

A Division of M.J.Electric, Inc.  
P.O. BOX 788, IRON MOUNTAIN, MICHIGAN 49801-0788

# RT3 POWER-V BLADE WITH SMART HITCH™ OWNER'S MANUAL

## TABLE OF CONTENTS

Warnings .....	2
Introduction .....	3
Snowplow Operation .....	4
Tips on Plowing Snow .....	5
Snowplow Mounting Procedure .....	6
Snowplow Removal Procedure .....	6
Maintenance .....	7
Putting Plow into Storage .....	7
Taking Plow out of Storage .....	7
Recommended Push Beam Height .....	8
Hydraulics Valve Manifold Parts List .....	9
Wiring Diagram .....	10
Wiring Schematic .....	11
Assembly Drawing .....	12
Parts List .....	13
Recommended Bolt Torque .....	17
Troubleshooting Guide .....	18
Warranties .....	24

### PATENTS

1. U.S. Patent No. 4,074,448
2. U.S. Patent No. 4,658,519
3. U.S. Patent No. 5,568,694
4. Other Patents Pending

BOSS Products / M.J. Electric, Inc. reserves the right under it's continuous product improvement policy to change construction or design details and furnish equipment when so altered without reference to illustrations or specifications used herein.

***PUTS SNOW IN ITS PLACE***

**WARNING**

Many newer trucks are equipped with air bags. DO NOT under any circumstances disable or remove or relocate any sensors or other components related to the operation of the air bags.

**WARNING**

Always follow the vehicle manufacturers recommendations relating to snowplow installation. For recommended vehicle models refer to the Boss Snowplow Application Chart and Selection Guide.

**WARNING**

Vehicles equipped with air bags are designed such that the air bags will be activated in a frontal collision equivalent to hitting a solid barrier (such as a wall) at approximately 14 mph or more, or, roughly speaking, a frontal perpendicular collision with a parked car or truck of similar size at approximately 28 mph or more. Careless or high speed driving while plowing snow, which results in vehicle decelerations equivalent to or greater than the air bag deployment threshold described above, would deploy the air bag.

**WARNING**

Make sure plow is properly attached before moving vehicle.

**WARNING**

When transporting, Position plow so as not to block vision or plow headlights.

**WARNING**

DO NOT change blade position when traveling.

**WARNING**

DO NOT exceed 40 mph when transporting plow.

**WARNING**

Do not exceed 14 mph when plowing.

**WARNING**

Always lower blade when vehicle is not in use.

**WARNING**

Read this manual carefully before operating this snowplow.



## **A TIMELY REVOLUTION.**

Congratulations on purchasing the finest snowplow made. The BOSS sets the standard for quality, reliability, craftsmanship, and performance. Our products are designed, built, and proven in Michigan's rugged Upper Peninsula, where winter is a way of life. And we back it all up with exceptional customer service and satisfaction. We're not just setting the standard. We're leading the way.

The BOSS SNOWPLOW has been carefully designed and built for years of carefree performance. Equipped with the exclusive SmartHitch™ automatic removable mount system, the BOSS can be attached or removed in seconds. Effortlessly. For safety the BOSS uses complete full mold board trip action. In addition, automatic cylinder pressure relief is built in to prevent damage by overstress. With a high strength steel Push Frame, and Blades with high strength Bottom Channel and Boxed Section Moldboard, the BOSS will stand up to the most severe plowing conditions.

To keep your BOSS SNOWPLOW in top condition, take a few minutes to study this manual. It will show you how to use and service the BOSS, familiarize you with all of its parts, and give you helpful hints on plowing snow.

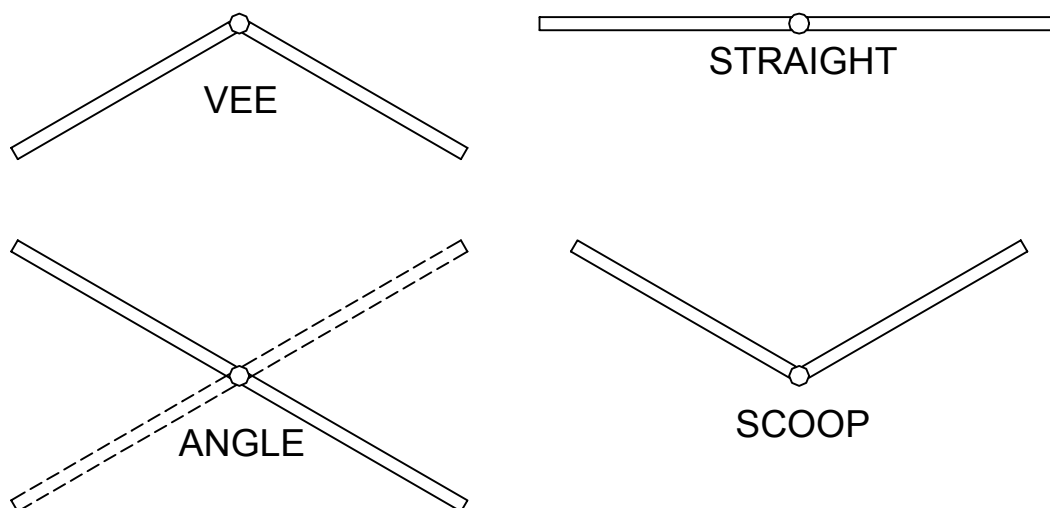
If you have further questions, your local BOSS PLOW DEALER is the person to talk to. They know your plow well and want your complete satisfaction.

## Snowplow Operation

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After a few minutes of practice, you will be operating the controls without a second thought. You can adjust the hinged blade of the BOSS SNOWPLOW to any of the positions shown below or any degree of these positions. When will you want to use each of these positions? Here are some guidelines:

- VEE:** For making a first pass through heavy snow or large drifts. Ideal for slicing a lane through long driveways or punching through banks left by city or county plows. Because the snow load is equally distributed on both sides of the Vee, your truck is not pushed or pulled sideways as with conventional blades.
- ANGLE:** For widening roads and driveways where you want to push the snow off to the side. This and the straight position are not effective for carrying large amounts of snow forward, as the snow tends to dribble off in windrows.
- STRAIGHT:** Used for back blading. Example, you can remove snow from the edge of a building by raising the blade, driving up to the building, dropping the blade and then backing up.
- SCOOP:** For clearing parking lots or large areas where snow must be carried away, not merely pushed aside. Snow piles up in the center so that the plow can carry up to three times the volume of snow as it can in the straight position.



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**Figure 1.** Snowplow Positions.

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## ***Tips On Plowing Snow***

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With a little experience, you will develop your own methods for plowing snow and know exactly which plow position to use for each pass. Here are some things to keep in mind.

### **OBSTRUCTIONS:**

Make sure you know where bumper stops, curbs, fire hydrants, fences, pipes, etc. are hidden. If necessary, mark them with flags to avoid possible damage to your plow or vehicle. It will be very hard to see these obstructions after it snows.

### **HEAVY SNOW:**

Use the VEE position to make your first cut through heavy drifts or banks. Then use the scoop or angle positions to widen the cut, shearing off as much as you can handle on each pass. In very deep snow, you may have to raise the blade slightly and shear off the top layer first.

### **WET SNOW:**

Once you've begun, finish the job. Wet snow left in windrows overnight can freeze into rock solid obstructions by morning.

### **PARKING LOTS:**

Depending on snow depth, you may choose to make several sweeps with the blade angled and then pick up the windrow with the blade in the scoop position, or do the entire job in the scoop position.

### **AROUND BUILDINGS:**

Where necessary, back blade snow away from buildings. Put the blade in the straight position, raise it and drive to the building, then drop the blade and back up.

### **MANEUVERING IN TIGHT PLACES:**

Raise the blade and put it into the Vee position. This gives you much more clearance to maneuver.

### **ENGINE OVERHEATING:**

Occasionally, the plow may be in a position where it cuts off airflow to the radiator. While this is a rare occurrence, it can usually be corrected by raising or lowering the plow slightly.

