

PRO-V PLOW SYSTEM

V-Plow

PART #106180 Rev B



Important Safety Information

Manual Conventions

This manual uses the following symbols to help differentiate between different kinds of information. The safety symbol is used with a key word to alert you to potential hazards in operating and owning a plow.

Follow all safety messages to avoid or reduce the risk of serious injury or death.

DANGER

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

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.

WARNING

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

CAUTION

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

To help you make informed decisions regarding safety, we have included instructions and information on labels. This information is provided with the intent to help avoid potential hazards that may harm you or others. It is, in no way, possible for us to inform you of every hazard you may come across with this product.

NOTE

If you have questions regarding your plow, we can help. Please call our help line at 1-877-346-2050.

Safety Rules

WARNING

- Read this manual thoroughly before operating your plow. Failure to follow instructions could result in serious injury or death.
- Do not exceed 5 mph, even with blade raised.
- Make sure that all nuts and bolts are tightened per installation instructions.
- Never operate this KFI product with missing or damaged parts.
- Drive slowly over bumpy and rough terrain, driving fast could cause damage to winch or plow.
- Never raise the plow above point of contact as it could cause damage to machine or winch (if applicable).
- Always perform regular inspections and maintenance on plow tubes and hardware before use.
- Operate with extreme caution on slopes, steep grades, and rough terrain.
- Be aware of any possible hidden objects under the snow.
- Do not ram the blade into the pile.

CAUTION

- Take care when installing PLOW SPRINGS as they will be under tension.
- Use care when lifting components into place.

DANGER

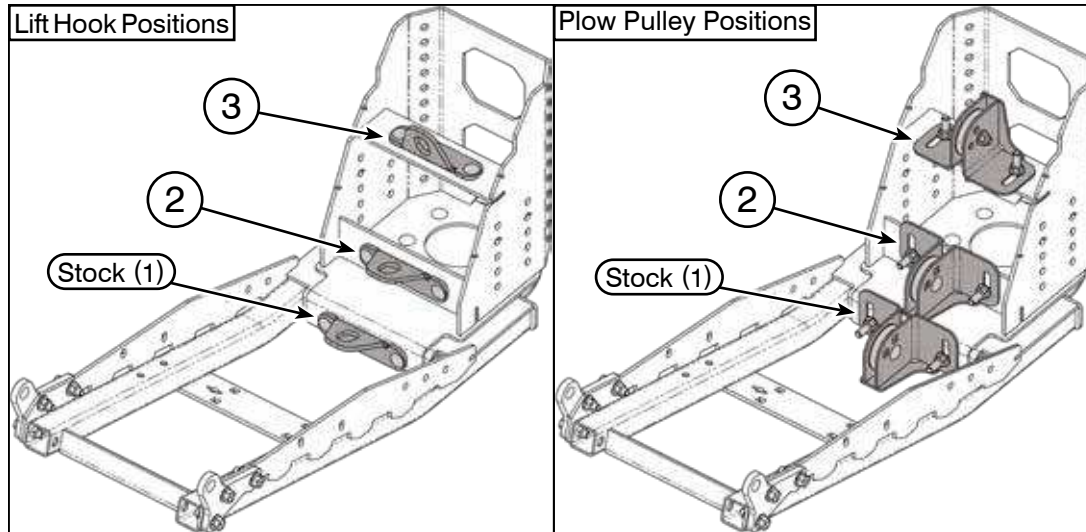
Never stand or ride on the plow.

Important Information Before Assembly

This plow system is adjustable for different machine heights. This allows the blade to operate in the V-Position, and the Scoop Position without the blade tips digging into the ground. This manual will use your machine during the assembly process to ensure its at the correct height. This will need to be done on a level surface for proper results. The blade can be adjusted at a later date if you modify your machine or your plow foot height. A leveling kit can be purchased for extreme cases. Height adjustment information can be found on Page 9 for clarity.

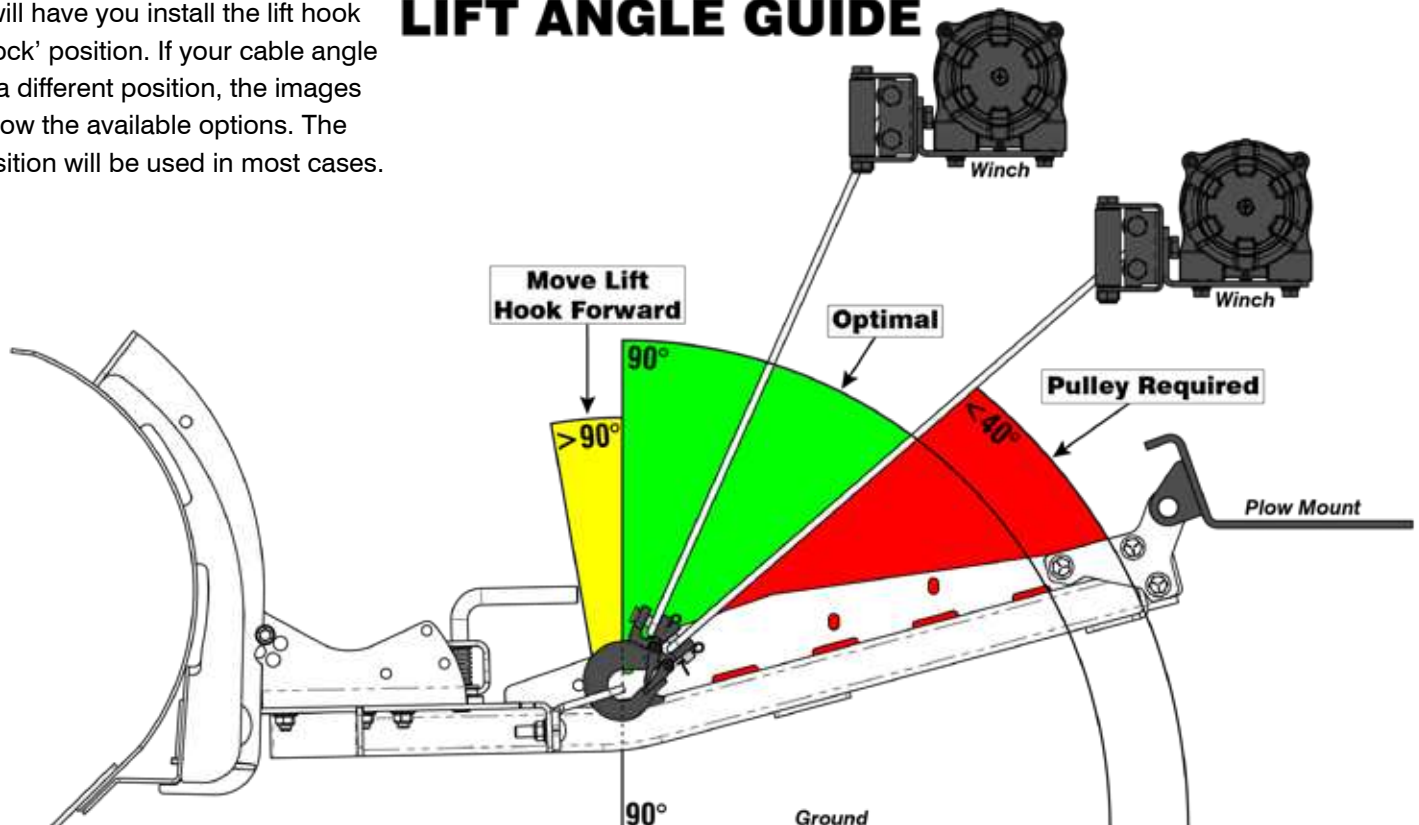
Install your winch mount and plow mount, if needed, before assembling the blade.

If your V-Plow has Hydraulic Actuators, you can choose to install the wire harness ahead of time. The V-Plow Wire Harness Manual from Box 4, (M106180-HAR) can be used for that installation. If you purchased the V-Plow Hand Remote, this will operate the winch, so having the winch pre-installed will help in that connection process.



The lift hook or plow pulley has different attachment points that are available. The manual will have you install the lift hook in the 'stock' position. If your cable angle requires a different position, the images above show the available options. The stock position will be used in most cases.

