

# STRAIGHT-BLADE (WITH RAPID-TACH II™) SNOWPLOW ASSEMBLY INSTALLATION PROCEDURE

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# **PLOW ASSEMBLY INSTRUCTIONS**

1. Begin the assembly procedure by cutting down each corner of the box so that each wall of the box will lay flat on the floor.
  2. Attach the CUTTING EDGE (Ref. No. 5, Fig. 1) to the BLADE ASSEMBLY (Ref. No. 2, Fig. 1) using the GRADE 8 CARRIAGE BOLTS (Ref. No. 6, Fig. 1), the GRADE C SELF LOCKING NUTS and the 1/2" FLAT WASHERS.
  3. Mount both ADJUSTABLE PLOW SHOE ASSEMBLIES (Ref. No. 10-44-45 Fig. 2) by placing seventeen of the 1" FLAT WASHERS on each PLOW SHOE and installing them into the plow blade shoe mounting brackets. Place three more washers on each and secure them in place with the QUICK PINS (Ref. No. 44, Fig. 2). The PLOW SHOE ASSEMBLIES need to be adjusted one more time when the plow is completely assembled.
  4. Attach the T-FRAME ATTACHMENT BAR (Ref. No. 4A, Fig. 3) to the BLADE ASSEMBLY (Ref. No. 2, Fig. 3) using the three (3) 3/4" x 4" HEX HEAD BOLTS and the 3/4" SELF LOCKING NUTS.
  5. Attach the T-FRAME ASSEMBLY (Ref. No. 4, Fig. 3) to the T-FRAME ATTACHMENT BAR (Ref. No. 4A, Fig. 3) using the 3/4" x 5-1/2" HEX HEAD BOLT and the 3/4" SELF LOCKING NUT.
  6. Attach the red HYDRAULIC CYLINDERS (Ref. No. 17A, Fig. 3) to the T-FRAME (Ref. No. 4B, Fig. 3) and the T-FRAME ATTACHMENT BAR (Ref. No. 4A, Fig. 3) using the four (4) 5/8" x 4-1/2" and the 5/8" SELF LOCKING NUTS.
  7. Attach the SHOCK ABSORBER (for Super-Duty Plows only Ref. No. 67, Fig. 3) to the BLADE ASSEMBLY and the T-FRAME ATTACHMENT BAR using two (2) 5/8" x 3-1/2" HEX HEAD BOLTS and the 5/8" SELF LOCKING NUTS.
  8. Insert the TRIP SPRINGS (Ref. No. 33, Fig. 3) through the holes provided on the T-FRAME ATTACHMENT BAR (Ref. No. 4A, Fig. 3). Then slip the EYE BOLTS (Ref. No. 47, Fig. 3) around the loose end of the TRIP SPRING. Thread a 1/2" STANDARD HEX HEAD NUT all the way onto each of the EYE BOLTS. Insert the threads of each EYE BOLT through the holes in the spring mounting brackets on the back of the blade. Secure the EYE BOLTS using 1/2" SELF LOCKING NUTS and 1/2" FLAT WASHERS. Tighten the self locking nuts on the EYE BOLTS until daylight begins to show between the coils of the springs, then tighten the JAM NUT.
- (NOTE: Standard duty snowplow has 3 TRIP SPRINGS and uses 5/8" EYE BOLTS and 5/8" NUTS, Super Duty snowplow has 4 TRIP SPRINGS.)
9. Now, position the LIGHT BRACKET ASSEMBLY (Ref. No. 73, Fig. 4) on the coupler and bolt in place using six (6) 1/2" x 1" hex head bolts and self locking nuts.
  10. Assemble the LATCH HANDLE as shown in Figure 5 using 3/8" x 1 1/2" hex head bolts, washers, and self locking nuts. Check that both Coupler Latches close completely against the Coupler jaw when the LATCH HANDLE LEVER (Ref. 57, Fig. 5) is in the closed position. If the latches do not close completely, adjust the hand lever guide assembly (Ref. 59, Fig. 5) so that the latches close completely.

11. Connect the Angle Cylinder Hydraulic Hoses to the angle cylinders as shown in Figure 6. Do not apply thread sealant or teflon tape.
12. Connect the lift cylinder hoses to the lift cylinders as shown in Figure 6.
13. Place warning sticker on plow driver side outermost panel.
14. Attach the BLADE GUIDES (Ref. No. 37, Fig. 3) to the BLADE ASSEMBLY (Ref. No. 2, Fig. 3) in the holes provided using four (4) 5/16" x 1" HEX HEAD BOLTS and the 5/16" SELF LOCKING NUTS.

**NOTE: IT IS IMPORTANT THAT ALL FASTENERS BE PROPERLY TORQUED (SEE FIGURE 8) TO ASSURE A SAFE OPERATING PLOW.**

## **ELECTRICAL SYSTEM WIRING PROCEDURE**

WIRING INSTALLATION - Refer to diagram

1. Mount the AUXILIARY HEADLIGHTS to the LIGHT BRACKET ASSEMBLY. Do not tighten the AUXILIARY HEADLIGHT mounting nut as the positioning of the headlights will have to be adjusted once the wiring has been completed.
2. Plug the driver's side auxillary headlights connector to the plow wiring harness marked D. Plug the passenger side auxillary headlight connection to the plow wiring harness marked P.
3. Disconnect left and right headlight connector plugs on vehicle.
4. Plug in both sealed beam connectors from the headlight adapter kit to vehicle headlights.
5. Connect wiring harness' 3 prong male plug into female connector which was removed from left hand vehicle headlight. Tape and secure female connector which was removed from right hand vehicle headlight.
6. Referring to wiring diagram, complete wiring connections of turn signal and parking lights to vehicle's electrical lighting system using splice connectors. Identifty all circuits with test lamp.
7. Drill a 1 1/4" diameter hole in the firewall at the most convenient location and pull wire harness through firewall from the engine compartment into the cab until rubber grommet snaps into place.
8. Connect 6 female tab connectors on end of harness to toggle switch (Ref. No. 4, Fig. 9) as shown in wiring diagram.
9. Select suitable location on dash to mount the TOGGLE SWITCH and drill a 1/2" diameter hole through the dashboard.

10. Apply switch identification label (Ref. No. 5, Fig. 9) to dash by removing protective backing from label and pressing label over switch hole. Make sure switch is positioned with respect to label so that snowplow lamps are "ON" when switch toggle is in the upper position.
11. Remove knurled nut from the toggle switch; insert switch through the drilled hole and re-install the knurled nut. Tighten nut securely.
12. Connect BLACK wire to a fused and switch circuit that is wired so that the vehicle ignition switch shuts off all power to the plow electrical system.
13. Mount the hydraulic pump switch assembly (Ref. No. 40, Fig. 9). Note the pump switch assembly must be located where the operator will not contact it during sudden stops and still offer comfortable operation of the plow. This may reduce operator fatigue during extended periods of plowing. As an option to mounting the pump switch assembly to the dash, the rocker switches can be removed from the box and mounted (cut into) in the dash of the vehicle.
14. Connect the White/Black wire to Pump Solenoid (Ref. No. 39A, Fig. 9).
15. Mount the Light and Control Cable and Electrical Power/Ground cable to the grill of the vehicle using the black tie wraps or bracket provided. The mounting and routing of the cables and wires will depend on the layout of your vehicle. All wiring should be neatly secured, so as not to interfere with any hot or moving parts.
16. Attach the snowplow to the vehicle.
17. Check for proper operation:
  - A. Turn on headlight switch and check that with the toggle switch in lower position, only the vehicle headlights are on. With the toggle switch in upper position, only the snowplow headlights should be on.
  - B. The foot dimmer switch should select high and low beams on both headlights.
  - C. Turn signal lights should be on in same sequence and at same time as the vehicle turn signal lights.
  - D. Parking lights should be on at same time as vehicle parking lights. If any light does not operate correctly, re-check the wiring against the wiring diagram and make necessary corrections in wiring hookup.
  - E. Check snowplow for proper height adjustment and hydraulic pump switch assembly for proper operation up, down, right and left.

## **SNOWPLOW LIGHT ALIGNMENT PROCEDURE**

- A. Place vehicle on a level surface 25 feet in front of a matte-white screen, such as a garage door. The screen should be perpendicular both to the ground and to the vehicle centerline.