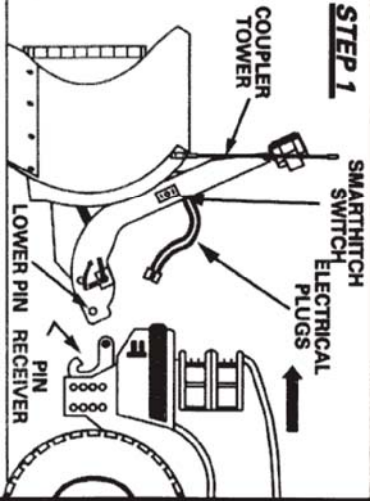
### **PARKING:**

Always lower the blade when parking your vehicle. This reduces the load on your vehicle's springs and guards against any potential mishap caused by a plow falling.

# Snowplow Mounting Procedure

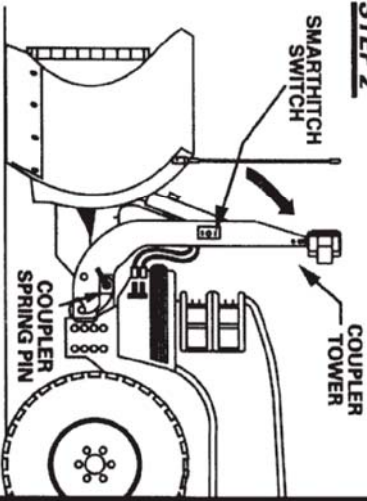
## SNOWPLOW MOUNTING

### STEP 1



- Line up the vehicle with the snowplow and drive straight in until the lower pin contacts the push beam pin receiver.
- Remove the electrical plug dust covers. Connect the electrical plugs, turn spring pins 1/2 turn clockwise, and turn the Smart Hitch switch on.

### STEP 2



- Press the raise button on the in cab control until the coupler tower is raised and the spring pins snap in.
- Check that both spring pins have fully engaged the coupler. **SEE CAUTION INSERT.** Move the coupler tower to align spring pins with the pin receiver holes until both pins engage completely.
- Turn the Smart Hitch switch down to the Raise Plow position.



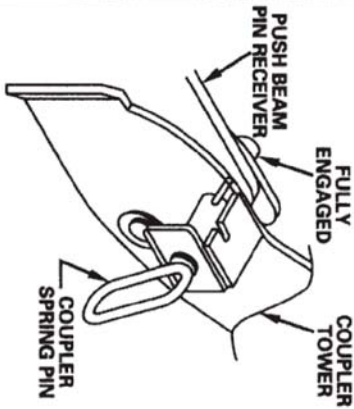
SNOWPLOW

RT3 POWER

Smart Hitch

MOUNTING INSTRUCTIONS

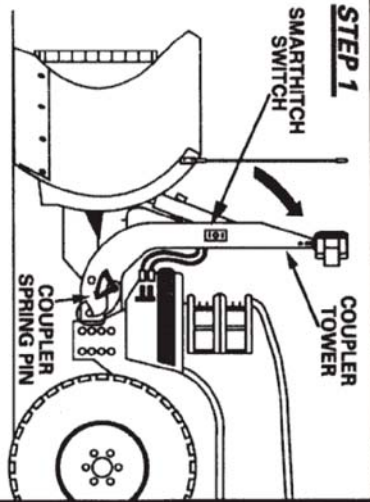
## CAUTION



**BOTH COUPLER SPRING PINS MUST BE FULLY ENGAGED. FAILURE TO COMPLETELY ENGAGE BOTH SPRING PINS MAY RESULT IN PERSONAL INJURY AND PROPERTY DAMAGE.**

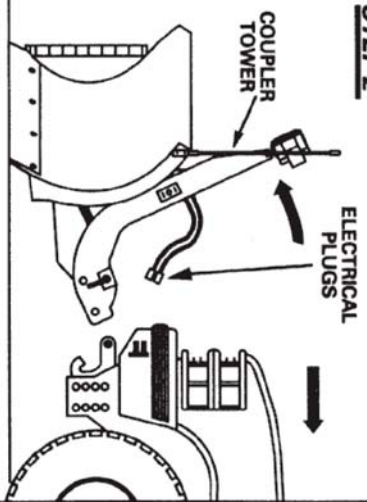
## SNOWPLOW REMOVAL

### STEP 1



- Lower the plow with both wings retracted to the Vee position. Turn the Smart Hitch switch to the top position, and press the raise button on the in cab control until the coupler moves toward the truck and release tension on the spring pins.
- Pull the coupler spring pins outward and rotate to the opened position. Turn the Smart Hitch switch to the down position.

### STEP 2



- Press the raise button on the in cab control until the coupler tower completely lowers to the plow.
- Disconnect the electrical plugs and install the electrical plug dust covers.
- Back away from the snowplow slowly.

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## ***Maintenance***

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Your BOSS SNOWPLOW is designed for heavy-duty, rugged service with minimal maintenance. To ensure that it gives you the same high performance year after year, use it properly and observe the following maintenance precautions.

Inspect the following on a regular basis:

- All fasteners, pins, retainers, nuts and bolts for tightness. See Recommended Bolt Torque Chart (Figure 8).
- All hydraulic lines and connections for wear and leakage.
- Hydraulic cylinders for leakage, rods for rust and pitting.
- Cutting Edge wear.
- Plow Shoe wear.
- Hydraulic oil level. Fill hydraulic pump reservoir to within  $\frac{3}{4}$ " from the top of the reservoir. Fill the reservoir with BOSS High Performance Hydraulic Fluid or equivalent.
- Control Harness and Power/Ground Cable Connectors for corrosion. Apply dielectric grease at least once a month during the plow season.
- Apply grease to the coupler spring pins and center hinge pin

## ***Putting Plow into Storage***

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1. Drive the Snowplow to a storage site. Follow the normal procedure for dismounting the plow from the truck.
2. Disconnect all electrical plugs and coat each connection with dielectric grease. Clean and install all dust caps and plugs.
3. Touch-up any rust spots or chipped paint.
4. Grease the coupler spring pins and center hinge pin.
5. Make sure both angle cylinders and lift cylinder are completely compressed. This will protect the cylinders from corrosion.

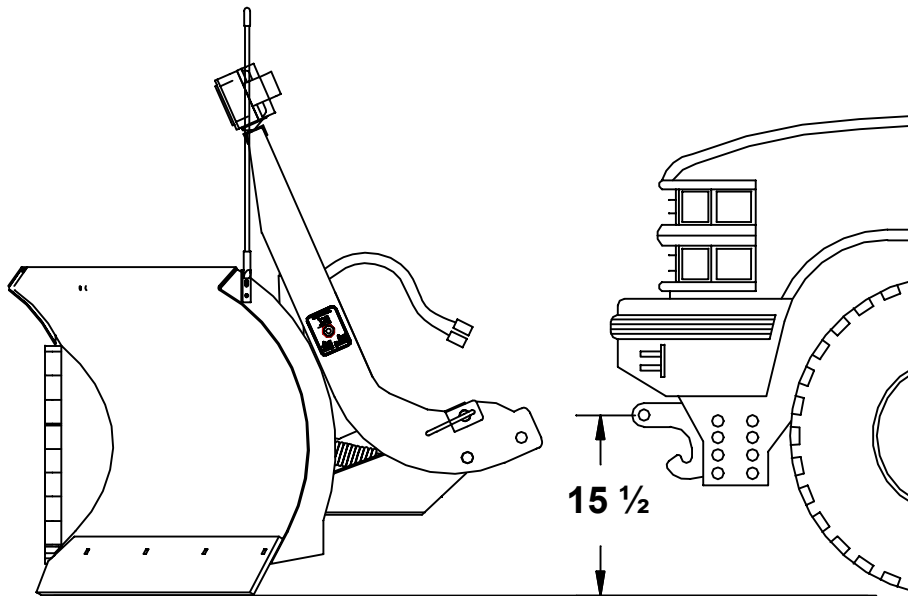
## ***Taking Plow Out of Storage***

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1. Check all fasteners for tightness. See Recommended Bolt Torque Chart (Fig. 8).
2. Check hydraulic hoses for any cracks and leaks.
3. Check hydraulic fluid level. Fill hydraulic pump reservoir to within  $\frac{3}{4}$ " from the top of the reservoir. Fill the reservoir with BOSS High Performance Hydraulic Fluid or equivalent.
4. Coat each electrical connection with dielectric grease (lights, valve assembly, pump, pump solenoid, and battery).
5. Grease the coupler spring pins and kickstand spring pin.

