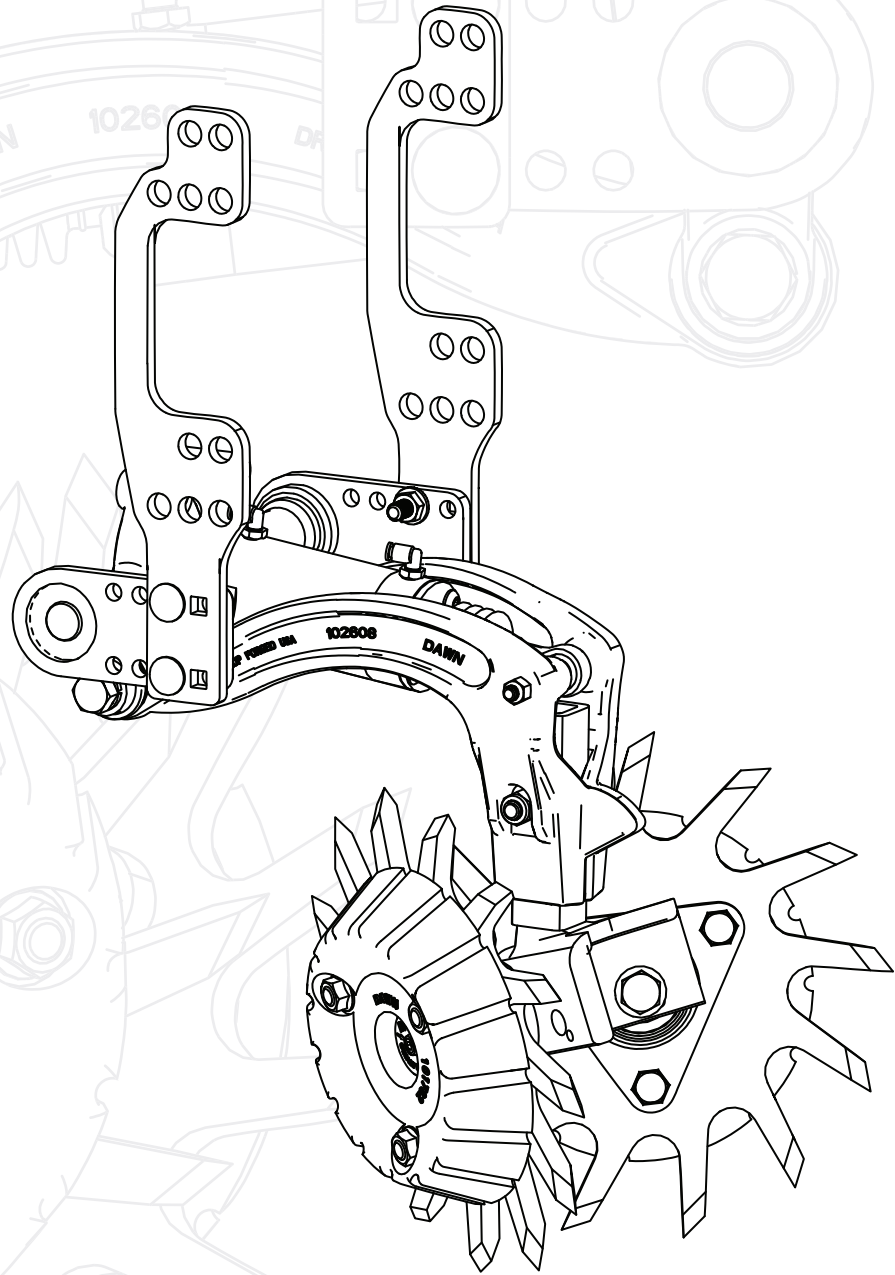


Dawn Model 5009 GroundFX Pneumatic Row Cleaner

Assembly and Operation Manual



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Introduction

PLEASE CAREFULLY READ THIS MANUAL

It is strongly recommended that you become familiar with all operation and maintenance procedures concerning your Dawn agricultural equipment.

Failure to follow safety recommendations while this implement is in operation, and/or failure to properly store this implement, and/or failure to adequately prepare this implement for transport, could result in equipment damage, personal injury or death. Please make yourself aware of all federal and local laws that may apply to the transport, use and sale of this implement.

USING THIS MANUAL

All Dawn manuals are named and numbered and should be considered a principal element of the device they accompany. Please ensure this manual is kept in a location not subject to extreme conditions (i.e. excess humidity, hydraulic fluid, exposed to natural elements, etc.). Please ensure that this manual remains with the implement if traded, leased, or sold.

WARRANTY INFORMATION

All new Dawn Equipment company products carry a limited warranty. Warranty assurances vary by device, and can be found in the appendices of this or any other Dawn Equipment Company users manual. Warranty information is also available upon request by contacting Dawn toll-free at 800.554.0007, or you can request a copy in writing. Request warranty information by e-mail at info@dawnequipment.com, or by US post at

Dawn Equipment Company
PO Box 497
Sycamore, IL 60178

Dawn Equipment Company prides itself on the manufacture of quality American made row crop tools. Warranties will be honored by Dawn to dealers authorized to sell Dawn Equipment products who, in turn, honor such warranties to the original retail purchaser. Should this equipment be improperly cared for, or should it be modified to change performance beyond OEM specifications, applicable Dawn warranties will become void, and Dawn sponsored implement improvements will not be granted.

DISCLAIMER

Dawn Equipment Company makes no claim to the safety or reliability of non-Dawn OEM parts or whole goods used in conjunction with Dawn OEM equipment, and shall not be held responsible for any personal injury or property damage, or for any complications with operational performance caused by non-Dawn OEM parts or whole goods used in conjunction with Dawn OEM equipment. Please familiarize yourself with the users manuals and safety recommendations of all non-Dawn OEM equipment.

WEIGHTS AND MEASURES

All Dawn Equipment Company part and whole good designs adhere to the United states Customary Unit System (Inch-Pound). All measurements in this manual are labeled using only the aforementioned units, unless otherwise explicitly specified.

ADDITIONAL INFORMATION

Additional information on this, and any other Dawn tool can be found on the web at www.dawnequipment.com. You may also contact Dawn for information by phone at **800.554.0007**, or by fax at **815.899.3663**, or by email at info@dawnequipment.com




SAFETY - INTRODUCTION


GENERAL SAFETY


It is essential that you be able to recognize safety signal words and their associated symbols. Please be alert to any signs posted on your Dawn Equipment Company products, and/or in your users manual. Make sure you have read all safety messages and that you clearly understand the recommended precautions. If you have any questions about any Dawn safety sign, or have further questions about the safety recommendations on this or any other Dawn product, please contact Dawn Equipment Company at 800.554.0007.

SAFETY TRIGGERS

Several safety symbols appear with their associated safety words throughout your Dawn Equipment user manual. It is important to recognize and understand these safety signals in order to take appropriate action as necessary.

 **DANGER** - Indicates an imminently hazardous situation that, if not avoided, will result in serious injury or death, and/or property damage

 **WARNING** - Indicates a potentially hazardous situation that, if not avoided, will result in serious injury or death, and/or property damage.

 **CAUTION** - Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury, and/or property damage.

REPORTING AN EMERGENCY

Ensure that you have access to a radio or a mobile phone when operating or repairing farm machinery. Working with a partner whenever possible significantly increases the chances of receiving timely emergency care should one party become severely injured, and/or incapacitated.

MAINTENANCE AND UPKEEP

For safety reasons, it is important to keep your implements in proper working order. Unauthorized modifications to Dawn Equipment Company products may compromise the efficiency and/or safe operation of the product and will void any and all warranties through Dawn Equipment Company. Please read your manual before attempting any repair work to your Dawn tool. If you need to work on your Dawn tool, make sure to support it before partially or fully removing it from the attachment points. Do not adjust your Dawn tools while they are moving. Before making adjustments to your Dawn fx tool, make sure to disengage the hydraulic circuit and disconnect the power source.

PROPER WASTE DISPOSAL

Please familiarize yourself with all waste disposal laws applicable to your area before dumping.



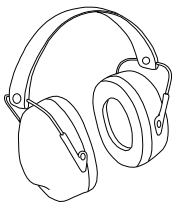
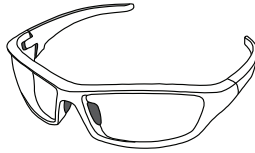
SAFETY - GEAR

PROTECTIVE CLOTHING

Wearing proper attire when working on agricultural equipment is a critical safety precaution. Loose clothing or accessories may become entangled in moving parts causing serious injury or death. Please ensure that loose cuffs, shirts, belts, jewelry, etc. are secured such that they cannot be drawn into moving machinery. Stay aware of your surroundings when in the proximity of machinery that is either moving or has the potential for spontaneous movement. Equip yourself with all recommended safety accessories, and develop a strategy for ensuring their use when needed.

SAFETY GLASSES/GOGGLES

If you will be using hazardous chemicals, or are striking, cutting or grinding metal make sure you are wearing eye protection.

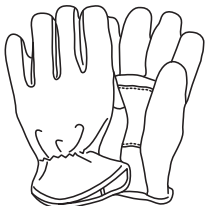


EARPLUGS / SOUND MUFFLERS

When working around equipment that generates high amplitude sound (ie dryers, vacuums, etc.) ear protection is strongly recommended.

RESPIRATOR MASK

Carefully read all safety information associated with any chemicals you will be handling. Use a respirator mask when using hazardous chemicals, (ie Insecticides, NH₃, etc.)



WORK GLOVES

If working around machinery with sharp edges, or rough metal surfaces, work gloves may prevent a few stitches. Work gloves are inexpensive, and are really worth the investment.

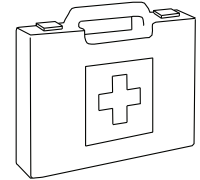


STEEL-TOED BOOTS

A good pair of steel-toed boots can save your toes. Avoid an unfortunate accident, and protect your feet.

FIRST AID KIT

In order to minimize the risk of infection, every shop and tractor should have a complete first aid kit.



FIRST AID KIT CONTENTS

According to the National Agricultural Safety Database (NASD) and Canadian Agricultural Safety Association (CASA), each first aid kit should include the following;

- Poison First Aid Kit with syrup of Ipecac and charcoal
- Sterile first aid dressings in sealed envelope (2" x 2" for small wounds, 4" x 4" for larger wounds and a compress to stop bleeding)
- Tongue blades
- Stainless steel bandage scissors (strong enough to cut denim)
- Tweezers
- Eye wash solution
- Thermometer
- Safety pins
- Ace bandage
- "Band-aids"
- Roller bandage 1" x 5 yds. (for fingers)
- Roller bandage 2" x 5 yds. to hold dressings in place
- Adhesive tape
- Triangular bandages for a sling or as a covering over a larger dressing
- Cotton balls for cleaning wounds or applying medication
- Splints 1/4" thick, 1/2" wide, 12-15" long for splinting broken arms and legs
- 70% isopropyl alcohol and tincture green soap in a covered container for cleaning
- Ice packs (chemical ice bags) to use to reduce swelling
- Several pairs of disposable latex or nitrile gloves
- Waterless hand wash
- Emergency tourniquet (or elastic wrap/tubing)
- Amputation preservation kit consisting of plastic bags: one large garbage bag, four kitchen-sized and two bread bags



SAFETY - PNEUMATIC UNIT

Gfx-P SAFETY CONSIDERATIONS

▲ **WARNING!** It is imperative that you familiarize yourself with this device and its operation before attempting any service or operation.

