

OWNER/OPERATOR'S MANUAL & ILLUSTRATED PARTS LIST

MODEL:

73-70550 V-BLADE BD358



WARNING: If incorrectly used this machine can cause severe injury. Those who use and maintain this machine should be trained in its proper use, warned of its dangers and should read the entire manual before attempting to set up, operate, adjust or service the machine.



09-375 REV 0

**CALIFORNIA
Proposition 65 Warning**

Diesel engine exhaust and some of its constituents are known to the State of California to cause cancer, birth defects and other reproductive harm.



WARNING

The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects or other reproductive harm.

**Californie Proposition 65
Avertissement**

Les échappements des moteurs diesel et certains de leurs composés sont reconnus par l'Etat de Californie pour être cancérigènes, provoquer des défauts congénitaux et d'autres dangers en matière de reproduction.



AVERTISSEMENT

L'émission du moteur de ce matériel contient des produits chimiques que l'Etat de Californie considère être cancérigènes, provoquer des défauts congénitaux et d'autres dangers en matière de reproduction.

**California Advertencia
de la Proposicion 65**

El estado de California hace saber que los gases de escape de los motores diesel y algunos de sus componentes producen cáncer, defectos de nacimiento y otros daños en el proceso de reproducción humana.



ADVERTENCIA

El estado de California hace saber que los gases de escape de este producto contienen productos químicos que producen cáncer, defectos de nacimiento y otros daños en el proceso de reproducción humana.

IMPORTANT MESSAGE

Thank you for purchasing this Jacobsen product. You have purchased a world class product, one of the best designed and built anywhere.

This product comes with an Owner/Operator's Manual. The useful life and good service you receive from this product depends to a large extent on how well you read and understand this manual. Treat this product properly and adjust it as instructed, and it will give you many years of reliable service.

See a Jacobsen dealer for any service or parts needed. Jacobsen service ensures that you continue to receive the best results possible from Jacobsen products. You can trust Jacobsen replacement parts because they are manufactured with the same high precision and quality as the original parts.

Jacobsen designs and builds its equipment to serve many years in a safe and productive manner. For longest life, use this product only as directed in the manual, keep it in good repair and follow safety warnings and instructions. You'll always be glad you did.

Jacobsen, a Textron Company
One Bob Cat Lane
Johnson Creek, WI 53038-0469

TABLE OF CONTENTS	FIGURES	PAGE
INTRODUCTION / SPECIFICATIONS		2
SAFETY		3, 4
DECALS		5
INSTALLATION INSTRUCTIONS		6-13
OPERATION / SERVICE		14
PARTS SECTION		15
V-BLADE PARTS	FIGURE 1	16, 17
HYDRAULICS	FIGURE 2	18, 19
OPTIONAL WING EXTENSION	FIGURE 3	20, 21

DESCRIPTION

The BD358 V-Blade is designed for use on all Steiner power units equipped with a quick-hitch and auxilliary hydraulic couplers. The unique ability to move each wing independently, gives it many advantages over a power angle blade. A touch of the electrical solenoid switch enables the auxiliary hydraulic to control your choice of right or left wing movement for multiple blade positions. Snow removal becomes easy with this multiple angle v-blade.

Features include:

- Front mount Quick-Hitch
- Multiple angle positions
- Adjustable skid shoes
- Two position cutting edge
- Electro-hydraulic independent blade wing angling



SPECIFICATIONS

Overall Width	69-1/4"
Cutting Width	straight 58"
	scoop 49"
	v-blade 53"
Overall Height	21"
Overall Length	31"
Blade Height from Cutting Edge	21"
Angling	30 degrees left & right, front & back
Skid Shoes	Adjustable
Forward Tilt	Spring-loaded
Cutting Edge, 2 Position	3/8" X 4" Hardened
Weight	248 lbs.

* These specifications are subject to change without notice.

NOTICE !!!

Unauthorized modifications may present **extreme** safety hazards to operators and bystanders and could also result in product damage.

Jacobsen, a Textron Company strongly warns against, rejects and disclaims any modifications, add-on accessories or product alterations that are not designed, developed, tested and approved by Jacobsen Engineering Department. Any Jacobsen product that is altered, modified or changed in any manner not specifically authorized after original manufacture—including the addition of “after-market” accessories or component parts not specifically approved by Jacobsen—will result in the Jacobsen Warranty being voided.

Any and all liability for personal injury and/or property damage caused by any unauthorized modifications, add-on accessories or products not approved by Jacobsen will be considered the responsibility of the individual(s) or company designing and/or making such changes. Jacobsen will vigorously pursue full indemnification and costs from any party responsible for such unauthorized post-manufacture modifications and/or accessories should personal injury and/or property damage result.



This symbol means:
ATTENTION!
BECOME ALERT!

Your safety and the safety of others is involved.

Signal word definitions:

The signal words below are used to identify levels of hazard seriousness. These words appear in this manual and on the safety labels attached to Jacobsen machines. For your safety and the safety of others, read and follow the information given with these signal words and/or the symbol shown above.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **WILL** result in death or serious injury.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **COULD** result in death or serious injury.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **MAY** result in minor or moderate injury. It may also be used to alert against unsafe practices or property damage.

CAUTION

CAUTION used without the safety alert symbol indicates a potentially hazardous situation which, if not avoided, **MAY** result in property damage

TEXTRON

GOLF, TURF & SPECIALTY PRODUCTS

MODEL NUMBER

SERIAL NUMBER

JOHNSON CREEK, WI MADE IN U.S.A

MODEL NUMBER: This number appears on sales literature, technical manuals and price lists.

SERIAL NUMBER: This number appears only on your mower. It contains the model number followed consecutively by the serial number. Use this number when ordering parts or seeking warranty information.