## Recommended Push Beam Height

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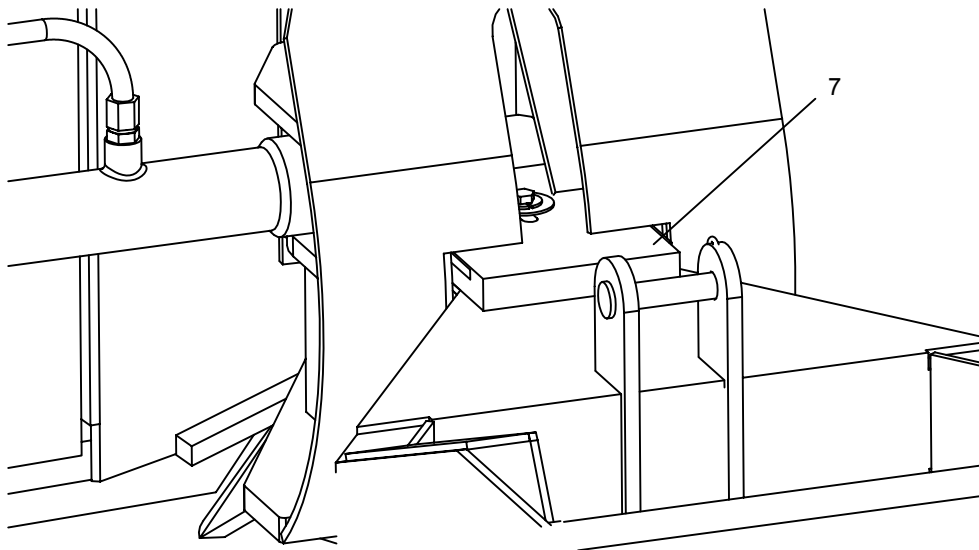


**Figure 2.** Recommended Push Beam Mounting Height.

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The push beam should be installed so that the upper pin receiver hole is approximately 15 1/2" above the ground. After the PUSH BEAM is adjusted to 15 1/2", adjust BUMPER STOP (7) until the plow blades sit flat on the ground in all blade positions.

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**Figure 3.** Bumper Stop Adjustment.

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## Hydraulic Valve Manifold Parts List

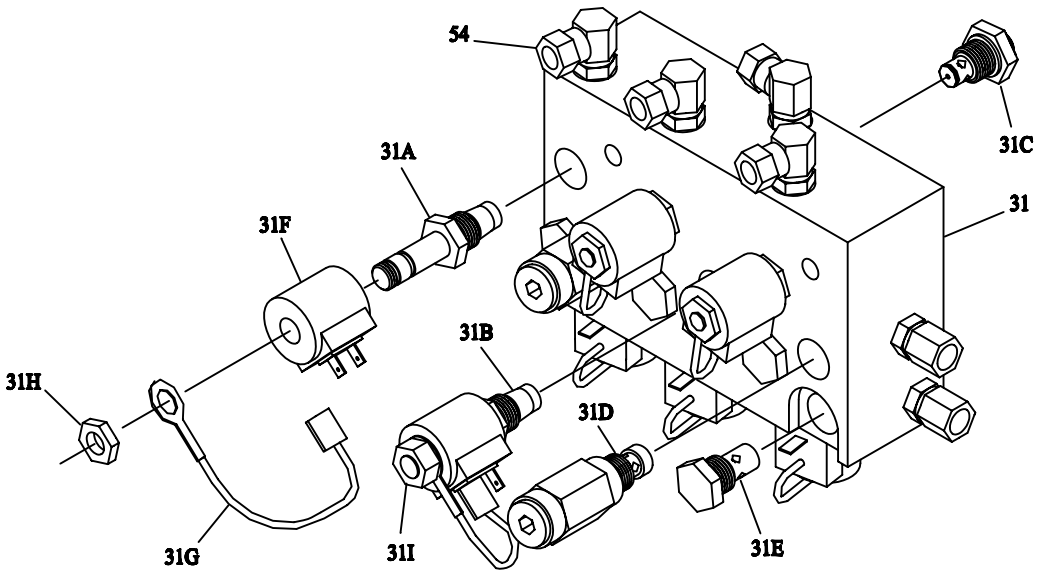


Figure 4. Hydraulic Valve Manifold Assembly.

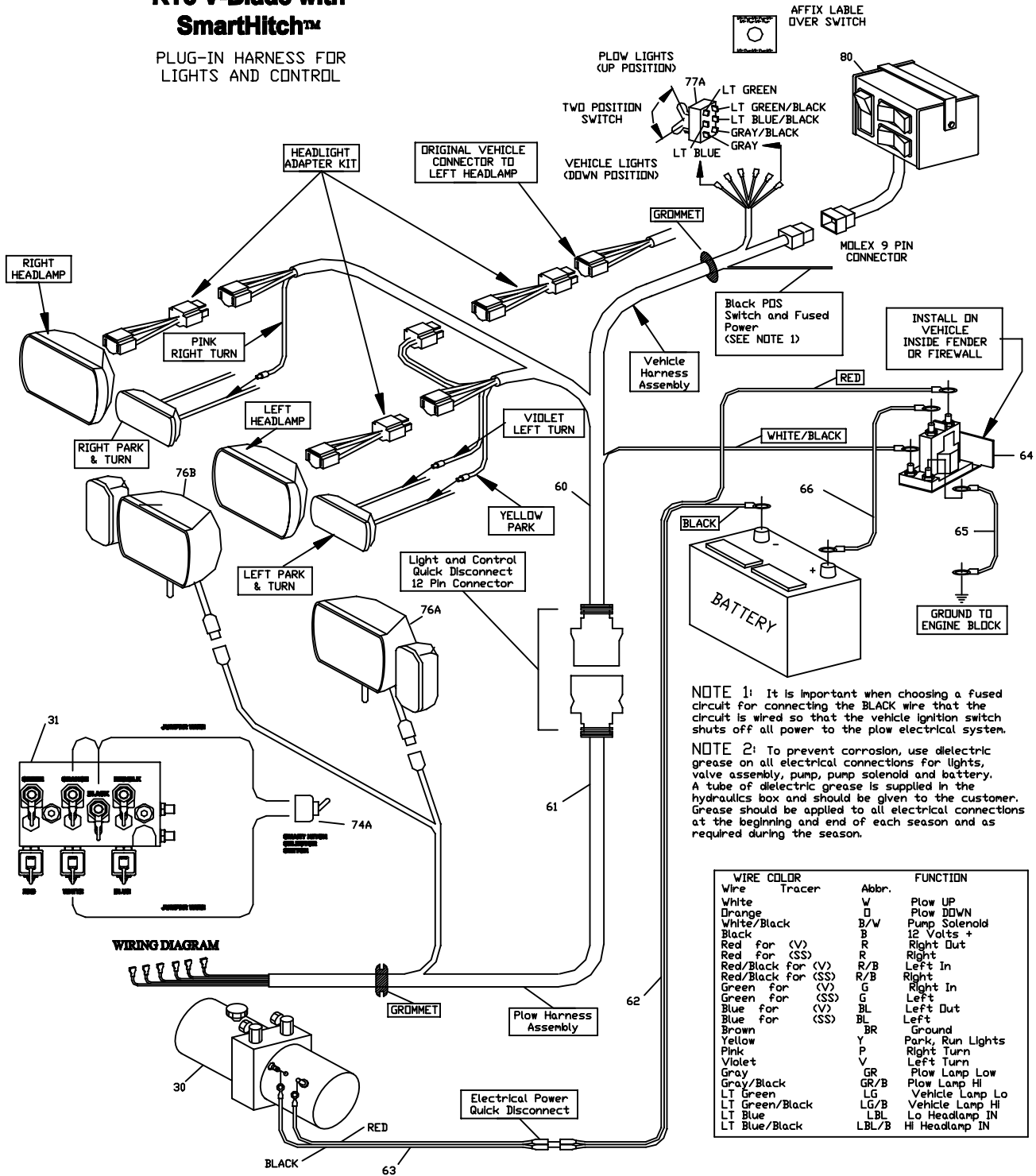
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Ref.	Description	Part Number	Qty
31	Valve Manifold, RT3 V-Blade w/ SmartHitch	HYD07044	1
31A	Valve, Lift / Angle	HYD01637	6
31B	Valve, SmartHitch Attach	HYD07047	1
31C	Valve, Flow Control	HYD07048	1
31D	Valve, Relief V-Blade (2800psi)	HYD01639	2
31E	Valve, Check	HYD01640	4
31F	Valve Coil	HYD01638	7
31G	Valve Ground Strap	HYD01647	7
31H	Coil Nut	HYD07059	6
31I	Coil Nut (SmartHitch Valve)	HYD07060	1
54	Hydraulic Swivel Fitting	HYD01620	4