UTV PLOW LIFT ANGLE GUIDE

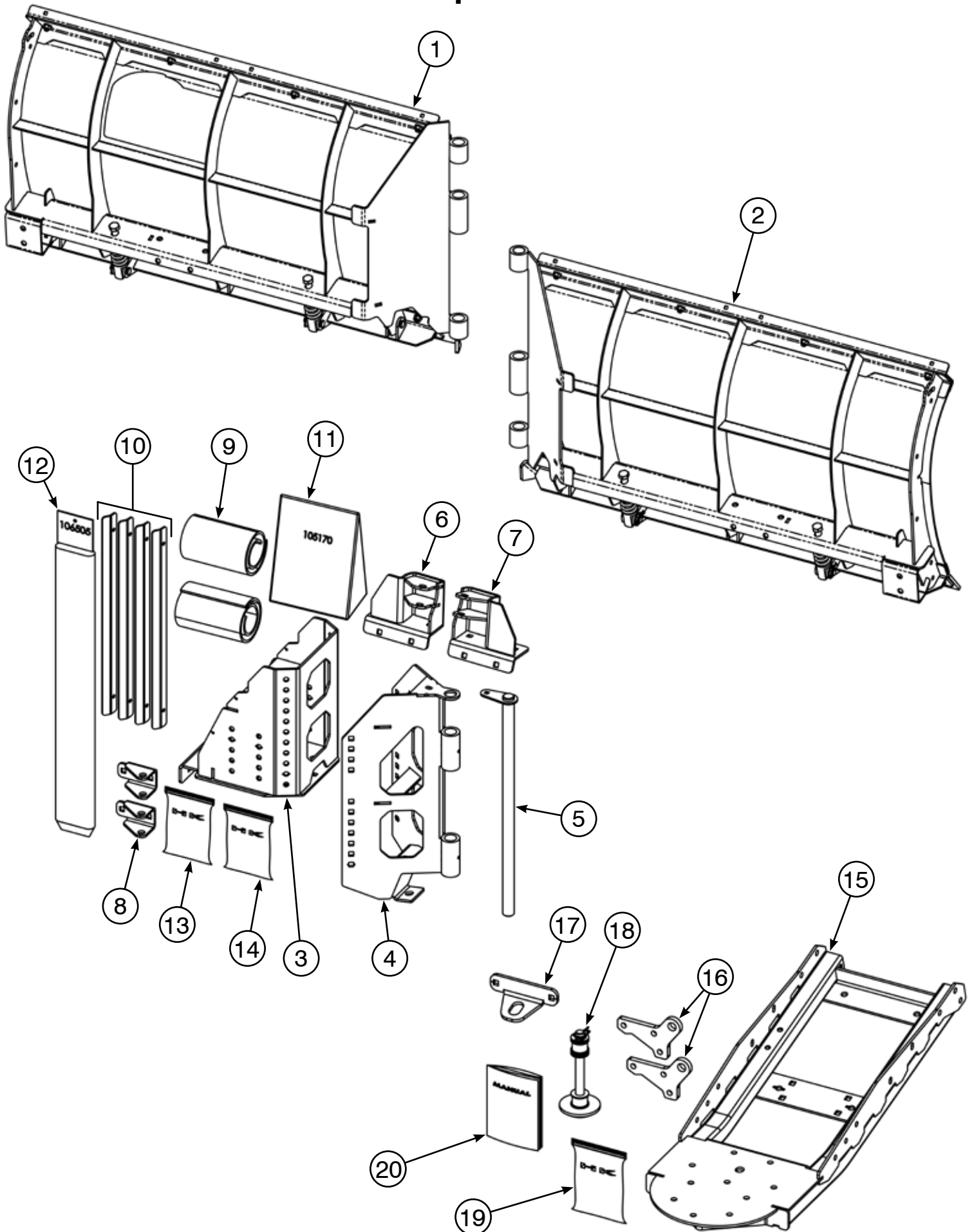


Components

Note: Make sure all hardware needed to complete this assembly is in the package. Thoroughly read through and understand the instructions before assembly.

Kit Components:			
Item #	Part #	Description	Qty.
Box 1	106180-DS		1
1	106180-DS	Driver Side Wing Assembly	1
Box 2	106180-PS		1
2	106180-PS	Passenger Side Wing Assembly	1
Box 3	106180-CP		1
3	106517	V-Plow Push Tube Center Pivot	1
4	106516	V-Plow Blade Center Pivot	1
5	106061	V-Plow Pivot Pin	1
6	106507	Driver Side Wing Actuator Bracket	1
7	106506	Passenger Side Wing Actuator Bracket	1
8	106153	V-Plow Bulkhead Actuator Bracket	2
9	106088	V-Plow Flap	2
10	106087	V-Plow Flap Trim	4
11	105170	Plow Skid Kit - Straight - 2pc (Manual Included)	1
12	106505	Pro-Poly Premium Plow Marker	1
13	HK-102	Hardware Kit HK-102	1
13.1	CB-5Z-025-20-100	1/4"-20 X 1.00" Carriage Bolt GR5	9
13.2	FW-SAE-Z-025	1/4" Flat Washer	9
13.3	HNN-5Z-025-20	1/4"-20 Hex Nut Nylock GR5	9
14	HK-430	Hardware Kit HK-430	1
14.1	CB-5Z-038-16-100	3/8"-16 X 1.00" Carriage Bolt GR5	26
14.2	CB-5Z-038-16-150	3/8"-16 X 1.50" Carriage Bolt GR5	2
14.3	HNFN-5Z-038-16	3/8"-16 Hex Nut Flange Nylock GR5	28
14.4	P890033	5/16"-18 X .75" Carriage Bolt GR5	1
14.5	P890014	5/16"-18 Hex Nut Flange Nylock GR5	1
14.6	P800558	5/8" Hitch Pin	2
14.7	P800559	Bridge Pin Clip (Used With 5/8" Pin)	2
Box 4	106180-(MP/AP/APH)	106180-AP/APH will have an additional manual for installing the wiring harness	1
15	106301	Push Tube Weldment	1
16	106302	UTV Push Tube Ear	2
17	105138	UTV Lift Hook	1
18	105490	Single Plow Foot Kit	1
19	HK-398	Hardware Kit HK-398	1
19.1	HBF-5Z-038-16-125	3/8"-16 X 1.25" Hex Bolt Flange GR5 Serrated	6
19.2	HNFN-5Z-038-16	3/8"-16 Hex Nut Flange Nylock GR5	6
20	M106180	Plow System Assembly Instructions	1

Components



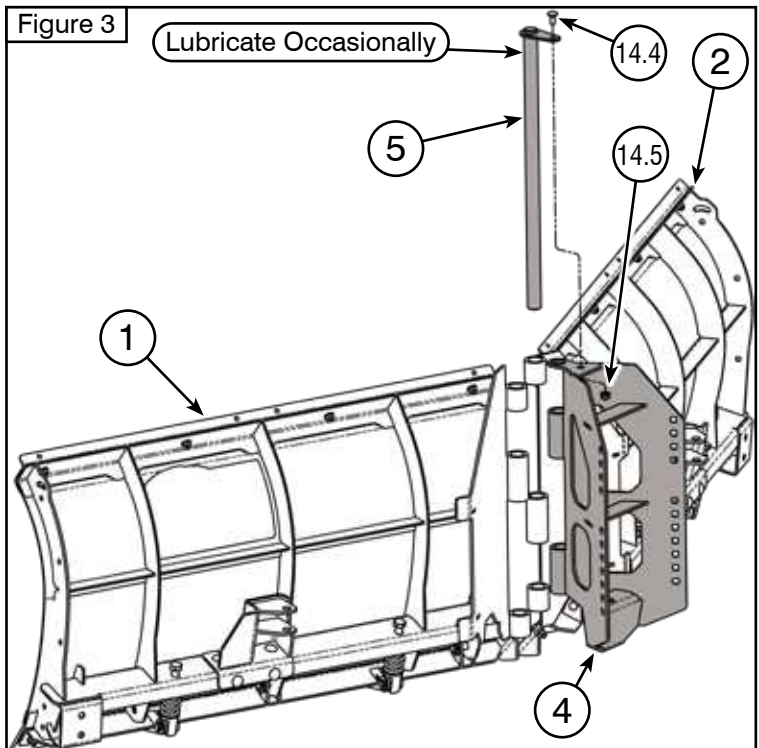
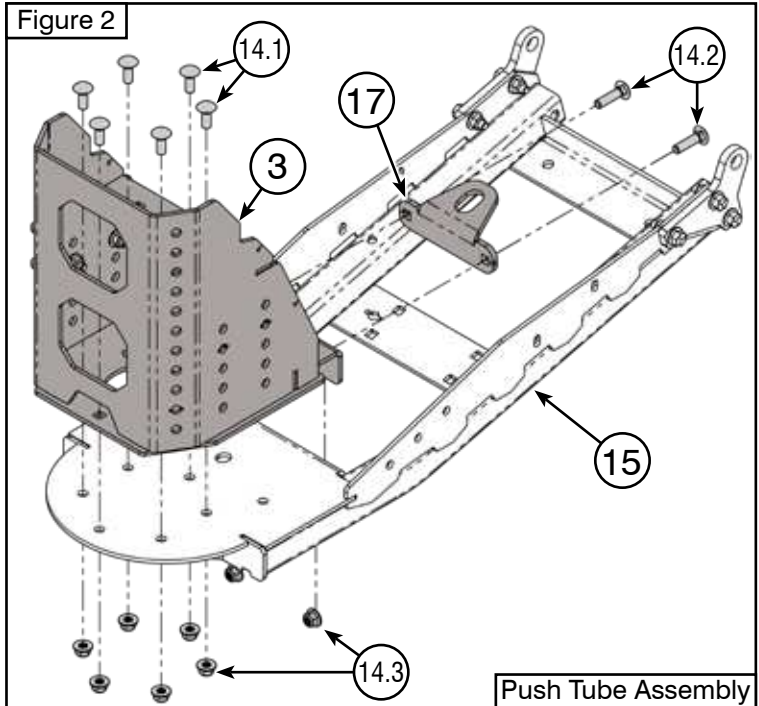
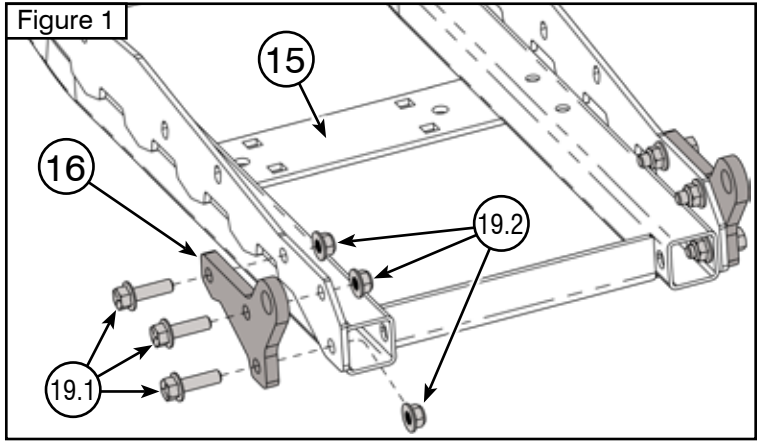
INSTALLATION INSTRUCTIONS

Notice

Torque bolts to ANSI specifications. After the initial use, at the beginning of each season, and following any accidental impacts, recheck the torque.