B. The vehicle should be equipped for normal operation. The snowplow blade should be in place and in the raised position. Below are points listed by the Society of Automotive Engineers (SAE) pertinent to headlight aiming in specification #SAEJ5991D:

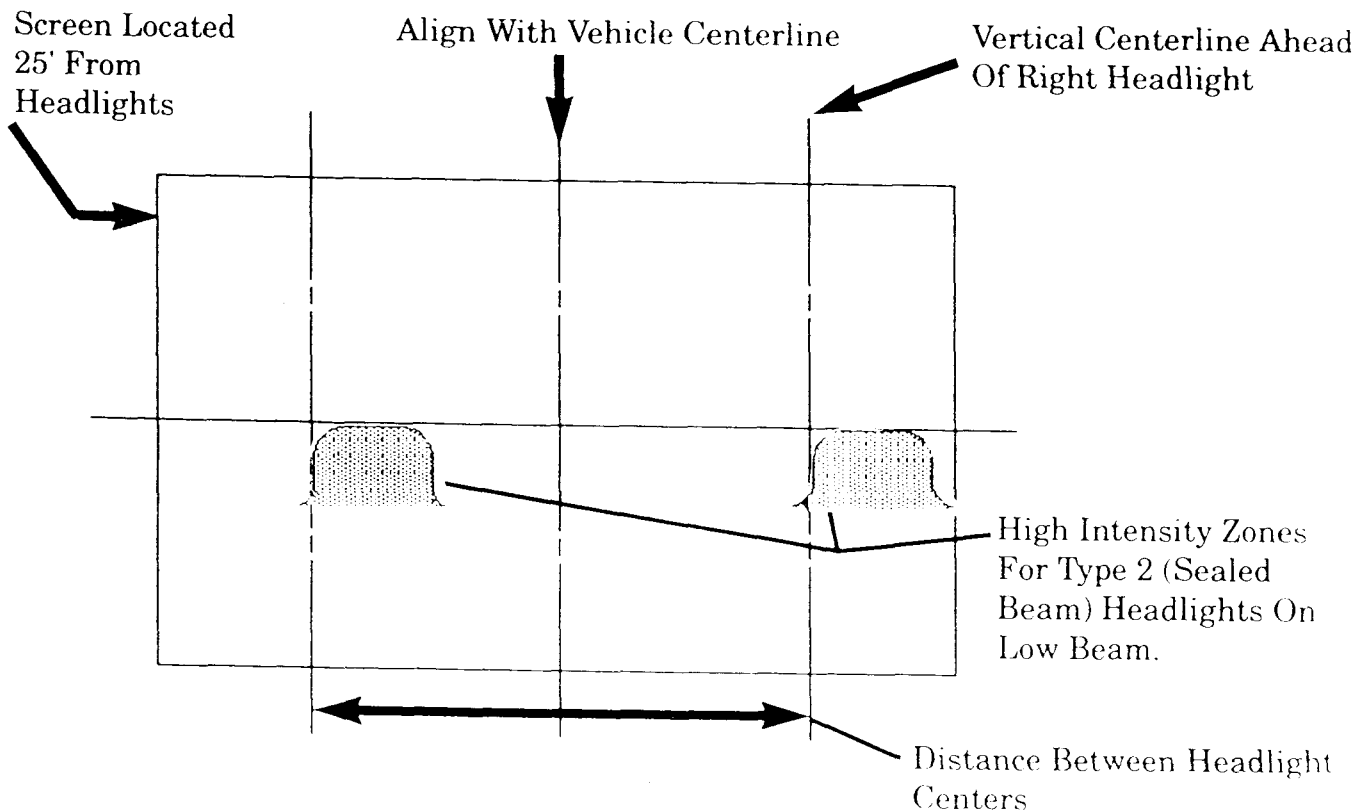
Preparation for Headlight Aim or Inspection.

Before checking beam aim, the inspector shall:

1. Remove ice or mud from under fenders.
2. See that no tire is noticeably deflated.
3. Check car springs for sag or broken leaves.
4. See that there is no load in the vehicle other than the driver.
5. Check functioning of any "level-ride" control.
6. Clean lenses and aiming pads.
7. Check for bulb burnout, broken mechanical aiming pads, and proper beam switching.
8. Stabilize suspension by rocking vehicle sideways.

C. Mark (or tape) the vertical centerline of the headlights and the vehicle itself on the screen. Mark the horizontal centerline of the headlights on the screen (distance from ground to headlight centers).

D. The correct visual aim for Type 2 headlights (snowplow headlights are Type 2; see number on face of sealed beam) is with the top edge of the high intensity zone of the lower beam below the horizontal centerline and the left edge of the high intensity zone on the vertical centerline (See diagram below).



NOTE: Installer of these snowplow lights must certify that installation conforms to applicable Federal Motor Vehicle Safety Standards.

# HYDRAULIC SYSTEM INTRODUCTION

The hydraulic portion of your snowplow plays an important role as it performs the various functions of the plow.

**IT IS VERY IMPORTANT DURING THE INSTALLATION OF THE HYDRAULIC PUMP, VALVE ASSEMBLY, AND HOSES THAT EXTREME CARE BE TAKEN TO MAINTAIN A CLEAN HYDRAULIC SYSTEM.** All precautions taken during the installation of the various components will assure you of trouble free operation later.

1. The majority of the hydraulic installation has been done at the factory, and several checks have been made under Boss Products' in-house quality program. However, a visual check of all hose routing, and cable connections should be performed by installation personnel.
2. **BEFORE FILLING THE HYDRAULIC PUMP WITH FLUID, CHECK ALL HYDRAULIC CONNECTIONS FOR TIGHTNESS AND BE SURE ALL FASTENERS ARE SECURE.**
3. Remove the **FILLER CAP** on the **HYDRAULIC PUMP** reservoir and fill with **BOSS HIGH PERFORMANCE HYDRAULIC FLUID** to within 3/4" from the top. Raise and lower the plow three times. Add fluid to within 3/4" from the reservoir top. Extend and retract the left wing three times (angle right and angle left on straight blade plows). Extend and retract the right wing three times. With both wings retracted lower the plow. Allow the fluid to settle (Air to leave the fluid.) and refill the reservoir to within 3/4" from the top.
4. Operate the hydraulic system checking for leaks at all connection points. Also, verify that all plow functions are correct (i.e. lift, drop, left wing, and right wing operate properly). This initial operation of the hydraulic system also purges any air from the system. The fluid level in the reservoir should be checked for a final time. **NOTE:** Each blade cylinder is equipped with an adjustable **PRESSURE RELIEF VALVE** which controls the retraction of the blades upon striking an object.
5. Adjust the flow control valve (Ref. 52, Fig. 6) to obtain the speed desired for lowering the plow. Turning the thumb screw clockwise to lower the plow slower. Turning the thumb screw counter clockwise will lower the plow more quickly.
6. Bolt cover into place using two 3/8" X 3/4" Hex Head Bolts and 3/8" Self Locking Nuts provided.