# RT3 Power-V Blade with SmartHitch™ Wiring Diagram

## RT3 V-Blade with SmartHitch™

PLUG-IN HARNESS FOR LIGHTS AND CONTROL



**NOTE 1:** It is important when choosing a fused circuit for connecting the BLACK wire that the circuit is wired so that the vehicle ignition switch shuts off all power to the plow electrical system.

**NOTE 2:** To prevent corrosion, use dielectric grease on all electrical connections for lights, valve assembly, pump, pump solenoid and battery. A tube of dielectric grease is supplied in the hydraulics box and should be given to the customer. Grease should be applied to all electrical connections at the beginning and end of each season and as required during the season.

WIRE COLOR	Tracer	Abbr.	FUNCTION
White		W	Plow UP
Orange		O	Plow DOWN
White/Black		B/W	Pump Solenoid
Black		B	12 Volts +
Red for (V)		R	Right Out
Red for (SS)		R	Right In
Red/Black for (V)		R/B	Left In
Red/Black for (SS)		R/B	Right
Green for (V)		G	Right In
Green for (SS)		G	Left
Blue for (V)		BL	Left Out
Blue for (SS)		BL	Left
Brown		BR	Ground
Yellow		Y	Park, Run Lights
Pink		P	Right Turn
Violet		V	Left Turn
Gray		GR	Plow Lamp Low
Gray/Black		GR/B	Plow Lamp Hi
LT Green		LG	Vehicle Lamp Lo
LT Green/Black		LG/B	Vehicle Lamp Hi
LT Blue		LBL	Lo Headlamp IN
LT Blue/Black		LBL/B	Hi Headlamp IN

Figure 5. RT3 Wiring Diagram.

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# RT3 Power-V with SmartHitch™ Assembly Drawing

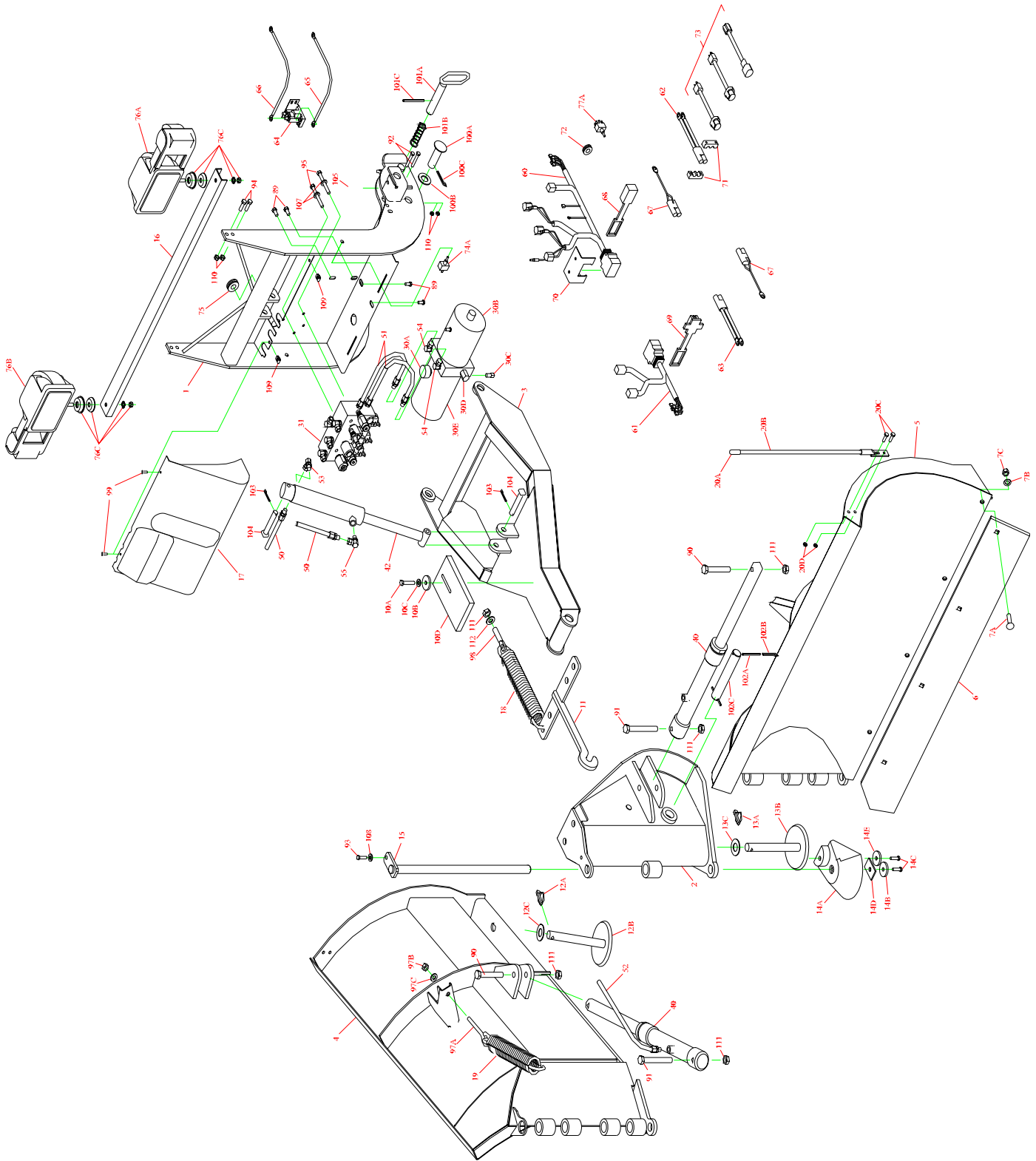


Figure 7. RT3 V-Blade General Assembly Drawing.

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## RT3 Power-V Blade with SmartHitch™ Parts List