Installation Instructions

1. Make sure this plow system is assembled on a large, level surface to ensure proper set-up.
2. From Box 4, assemble the Push Tube Ears (16) to the Push Tube Weldment (15) with HK-398 as shown in **Figure 1**. *If your machine requires a leveling kit, or you purchased a Glacier Mount, refer to that installation manual at this point, then continue below.*
3. If installing on a Machine with Tracks, continue below. Otherwise, skip to **Step 4**.
 - The V-Plow Track Extension (106280) is required if you plow with tracks installed on your machine. For ease of installation, install the track extension now. Refer to **Step 3, Figure 3** of the 106280 installation manual. After completing that manual, resume this manual from **Step 6**.
4. Install the Push Tube Center Pivot (3) onto the front of the Push Tubes Weldment (15) and secure with 6 Bolts and Nuts (14.1 & 14.3). See **Figure 2**.
5. Attach Lift Hook (17) with Carriage Bolts (14.2) and Nuts (14.3) through the Center Pivot (3) and Push Tube Weldment (15). Tighten all hardware evenly. See **Figure 2**.
6. Set Push Tube Assembly aside for a later step.
7. Un-box 106180-DS (1) and 106180-PS (2) and place Driver and Passenger Wing next to each other. Insert Blade Center Pivot (4) into the gaps of the wings. See **Figure 3**. After lubricating the Center Pivot Pin (5), Slide the Center Pivot Pin (5) through all components. Secure the Center Pivot Pin (5) with Carriage Bolt (14.4) and Nut (14.5) through the top flange of the Pivot Pin and Center Piece as shown in **Figure 3**. *Lubricate this pin occasionally throughout the season, and at the start and end of each season.*
8. Attach the front Actuator Brackets (6 & 7) using 4 Bolts (14.1) and 4 Nuts (14.3). See **Figure 4 on next page**. (Driver side is mirrored from **Figure 4** and uses Actuator Bracket 7)



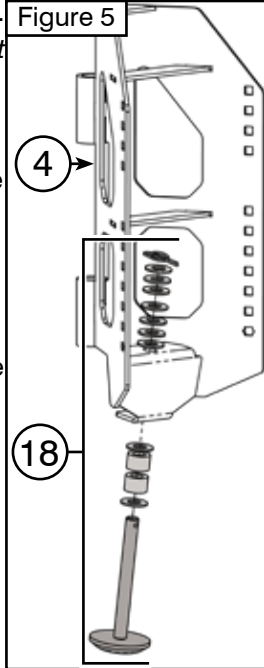
INSTALLATION INSTRUCTIONS

9. The Top Flap (9) can be installed to each wing using two Trim Pieces (10) and Hardware (13.1-13.3) as shown in **Figure 4**. Note top flap recommended orientation.

10. Plow Markers (12) can be installed to each wing as shown in **Figure 4**. Hardware included in plow marker package. (Driver Side Mirrored)

11. Install Plow Feet (11 & 18) as needed. See **Page 4-5** to identify Plow Feet (11)

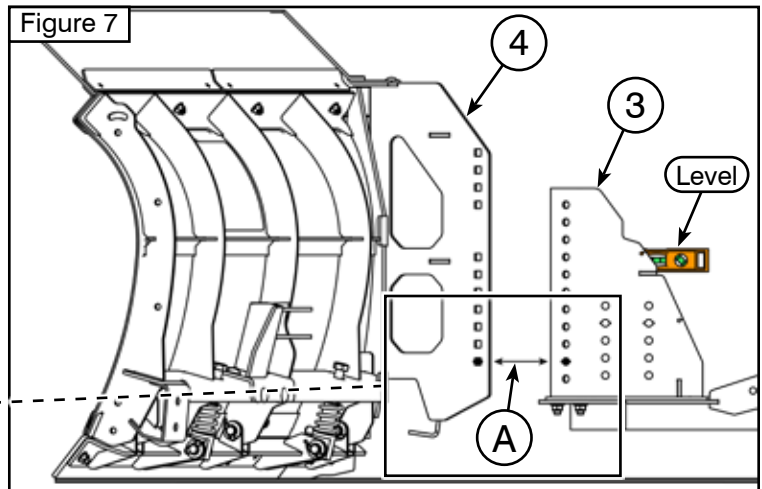
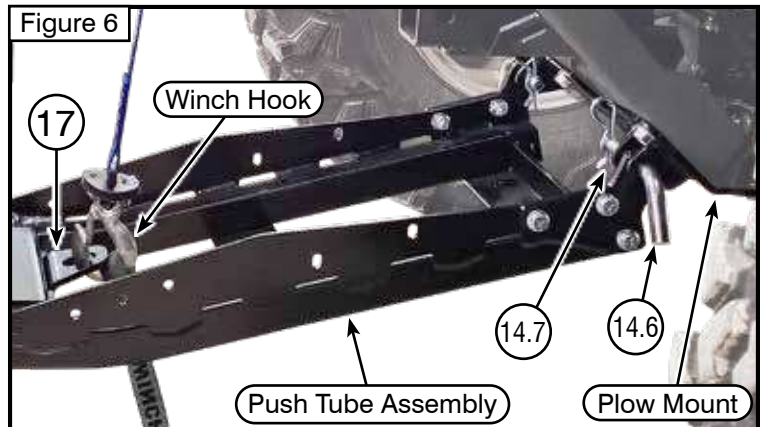
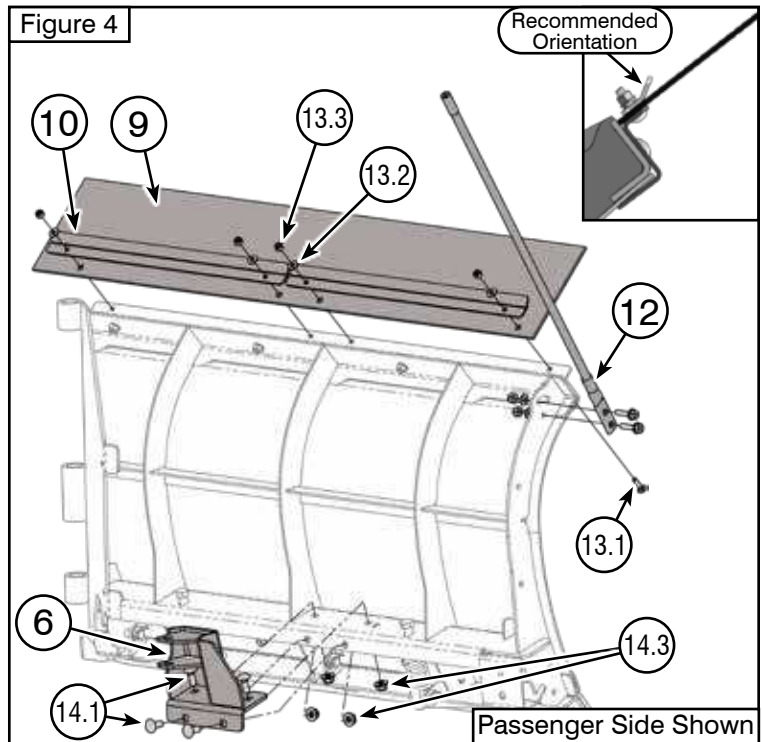
- Plow feet can be configured in various positions: high to allow the wear bar to scrape the ground, flush with the wear bar (shown in **Figure 5**), or low to keep the wear bar off the ground. Decide on the configuration now for proper blade alignment on the machine.
- Wing Plow Feet (11) come inside the box labeled "105170" (inside **Box 3**). A manual is included. See that manual for bracket attachment. The height of these feet must match the center foot.



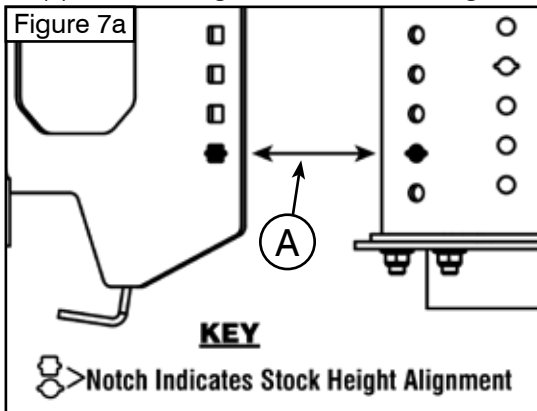
12. Attach the Push Tube Assembly to your plow mount with 5/8" Hitch Pins (14.6) and Bridge Pin Clips (14.7). Connect your winch hook to the Lift Bracket (17) on the push tubes. See **Figure 6**. If you have a Glacier Mount, attach that appropriately.