GENERAL SAFETY

- | | |
|---|--|
| <ul style="list-style-type: none">• Read and understand the owner's manual, before attempting to operate this machine.• Operate all controls from the operator's seat, (if so equipped). NO RIDERS.• Keep all shields in place and safety switches adjusted properly.• Do not leave equipment unattended. STOP the engine and remove the key (if so equipped).• Do not allow minors or the inexperienced to operate this machine. | <ul style="list-style-type: none">• Never allow anyone to operate or service this machine while under the influence of alcohol or drugs.• Keep people and pets a safe distance away from machines using power driven attachments. Injury could result from flying debris.• Wear all the necessary protective clothing and personal safety devices to protect your head, eyes, ears, hands, and feet.• Operate the machine only in daylight or in good artificial light. |
|---|--|

OPERATING SAFETY

1. **DO NOT** attempt to work on unit or any attachments with the engine running. **STOP ENGINE!**
2. Before leaving the tractor seat:
 - A. Lower blade.
 - B. Set **PARKING** brake.
 - C. **STOP** engine.



Location: Center Hinge Frame



Location: Top Inside Corners of Blades

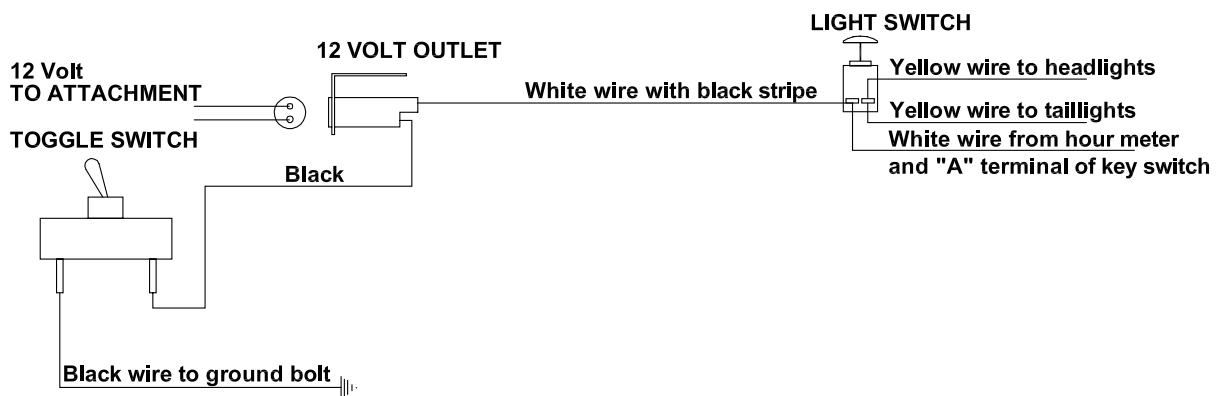
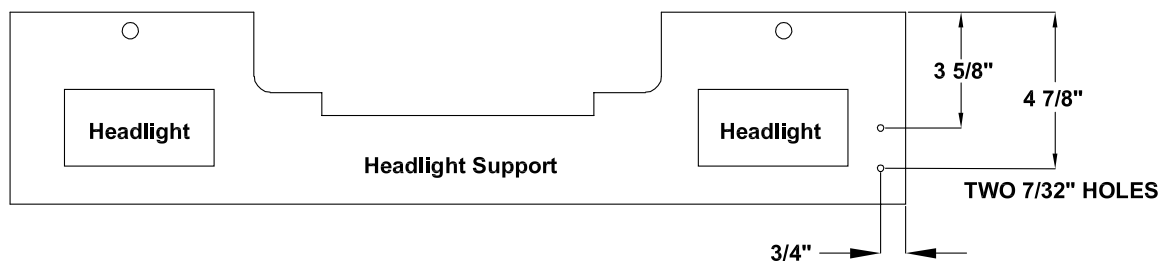
GENERAL INSTRUCTIONS

Refer to the specific Model and engine listings for detailed installation instructions. The outlet locations are suggested, but when the outlet is mounted at a customer specified location, additional wiring may be needed. The wiring must be cut to length, protective mesh installed over the wires and connectors crimped to the wiring. Tie or tape the wires to prevent them from touching the hot manifold or moving parts. In all installations the circuitry must follow the diagrams as shown.

