Art's Way

Since 1956

Art's-Way Manufacturing Co., Inc.

Model 1200, 1650, 2000, 2400, & 3000
Land Plane

Operator's Manual & Illustrated Parts List
602800

Issued August 2020

This symbol means ATTENTION! BECOME ALERT! YOUR SAFETY IS INVOLVED. The message that follows the symbol contains important information about your safety. Carefully read the message. Make sure you fully understand the causes of possible injury or death.

IF THIS MACHINE IS USED BY AN EMPLOYEE, IS LOANED, OR IS RENTED, MAKE SURE THAT THE OPERATOR UNDERSTANDS THE TWO INSTRUCTIONS BELOW.

BEFORE THE OPERATOR STARTS THE ENGINE:

GIVE INSTRUCTIONS TO THE OPERATOR ON SAFE AND CORRECT USE OF THE MACHINE.
MAKE SURE THE OPERATOR READS AND UNDERSTANDS THE OPERATOR'S MANUAL FOR THIS MACHINE.

⚠ WARNING

IMPROPER OPERATION OF THIS MACHINE CAN CAUSE INJURY OR DEATH.

BEFORE STARTING THE ENGINE, DO THE FOLLOWING:

1. READ THE OPERATOR'S MANUAL.

2. READ ALL SAFETY DECALS ON THE MACHINE.

3. CLEAR THE AREA OF OTHER PERSONS.

4. LEARN AND PRACTICE SAFE USE OF MACHINE CONTROLS IN A SAFE AND CLEAR AREA BEFORE YOU OPERATE THIS MACHINE ON A JOB SITE.

It is your responsibility to observe pertinent laws and regulations and to follow manufacturer's instructions on machine operation and maintenance.

See your Authorized Art's-Way Manufacturing Co., Inc. dealer or
Art's-Way Manufacturing Co., Inc. for additional operator's manuals, illustrated parts catalogs, and service manuals.

TO THE OWNER

Congratulations on the purchase of your new Art's-Way Land Plane. You have selected a top quality machine that is designed and built with pride to ensure you have many years of efficient and reliable service.

Many people have worked on the design, production, and delivery of this Land Plane. The information in this manual is based on the knowledge, study, and experience through years of specializing in the manufacturing of farm machinery. This manual is designed to provide you with important information regarding safety, maintenance, and machine operation so you can and will get the best possible performance from your Land Plane.

Even if you are an experienced operator of this or similar equipment, we ask that you read this manual before operating this Land Plane. The way you operate, adjust, and maintain this unit will have much to do with its successful performance. Any further questions you may have about this product of Art's-Way equipment should be directed to your local Art's-Way dealer or to Art's-Way Manufacturing Co., Inc. Armstrong, Iowa, 50514, (712) 864-3131.

SPECIFICATIONS AND DESIGN ARE SUBJECT TO CHANGE WITHOUT NOTICE

Art's-Way Manufacturing Co., Inc. is continually making product improvements. In doing so, we reserve the right to make changes and/or add improvements to our products without obligation for the equipment previously sold.

Modifications to this Land Plane may affect the performance, function, and safety of its operation. Therefore, no modifications are to be made without the written permission of Art's-Way Manufacturing Co., Inc. Any modification made without the written permission of Art's-Way Mfg. Co. Inc. shall void the warranty of this product.

In the interest of continued safe operation of this Land Plane, pay particular attention to the safety alert symbol(s) throughout this manual.

Art's-Way Manufacturing Co., Inc. STATEMENT OF PRODUCT LIABILITY

Art's-Way Manufacturing Co., Inc. recognizes its responsibility to provide customers with a safe and efficient product. Art's-Way Manufacturing Co., attempts to design and manufacture its products in accordance with all accepted engineering practices effective at the date of design. This statement should not be interpreted to mean that our products will protect against the user's own carelessness or failure to follow common safety practices nor will Art's-Way Manufacturing Co., be liable for any such act. In addition, Art's-Way Manufacturing Co., assumes no liability for any altered product or any modified product by users or anyone other than an authorized dealer.

IMPORTANT WARRANTY INFORMATION

The warranty for this Land Plane appears on page 6 of this manual. In order to establish proper warranty registration, the Warranty Registration must be completed and returned to the factory. Failure to comply with this requirement will result in invalidating the warranty!

LIMITATIONS OF THIS MANUAL

This manual contains operating instructions for your 1200, 1650, 2000, 2400, & 3000 Land Plane only. Any mention of other machinery in this manual other than the 1200, 1650, 2000, 2400, & 3000 Land Plane is for reference only. This manual does not replace nor is it to be used for any machinery that may be attached to or used in conjunction with the 1200, 1650, 2000, 2400, & 3000 Land Plane.

PARTS & SERVICE

As the purchaser of your new plane, it is very important to consider the following factors:

A. Original Quality

B. Availability of Service Parts

C. Availability of Adequate Service Facilities

Art's-Way Manufacturing Co., Inc. has an excellent dealership network ready to answer any questions you may have about your plane. Parts for your machine may be ordered through our dealers. When placing a parts order, please have the **model** and **serial number** ready. This will allow the dealer to fill your order as quickly as possible.

For your convenience, we have provided this space for you to record your model number, serial number, and the date of purchase, as well as your dealer's name and address.

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SAFETY FIRST

SAFETY INSTRUCTIONS

"A careful operator is the best insurance against an accident." Quote from the National Safety Council.

Most accidents can be prevented if the operator:

1. Fully understands how the machine functions.
2. Can anticipate situations which may produce problems.
3. Can make necessary corrections before problems develop.

THIS SYMBOL MEANS ATTENTION!

BECOME ALERT!

YOUR SAFETY IS INVOLVED!

- Universal Safety Alert Symbol

The American Society of Agricultural Engineers has adopted the Universal Safety Alert Symbol as a way to identify areas of potential danger if the equipment is not operated correctly. Please be alert whenever you see this symbol in the manuals or on your plane.

Art's-Way Manufacturing Co., Inc. strives to make our equipment as safe as possible. The Art's-Way 1200, 1650, 2000, 2400, & 3000 Land Plane conforms to applicable safety standards at the time of manufacturing. A safety conscious equipment operator makes an effective accident-prevention program complete.

Safety features and instructions for the plane are detailed in the Safety Guidelines section of this Operator's Manual. It is the responsibility of the owner to ensure that all operators read and understand the manual before they are allowed to operate the land plane. (Occupational Safety and Health Administration (OSHA) regulations 1928.57).

NOTICES OF DANGER, WARNING, AND CAUTION

Signal Words: Note the use of signal words **DANGER**, **WARNING**, and **CAUTION** on the plane and in this manual. The appropriate signal word for each has been selected using the following guidelines:

⚠ DANGER

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

⚠ WARNING

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

⚠ CAUTION

Indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE is used to address practices not related to physical injury.

SAFETY INSTRUCTIONS

Safety instructions (or equivalent) signs indicate specific safety-related instructions or procedures.

Note: Contains additional information important to a procedure and will be found within the regular text body of this manual.

SAFETY INSTRUCTIONS

GENERAL

Most work related accidents are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs. As you operate and maintain the land plane you must be alert to potential hazards. You should also have the necessary training, skills, and tools to perform any assembly procedure.

Improper operation and/or maintenance of this unit could cause a dangerous situation that results in injury or death.

Do not use this unit until you read and understand the information contained in this manual. Do not use this equipment for anything other than its intended purpose.

Safety precautions and warnings are provided in this manual and on the unit. If these hazard warnings are not heeded, bodily injury or death could occur to you or to other persons.

Art's-Way Manufacturing Co., Inc. cannot anticipate every possible circumstance that might involve a potential hazard. The warnings in this manual and on the product are, therefore, not all-inclusive. If a method of operation not specifically recommended by us is used, you must satisfy yourself that it is safe for you and for others. You should also ensure that the unit will not be damaged or be made unsafe by the methods that you choose.

The information, specifications, and illustrations in this manual are based on the information that was available at the time this material was written and can change at any time.

Safety Alert Symbols

This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

This manual contains DANGERS, WARNINGS, CAUTIONS, NOTICES, SAFETY INSTRUCTIONS, and NOTES which must be followed to prevent the possibility of improper service, damage to the equipment, personal injury, or death. The following key words call the readers attention to potential hazards.

Hazards are identified by the "Safety Alert Symbol" and followed by a signal word such as "DANGER", "WARNING", or "CAUTION".

SAFETY INSTRUCTIONS

Remember:
"The Best Operator is a Safe Operator"

⚠ CAUTION

Read and understand the operator's manual and all the safety decals before operating the plane. Review all safety instructions with all operators annually.

BEFORE OPERATING

SAFETY INSTRUCTIONS


Do not wear loose fitting clothing as it may catch in moving parts.


Make sure all guards and shields are installed, including the tractor power take-off (PTO) master shield, before starting or operating the plane.

Be sure that the correct implement driveline parts are used and that they are properly secured.

Lower the lifter wheels when the plane is not in use.

Install safety chain when attaching the plane to the tractor.


Clear the area of bystanders, especially children, when making repairs, adjustments, or performing maintenance on the plane.


Do not allow riders.

Put all tractor and machine controls in “neutral” and disengage the PTO before starting. Follow the starting instructions according to the OEM tractor manual.


Operate the plane only while seated on the tractor seat.


Make sure the unit is adequately supported with safety blocks or safety stands when changing tires or performing maintenance.

DURING OPERATION

⚠ CAUTION


Entanglement Hazard
Keep hands, feet, hair, and clothing away from moving parts. Wait for all movement to stop before approaching equipment.
Before making adjustments:

1. **Shut off the tractor,**
2. **Set parking brake,**
3. **Put machine in neutral, and**
4. **Remove key while making adjustments.**


Keep all shields and guards in place and in good working condition.


Keep all bystanders, especially children, away from the plane while in operation.


Do not allow riders while the plane is in operation.


Do not attempt to unclog, clean, or adjust the plane while it is running.


Stay away from overhead power lines. Electrocution can occur even without direct contact.


Keep all hydraulic lines, fittings, and couplers tight and free of leaks. (Refer to Safety Guidelines – Hydraulic Safety).


Use caution when ascending or descending on the plane. Wet shoes or boots are slippery.

MAINTENANCE SAFETY

SAFETY INSTRUCTIONS

Follow all operating, maintenance, and safety instructions found in this Manual.



Before servicing, adjusting, repairing, or unclogging the machine, always make sure the tractor engine is stopped, key in your pocket, the machine is lowered to the ground, all controls are placed in neutral, the parking brake is set, and all the moving parts have stopped.


Use sufficient tools, jacks, and hoists that have the capacity for the job.


Use support blocks or safety stands when changing tires or performing maintenance.



Follow good shop practices of keeping the service area clean and dry, and use adequate light for the job at hand.


Before applying pressure to the hydraulic system, make sure all lines, fittings, and couplers are tightly secured and in good condition.


Make sure all shields/guards are in place and properly secured when performing maintenance.

HYDRAULIC SAFETY

SAFETY INSTRUCTIONS

Follow all operating, maintenance, and safety instructions found in this Manual.

Make sure components in the hydraulic system are kept clean and in good working condition.

Relieve pressure from the hydraulic system before servicing or disconnecting from the tractor.

Keep all hydraulic lines, fittings, and couplers tightly secured and free of leaks.

Replace any worn, cut, abraded, flattened, or crimped hoses.

Do not make any temporary repairs to the hydraulic lines, fittings, or hoses using tape, clamps, or cement. The hydraulic system operates under extremely high pressure and temporary repairs may fail suddenly and create a hazardous/dangerous situation.



Wear proper hand and eye protection when searching for a high-pressure hydraulic leak. Use a piece of wood or cardboard as a backstop instead of hands to identify and isolate a leak. If injured by a concentrated high-pressure stream of hydraulic fluid, seek medical attention immediately. Serious infection or toxic reaction can develop if hydraulic fluid penetrates the surface of the skin.

Before applying pressure to the system, make sure all components are tight and that the hydraulic lines, hoses, and couplings are not damaged.

TRANSPORTATION SAFETY

SAFETY INSTRUCTIONS

Follow all operating and safety instructions found in this manual when transporting this equipment.

Make sure the plane complies with all local regulations regarding transporting equipment on public roads and highways.

Make sure the Slow Moving Vehicle (SMV) emblem and all lights and reflectors required by local highway and transportation authorities are properly in place, clean, and clearly visible to traffic.

Do not allow riders on any machinery during transport.

Make sure the plane is securely attached to the tractor and install a safety chain to the plane.

Make sure the tractor brake pedals are latched together.

Do not exceed 20 mph (32 km/h) when transporting the plane. Always reduce speed on rough roads and surfaces, or when going down inclines.

Use caution when turning and always use the turn signals on the tractor to indicate your turning intentions to the other traffic.

The weight of the trailed machine should NEVER exceed the weight of the towing vehicle.

Check all clearances carefully whenever the machine is towed.

Lower the elevator into the transport position before transporting the plane on the highway .

Stay away from overhead obstructions and power lines during transport. Electrocution can occur even without direct contact.

STORAGE SAFETY

SAFETY INSTRUCTIONS

Follow all operating and safety instructions found in this manual when storing this equipment.

Store the plane in an area away from human activity.

Do not permit children to play on or around the stored machine at any time.

Make sure that the plane is stored in an area with a firm and level base to prevent the machine from tipping or sinking into the ground.

Block the wheels to prevent the machine from rolling.

TIRE SAFETY

SAFETY INSTRUCTIONS

Follow all operating and safety instructions found in this manual when working around tires.

Have only a qualified tire dealer or tire repair service perform tire repairs.

Do not attempt to install a tire on a wheel or rim unless you have the proper equipment and experience to do the job.

Do not substitute tires with a lesser road rating and/or capacity for the original equipment tires.

⚠ WARNING

Explosive Force Hazard
Tire replacement, repair, and/or maintenance should be done by a qualified tire dealer or qualified repair service.

Failure to follow proper procedures when installing a tire on a wheel or rim can produce an explosive force that will result in serious injury or death.

Do not attempt to install a tire without proper equipment and experience to perform the job.

ASSEMBLY SAFETY

SAFETY INSTRUCTIONS

Follow all assembly, operating, and safety instructions found in this manual when assembly this equipment.

Use adequate manpower to perform assembly procedures safely.

Assemble the plane in an area with sufficient space to maneuver the largest components and allow easy access to all sides of the machine.

Use only forklifts, lift cranes, jacks, and tools with sufficient capacity for the loads.

Do not allow spectators, especially children, in the working area.

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OPERATORS INSTRUCTIONS

SAFETY DECALS

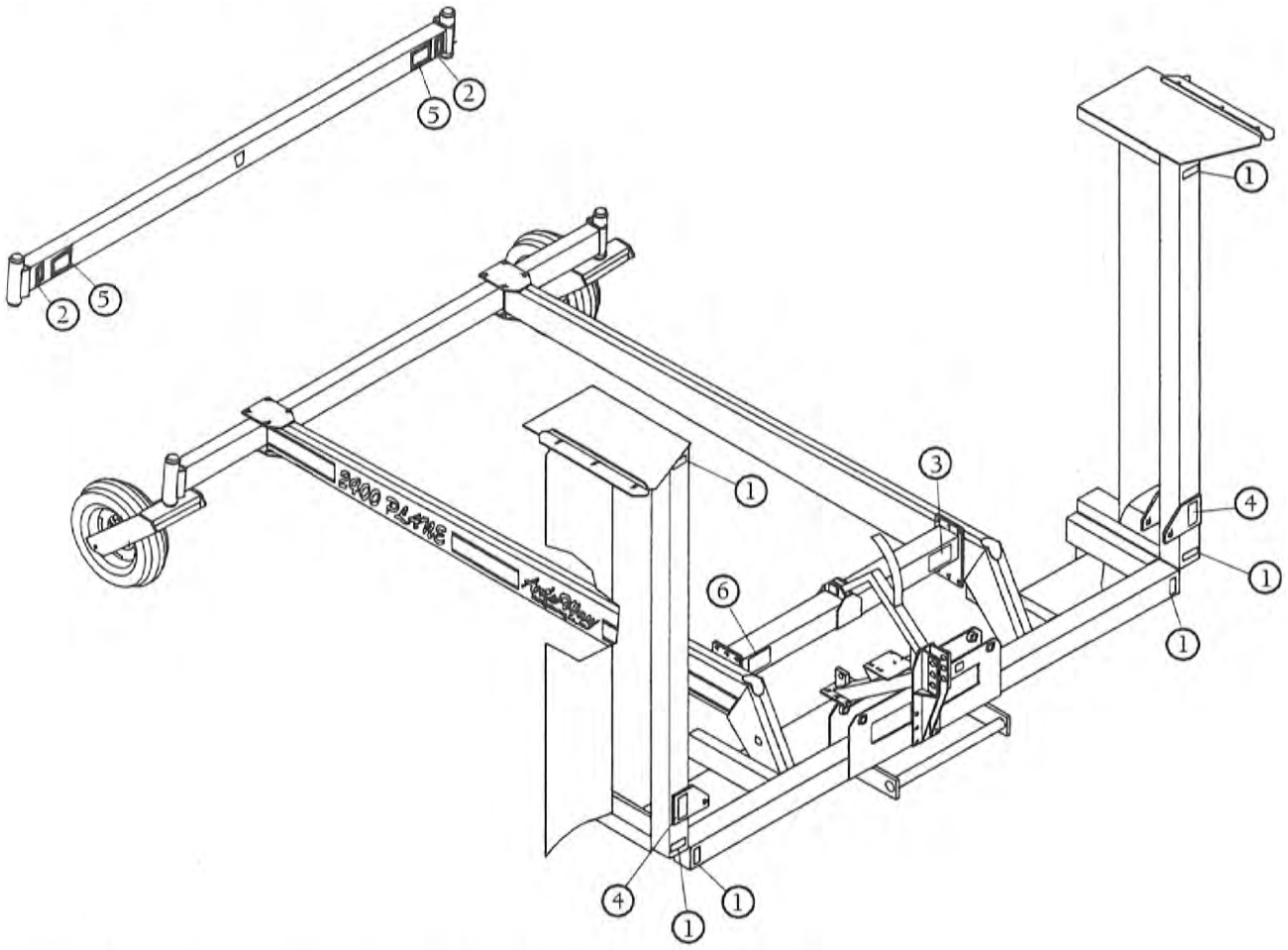
The following safety decals are located on your machine. Please take the time to familiarize yourself with them. KEEP ALL DECALS CLEAN AND FREE OF DIRT FOR MAXIMUM VISIBILITY. REPLACE ANY AND ALL DECALS THAT ARE NO LONGER LEGIBLE. READ AND OBEY ALL SAFETY DECALS

"DANGER" - describes hazard of wing hinge area and importance of transport lock.

"CAUTION" - Lists 6 items to follow and observe while operating this machine.

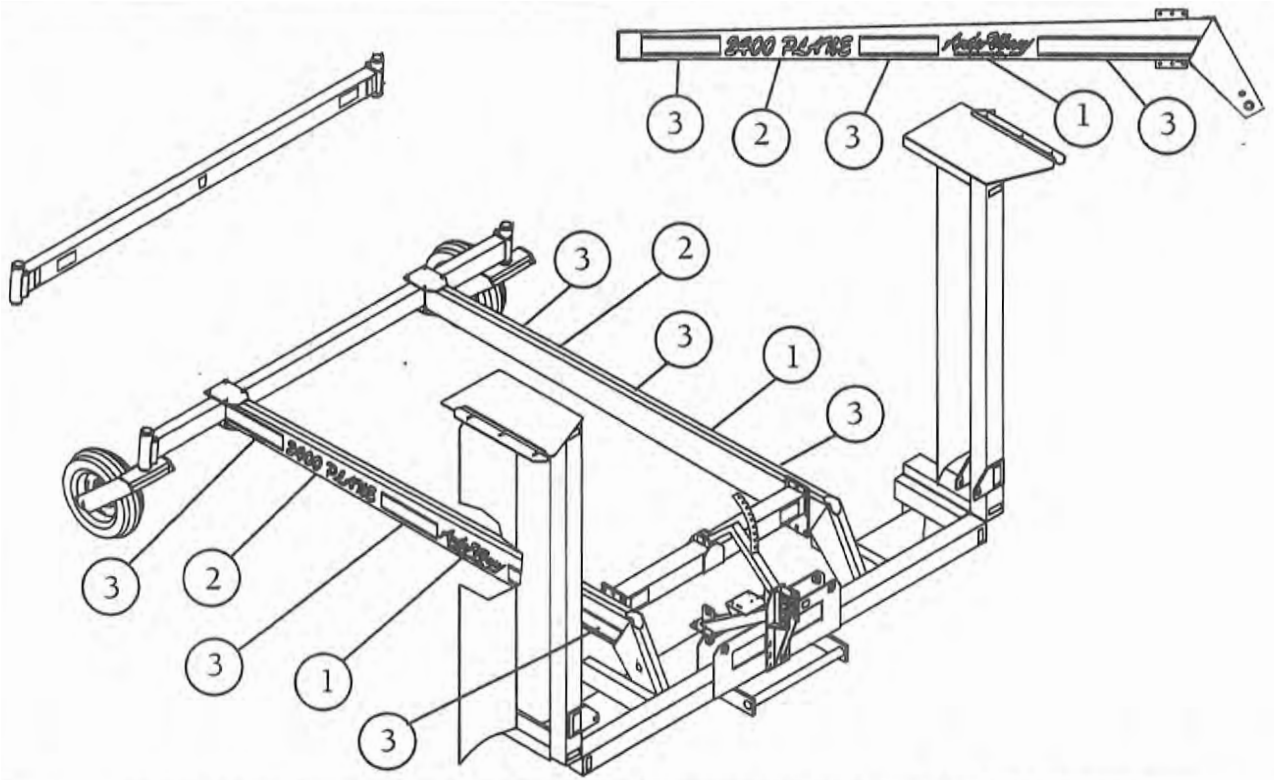
"WARNING" - Describes hazard of machine turning.

SAFETY DECAL LOCATIONS



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	227420	DECAL AMBER REFLECTOR	4
2	227430	DECAL, RED REFLECTOR	2
3	V180588	DECAL, PRE-OPERATION	1
*4	470130	DECAL, DANGER FALLING WING HAZARD	2
5	470140	DECAL, WARNING CRUSHING HAZARD	2
6	352530	DECAL, CAUTION READ OPERATOR'S MANUAL	1
* 2000 AND 2400 PLANE ONLY			

DECALS, ALL PLANES



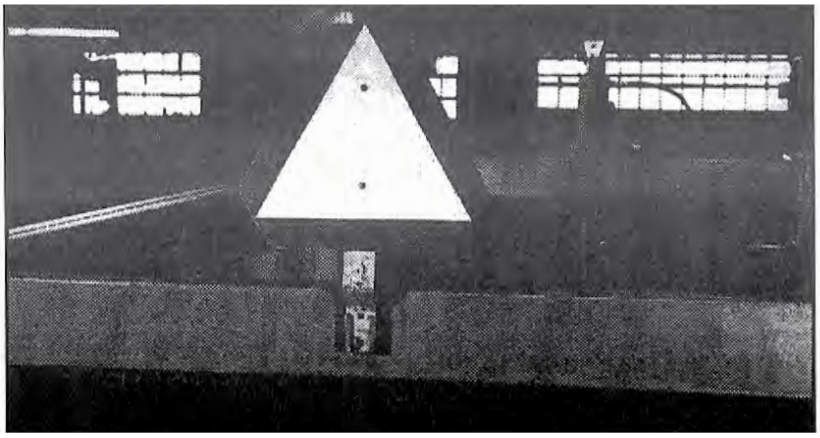
The large “Art’s-Way” decals (469390) (#1), Plane model number decals (#2) and stripe decals (355460) (#3) need to be installed on both booms per print located with decals in shipping envelope.

2400 Plane -(469420)

2000 Plane -(469410)

1650 Plane -(469400)

1200 Plane -(490840)



When transporting, install "SLOW MOVING VEHICLE" sign in bracket provided on rear cross beam.

ASSEMBLY INSTRUCTIONS

CAUTION: While working on the machine be sure to work safely. Be sure to use adequate blocking. Use adequately rated lifting devices. Make sure all parts are secured before working under or near them.

PICTURE 1 - ADEQUATE SAFETY USAGE

A) Set the frame on a level area to assemble.

B) Assemble in the recommended order.

C) Attach side board wear plates with 1/2 x 1-1/4" carriage bolts, Hat washers, lock washers and hex nuts with the lip on the wear plate up - NOT against the ground. There are no left or right hand parts - both sides are identical.

ASSEMBLY INSTRUCTION FIGURES "A" THROUGH "E" ARE FOR MODELS 2000-2400 ONLY.

ASSEMBLY INSTRUCTION FIGURE "A-1" AND "B-1" ARE FOR MODEL 1200-1650 ONLY.

TORQUE GUIDE, SAE GRADE IDENTIFICATION

TIGHTENING TORQUE GUIDE, SAE GRADE 5 - COARSE THREAD

SIZE	CLAMP LOAD	PLAIN	PLATED
1/4 - 20(.250)	2,025	8 ft. lbs.	76 in. lbs.
5/16 - 18(.3125)	3,338	17 ft. lbs.	13 ft. lbs.
3/8 - 16(.375)	4,950	31 ft. lbs.	23 ft. lbs.
7/16 - 14(.4375)	6,788	50 ft. lbs.	37 ft. lbs.
1/2 - 13(.500)	9,075	76 ft. lbs.	57 ft. lbs.
9/16 - 12(.5625)	11,625	109 ft. lbs.	82 ft. lbs.
5/8 - 11(.625)	14,400	150 ft.lbs.	112 ft.lbs.
3/4 - 10(.750)	21,300	266 ft. lbs.	200 ft. lbs.
7/8 - 9(.875)	29,475	430 ft. lbs.	322 ft. lbs.
1 - 8(1.00)	38,625	644 ft. lbs.	483 ft. lbs.
1-1/8 - 7(1.125)	42,375	794 ft. lbs.	596 ft. lbs.

IDENTIFICATION OF SAE BOLT GRADES; HEAD MAKINGS

Grades 0, 1, and 2 no markings

Grade 5: 3 radial dashes 120° apart

Grade 8: 6 radial dashes 60° apart

HITCH TUBE ASSEMBLY, 1200-1650 PLANES

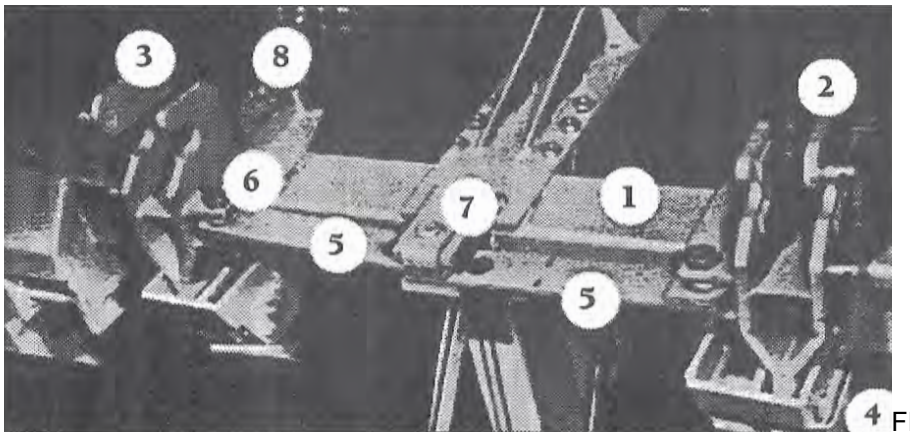


FIG. A-1

ITEM NO.	DESCRIPTION
1	MAIN FRAME
2	HITCH PLATE, L.H. (V180375)
3	HITCH PLATE, R.H. (V180376)
4	HITCH PLATE PIN
5	CROSS LINK
6	1” X 4” BOLT (V055634)
7	CROSS LINK PIN
8	HITCH KEEPER BAR (V180366)

FIGURE A-1

1) Attach L.H. and R.H. hitch plates (#2 & #3) to welded sockets under main frame with hitch plate pins (#4) and 5/16" lynch pin. *NOTE: the hitch plates are inserted in the outside sockets for Cat. 3 hitch tractors, or the inside sockets for Cat. 3N or Cat. 2 hitch tractors.