Reference Number	DESCRIPTION	PART NUMBER
<b>WELDMENTS</b>		
1	Coupler Assembly (7'6", 8'2", 9'2" RT3 V-Blade)	CPA04437
	Coupler Assembly (10' RT3 V-Blade)	CPA07698
2	Center Section (7'6", 8'2", 9'2" RT3 V-Blade)	CHA01019
	Center Section (10' RT3 V-Blade)	CHA07693
3	Push Frame (7'6", 8'2", 9'2" RT3 V-Blade)	TFR01311
	Push Frame (10' RT3 V-Blade)	PFR07678
<b>BLADES</b>		
4	Blade Half Right, 7'6" RT3 V-Blade	BAR00204
	Blade Half Right, 8'2" RT3 V-Blade	BAR00302
	Blade Half Right, 8'2" Poly RT3 V-Blade	BAR07533
	Blade Half Right, 9'2" RT3 V-Blade	BAR00404
	Blade Half Right, 10' RT3 V-Blade	BAR07691
5	Blade Half Left, 7'6" RT3 V-Blade	BAL00604
	Blade Half Left, 8'2" RT3 V-Blade	BAL00702
	Blade Half Left, 8'2" Poly RT3 V-Blade	BAL07500
	Blade Half Left, 9'2" RT3 V-Blade	BAL00804
	Blade Half Left, 10' RT3 V-Blade	BAL07692
<b>CUTTING EDGES</b>		
6	Cutting Edge, 7'6" V-Blade RT3 5/8" Holes	BAX00097
	Cutting Edge, 8'2" V-Blade RT3 5/8" Holes	BAX00098
	Cutting Edge, 9'2" V-Blade RT3 5/8" Holes	BAX00099
	Cutting Edge, 10' V-Blade RT3 5/8" Holes	BAX07627
7	Carriage Bolt Set	BAX00096
7A	Includes: (10) Carriage Bolts 5/8" – 11 X 2" Grade #5 ZN	
7B	(10) 5/8" Hardened Washers	
7C	(10) 5/8" Lock Nuts	
<b>PLOW COMPONENTS</b>		
10	Bumper Stop, with Mounting Hardware	MSC04254
10A	Includes: (1) Self-Tapping Bolt (3/8" – 16 X 2" Hex Washer Head ZN)	HDW05568
10B	(1) Fender Washer, 3/8" ID X 1-1/2" OD ZN	
10C	(1) Split Lock Washer, 3/8"	
10D	(1) Bumper Stop, Ctr Section RT3	
11	Spring Yoke (7'6", 8'2", 9'2" RT3 V-Blade)	MSC04200
	Spring Yoke (10' RT3 V-Blade)	MSC07679
12	Plow Shoe Assembly, Steel (Outer Shoe)	MSC01501
12A	Includes: (1) Quick Pin, 7/16"	MSC01503
12B	(1) Plow Shoe, (1" Shaft)	
12C	(20) Washers, 1" PLT	
13	Plow Shoe, Cast Iron (Center Shoe)	MSC01570
13A	Includes: (1) Quick Pin, 7/16"	MSC01503
13B	(1) Plow Shoe (1" Shaft), Cast Iron	
13C	(20) Washers, 1" PLT	
14	Snow Catcher w/ Mounting Hardware (7'6", 8'2", 9'2" RT3 V-Blade)	MSC04253
14A	Includes: (1) Snow Catcher (7'6", 8'2", 9'2" RT3 V-Blade)	
14B	(1) Washer, 3/8 Split Lock ZN	
14C	(2) Hex Head Cap Screws, 3/8" – 16 X 1-1/4" NC	
14D	(1) Snow Catcher Mounting Plate	
14E	(1) Washer, 3/8 Flat Plt	

## **RT3 Power-V Blade with SmartHitch™ Parts List**

### **PLOW COMPONENTS Cont.**

	Snow Catcher w/ Mounting Hardware (10' RT3 V-Blade)	MSC07657
	Includes: (1) Snow Catcher, 10' V, Low Profile	
	(1) Snow Catcher Mounting Plate	
	(1) Hex Head Cap Screw, 3/8" - 16 X 1-1/4" GR5	
	(1) Washer, 3/8 Flat PLT	
	(1) Washer, 1/2 Split Lock PLT	
	(1) Hex Head Cap Screw, 1/2" - 13 X 1-1/4" GR5	
15	Center Hinge Pin (7'6", 8'2", 9'2" RT3 V-Blade)	MSC01507
	Center Hinge Pin (10' RT3 V-Blade)	MSC07637
16	Light Bar Assembly (7'6", 8'2", 9'2" RT3 V-Blade)	LBA04439
	Light Bar Assembly (10' RT3 V-Blade)	LBA07665
17	Hydraulic Enclosure Cover (7'6", 8'2", 9'2" RT3 V-Blade)	CPA04423
	Hydraulic Enclosure Cover (10' RT3 V-Blade)	CPA07668
18	Spring, Trip (7'6", 8'2", 9'2" RT3 V-Blade)	MSC01509
	Spring, Trip (10' RT3 V-Blade)	MSC07705
19	Spring, Wing Return (7'6", 8'2", 9'2", 10' RT3 V-Blade)	MSC01509
20	Blade Guide Set	BAX00005
20A	Includes: (2) Blade Guide Tip	MSC01562
20B	(2) Blade Guides	
20C	(4) Hex Head Bolt, 5/16" X 1"	
20D	(4) Self Locking Nut, 5/16"	

### **HYDRAULIC POWER UNIT**

30	Hydraulic Pump – Power Unit Barnes	HYD01710
	(7'6", 8'2", 9'2" RT3 V-Blade)	
	Hydraulic Pump – Power Unit Barnes (10' RT3 V-Blade)	HYD07695
	Includes the Following Commonly Ordered Parts	
30A	(1) Hydraulic Pump Filler Cap	HYD01636
30B	(1) Hydraulic Pump Motor – Barnes	MSC01563
30C	(1) Hydraulic Reservoir Drain Plug	HYD01712
30D	(1) Relief Valve	HYD01693
30E	(1) Hydraulic Reservoir, 2 quart	HYD01731
	(7'6", 8'2", 9'2" RT3 V-Blade)	
	(1) Hydraulic Reservoir, 3 quart (10' RT3 V-Blade)	HYD07727
	(1) Seal Kit, Power Unit	HYD01670

### **HYDRAULIC VALVE ASSEMBLY**

31	Hydraulic Valve Assembly with SmartHitch	HYD07044
	Includes the Following Commonly Ordered Parts	
31A	Hydraulic Valve, Lift/Angle Cartridge	HYD01637
31B	Hydraulic Valve, SmartHitch Attach	HYD07047
31C	Hydraulic Valve, Flow Control Cartridge	HYD07048
31D	Relief Valve, V-Plow (2800 PSI)	HYD01639
31E	Check Valve	HYD01640
31F	Coil, Hydraulic Valve	HYD01638
31G	Ground Strap, Hydraulic Valve	HYD01647
31H	Nut, Coil	HYD07059
31I	Nut, Coil (SmartHitch Valve)	HYD07060

### **CYLINDERS & CYLINDER SEAL KITS**

40	Hydraulic Angle Cylinder (7'6", 8'2", 9'2" RT3 V-Blade)	HYD01603
	Seal Kit for Hydraulic Angle Cylinder HYD01603	HYD01659
	Hydraulic SmartLock Angle Cylinder	HYD07034
	(7'6", 8'2", 9'2" RT3 V-Blade)	
	Seal Kit for Hydraulic SmartLock Angle Cylinder HYD07034	HYD07035

## RT3 Power-V Blade with SmartHitch™ Parts List

### CYLINDERS & CYLINDER SEAL KITS Cont.

	Hydraulic Angle Cylinder (10' RT3 V-Blade)	HYD07610
	Seal Kit for Hydraulic Angle Cylinder HYD07610	HYD07688
42	Hydraulic Lift Cylinder (7'6", 8'2", 9'2" RT3 V-Blade)	HYD07013
	Seal Kit for Hydraulic Lift Cylinder HYD07013	HYD07025
	Hydraulic Lift Cylinder (10' RT3 V-Blade)	HYD07649
	Seal Kit for Hydraulic Lift Cylinder HYD07649	HYD07686

### HOSES & FITTINGS

50	Hydraulic Hose (Lift & SmartHitch) 1/4" X 15-1/2" (1/4" MNPT X 1/4" MNPT) (7'6", 8'2", 9'2", 10' RT3 V-Blade)	HYD01695
51	Hydraulic Hose (Power Unit to Manifold) 1/4" X 15" (1/4" ORB X 1/4" MNPT) (7'6", 8'2", 9'2", 10' RT3 V-Blade)	HYD07020
52	Hydraulic Hose (Angle) 3/8" X 42" (1/4" MNPT X 3/8" MNPT) (7'6", 8'2", 9'2" V-Blade)	HYD07042
	Hydraulic Hose (Angle) 3/8" X 44" (1/4" MNPT X 3/8" FJIC) (10' RT3 V-Blade)	HYD07714
53	Hydraulic 90 Deg. Fitting (SmartHitch) (1/8" MNPT X 1/4" FNPT) (7'6", 8'2", 9'2" RT3 V-Blade)	HYD07046
	Hydraulic Swivel Fitting, 90 Deg.(SmartHitch) (1/4" ORS X 1/4" FPS) (10' RT3 V-Blade)	HYD01620
54	Hydraulic Swivel Fitting, 90 Deg. (Manifold) (1/4" ORS X 1/4" FPS) (7'6", 8'2", 9'2", 10' RT3 V-Blade)	HYD01620
	Hydraulic Long 90 Deg. Fitting (Angle Cylinder) (3/8" JIC X 3/8" O-Ring) (10' RT3 V-Blade)	HYD07713
55	Hydraulic Swivel Fitting, 90 Deg.(Lift Cylinder) (1/4" ORS X 1/4" FPS) (7'6", 8'2", 9'2", 10' RT3 V-Blade)	HYD01620