V-BLADE WIRING INSTRUCTIONS FOR MODEL 220

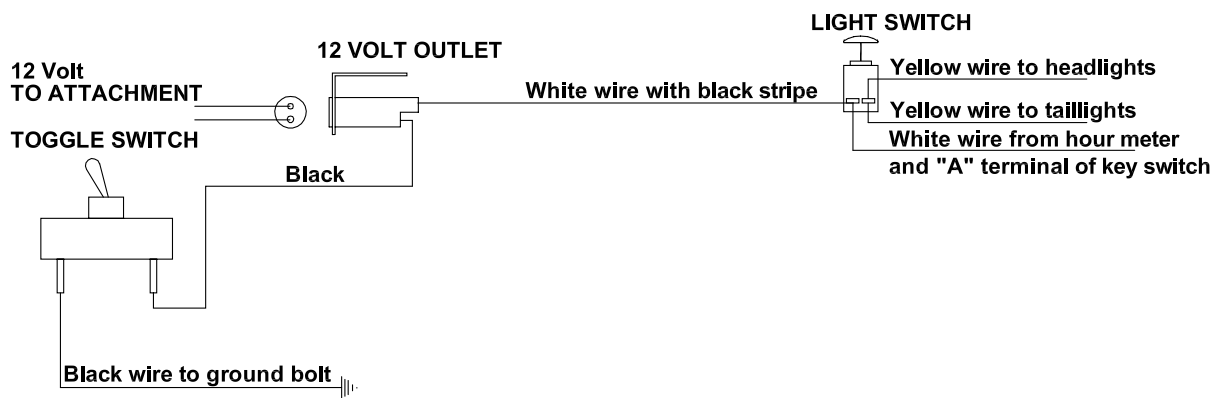
1. Remove the negative battery cable from the battery.
2. Remove the dash cover.
3. Using the drawing on Page 7, drill two 7/32" holes in the left side of the headlight support.
4. Mount the female electrical outlet to the headlight support using #10-32 X 1/2" bolts with flat washer, lockwasher, and nuts.
5. Install both #10 eyelet terminals from the 30-296 V-blade wire harness to the electrical outlet. Either ring may be connected to either terminal on the outlet.
6. Remove the white wire from the light switch and install the supplied double spade adaptor to the switch. Install the white wire that was removed and the white wire with black stripe from the V-blade harness onto the light switch terminals.
7. Install the toggle switch into the dash using the existing hole on the bottom edge on the right side close to the PTO switch. The switch should be mounted so that the switch lever flips left and right, so that it will indicate which blade wing is being controlled.
8. Install the black wire with spade terminal from the V-blade harness onto the toggle switch. Install the 20" black wire onto the switch.
9. Install the black wire from the toggle switch with 1/4" ring terminal to the ground bolt on the dash.
10. Secure all the wires so that they will not become pinched or rubbed through during operation of the unit.
11. Install the negative cable on the battery.
12. Install the V-blade on the unit and check operation of the blade. If the position of the toggle switch does not correspond with the blade wing that is being controlled, rotate the toggle switch 180°.

V-BLADE WIRING INSTRUCTIONS FOR MODEL 220



V-BLADE WIRING INSTRUCTIONS FOR MODEL 410

1. Remove the negative battery cable from the battery.
2. Install the female electrical outlet to the front slot on the left side of the battery tray. It may be necessary to loosen the battery tray bolts to install the outlet bolts. The outlet should be mounted so that the male plug installs from the bottom.
3. Determine a desirable location on the dash for the toggle switch and drill a 15/32" hole. Mount the toggle switch through the hole and tighten. The toggle switch should be installed so that the switch lever flips left and right to indicate which blade wing is being controlled.
4. Install the #10 eyelet terminals of part #30-296 wire harness to the electrical outlet that was installed in Step 2. Either ring may be connected to either terminal on the outlet.
5. Remove the white wire from the light switch and install the supplied double spade adaptor to the switch. Install the white wire that was removed and the white wire with black stripe from the V-blade harness onto the light switch terminals.
6. Install the black wire with spade terminal from the V-blade harness onto the toggle switch that was installed in Step 3. Install the 20" black wire to the toggle switch.
7. Install the black wire from the toggle switch with 1/4" ring terminal to the ground bolt on the dash.
8. Secure all the wires so that they will not become pinched or rubbed through during operation of the unit.
9. Install the negative cable on the battery.
10. Install the V-blade on the unit and check operation. If the position of the toggle switch does not correspond with the blade wing that is being controlled, rotate the toggle switch 180°.