▲ PINCH POINTS

The Gfx-P is a dynamic device which connects many points of articulation where hands or loose clothing can become caught. For your safety, please be aware of how the unit operates and stay clear of pinch points.

PNEUMATIC CONSIDERATIONS

▲ WARNING!

- Do not exceed the maximum permissible pressure of **120 psi**.
- Do not activate compressed air until all of the tubing connections have been completed and secured.
- Do not disconnect tubing while under pressure.
- Danger of injury when switching compressed air on!
-Cylinders may advance and retract automatically!
- Danger of accident due to tubing slipping off!
- Use shortest possible tubing connections.
- Wear safety glasses.
- In the event that tubing slips off:
Switch compressed air supply off immediately.

▲

WARNING! Operating or servicing the Gfx or planter row unit with Gfx pneumatic circuit charged may result in loss of limb or death. Only service unit with hydraulic line pressure discharged.

▲

WARNING! Never remove unit fixing bolts without first discharging the circuit pressure and supporting the planter row unit with a jack or by resting on ground.

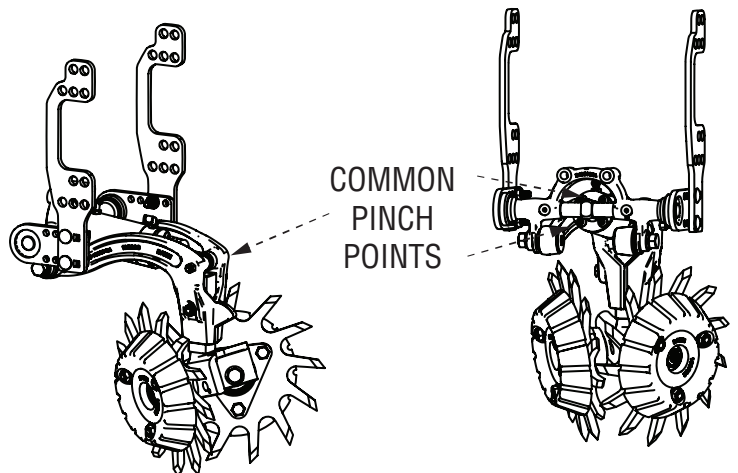
- Pneumatic circuit setup:
-Connect the devices with plastic tubing with an outside diameter of 1/4 in. Push the tubing into the push-in connector as far as it will go.
-Switch compressed air supply off before dismantling the circuit.

Pneumatic circuit dismantling:

- Press the release ring down, after which the tubing can be pulled out.

▲

WARNING! The Gfx-P unit is a high precision Pneumatic device. Always try to work on assembly in a shop environment that is as clean as possible. Minimizing the contamination of the pneumatic components with dirt and debris will have a direct effect on the longevity of the seals and other components.



PRE-INSTALLATION - MOUNT KITS

UNIVERSAL MOUNTING SYSTEM

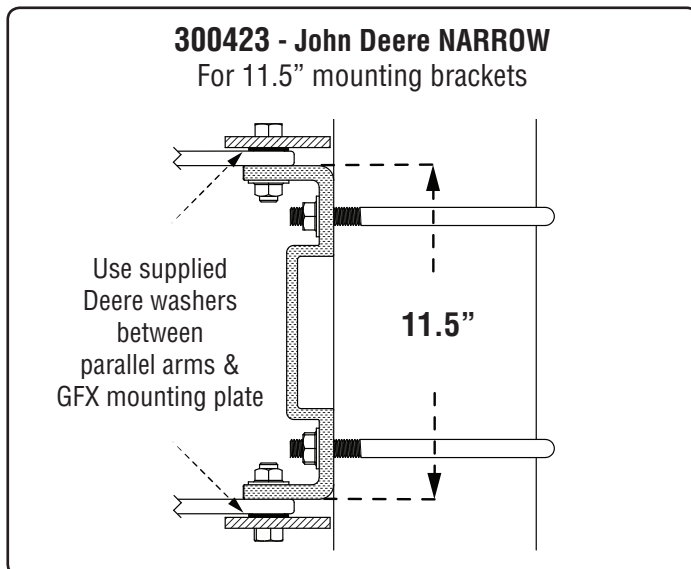
The Dawn Gfx-P and its universal mounting system is designed to fit a variety of modern planters. Due to the nature and variety of Original Equipment Manufacturers (OEMs), installation of individual row units will depend on a highly variable set of circumstances. As a result, care needs to be taken to insure compatibility as well as proper installation procedure. There may arise situations in which it will take some basic logistical skill in order to complete a functional and safe installation. If you do not feel comfortable installing your row units, please contact your dealer. For updated information about Dawn products, please visit us online at www.DawnEquipment.com or call us toll free at 800.554.0007

NOTE Some areas of interference may be alleviated with Dawn setback kits. Please check the setback row diagrams in the following section for detail. If you have questions, contact your Dawn dealer or Dawn Equipment Company for installation advice.

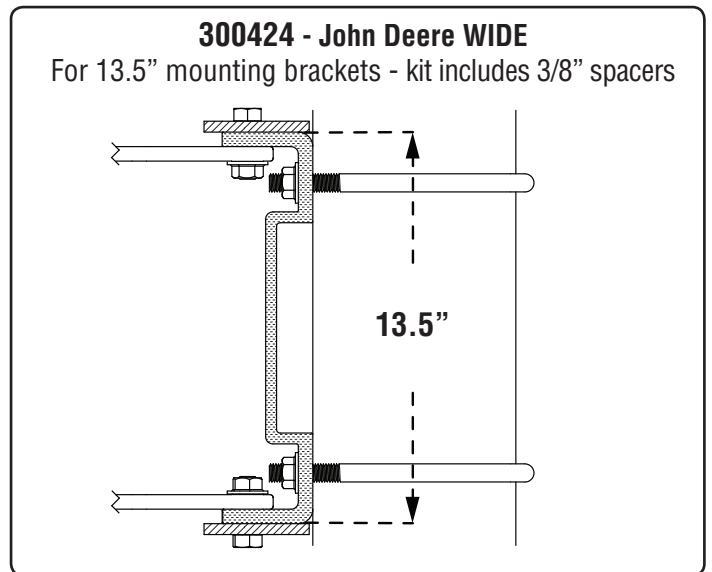
PLANTER ROW UNIT WIDTH

The three most common planter widths are defined below. To insure fit, measure the width of the “flying-W” or row unit mount bracket prior to ordering Gfx units. The Gfx yoke (Dawn p/n 200959) is 12.75” wide.

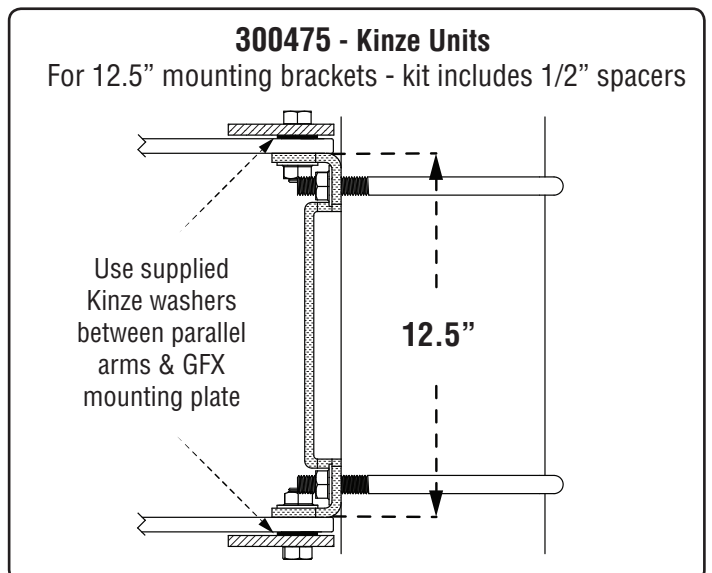
NOTE All figures show motion of travel from left to right.



NOTE Bauer ships most of their toolbars with planters with the John Deere narrow unit configuration where the parallel arms sit on the OUTSIDE of the flying-W.



NOTE John Deere ships most of their toolbars (1770, for example) with planters in this wide row unit configuration where the parallel arms sit on the INSIDE of the flying-W.



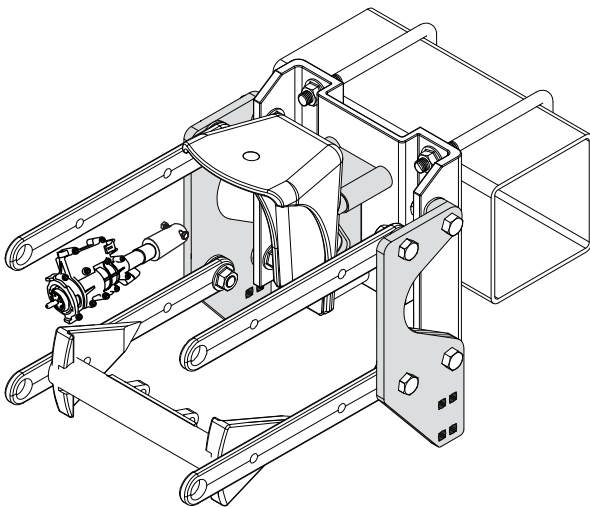
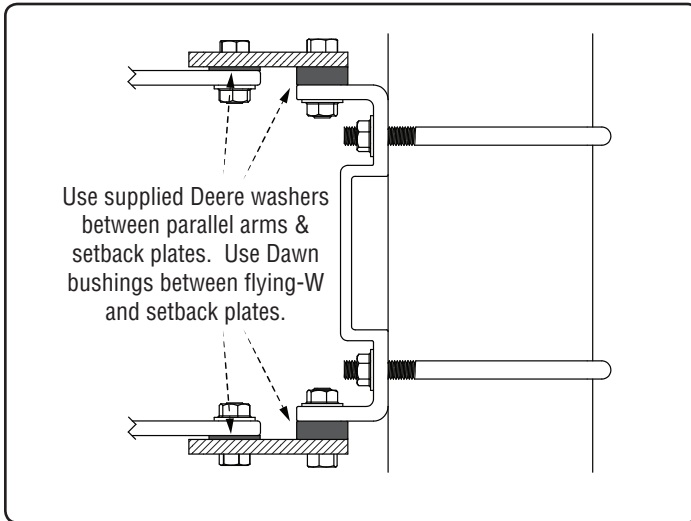
NOTE Kinze ships most of their compatible row units in this configuration with the parallel arms on the OUTSIDE of the flying-W.