### ELECTRICAL

60	Light and Control Harness 116" (Vehicle Side)	MSC03742
61	Light and Control Harness 48" (Plow Side)	MSC03741
62	Power/Ground Cable 60" (Vehicle Side)	HYD01684
63	Power/Ground Cable 36" (Plow Side)	HYD01690
64	Solenoid, Hydraulic Pump	HYD01633
65	Ground Cable, Hydraulic Pump Solenoid	MSC01595
66	Battery cable, 66"	MSC01515
67	Power/Ground Cable Dust Cap/Plug (Vehicle & Plow)	MSC03721
68	Weather Cap for Light & Control Harness (Vehicle Side)	MSC03743
69	Weather Cap for Light & Control Harness (Plow Side)	MSC03744
70	Control Harness Mounting Bracket	MSC03813
71	Power Ground Cable Mounting Bracket	MSC03491
72	Rubber Split Grommet, 1-1/8"	MSC03761
73	Headlight Adapter Kit	
74	SmartHitch Toggle Switch Kit (Includes Switch and Jumpers)	MSC04252
74A	Includes: (1) Switch, SmartHitch Toggle	MSC04218
74B	(1) Wiring Harness, SmartHitch 2 Connector	
74C	(1) Wiring Harness, SmartHitch 3 Connector	
74D	(1) Switch Boot, SmartHitch	
75	Rubber Grommet - for control harness in coupler tower	MSC03456
76	Auxiliary Headlight Set, Low Profile Plastic with Hardware	MSC03747
76A	Includes: (1) Auxiliary Headlight, Left, Low Profile Plastic	MSC04233
76B	(1) Auxiliary Headlight, Right, Low Profile Plastic	MSC04234
76C	(2) Headlight Mounting Hardware	HDW05590
	Other Commonly Ordered Headlight Parts	
	(1) Turn Signal Cover, Low Profile Plastic	MSC04255
	(1) Headlight Bezel	MSC04541
	(1) Headlight Bulb	MSC04289

## **RT3 Power-V Blade with SmartHitch™ Parts List**

### **ELECTRICAL Cont.**

77	Light Switch Connector Pack	MSC04053
77A	Includes: (1) Switch, Aux Light Toggle (3) Scotch Lock, 16GA with Female Socket (1) Flasher, Heavy Duty Vehicle	MSC03740

### **CONTROLLERS**

80	Switch Box Control, V-Blade	HYD01691
80A	Includes: Rocker Switch – Lift	HYD01622
80B	Rocker Switch – Angle	HYD01623
81	Joystick Control, V-Blade	MSC03809
82	SmartTouch, Hand Held Control, V-Blade	MSC04544

### **BOLTS**

90	Hex Head Cap Screw, 5/8" – 11 X 4-1/2" GR5 ZN (7'6", 8'2", 9'2" RT3 V-Blade) (Cylinder Mount)	HDW01705
	Hex Head Bolt, 1" – 8 X 4" GR8 ZN (10' RT3 V-Blade) (Cylinder Mount)	HDW07703
91	Hex Head Cap Screw, 5/8" – 11 x 5-1/2" GR5 ZN (7'6", 8'2", 9'2" RT3 V-Blade) (Cylinder Mount)	HDW05534
	Hex Head Bolt, 1" – 8 X 4" GR8 ZN (10' RT3 V-Blade) (Cylinder Mount)	HDW07703
92	Hex Head Cap Screw, 3/8" – 16 X 2-1/4" (7'6", 8'2", 9'2" RT3 V-Blade) (Torsion Spring)	HDW05521
	Hex Head Cap Screw, 3/8" – 16 X 3-1/4" (10' RT3 V-Blade) (Torsion Spring)	HDW05573
93	Hex Head Cap Screw, 3/8" – 16 X 1-1/4" (7'6", 8'2", 9'2" RT3 V-Blade) (Center Hinge Pin)	HDW01771
	Hex Head Cap Screw, 1/2" – 13 X 1" (10' RT3 V-Blade) (Center Hinge Pin)	HDW01781
94	Hex Head Cap Screw, 3/8" – 16 X 1-1/4" (7'6", 8'2", 9'2", 10' RT3 V-Blade) (Light Bar Assembly)	HDW01771
95	Hex Head Cap Screw, 3/8" – 16 X 3-1/4" (10' RT3 V-Blade) (Manifold Mount)	HDW05573
97	Eye Bolt Set, 1/2" X 6" with Nuts and Washers (Wing Return Spring) (7'6", 8'2", 9'2", 10' RT3 V-Blade)	HDW01744
97A	Includes: (2) Eye Bolt, 1/2" X 6" PLT	HDW01700
97B	(2) Nuts	
97C	(2) Washers	
98	Eye Bolt, 5/8" X 4" (7'6", 8'2", 9'2" RT3 V-Blade) (Trip Spring)	HDW05601
	Eye Bolt, 1/2" X 6" PLT (10' RT3 V-Blade) (Trip Spring)	HDW01700
99	Thumb Screw, 10 – 24 X 1/2"	HDW05574

### **PINS, NUTS, CLAMPS, WASHERS, and SPRINGS**

100	Pivot Pin, Kit (7'6", 8'2", 9'2" RT3 V-Blade)	MSC04251
100A	Includes: (1) Pivot Pin RT3 1" X 2-1/2"	CPA04431
100B	(1) Washer, 1" PLT	
100C	(1) Cotter Pin, 3/16 X 2-1/2 PLT	
	Pivot Pin, Kit (10' RT3 V-Blade)	MSC07697
	Includes: (1) Pivot Pin RT3 1-1/2" X 3-5/8" (1) Hex Head Cap Screw 5/16"-18 x 2" GR5 ZN (1) Nut, 5/16"-18 NY/INS Lock ZN	
101	Coupler Spring Pin Kit (7'6", 8'2", 9'2" RT3 V-Blade)	MSC03808
101A	Includes: (1) Coupler Spring Pin	CPA04436
101B	(1) Coupler Spring Pin Spring	CPA04430
101C	(1) Rolled Pin	HDW05538



## RT3 Power-V Blade with SmartHitch™ Parts List

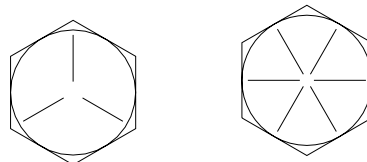
### PINS, NUTS, CLAMPS, WASHERS, and SPRINGS Cont.