2) The cross links (#5) are assembled to the hitch plates with 1" x 4" bolts (#6) and to the main frame with the cross link pin (#7) and a 5/16" lynch pin using the outside holes on the cross links.

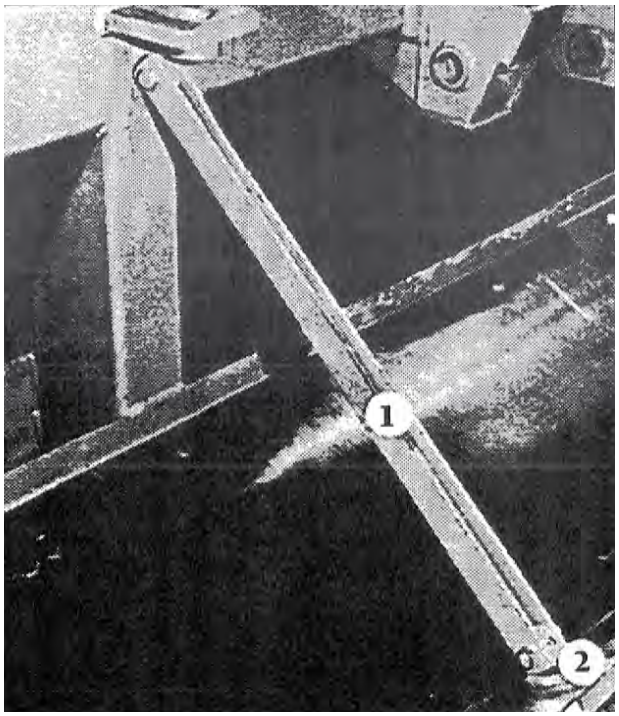


FIGURE B-1

1) Drawbar Braces (V440514)

2) Eyebolt (V301410)

FIGURE B-1

1) Assemble the drawbar braces (#1) to bit with eyebolt (#2) and 1/2" x 2" machine bolt and 3/4" lock washer and 3/4" hex nut; and to main frame lug with 1/2" x 1-3/4" machine bolt, 1/2" lock washer and 1/2" hex nut.

FIG. B-1

ASSEMBLY INSTRUCTIONS, 2000-2400 PLANES

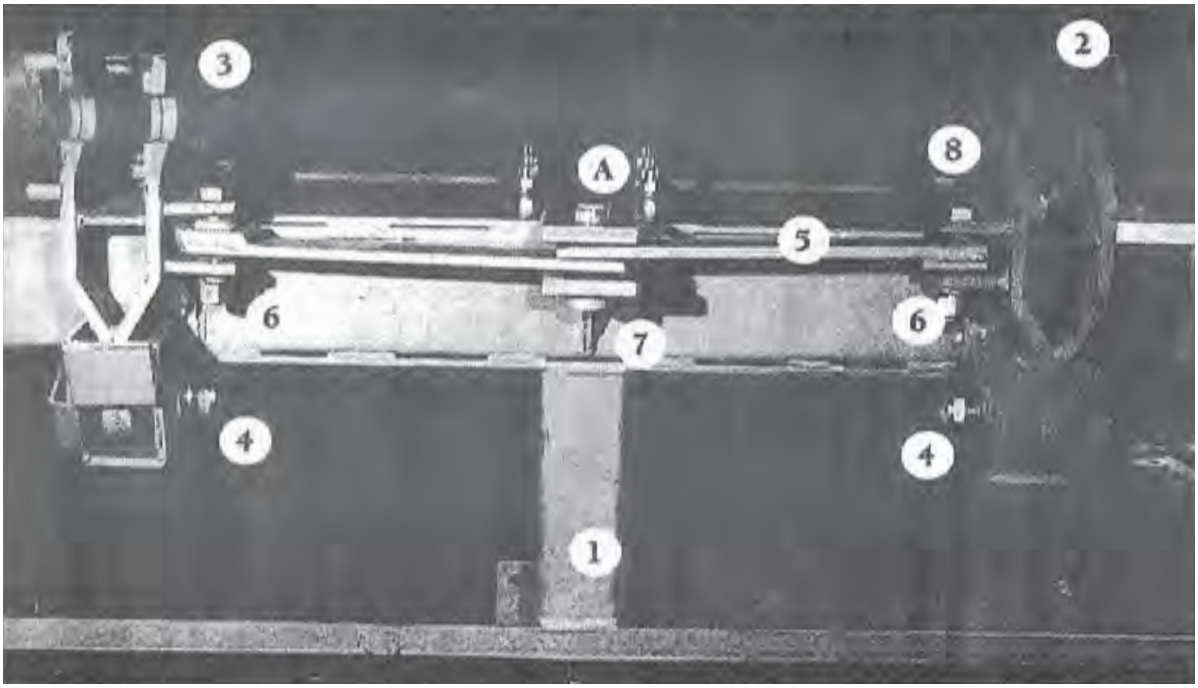


FIG. A

ITEM NO.	DESCRIPTION
1	CENTER SECTION (V180110)
2	HITCH PLATE, L.H. (V180375)
3	HITCH PLATE, R.H. (V180376)
4	HITCH PLATE PIN (V180429)
5	CROSS LINK (V180378)
6	1" X 4" BOLT (V055634)
7	CROSS LINK PIN (V180377)
8	HITCH KEEPER BAR (V180366)

FIGURE A

Before assembling wings to center section, it will be easier to assemble the hitch fittings on the center section.

1) Lay center section (#1) on its back.

2) Attach L.H. and R.H. Hitch Plates (#2 & #3) to welded sockets under center section beam with hitch plate pins (#4) and 1-1/4" SAE flat washers and 1-1/4" elastic stop nuts.

3) Assemble cross links (#5) to hitch plates with 1" x 4" bolts and to center section bars with center cross pin and 1/4" x 2" roll pin.

*NOTE: The welded pads on the ball socket ends of the cross links must be installed as shown in Figure A.

4) The hitch keeper bars (#8) are stored on the center section welded pins with VI80579 lynch pins.

Important: At this time, also install the 6 — 5/8" x 1-3/4" bolts in center section plate, Point A, since it will save time and difficulties later when wing-folding cylinder is assembled. The nuts on these six bolts can be left loose.

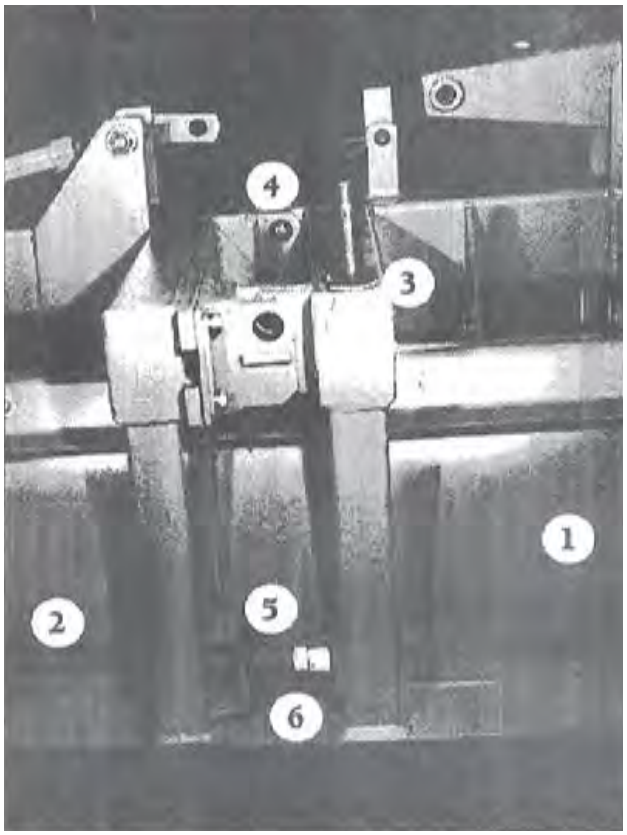


FIG. B

FIG. C-1

ITEM NO.	DESCRIPTION
1	CENTER SECTION (V180110)
2	L.H. WING / R.H. (NOT SHOWN)
3	HINGE PIN (V180642) / HINGE PIN GUIDE (V180451)
4	SPLIT BUSHING (V180258)
5	1-1/2" JAM NUT (V062146)
6	1-1/2" ADJUSTABLE NUT (V061946)
7	HOSE MOUNTING BRACKET (V180468) (FOR S-TINE OPTION ONLY)
8	ADJUSTABLE HINGE FITTING (V180138)
9	BAR CLIP (V180486)
10	10)5/8" X 1-1/2" HI-STRENGTH BOLTS (V057314)

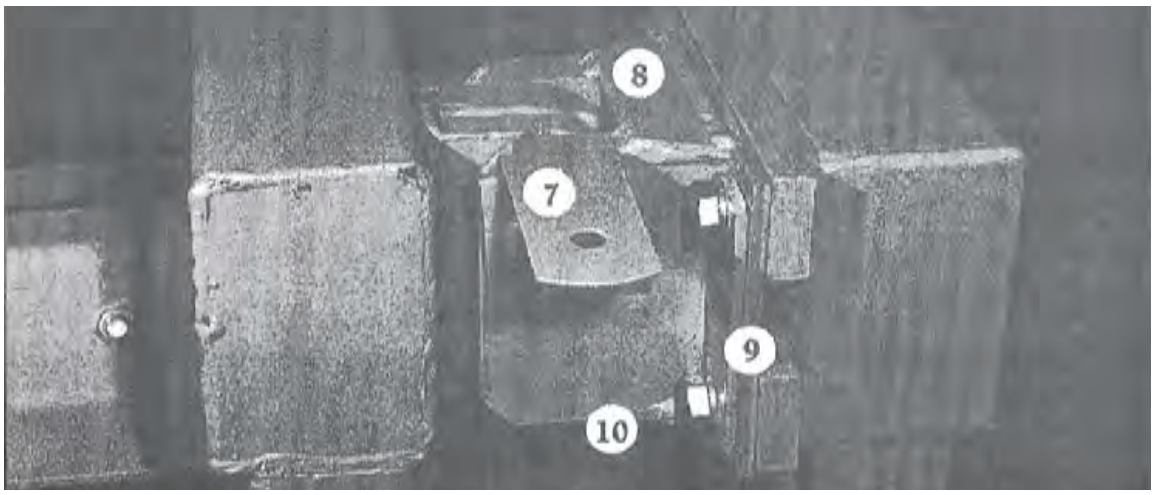


FIG. C

FIGURES B and C

1) The 1-1/2" O.D. x 1" split bushings are factory installed in all center section and wing fittings. Check to be sure each hinge joint has four bushings.

2) Set the center section (#1) on a smooth, flat surface, approximately 25 to 30 feet wide, and bring the L.H. and R.H. wing sections (#2) into place. Using mechanical handling equipment, nest the wing end fittings into the center section fittings.

3) IMPORTANT! Your .attention is called to the adjustable bolt-on hinge fitting (#9, Fig. C). This fitting is slotted, and will be factory installed. You may need to loosen the hinge bolts to line up the wings, and/or bits on a smooth, flat surface and then thoroughly retighten the 5/8" x 1-1/2" bolts. If the wings get out of adjustment or when new bits are installed, you may need to repeat the above step.

4) Install hinge pins (#3) at front and rear, being sure bushings (#4) are in place.*

5) With 1" SAE washers and 1" elastic jam nuts, thoroughly tighten all four hinge pins, and then install grease zerks.

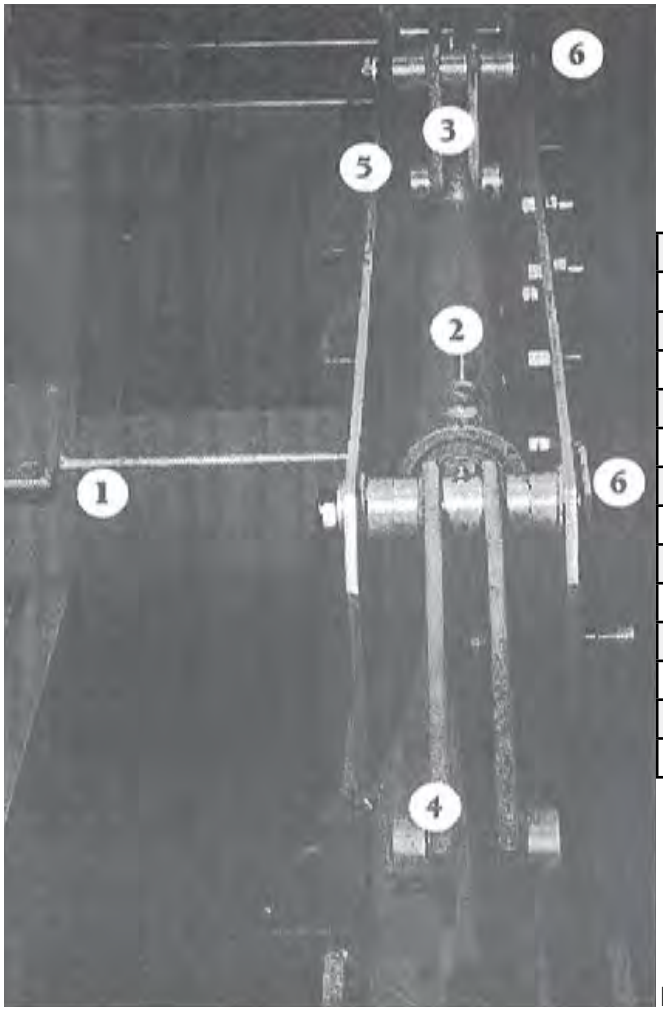
6) Note the adjustable nut (#6) and jam nut (#5) on the bottom pin which aligns the center section and wing moldboards. The correct setting of these nuts will be covered later.

IMPORTANT! If the optional springtooth attachment is to be installed, refer to Figure B-1 and mount the hose mounting brackets (#7) before the rear pins are inserted.

NOTE - ASSEMBLY PERSONNEL

On previous shipments, the sideboard wear plates (V180253) were factory assembled to the wings. To eliminate shipping and handling problems, these parts are now packed in the parts box.

Attach to plane wings with 1/2" x 1-1/4" carriage bolts, lockwashers and flat washers with the lip on the wear plate up - not against the ground. There are no left or right - hand parts - both sides are identical.



ITEM NO.	DESCRIPTION
1	CENTER SECTION (V180110)
2	WING LIFT CYLINDER (386540)
3	SPLIT BUSHING (VI 80258)
4	HINGE LINK (VI 80654)
5	CYLINDER PIN (V180638)
6	HINGE LINKAGE PIN (V180236)
7	ADJUSTABLE HINGE LINK (V180218)
8	TURNBUCKLE (V180247)
9	HINGE LINK END (V180249)
10	HINGE LATCH PIN (V180367)
11	SPLIT BUSHING (V180258)
12	CYLINDERPIN(V180638)-E-RING(V067251)
13	1-1/2” JAM NUT (V062146)

FIG. D

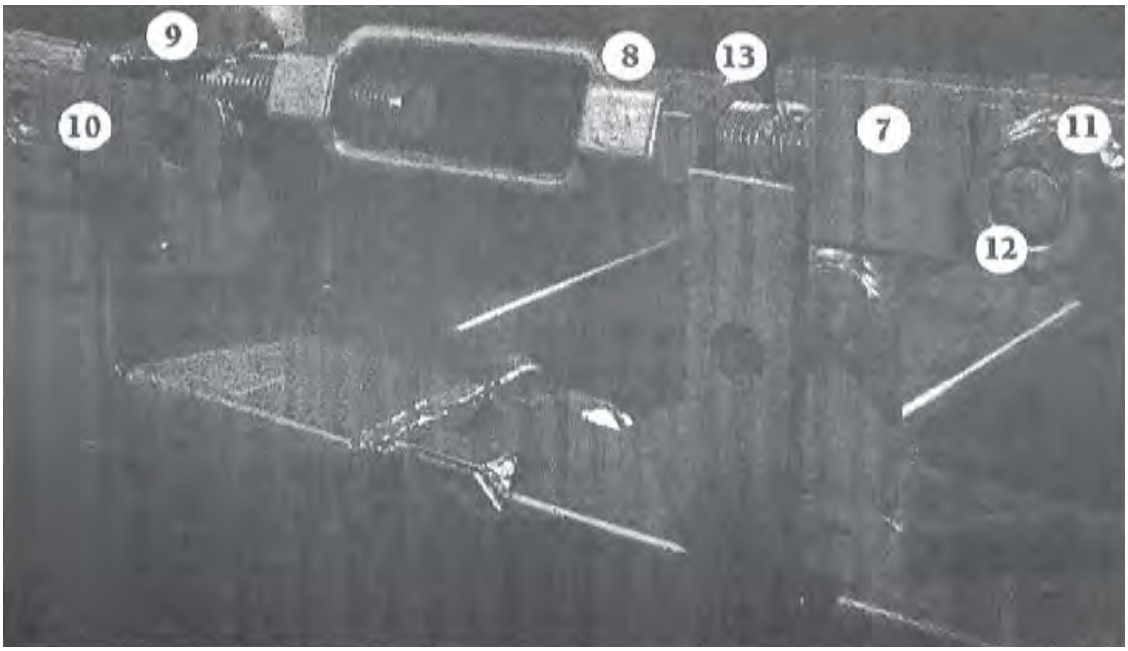


FIG. E

FIGURES D and E

1) Bench assemble the hinge links (#4) to cylinder ends with cylinder pin (#5) and 3/8 x 2" roll pins, using split bushings in cylinder ends.

2) Then place cylinder as shown on center section beam and attach hinge links (#4) to center section with linkage pins (#6), 1" flat and 1" elastic stop nut, rod end of cylinder to R.H. side.

3) See "Important" note below. The adjustable Link (#7) will be factory assembled to the tumbuckle (#8) and the hinge link end (#9). Mount hinge link end on wing plates with hinge latch pin (#10), 1" flat washer and 1" elastic stop nut.

4) Attach adjustable hinge link with split bushing (#11) to hinge link with cylinder pin (#12) and E-rings. The adjustment of the jam nut (M3) on the adjustable hinge link will be covered later.

⚠ IMPORTANT! The first time the wings are lowered after assembly and transport, they may drop suddenly. This can produce failure in the wing lift cylinder, #386540. The sudden drop may possibly be caused by air in the system. Before hooking up the adjustable hinge link, #V180218, install the Wing Lift Cylinder Hoses - see Figure K, page 15. Then purge the system of air by operating the cylinder to be certain all air is expelled and the cylinder is full of oil. Then return to the assembly instructions for Figure E and proceed as shown.

FIG. F

ITEM NO.	DESCRIPTION
1	R.H. Boom (V180168)
2	Boom Pin (V180243)

FIGURE F - Assembly Instructions for All Models:

1) Using a saw horse or overhead sling to support the rear end, attach R.H. boom (#1) to center section welded lugs with boom pin (#2) and 1-1/4" SAE Hat washer and 1-1/4" elastic stop nut. And then install grease zerk. Note the welded vertical plates must be toward the inside. Attach L.H. boom in same manner.

ASSEMBLY INSTRUCTIONS, ALL PLANES

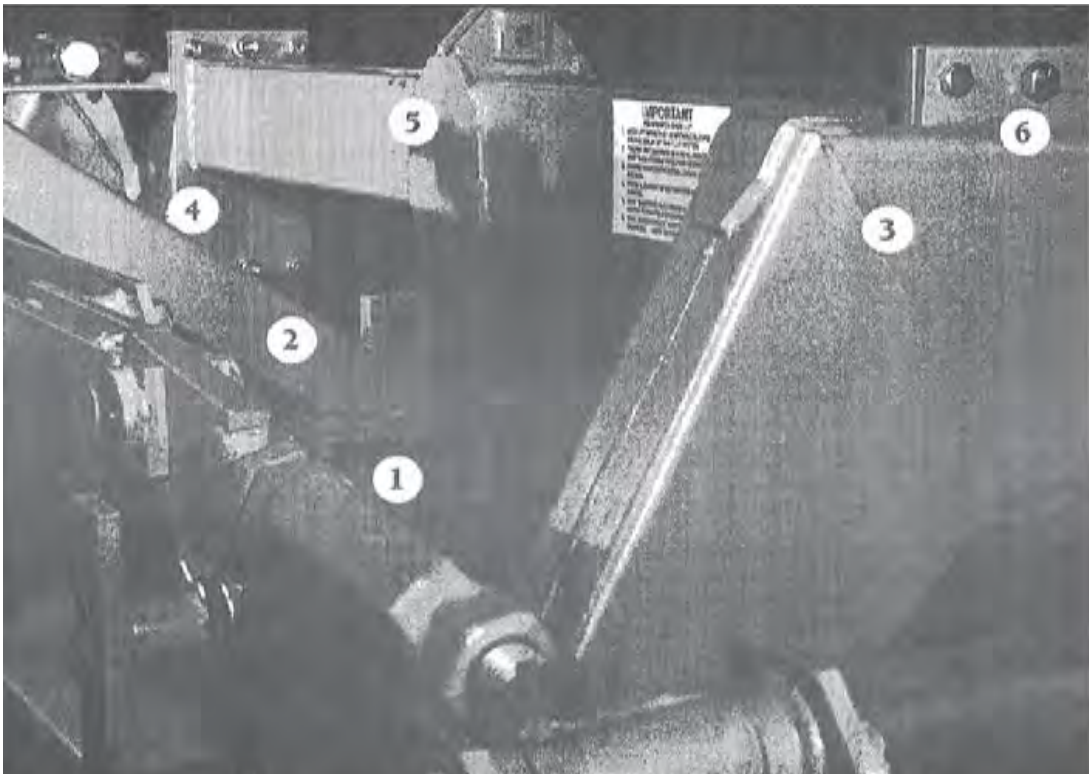


FIG. G

ITEM NO.	DESCRIPTION
1	CENTER FRAME SECTION
2	MAST (V180211)
3	L.H. BOOM (V180167)
4	R.H. BOOM (V180168)
5	FRONT CROSS BEAM (V180455)
6	SPECIAL BOLT (V061704)

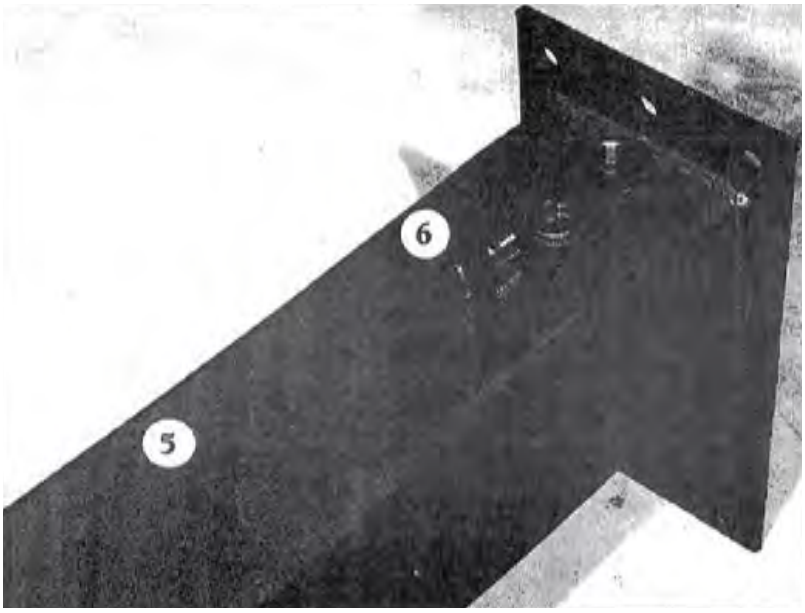


FIG. H

FIGURE G and H

1) Mount mast (#2) on center section, attaching to front plate of center section first with the bolts which were factory installed.

2) Then attach mast to rear beam of center section with 6 - 5/8" x 1-3/4" bolts. Tighten all mast bolts.

3) Attach front cross tube (#5) to booms (#3) and (#4).* NOTE: From Figure H that 2 - 3/4" x 2" special bolts (#6) are installed first, on both sides, in the top and bottom middle holes before inserting the other 5/8" x 1-3/4" bolts. *See Note.

NOTE: These special bolts are in reamed holes and serve to keep the booms square.

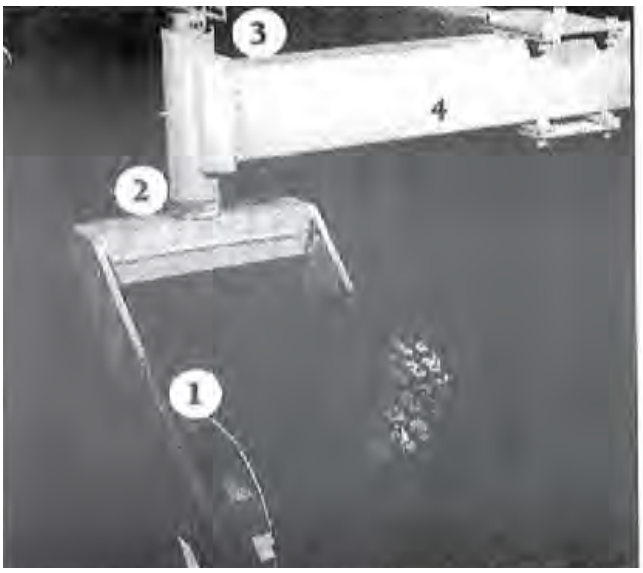


FIG. I

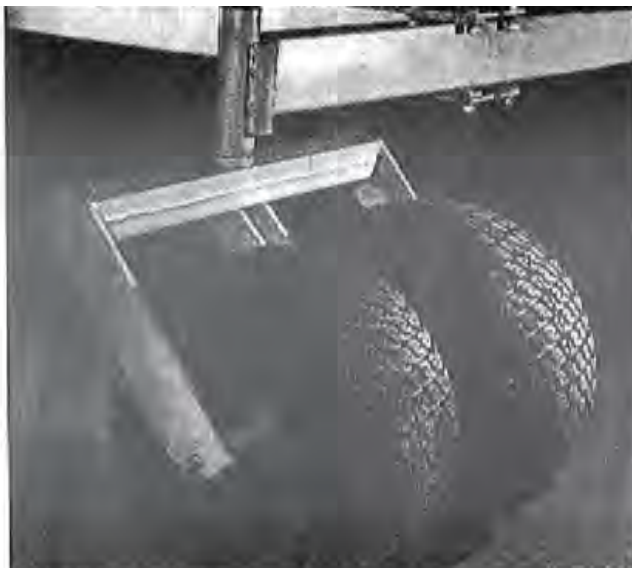


FIG. I-1

NOTE: The welded-on SMV bracket must be up and toward the rear of the Plane.