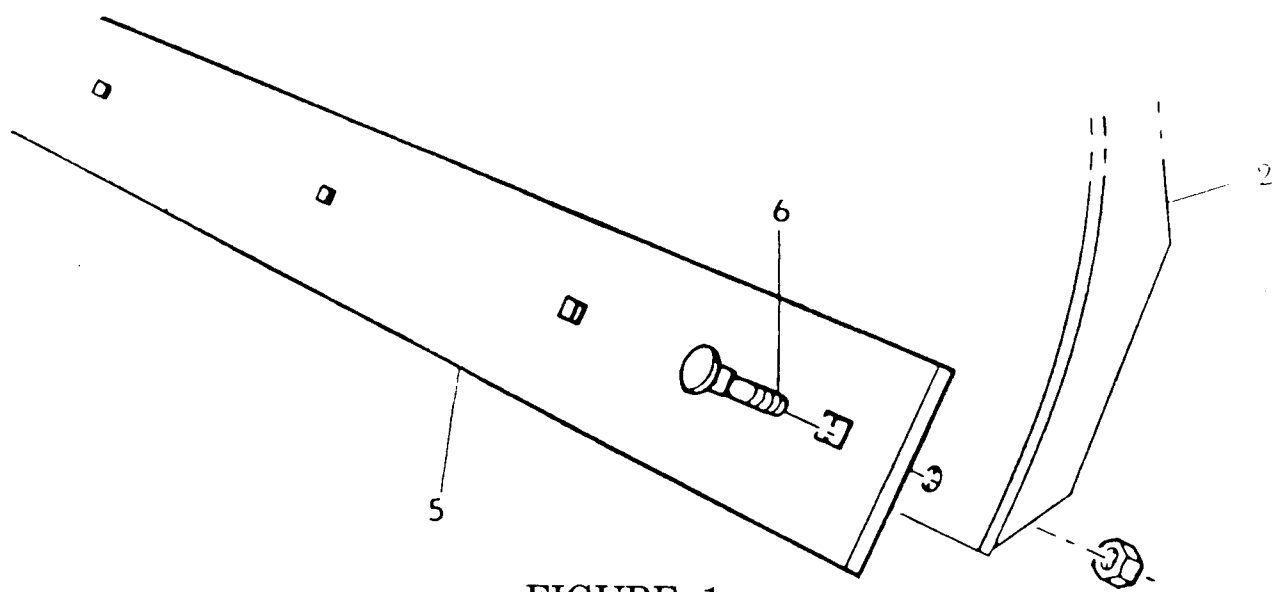


FIGURE 1

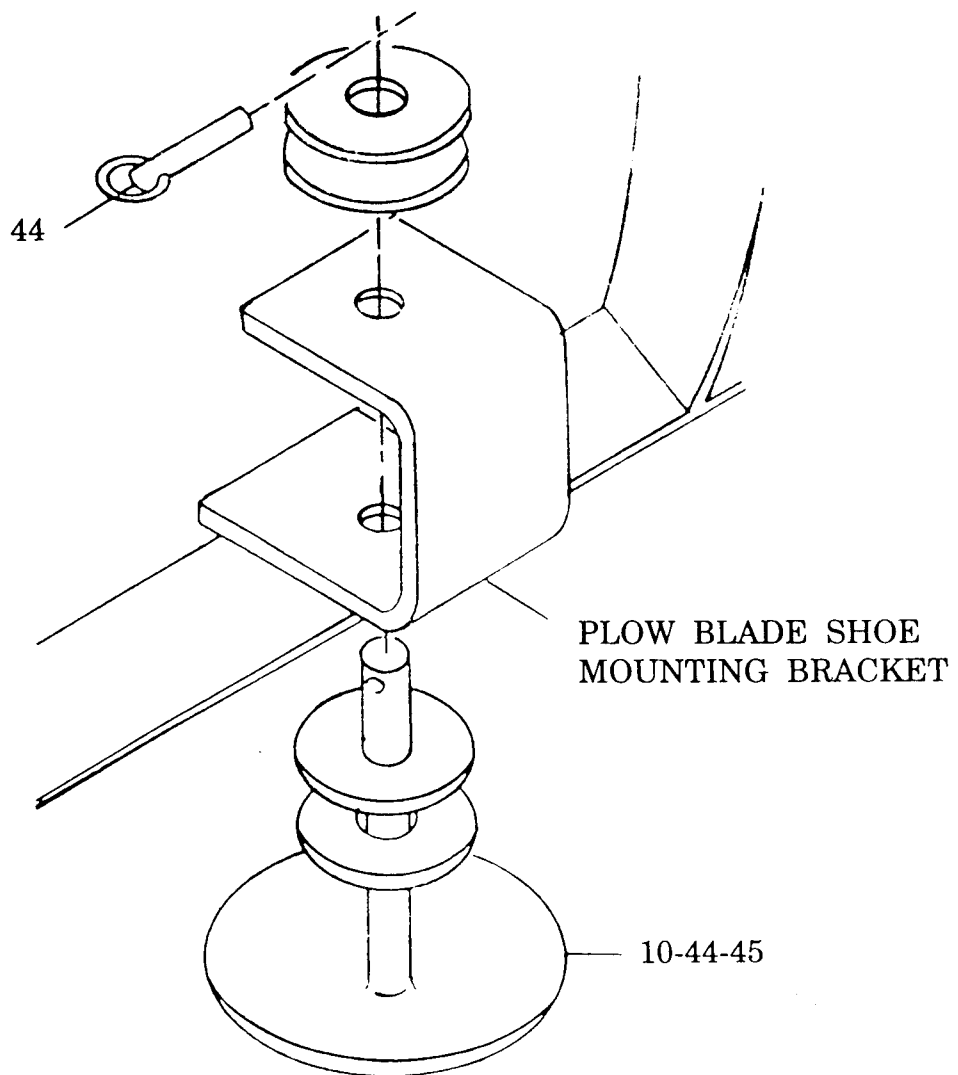


FIGURE 2

# STRAIGHT BLADE SNOWPLOW ASSEMBLY INSTALLATION

REF. NO.	DESCRIPTION	PART NO.	QTY.
2	Blade		
4A	T-Frame attachment Bar (7'6", 8'0", 8'6" Super Duty)	STB3005	1
	T-Frame Attachment Bar (7'6" Standard Duty)	STB3070	
4B	T-Frame (Straight Blade)	STB3145	1
5	Cutting Edge		
6	Carriage Bolt Set	BAX0034	
17A	Hydraulic Cylinder (Angle Straight Blade)	HYD1703	2
22A	Hydraulic Hose (1/4" X 40") (SS)	HYD1702	2
33	Trip/Return Spring	MSC1509	
37	Blade Guide	MSC1562	2
44	Quick Pin - 7/16"	MSC1503	2
47	5/8" Eye Bolt (Super Duty Only)	HDW1700	
47A	1/2" Eye Bolt (7'6" Standard Duty Only)	HDW1744	
67	Shock Absorber (Super Duty Only)	MSC1517	

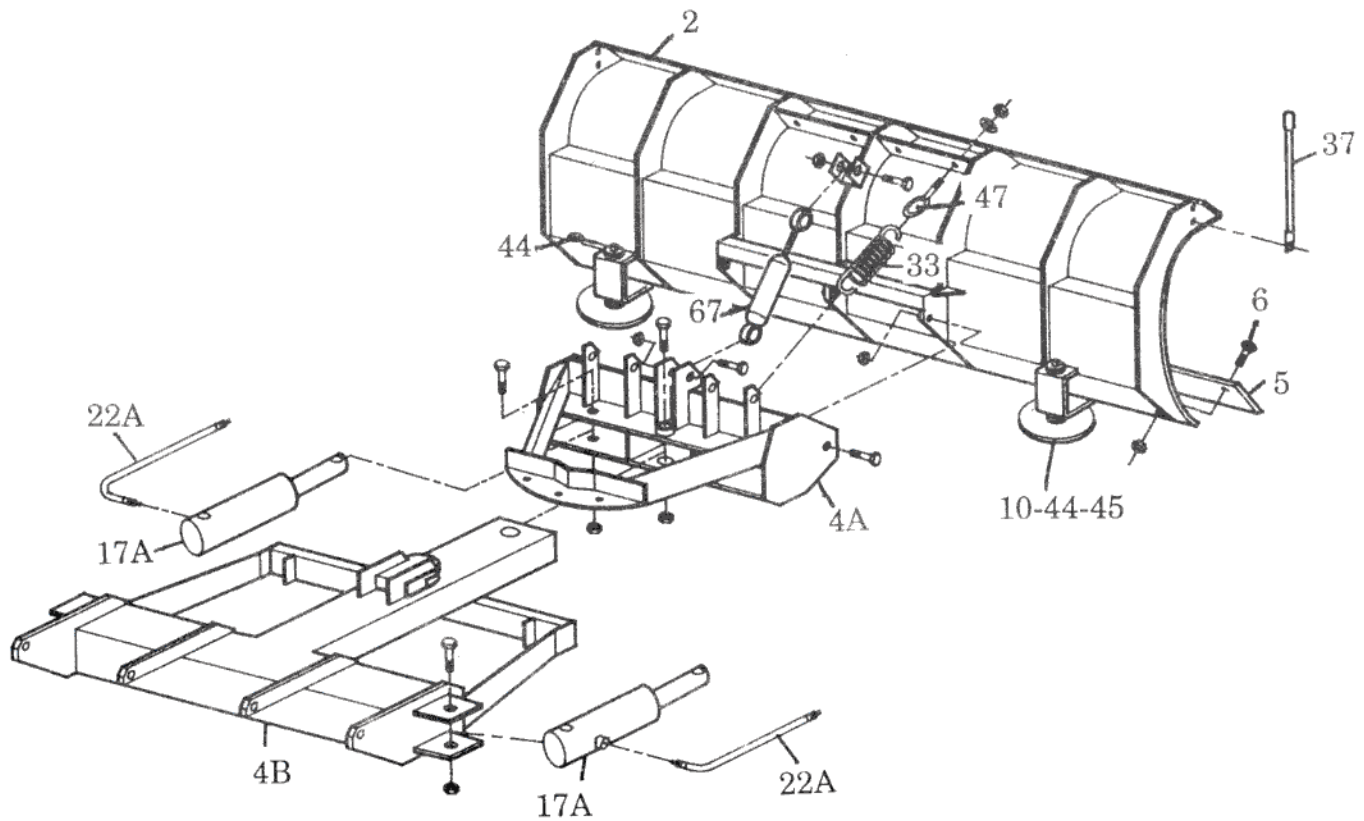


FIGURE 3



# LIGHT BRACKET ASSEMBLY INSTALLATION

REF. NO.	DESCRIPTION	PART NO.	QTY.
61	Coupler Assembly	CPA4340	1
73	Light Bracket Assembly	LBA4360	1
A	1/2" - 13 X 1" Hex Head Bolt		6
B	1/2" - 13 Hex head Self Locking Nut		6
82	Plastic End Cap	MSC3481	2