	Coupler Spring Pin Kit (10' RT3 V-Blade)	MSC07699
	Includes: (1) Coupler Spring Pin	CPA07639
	(1) Coupler Spring Pin Spring	CPA07674
	(1) Rolled Pin	HDW05538
102	Horizontal Hinge Pin Kit (7'6", 8'2", 9'2" RT3 V-Blade)	MSC04250
102A	Includes: (2) Roll Pin, 1/4" X 2-1/2" PLT	
102B	(2) Cotter Pin, 1/8" X 3" ZN	
102C	(1) Pin, Horizontal Hinge, 1-1/4" X 7"	
	Horizontal Hinge Pin Kit (10' RT3 V-Blade)	MSC07694
	Includes: (2) Roll Pin, 1/4" X 2-1/2" PLT	
	(2) Cotter Pin, 1/8" X 3" ZN	
	(1) Pin, Horizontal Hinge, 1-1/2" X 7"	
103	Hairpin Cotter, #16	HDW05544
104	Clevis Pin, 5/8" X 3-1/2" (7'6", 8'2", 9'2" RT3 V-Blade)	HDW05563
	Clevis Pin, 3/4" X 3-3/4" (10' RT3 V-Blade)	HDW07682
105	Spring, SmartHitch Torsion (7'6", 8'2", 9'2" RT3 V-Blade)	MSC04227
	Spring, SmartHitch Torsion (10' RT3 V-Blade)	MSC07673
107	Washer, 3/8" Split Lock	HDW01718
108	Washer, 3/8" Split Lock (7'6", 8'2", 9'2" RT3 V-Blade) (Center Hinge Pin)	HDW01718
	Washer, 1/2" Split Lock, (10' RT3 V-Blade) (Center Hinge Pin)	HDW01732
109	Nut, Cage 10-24 PLT Black	HDW05546
110	Nut, Self Locking 3/8" – 16	HDW01720
111	Nut, Self-Locking 5/8" (7'6", 8'2", 9'2" RT3 V-Blade) (Cylinder Mount)	HDW01709
	Nut, Self-Locking 1" – 8 (10' RT3 V-Blade) (Cylinder Mount)	HDW07704
112	Washer, 5/8" Flat PLT. (7'6", 8'2", 9'2" RT3 V-Blade) (Trip Springs)	HDW05556
	Washer, 1/2" Flat PLT. (10' RT3 V-Blade) (Trip Springs)	HDW01748
113	Nut, Self-Locking 5/8" (7'6", 8'2", 9'2" RT3 V-Blade) (Trip Springs)	HDW01709
	Nut, Self-Locking 1/2" – 8 (10' RT3 V-Blade) (Trip Springs)	HDW01748

### OPTIONS & ACCESSORIES

115	Snow Deflector (all models)	MSC01565
116	Boss High Performance Hydraulic Fluid – Case (12 per)	HYD01704
117	Red Touch-Up Spray Paint (12oz.)	MSC04098
118	Dielectric Grease (2 oz.)	MSC03423

## Recommended Torque Specifications



Dia. / Pitch	Grade 5	Grade 8
1 / 4" – 20	6	9
5 / 16" – 18	14	19
3 / 8" – 16	23	33
7 / 16" – 14	38	53
1 / 2" – 13	56	80
9 / 16" – 12	82	116
5 / 8" – 11	113	159
3 / 4" – 10	201	283

Figure 8. Torque Specifications.

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## Troubleshooting Guide

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### Glossary of Problems:

1. Pump motor does not run.
2. Pump continues to run with switch in neutral.
3. Pump will not lower.
4. Plow will not raise or raises slowly, motor runs.
5. While trying to raise the plow, blades extend and wings will not retract.
6. Wings drift back when extended.
7. Plow lowers too fast.
8. Wing(s) will not extend, but motor runs.
9. Wing(s) will extend, but will not retract or retract slowly.
10. Wing(s) retract too easily while plowing.
11. Oil leaks from cylinders.
12. Battery goes dead with all switches in neutral.
13. Plow lights are dim, will not come on or flicker.
14. Turn signals flash at a rapid rate.
15. High beam indicator light not functioning properly.
16. Blade digs into the ground in the V position.
17. Blade does not lay flat against the ground in the scoop position.
18. Blade trips too easily.
19. Plow does not clean-up snow from low areas.
20. Oil runs out of fill cap of hydraulic pump.
21. Pump chatters when raising the plow or extending wings.

PROBLEM	DIAGNOSTIC CHECK	RESULT
1. Pump motor does not run.	Check that power/ground cables and control cables are connected properly.	Connect.
	Check for voltage at pump motor while ignition switch is on and LIFT control button is pushed.	If voltage is present, pump motor has failed or pump has seized. Motor brushes may be replaced, otherwise replace pump/motor assembly.
	Check for power to the solenoid by testing for voltage between both large terminals and ground.	If voltage is not present between one large terminal and ground, the cable between the battery and solenoid is disconnected or broken.

## Troubleshooting Guide

PROBLEM	DIAGNOSTIC CHECK	RESULT
	Check for voltage between the other large terminal of the solenoid and ground while jumping power to the small terminals with the white wire.	If NO voltage is present, solenoid has failed and must be replaced. If voltage is present, wire from small terminal of solenoid to ground may be disconnected or broken.
	Test power to the control box by checking voltage between black wire and ground at the white 9-pin connector.	If NO voltage is present, power from fuse box has become disconnected. If voltage is present check wiring and control box switch.
2. Pump continues to run with switch in neutral.	Disconnect control box, ignition ON.	If pump continues to run, solenoid has failed in the closed position. Quickly remove power to the pump by disconnecting the power/ground cables to the plow. Replace solenoid.
		If pump stops running, check wiring of switch box for short between black and white/black wire in control box, or failed switch.
3. Plow will not lower.	Check power/ground cables and control cables are connected properly.	Connect.
	Check flow control valve.	If flow control valve is completely closed, place RAISE/LOWER switch on control box in NEUTRAL, then open the flow control valve.
	Check wiring on valve block for proper connections.	Refer to the wiring diagram in this manual.

## Troubleshooting Guide

PROBLEM	DIAGNOSTIC CHECK	RESULT
	Check for voltage between solenoid valve terminal and ground with ignition switch on and control switch in FLOAT position.	If voltage is present solenoid valve or valve coil has failed. Replace valve.
	Test power to the control box by checking voltage between black wire and ground at the white 9-pin connector.	If NO voltage is present, power from fuse box has become disconnected. If voltage is present, check wiring and switch of control box.
4. Plow will not raise or raises slowly (pump motor runs).	Check hydraulic fluid level.	Hydraulic fluid level should be within $\frac{3}{4}$ " from top of reservoir when lowered and in the V-position.
	Check power/ground cables and control cable are connected properly.	Connect.
	Check wiring on valve block for proper connections.	Refer to the wiring diagram in Hydraulics manual.
	Load test battery.	Replace battery if weak or defective.
	Check pressure at pressure port of pump.	If pressure is less than 2500 psi (at end of lift). Motor brushes may be defective, pump pressure relief valve may be contaminated, damaged, or set less than 2500 psi, pump may be worn.
	Check LIFT Solenoid Valve	Lift solenoid valve not opening completely. Replace.
		Check wiring and switch box control
5. While trying to raise plow, wing(s) extend prior to raising plow and will not retract.	Check the pressure and return line routing.	Pressure line MUST be connected from P on pump to P on valve manifold. Return line MUST be connected from R on pump to T on valve manifold.

## Troubleshooting Guide

PROBLEM	DIAGNOSTIC CHECK	RESULT
6. Wings drift back when extended.	Check wing return solenoid valve on manifold Check pressure	If solenoid valve is contaminated, clean or replace. If pressure relief valve is contaminated, clean or replace.
7. Plow lowers too fast.	Check flow control valve.	Close flow control valve to desired drop speed.
8. Wing(s) will not extend or extend slowly, motor runs.	Check hydraulic fluid level.	Hydraulic fluid level should be within $\frac{3}{4}$ " from top of reservoir when lowered and in the V-position.
	Check power/ground cables and control cable are connected properly.	Connect.
	Check wiring on valve block for proper connections.	Refer to the wiring diagram in this manual.
	Load test battery.	Replace battery if weak or defective.
	Check pressure at pressure port of pump.	If pressure is less than 2500 psi (at end of lift). Motor brushes may be defective, pump pressure relief valve may be contaminated, damaged, or set less than 2500 psi, pump may be worn.
	Check WING OUT solenoid valve.	WING OUT solenoid valve not opening completely. Replace.
		Check wiring and control box.
9. Wing(s) extend, but will not retract or retract slowly.	Check power/ground cables and control cables are connected properly.	Connect.
	Check wiring on valve block for proper connections.	Refer to the wiring diagram in this manual.
	Check for voltage between solenoid valve terminal and ground with ignition switch on and control switch in WING IN position.	If voltage is present, solenoid valve or valve coil has failed. Replace valve. If NO voltage is present, check wiring and switch box control.