PRE-INSTALLATION - MOUNT KITS

SETBACK ROWS JOHN DEERE

Some rows on your planter may face significant interference from varying design necessities such as folding points, seed vacuum tubes, weldments, toolbar and wing lift tires to name a few. In these situations, it will be necessary to install setback kits to insure proper function of your Gfx row cleaners. A Dawn setback kit is required for all setback units.

300388-UNIV - Setback Kit



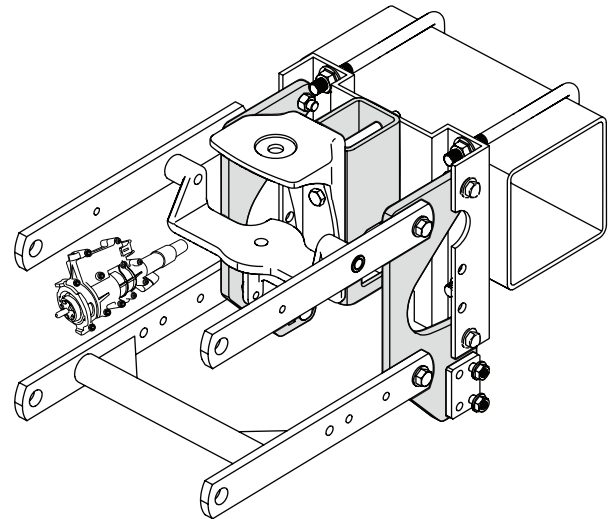
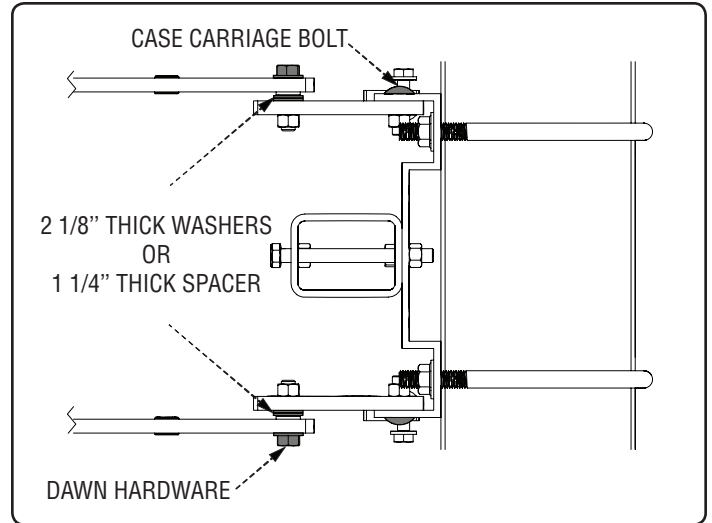
kit #**300388-UNIV**: Correct orientation of Dawn setback mount plates with Deere airbag spacer.

NOTE Deere hardware supplied by dealer or third party. Dawn does not and will not stock John Deere parts. John Deere parts and part numbers subject to change without notice.

SETBACK ROWS CASE PLANTER

Some rows on your planter may face significant interference from varying design necessities such as folding points, seed vacuum tubes, weldments, toolbar and wing lift tires to name a few. In these situations, it will be necessary to install setback kits to insure proper function of your Gfx row cleaners. A Dawn setback kit is required for all setback units.

300388-CASE - Setback Kit

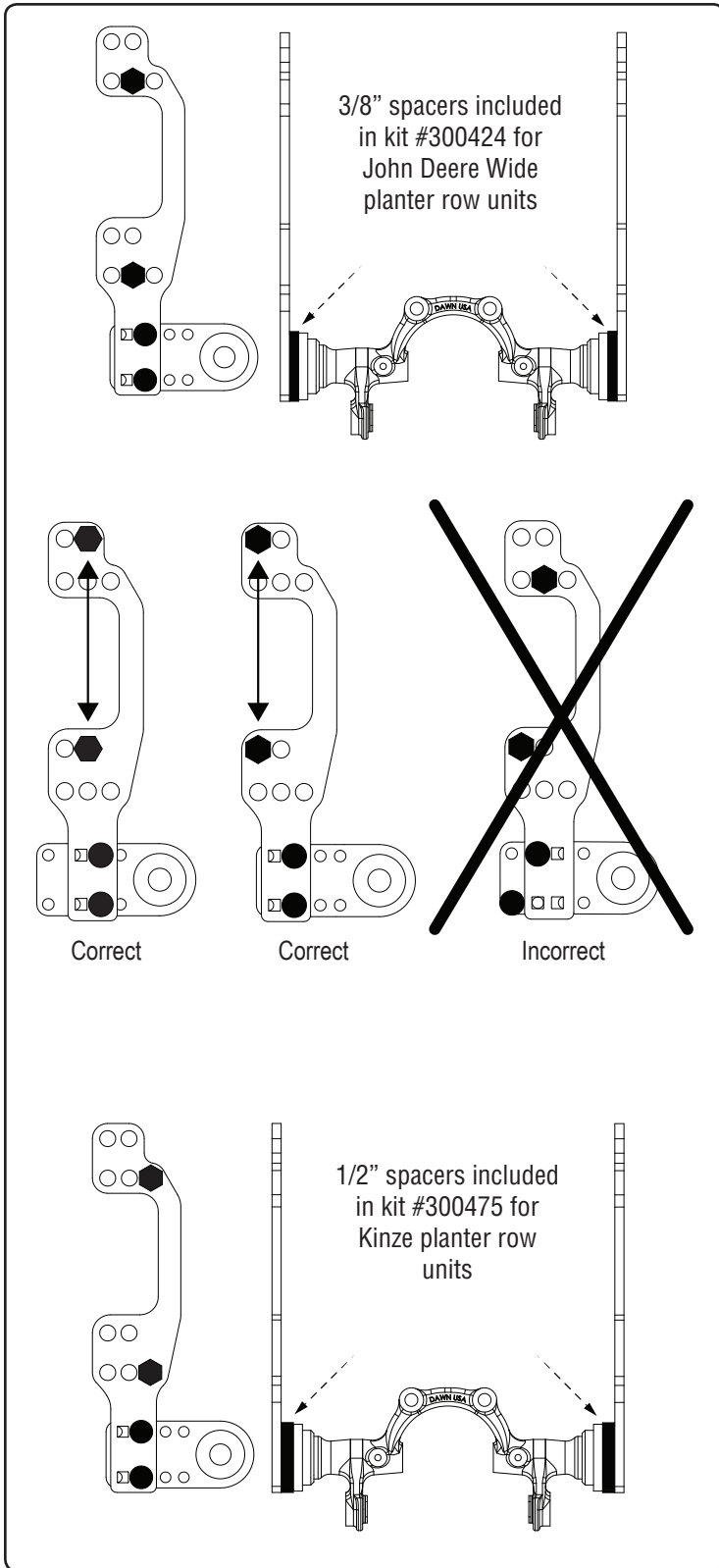


kit #**300388-CASE**: Correct orientation of Dawn setback mount plates with Case airbag spacer.

NOTE Case hardware supplied by dealer or third party. Dawn does not and will not stock Case parts. Case parts and part numbers subject to change without notice.



PRE-INSTALLATION - MOUNT KIT BOLT CONFIGURATIONS

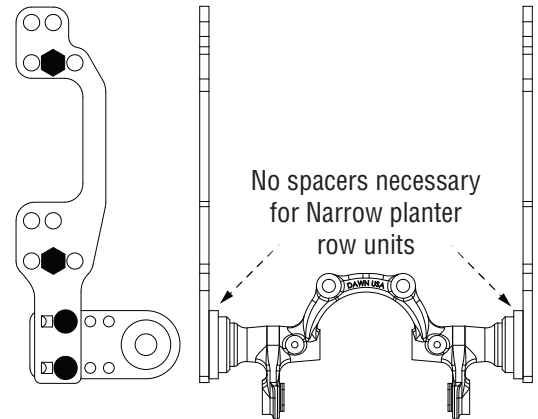


MOUNTING PLATE BOLT CONFIGURATION

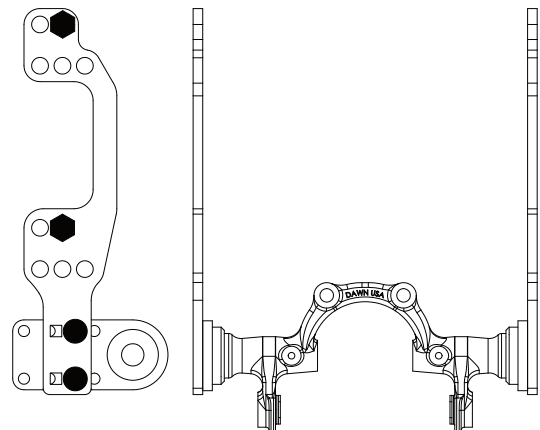
Please refer to these diagrams for a selection of the most common bolt configurations in order to place your Dawn Gfx mounting plates and Gfx row unit correctly in relation to your planter row unit and toolbar. As a general rule, you will want to mount your Gfx units in a way that allows free movement along the full length of travel.

DO NOT tighten bolts until mount plates and Gfx yoke are installed. Refer to bolt torque specifications in the following installation guide. **DO NOT** over tighten bolts.

NOTE All figures show motion of travel from left to right.

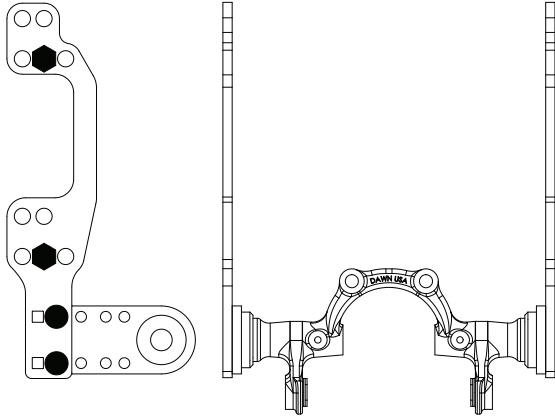


NOTE All bolt pairs must be aligned vertically!