13. With the blade assembly in the scoop formation (shown in **Figures 3 & 7**), drive your machine forward so the push tubes are close to the rear of the blade assembly as shown in **Figure 7**.

14. Place a level on the Push Tube Center Pivot (3) and raise or lower the winch until it is level as shown in **Figure 7**. Pull ahead until the Push Tube Center Pivot (3) and Blade Center Pivot (4) are touching. **See note under Figure 7**.



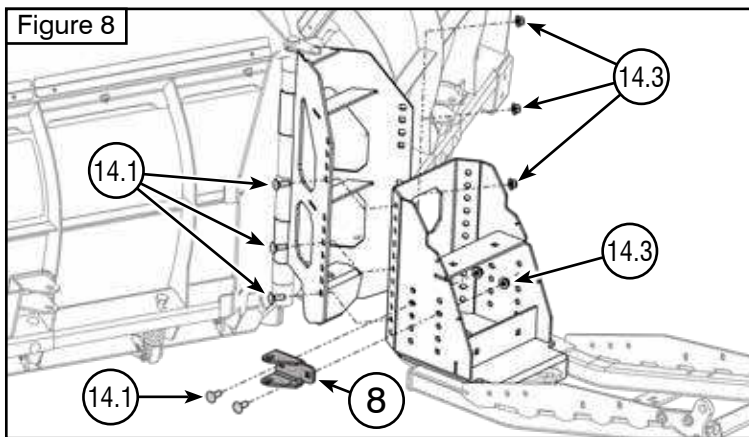
Note: Line (A) between the holes with notches indicates "Stock" height as shown in **Figure 7(a)**. These holes may not line up for your machine. This is part of the height adjustment system.



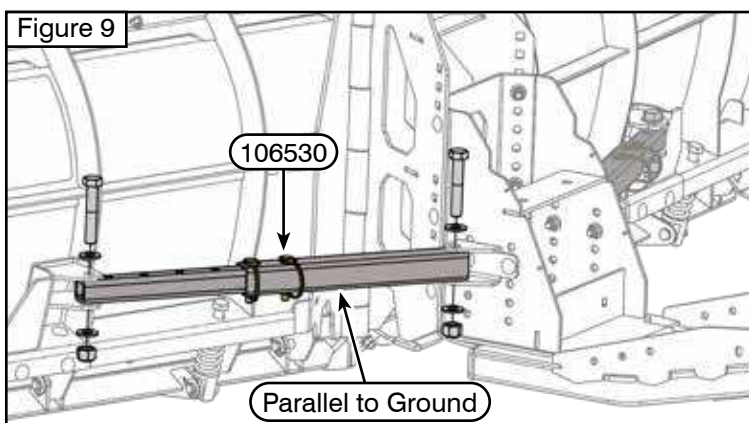
INSTALLATION INSTRUCTIONS

15. Use the holes that line up closest for your machine height. Insert 3 bolts (14.1) through each side of the center bulkhead and secure with nuts (14.3) as shown in **Figure 8**. *This hardware should be through the lowest hole available, the highest hole available, and one of the center holes. Tighten evenly.*

- Detailed information about this connection can be found on **Page 9**. If you need to re-adjust your height at a later date, this can be adjusted by removing the 6 bolts (14.1) that hold these components together, and moving the rear actuator bracket (8) appropriately.



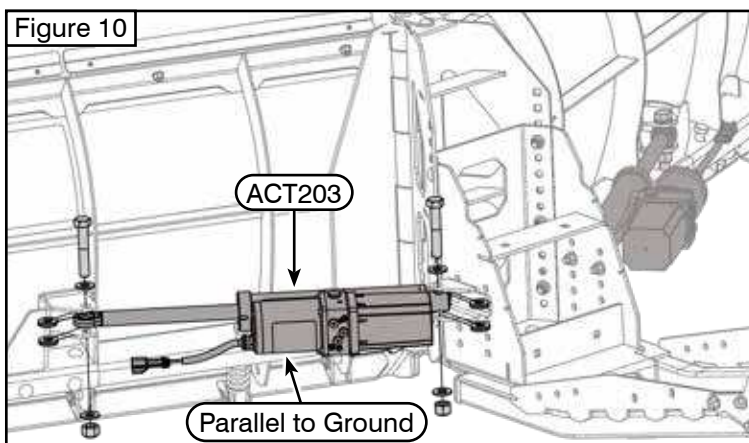
16. Install Rear Actuator Bracket (8) in it's appropriate location by using the information shown on **Page 9** once you determine your plow height. Attach with Hardware (14.1 & 14.3). **Figure 8** shows the stock location for the rear actuator bracket. The front and rear actuator brackets should be parallel with the ground.



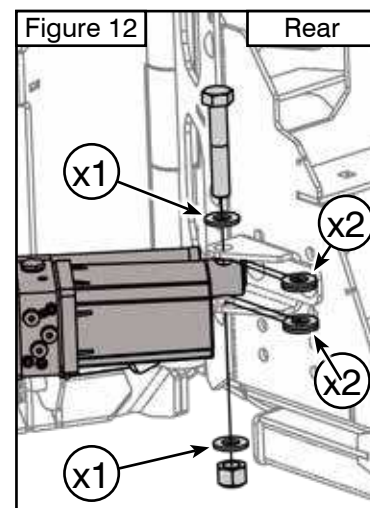
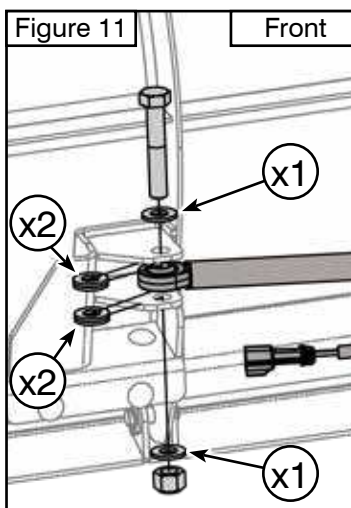
17. If installing Hydraulic Actuators, move on to step 18. For manual angling, continue below.

- Install Manual Angling Tubes (106530) using the hardware provided within this box. Install hardware as shown in **Figure 9**. The 106530 box comes with it's own manual. See that manual for more detail.

18. Hydraulic Actuators (ACT203) should be installed with the hardware provided with the actuators. The hardware can be used in the orientation shown in **Figures 10-12**. The same hardware configuration will be used for the front and rear of each actuator.