## Troubleshooting Guide

PROBLEM	DIAGNOSTIC CHECK	RESULT
10. Wing(s) retract too easily while plowing.	Pressure relief valve pressure set too low.	See an Authorized BOSS Dealer for pressure relief valve adjustment.
11. Oil leaks from cylinders.	Loose packing.	Tighten packing 1/8-turn increments until leak stops.
	Check rod condition.	If rods are pitted or rough, polish with copus cloth or extra fine steel wool.
12. Battery goes dead with all switches in neutral.	Possible short in switches.	Inspect wiring of control box switches, replace switch(es).
	Possible short in wiring harness.	Repair damaged wire.
	Possible short in valve coils.	Replace coils.
13. Plow lights are dim, will not come on or flicker.	Check electrical connections.	Clean and repair any corroded or damaged terminals.
	Check headlight adapter wires.	Verify proper headlight adapters are being used and are correctly installed.
	Check for good ground of plow lights.	Sand paint under headlight mount to bare metal, securely tighten headlight-mounting bolts.
14. Turn signals flash at a rapid rate.	Check flasher.	Replace original vehicle flasher with heavy-duty six-lamp flasher provided.
15. No high beam indicator does not function properly.	Check headlight adapters.	Verify proper headlight adapters are being used and are correctly installed.
	Check electrical connections to plow lights/truck lights toggle switch.	Refer to the wiring diagram in this manual.
16. Blade digs into the ground in the V-position.	Center shoe adjusted too low.	Add washers to the center shoe to raise the tip of the plow.
	Push beam installed too high.	Lower the push beam.
17. Blade does not lay flat against the ground in the scoop position.	Center Shoe Adjusted too High.	Remove washers from the center shoe to raise the tip of the plow.

## Troubleshooting Guide

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PROBLEM	DIAGNOSTIC CHECK	RESULT
	Push beam installed too low.	Raise the push beam. If push beam is at highest setting, Adjust the Bumper Stop further into the center section.
18. Blade trips too easily.	Check trip spring adjustment.	Tighten springs. Replace springs if permanently deformed or damaged.
19. Plow does not clean-up snow from low areas.	UP/DOWN switch not in neutral.	Place switch in DOWN (FLOAT) position.
20. Oil running out of fill cap of hydraulic pump.	Plowing on steeply inclined terrain.	Avoid too steeply sloped areas.
	Pump reservoir over filled.	Reservoir should be filled to $\frac{3}{4}$ " from top.
	Hitting snowbanks too hard.	Do not plow recklessly. Place plow in V-position and break up hard snowbanks.
21. Pump chatters when raising plow or extending wing(s).	Hydraulic fluid low.	Add hydraulic fluid. Reservoir should be filled to $\frac{3}{4}$ " from top.

## **BOSS SNOWPLOW LIMITED CONSUMER WARRANTY**

### **What the warranty covers:**

BOSS PRODUCTS warrants to the original retail purchaser of a BOSS snowplow who purchases it for personal, family or household use, that the snowplow will be free from defects in material and workmanship except as set forth below.

### **Warranty period:**

**Parts:** One year from the date of purchase. All BOSS Poly Blade Assemblies are two years.

**Labor:** One year from the date of purchase.

### **What BOSS PRODUCTS will do:**

If, within the warranty period, the snowplow is found to be defective, BOSS PRODUCTS will repair or replace, at its sole option, the defective parts at no charge to the original purchaser.

### **What you must do for warranty service:**

To obtain service under this warranty, purchaser must return the defective snowplow to an authorized BOSS PRODUCTS dealer (preferably the one from whom the snowplow was purchased). The purchaser must establish the warranty period by verifying the original purchased date. All transportation costs to and from the dealer will be the responsibility of the purchaser. To locate the authorized BOSS dealer nearest to you, call toll free: (800) 286-4155.

### **What is not covered:**

This limited warranty does not cover the following:

1. Expendable parts such as hoses, plow shoes, cutting edges, pins, nuts, bolts, blade guides, etc.
2. Snowplows or parts repaired or altered by anyone other than an authorized BOSS PRODUCTS dealer.
3. Snowplows or parts which have been subject to misuse or service; negligence, accident; or improper installation, maintenance, care or storage.
4. Snowplows mounted on vehicles other than those listed in the BOSS SNOWPLOW APPLICATION CHART AND SELECTION GUIDE.
5. BOSS PRODUCTS does not assume any liability for motor vehicle damage resulting from the attachment or use of a BOSS PRODUCTS snowplow. Vehicle risk is the sole responsibility of the purchaser.

### **Warranty limitations:**

THIS WARRANTY IS OFFERED IN LIEU OF ANY OTHER EXPRESS WARRANTY.

THE DURATION OF ALL IMPLIED WARRANTIES, INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED TO THE DURATION OF THIS WARRANTY.

BOSS PRODUCT'S LIABILITY IS EXPRESSLY LIMITED TO THE REPAIR OF THE SNOWPLOW, INCLUDING LABOR AND REPLACEMENT OF DEFECTIVE PARTS. BOSS PRODUCTS SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL OR CONTINGENT DAMAGES WHATSOEVER, EVEN IF DAMAGES ARE CAUSED BY BOSS PRODUCT'S NEGLIGENCE OR FAULT.

### **State laws:**

Some states do not allow exclusion of incidental or consequential damages or the limitations on how long an implied warranty lasts, so these limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may also have the other rights which vary from state to state.

This warranty does not apply if you purchased your snowplow for other than personal, family, or household use. If so, refer to the BOSS Snowplow Commercial Warranty.

BOSS PRODUCTS is a division of M. J. Electric, Inc., P.O. Box 686, North U.S. Hwy 2, Iron Mountain, MI 49801



# BOSS SNOWPLOW COMMERCIAL WARRANTY

**What this warranty covers:**

This warranty covers defects in material and workmanship except as set forth below.

**Who is covered:**

The original purchaser from an authorized dealer.

**For how long:**

**Parts:** One year from the date of purchase. All BOSS Poly Blade Assemblies are two years.

**Labor:** One year from the date of purchase.

**What BOSS PRODUCTS will do:**

BOSS PRODUCTS will, at its sole option, repair or replace defective parts at no charge.

**What you must do to for warranty service:**

To obtain warranty service, you must return the defective snowplow to any authorized BOSS PRODUCTS dealer (preferably the one from whom the snowplow was purchased) within the warranty period. Purchaser must be able to verify the original purchase date. All transportation costs to and from the dealer will be the responsibility of the purchaser. To locate the authorized BOSS dealer nearest to you, call toll free: (800) 286-4155.

**What is not covered:**

This warranty does not cover:

1. Expendable parts such as hoses, plow shoes, cutting edges, pins, nuts, bolts, blade guides, etc.
2. Snowplows or parts repaired or altered by anyone other than an authorized BOSS PRODUCTS dealer.
3. Snowplows or parts which have been subject to misuse; negligence; accident, or improper installation, maintenance, care or storage.
4. Snowplows mounted on vehicles other than those listed in the BOSS SNOWPLOW APPLICATION CHART AND SELECTION GUIDE.
5. BOSS PRODUCTS does not assume liability for damage to your motor vehicle resulting from the attachment or use of a BOSS PRODUCTS snowplow. Vehicle risk is the sole responsibility of the purchaser.

**Limits of Boss Products Liability are:**

BOSS PRODUCT'S LIABILITY IS EXPRESSLY LIMITED TO REPAIR OR REPLACEMENT OF DEFECTIVE PARTS. BOSS PRODUCTS SHALL NOT BE LIABLE FOR CONSEQUENTIAL, INCIDENTAL OR CONTINGENT DAMAGES WHATSOEVER, EVEN IF DAMAGES ARE CAUSED BY THE NEGLIGENCE OR FAULT OF BOSS PRODUCTS.

THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESS AND IMPLIED WARRANTIES INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

This warranty does not apply if you purchased your snowplow for personal, family, or household use. In this case, refer to the BOSS Snowplow Limited Consumer Warranty.

BOSS PRODUCTS is a division of M. J. Electric, Inc., P.O. Box 686, North U.S. Hwy. 2, Iron Mountain, MI 49801