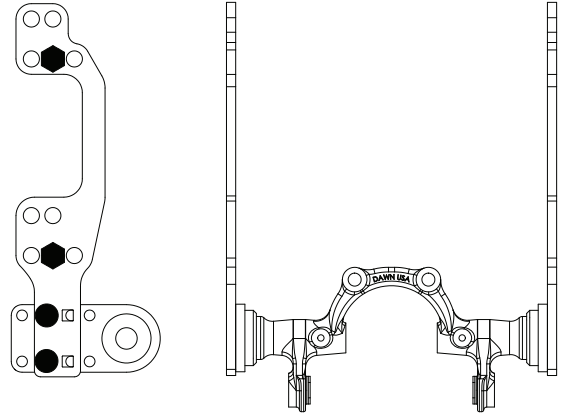


Kinze 12.5" row unit width with 1/2" spacers between Gfx

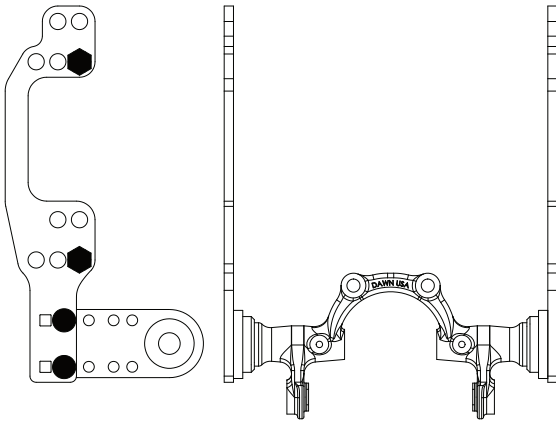
PRE-INSTALLATION - MOUNT KIT BOLT CONFIGURATIONS



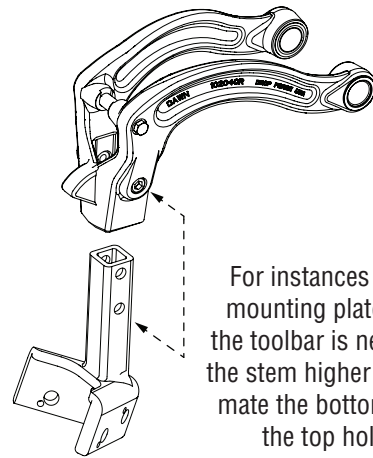
John Deere 13.5" row unit width with 3/8" spacers between Gfx yoke and mounting plate.



For John Deere units with 14" or 15" Trashwheels.

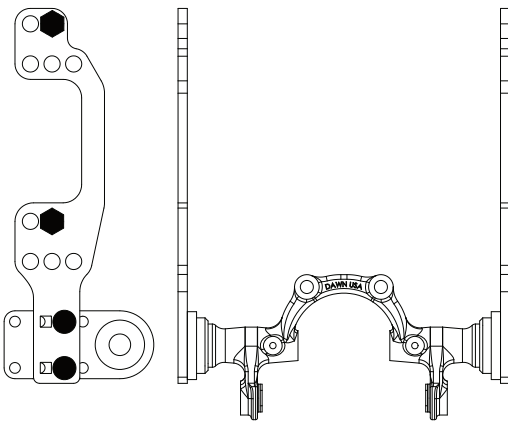


DB toolbars with 11.5" John Deere planter row unit width use NO spacers between Gfx yoke and mounting plate.



For instances where attaching the mounting plate lower in relation to the toolbar is needed, you can mount the stem higher using only one bolt to mate the bottom hole of the stem to the top hole of the Gfx arm.

1770NT middle rows where plate is welded under toolbar.



For John Deere units with long parallel links.

NOTE The diagrams compile represent SOME of the most common configurations. Your specific planter may need a mounting configuration not mentioned in this guide. Please call Dawn Equipment for interferences not encountered in this document.

TIP In most cases, you will be able to shift a row unit side-to-side by small margins to clear potential interference. Be sure to measure your planters row units to check their spacings before attempting to shift any row units.

PRE-INSTALLATION - TRASHWHEELS & DEPTH BANDS

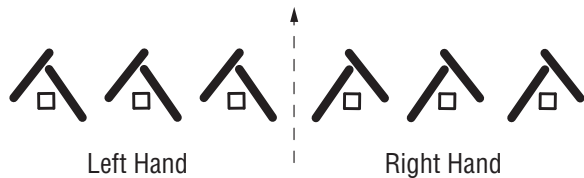
TRASHWHEEL ASSEMBLY INFORMATION

The position of the wheels and optional depth band attachments will drastically change the performance of your Dawn Trashwheels! Please review your options and discuss them with an authorized Dawn dealer before installation.

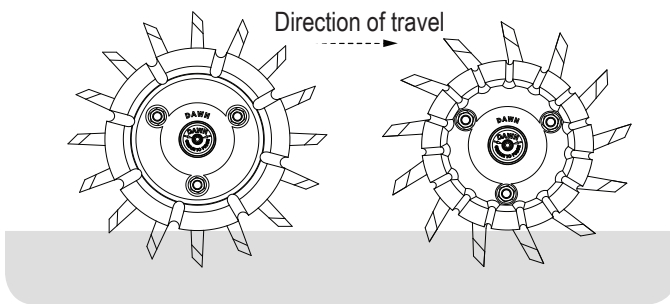
OFFSET VS. INTERSECTING

In general, row cleaners should only be put in the intersecting position if there is a specific reason to do so. If a very aggressive row cleaning is required such as where the planter is being run directly over the top of the previous year's corn stalk, intersecting 14" Trashwheels may be a good option. For most no-till applications, it is not necessary to run your Dawn Trashwheels in the intersecting position. In conventionally tilled ground, intersecting wheels can result in plugging problems. ONLY 14 inch wheels with straight teeth can be set to the intersecting position. 12.75 inch and 15 inch wheels MUST be set in the offset position.

FOR MOST APPLICATIONS, AN OFFSET CONFIGURATION IS PREFERRED.



NOTE To funnel residue outward from the center of the planter, assemble half of your Trashwheels in the LEFT handed configuration and half of your Trashwheels in the RIGHT handed configuration.



NOTE Trashwheels are directional! Proper installation requires that the Trashwheels be assembled with tines sweeping back from the direction of travel.

DEPTH BANDS

For most growers the default configuration of the Gfx-P unit includes the molded poly depth band. The depth band acts as a gauge to keep the Trashwheels from becoming too aggressive. In some heavy residue conditions it will be better to remove the depth band in order to increase the aggressiveness of the Trashwheel. If you are no-tilling into heavy corn stalks and the unit is not moving as much residue as you want at maximum hydraulic pressure the first thing you should do is remove the depth bands. The depth bands limit the amount of tooth that is exposed and in some cases the field residue is thicker than the length of exposed tooth of the Trashwheel.

NOTE For most shipments, Trashwheel, hub, and depth band assembly is taken care of in house by Dawn. If your Trashwheels have been shipped already assembled, feel free to skip this procedure.

INSTALLATION - MOUNT KITS

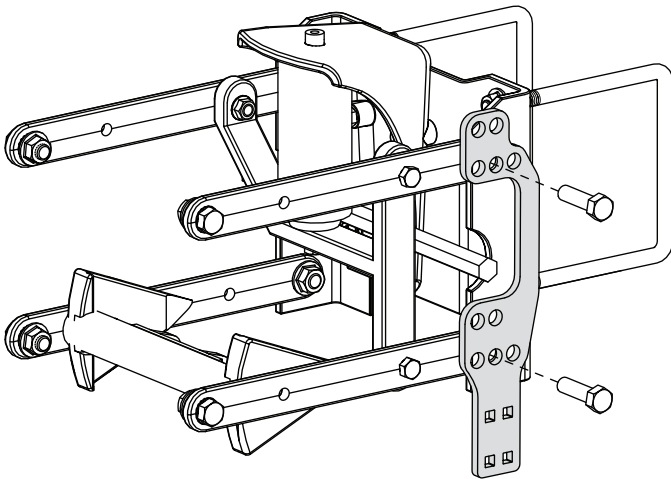
UNIVERSAL MOUNT PLATE INSTALLATION

IMPORTANT! Before attempting installation, read the previous sections of this manual outlining spacer kits and bolt configurations for proper mounting information. As a general rule, planter manufacturers differ in their dimensions and will require different spacers and bolt configurations.

tip: Installation of the mounting plates/row units is best performed with the toolbar in planting position on a level floor inside a shop. Individual preference may vary.

tip: You may want to work on only one side of the row unit at a time to avoid fully detaching unit from frame. Setback rows will require full removal.

- 1 Remove pressure from down force springs and/or air bags attached to row units. See OEM manual for directions.
- 2 With planter row unit properly supported, remove parallel link bushing bolts one side at a time. If you are installing a set-back kit, remove all four parallel link bolts and move row unit back 3 inches to accommodate set-back plate.
- 3 Bolt Gfx mounting plate according to the previous sections outlined in this manual. Pay attention to OEM bushing and hardware placement.

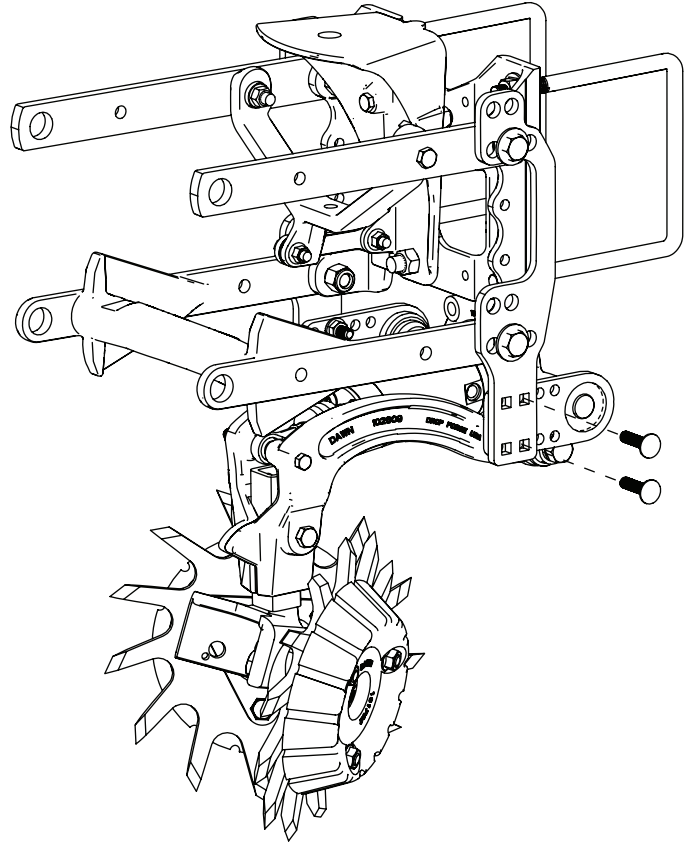


⚠ CAUTION! Refer to bolt configurations section of manual to identify proper placement of bracket.

- 4 Repeat process for all bolts on parallel links. Do not fully torque bolts until final stage of assembly.