1) It is more convenient to assemble the easier wheel assemblies on the rear cross beam (#4) before the cross beam is attached to the booms. Normally there are three machine washers (#2) installed at the base of the beam welded tube. A 1/2" x 3" roll pin (#3) holds the caster yoke on the rear beam.

NOTE: Additional washers are provided to level out the cutting blade if that is necessary.

2) The rear cross tube is attached to the booms with 8 - 5/8" x 1-3/4" bolts and lock washers. Now thoroughly tighten all bolts holding the front and rear cross beams to the booms, starting with special bolts in Fig. H first.

OPTIONAL

Dual Caster Wheel Assembly - Kit No. V180597. Recommended for trashy, moist, loose soil conditions.

NOTE ASSEMBLY PERSONNEL:

When the booms are assembled and the pin (Fig. F, #2) is installed, apply grease at once. This will permit the pin to be removed if necessary in the future. Don't wait until later - grease pin NOW.

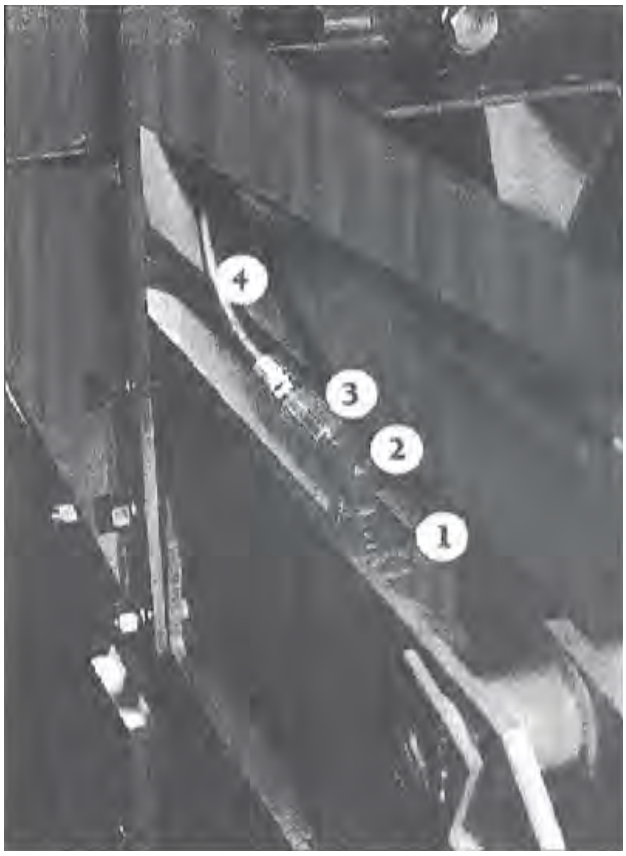


FIG. J

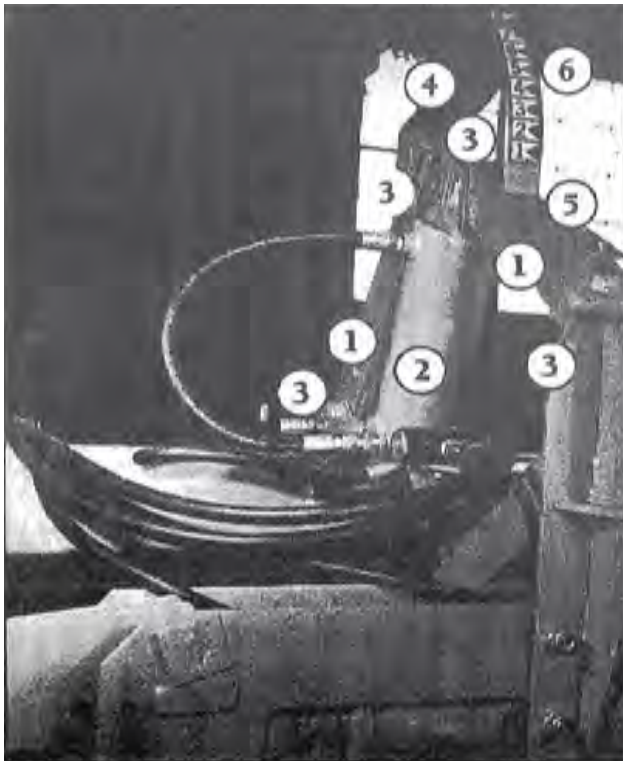


FIG. K

FIGURE T -Wine Lift Cylinder Assembly (2000-2400 Models only)

1) Attach 72” hoses to both ports of the cylinder with 1/2” x 90° street elbows and a V180624 restrictor on the, fixed end, port (#2).

2) These hoses lead directly to the tractor where they are attached through quick disconnect couplers (not furnished).

ITEM NO.	DESCRIPTION
1	WING LIFT CYLINDER (386540)
2	2" X 90° STREET ELBOW (V622020) (2 REQ.)
3	RESTRICTOR (VI 80624)
4	2" X 72" HOSE (166160) (2 REQ.)

FIGURE K -Depth Control 8" Stroke Cylinder

1) Attach gauge marker strip (#4) with 5/16" x 1" carriage bolts and lockwashers; and gauge decal mounting strip (#5) to links as shown with 5/16" x 1" carriage bolts, flat washers and lockwashers, adjusting the mounting strips if necessary.

2) Attach link arms (#1) to each other, and to the mast and front cross beam with clevis pins (#3) and lynch pins. Note that the two link arms are identical so there will be an unused hole in one of them. *Also note the holes in these links are not on the centerline, and the top link should first be pinned to the cylinder clevis before assembling it to the mast and vertical link.

3) Assemble fixed end of 8" stroke cylinder (#2) to top link arm (#1); and the rod end to the lug welded on the mast, with clevis pins (#3) and 1/4" x 2" cotter keys.

ITEM NO.	DESCRIPTION
1	LINK ARM (V180460) & BUSHING (V180220)
2	4-1/2" X 8" STROKE CYLINDER (386600)
3	CLEVIS PIN (V180647)
4	GAUGE MARKER STRIP (VI 80542)
5	GAUGE DECAL MOUNTING STRIP (V180543)
6	INDICATOR LABEL (V180404)

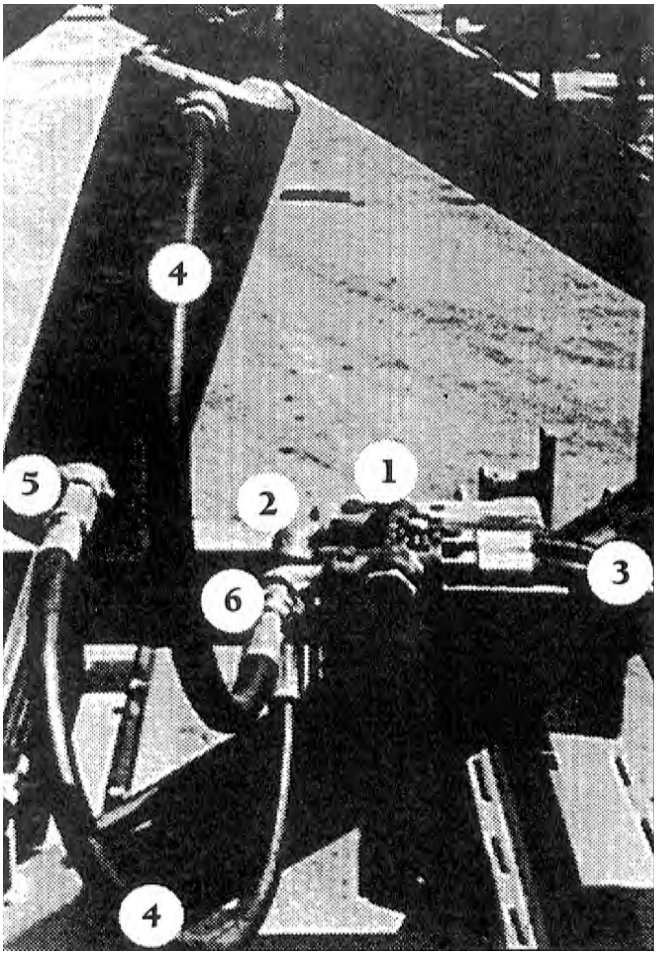


FIG. L

FIGURE L -Cylinder Check Valve Assembly

ITEM NO.	DESCRIPTION
1	CHECK VALVE (V308250)
2	90° STREET ELBOW (V622320) (2 REQ.)
3	72"HOSE (166160)(2 REQ.)
4	28" HOSE (V609200) (2 REQ.)
5	RESTRICTOR (V180624)
6	SWIVEL FITTING (V710402) (2 REQ.)

1) Install 2 - 90° street elbows (^2) in the rear (wide) ports of check valve as shown.

2) Attach check valve to mast plate with 5/16" x 1-3/4" at back of valve and 5/16" x 2-1/2" at front.

3) Attach swivel fittings (^6) in steel elbows on check valve on both sides.

4) Assemble 28" hoses (^5) to cylinder and then check valve. *NOTE: The restrictor (#5) is assembled on the bottom (rod end) of the cylinder.

5) Assemble tractor hoses (#4) to front ports of check valve.

6) The 72" hoses attach to the tractor with quick disconnect fittings (not furnished).

ATTACHMENT TO TRACTOR, ALL PLANES

FIG. A

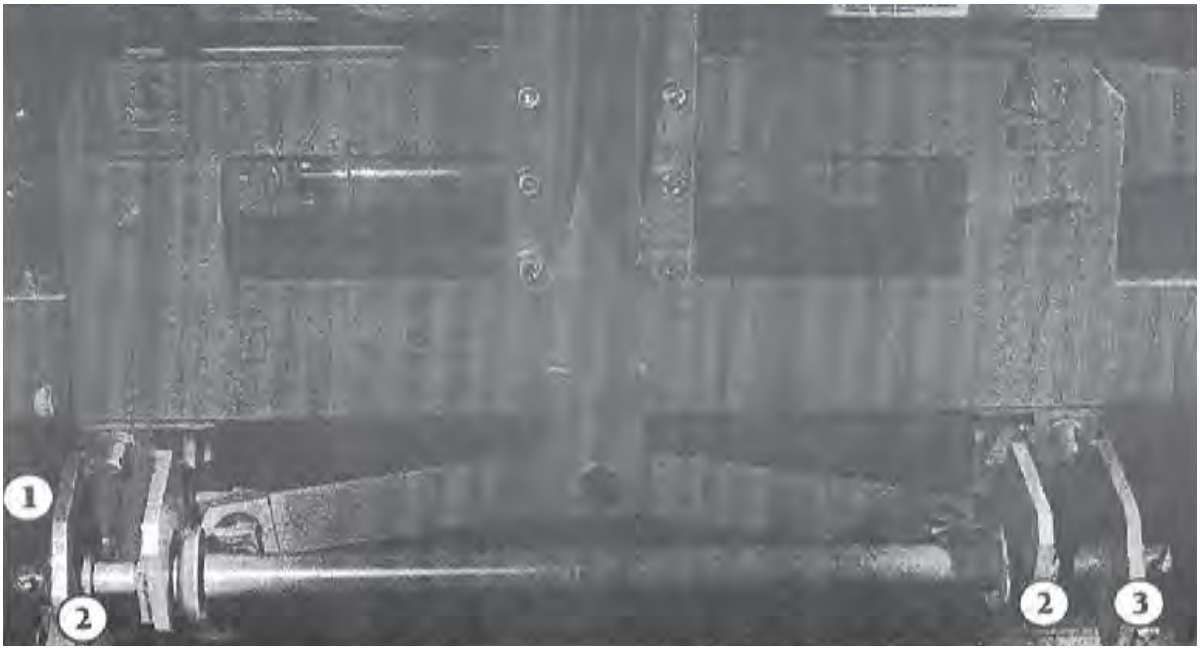


FIG. B

1) Attach Hitch Bar Assembly to tractor draft arms (Fig. A). Fig. B shows Cat. 3 extended, bar (V180720); Fig. C is optional, Cat. 3N (V180580); Fig. D is optional Cat. 2 (V180610) bar if Model 1650 is used with Cat. 2 tractor. Lynch pins (#1, Fig. B) secure bars.

2) Fasten hitch plates flush against center section with hitch keeper plates as shown in Fig. A, page 11.

3) Back tractor up to Plane and lift draft arms up to nest hitch bar into hitch plates.

4) Then use hitch keeper plate, (#2, Fig. B to lock bar in place with lynch pins (^3, Fig. B).

5) The tractor top link is attached to the mast with the upper step pin (#4, Fig. E) and a ^6 hairpin. The step pin will fit either Cat. 2 or Cat. 3 top links. NOTE: Before attaching the tractor top link to any of the holes in the mast, first refer to section on "Tractor Preparation".

FIG. C

FIG. D

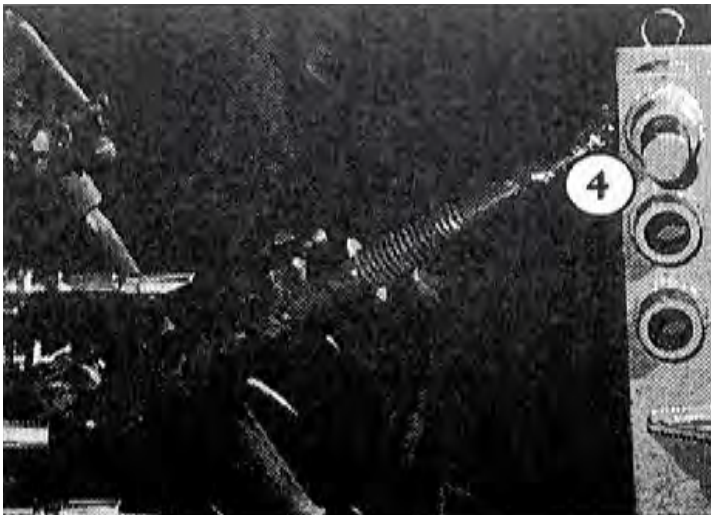
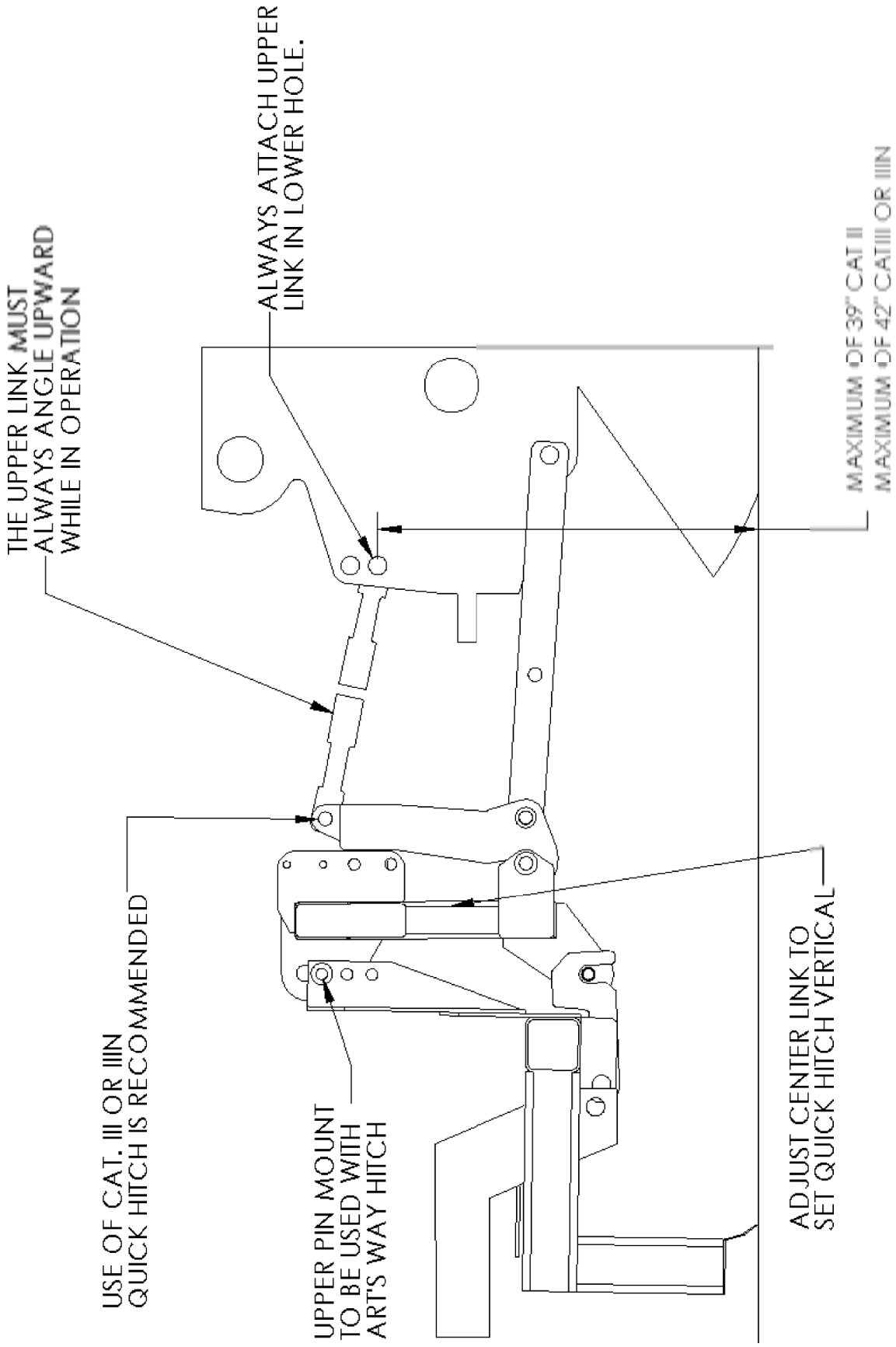


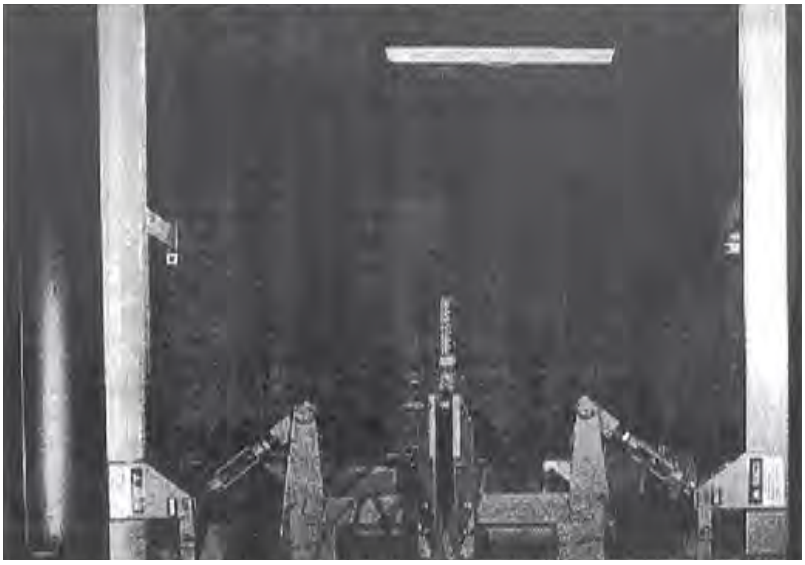
FIG. E

Hitch bar standard, category 2 (1200) VI80680
Hitch bar standard, category 2 (1650) V180610
Hitch bar standard, category 3 N.(1650) V180615
Hitch bar standard, category 3 (1200,1650,2000, 2400) V180720
Hitch bar standard, category 3 N(1200, 2000,2400) V180580

ATTACHMENT TO TRACTOR, QUICK ATTACH HITCH



TRANSPORTING, ALL PLANES



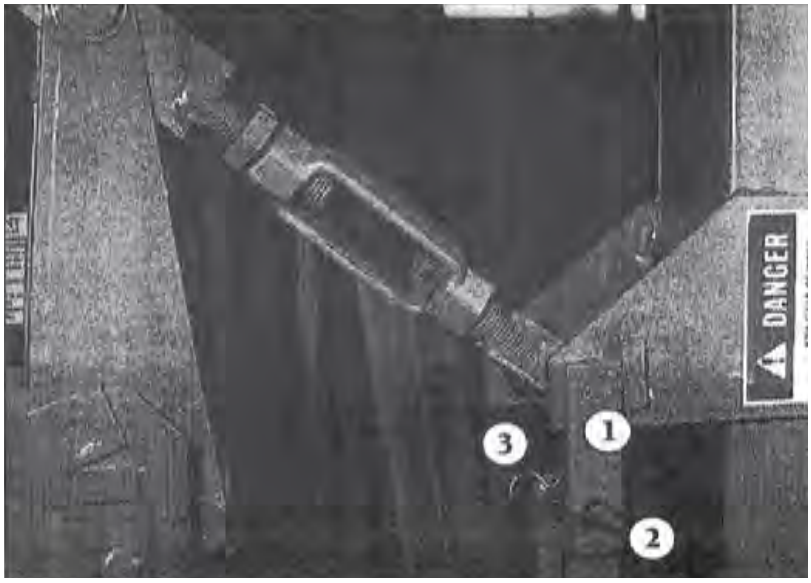
TRANSPORTING

1) When transporting, lift moldboard clear of ground with depth control cylinder. Keep weight on rear wheels of Plane. Do not transport by lifting entire Plane off ground with tractor lift control.

2000-2400 ONLY

2) Raise wings to vertical position and secure hinge latch pin (#1) to ears on center section with safety lock pin (#2). Hold pin in place with #6 hairpin. Do not transport without locking the wings.

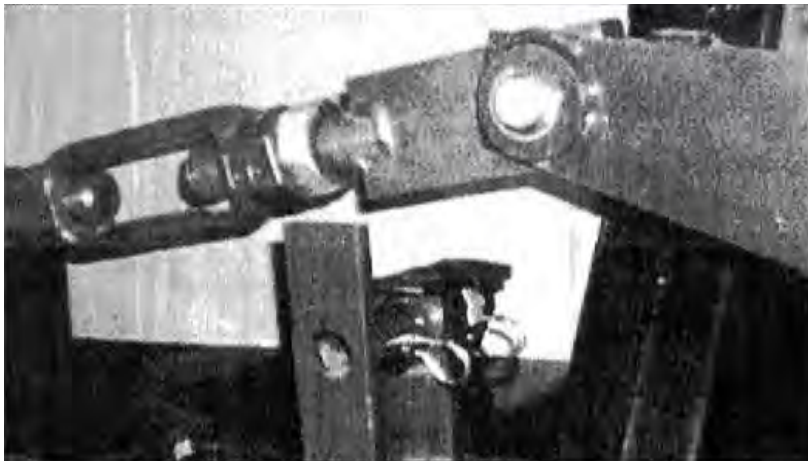
ITEM NO.	DESCRIPTION
1	Hinge Latch Pin (V180367)
2	Latch Pin (V180365)
3	#6 Hairpin (063839)



Occasionally, the adjustable hinge link will be over center but not firmly against the stop. Installing the linkage belting pad, (1), V180930, on the latch pin will take up the slack and insure positive contact.

Then be certain the adjustable nut, (#6, Fig. B, page 9) is firmly against the stop pad and locked in place with the jam nut (#5, Fig. B, page 9).

Note that the belting pad is reversible so both sides can be used. Remove it from the latch pin when the wings are raised and locked for transport. Replace it for field operation.



BEFORE GOING INTO FIELD, ALL PLANES

A - Tractor Preparation

1) On two-wheel drive tractors, weighted dual rear wheels are recommended for ease of turning and to improve traction.

2) A single tractor hydraulic control is required to operate the 1200-1650 Plane. (Two valves are necessary if the optional spring tooth attachment is installed.) A minimum of two tractor hydraulic controls valves is required to operate the 2000-2400 Plane. (Three valves are necessary if the optional spring tooth attachment is installed.)

3) Be certain "IMPORTANT" decal is installed on front cross tube and that all tractor operators are familiar with the instructions detailed on the decal On IHC tractors, the hitch depth control lever is moved forward to the offset, but not into the draft control range. Dial out the electronic draft on M-F tractors.

4) The tractor hitch lift arms must be set in float position so there is a free"mechanical" float. Be certain the lift arms are the same length.

5) Install hitch tube (Ref. Fig. A, page 20) on three-point lift arms. Caution - Be sure tube clears tractor drawbar when raising or lowering three-point hitch on tractor. On some tractors, drawbar may have to be removed. Tractor quick hitch cannot be used on Eversman Planes.

B - Plane Preparation

1) When attaching tractor to the Plane be sure keeper plates (Ref. #2, Fig. B, page 20) are installed on hitch link to secure hitch tube to the hitch links.

2) Attach tractor top link to mast with upper step pin and #6 hairpin (Refer. Fig. E, page 21). IMPORTANT - The top link must be at least 6 inches higher at the mast than at front pivot point on the tractor. The top hole in the mast will be used on most tractors.

3) Check tire inflation - must be no more than 20 pounds pressure.

4) Provisions have been made to align wings with center section. Two adjustments must be made in sequence. Stretch a string or wire from outer end to outer end of moldboard bits to check alignment. Adjust and lock the lower adjusting nut and jam nut (Refer. ^5 & #6, Fig. B, page 12) when wings are aligned with the center section. Then adjust top adjustable link and lock jam nut (Refer. #13, Fig. E, page 14). The lock nuts should make firm contact against the center section plate. The adjustable hinge link must snap past center when the cylinder is fully retracted, thus keeping the wings locked in line. (Refer photo and instructions on page 22 regarding the linkage belting pad. (Ref. wing models only).

5) Lubricate zerks on booms, castor wheels, hinge links and hinge link ends.

6) After filling the Plane cylinders, check the tractor hydraulic fluid level and refill if necessary.

C - Transporting

1) With tractor hitch control lever in maximum float position, raise the moldboard with depth control cylinder to leave weight on the rear tires for transport stability.

2) Operate wing lift cylinder to raise wings and install safety lock pins. (Refer page 22).

3) Do not transport the Plane by lifting it with the tractor three-point hitch.

4) Transport at safe road speeds (also refer to instructions on safety, page 6).

5) The wheels and tires are designed for 5 MPH field operation and intermittent 10 MPH road speeds. Do not exceed 10 MPH.

D - Lubrication

1) Each day during field operations, re-grease the zerks on the booms, castor wheels, hinge links and hinge link ends, and hinge pins.

2) Each year before starting to. level, repack the castor wheel bearings.

E - Storage

1) When storing for the season, oil hinge joints and pins thoroughly

2) When restarting, if pins are rusted, loosen with penetrating oil.

F - Field Operation Adjustment

1) Adjust the tractor top link so that the mast is vertical to the ground. This will produce more rolling action of the soil in the moldboard. To obtain increased roll, shorten tractor top link slightly, approximately one-half turn. The sideboards must be parallel to the ground. If the sideboards are tilted nose down, the blade will not cut efficiently and turning will be difficult. If they are tilted nose up, soil will spill out the sides and the blade will not dump correctly.

2) Adjust the wear plates so they are parallel to the ground and at ground level.

3) The tractor hitch control lever must be operated in float position so there is a free "hydraulic" float On older tractors which do not provide a "float" position, set the height of the tractor lift arms so that the hitch plates (Ref. #2 & ^3, Fig. A, page 11) are in the middle of their travel limits when attached to the hitch tube assembly (also refer to page 20).