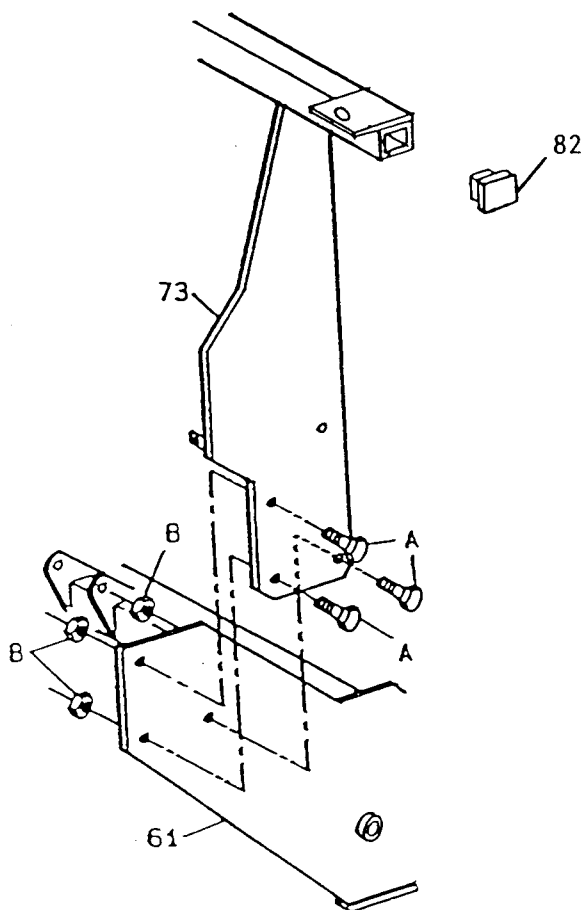


FIGURE 4

# LATCH HANDLE ASSEMBLY INSTALLATION

REF. NO.	DESCRIPTION	PART NO.	QTY.
60	Coupler Latch Pin W/Link	LTA3573	1
59	Hand Lever Guide Assembly	LTA3576	1
58	Latch Handle Safety Pin	HDW5509	1
57	Hand Lever	LTA3555	1
A	3/8" - 16 X 1 1/4" Hex Head Bolt		2
B	3/8" - 16 Hex Head Self Locking Nut		2
C	3/8" Flat Washer		4
D	1/4" - 20 X 1" Hex Head Bolt		4
E	1/4" - 20 Hex Head Self Locking Nut		4

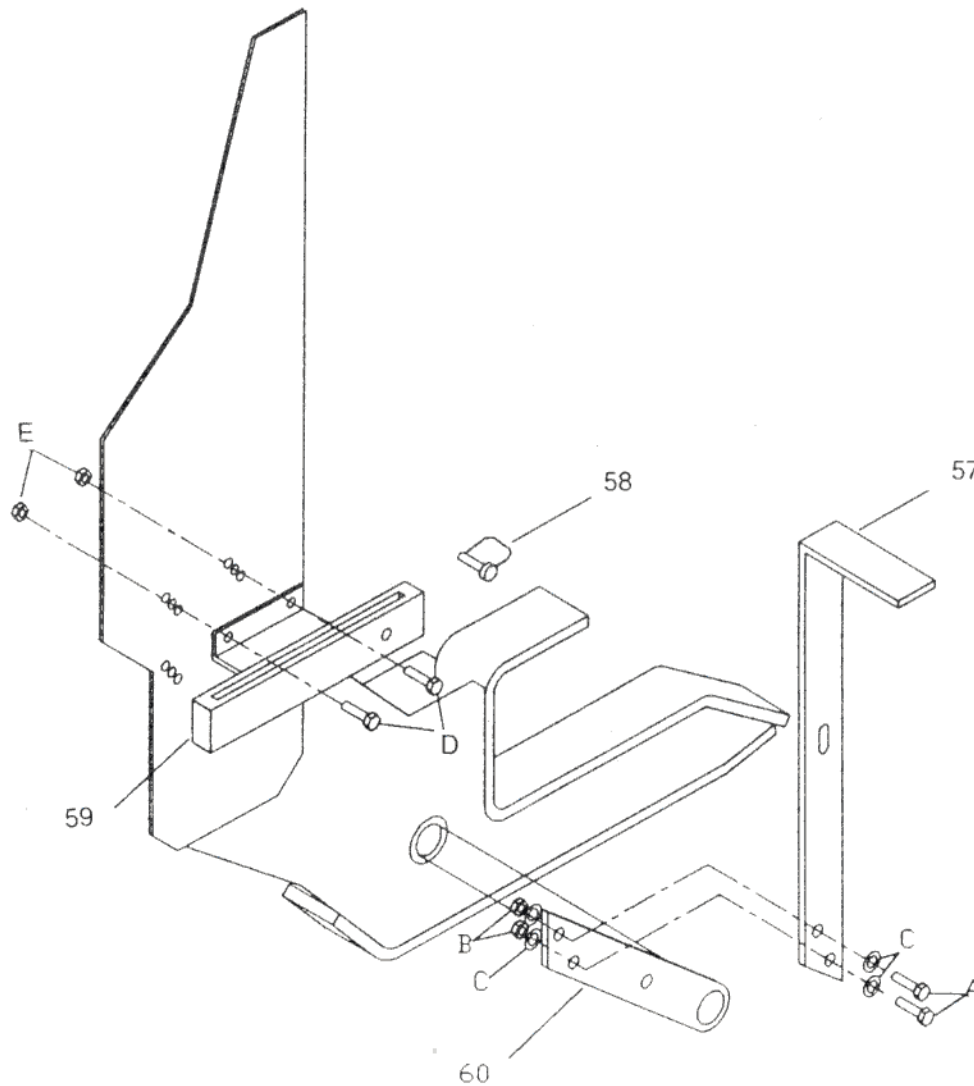


FIGURE 5

# STRAIGHT BLADE HYDRAULIC SYSTEM GENERAL SCHEMATIC

REF. NO.	DESCRIPTION	PART NO.	QTY.
14	Hydraulic Pump	HYD1710	1
15	Hydraulic Valve Assembly (SS)	STB3097	1
17A	Hydraulic Cylinder, Angle (SS)	HYD1703	2
18	Hydraulic Hose (1/4" X 18")	HYD1606	2
18A	Hydraulic Hose (1/4" X 12")	HYD1696	1
18B	Hydraulic Hose (1/4" X 15 1/2")	HYD1695	2
22A	Hydraulic Hose (1/4" X 40")	HYD1702	2
25	Hydraulic Cylinder, Lift	HYD1680	2
25A	Hydraulic Fitting (Tee)	HYD1682	1
31	90 Degree Swivel (SS)	HYD1619	2
32	90 Degree Swivel "O" Ring	HYD1620	4
52	Flow Control Valve	HYD1624	1

## STRAIGHT BLADE

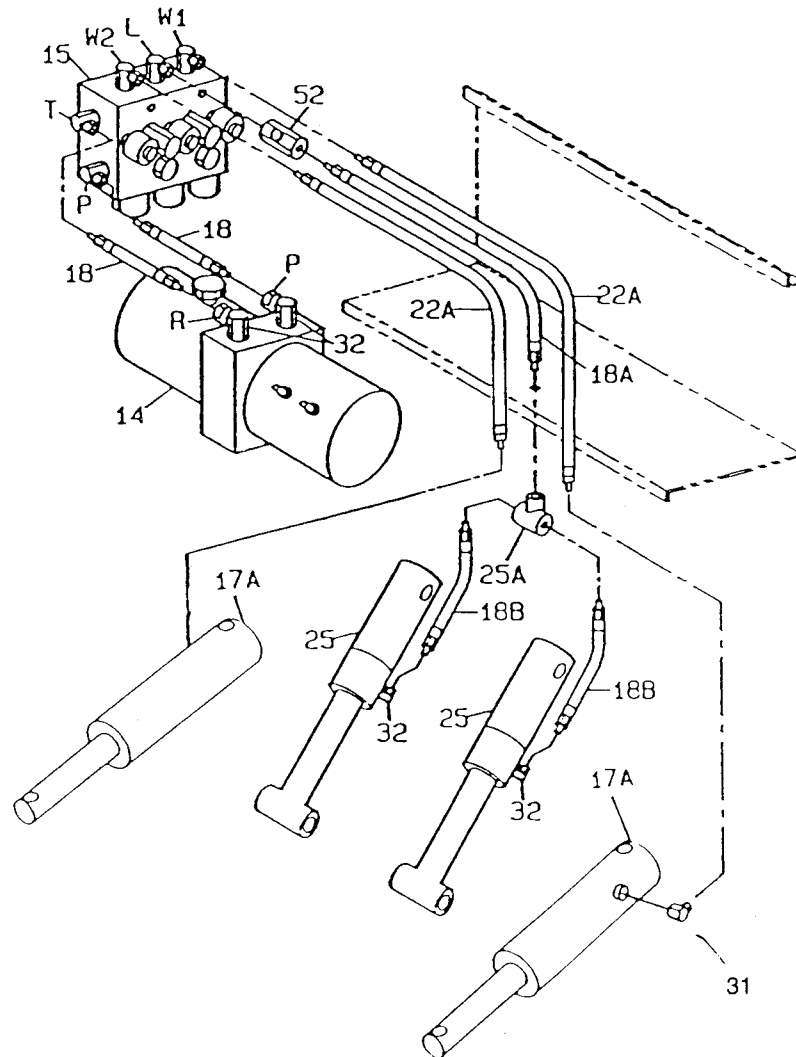


FIGURE 6

# HYDRAULIC VALVE ASSEMBLY PARTS LIST

REF. NO.	DESCRIPTION	PART NO.	QTY.
15	Hydraulic Valve Assembly (SS)	STB3097	1
15A	Valve	HYD1637	6
15B	Coil	HYD1633	6
15C	Relief Valve (SS) 3500 PSI	STB3096	2
15D	Check Valve	HYD1640	3
15E	Screen Cartridge	HYD1641	1
15F	Ground Strap	HYD1647	6