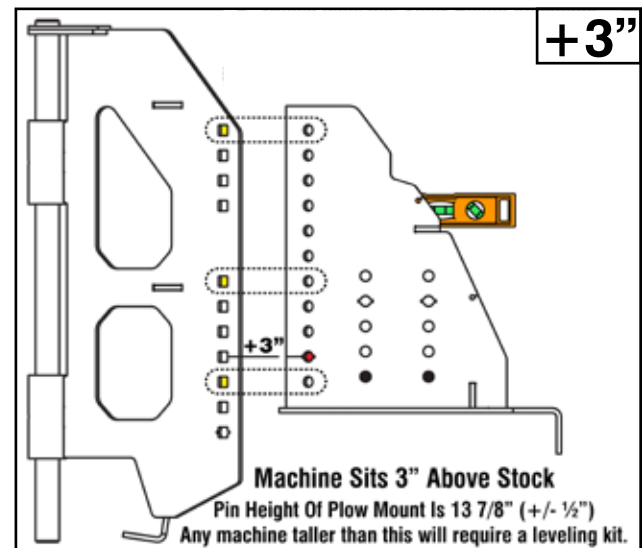
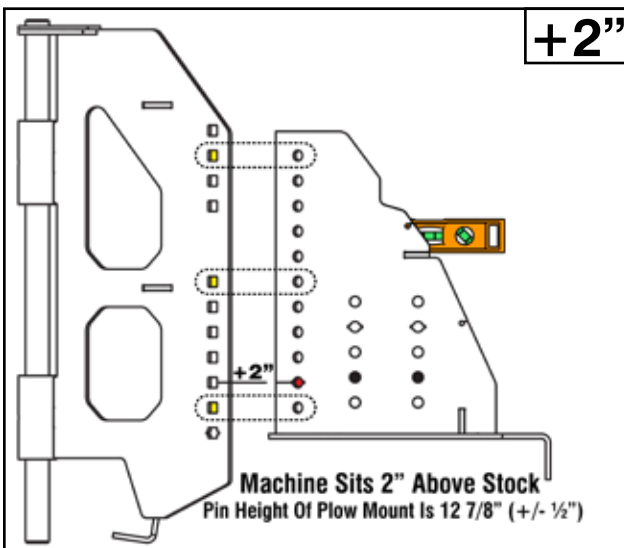
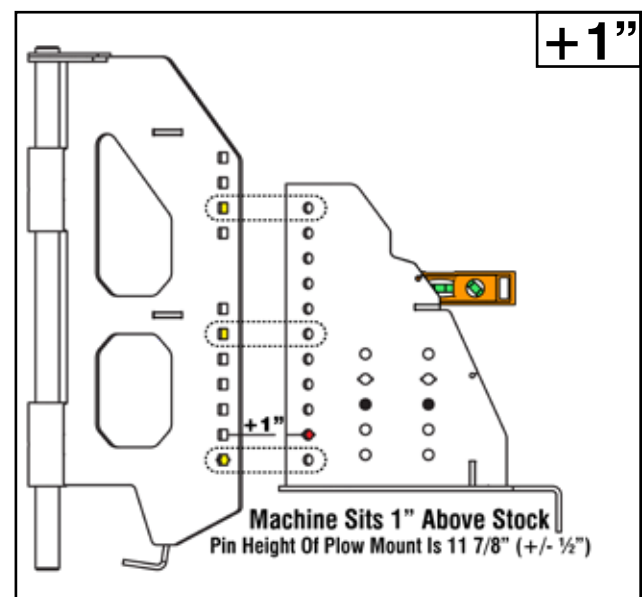
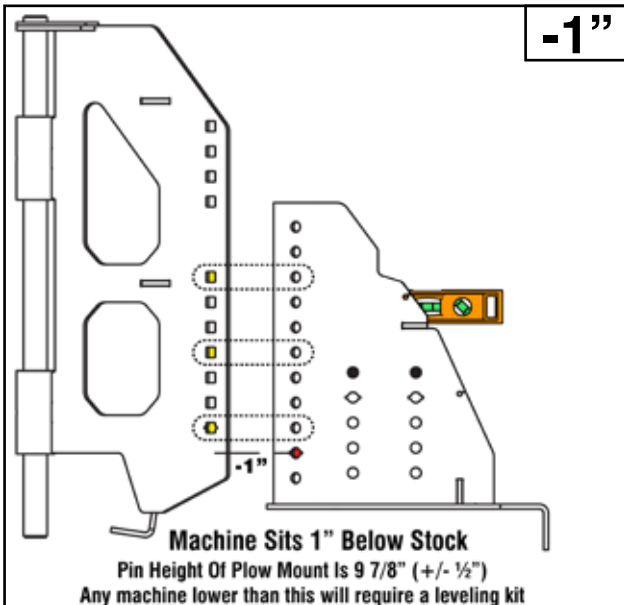
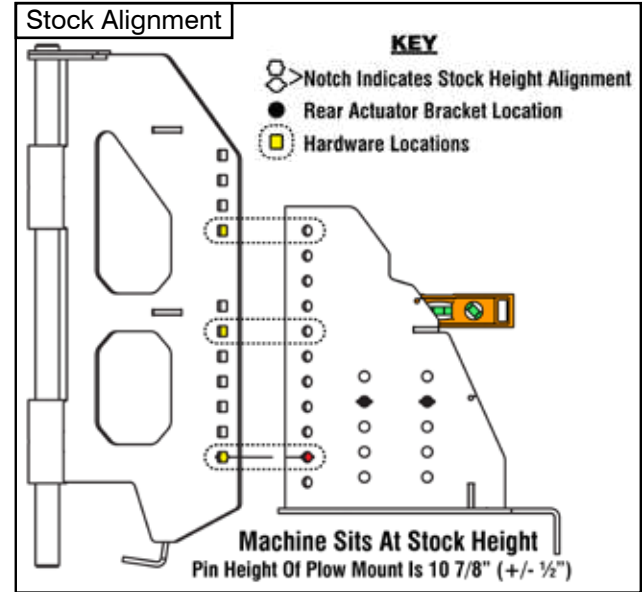


19. Hydraulic V-Plows include a separate manual for wiring the actuators. If not already completed, refer to that manual.



Height Adjustment Details

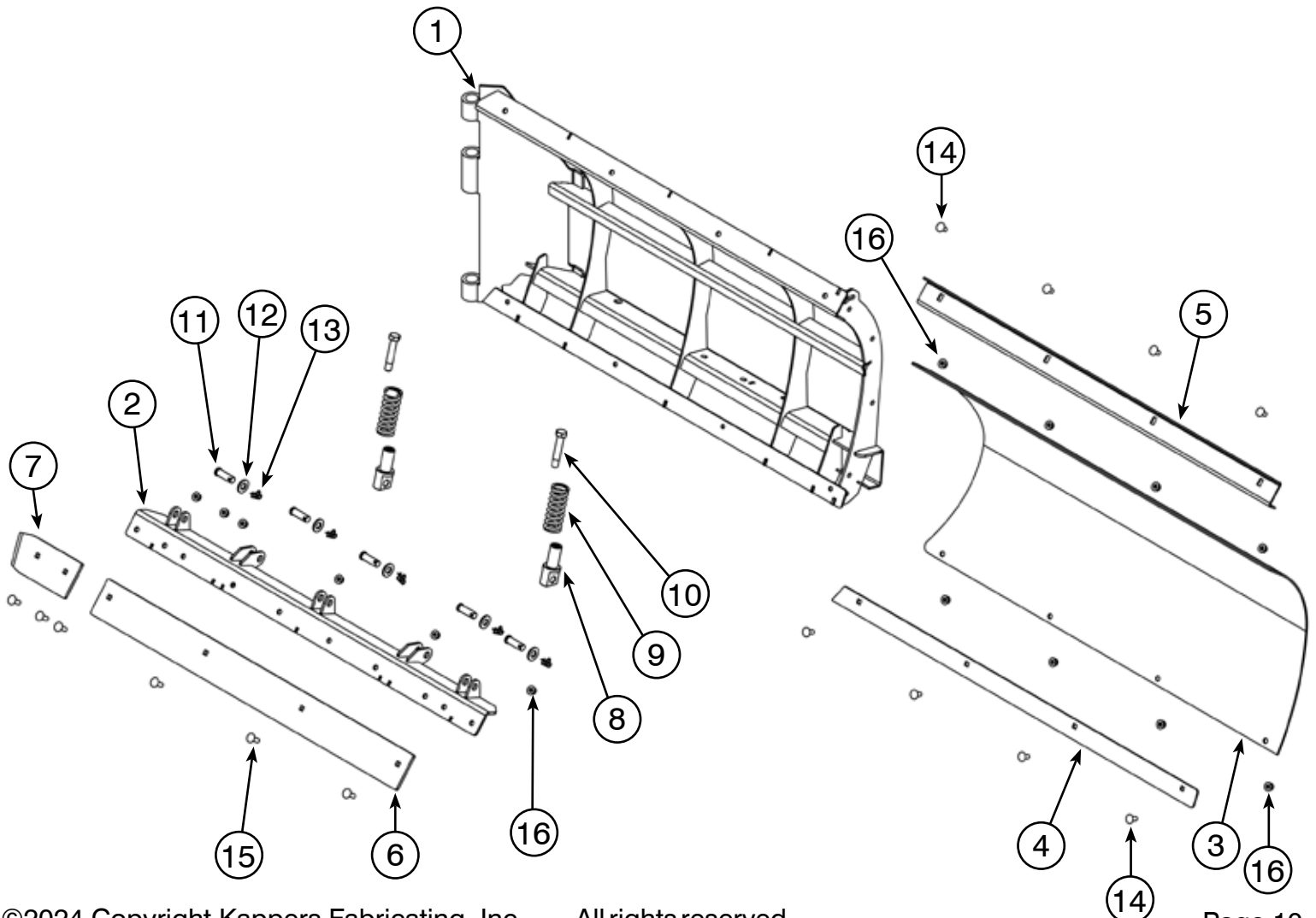
This page shows the height options available for the plow system. All attachment options from +3" to -1" are shown in detail. Your plow foot height can affect this attachment as well.



Replacement Components For Box 1 (106180-DS)

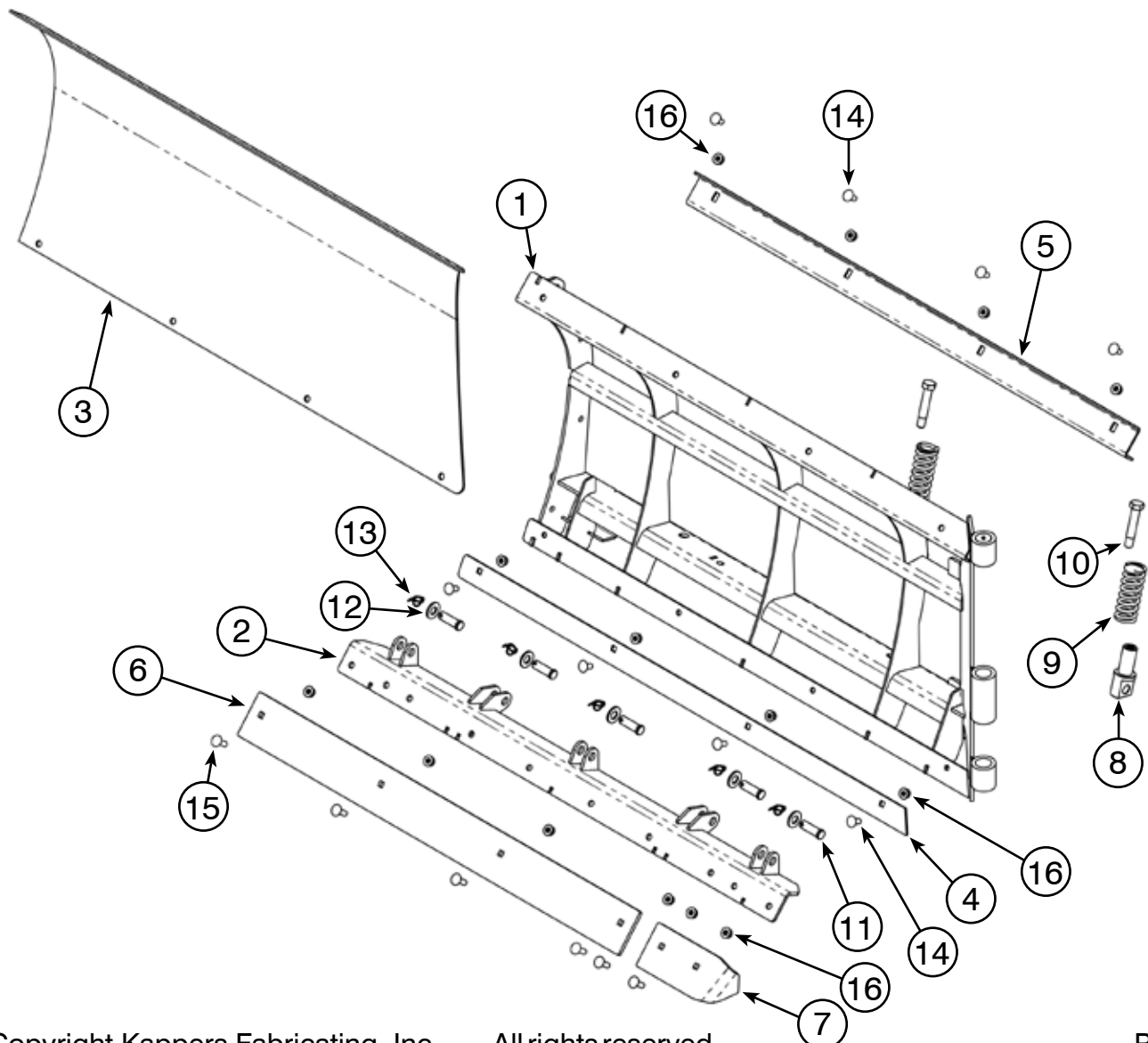
Replacement components per box can be looked up here.