4) Set the blade control cylinder so the moldboard carries an average load about 2/3 full as you cross the field. Do not attempt to maintain a full load at all times. You are smoothing the field only when the moldboard empties at times indicating a low spot, and when it overflows at others, indicating a high spot or ridge. The first pass over a rough field will show a greater fluctuation of soil in the blade than on the second or third pass. If the rear wheels tend to come off the ground, you are either carrying too much soil in the moldboard, or you are supporting the blade with the tractor three-point system rather than letting the draft arms float. Note the setting on the depth indicator strip (^5, Fig. K, page 18) so that you can return the depth control cylinder to the correct level if it ever becomes necessary to change it.

5) If you are carrying more soil on one side than the other, the moldboard may not be entirely level. In this case, first be certain both rear tires have the same inflation. Then be sure the adjustable hinge bar locks into an over-center position; check the wing adjustment nuts (Fig. B, page 12); the adjustable hinge bar jam nut settings, (Fig. E, page 14); and be certain the special shoulder bolts in the front cross frame are tight (Fig. H, page 16). After checking all of the above items, it may be necessary to remove one or more of the washers on the castor wheel (Fig. I, page 17) to lower the side which is carrying less dirt.

6) Select the gear and speed to match field moisture and trash conditions.

7) Exercise caution to avoid catching ends of wings on ditch banks or posts.

8) Consider installing the optional springtine attachment on your Plane. This can be used to rough up the field to minimize blowing, and may save a separate trip by combining leveling with the springtooth tillage operation. Lift the springtine attachment before turning at field ends.

9) The horsepower requirements will depend on the soil and moisture conditions. The most difficult conditions will probably be a combination of moist, soft, loose textured soil. In those cases, you will possibly require better Rotation with dual wheels on the Plane and either less wheel weight or larger front tractor tires. In general, horsepower requirements will be: in normal soils -75 for Model 1200; 100 for the Model 1650; 125 for the 2000; and 135 to 150 for the 2400. For difficult soils -90 for Model 1200; 125 for the Model 1650; 150 for the 2000; and 180 for the 2400.

NOTE: See page 35 for instructions on installation of Limiter Kit (V180895) when operating in difficult conditions.

OPTIONAL SPRINGTINE ATTACHMENT, ALL PLANES

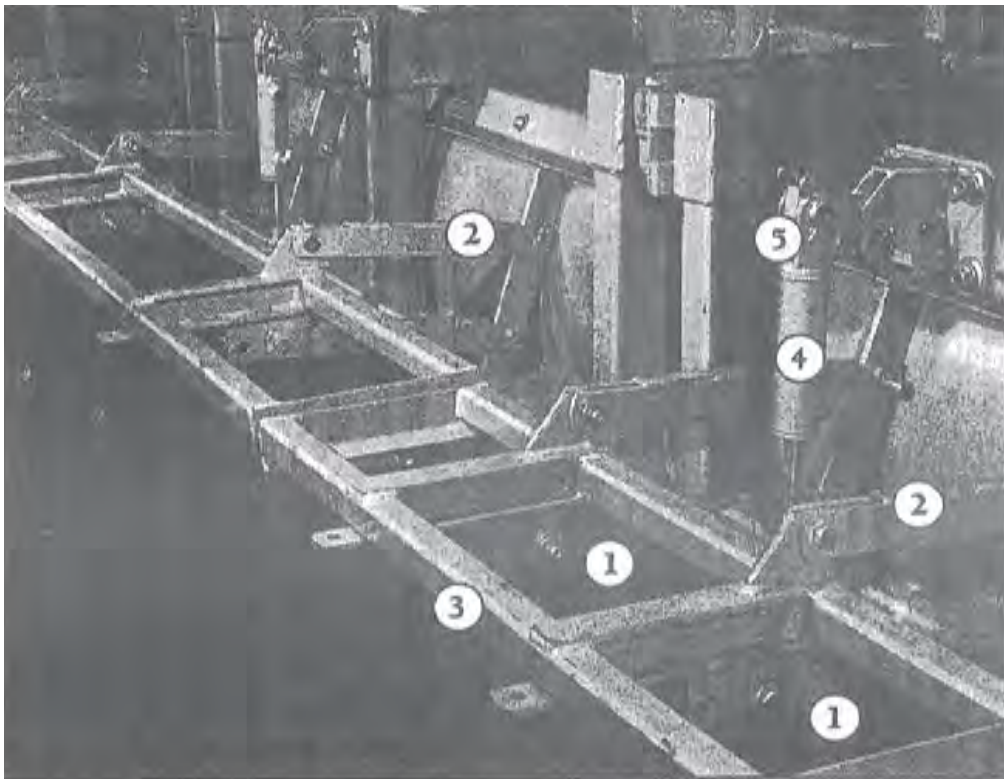


FIG. A

ITEM NO.	DESCRIPTION
1	LIFT TANK WELDMENT (V180304)
2	PARALLEL LINK (VI 80306)
3	STA FRAME
4	2" X 4" CYLINDER (V180910)
5	CYLINDER PIN (V701026)
6	BRACKET (V180557)
7	ANCHOR BAR (V180553)
8	PIVOTPIN(V180391)
9	E-RING (V067200) (2 REQ.)
10	ADJUSTMENT PIN (V180554) 5/16” X 1-1/4” ROLL PIN (V064410)
11	LYNCH PIN (V180579)

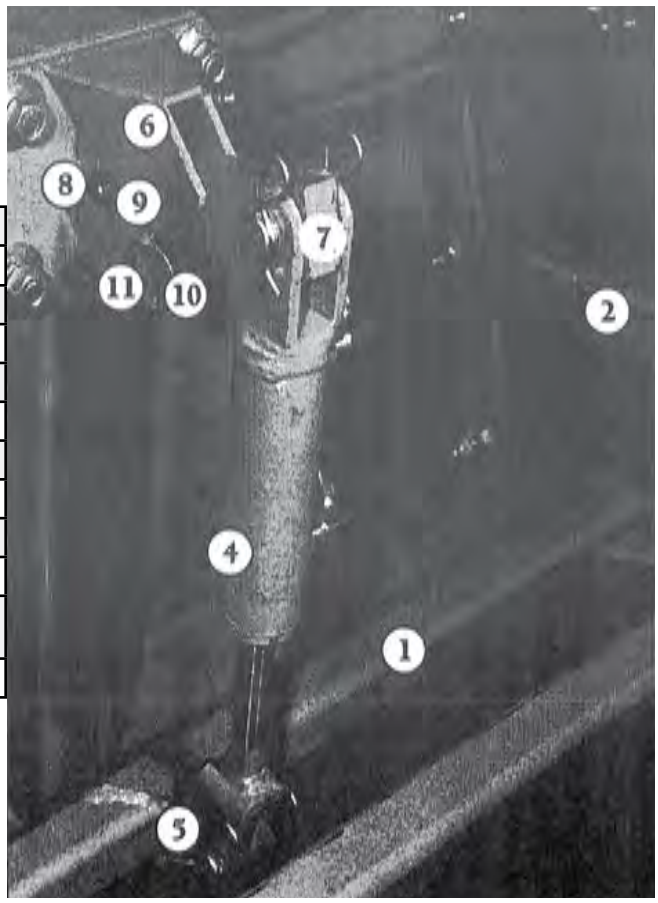


FIG. B

Fiffures A and B - Frame and Links

1) Attach lift link weldment (^1, Fig. B) to the bottom holes of the ribs, behind the moldboard, with 5/8" ID x 9/16" bushings and 5/8" x 2-1/2" hex bolts. It is possible to incorrectly assemble the lift link weldment which will result in cylinder damage. Observe from Fig. B, that the welded lug, to which the STA cylinder attaches, is to the rear of the lengthwise tube.

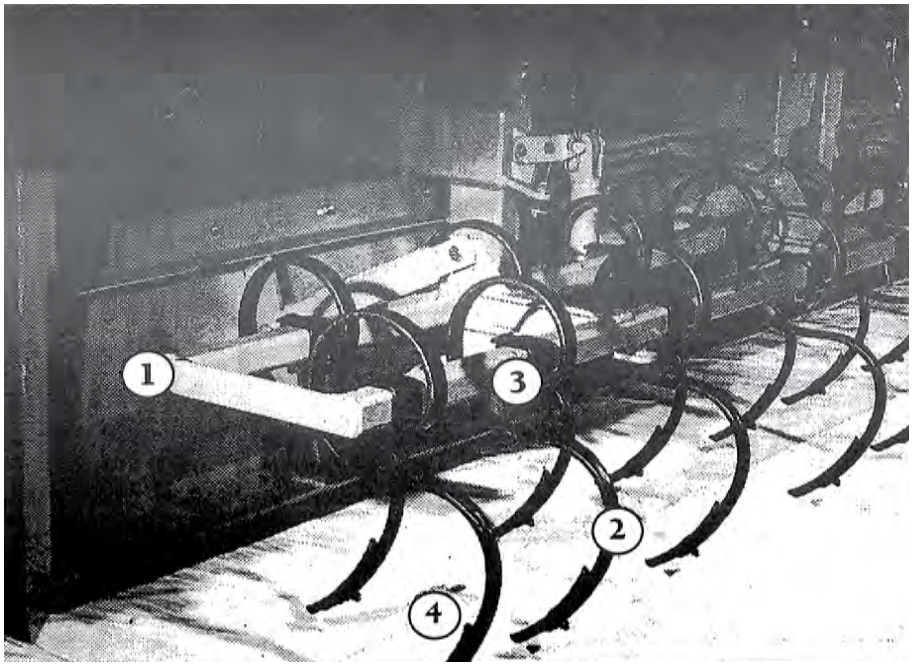
2) The top parallel links (#2) are assembled to the top holes of the ribs, also using the 5/8" ID bushings and 5/8" x 2-1/2" bolts.

3) Note from Figure A that the frame (#3) is assembled with the lug with one hole on the top. The top links are then attached to the top lugs of the frame (^3); and the lift link weldment is attached to the bottom, front, hole of the frame lug, also with bushings and 5/8" x 2-1/2" bolts.*

4) The 2" x 4" stroke cylinders (#4) are connected to the lift link weldment with cylinder pins (^5) and 2 ° #6 hairpins. Observe that the ports of the left wing and center section cylinders must be on the right-hand side when the cylinders are assembled. The ports of the cylinder on the right wing must be on the left side of the cylinder. The rod end of the cylinder is at the bottom.

5) Attach adjustment bracket (^6) to main frame with 5/8" x 2-1/2" hex bolts. The anchor bar (#7) is assembled to the bracket with pivot pin (#8) and 2 - 5/8" E-rings (^9).

6) The adjustment pin (MO) is located in the bracket, with a 5/16" x 1-1/4" roll pin and lynch pin, to set the operating depth of the STA cylinder.



*Note - Assembly of the springtines may require that the heads of some of these 5/8" bolts be reversed in order to maintain proper spacing of the tines.

ITEM NO.	DESCRIPTION
1	STA Frame
2	Tine (V180423)
3	Clamp (V180425)
4	Reversible Shovel (V180424)

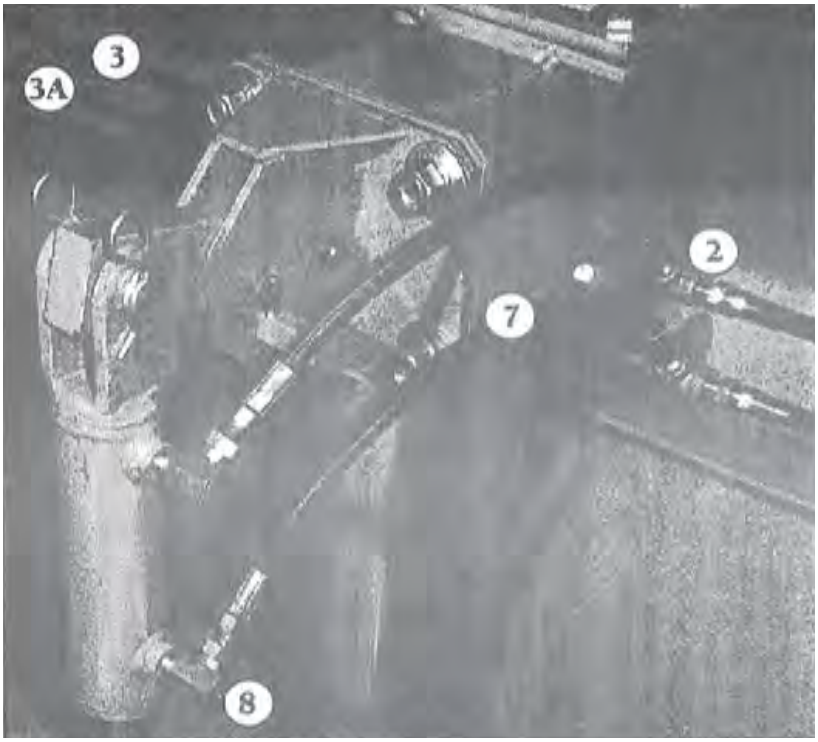


FIG. D

ITEM NO.	DESCRIPTION
1	1/4" x 36" Hose (V180434)
2	1/4" Tee (V623010)
3	1/4" x 112" Hose (V180433)
4	Hose Clamp (V180454)
5	Bracket (V180468)
6	1/4" x 6" Nipple (V625605)
7	18" Hose (V291005)
8	Swivel Fitting (V612024)

FIG. E

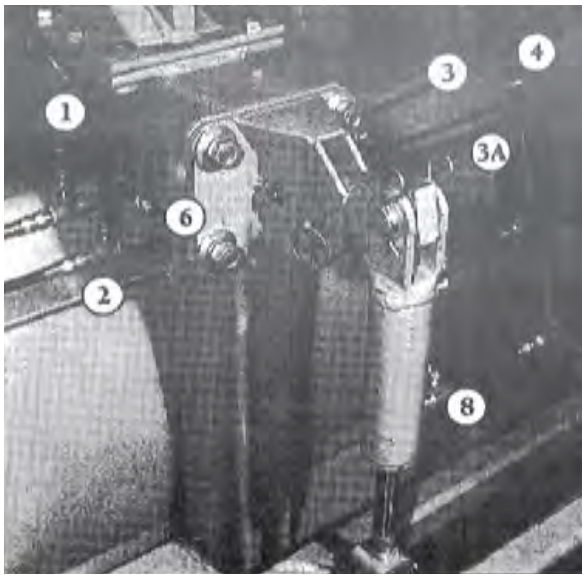
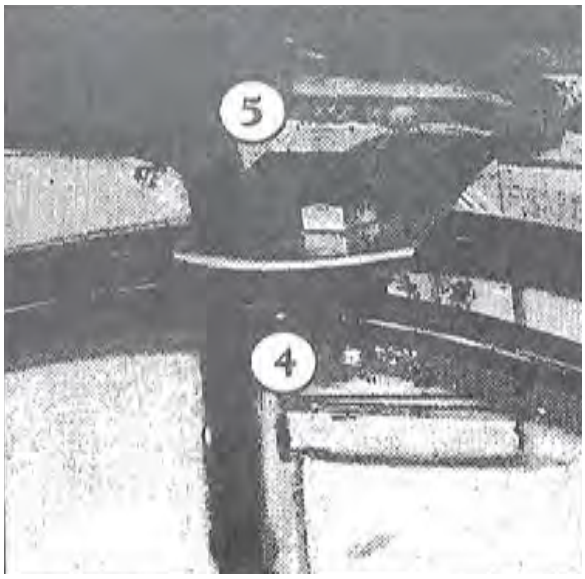


FIG. F



Figures D, E, & F - Hydraulics

1) On the left hand, rear, side of the center section, (Fig. D), connect the 2 - 1/2" x 36" hoses (#1) through 1/4" tees (#2) to 2 - 1/4" x 112" hoses (#3) and (#3A). (For Model 1200 2 - 1/4" x 112" long hoses are connected directly to 1/4" x 90° swivel fitting on cylinder.) (For the 1650, these hoses are 88" long). The outboard ends of the hoses are then connected to the STA cylinder with 1/4", 90°, M-F swivel fittings.

Important - Attach the top lines (#3) to the top ports of all three cylinders, and the bottom lines (#3A) to the bottom ports of the cylinders. The hoses are held in place on the center section and moldboards with hose clamps (#4) and the bolts used to attach the top of the moldboards. A hose mounting bracket, (^5, Fig. F) secures the hoses at the hinge joint to keep them from being pinched when the wings are folded. The hoses are held to the bracket with a hose clamp (^4) and a 1/2" x 1" machine bolt.

2) On the right-hand side of the center section, 1/4" x 6" nipples (#6) are attached to the 1/4" tees, and to the 112" hoses through a second set of 1/4" tees. The outboard ends of the 112" hoses are assembled to the right-hand wing STA cylinder with 1/4" - 90° swivel fittings, again being sure the top hose (^3) leads to the top port of the cylinder, and the bottom hose (#3A) to the bottom port.

3) Two 18" hoses (^7) run from the tees to the center section cylinder (Fig. E) and are attached with 1/4" x 90° swivel fittings.

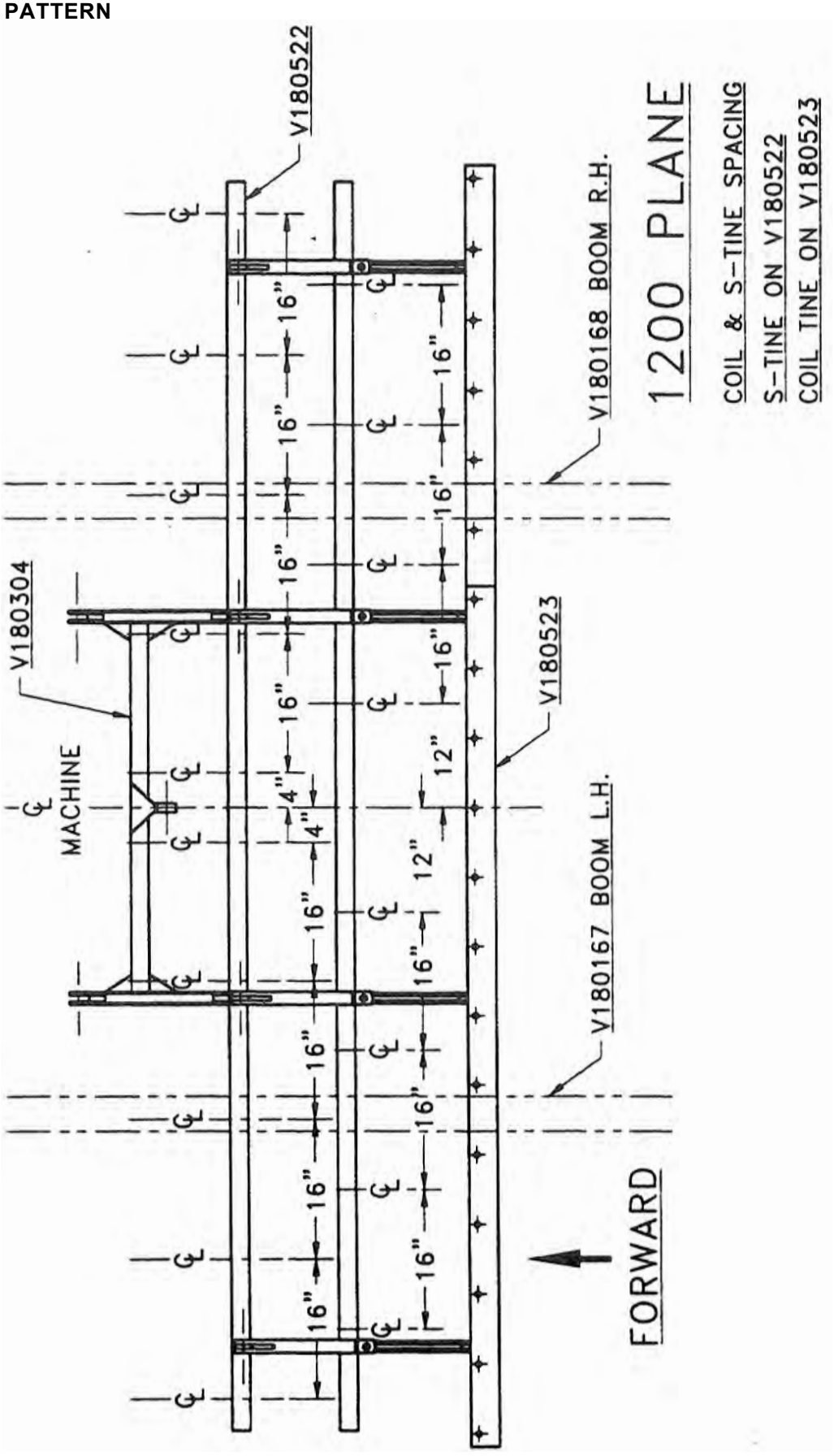
4) Referring back to Figure C, the tines (^2) can now be mounted on the frame (^1). A 3/8" x 1-1/2" plow bolt attaches the reversible shovel (#4) to the tine, and a 1/2" x 3-1/2" carriage bolt is used to secure the tine and clamp (^3) to the frame. Thoroughly tighten these bolts.

See pages 30, 31, 32, and 33 for proper spacing of tines to avoid interference between the tines and the rear booms.

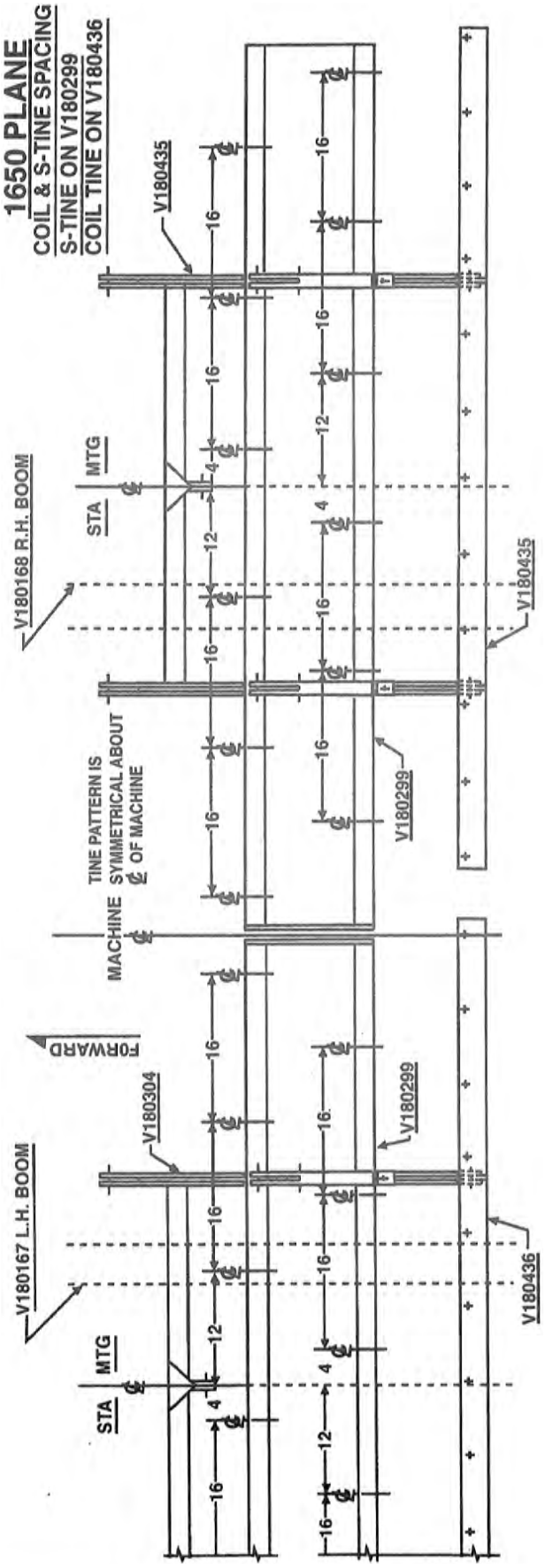
5) Set the adjustment pins (^10, Fig. B) on the anchor bars to regulate the depth of the tines. The teeth can "float" approximately 2" vertically in operation.

Note: To maintain consistent depth of the three STA frames, STA cylinders must be fully extended during operation. The depth is controlled mechanically - by adjustment of the V180554 pins in the brackets (refer to Figure B, page 26).