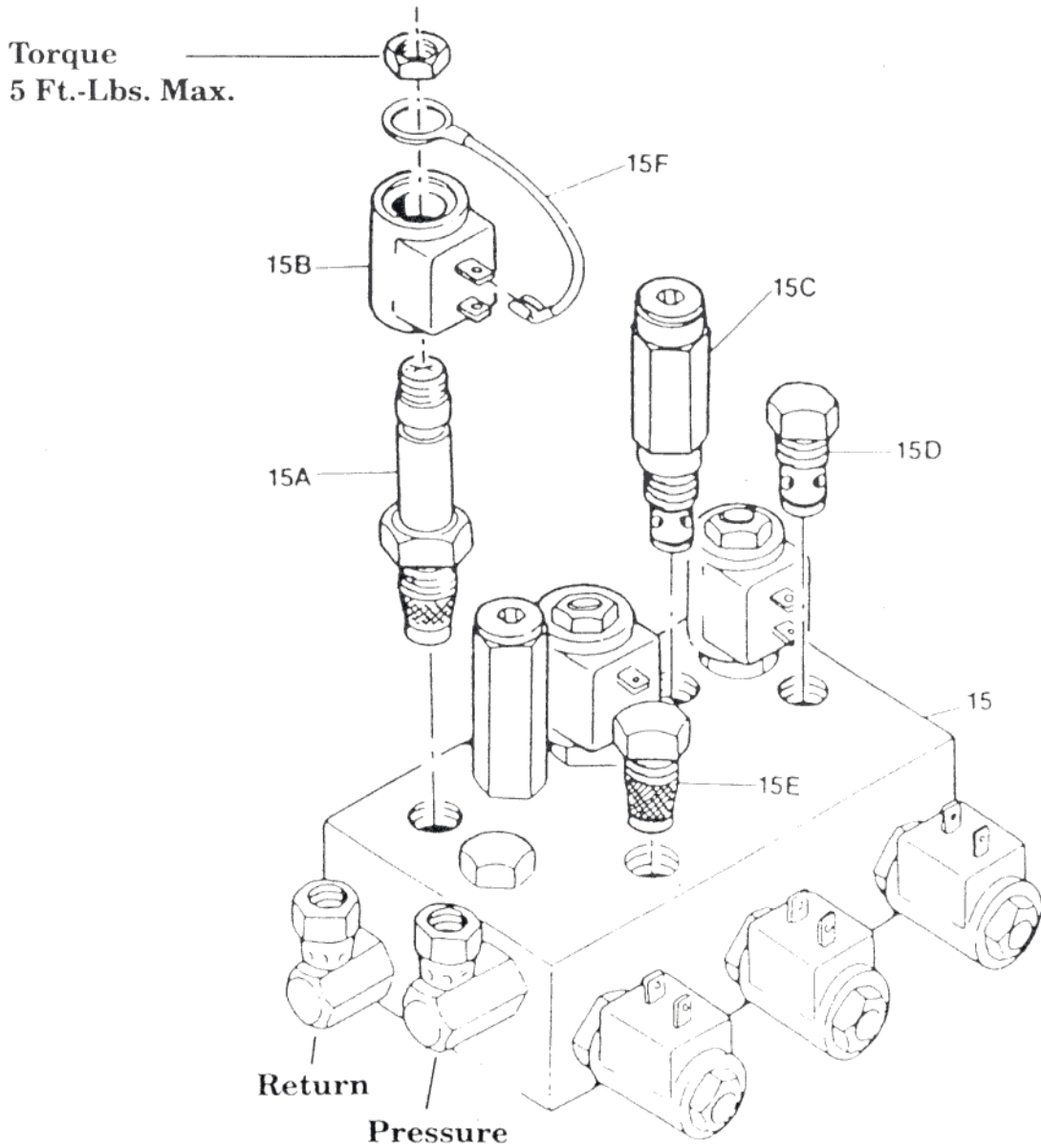
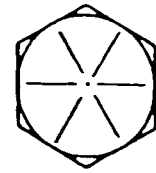
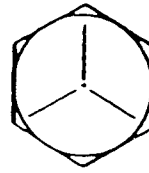


FIGURE 7

# GUIDE TO RECOMMENDED ASSEMBLY TORQUE

All Torque Values Are In Foot-Pounds (Ft.-Lb.)



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

\* The torque values listed above are based on dry, coated bolts, variables such as oil, or other lubrications may appreciably alter these values and must be taken into consideration.

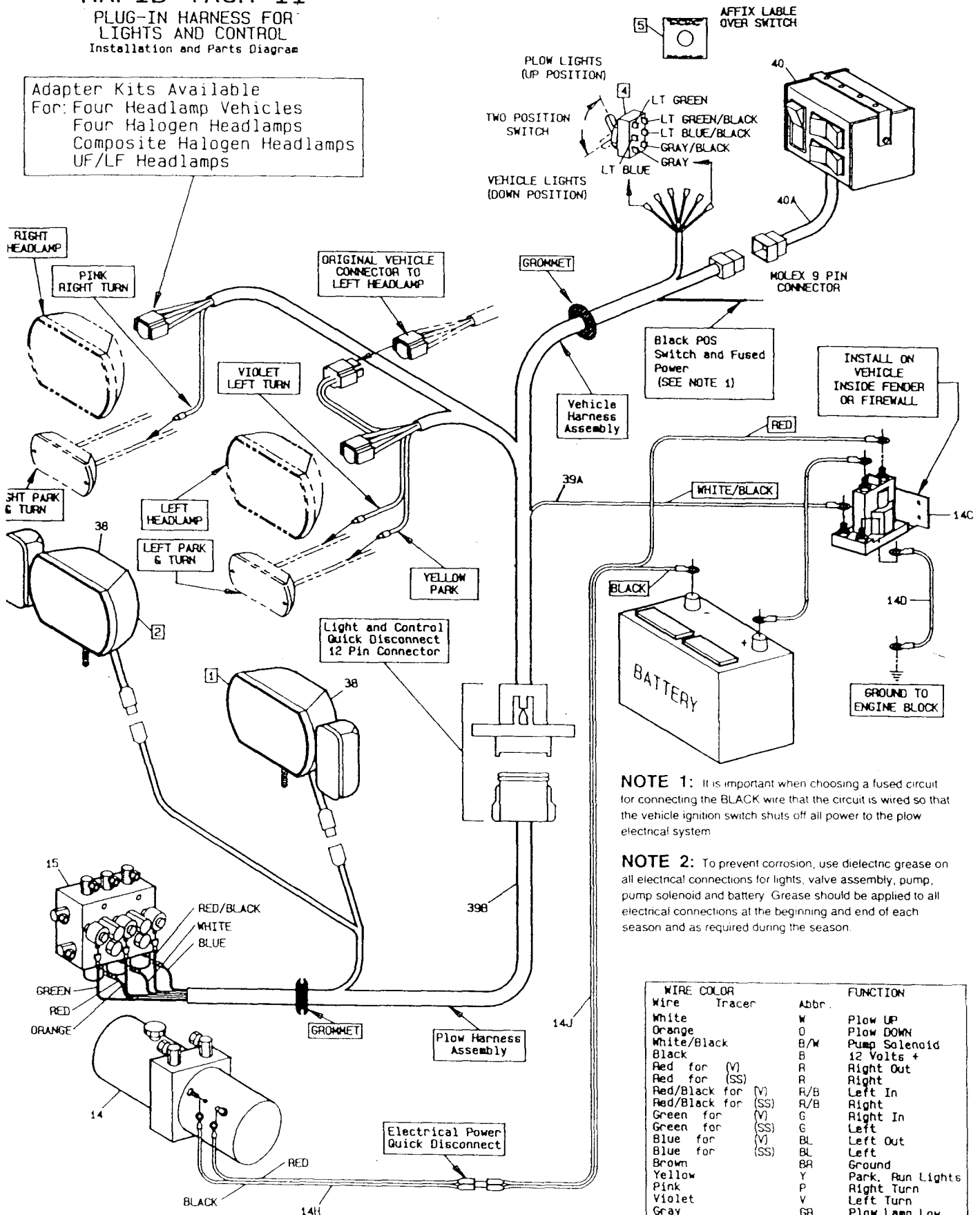
**NOTE: IT IS IMPORTANT THAT ALL FASTENERS BE PROPERLY TORQUED TO ASSURE A SAFE OPERATING PLOW.**

FIGURE 8

# RAPID-TACH II

PLUG-IN HARNESS FOR LIGHTS AND CONTROL  
Installation and Parts Diagram

Adapter Kits Available For:  
Four Headlamp Vehicles  
Four Halogen Headlamps  
Composite Halogen Headlamps  
UF/LF Headlamps