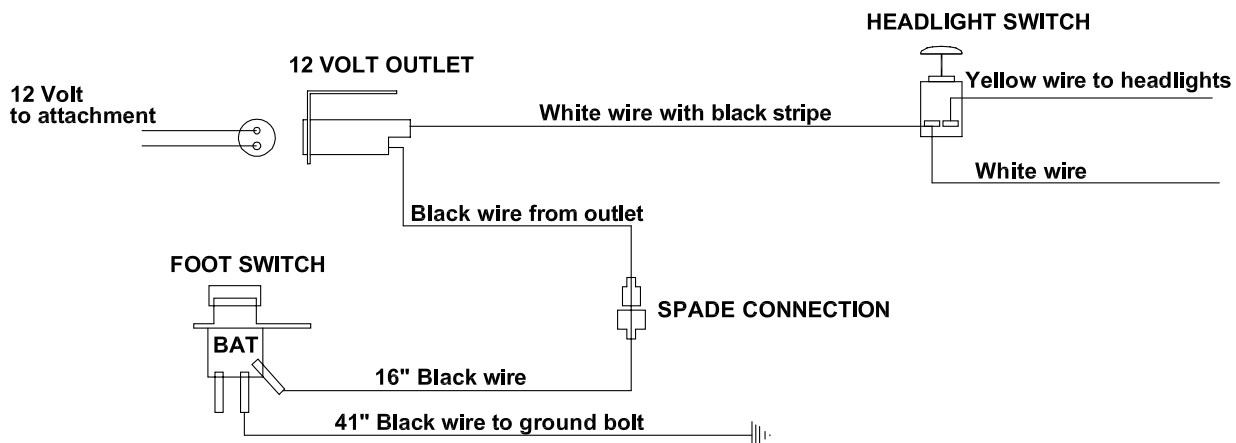


V-BLADE WIRING INSTRUCTIONS FOR MODEL 420/430

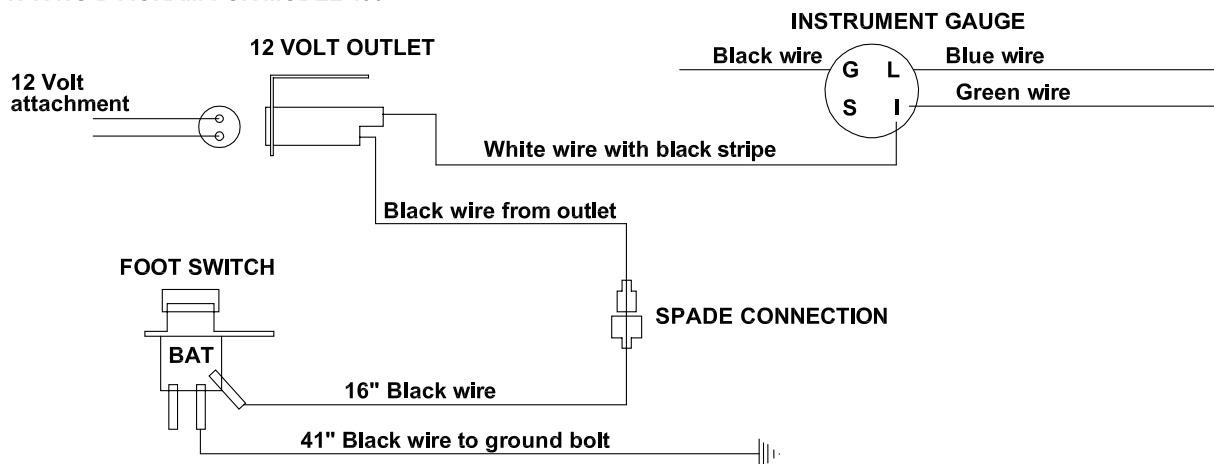
1. Remove the negative cable from the battery.
2. Following diagram on Page 11, drill holes in the front grill.
3. Install the two #10 eyelet rings from the V-blade harness onto the female electrical outlet. Either ring may be connected to either terminal on the outlet.
4. Mount the outlet to the holes drilled in the grille.
5. Remove the right toe guard from the rear frame footplate.
6. If the foot switch is being mounted along with a cab, the foot switch needs to be moved to the rear so the 1/2" hole in the foot switch mount is located over the hole that is drilled in the front corner of the tread plate for the cab to fasten to. The foot switch is "sandwiched" between the tread plate and the cab. Only (1) of the toe guard bolts is then used to mount the rear of the foot switch mount.
7. Route the wires from the electrical outlet up to the dash.
8.
 - A. On 420 models, remove the white wire from the light switch and install the supplied double spade adaptor. Re-install the white wire that was removed and install the white wire with black stripe from the electrical outlet to the light switch.
 - B. On 430 models plug the 4" adaptor pigtail with a #10 ring on one end and a male spade on the opposite end into the white wire with black stripe from the outlet. Install the #10 ring of the pigtail onto any instrument gauge post that has a green wire on it.
9. Using the supplied 16" black wire with a male spade on one end and a #10 ring on the opposite end, connect to the black wire from the outlet and route the wire down to the foot switch, and install the #10 ring to the terminal on the foot switch marked "BAT".
10. Using the supplied 41" black wire with a 1/4" ring on one end and a #10 ring on the opposite end, install the 1/4" ring to the ground bolt on the valve body mount. Route the wire down to the foot switch mount and install the #10 ring to one of the remaining terminals on the foot switch.
11. Install the foot switch to the foot switch mount using (2) 1/4" X 3/4" flange bolts with flange nuts. The switch installs up through the hole in the switch mount with the terminals forward.
12. Install the negative cable on the battery.
13. Secure all the wires so that they will not become pinched or rubbed through during operation of the unit.
14. Install the V-blade on the unit and check operation of the blade.

NOTE: On 420 models with the single lever Hi-Low shifter (Serial No. 3173 - 4630), the locking two- lever shifter kit must be installed (part no. 70-095) before the foot switch is installed.