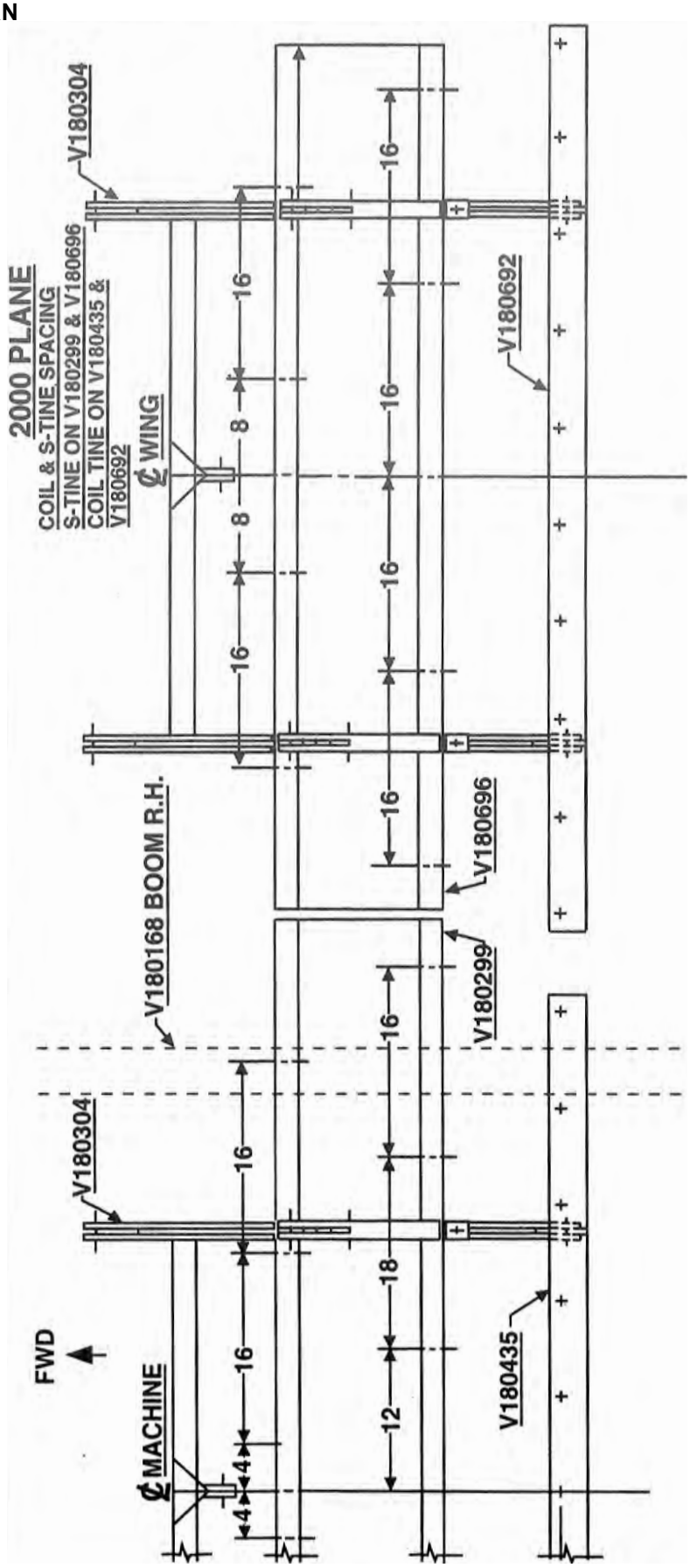
1200 TINE PATTERN



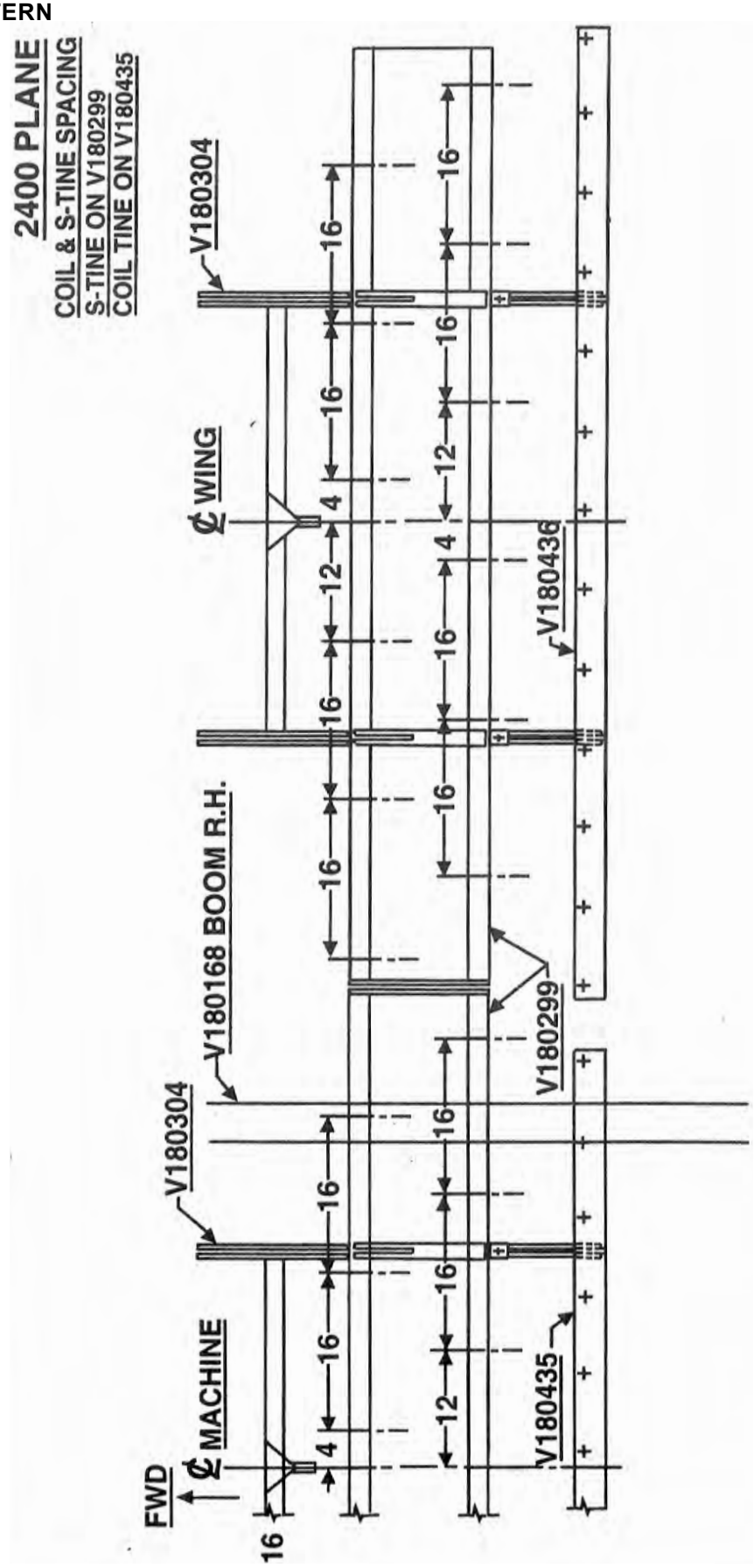
1650 TINE PATTERN



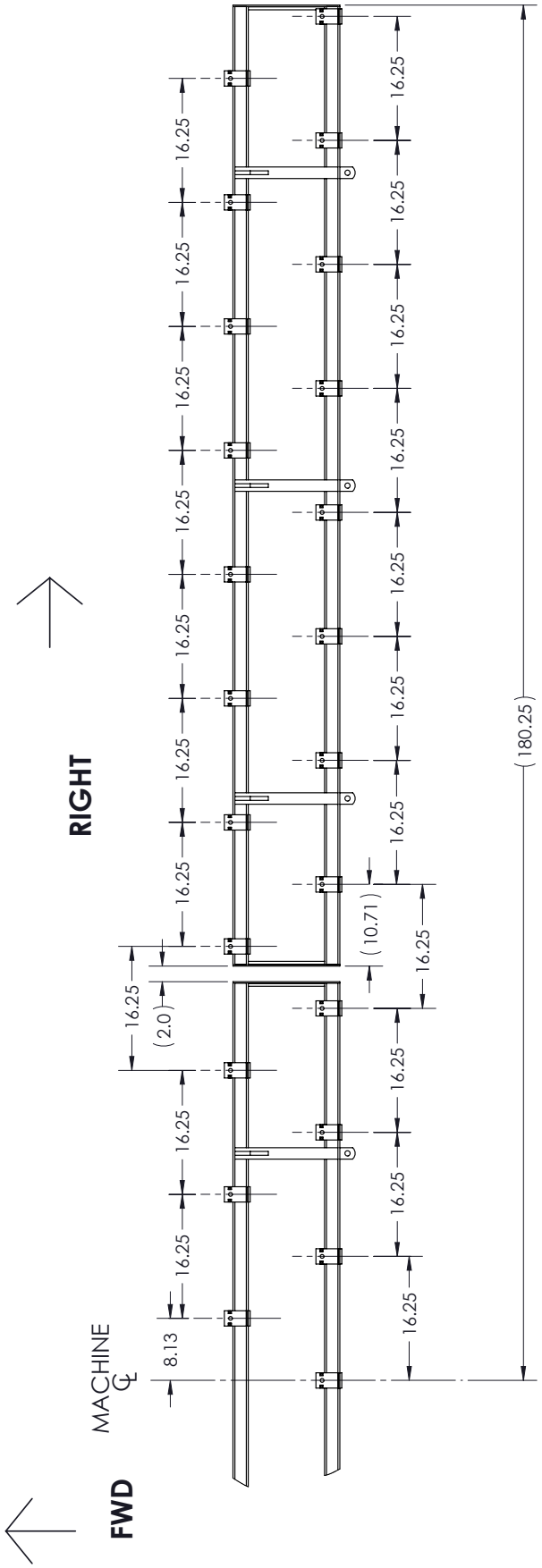
2000 TINE PATTERN



2400 TINE PATTERN



3000 TINE PATTERN



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SHUT-OFF VALVE, KIT NO. V180582, 2000-2400 PLANES

On the Model 2400 Planes, effective Serial No. 1506; and on all Model 2000 Planes, a change has been made in the hydraulic controls of the wing lift cylinder and the springtine attachment cylinders. This installation is required for tractors with two control valves. One valve is used to operate the depth control cylinder, while the other controls the wing lift cylinder or the springtine attachment cylinders by utilizing the shut-off valve.

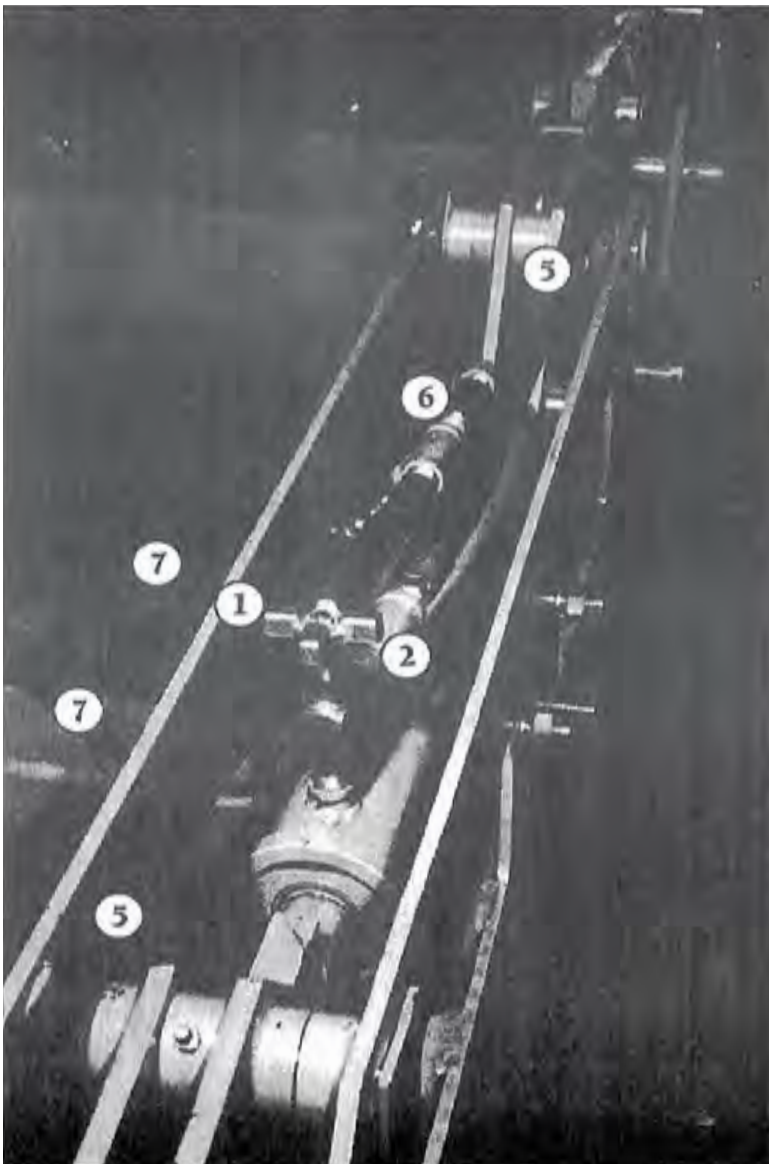


FIG. A

ITEM NO.	DESCRIPTION
1	Shut-Off Valve (V180583)
2	1/2" Tee (V623020)
3	1/2" x 1-1/8" Nipple (V626605)
4	1/2" x 1/4" Bushing (V620025)
5	1/2" x 72" Hose (166160)
6	Restrictor (V180624)
7	1/4" x 30" Hose (V180434)
8	1/4" Swivel Fitting (V612032)

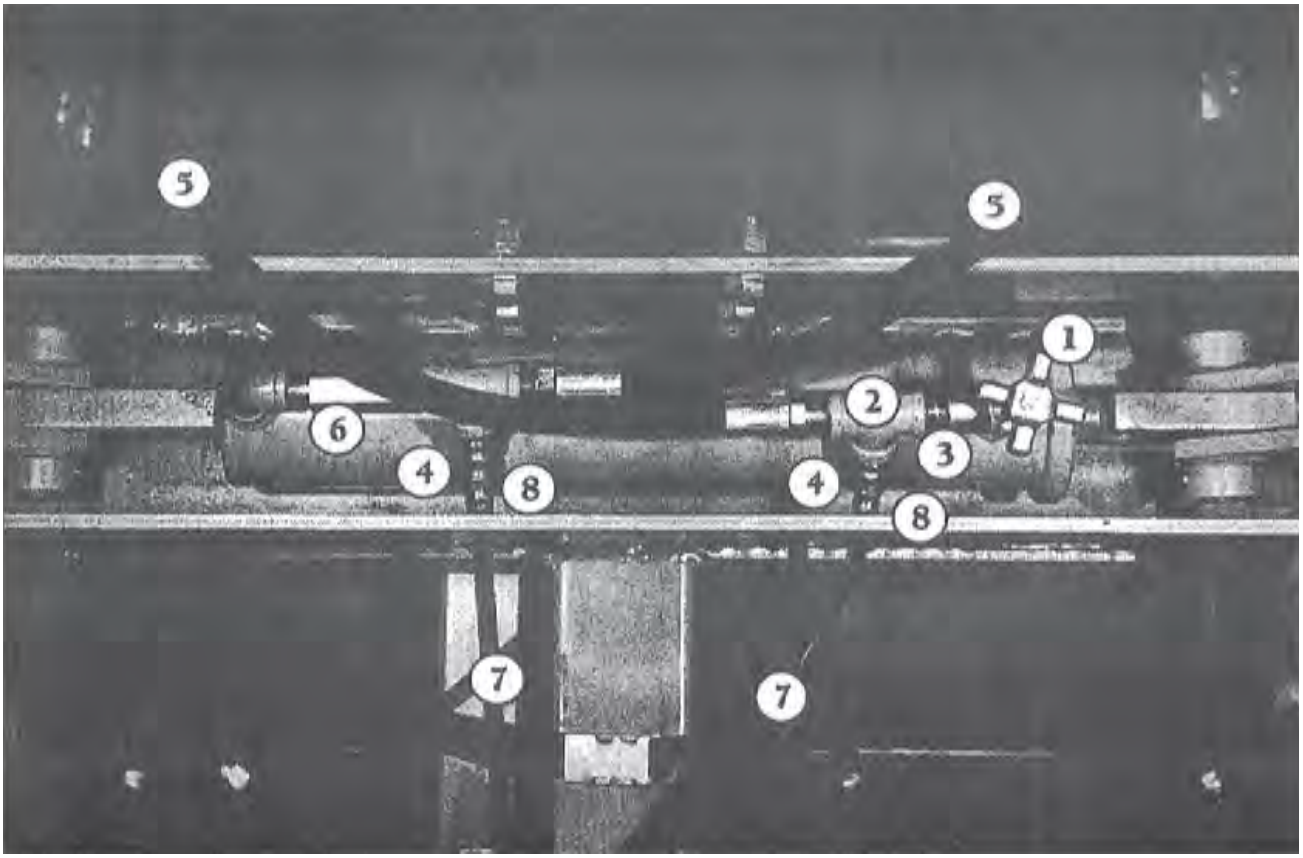


FIG. B

Assembly

1) Mount shut-off valve (#1) on right (rod end) of wing lift cylinder with close nipple (#3) and 1/2" tee (#2).

2) Attach 1/2" x 72" hose (#5) from tee to tractor.

3) At fixed end of cylinder, connect restrictor (#6) to 1/2" x 90° street elbow and 1/2" tee. A 1/2" x 72" hose (#5) leads from tee to tractor.

4) Using 1/2" x 1/4" bushings (#4) and 1/4" swivel fittings (#8), attach 1/4" x 30" hoses (#7) to 1/2" tees.

Operation

1) Lift Plane to transport position with depth control cylinder.

2) Open shut-off valve one turn only and raise or lower wings.

3) Build up pressure in wing lift cylinder and close valve. With valve closed, STA will operate up or down for field operation.

ASSEMBLY INSTRUCTIONS, LIMITER KIT NO. V180895

This kit should be installed on all Plane models when operating in trashy, moist, loose soil conditions if one side of the moldboard starts to overload. This device limits the travel in the floating hitch and utilizes the tractor to assist the plane rear wheels to stabilize the bucket. Dual rear wheels on the plane are also recommended under these difficult conditions.

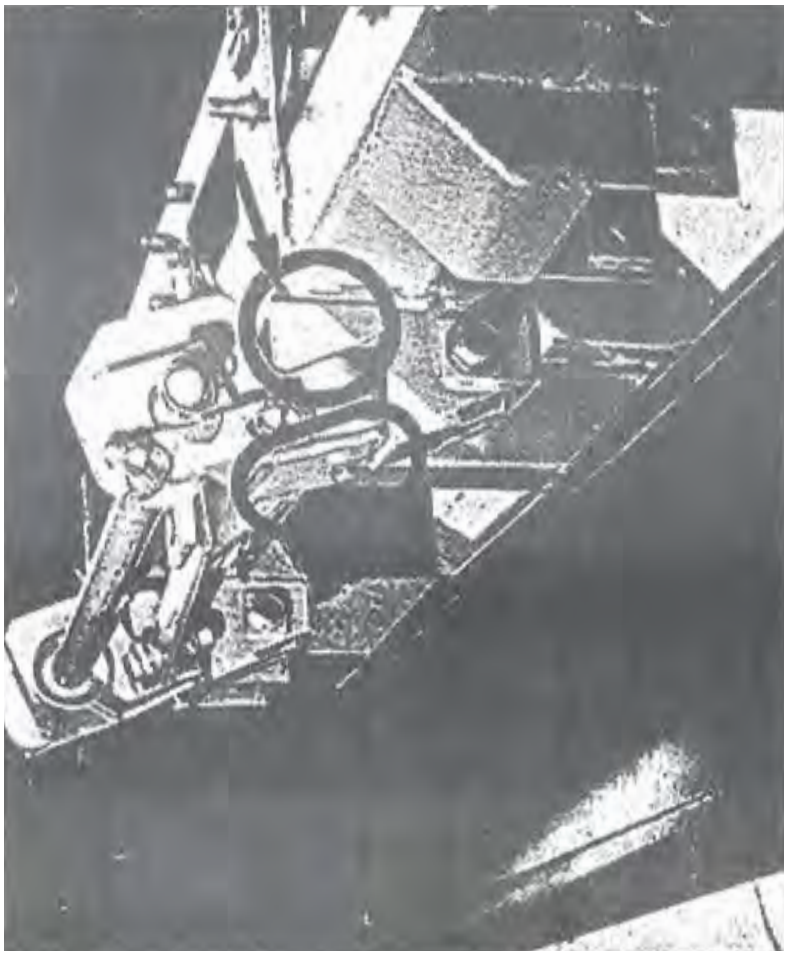


FIG. C

FIG. D

Installation

a) First be travel in the tractor side is locked out by whatever are provided on the tractor.

b) Unhook top link from Plane mast and lower tractor lift arms as far as possible.

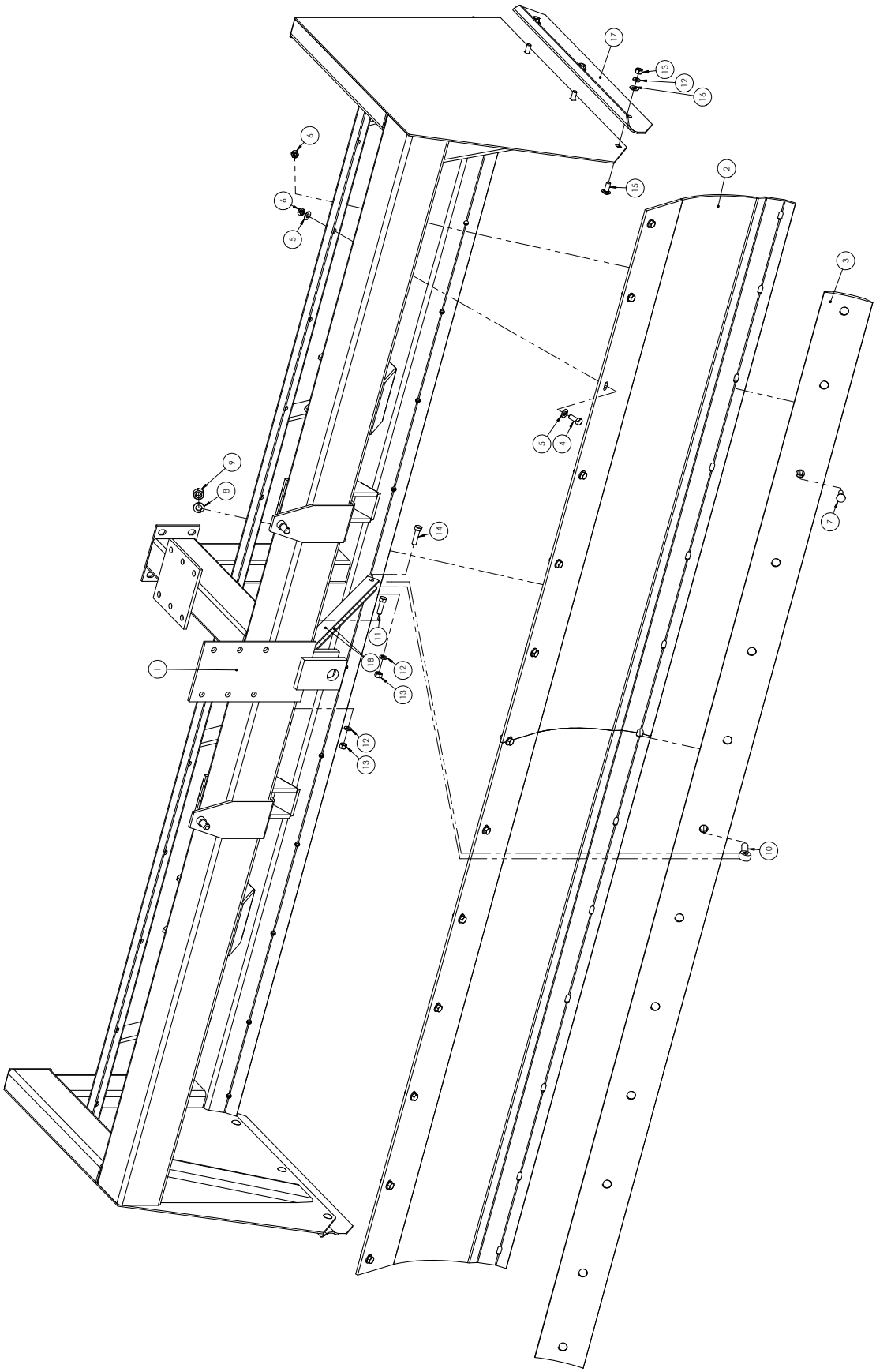
c) Place V-blocks in opening between hitch plates and frame.

d) Secure blocks with bars under hitch plates and 5/8" x 5" bolts. Using 5/8" lock washer, thoroughly tighten bolts into threaded holes in V-blocks.

e) Re-hook top link to proper hole in mast.

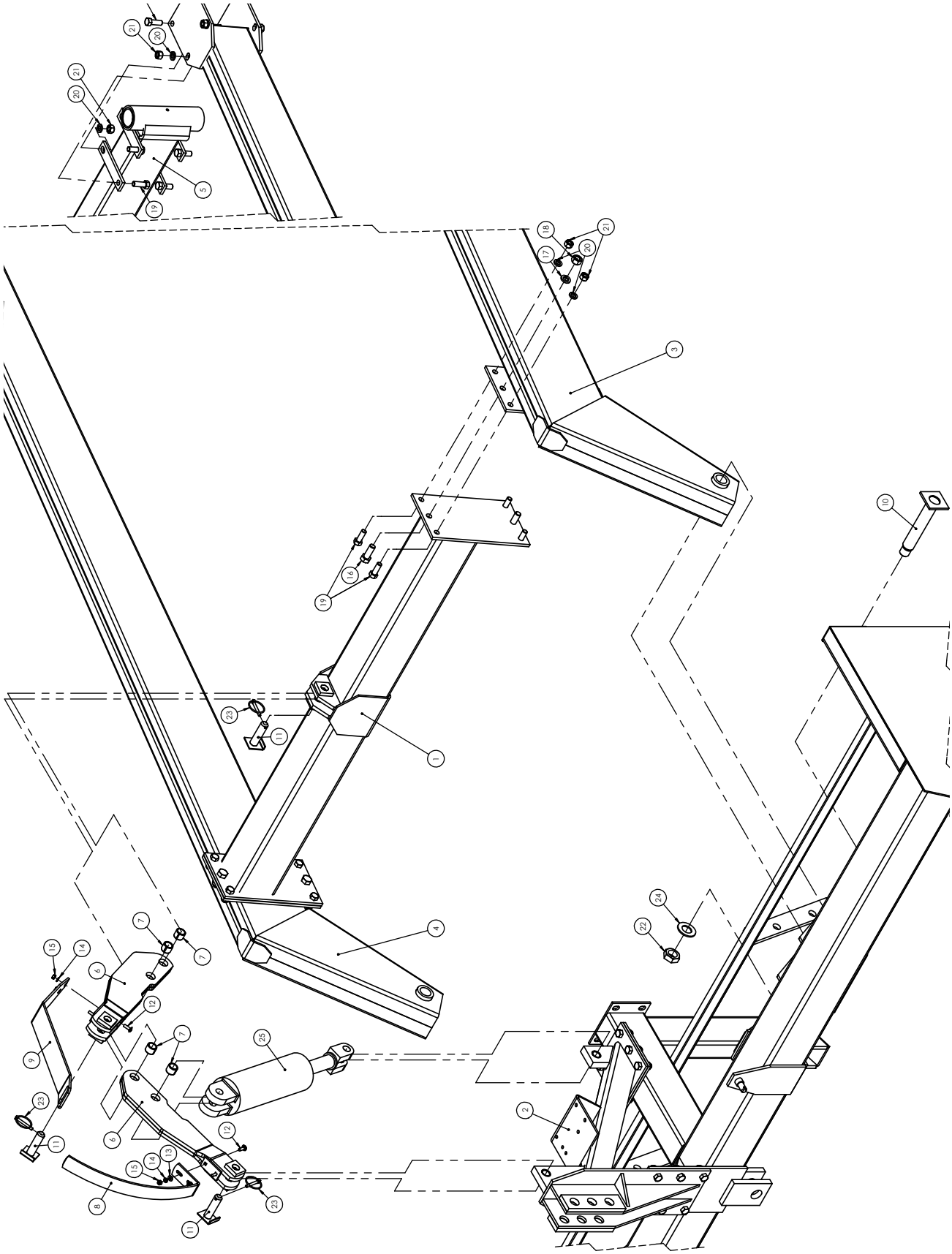
ILLUSTRATED PARTS LIST: V1200-V1650 (V1200 MODEL PICTURED)

