience; or (4) for any service not expressly provided for herein related to or arising from the vehicle wash equipment. N/S Corporation makes no further warranties and no implied warranties of merchantability or fitness for a specific purpose.

***All terms and conditions apply unless otherwise specified in the contract. This warranty given in lieu of all other expressed warranties on the part of the Manufacturer, Distributors, or Dealers. No Dealer or Distributor (nor any agent, representative or employee thereof) is authorized to extend or enlarge this warranty.***

If there are any questions regarding these procedures or you need additional assistance, please contact our **Director of Customer Service at (310) 330-1250.**

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**1** Before commencing any warranty work, the N/S Customer Service Department must be contacted and advised that a problem was encountered, which location, and an estimate must be given for any labor cost. The Customer Service Department will then advise the customer as to what action is to be taken.

**2** If replacement parts are required, the Customer Service Department will advise the customer where the needed parts can be obtained.

**3** All of parts supplied under warranty will be shipped via UPS ground by N/S Corporation. If a more expeditious means are requested, the customers will incur the extra charges.

**4** Returned Good Authorization (RGA) will be issued by the N/S Customer Service Department at the time that credit for the replacement parts is requested. All parts returned under an RGA number must be returned within 20 days, freight prepaid and the RGA number must be plainly visible on the outside of the packaging.

**5** No Credit will be issued for motors or reducers that do not have the original name plates affixed.

**6** If there are any questions regarding the clarification of these procedures, this may be directed to the N/S Director of Customer Service at (800) 782-1582



*235 West Florence Avenue  
Inglewood, California 90301*

**1-800-782-1582**

*Parts or Service  
800-245-0350  
310-330-1206  
310-412-2367 fax*