**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. 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
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 9

# STRAIGHT BLADE WITH RAPID-TACH II™ HYDRAULIC PUMP SWITCH ASSEMBLY WIRING DIAGRAM

COLOR	FUNCTION	PIN
BLACK	12 VOLTS +	1
ORANGE	PLOW DOWN	2
WHITE	PLOW UP	3
RED	RIGHT	4
GREEN	LEFT	5
BLUE	LEFT	6
RED/BLACK	RIGHT	7
WHITE/BLACK	PUMP SOLENOID	8

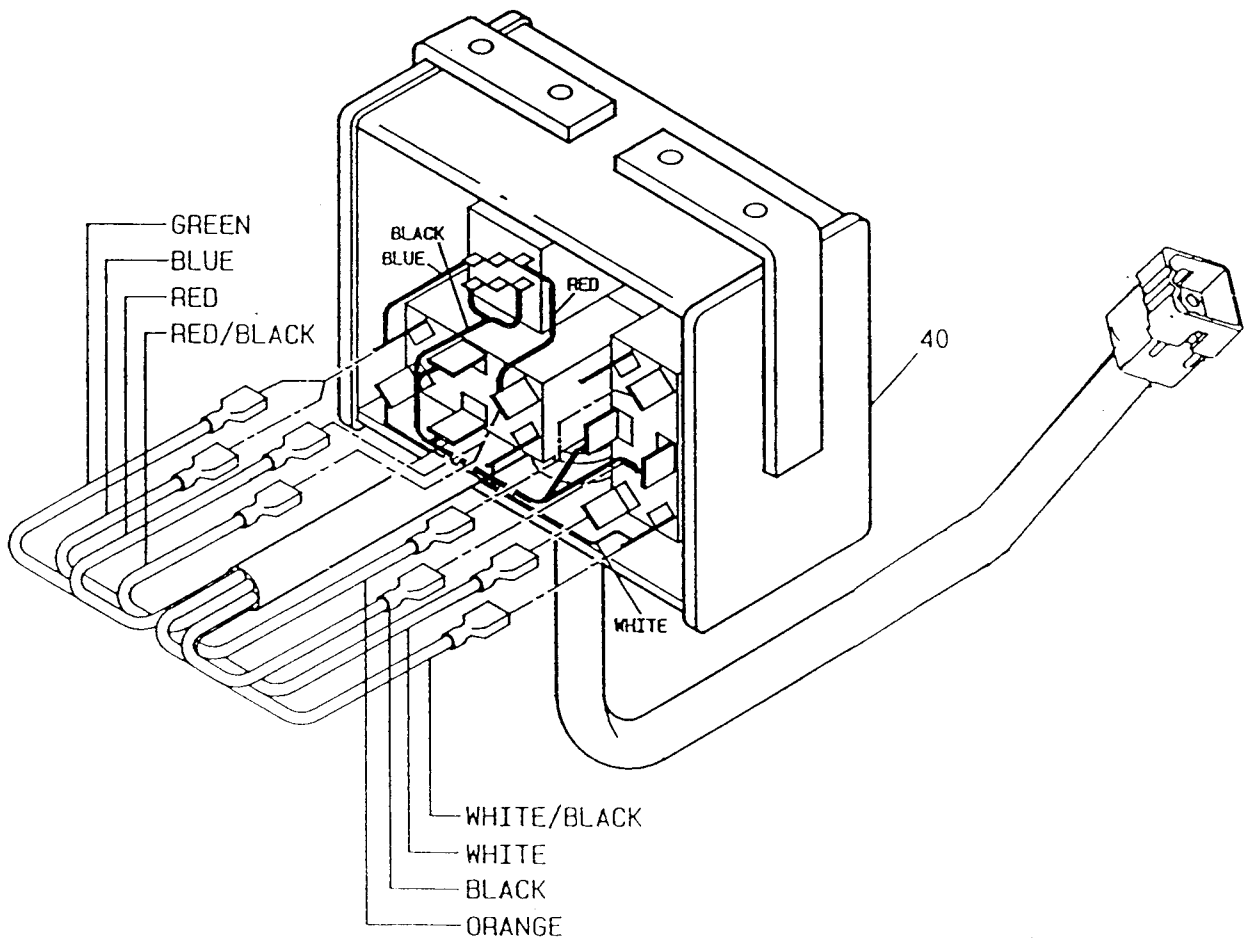


FIGURE 10

# RAPID-TACH II WIRING SCHEMATIC

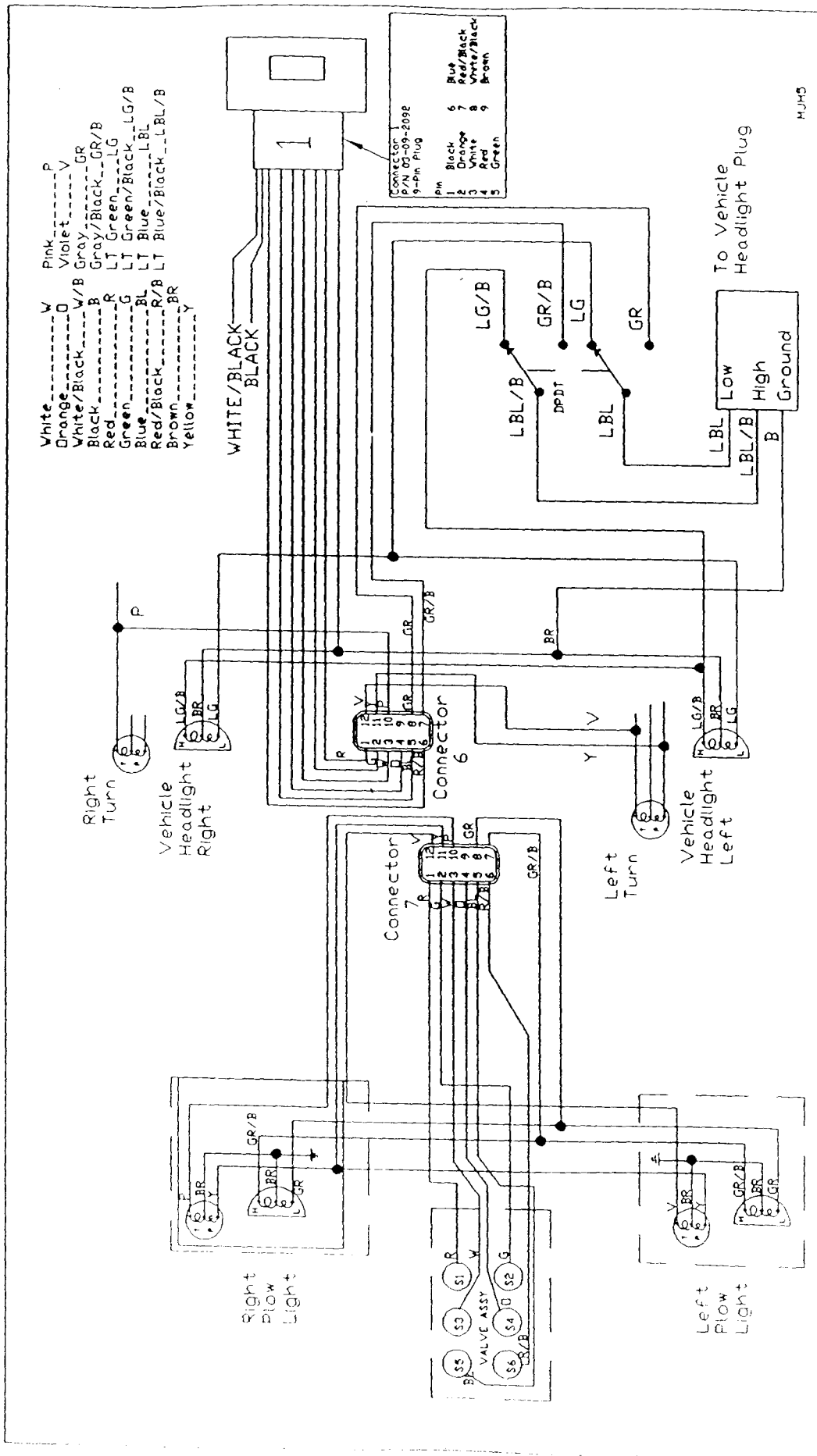


FIGURE 11





# STRAIGHT BLADE WITH RAPID-TACH II™

## PARTS LIST

REF. NO.	DESCRIPTION	PART NUMBER
2	Blade (7'6" Standard Duty)	STB3065
2	Blade (7'6" Super Duty)	STB3000
2	Blade (8'0" Super Duty)	STB3001
2	Blade (8'6" Super Duty)	STB3066
4	T-Frame (7'6", 8'0", 8'6" (Straight Blade)	STB3145
4 A	T-Frame Attachment Bar (7'6", 8'0", 8'6" Super Duty)	STB3005
4 A	T-Frame Attachment (7'6", Standard Duty)	STB3070
5	Cutting Edge (7'6" Standard Duty)	STB3071
5	Cutting Edge (7'6" Super Duty)	STB3002
5	Cutting Edge (8'0" Super Duty)	STB3003
5	Cutting Edge (8'6" Super Duty)	STB3072
6	Carriage Bolt Set	BAX0034
	Includes: (10) Carriage Bolts Grade #8 (10) 1/2" Hardened Washers (10) 1/2" Lock Nuts	
10-44-45	Plow Shoe Assembly (Super Duty)	MSC1501
	Includes: (1) Plow Shoe (1" Shaft) (1) Quick Pin 7/16" (20) 1" Flat Washers	
	Plow Shoe Assembly (7'6" Straight Blade Standard Duty Only)	MSC3420
	Includes: (1) Plow Shoe (2) Quick Pin (20) 1" Flat Washers	
14	Hydraulic Pump - Barnes	HYD1710
14 A	Hydraulic Pump Filler Cap - Barnes	HYD1636
14 B	Hydraulic Pump Motor - Barnes	MSC1563
14 C	Hydraulic Pump Solenoid	HYD1633
14 D	Hydraulic Pump Ground Cable	MSC1559
14 H	Ground/Power Cable (60" Long)	HYD1684
14 J	Ground/Power Cable (36" Long)	HYD1690
14 K	Ground/Power Cable Dust Cap/Plug (1-Req'd)	MSC3424
14 L	Hydraulic Reservoir Drain Plug	HYD1712
15	Hydraulic Valve Assembly (Straight Blade)	STB3097
15 A	Hydraulic Lift/Angle Valve	HYD1637
15 B	Hydraulic Valve Coil	HYD1638
15 C	Hydraulic Relief Valve	STB3096
15 D	Hydraulic Check Valve	HYD1640
15 E	Hydraulic Valve Screen Cartridge	HYD1641
15 F	Hydraulic Valve Ground Strap	HYD1647
17 A	Hydraulic Cylinder (Angle Straight Blade)	HYD1703
18	Hydraulic Hose (1/4" X 18")	HYD1606
18 A	Hydraulic Hose (1/4" x 12")	HYD1696
18 B	Hydraulic Hose (1/4" x 15-1/2")	HYD1695
22 A	Hydraulic Hose (1/4" X 40") (SS)	HYD1702
25	Hydraulic Cylinder (Lift)	HYD1680

# STRAIGHT BLADE WITH RAPID-TACH II™ PARTS LIST

REF. NO.	DESCRIPTION	PART NO.
25 A	Hydraulic - Tee (Lift)	HYD1682
31	90 Degree Swivel	HYD1619
32	90 Degree Swivel - "O" Ring	HYD1620
33	Trip/Return Spring	MSC1509
37	Blade Guide Set	BAX0005
37 A	Blade Guide Tip	MSC1562
38	Auxiliary Headlight Set	MSC1513
39	Auxiliary Light Harness Assembly Includes: Toggle Switch Connectors	MSC1514
39 A	Light and Control Harness (Vehicle Only) 116" Long	MSC3742
39 B	Light and Control Harness (Plow) 48" Long	MSC3741
40	Hydraulic Pump Switch Assembly-Control Box (SS)	STB3124
41	Rocker Switch - Lift	HYD1622
42	Rocker Switch - Angle	HYD1623
44	Quick Pin - 7/16"	MSC1503
47	Eye Bolt (Super Duty)	HDW1700
47A	Eye Bolt (Standard Duty)	HDW1744
52	Flow Control Valve With Adapter	HYD1624
57	Latch Handle	LTA3555
58	Latch Handle Safety Pin	HDW5509
59	Latch Handle Guide	LTA3566
60	Coupler Latch Pin	LTA3573
61	Coupler Assembly	LPA4340
62	Push Beam Assembly	