MOLDBOARD ASSEMBLY



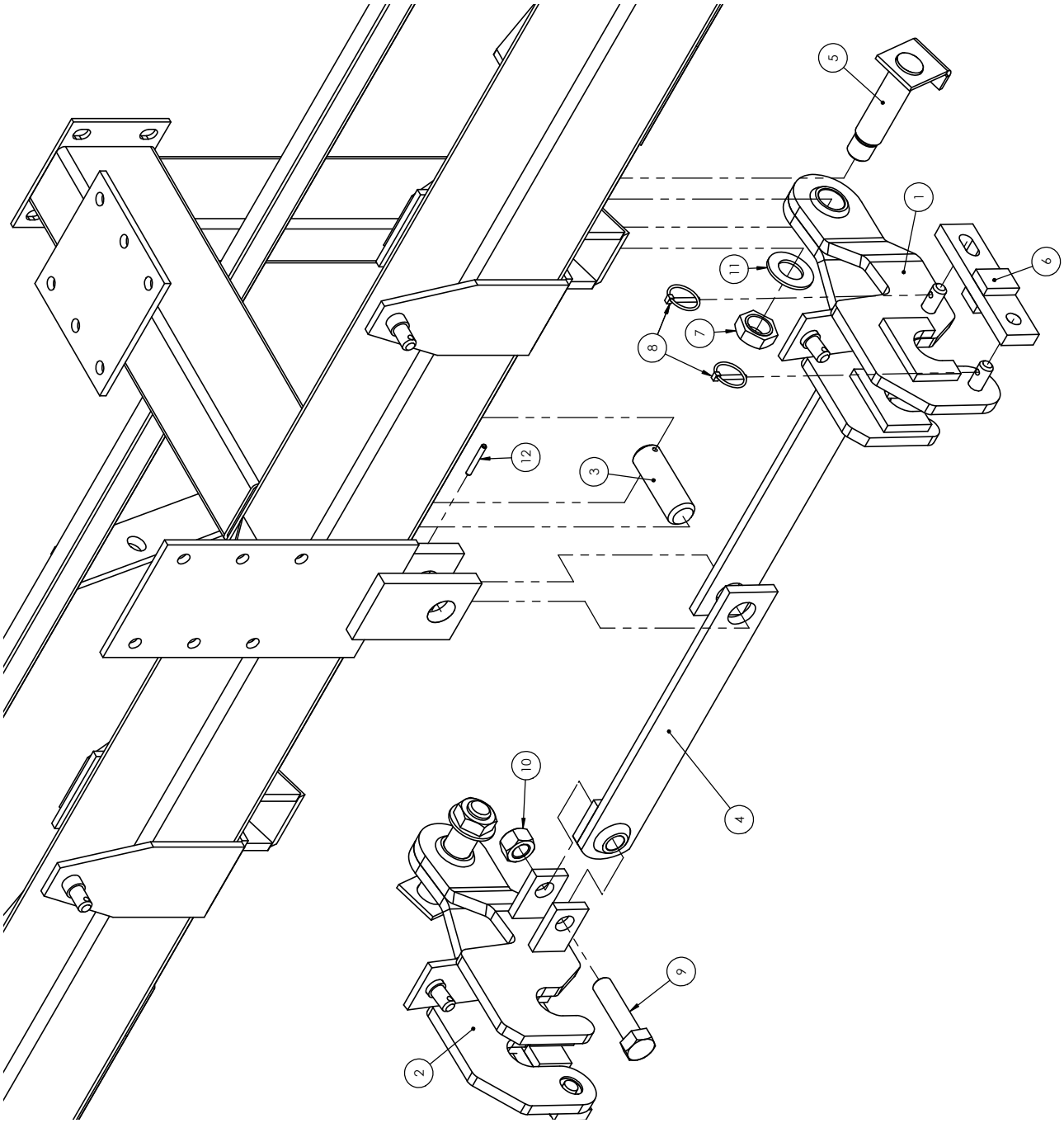
ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 1200	QTY. 1650
1	V180501	WLDT, FRAME	1	-
1	V180562	WLDT, FRAME	-	1
2	V180510	MOLDBOARD WLDT,	1	-
2	V180529	MOLDBOARD, LH	-	1
2	V180530	MOLDBOARD, RH	-	1
3	V306210	BIT, REVERSIBLE 12’	1	-
3	V180560	BIT, REVERSIBLE 16’	-	1
4	010730	HBOLT 1/2-13 x 1.25” GR5 ZN	13	
5	005200	WASHER, FLAT 1/2 STD	26	
6	127890	HLNUT 0.5000-13-D-N	25	
7	V059779	BOLT, PLOW 1/2-13 X 1-3/4	12	
8	036800	WASHER, LOCK 3/4 SAE ZN	5	
9	036750	NUT, HEX 3/4-10	5	
10	V301410	BOLT, EYE 3/4-10 x 3	1	
11	V055216	BOLT, 1/2-13 x 1-3/4 Gr5 ZN	1	
12	005370	WASHER, LOCK 1/2 ZN	8	
13	005360	NUT, HEX, 1/2” Z5	8	
14	V055218	BOLT, HHCS 1/2-13 x 2 Gr5 ZN	1	
15	030470	BOLT, CRG 1/2-13 x 1-1/4 SSN Gr5 ZN	6	
16	005200	WASHER, FLAT 1/2 STD	6	
17	V180253	PLATE, HF WEAR	2	
18	V440514	BAR, DRAWBAR	2	

BOOMS ASSEMBLY



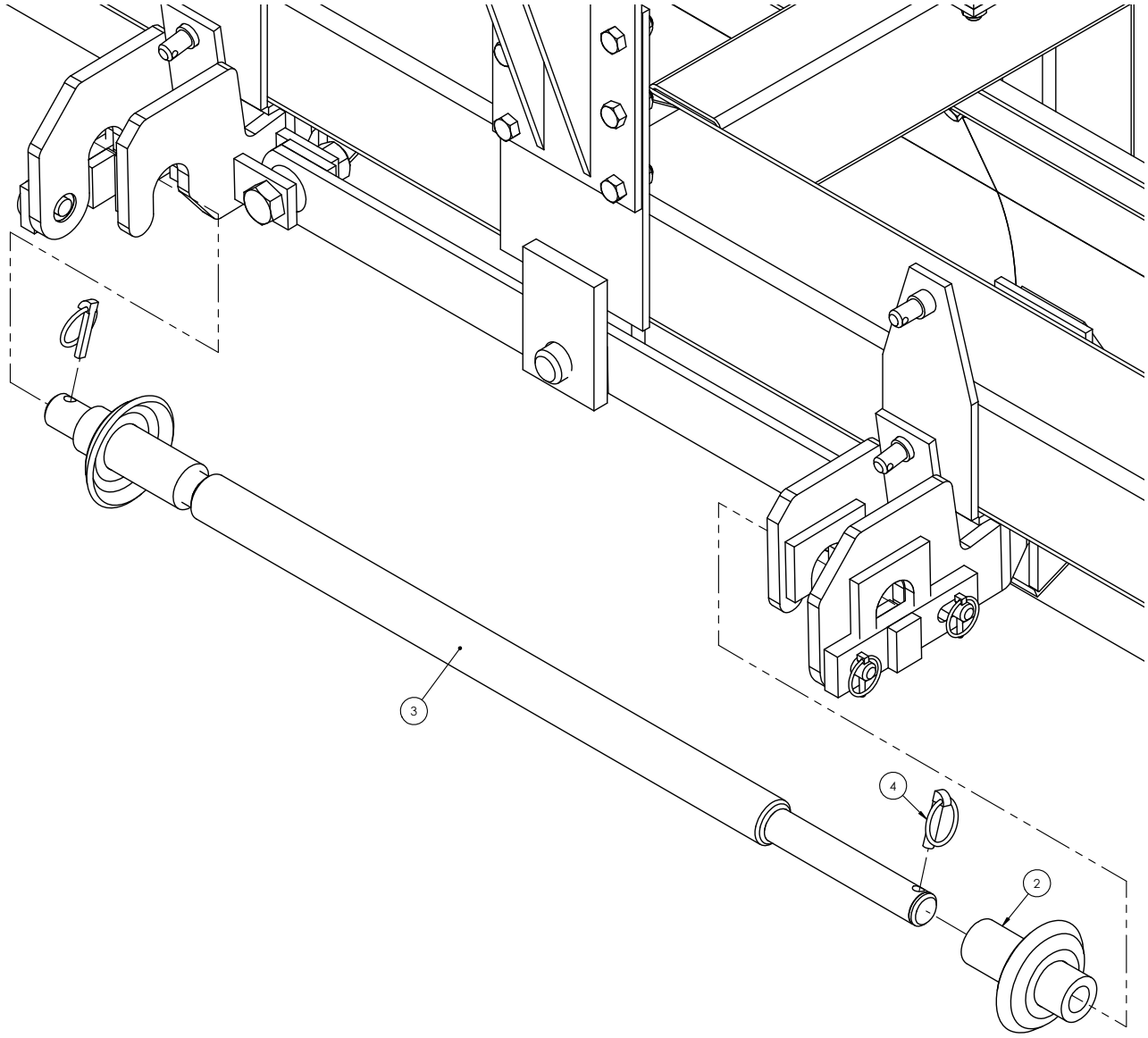
ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 1200	QTY. 1650
1	V180455	WLDT, FRONT	1	1
2	V180204	MAST WDLT	1	1
3	V180167	BOOM WLDT LH	1	1
4	V180168	BOOM WLDT RH	1	1
5	V180399	CROSS WLDT, V1200	1	-
	V180186	CROSS WLDT, V1650	-	1
6	569840	ARM WLDT,	1	1
7	V180220	BUSHING, STEEL 1X1-1/4X1	2	2
8	V180543	STRIP, GAUGE DECAL	1	1
9	V180542	STRIP, GAUGE	1	1
10	V180243	WLDT, BOOM PIN	2	2
11	V180647	WLDT, CLEVIS PIN	3	3
12	254060	RHSSNBOLT 0.3125-18X1X1-N	4	4
13	022920	FW .3125	2	2
14	023620	WASHER, LOCK 5/16 ZN 5	4	4
15	023630	NUT, HEX 5/16-18 GR5 ZN	4	4
16	V061704	HBOLT 0.7500-10X2.5X2.5-N	4	4
17	036800	WASHER, LOCK 3/4 SAE ZN	5	5
18	036750	NUT, HEX 3/4-10	5	5
19	025100	HBOLT 0.6250-11X1.75X1.75-N	36	36
20	020440	WASHER, LOCK 5/8	36	36
21	020450	NUT, HEX 5/8-11	36	36
22	V066516	NUT, JAM 1-1/4-12	4	4
23	V043065	PIN, SNAP RING	3	3
24	E829022	FW 1.25	2	2
25	510640	CYLINDER, HYD	1	1
	V401052	SEAL KIT (YELLOW/OLD)	1	1
	386650	SEAL KIT (BLACK/NEW)	1	1

HITCH ATTACH ASSEMBLY



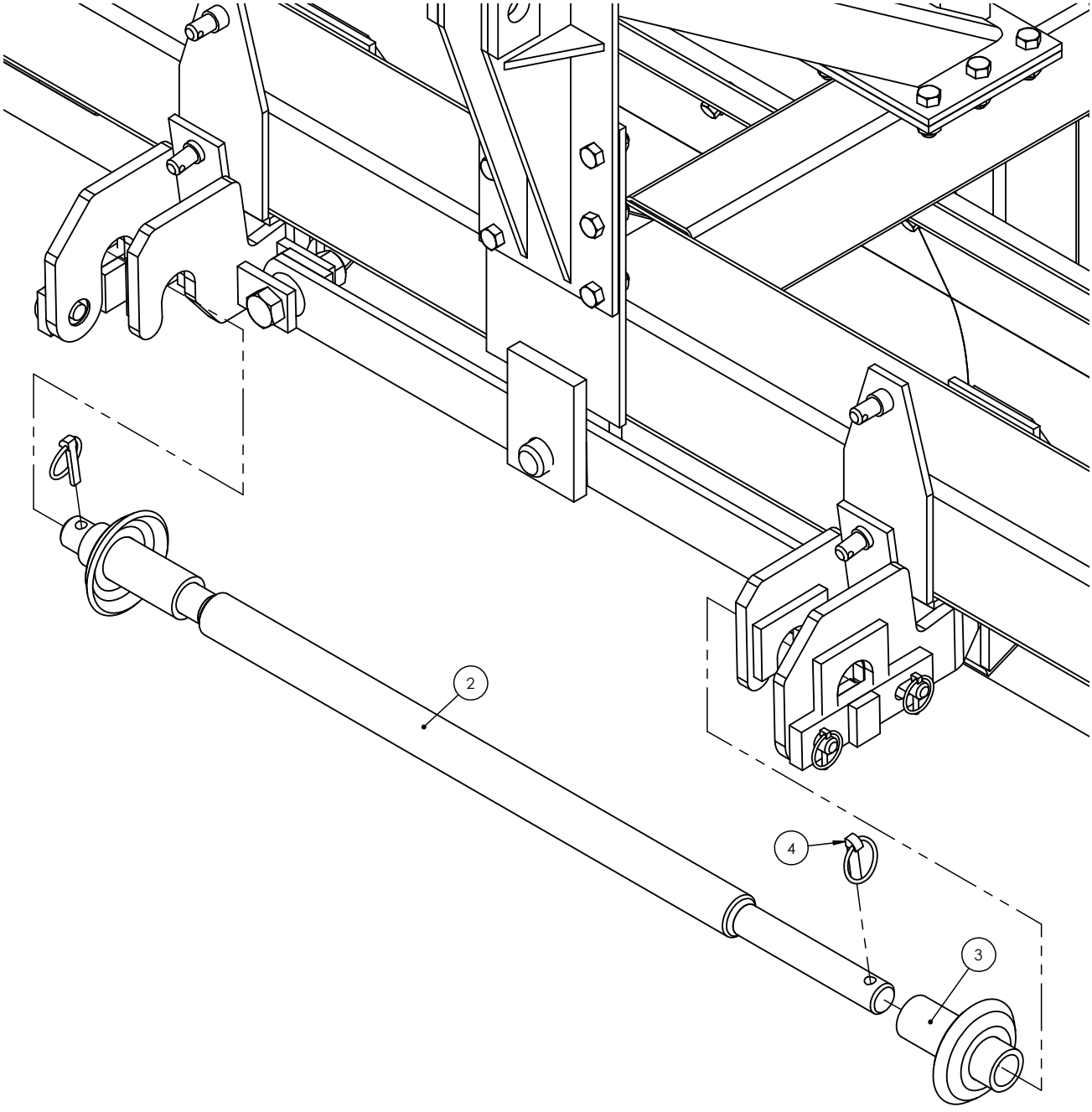
ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 1200	QTY. 1650
1	V180375	PLATE WLDT, LH	1	
2	V180376	PLATE WLDT, RH	1	
3	V180377	PIN CTR	1	-
3	V180629	PIN CTR	-	1
4	V180378	WLDT, CROSS LINK	2	
5	V180429	WLTD, HITCH PLATE MTG, PIN	2	-
5	V180538	WLTD, HITCH PLATE MTG, PIN	-	2
6	V180366	BAR WLDT	2	
7	V066516	NUT, JAM 1-1/4-12	2	-
7	V043065	5/16” LINCH PIN	-	2
8	R66461	PIN, SNAP-RING	4	
9	V055634	HBOLT 1.00-8x4 Gr5	2	
10	147310	NUT, HEX 1-14 Gr5 ZN	2	
11	E829022	FW 1.25	2	-
12	013600	PIN, ROLL .25 x 2	1	-
12	V043065	5/16” LINCH PIN	-	1

HITCH ASSEMBLY, CATEGORY 2



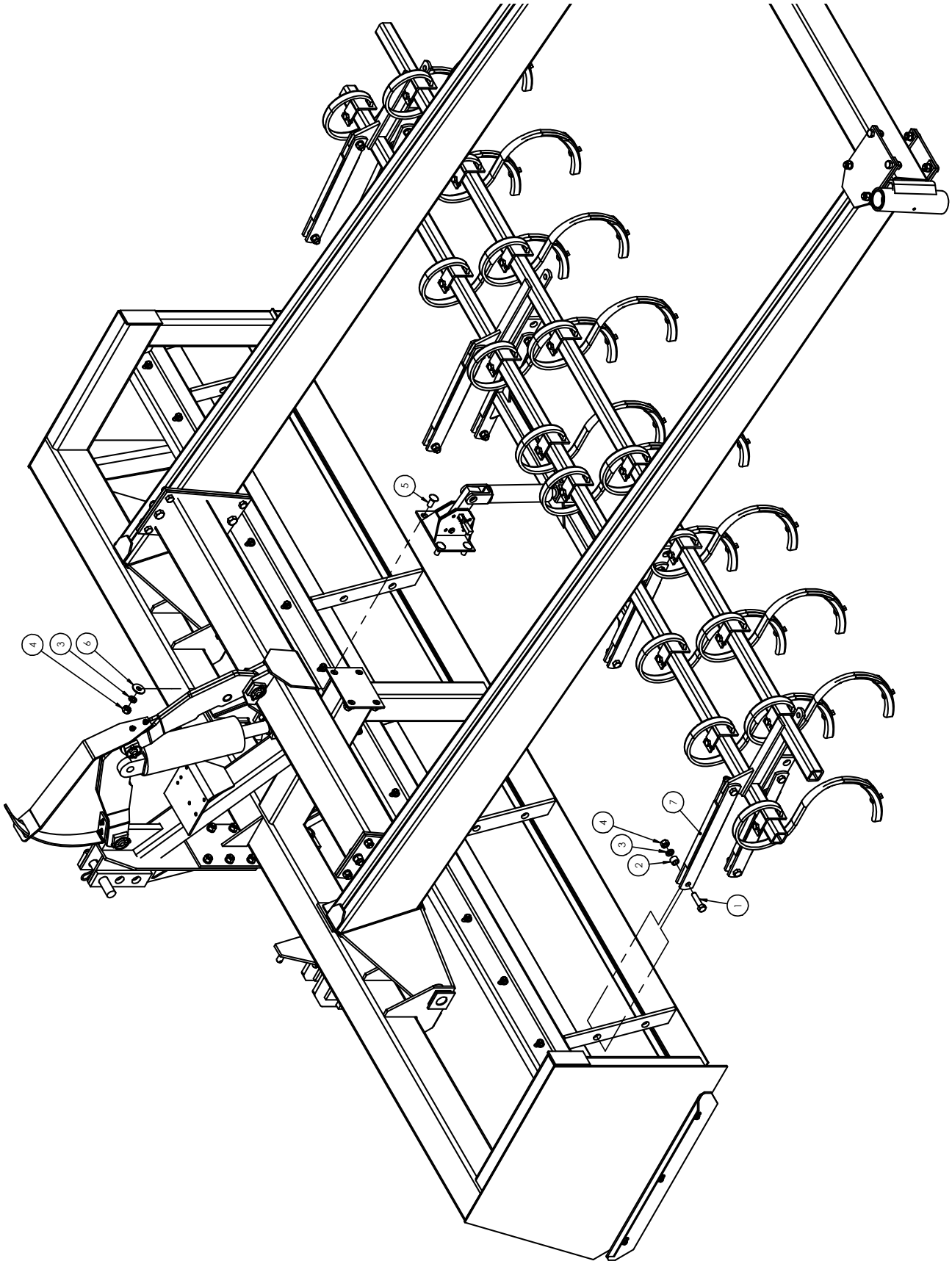
ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 1200	QTY. 1650
1	V180680	KIT, CAT2 HITCH BAR EXT	1	
2	V180668	HITCH GUIDE	2	
3	V180666	HITCH BAR, CAT 2 EXT	1	
4	V240437	LYNCH PIN, 7/16X2	2	

HITCH ASSEMBLY, CATEGORY 3N



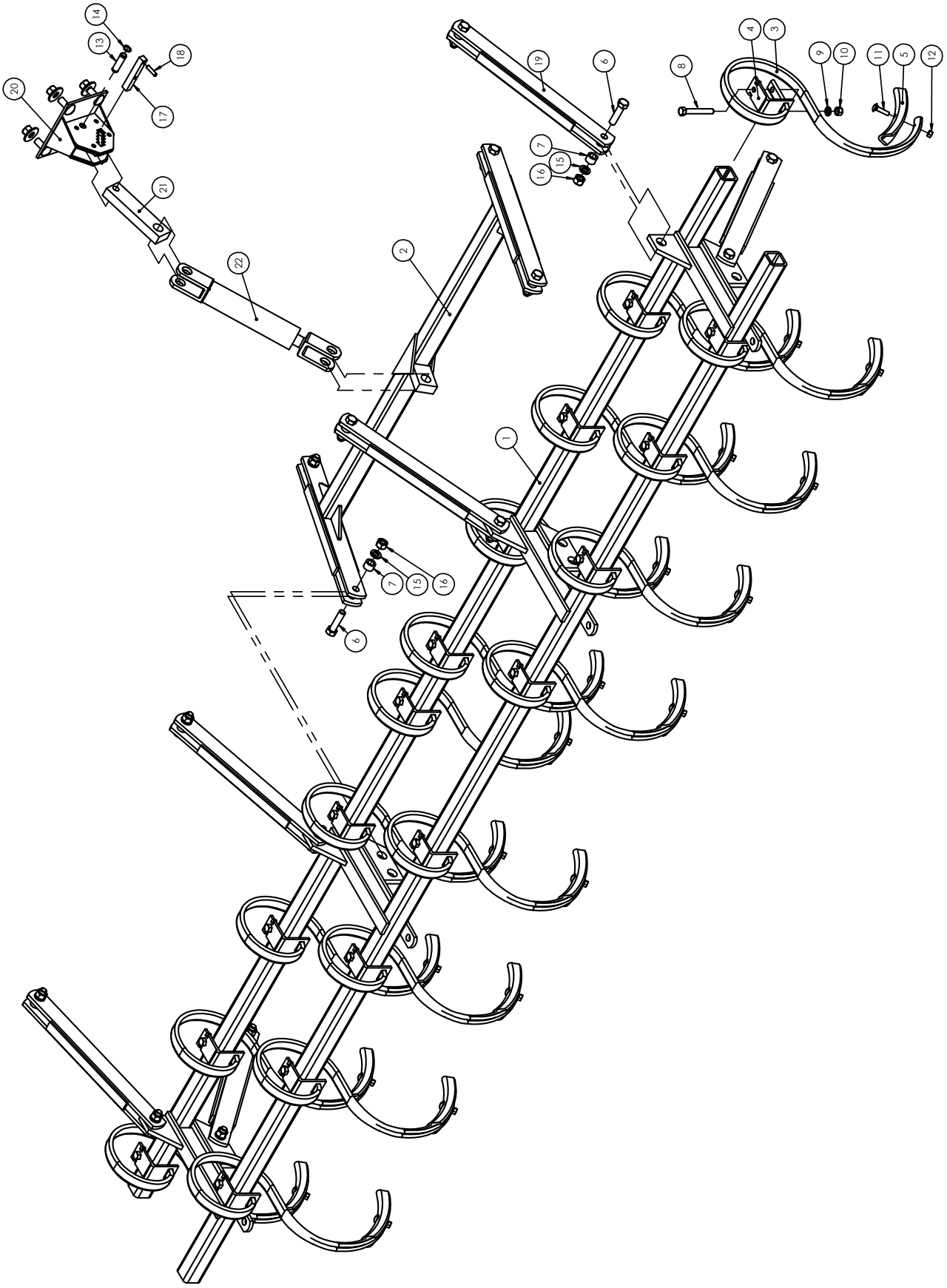
ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 1200	QTY. 1650
1	V180580	KIT, CAT 3N HITCH	1	-
1	V180615	KIT, CAT 3N HITCH	-	1
2	V180665	HITCH BAR, CAT 3N	1	
3	V180662	SLEEVE WDLT,	2	-
3	V180664	SLEEVE WDLT,	-	2
4	V240437	PIN, LYNCH 7/16 X	2	

S-TINE ASSEMBLY, FRAME



ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 1200	QTY. 1650
1	023110	HHCS 5/8-11 X 2.5 GR5 ZN	16	
2	V180330	BUSHING 5/8 ID X 1 OD X 11/16 LG	16	
3	020440	WASHER, LOCK 5/8	20	
4	020450	NUT, HEX 5/8-11	20	
5	I467657R1	BOLT, CRG 5/8-11 X 2-1/4 GR5 ZN	4	
6	020430	WASHER,FLAT 5/8 STD	4	
7	V180306	MOUNTING ARM,	6	

S-TINE ASSEMBLY



ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 1200	QTY. 1650
1	V180522	FRAME WLDT,	1	-
1	V180299	FRAME WLDT,	-	1
2	V180304	LIFT LINK WLDT	1	
3	V180423	S-TINE	18	
4	V180425	CLAMP, S-TINE	18	
5	V180424	POINT	18	
6	023110	HHCS 5/8-11 X 2.5 GR5 ZN	16	
7	V180330	BUSHING 5/8 ID X 1 OD X 11/16 LG	16	
8	1770608	HHCS, 1/2-13 X 3.25, G5, ZN	18	
9	005370	WASHER, LOCK 1/2 ZN	18	
10	005360	NUT, HEX, 1/2" Z5	18	
11	V059727	BOLT, CRG 3/8-16 X 1-1/2 SSN GR5 ZN	18	
12	027260	NUT, HEX 3/8-16 GR5 ZN	18	
13	V180391	PIN, STA PIVOT	1	
14	1040970	RING, RETAINING EXTERNAL 5/8	2	
15	020440	WASHER, LOCK 5/8	20	
16	020450	NUT, HEX 5/8-11	20	
17	V180640	PIN, CYL. ANCHOR ADJ	1	
18	1030808	PIN, 5/16 X 1-1/4	2	
19	V180306	MOUNTING ARM,	6	
20	V180557	WLDT, STA CYL ADJ	1	
21	V180553	BAR, CYL. ANCHOR STA	1	