Item #	Part #	Description	Qty.
Box 1	106180-DS	V-Plow Driver Wing Box - Full Kit	1
1	106182	V-Plow Driver Wing	1
2	106184	V-Plow Trip Edge	1
3	106024	Poly Face V-Plow DS Wing	1
4	106103	Poly Face V-Plow Lower Clamp	1
5	106086	Upper Hold Down V-Plow Wing	1
6	106057	V-Plow Wing Wear Bar	1
7	106299	DS Center V-Plow Wear Bar	1
8	P800554	Plow Trip Spring Pivot	2
9	P800557	Plow Trip Spring	2
10	P800562	Modified 1/2"-13 X 3.25" Hex Bolt GR5	2
11	P800610	Clevis Pin 1/2" x 1 17/64"	5
12	P890048	1/2" Flat Washers	5
13	P800609	Self Locking Cotter Pin 1/2"	5
14	P890033	5/16"-18 X .75" Carriage Bolt GR5	8
15	P890003	5/16"-18 X 1.00" Carriage Bolt GR8	6
16	P890014	5/16"-18 Hex Nut Flange Nylock GR5	14



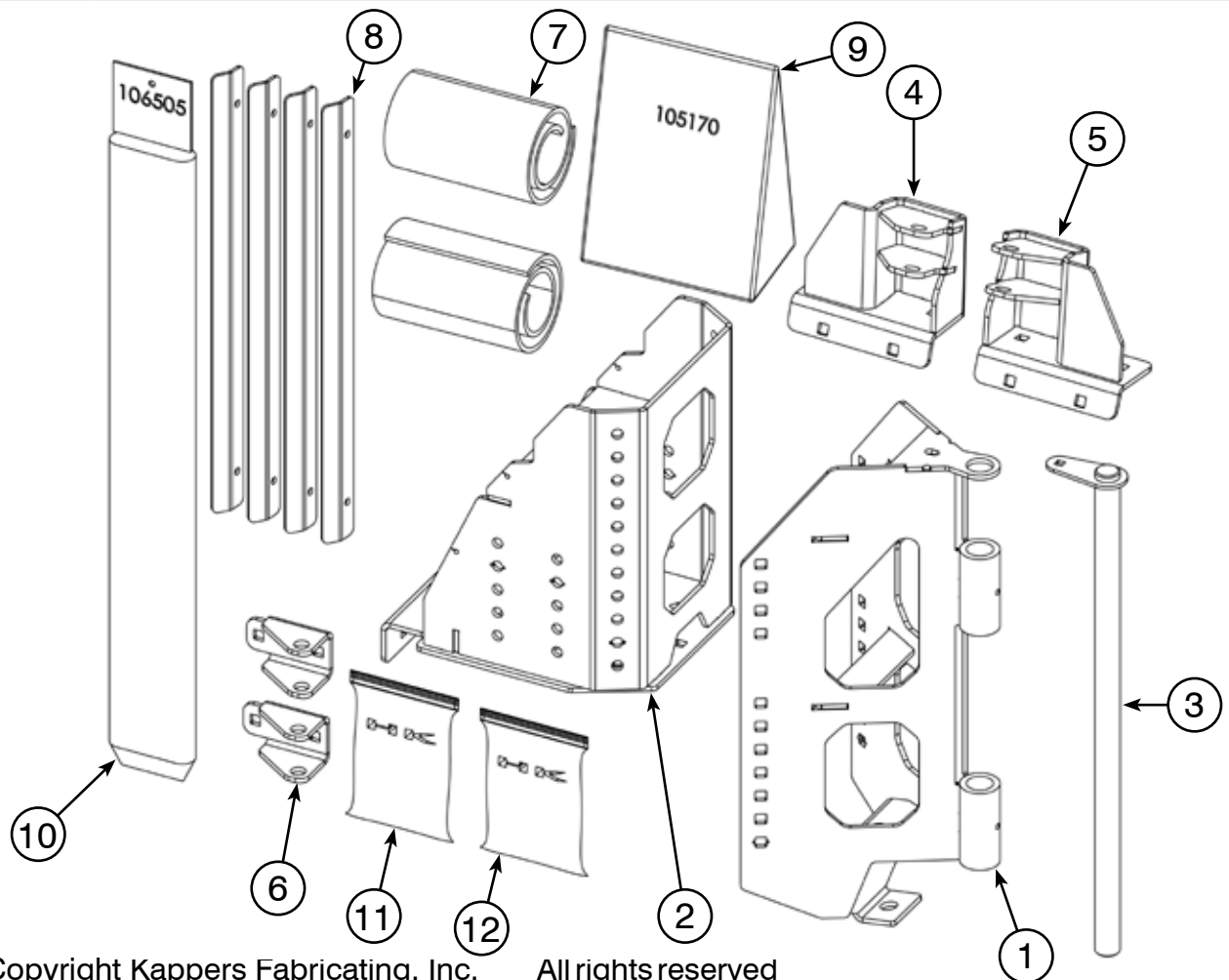
Replacement Components For Box 2 (106180-PS)

Item #	Part #	Description	Qty.
Box 2	106180-PS	V-Plow Passenger Wing Box - Full Kit	1
1	106181	V-Plow Passenger Wing	1
2	106184	V-Plow Trip Edge	1
3	106023	Poly Face V-Plow PS Wing	1
4	106103	Poly Face V-Plow Lower Clamp	1
5	106086	Upper Hold Down V-Plow Wing	1
6	106057	V-Plow Wing Wear Bar	1
7	106298	PS Center V-Plow Wear Bar	1
8	P800554	Plow Trip Spring Pivot	2
9	P800557	Plow Trip Spring	2
10	P800562	Modified 1/2"-13 X 3.25" Hex Bolt GR5	2
11	P800610	Clevis Pin 1/2" x 1 17/64"	5
12	P890048	1/2" Flat Washers	5
13	P800609	Self Locking Cotter Pin 1/2"	5
14	P890033	5/16"-18 X .75" Carriage Bolt GR5	8
15	P890003	5/16"-18 X 1.00" Carriage Bolt GR8	6
16	P890014	5/16"-18 Hex Nut Flange Nylock GR5	14



Replacement Components For Box 3 (106180-CP)