Gfx YOKE & CYLINDER ASSEMBLY INSTALLATION

Once mounting plates are installed, the cylinder assembly can be attached to the planter. Refer to the **BOLT CONFIGURATION** section of this manual for proper bolt placement and yoke attachment.



⚠ CAUTION! Refer to bolt configurations section of manual to identify proper placement of bracket.

⚠ CAUTION! DO NOT remove caps from hoses before necessary.

MOUNTING PLATE BOLT TORQUE SPECIFICATIONS

ALL 7/16" GR5 bolts are to be torqued to 70 ft·lb
ALL 5/8" GR8 bolts are to be torqued to 180 ft·lb

tip: Check that your row units are uniformly spaced before making any drastic changes to Gfx mounting configurations. Some interference may be avoided in this way.

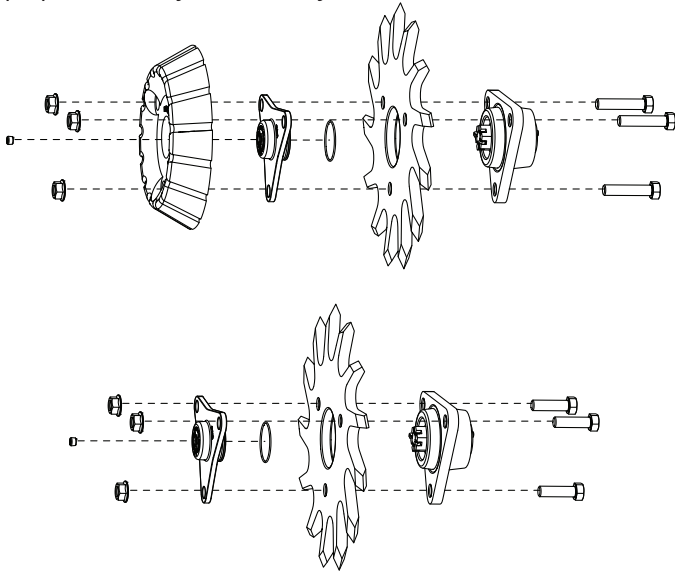


INSTALLATION - TRASHWHEELS

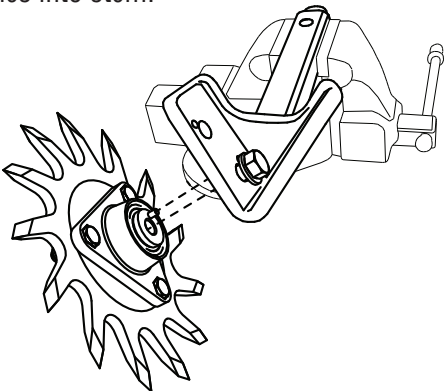
NOTE Parts subject to change! Please refer to attached parts diagram at the end of this manual. For updated parts, please refer to www.DawnEquipment.com

- 1 Lightly grease O-ring and place into groove on the underside of the aluminum Supercap. **Do not** install pipe until the end.
- 2 Assemble Trashwheel as shown. Be careful not to over tighten depth band assemblies! **~75ft/lb** of force should be adequate.

NOTE Trashwheels are directional!
NOTE There are two different length bolts depending on whether you are using depth bands or not. Make sure you are using proper bolts for your assembly.



- 3 After all Trashwheels are assembled, clamp a stem weldment into a bench vise by its square tube and bolt Trashwheel assemblies into stem.

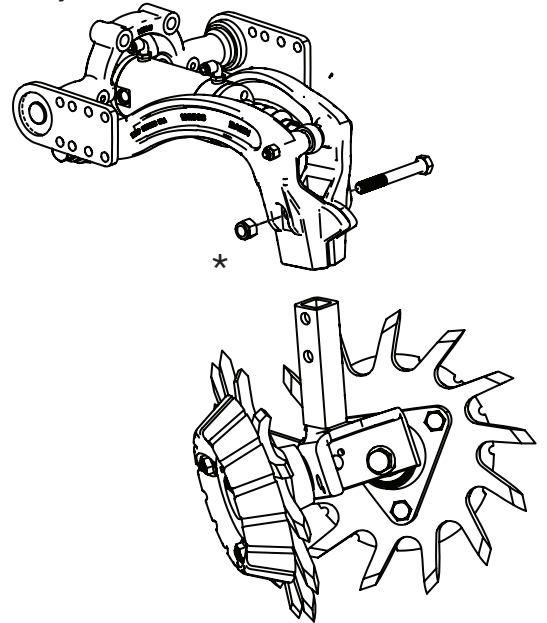


tip: It is easier to bolt the leading wheel to the stem weldment before the rear wheel due to wrench clearance.

INSTALLATION OF STEM ASSEMBLY

Once Trashwheels are assembled and installed on the stems, you can install them into the arm weldments of the Gfx primary row unit structure.

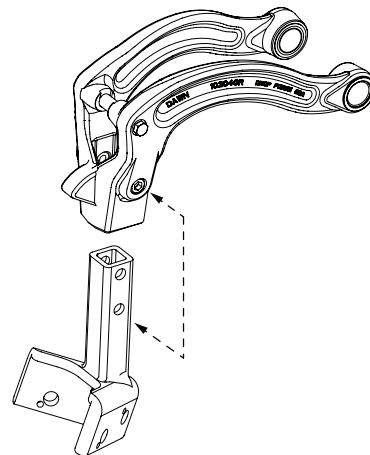
- 1 Slide stem assembly into the receiver tube of the Gfx -P swing-arm assembly. Stem will have a bit of play in receiver tube and fit loosely. Retain stem with bolt and tighten securely.



STEM RETAINER BOLT TORQUE SPECIFICATIONS

Tighten 1/2" GR* bolts to 125 ft.lb

* Due to forging die wear, you may need to insert a flat-head screw driver to secure nut when tightening.



tip If you are in loose worked ground you can raise stem for less aggressive row cleaning action.

PNEUMATIC CIRCUIT ASSEMBLY & ROUTING

PNEUMATIC CIRCUIT ASSEMBLY

Dawn pneumatic systems use multiple standardized connections which are non-interchangeable. It is important to recognize each component to determine a proper connection to avoid death, personal injury and/or property damage.

CAUTION!: Many planters require special considerations for pneumatic line routing. Use only CE approved 1/4 inch tubing for all pneumatic connections. Measure each connection to create minimal tubing lengths between all units. All Dawn does not accept any liability for the performance of tubing made by a 3rd party.

PRESSURE SPECIFICATIONS

When installing or assembling pneumatic fittings and hoses, it is important to use fittings and hoses that are rated to at least the maximum published pressure of the pneumatic circuit. 120 PSI.

PNEUMATIC CIRCUIT ROUTING

Hose routing is extremely important in order to prevent premature component failure due to flow restriction from heat deformation, kinking, twisting, etc. This guide will provide some basic hose routing recommendations to avoid common problems. Due to the varied nature of planters and tractor configurations, some common sense must be used to determine optimum hose routing options.

Length

Hose length will vary depending on motion absorption, pressure variants, restraints/supports and machine tolerances. Always cut each hose for a specific match so the minimum amount of tubing is used for each connection.

Securing Hoses & Physical Stress

In certain instances, retaining, securing and preventing hoses from damage by kinking, frame interference or twisting will be necessary. It is important to ensure that this process does not add a point of stress or wear on the line. Excessive flexing, twisting, kinking, tensile/side loads, acute bend radius, and vibration can significantly reduce the life of the hose or in some cases lead to premature failure if the hose is not secured properly! Any hose that is kinked or cracked before installation must be discarded.

ENVIRONMENTAL CONDITIONS

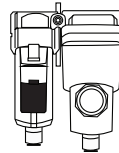
Environmental wear from ultraviolet radiation/sunlight, heat, ozone, moisture, salt, chemicals and air pollutants can cause premature wear and lead to failure if not replaced.

WARNING!: ALWAYS make sure you have an appropriately matched male-female connection.

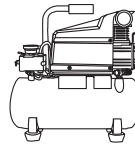
CAUTION!: To maximize the life and operational consistency of your pneumatic units, take care to reduce likelihood of contamination of the pneumatic circuit. Leave caps on unused air hose ends and fittings.

PNEUMATIC COMPONENTS

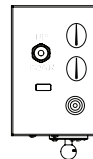
Familiarize yourself with each component on your Dawn pneumatic system. Refer to parts breakdown for specific part numbers.



AIR FILTER



AIR COMPRESSOR



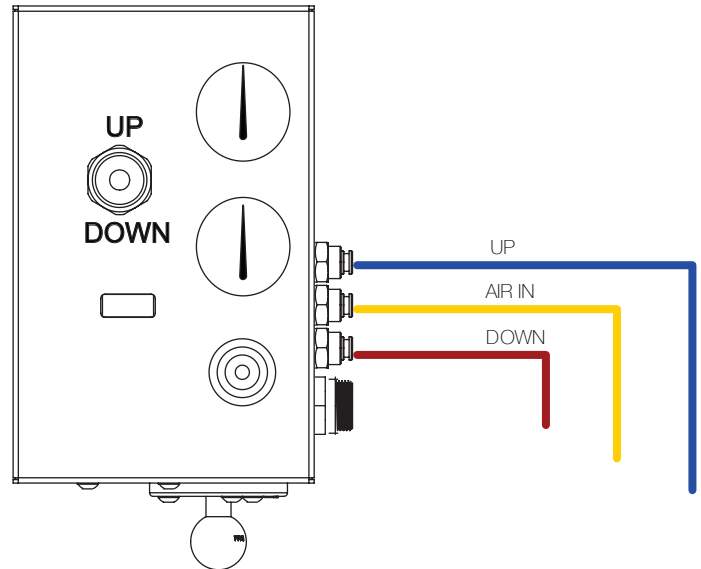
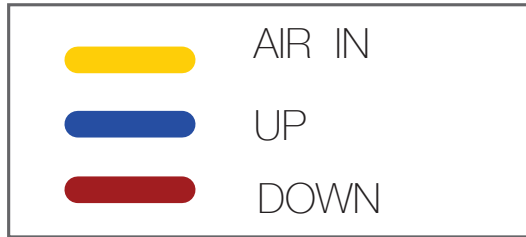
AIR PRESSURE REGULATOR



AIR CYLINDER

▲ WARNING To prevent injury or death, do not set up your gfx-p pneumatic plumbing while pressure is in the system. If you are unsure what to do, read your air compressor manual or call DAWN.

REGULATOR PLUMBING



AIR FLOW

Compressed air produced by the compressor flows through tubing up the draft arm, into the cab to the tractor to the regulator. The regulator converts that compressed air into separate DOWN and UP force valves, and delivers them the appropriate output receptacles on the regulator.

DOWN and UP pressure lines run from the regulator back down the draft arm, to the middle of the toolbar and then distributed through tee's to each row unit cylinder.

1/4 Inch OD Tubing

The tubing used in DAWN pneumatic systems must all be 1/4" OD quick disconnect fittings. New tubing should always be used when setting up tools for the season.