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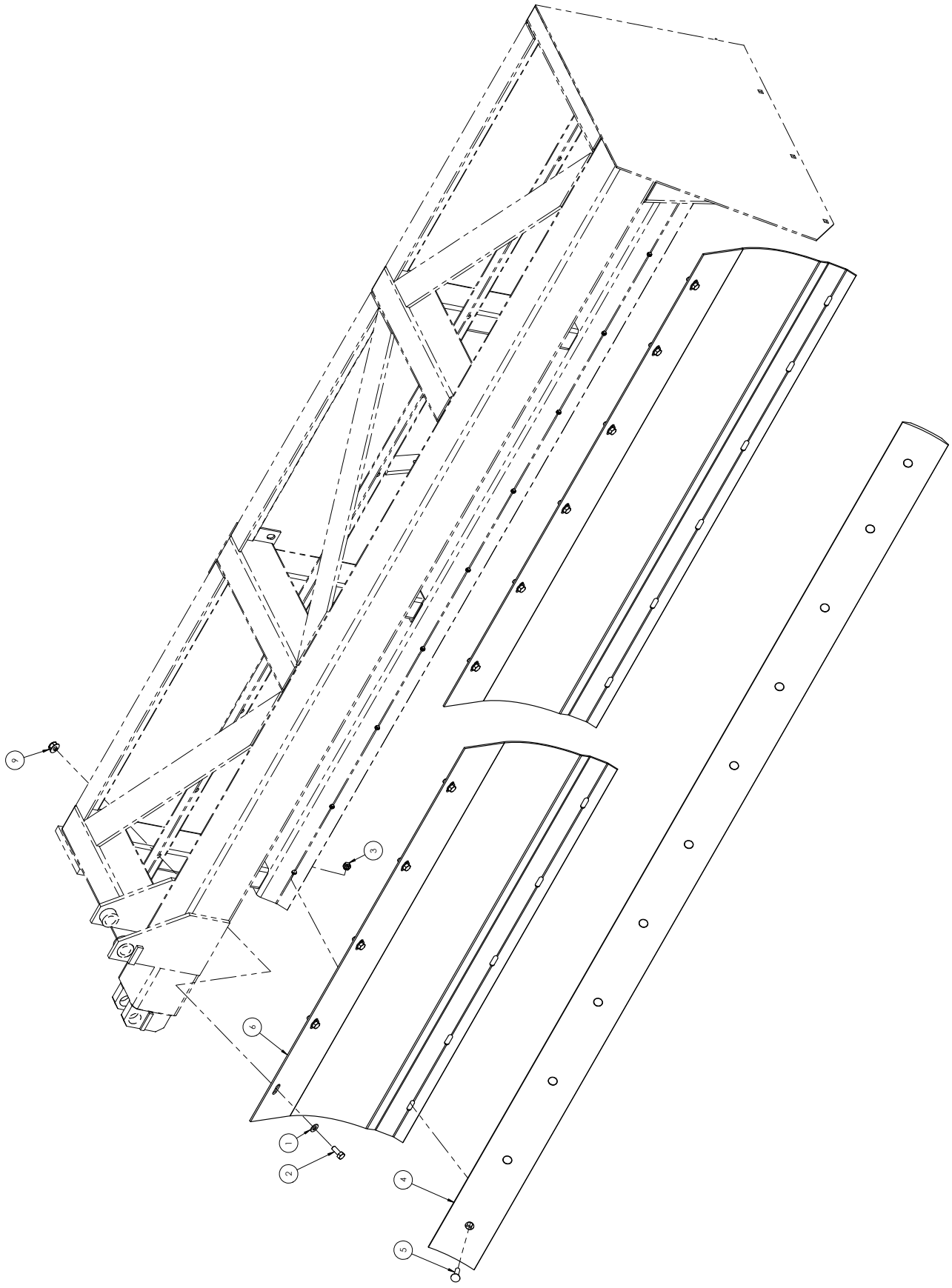
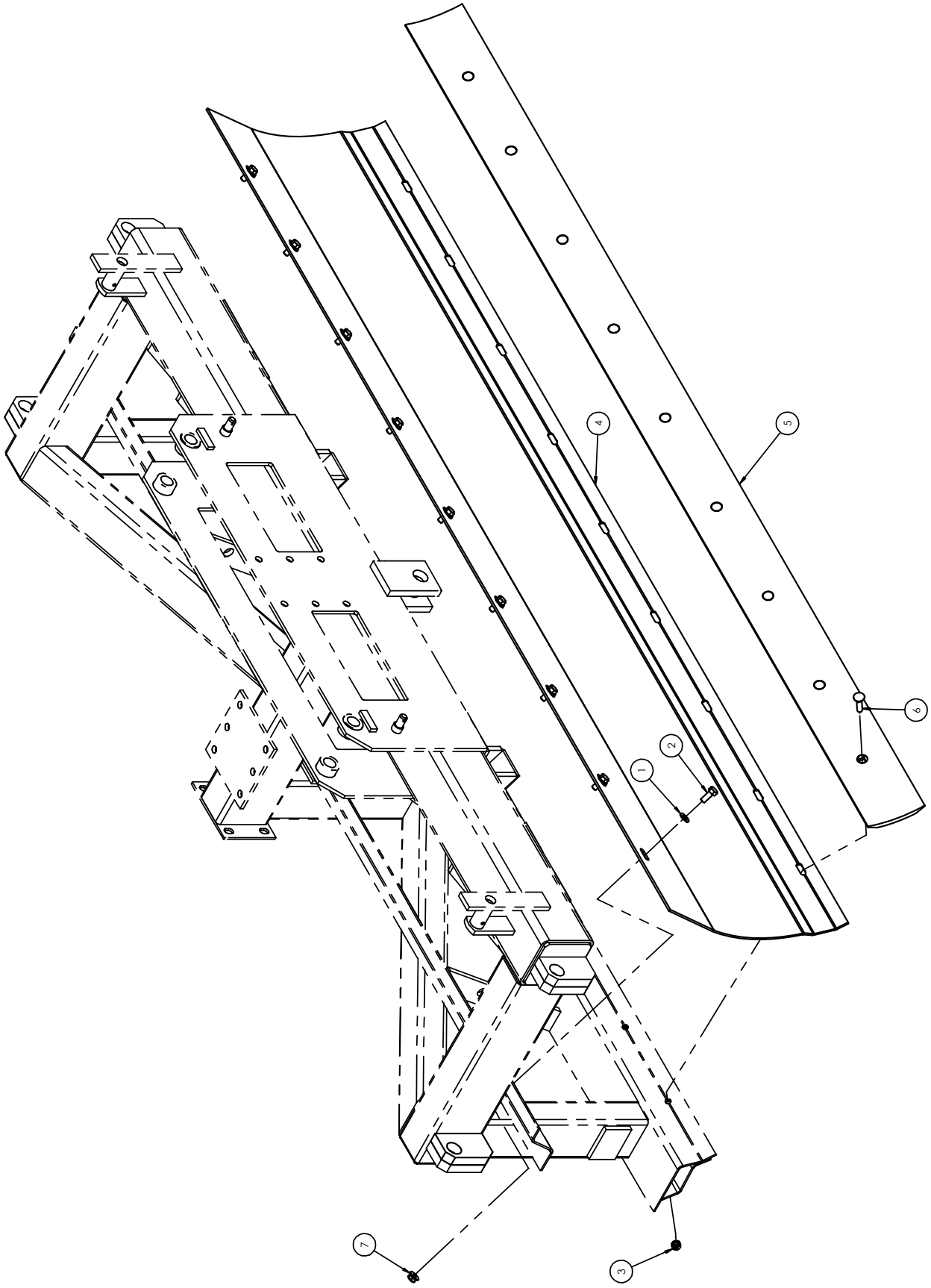
ILLUSTRATED PARTS LIST: V2000-V3000 (V3000 MODEL PICTURED)

MOLDBOARD ASSEMBLY, LEFT



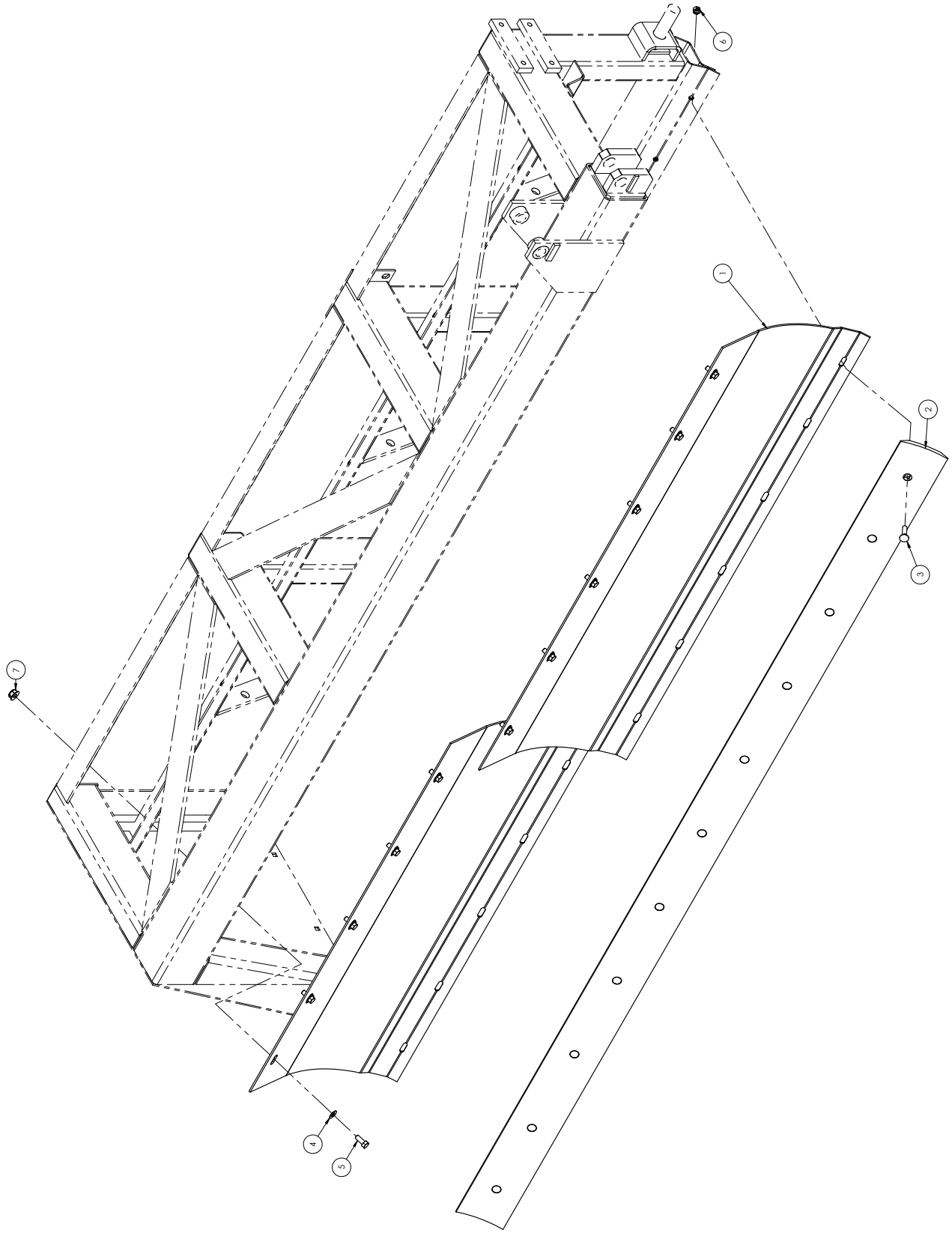
ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 2000	QTY. 2400	QTY. 3000
1	005200	WASHER, FLAT 1/2 STD			11
2	010730	HBOLT 1/2-13 x 1.25” GR5 ZN			11
3	127890	HLNUT 0.5000-13-D-N			11
4	599240	BIT, REVERSIBLE 125.5”	-	-	1
4	V168050	BIT, REVERSIBLE 96”	-	1	-
4	V166050	BIT, REVERSIBLE 72”	1	-	-
5	V059779	BOLT, PLOW 1/2-13 X 2			11
6	599190	MOLDBOARD, WING	-	-	1
6	V180260	MOLDBOARD, WING	-	1	-
6	V180690	MOLDBOARD, WING	1	-	-
9	600140	NUT, HFH NYLOC			11

MOLDBOARD ASSEMBLY, CENTER



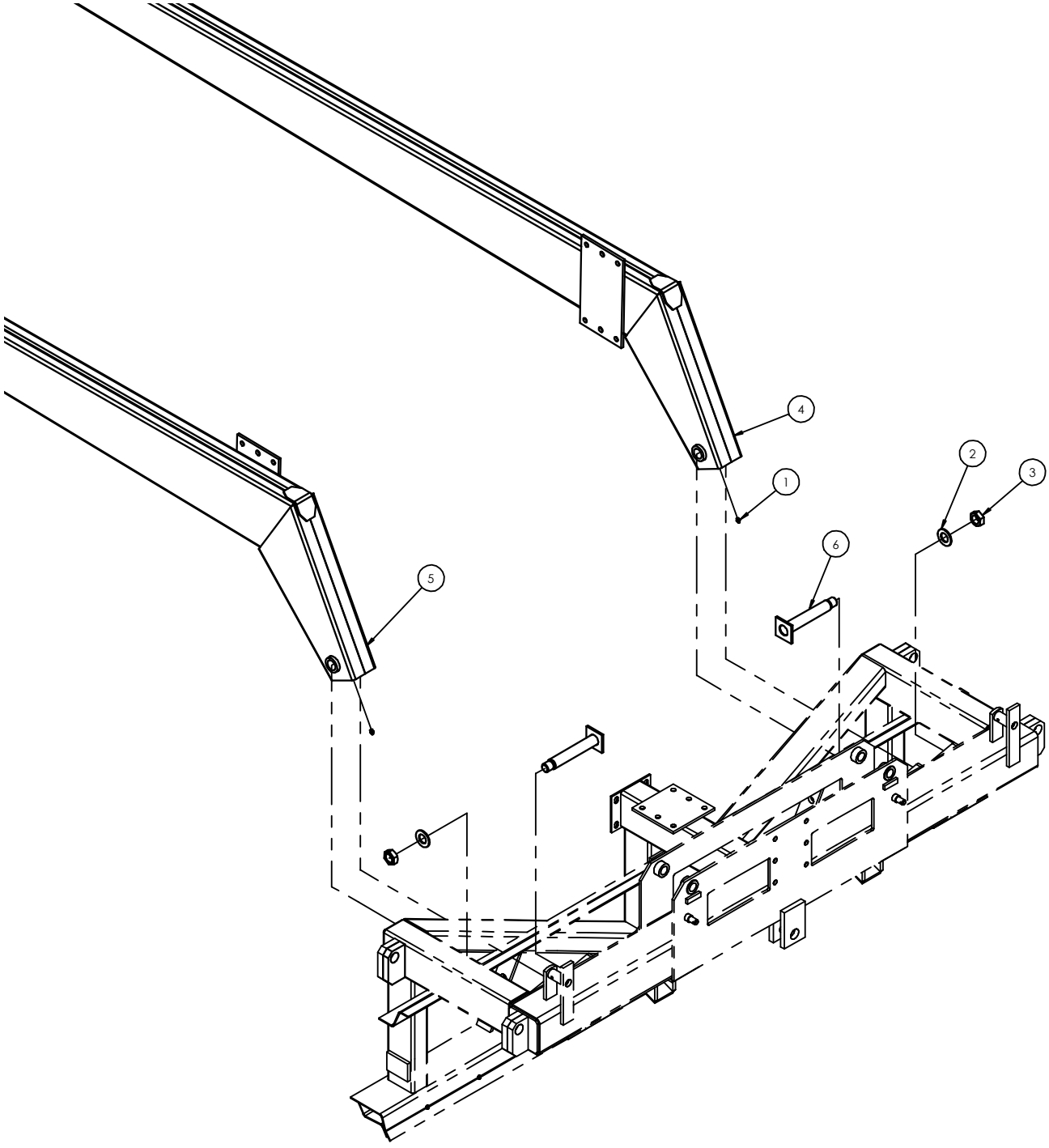
ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 2000	QTY. 2400	QTY. 3000
1	005200	WASHER, FLAT 1/2 STD			9
2	010730	HBOLT 1/2-13 X 1.25" GR5 ZN			9
3	127890	HLNUT 0.5000-13-D-N			9
4	599220	MOLDBOARD, CENTER	-	-	1
4	V180260	MOLDBOARD, CENTER	1	1	-
5	599230	BIT, REVERSIBLE 108"	-	-	1
5	V168050	BIT, REVERSIBLE 96"	1	1	-
6	V059779	BOLT, PLOW 1/2-13 X 2			9
7	600140	NUT, HFH NYLOC			9

MOLDBOARD ASSEMBLY, RIGHT



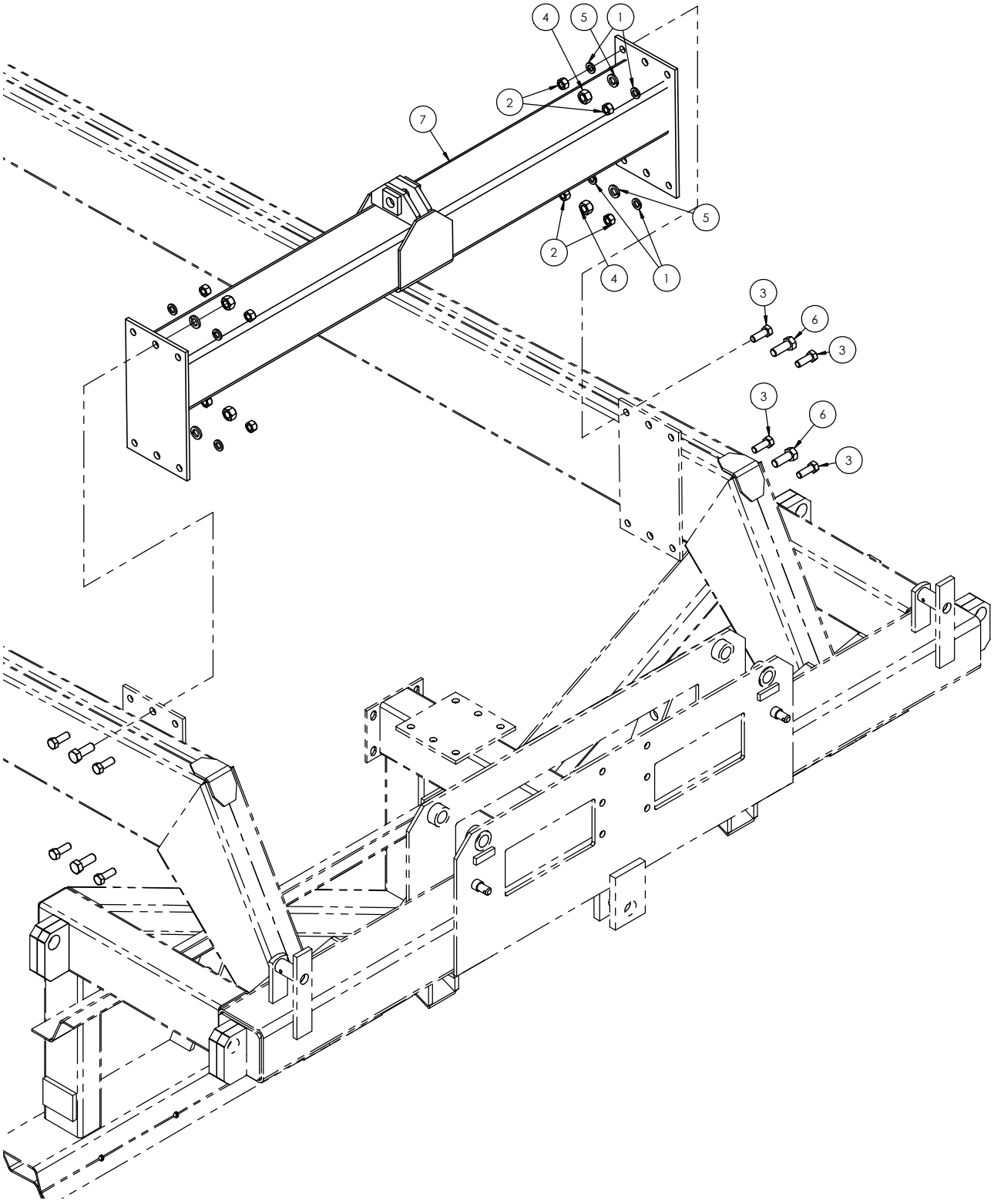
ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 2000	QTY. 2400	QTY. 3000
1	599190	MOLDBOARD, WING	-	-	1
1	V180260	MOLDBOARD, WING	-	1	-
1	V180690	MOLDBOARD, WING	1	-	-
2	599240	BIT, REVERSIBLE 125.5”	-	-	1
2	V168050	BIT, REVERSIBLE 96”	-	1	-
2	V166050	BIT, REVERSIBLE 72”	1	-	-
3	V059779	BOLT, PLOW 1/2-13 X 2			11
4	005200	WASHER, FLAT 1/2 STD			11
5	010730	HBOLT 1/2-13 x 1.25” GR5 ZN			11
6	127890	HLNUT 0.5000-13-D-N			11
7	600140	NUT, HFH NYLOC			11

BOOM ASSEMBLY



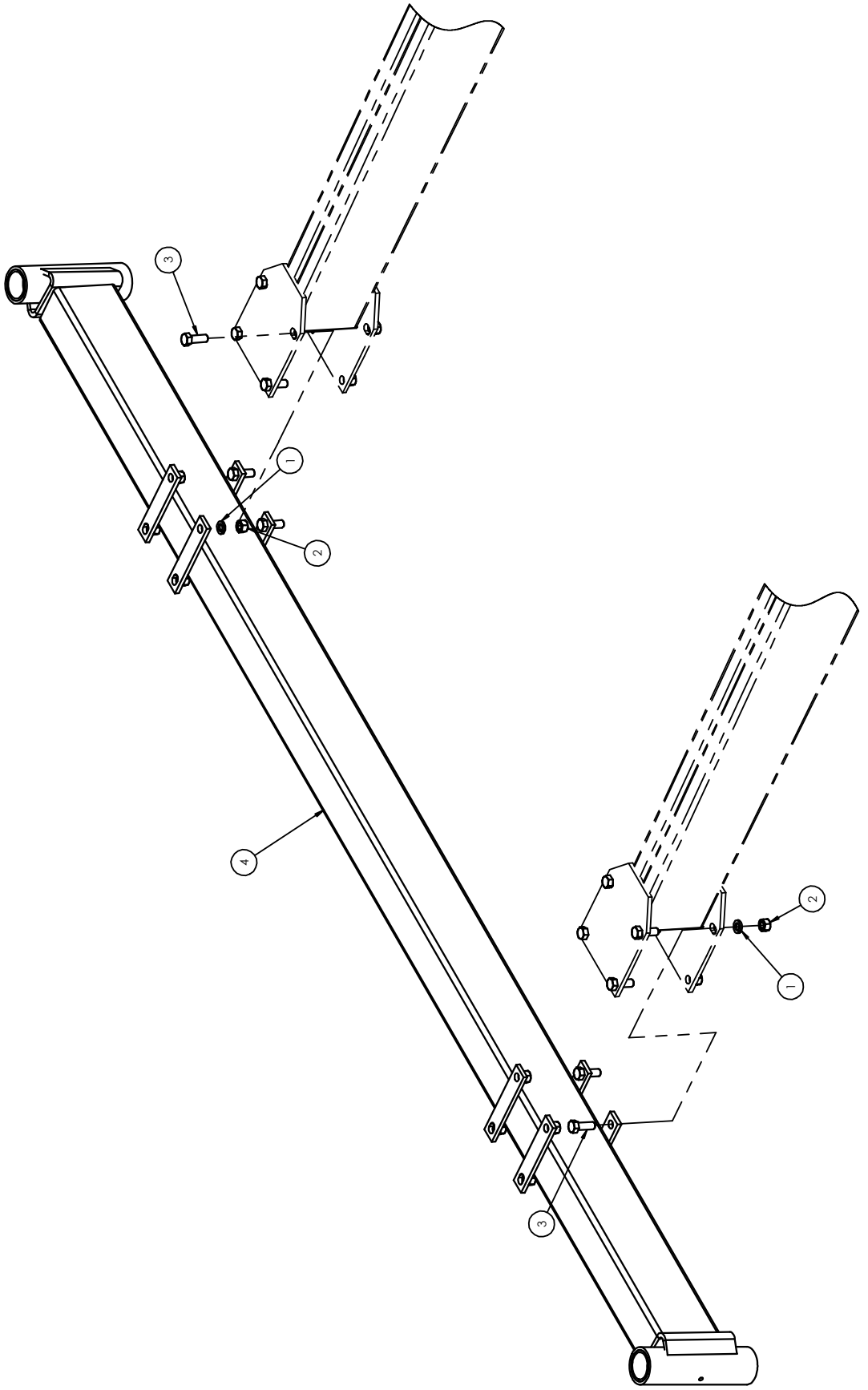
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	013170	FITTING, GREASE STRAIGHT	2
2	E829022	FW 1.25	2
3	V066516	NUT, JAM 1-1/4-12	2
4	V180167	BOOM WLDT LH	1
5	V180168	BOOM WLDT RH	1
6	V180243	WLDT, BOOM PIN	2

FRONT CROSS TUBE ASSEMBLY



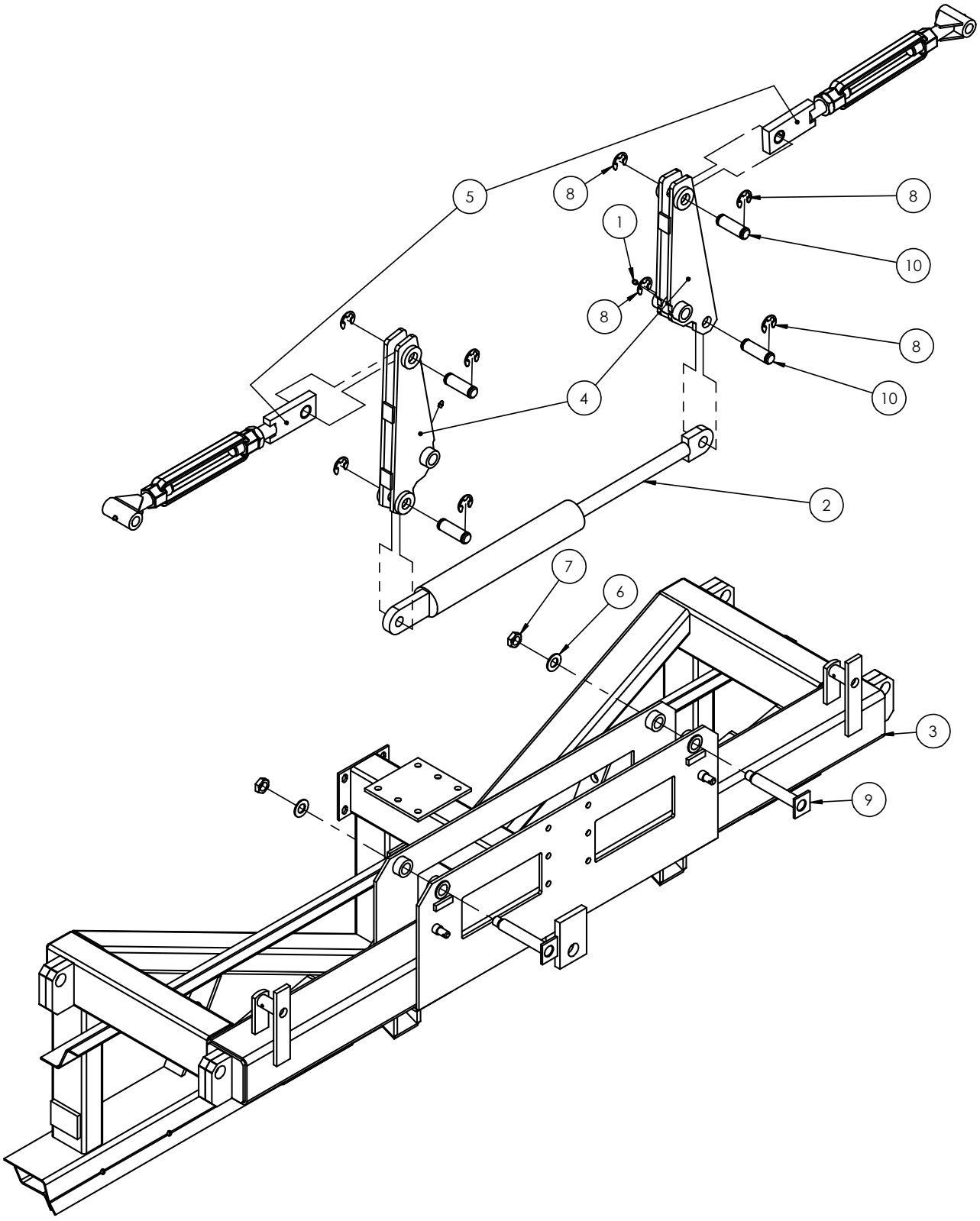
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	020440	WASHER, LOCK 5/8	8
2	020450	NUT, HEX 5/8-11	8
3	025100	HBOLT 0.6250-11x1.75x1.75-N	8
4	036750	NUT, HEX 3/4-10	4
5	036800	WASHER, LOCK 3/4 SAE ZN	4
6	v061704	HBOLT 0.7500-10x2.5x2.5-N	4
7	V180455	WLDT, FRONT	1