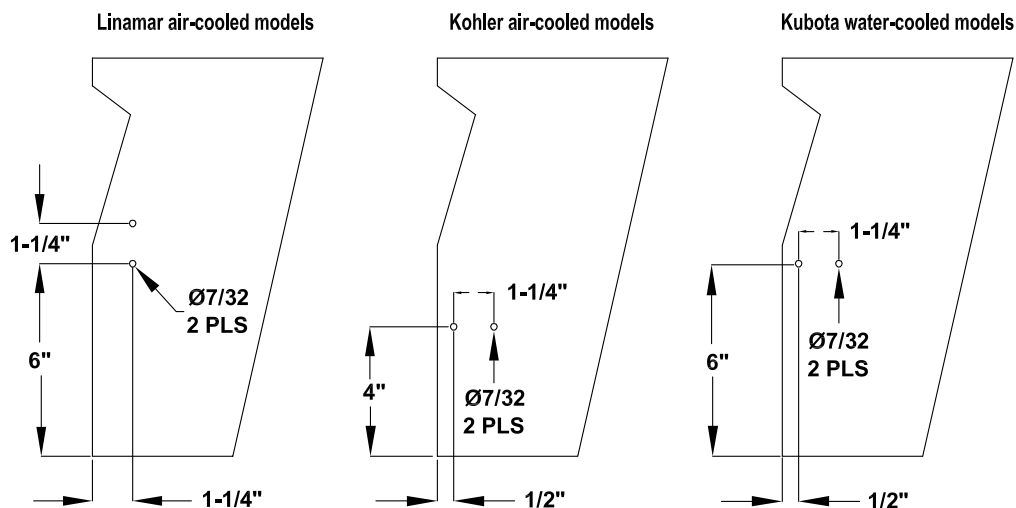
WIRING DIAGRAM FOR MODEL 420



WIRING DIAGRAM FOR MODEL 430

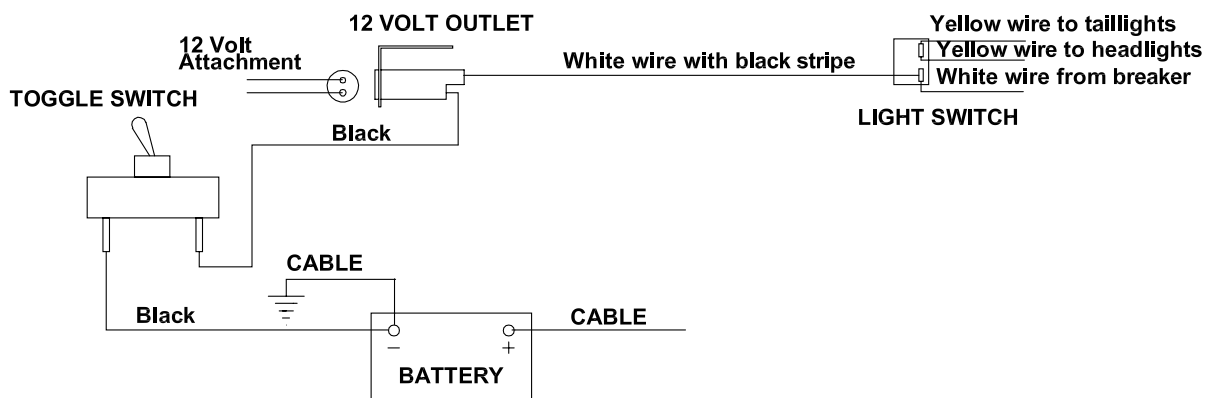


LOCATION OF HOLES TO BE DRILLED



V-BLADE WIRING INSTRUCTIONS FOR MODEL 525

1. Remove the negative battery cable from the battery.
2. Remove the upper dash panel.
3. Remove the center floor plate.
4. Install the supplied 525 switch mount to the top inside corner of the right fender using the top valve body mounting bolt.
5. Install the supplied toggle switch to the switch mount. The switch should be mounted so that the toggle moves left and right, so that it will indicate which blade wing is being controlled.
6. Install the female electrical outlet to the supplied outlet mount using #10-32 X 1/2" bolts with flat washer, lockwasher, and nuts.
7. Install the outlet mount assembly to the bottom right side of the radiator cowl using the 2 existing cowl mounting bolts. The outlet assembly should be mounted so that the male plug goes in from the front.
8. Remove the white wire from the light switch and install the supplied double spade terminal.
9. Install the white wire to one of the spade terminals and install the supplied 60" white wire with black stripe to the other terminal.
10. Going through the center of the rear and front frames, route the white wire with black stripe to the location that the female outlet is mounted, and install the wire to the outlet. It can be connected to either terminal.
11. Install the 77" black wire to the other post of the female outlet and route the wire back to the location of the toggle switch on the right fender. Install the wire to the toggle switch.
12. Install the 34" black wire to the other terminal on the toggle switch. Install the other end of the wire onto the negative battery cable using the existing battery cable bolt.
13. Install the negative cable onto the battery.
14. Secure the new wires that were routed so that they will not be pinched or rubbed through during operation of the unit.
15. Replace all shields and covers.
16. If the position of the toggle switch does not correspond with the blade wing that is being controlled, rotate the toggle switch 180°.



MOUNTING IMPLEMENT

1. Attach blade to “quick hitch” front lift in the usual manner.
2. Connect the hydraulic hoses to the auxiliary couplers. If auxiliary hydraulic lever seems to operate in the wrong direction, connect the hoses in the opposite couplers.
3. Connect the 12V plug to the outlet mounted on the power unit.

OPERATING THE V-BLADE

1. The v-blade wings may be angled 30 degrees forward or rearward or at any angle between.
2. Choose right or left wing action by pressing or changing position of the electrical solenoid switch. Then move the auxiliary hydraulic lever to angle the wing to the desired position.
3. Positions may be straight across, right angle, left angle, v-blade, scoop, or a combination of these positions.
4. Skid shoes are adjustable for various surface conditions to minimize cutting edge wear.
5. Spring assisted leveling action will allow the blade to follow the contour of the ground.