62 A	Push Beam Support Plate (RH) Passenger Side	
62 B	Push Beam Support Plate (LH) Driver Side	
67	Shock Absorber (Super Duty)	MSC1517
73	Light Bracket Assembly	LBA4701
73 A	Light Bracket Hydraulic Cover	LBA4360
75 A	Angle Bracket (RH) Passenger Side	
75 B	Angle Bracket (LH) Passenger Side	
80	Electrical Quick Disconnect Mounting Bracket	MSC3421
81	Dielectric Grease (2 Oz. Tube)	MSC3423
82	Plastic End Cap	MSC3481
101	Power/Ground Cable Bracket	MSC3491
102	1-1/8" Rubber Grommet	MSC3456
103	Jackstand	MSC3754
103 A	Jackstand Crank Handle	MSC3755
104	Weather Cap for Light and Control Harness (Vehicle Side)	MSC3743
105	Jackstand Stop Pin	HDW5513
106	Weather Cap for Light and Control Harness (Plow Side)	MSC3744
107	Jackstand Handle	TRR3744
108	Light Adapter	TFR4351

## Troubleshooting Guide

### Glossary of Problems:

1. Pump motor does not run.
2. Pump continues to run with switch in neutral.
3. Plow will not lower.
4. Plow will not raise or raises slowly, motor runs.
5. Plow lowers too fast.
6. Quick couplers can not be connected.
7. Oil leaks from cylinders.
8. Battery goes dead with all switches in neutral.
9. Plow lights are dim, will not come on or flicker.
10. Turn signals flash at a rapid rate.
11. Blade trips too easily.
12. Plow does not clean-up snow from low areas.
13. Rapid-Tach cable will not pull up or is tight.
14. In extremely cold temperatures, the oil in the hydraulic system is thickened, causing slow functioning of the plow.
15. Vehicle overheats with the plow on.
16. Oil running out of fill cap on hydraulic pump.
17. Pump chatters when raising plow or angling.

1.

PROBLEM	CAUSE	REMEDY
PUMP MOTOR DOES NOT RUN	A. DEFECTIVE SOLENOID B. DEFECTIVE PUMP MOTOR C. WEAK OR DEFECTIVE BATTERY D. BAD ELECTRICAL CONNECTIONS E. DEFECTIVE UP/DOWN SWITCH	A. REPLACE SOLENOID B. REPLACE PUMP MOTOR C. CHARGE OR REPLACE BATTERY D. TIGHTEN NUTS AT CONNECTIONS E. REPLACE SWITCH

2.

PROBLEM	CAUSE	REMEDY
PUMP CONTINUES TO RUN WITH SWITCH IN NEUTRAL	A. DEFECTIVE SOLENOID B. DEFECTIVE SWITCH C. WIRING SHORT	A. REPLACE SOLENOID B. REPLACE SWITCH C. LOCATE AND REPAIR

3.

PROBLEM	CAUSE	REMEDY
PLOW WILL NOT LOWER	A. FLOW CONTROL VALVE CLOSED B. FLOW CONTROL VALVE NOT INSTALLED PROPERLY  C. CHECK WIRING ON POWER UNIT D. CHECK WIRING ON UP/DOWN SWITCH E. DEFECTIVE UP/DOWN SWITCH F. DEFECTIVE LIFT RETURN VALVE G. DEFECTIVE LIFT RETURN COIL	A. OPEN FLOW CONTROL VALVE B. ARROW ON FLOW CONTROL VALVE MUST POINT TOWARD POWER UNIT C. WIRES MAY BE REVERSED D. WIRE(S) MAY HAVE COME LOOSE  E. REPLACE SWITCH F. REPLACE VALVE G. REPLACE COIL

## TROUBLESHOOTING GUIDE

4.

PROBLEM	CAUSE	REMEDY
PLOW WILL NOT RAISE OR RAISES SLOWLY, MOTOR RUNS	A. WEAK OR DEFECTIVE BATTERY B. OIL LEVEL LOW C. FLOW CONTROL VALVE NOT INSTALLED PROPERLY D. HYDRAULIC CONNECTION LEAK E. LIFT VALVE NOT OPENING PROPERLY F. DEFECTIVE LIFT VALVE COIL	A. CHARGE OR REPLACE BATTERY B. ADD OIL (DO NOT OVERFILL) C. ARROW ON FLOW CONTROL VALVE MUST POINT TOWARD VALVE BLOCK D. TIGHTEN OR REDO CONNECTION E. REPLACE VALVE F. REPLACE COIL

5.

PROBLEM	CAUSE	REMEDY
PLOW LOWERS TOO FAST	A. FLOW CONTROL VALVE NOT INSTALLED B. FLOW CONTROL VALVE FULLY OPEN	A. INSTALL FLOW CONTROL VALVE B. CLOSE VALVE TO DESIRED DROP SPEED

6.

PROBLEM	CAUSE	REMEDY
QUICK COUPLERS CAN NOT BE CONNECTED	A. PRESSURE BUILDUP B. DEFECTIVE QUICK COUPLER	A. RELIEVE PRESSURE MANUALLY B. REPLACE QUICK COUPLER

7.