Be sure to secure hoses to the frame of the toolbar. Use your best judgement when securing hoses and be sure to NEVER restrict the air flow.

Due to movement of heavy machinery, if hoses are improperly secured, they are more likely to come loose or fly out of a connection, potentially creating a dangerous situation.

This tubing has a maximum operating pressure of 120PSI. To maximize the life of your equipment as well as avoid injury or possible death, **do not operate machinery past the maximum recommended pressure settings!**

AIR PRESSURE REGULATOR

The Dawn air pressure regulator is very simple to use and requires no external power or internal configuring to install and operate.

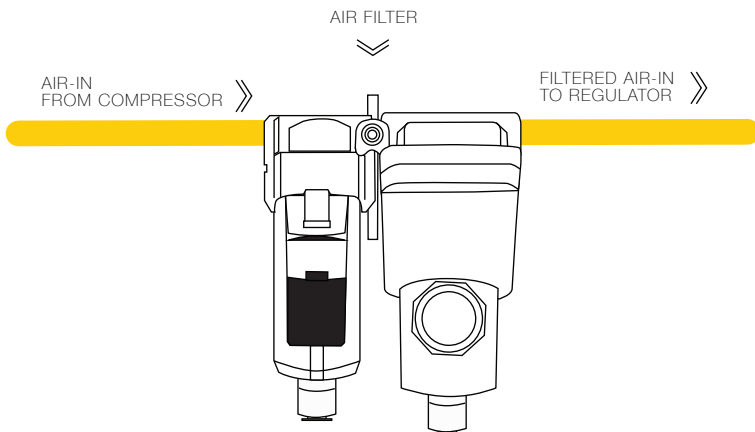
Mount the regulator inside of the tractor cab using the RAM mount so that pneumatic pressure levels can be actively monitored while on the field.

Be sure to mount the regulator in a place where maintenance can be performed and isv also free from obstruction. Some common sense will have to be used in this situation.

PNEUMATIC CIRCUIT ASSEMBLY & ROUTING

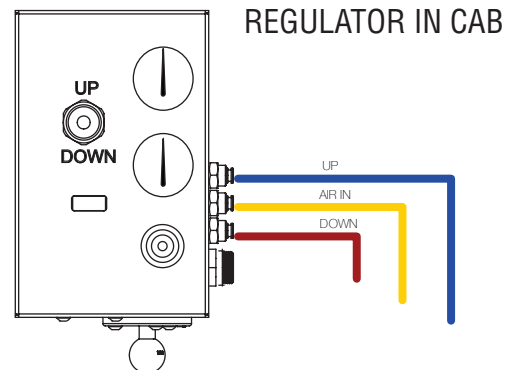
Air Hose

A hose will need to be made to run from the air compressor, into the air filter, then to the pressure-in valve of the regulator located in the cab. Then up and down pressure hoses will need to be made to run from the air pressure regulator in the cab down the draft arm, then to the center of the toolbar. Measure and cut each hose to make a perfect fit for each connection.

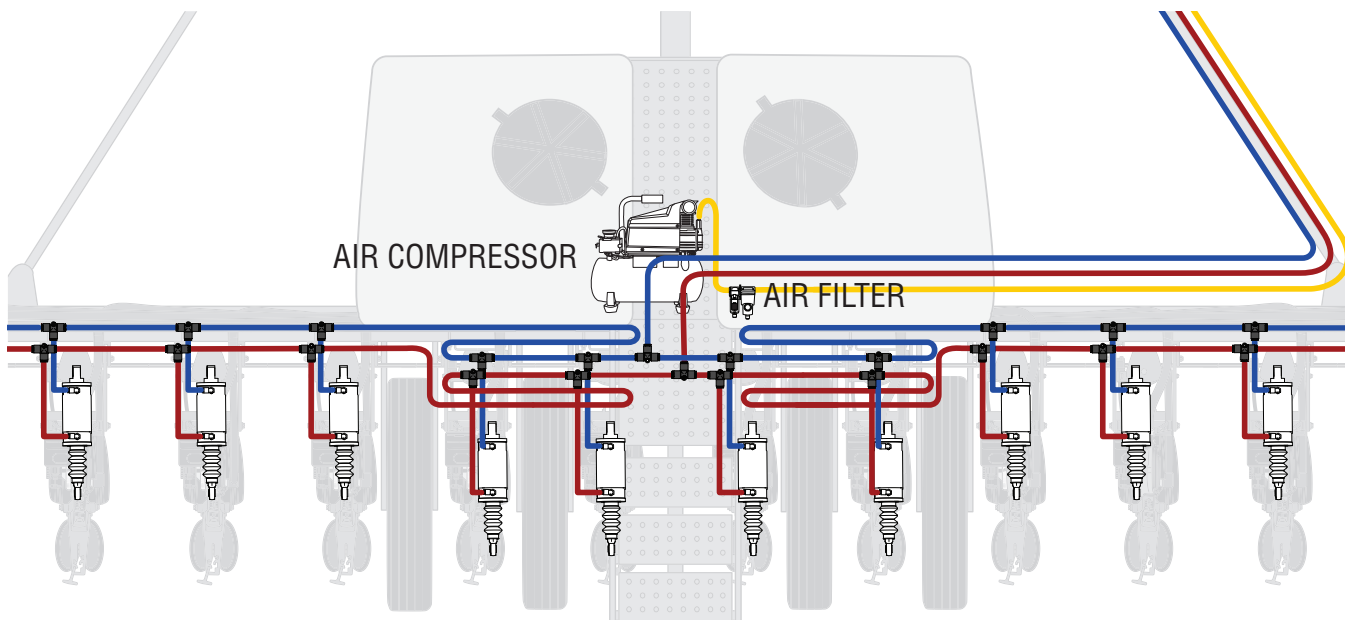


DAISY CHAIN

When making the daisy-chain, be sure to always attach the down pressure hose to the front of the cylinder, as this is the angle of motion intended for proper operation of your row cleaners.



NOTE: Air filter can be mounted anywhere in between the compressor and the regulator in the pneumatic circuit.



Minimum Bend Radius

To achieve optimum hose routing and to avoid hose or circuit failure through kinking, stress and other flow restriction problems, setup and installation must adhere to a minimum bend radius which does not kink the hose. If the hose is kinked during assembly or installation, the hose must be discarded.

Frame Pivot Points.

Pay extra attention when it comes to routing hose to row units around the frame pivot points of your tractor. The hose lengths for the center row units must be long enough for the toolbar to pivot into the closed position without rupturing any hoses.

OPERATION

INITIAL OPERATION

The Dawn fx kit has been designed to be able to bleed the hydraulic circuit by purging air out of the system from the up and down exhaust valves located in the regulator. A certain amount of air will simply need to work itself out over time. You will be able to sufficiently bleed the system using the following procedure.

⚠ WARNING!: Before you activate your pneumatic circuit, make sure that all connections are tight. Even if you think you've checked all the fittings, go back and do it again!

Make sure that the pressure setting in the system is set to its minimum by moving the pressure control knob on the control box counter clockwise until it stops, or in the (0) setting. You want to be running a minimum amount of pressure during the bleeding process.

OPERATION OF THE Dawn fx UNIT

Dawn fx tools are in general very simple to operate. By turning the control knob you can apply as much pressure as is necessary to achieve the desired level of row cleaning. There are, however, a few tips we would like to pass on.

FRAME HEIGHT

Dawn tools are designed to work best when the tool bar is kept within 2 inches of the industry standard height of 20" from the bottom of the tool bar to the ground. This is the case with all Dawn planter attachments and implements. Generally the Gfx unit is used on larger planters with multiple sections and a central fill seed distribution system on the center of the frame. On planters of this type the center of the frame almost always runs deeper than the ends of the wings. If you do NOT have markers on the planter you may want to consider adding a weight kit to the ends of the frame if necessary to level out the length of the tool bar, especially on narrow row spaced planters.

NOTE Do NOT check the frame height on concrete or similar surface. Measuring tool bar height must be done in the field.

tip: Consult your planter manual on how to make adjustments. It is also possible to alleviate this problem by running the row units under the center section in a higher hole setting than the wings so that under the full weight of the central seed fill hopper the frame height will be more uniform.

Frame Level

Because the Gfx-P unit is frame mounted, it is important to remember that it is designed to work best when the tool bar is level. This is the case with all Dawn planter attachments and implements. Extreme nose-up and nose-down angles of attack will lead to poor performance not only from your Dawn tool, but from the whole planter.

MAINTENANCE & TROUBLESHOOTING

CARE, MAINTENANCE & STORAGE

▲ WARNING! Always store the disconnected Gfx-P unit with pressure removed from the circuit. Please refer to your tractor manual on the best way to do this. Failure to release stored air pressure could result in injury or death.

NOTE No lubrication is required on the Gfx -P arm and cylinder assembly. The pivot bushings on the cylinder and arm are greaseless and have Never-Seize applied to them at assembly to prevent corrosion. Under extreme use in conditions where very

LUBRICATION

The Trashwheel hubs are the main lubrication point on the Gfx-P unit. Every 120 acres per row, the pipe plugs should be removed and the supplied grease zerk installed for greasing. Grease should be injected into the hub until you see clean grease exiting the seal area at the back of the hub. Wipe off excess grease with a rag.

At the end of each season the Gfx row units should be hosed down to remove excess grit. It is OK to use a pressure washer to do this, however strong solvents and soaps should NOT be used. For best results the planter should be connected to the tractor and the Gfx system hydraulic pressure should be set at around 50%. this will allow the cylinder rod to be extended slightly so any dirt and debris around the cylinder rod seal can be flushed out. Use the pressure washer without heat and lightly hose off the area around the rod seal to flush any debris that might have become lodged in that area. After completion, cycle the units up and down a few times and release all hydraulic pressure to continue cleaning.