CAUTION

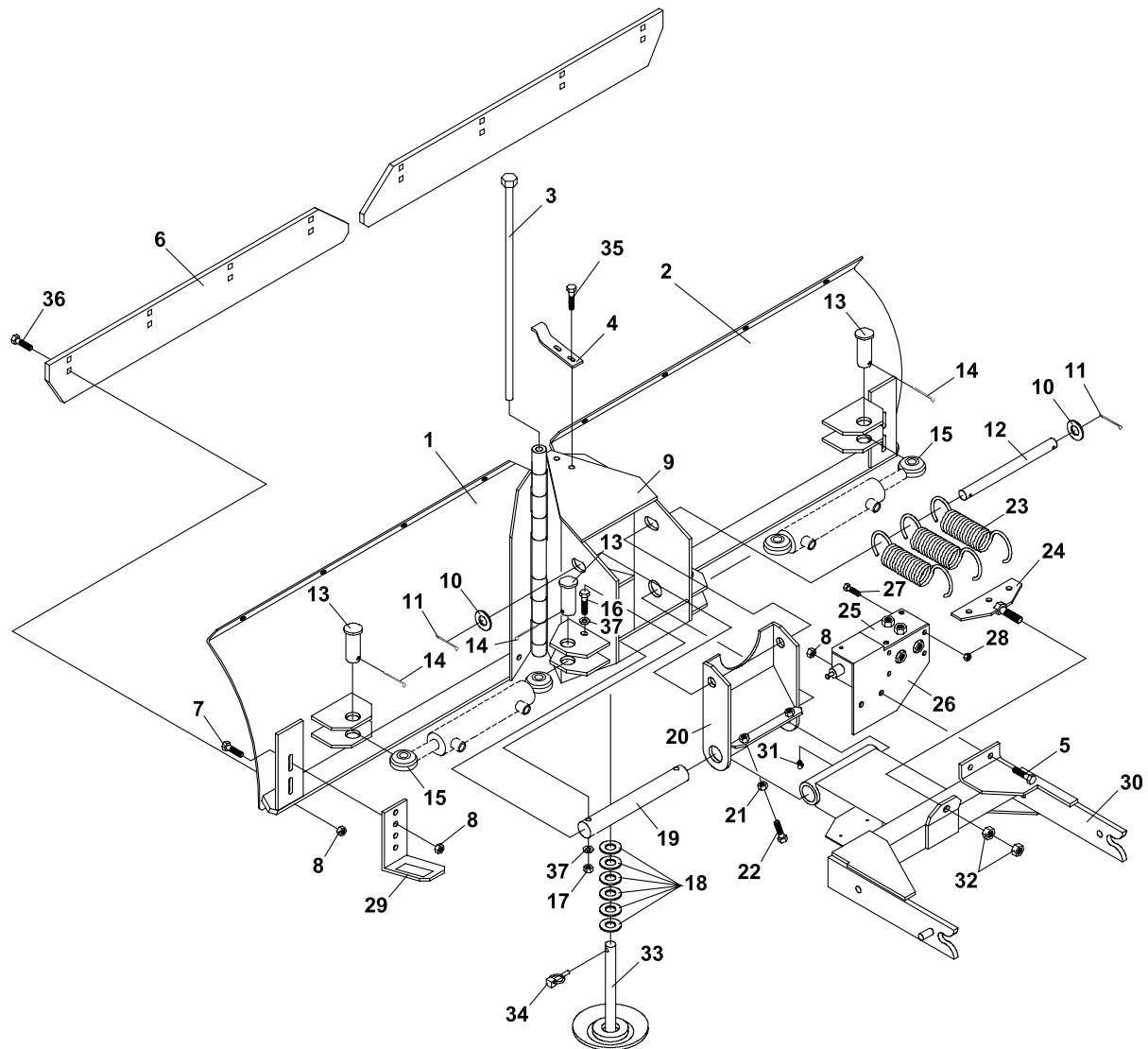
Use extreme care and slower speeds when using the blade on rough, uneven or frozen surfaces.

MAINTENANCE

1. Visually inspect with daily use for loose fasteners or damaged parts. Replace parts as needed.
2. Check skid shoes and cutting edges periodically for wear and replace the cutting edge and/or shoes as required to prevent wear to the main blade edge. The cutting edge has a second set of holes to move the cutting edge down to prolong the use of the cutting edge.
3. Grease pivot pin at 25 hour intervals.
4. Oil blade hinge pin at 25 hour intervals.
5. Keep it clean!

PARTS SECTION

FIGURE 1



V-BLADE

V-BLADE PARTS

FIGURE 1

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
1-1	6101048	BLADE (L.H.)	1				
*	00-092	DECAL-HANDS & FEET	1				
1-2	6101047	BLADE (R.H.)	1				
*	00-092	DECAL-HANDS & FEET	1				
1-3	6101045	HINGE PIN W/A	1				
1-4	6101038	RETAINER, HINGE PIN	1				
1-5	64139-21	BLT-WLF 3/8-16X3/4	2				
1-6	6101028	BLADE, EDGE	2				
1-7	64018-3	BOLT-3/8-16X1 CARRIAGE	4				
1-8	64141-4	NUT-WLF 3/8-16	14				
1-9	6101049	FRAME, CENTER HINGE	1				
*	00-093	DECAL	1				
1-10	64163-06	WSHR-.768/.756X1.25X14G	2				
1-11	02-CP0610	COTTER PIN, 3/16 X 1-1/4	2				
1-12	6101036	PIN, FLOAT STOP	1				
1-13	03-1620	CLEVIS PIN, 1" X 2-1/2"	4				
1-14	02-CP0612	COTTER PIN, 3/16 X 1-1/2	4				
1-15	23-070	CYLINDER, HYD. 2 X 8	2				
1-16	64123-82	BOLT-HEX 3/8-16X2-1/2	2				
1-17	64229-03	LOCKNUT-NYLON 3/8-16	2				
1-18	64163-57	WASHER	6				
1-19	6101037	PIN, PIVOT	1				
1-20	6101043	BRACKET, FLOAT ADJ	1				
1-21	64025-05	NUT-3/8-16 HEX	2				
1-22	64123-16	BLT-HEX 3/8-16X1-1/4	2				
1-23	S2006	SPRG-EXT1-13/16ODX.250	3				
1-24	6101046	MOUNT, SPRING	1				
1-25	23-133	VLV-SOLENOID SELECTOR	1				
1-26	6101026	MNT-HYD SELECTOR VLV	1				
*	4116761	LABEL-MADE IN USA	1				
1-27	64123-55	BLT-HEX 5/16-18X3	4				
1-28	64141-6	NUT, 5/16-18	4				
1-29	78-021	BLADE SKID SHOE	2				
1-30	6101042	MAIN FRAME	1				
1-31	29-014	GREASE FITTING-1/4-28 90	1				
1-32	64025-09	HEX, NUT 1/2-13	2				
1-33	6101044	CENTER SHOE	1				
1-34	03-019	CLIP, 3/16"	1				
1-35	99-K27	BOLT, FLANGE 1/4-20 X 1	2				
1-36	99-17	BOLT, 3/8-16 X 1	8				
1-37	64163-61	WSHR .81X.406X16GA	4				