PROBLEM	CAUSE	REMEDY
OIL LEAKS FROM CYLINDER(S)	A. LOOSE PACKING B. DEFECTIVE CYLINDER	A. TIGHTEN PACKING NUT 1/8 TURN B. REPACK OR REPLACE CYLINDER

8.

PROBLEM	CAUSE	REMEDY
BATTERY GOES DEAD WITH ALL SWITCHES IN NEUTRAL	A. POSSIBLE SHORT IN SWITCH(S) B. POSSIBLE SHORT IN WIRING C. POSSIBLE SHORT IN VALVE COIL(S)	A. REPLACE SWITCH(S) B. REPAIR DAMAGED WIRE C. REPLACE COIL(S)

9.

PROBLEM	CAUSE	REMEDY
PLOW LIGHTS ARE DIM, WILL NOT COME ON OR FLICKER	A. BAD CONNECTION(S) B. LIGHTS NOT PROPERLY GROUNDED	A. REPAIR CONNECTION B. PROPERLY GROUND

10.

PROBLEM	CAUSE	REMEDY
TURN SIGNALS FLASH AT A RAPID RATE	A. IMPROPER FLASHER	A. REPLACE ORIGINAL VEHICLE FLASHER WITH THE HEAVY DUTY SIX LAMP FLASHER PROVIDED

## TROUBLESHOOTING GUIDE

11.

PROBLEM	CAUSE	REMEDY
BLADE TRIPS TOO EASILY	A. NOT ENOUGH TENSION ON TRIP SPRINGS	A. ADD TENSION TO TRIP SPRINGS BY TIGHTENING THE EYE BOLTS

12.

PROBLEM	CAUSE	REMEDY
PLOW DOES NOT CLEAN-UP SNOW FROM LOW AREAS	A. UP/DOWN SWITCH IN NEUTRAL B. NOT ENOUGH SLACK IN THE LIFT CHAIN	A. UP/DOWN SWITCH SHOULD BE IN THE DOWN POSITION (FLOAT) B. PROVIDE MORE SLACK IN LIFT CHAIN

13.

PROBLEM	CAUSE	REMEDY
RAPID-TACH CABLE WILL NOT PULL UP OR IS TIGHT	A. IMPROPER ROUTING OF CABLE B. ICE BUILDUP ON MECHANISM C. BENT RAPID-TACH PIN(S) D. BACK PRESSURE ON PINS	A. REROUTE CABLE-NO SHARP BENDS B. REMOVE ICE C. STRAIGHTEN OR REPLACE PIN(S) D. WITH PLOW DOWN, DRIVE FORWARD WHILE PULLING CABLE

14.

PROBLEM	CAUSE	REMEDY
IN EXTREMELY COLD TEMPERATURES, THE OIL IN THE HYDRAULIC SYSTEM IS THICKENED, CAUSING SLOW FUNCTIONING OF THE PLOW	A. COLD TEMPERATURES  NOTE: FOR EXTREME COLD WEATHER APPLICATIONS, AN AIRCRAFT HYDRAULIC OIL, MIL. SPEC. NO. 5606 IS RECOMMENDED. DO NOT USE SYNTHETIC OILS. THEY ARE NOT COMPATIBLE WITH THE SEALS IN THE CYLINDERS, PUMP OR VALVES.	A. AS THE SYSTEM WARMS, THE OIL WILL THIN OUT AND FUNCTION NORMALLY

15.

PROBLEM	CAUSE	REMEDY
VEHICLE OVERHEATS WITH THE PLOW ON	A. VEHICLE COOLANT LEVEL LOW B. ICE AND SNOW BUILDUP IN GRILLE C. DEFECTIVE RADIATOR HOSE(S) D. INSUFFICIENT COOLING FAN	A. ADD COOLANT B. REMOVE ICE AND SNOW C. REPLACE DEFECTIVE HOSE(S) D. INSTALL HEAVY DUTY, NON-CLUTCH TYPE FAN

## TROUBLESHOOTING GUIDE

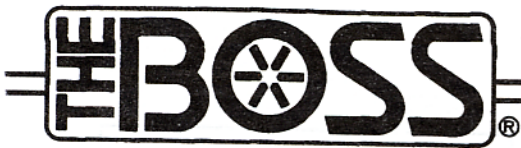
16.	<b>PROBLEM</b>	<b>CAUSE</b>	<b>REMEDY</b>
	OIL RUNNING OUT OF FILL CAP ON HYDRAULIC PUMP	A. PLOWING ON STEEPLY INCLINED TERRAIN B. TOO MUCH OIL C. HYDRAULIC PUMP NOT LEVEL	A. AVOID EXCESSIVE INCLINES OR CHANGE DIRECTION OF PLOWING B. REMOVE EXCESS OIL C. LEVEL HYDRAULIC PUMP

17.	<b>PROBLEM</b>	<b>CAUSE</b>	<b>REMEDY</b>
	PUMP CHATTERS WHEN RAISING PLOW OR ANGLING	A. HYDRAULIC OIL LOW	A. ADD HYDRAULIC OIL UNTIL CHATTERING STOPS. CAUTION: ONLY ADD ENOUGH OIL TO STOP THE CHATTERING- DO NOT OVERFILL



## SNOWPLOW SPECIFICATIONS

DESCRIPTION	7'6" STANDARD-DUTY	7'6" SUPER-DUTY	8" SUPER-DUTY	8'6" SUPER-DUTY
Blade Width	7'6"	7'6"	8'	8'6"
Blade Height	27-1/2"	29-1/2"	29-1/2"	29-1/2"
Gauge of Steel	11 Gauge	11 Gauge	11 Gauge	11 Gauge
Cutting Edge (10809 Steel)	3/8" x 6"	1/2" x 6"	1/2" x 6"	1/2" x 6"
Number of Vertical Ribs	7	7	7	7
Plowing Width @ 30 Degrees	78"	78"	83"	88"
Number of Trip Springs	3	3	3	4
Boxed-In Moldboard	No	Yes	Yes	Yes
Hydraulics (Electric)	Under Hood			
Shock Absorber	No	Yes	Yes	yes
Plow Weight (Lbs. - Approx.)	695 Lbs.	795 Lbs.	820 Lbs.	845 Lbs.

**SNOWPLOW****TWO YEAR WARRANTY  
FOR BOSS SNOWPLOWS MOUNTED ON  
LESS THAN 10,000 LB. GVW TRUCKS**

M.J. ELECTRIC, INC. warrants, for a period of two (2) years from the date of delivery to the original consumer, each snowplow manufactured by it to be free from defects in material and workmanship. If within such warranty period, any part thereof is found to be defective, M.J. ELECTRIC, INC. shall, at its option repair or replace the defective part, F.O.B. M.J. ELECTRIC, INC.'S factory. Repair labor and expendable parts such as hoses, plow shoes, cutting edges, pins, nuts, bolts, springs, blade guides, etc. are not covered under this warranty. M.J. ELECTRIC, INC.'S obligation hereunder shall be limited to such repair or replacement and shall be further conditioned upon M.J. ELECTRIC, INC. receiving written notice of any alleged defect within the (10) days after its discovery and, at M.J. ELECTRIC, INC.'S option, the return of the alleged defective part to M.J. ELECTRIC, INC. F.O.B. its factory. Send Defect Notification to: BOSS SNOWPLOW CUSTOMER SERVICE, M.J. ELECTRIC, INC., P.O. BOX 686, IRON MOUNTAIN, MICHIGAN 49801. This warranty shall only apply to new snowplows and shall not apply to snowplows sold as used snowplows or as demonstrators.

The foregoing warranty shall not apply to parts repaired or altered by others than M.J. ELECTRIC, INC. or which shall have been subject to other than normal use or service; negligence; accident; or improper installation, maintenance, care or storage.

**THE FOREGOING WARRANTIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER EXPRESSED AND IMPLIED WARRANTIES (EXCEPT OF TITLE) INCLUDING BUT NOT LIMITED TO THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.**

**M.J. ELECTRIC, INC.'S LIABILITY IS EXPRESSLY LIMITED TO THE REPAIR AND REPLACEMENT OF DEFECTIVE PARTS AS HEREIN PROVIDED. M.J. ELECTRIC, INC. SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL, INCIDENTAL OR CONTINGENT DAMAGES WHATSOEVER.** Attachment of M.J. ELECTRIC, INC.'S snowplow to motor vehicles is at the risk and expense of the purchaser. M.J. ELECTRIC, INC. does not assume any liability for any damage to a motor vehicle resulting from the attachment, or from the use of M.J. ELECTRIC, INC.'S snowplow. Some states do not allow exclusion or limitation of incidental or consequential damages, so the above limitation may not apply to you. This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

**M.J. ELECTRIC, INC. RESERVES THE RIGHT UNDER ITS PRODUCT IMPROVEMENT POLICY TO CHANGE CONSTRUCTION OR DESIGN DETAILS AND FURNISH EQUIPMENT WHEN SO ALTERED WITHOUT REFERENCE TO ILLUSTRATIONS OR SPECIFICATIONS.**