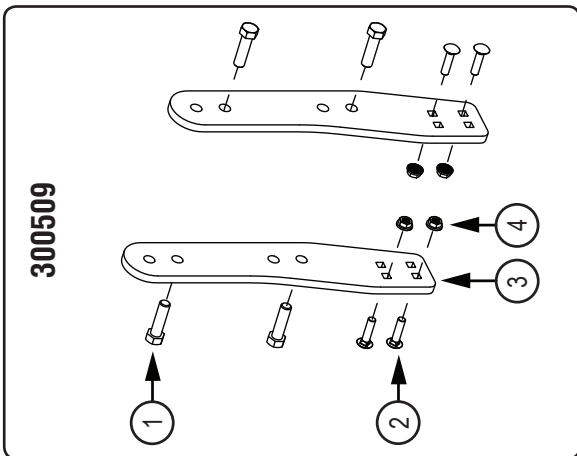
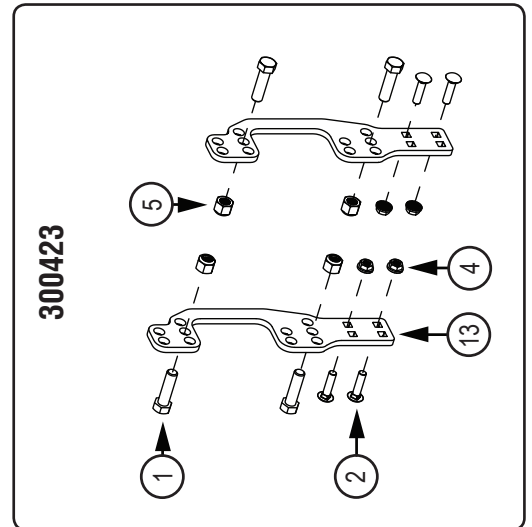
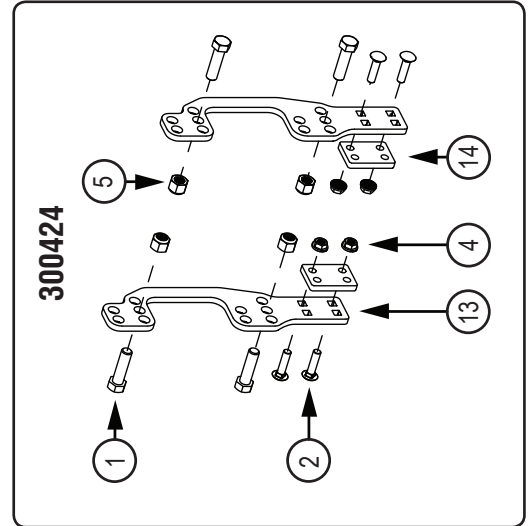
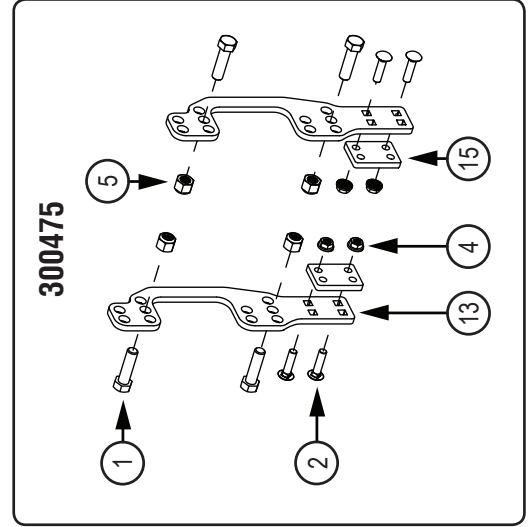
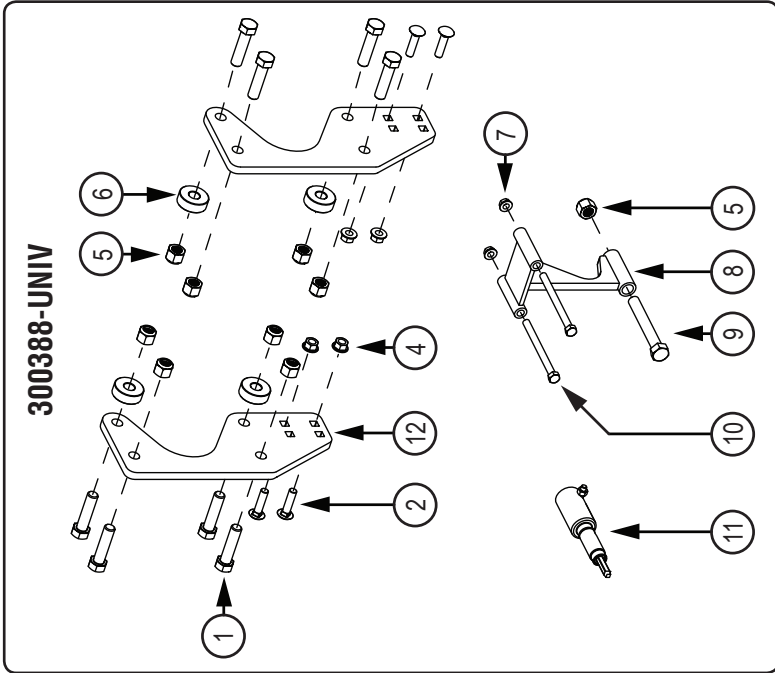


Dawn Parts

2015_2_300423/300424/300475/300509/300388-UNIV

Dawn Parts Breakdown Universal Mount Bracket Kits

Item	Dawn Part #	Item Description
1	9871	5/8"-11x2.5" Gr8 Zn HHCS
2	90295	7/16"-14x1.75" Gr5 Zn CB
3	102627	Mount Plate Kinze 4900
4	90515	7/16"-14 Crimp Flange Nut
5	9142	5/8"-11 Crimp Lock Nut
6	102546	Spacer
7	9100	3/8"x16 Flange Lock Nut
8	200999	Airbag Setback Weldment
9	9145	5/8"-11x5" Gr8 Zn HHCS
10	90242	3/8"-16x5" Gr8 Zn HHCS
11	300394	Pro Shaft Extension
12	102545	Setback Mount Plate
13	102381-R1	Universal Mount Plate
14	102387	3/8" Spacer for JD Wide Units
15	102514	1/2" Spacer for Kinze Units

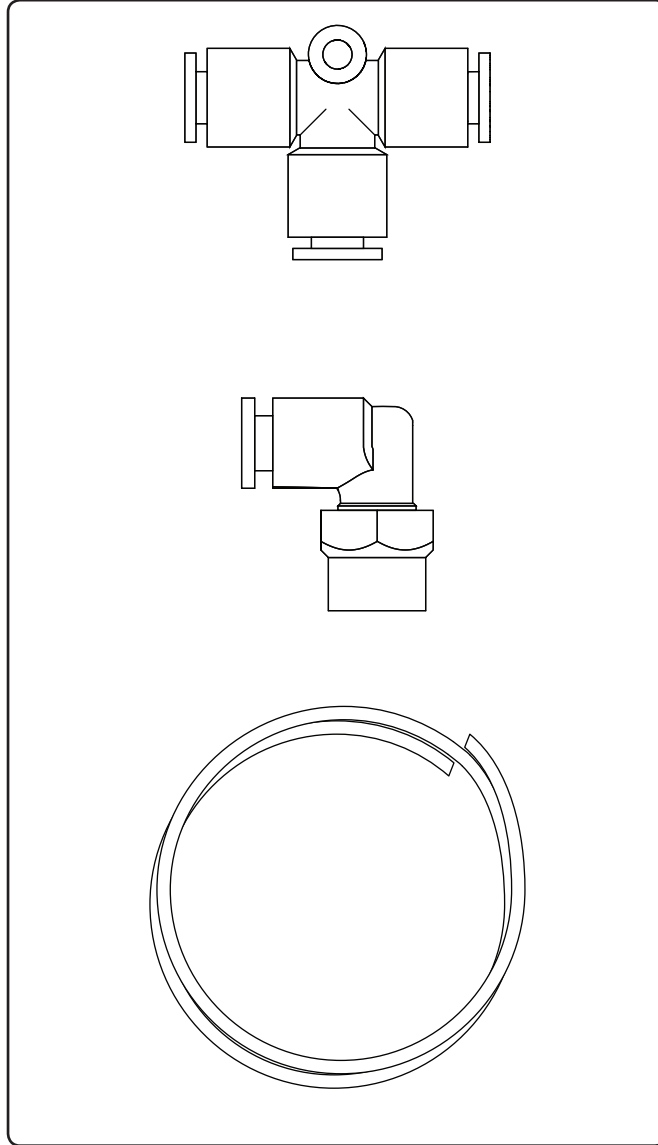


Dawn Parts

2015_2_400126/400133/400125/400142/400149

Dawn Parts Breakdown Row-to-row Hose Kits

Item	Dawn Part #	Item Description
1	90388	1/4" OD Tee fitting
2	60640	1/4" OD Elbow fitting
3		11" 1/4" OD hose

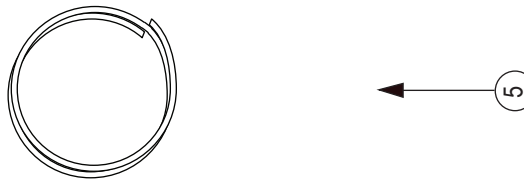
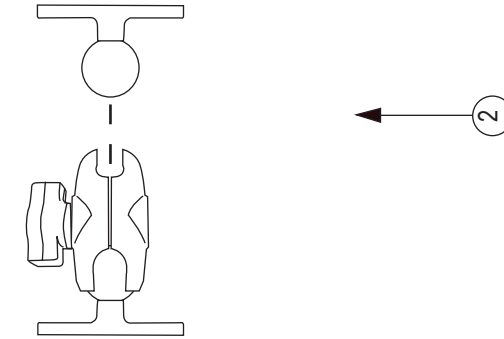
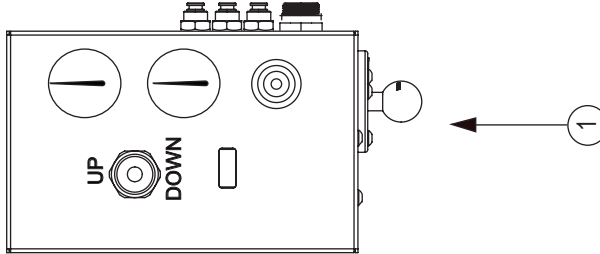


Dawn Parts

2015_2_400124_ELC

Dawn Parts Breakdown Control Kit Components

Item	Dawn Part #	Item Description
1	300606	Air pressure regulator
2	90173	RAM Mount
3	90388	1/4" OD Tee fitting
4	60640	1/4" OD Elbow fitting
5		11" 1/4" OD hose