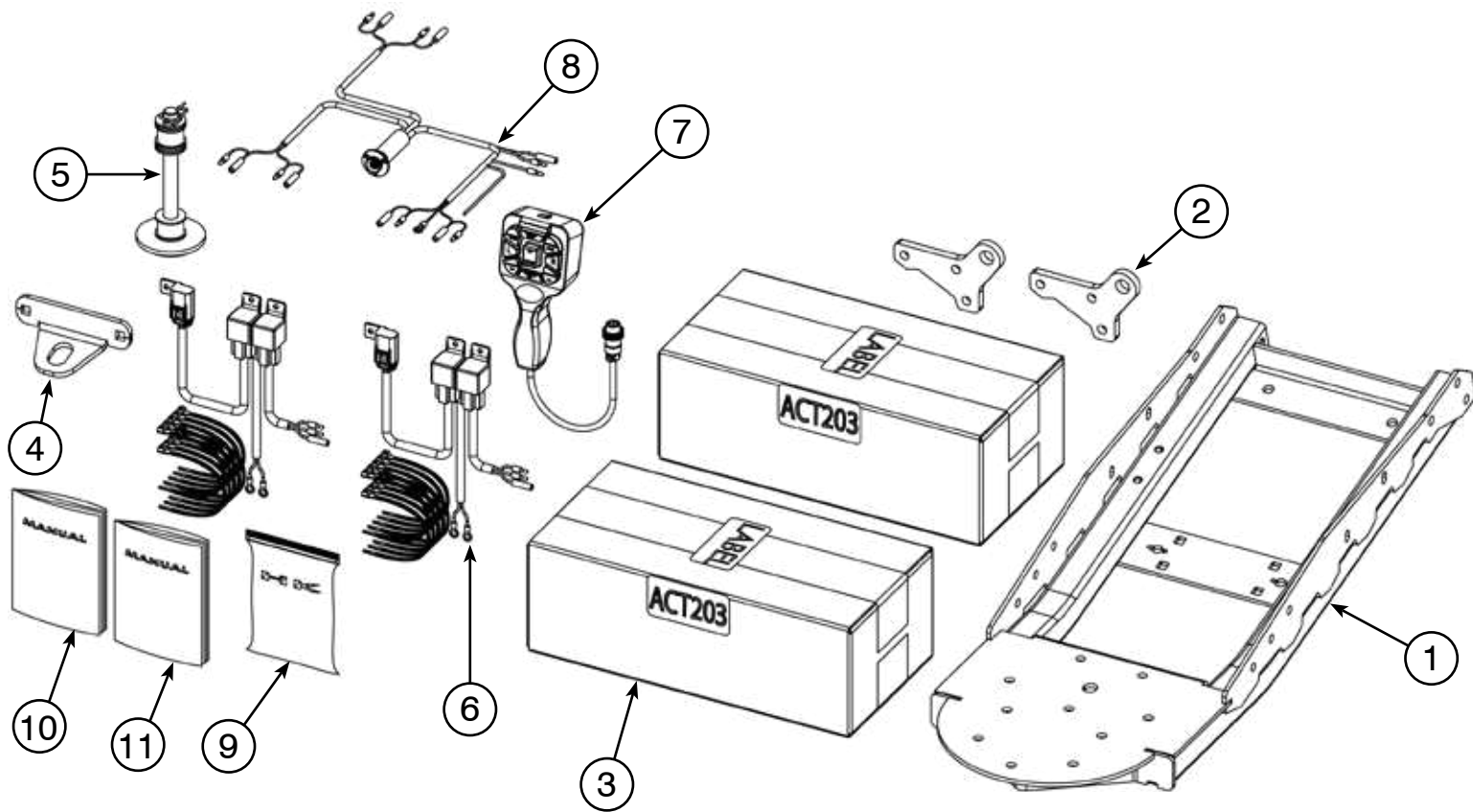
Item #	Part #	Description	Qty.
Box 3	106180-CP		1
1	106517	V-Plow Push Tube Center Pivot	1
2	106516	V-Plow Blade Center Pivot	1
3	106061	V-Plow Pivot Pin	1
4	106507	Driver Side Wing Actuator Bracket	1
5	106506	Passenger Side Wing Actuator Bracket	1
6	106153	V-Plow Bulkhead Actuator Bracket	2
7	106088	V-Plow Plow Flap	2
8	106087	V-Plow Plow Flap Trim	4
9	105170	Plow Skid Kit - Straight - 2pc (Manual Included)	1
10	106505	Pro-Poly Premium Plow Marker	1
11	HK-102	Hardware Kit HK-102	1
11.1	CB-5Z-025-20-100	1/4"-20 X 1.00" Carriage Bolt GR5	9
11.2	FW-SAE-Z-025	1/4" Flat Washer	9
11.3	HNN-5Z-025-20	1/4"-20 Hex Nut Nylock GR5	9
12	HK-430	Hardware Kit HK-430	1
12.1	CB-5Z-038-16-100	3/8"-16 X 1.00" Carriage Bolt GR5	26
12.2	CB-5Z-038-16-150	3/8"-16 X 1.50" Carriage Bolt GR5	2
12.3	HNFN-5Z-038-16	3/8"-16 Hex Nut Flange Nylock GR5	28
12.4	P890033	5/16"-18 X .75" Carriage Bolt GR5	1
12.5	P890014	5/16"-18 Hex Nut Flange Nylock GR5	1
12.6	P800558	5/8" Hitch Pin	2
12.7	P800559	Bridge Pin Clip (Used With 5/8" Pin)	2



Replacement Components For Box 4 - Option 1 (106180-APH)

Box 4 has 3 possible configurations. Other configurations are on the following pages.

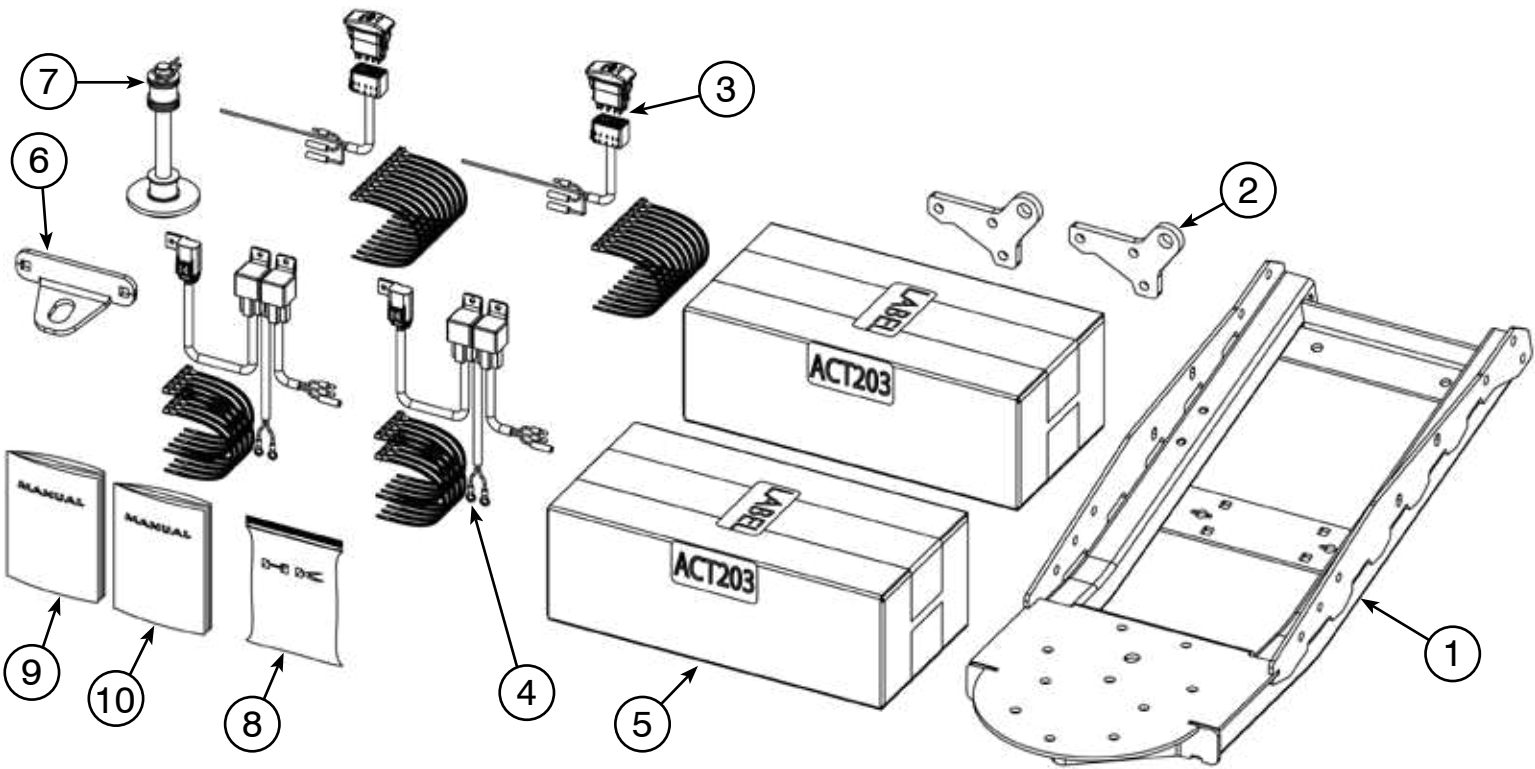
Item #	Part #	Description	Qty.
Box 4	106180-APH	V-Plow Actuator Push Tube - Full Kit	1
1	106301	Push Tube Weldment	1
2	106302	UTV Push Tube Ear	2
3	ACT203	KFI Hydraulic Actuator (203mm) (Manual Included)	2
4	105138	UTV Lift Hook	1
5	105490	Single Plow Foot Kit	1
6	ACT-HAR	Actuator Relay Harness	2
7	ACT-VHR	Actuator V-Plow Hand Remote	1
8	ACT-HR-HAR	Hand Remote Harness	1
9	HK-398	Hardware Kit HK-398	1
9.1	HBF-5Z-038-16-125	3/8"-16 X 1.25" Hex Bolt Flange GR5 Serrated	6
9.2	HNFN-5Z-038-16	3/8"-16 Hex Nut Flange Nylock GR5	6
10	M106180	106180 Assembly Manual	1
11	M106180-HAR	V-Plow Actuator Wiring Manual	1



Replacement Components For Box 4 - Option 2 (106180-AP)

Box 4 has 3 possible configurations. Other configurations are on the previous and following page.