* NOT ILLUSTRATED

FIGURE 2

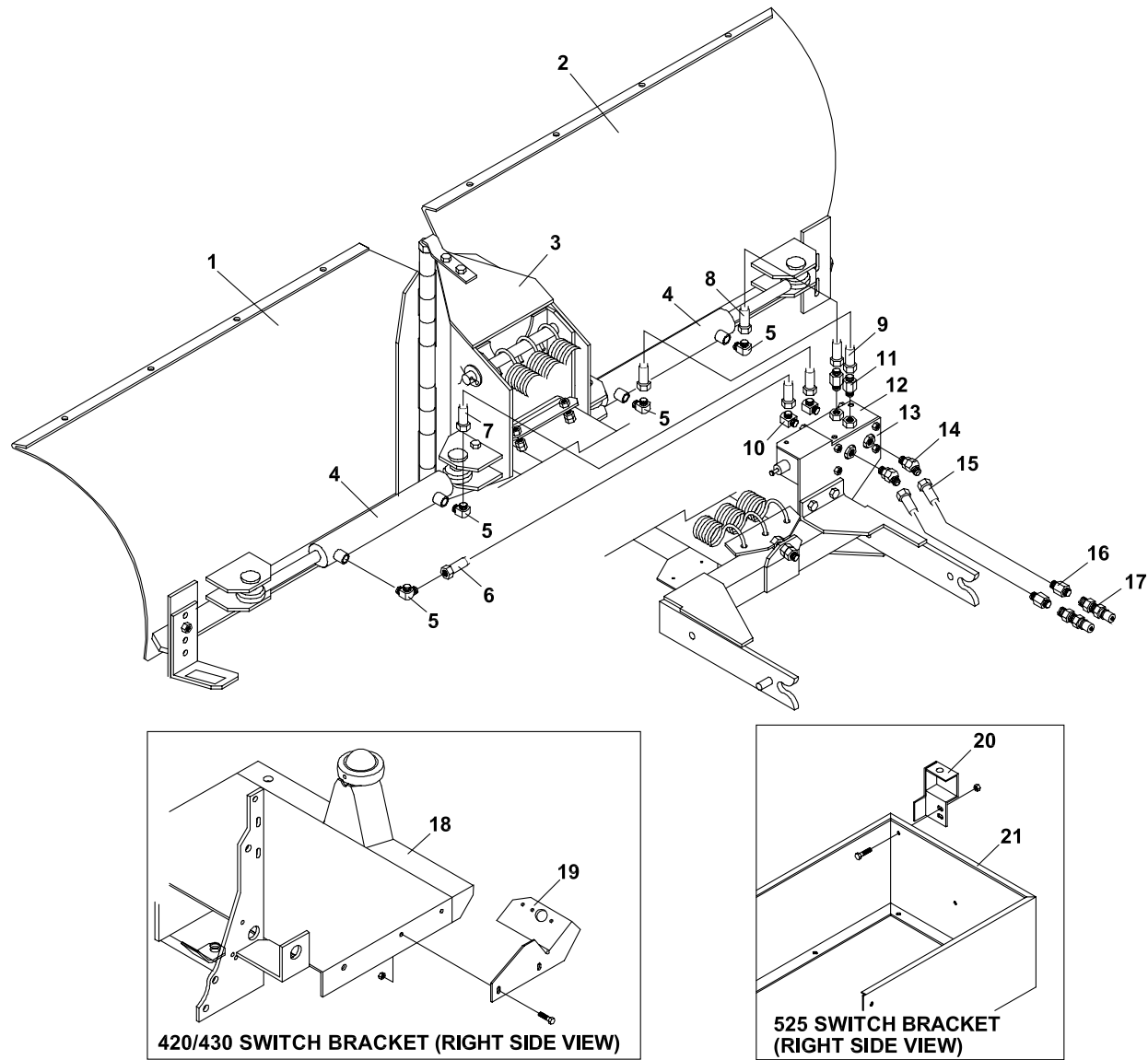


FIGURE 2

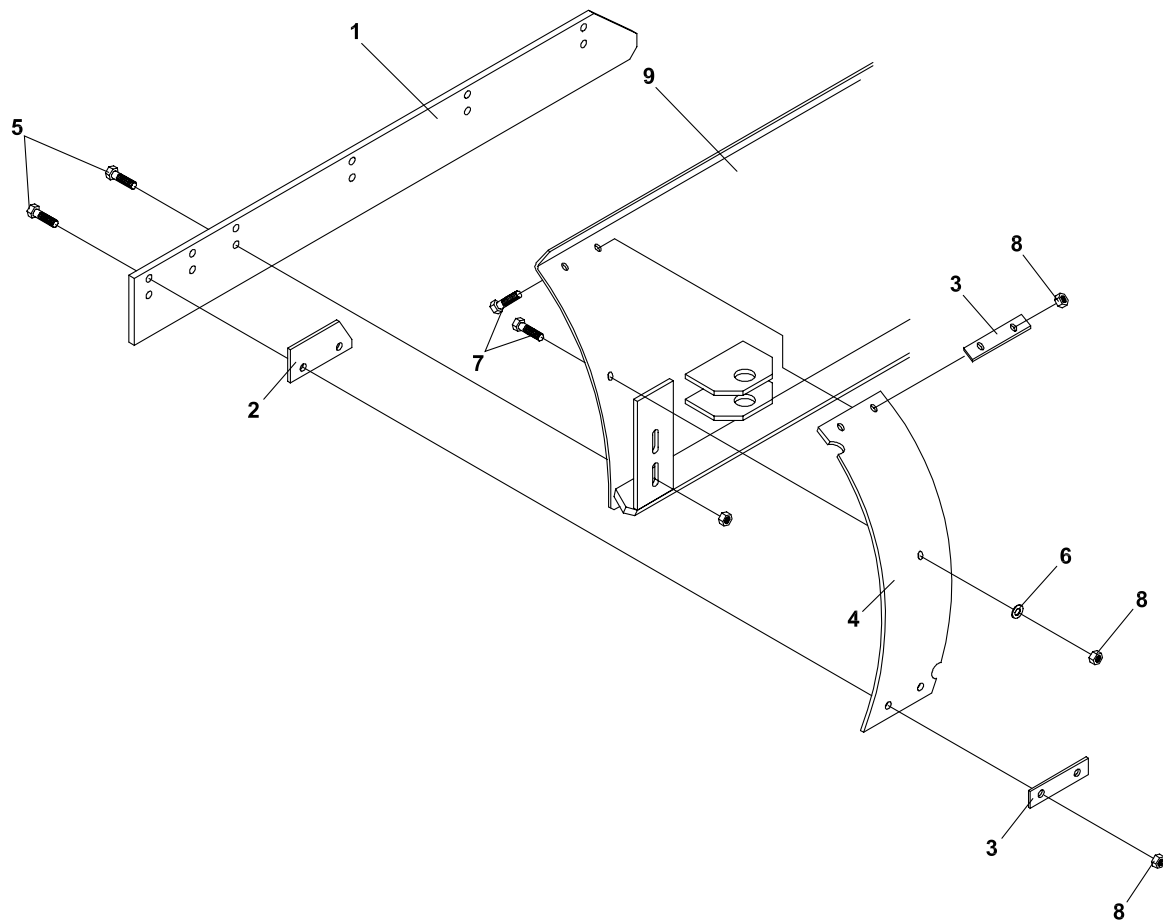
ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
2-1	6101048	BLADE (L.H.)	1	*	30-111	CONNECTOR ASSEMBLY	1
*	00-092	DECAL-HANDS & FEET	1	*	30-116	FEMALE OUTLET ONLY	1
				*	30-117	MALE PLUG ONLY	1
2-2	6101047	BLADE (R.H.)	1	*	30-004U	DBL SPADE ADAPTOR	1
*	00-092	DECAL-HANDS & FEET	1	*	64152-05	10-32X1/2 R MACH SCREW	2
				*	64025-14	NUT-HEX #10-32	2
2-3	6101049	FRAME, CENTER HINGE	1	*	120052	LOCKWASHER	2
*	00-093	DECAL	1	*	64163-60	WSHR.50X.203X18GA	2
2-4	23-070	CYLINDER, HYD. 2 X 8	2				
2-5	25-2103-6-6	FTG-90 -6 MPT X -6 M	4				
2-6	20-029	HOSE, 1/4 X 36 100R1 #6	1				
2-7	20-074	HOSE, 1/4 X 31 100R1 #6	1				
2-8	20-006	HOSE, 1/4 X 24 100R1 #6	1				
2-9	20-217	HOSE, 1/4 X 20 100R1 #6	1				
2-10	25-2503-6-6	FTG-90 -6M ORB X -6M	2				
2-11	25-0503-6-6	FTG-STR -6M ORB X -6M	2				
2-12	23-133	VLV-SOLENOID SELECTOR	1				
2-13	6101026	MNT-HYD. SELECTOR VLV	1				
2-14	25-3503-6-6	FTG-45 -6M ORB X -6M	2				
2-15	20-022	HOSE, 1/4 X 38 100R1 #6	2				
2-16	25-0103-4-6	FTG-STR -4 MPT X -6M	2				
2-17	23-004	MALE QUICK COUPLER	2				
2-18	62-435	REAR FRAME-TREADPLATE	1				
2-19	6101027	MOUNT, SWITCH	1				
2-20	6101050	MNTG BRKT, 525 SWITCH	1				