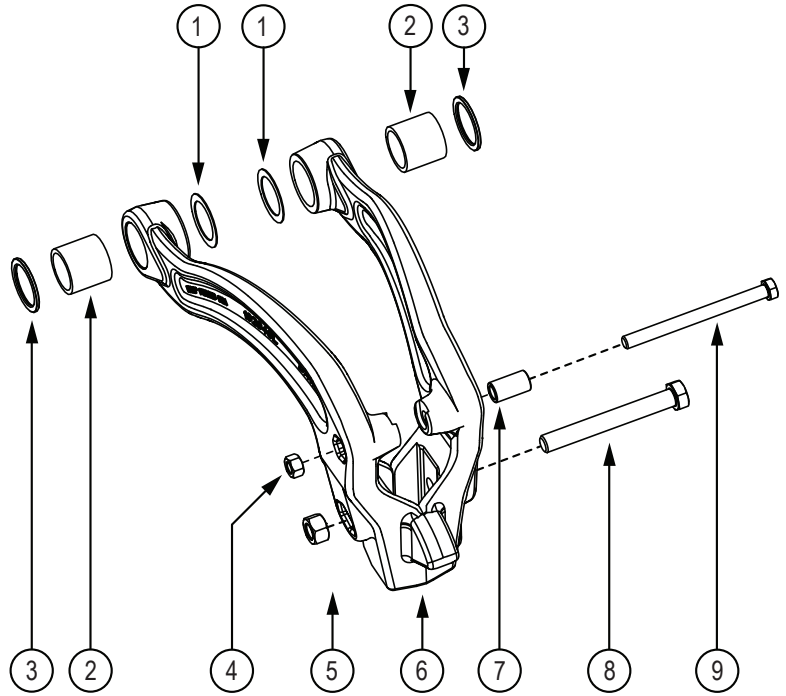


Dawn Parts

2013_4_300358 &
2013_4_300360_R3_UNIV

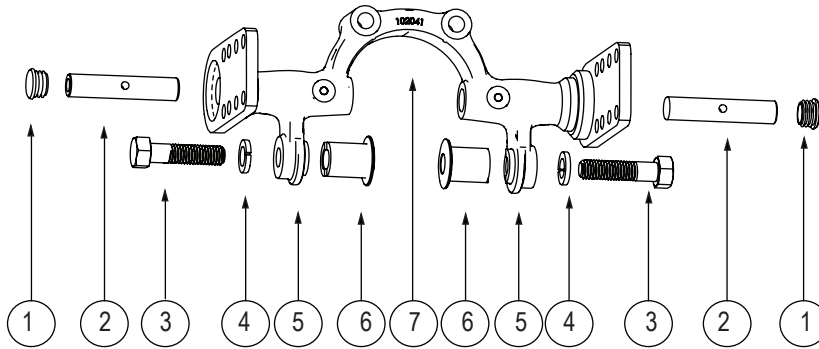
300351

Item	Dawn Part #	Item Description
1	90149	Plastic Thrust Washer
2	90100r2	Bushing
3	102071	Plastic Thrust Washer
4	90445	3/8-16 Gr5 Crimp Lock Nut
5	90417	1/2-13 Gr5 Crimp Lock Nut
6	200901	Gfx Arm Weldment
7	102702	Spacer Bushing
8	90416	1/2"-13x4" Gr8 ZN HHCS
9	90242	3/8"-16x5" Gr8 ZN HHCS



300350_R3-UNIV

Item	Dawn Part #	Item Description
1	90306	Plug
2	102709	STUD GFX P
3	9871	5/8-11x2.5" Gr8 ZN HHCS
4	9069	5/8" Lock Washer
5	200959	Yoke Weldment
6	102064_R2	Rotary Bushing
7	90289	1/4x1 5/8" Pin

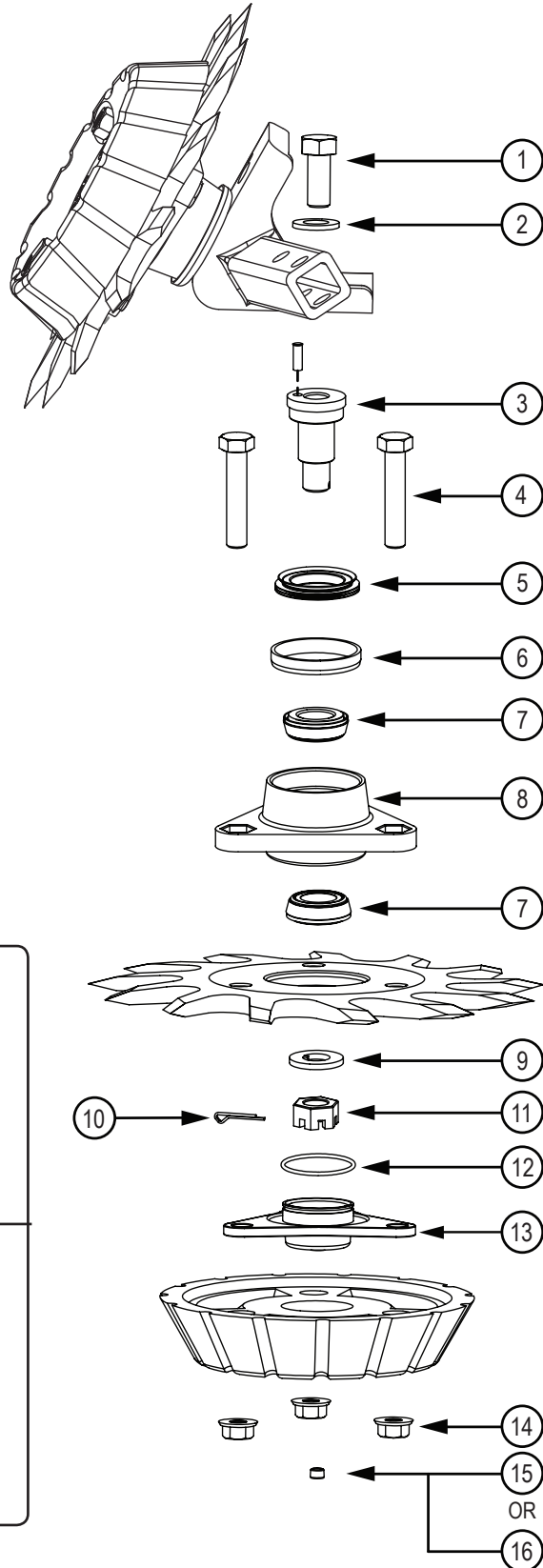


Dawn Parts

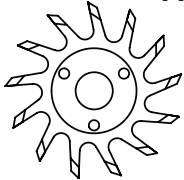
2014_1_1130AGFXDB

Dawn Parts Breakdown 1130A-12.75-GFX-DB & 1130A-14-GFX-DB

Item	Dawn Part #	Item Description
1	9101	5/8"-11x1.5" Gr8 HHCS
2	9032	5/8" Flat Washer
3	100066	Threaded Drive Shaft
4	9339	1/2-13x2.5" Gr5 ZN
5	9017	Triple Lip Seal
6	9018	Phenolic Wear Ring
7	9016	Bearing Cone 1"ID
8	300041	Forged Hub Press Assy.
9	9028	Tongue Washer
10	9019	Cotter Pin
11	9024	3/4-13 Castellated Nut
12	9662R01	O-ring
13	100949	Super Cap
14	9007R01	1/2-13 Lock Nut
15	9785	Pipe Plug
16	9806	Grease Zerk

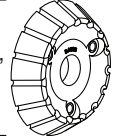


1130A-12.75-GFX-DB



12.75"

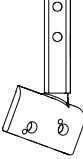
101550



8.75"

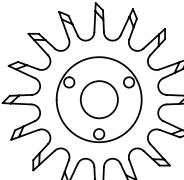
101782

Use with
4-hole
stem



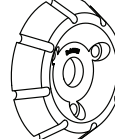
200879

1130A-14-GFX-DB



14"

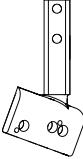
200015



10"

101333

Use with
6-hole
stem



200900

APPENDIX A - WARRANTY

The following warranties with respect to new Dawn Equipment Company (“Dawn”) products, excepting as hereafter provided, is made by Dawn to Dealers (“Dealers”) authorized by Dawn to sell the products involved and each selling Dealer, in turn, make such warranties to the original retail purchaser (“Purchaser”).

A. Duration and Extent of Warranty

1. Products, except all working, moving and all or any parts subject to wear, except as hereafter provided, which are defective in materials or workmanship as delivered to the Purchaser by Dealer will be repaired by a Dealer or replaced by Dawn, only, as Dawn elects, without charge for materials or labor, if such defect appears in not more than 12 months, or from and after the date of delivery to the Purchase by the Dealer.
2. Dawn warrants that the Trashwheels planter attachment wheels (Dawn part #s 200015, 101550, 102185M-L, 102185M-R) and Curvetine closing wheels (Dawn part # 102540F) will not bend or break during its useful lifetime.
3. Liability of Dawn for defective parts or material is specifically limited to the value of the parts or materials, only.
4. All parts or materials requiring work MUST be returned by delivery to the selling Dealer for repair or for delivery to Dawn within thirty (30) days of occurrence of the defect or failure of the part or material, all freight prepaid by the Dealer upon Dealer warranty form, available by request from Dawn. Upon completion of the warranty work, Dawn will ship parts or material to the Dealer, freight prepaid by Dawn.
5. All decisions by Dawn pertaining to warranty are final.

B. Warranty Exclusions; Dawn will not be responsible for any of the following;

1. Defects of damage resulting from use, repairs or service performed in a manner not approved by Dawn or from repairs or service performed by someone other than an authorized Dawn Dealer service department (after approval from Dawn) or Dawn to repair or replace the product involved.
2. Defects, damage or failure resulting from any alteration or additions done in a manner not approved by Dawn.
3. Defects, damage or failure or depreciation resulting from wear and tear, accidents, misuses, negligence, improper maintenance or improper protection and storage.

4. INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING BUT NOT LIMITED TO, LOSS OF PROFITS, LOSS OF TIME, LOSS OF CROPS, INCONVENIENCE, LOSS OF USE OF THE PRODUCT OR OTHER MACHINERY, EQUIPMENT OR VEHICLE USED WITH THE PRODUCTS, COST OF RENTALS OR REPLACEMENT OF THE PRODUCTS OR OTHER COMMERCIAL LOSS.

C. Remedies Exclusive: NO Other Warranties

The obligations of Dawn and the Dealers are limited to the obligations set forth in this Limited Warranty. THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES OF DAWN, AND THE DEALERS, EXPRESSED OR IMPLIED. WARRANTIES BY DAWN OR THE DEALER OF CONDITION QUALITY, MERCHANT ABILITY OR FITNESS FOR A PARTICULAR PURPOSE ARE EXCLUDED, AS ARE ALL OTHER REPRESENTATIONS BY DAWN AND THE DEALERS TO THE PURCHASE OR USER AND ALL OTHER OBLIGATIONS OR LIABILITIES OF DAWN AND THE DEALERS. NO OTHER PERSON IS AUTHORIZED TO GIVE ANY OTHER WARRANTY OR TO ASSUME ANY OTHER LIABILITY ON BEHALF OF DAWN AND THE DEALERS. THIS LIMITED WARRANTY MAY NOT BE TRANSFERRED BY THE PURCHASER TO ANY SUBSEQUENT OWNER.

D. The instruction manual supplied with the Product contains important maintenance and service information. Read the manual and follow the recommendations contained herein. Please remember that failures due to improper maintenance or service are not covered by the Limited Warranty.

Dawn Equipment Company reserves the right to make changes in design or specifications at any time without obligation to purchasers or equipment and components previously sold. This warranty shall not be altered or changed in any way.