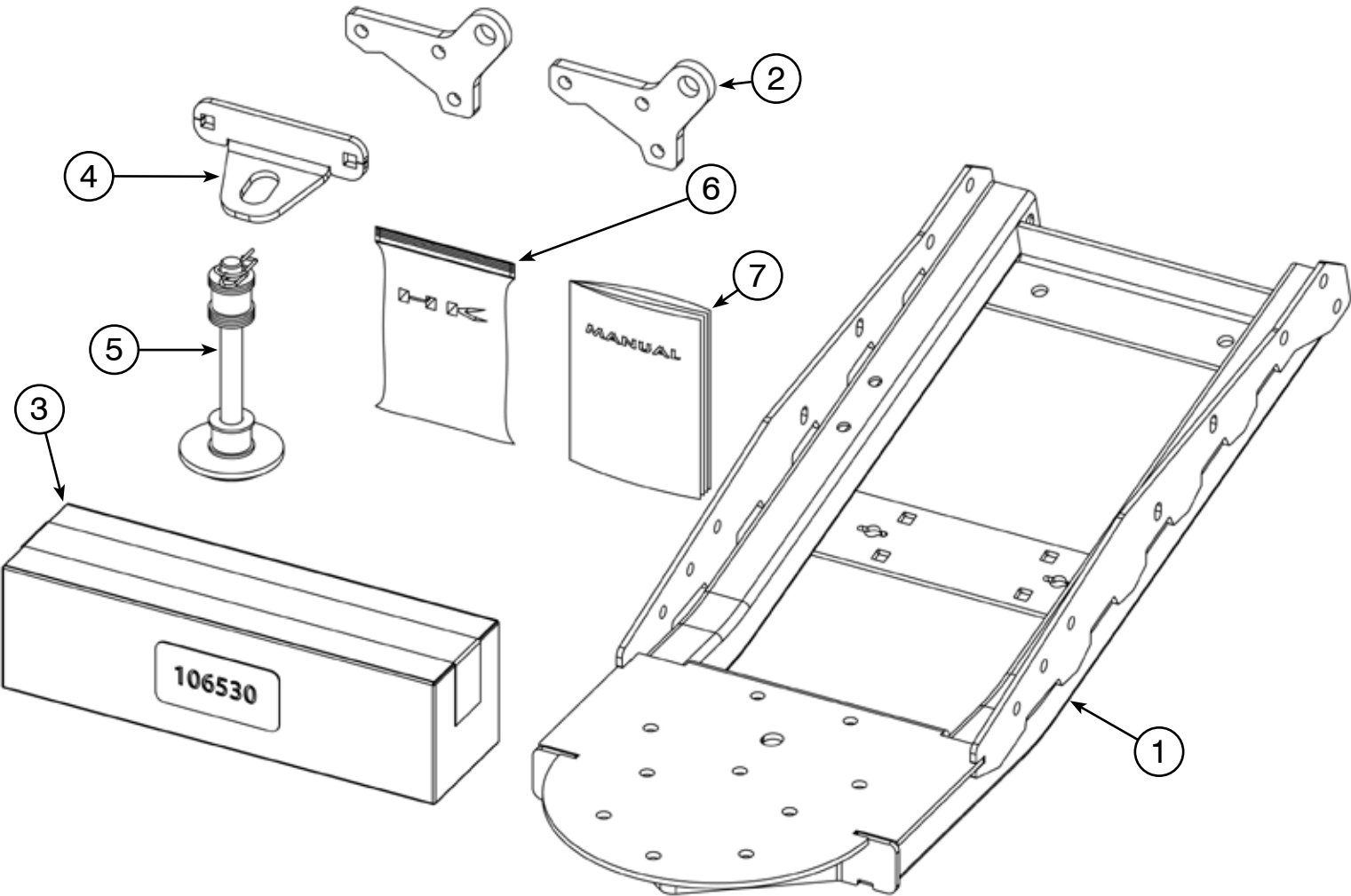
Item #	Part #	Description	Qty.
Box 4	106180-AP	V-Plow Actuator Push Tube - Full Kit	1
1	106301	Push Tube Weldment	1
2	106302	UTV Push Tube Ear	2
3	ACT-BLDRS-K	Actuator Wiring Harness and Rocker Switch	2
4	ACT-HAR	Actuator Relay Harness	2
5	ACT203	KFI Hydraulic Actuator (203mm) (Manual Included)	2
6	105138	UTV Lift Hook	1
7	105490	Single Plow Foot Kit	1
8	HK-398	Hardware Kit HK-398	1
7.1	HBF-5Z-038-16-125	3/8"-16 X 1.25" Hex Bolt Flange GR5 Serrated	6
7.2	HNFN-5Z-038-16	3/8"-16 Hex Nut Flange Nylock GR5	6
9	M106180	106180 Assembly Manual	1
10	M106180-HAR	V-Plow Actuator Wiring Manual	1



Replacement Components For Box 4 - Option 3 (106180-MP)

Box 4 has 3 possible configurations. Other configurations are on the previous pages.

Item #	Part #	Description	Qty.
Box 4	106180-MP	V-Plow Manual Push Tube - Full Kit	1
1	106301	Push Tube Weldment	1
2	106302	UTV Push Tube Ear	2
3	106530	V-Plow Manual Kit (Manual Included)	1
4	105138	UTV Lift Hook	1
5	105490	Single Plow Foot Kit	1
6	HK-398	Hardware Kit HK-398	1
6.1	HBF-5Z-038-16-125	3/8"-16 X 1.25" Hex Bolt Flange GR5 Serrated	6
6.2	HNFN-5Z-038-16	3/8"-16 Hex Nut Flange Nylock GR5	6
7	M106180	106180 Assembly Manual	1



Maintenance Information

Any components that swivels or pivots should be lubricated occasionally to reduce wear, increase longevity, and ensure proper operation. Some components that should be lubricated include the Center Pivot Pin, Tripping Wear Bar Pins and Actuator Bolts or Manual Wing Adjustment Bolts (depending on your configuration).

The plow system should be inspected at the start of each season and after any accidental impacts. If any component is bent or damaged, it could lead to excess damage later on, or even addition components becoming damaged if not fixed correctly. If needed, individual components can be purchased from KFI by contacting us directly at tech@kfiproducs.com or 877-346-2050 Option 2.

It is best to store the Hydraulic Actuators out of the weather or in a temperature controlled environment when not in use. If you need to store the plow system outdoors, it would be best to cover the actuators at minimum, or remove them from the plow system for storage. More information can be found in the actuator manual.

NOTES

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



2 YEAR LIMITED WARRANTY

Kappers Fabricating, Inc. (KFI) warrants to the original purchaser that the product is free from defects in materials and workmanship for a period of two (2) years from the original date of purchase. We will repair or replace, at our discretion, parts found to be defective due to materials or workmanship. This warranty is subject to the following limitations and exclusions:

Commercial Use: The warranty period for any product used for commercial or rental is limited to ninety (90) days from the date of original purchase.

Limitations: This warranty applies only to products which have been properly assembled, adjusted, and operated in accordance with the instructions contained within this manual. This warranty does not apply to any product of Kappers Fabricating, Inc. that has been subject to alteration, misuse, abuse, improper assembly or installation, or shipping damage.

Exclusions: Excluded from this warranty are normal wear, normal adjustments, and normal maintenance.

THIS WARRANTY DOES NOT APPLY TO ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES AND ANY IMPLIED WARRANTIES ARE LIMITED TO THE SAME TIME PERIODS STATED HEREIN FOR ALL EXPRESSED WARRANTIES.

THE WARRANTY SET FORTH ABOVE IS THE ONLY WARRANTY. THERE ARE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

Some states do not allow the exclusion of implied warranties or the exclusion or limitation of liability for incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above limitation or exclusion may not apply to you. This warranty gives you specific legal rights. You may also have other rights that vary from state to state.

In the event you have a claim under this warranty, contact KFI's Technical Service and KFI will troubleshoot any issue via phone or e-mail. If the problem is not corrected by this method, KFI will, at its option, authorize evaluation, repair or replacement of the defective part or component at a KFI Service Center. KFI will provide you with a case number for warranty service. Please keep it for future reference. Repairs or replacements without prior authorization, or at an unauthorized repair facility, will not be covered by this warranty.

All transportation charges, damage, or loss incurred during transportation of parts submitted for replacement or repair under this warranty shall be borne by the purchaser. Should you have any questions concerning this warranty, please contact us toll-free at 1-877-346-2050. The model number, serial number (if applicable), date of purchase, and the name of the authorized KFI dealer from whom you purchased the product will be needed before any warranty claim can be processed.

For warranty inquiries outside the U.S.A. and Canada, contact your local dealer/distributor.

For countries not covered by a local dealer/distributor, please contact us at www.kfiproductions.com.

Product Registration

Please register your product with Kappers Fabricating, Inc. (KFI) within fifteen (15) days of purchase to assist us in handling any warranty issues that may arise by filling out this Registration card and submitting it with a copy of your sales receipt from one of KFI's official resellers. Failure to complete and return this Registration card does not diminish your warranty rights.

Please refer to the above section for complete terms of this warranty.

WARRANTY IS NON-TRANSFERABLE

Please Print Clearly

Blade P/N _____

Name _____

Street Address _____

City _____ State _____ Zip Code _____

Phone _____ Email _____

Date of Purchase _____

Authorized KFI Dealer Name _____

Fill out and send this section to:
Kappers Fabricating, Inc.
Warranty Registration Department
1015 Industrial Drive, PO Box 32
Spring Valley, MN 55975, U.S.A.

Or
**Register
Online**





Kappers Fabricating, Inc.

**721 Sata Dr.
Spring Valley, MN 55975**

1-877-346-2050

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