2-21	60-458	SHIELD, TANK COVER	1				
*	30-292	WIRE HARNESS, V-PLOW (USED ON ALL MODELS)	1				
*	30-296	WIRE HARNESS (USED ON 220, 410, 420 & 430)	1				
*	31-049	SWITCH, DIMMER (USED ON 420 & 430)	1				
*	30-303	WIRE HARNESS (USED ON 525)	1				
*	64-909	OUTLET MOUNT (USED ON 525)	1				
*	31-052	SWITCH, V-BLADE TOGGLE (USED ON 220, 410 & 525)	1				

* NOT ILLUSTRATED

OPTIONAL WING EXTENSION

V-BLADE

FIGURE 3



V-BLADE

OPTIONAL WING EXTENSION

FIGURE 3

ITEM	PART NO.	DESCRIPTION	QTY	ITEM	PART NO.	DESCRIPTION	QTY
	70-121	KIT-WING EXT OPTIONAL	1				
*	19-210	INSTRUCTION SHEET	1				
3-1	6101051	EDGE-LONG CUTTING	2				
3-2	6101052	SPACER-LOWER	2				
3-3	6101053	PLATE-UPPER BACKING	4				
3-4	6101055	EXTENSION-SIDE	2				
3-5	64123-70	BOLT-HEX 3/8-16X1-1/2	4				
3-6	64163-61	WSHR .81X.406X16GA	2				
3-7	99-17	BOLT, 3/8-16 X 1	6				
3-8	64141-4	NUT-WLF 3/8-16	10				
3-9	6101048	BLADE (L.H.)	1				

* NOT ILLUSTRATED

World Class Quality, Performance And Support



Equipment from Jacobsen, a Textron company, is built to exacting standards ensured by ISO 9001 and ISO 14001 registration at all our manufacturing locations.

A worldwide dealer network and factory-trained technicians backed by Textron Parts Xpress provide reliable, high-quality product support.



BOB-CAT BROWER BUNTON CUSHMAN RYAN STEINER