CROSS BEAM ASSEMBLY



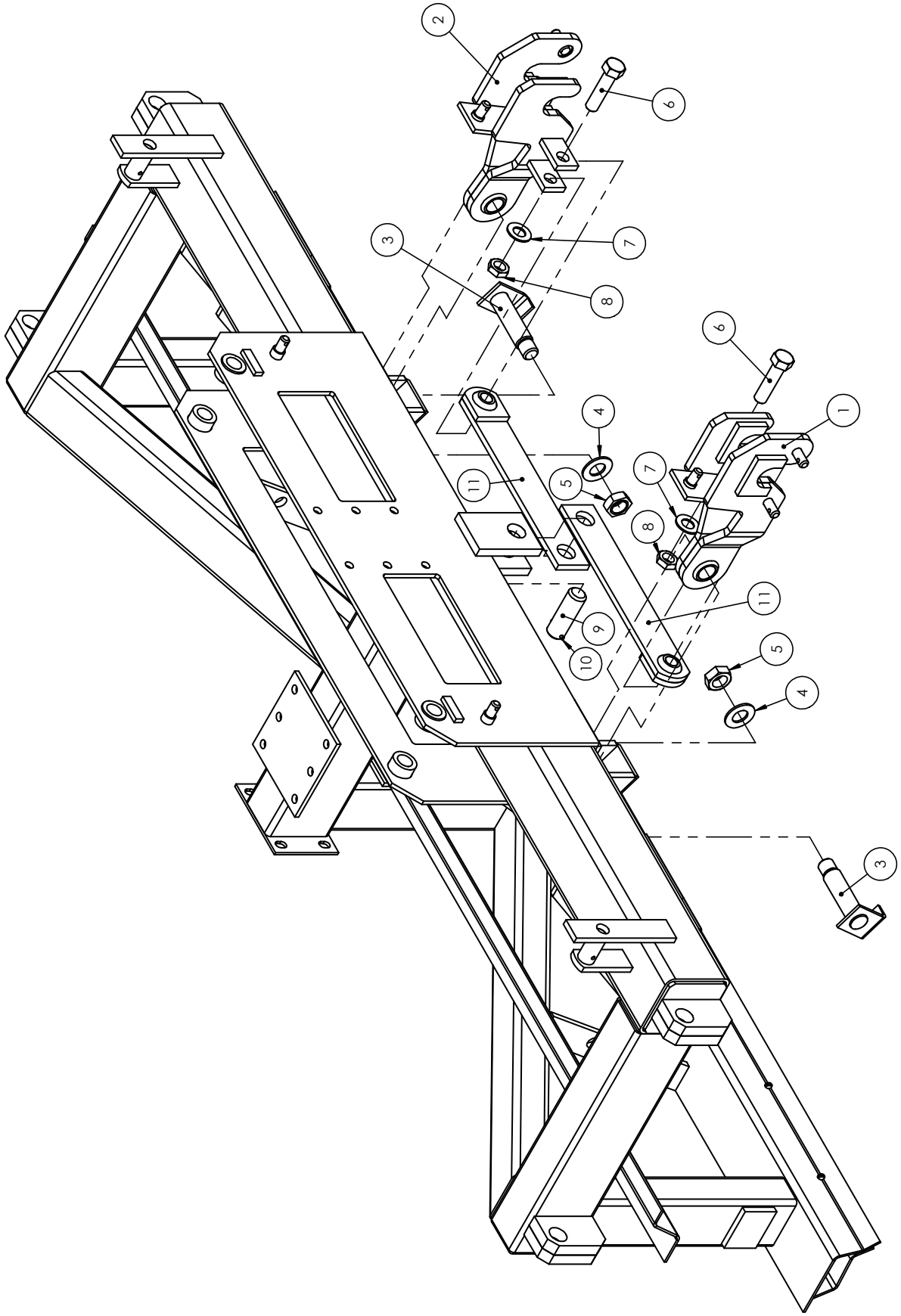
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	020440	WASHER, LOCK 5/8	16
2	020450	NUT, HEX 5/8-11	16
3	025100	HBOLT 0.6250-11X1.75X1.75-N	16
4	V180186	CROSS WLDT,	1

WING LIFT ASSEMBLY



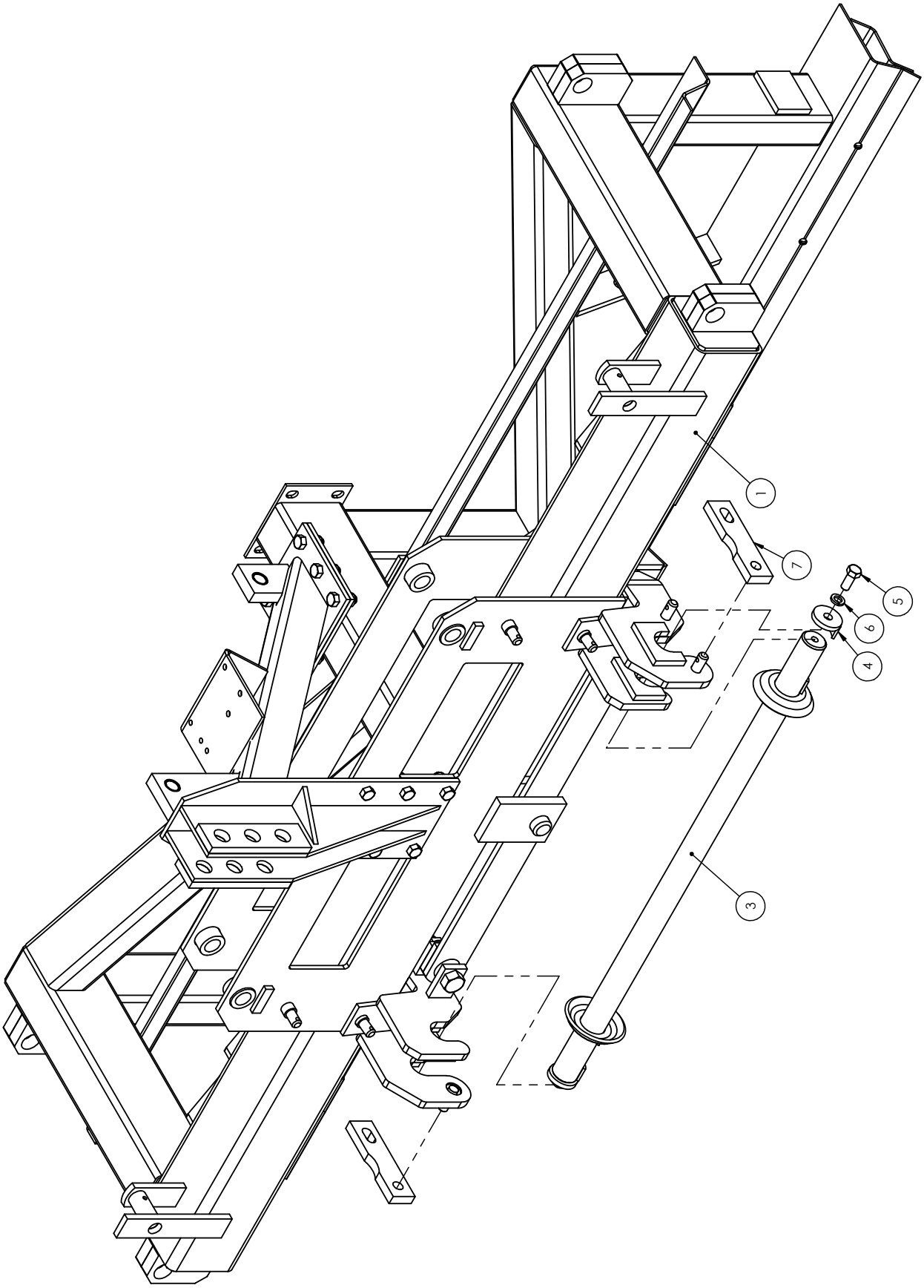
ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 2000	QTY. 2400	QTY. 3000
1	013170	FITTING, GREASE STRAIGHT	2	2	2
2	386540	CYLINDER, HYD	1	1	1
	V041034P	SEAL KIT (YELLOW/OLD)	1	1	1
	386590P	SEAL KIT (BLACK/NEW)	1	1	1
3	599010	FRAME WLDT, CENTER	-	-	1
4	599260	LINK WLDT, V3000	-	-	2
	V180654	LINK WLDT, V2000/V2400	2	2	-
5	599330	LINK ASSEMBLY, V3000	-	-	2
	V180904	LINK ASSEMBLY, V2000/V2400	2	2	-
6	1107389	WASHER, FLAT 1.0 SAE ZN	2	2	2
7	V066513	NUT, JAM 1-1/4-12	2	2	2
8	V067251	E-RING	8	8	8
9	V180236	PIN WLDT, HINGE	2	2	2
10	V180638	PIN, HINGE LINKAGE	4	4	4

HITCH ATTACH ASSEMBLY



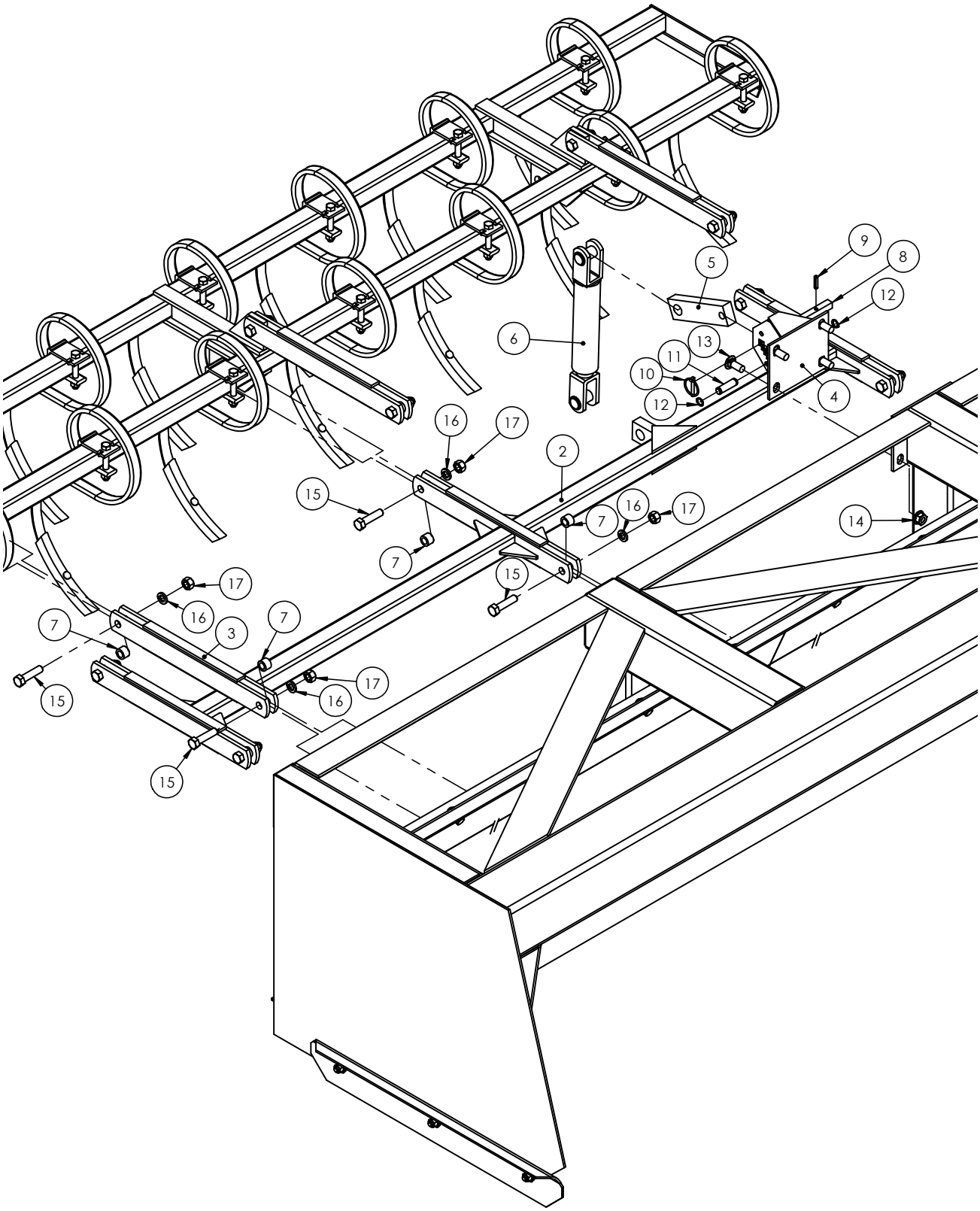
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	V180376	PLATE WLDT, RH	1
2	V180375	PLATE WLDT, LH	1
3	V180429	WLTD, HITCH PLATE MTG, PIN	2
4	E829036	WASHER,	2
5	V066516	NUT, JAM 1-1/4-12	2
6	V055634	HBOLT 1.00-8X4 GR5	2
7	1107389	WASHER, FLAT 1.0 SAE ZN	2
8	V066513	NUT, JAM 1-1/4-12	2
9	V180377	PIN CTR	1
10	013600	PIN, ROLL .25 X 2	1
11	V180378	WLDT, CROSS LINK	2

HITCH ASSEMBLY, CATEGORY 4N



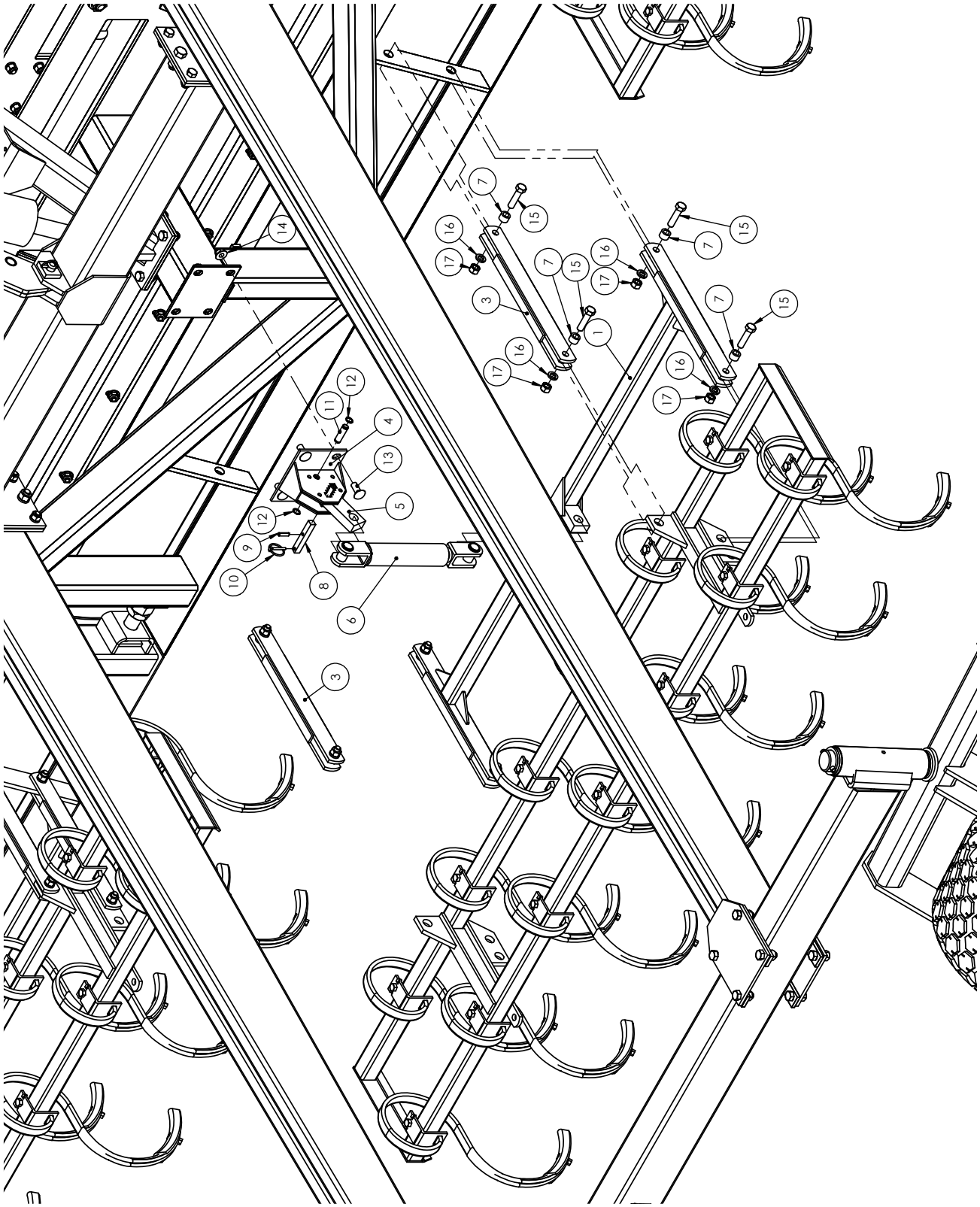
ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 2000	QTY. 2400	QTY. 3000
1	599010	FRAME WLDT, CENTER			1
2	V180585	KIT, CAT 4N HITCH			1
3	V180586	WDLT, HITCH BAR			1
4	V180636	CAP WDLT,			2
5	990610	BOLT, HHCS 5/8-11 x 1 1/2 GR5 ZN			2
6	020440	WASHER, LOCK 5/8			2
7	V180659	BAR, CAT 4N			2

S-TINE ASSEMBLY, RIGHT/LEFT TO FRAME



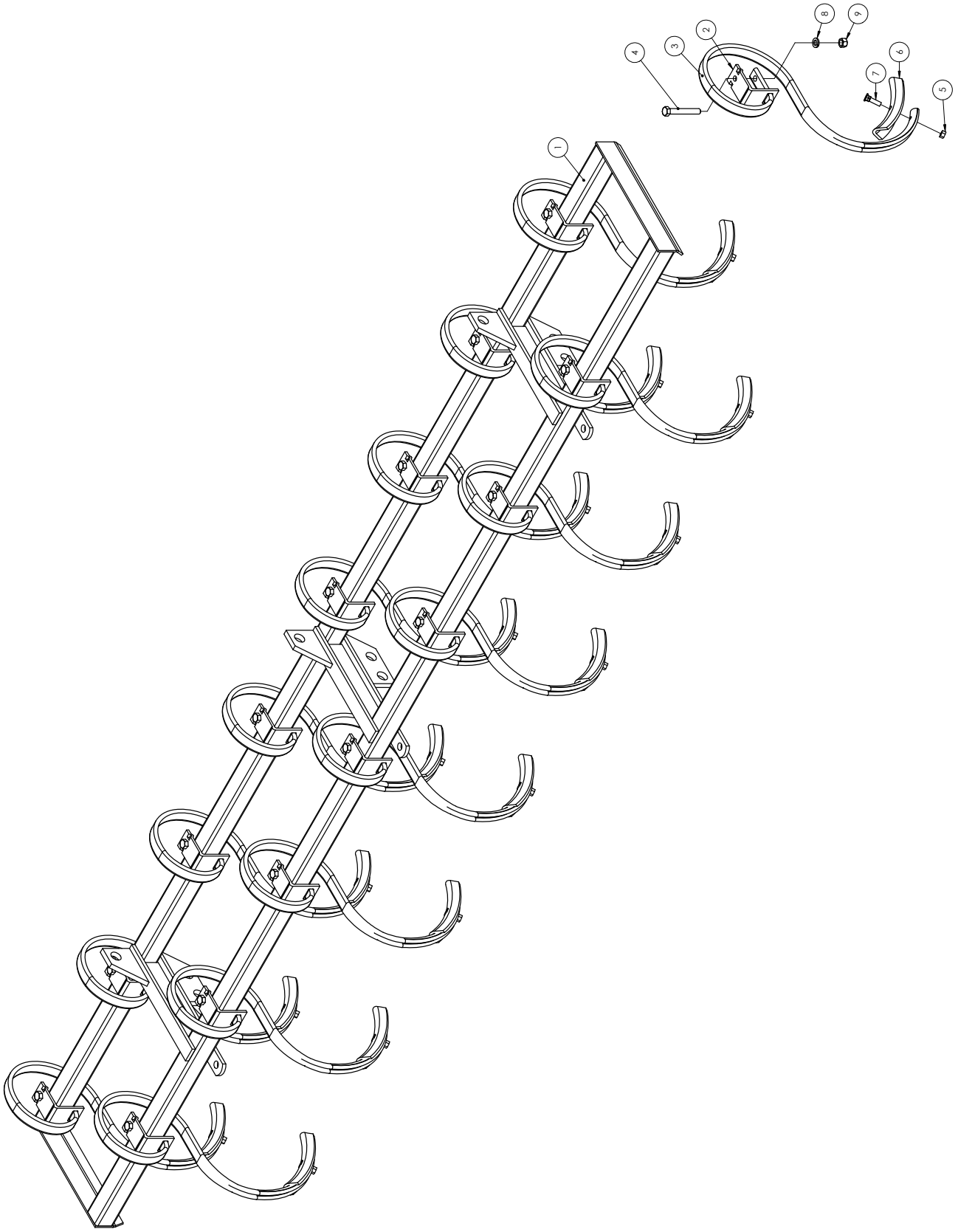
ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 2000	QTY. 2400	QTY. 3000
1	605630	LIFT LINK WLDT,	-	-	1
1	V180304	LIFT LINK WLDT,	1	1	-
2	605610	LIFT LINK WLDT, WING	-	-	2
2	V180304	LIFT LINK WLDT, WING	2	2	-
3	V180306	MOUNTING ARM,			8
4	V180557	WLDT, STA CYL ADJ			3
5	V180553	BAR, CYL. ANCHOR STA			3
6	V180910	CYLINDER, HYD.			3
7	V180330	BUSHING 5/8 ID X 1 OD X 11/16 LG			32
8	V180640	PIN, CYL. ANCHOR ADJ			3
9	1030808	PIN, 5/16 X 1-1/4			3
10	R66461	SNAP-RING PIN			3
11	V180391	PIN, STA PIVOT			3
12	1040970	RING, RETAINING EXTERNAL 5/8			6
13	I467657R1	BOLT, CRG 5/8-11 X 2-1/4 GR5 ZN			12
14	600150	NUT, HFH NYLOC			12
15	023110	HHCS 5/8-11 X 2.5 GR5 ZN			32
16	020440	WASHER, LOCK 5/8			32
17	020450	NUT, HEX 5/8-11			32

S-TINE ASSEMBLY (CONTINUED), CENTER TO FRAME



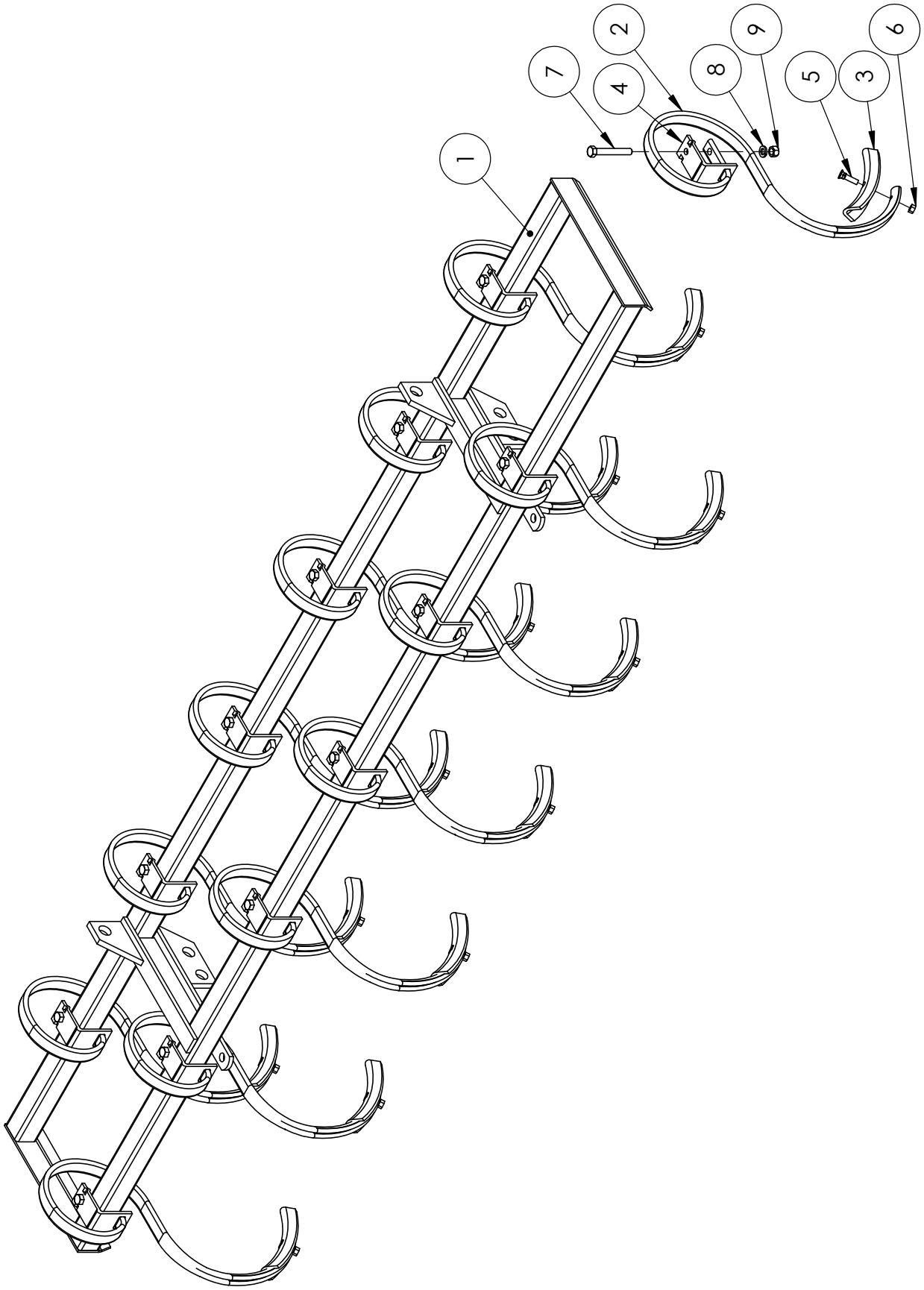
ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 2000	QTY. 2400	QTY. 3000
1	605630	LIFT LINK WLDT,	-	-	1
1	V180304	LIFT LINK WLDT,	1	1	-
2	605610	LIFT LINK WLDT, WING	-	-	2
2	V180304	LIFT LINK WLDT, WING	2	2	-
3	V180306	MOUNTING ARM,			8
4	V180557	WLDT, STA CYL ADJ			3
5	V180553	BAR, CYL. ANCHOR STA			3
6	V180910	CYLINDER, HYD.			3
7	V180330	BUSHING 5/8 ID X 1 OD X 11/16 LG			32
8	V180640	PIN, CYL. ANCHOR ADJ			3
9	1030808	PIN, 5/16 X 1-1/4			3
10	R66461	SNAP-RING PIN			3
11	V180391	PIN, STA PIVOT			3
12	1040970	RING, RETAINING EXTERNAL 5/8			6
13	I467657R1	BOLT, CRG 5/8-11 X 2-1/4 GR5 ZN			12
14	600150	NUT, HFH NYLOC			12
15	023110	HHCS 5/8-11 X 2.5 GR5 ZN			32
16	020440	WASHER, LOCK 5/8			32
17	020450	NUT, HEX 5/8-11			32

S-TINE ASSEMBLY, RIGHT/LEFT



ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 2000	QTY. 2400	QTY. 3000
1	605670	FRAME WLDT, RIGHT/LEFT	-	-	1
1	V180299	FRAME WLDT, RIGHT/LEFT	-	1	-
1	V180696	FRAME WLDT, RIGHT/LEFT	1	-	-
2	V180425	CLAMP, S-TINE			16
3	V180423	S-TINE			16
4	1770608	HHCS, 1/2-13 X 3.25, G5, ZN			16
5	027260	NUT, HEX 3/8-16 GR5 ZN			16
6	V180424	POINT			16
7	V059779	BOLT, PLOW 1/2-13 X 2			16
8	005370	WASHER, LOCK 1/2 ZN			16
9	005360	NUT, HEX, 1/2” Z5			16
QTY. ARE PER SIDE					

S-TINE ASSEMBLY, CENTER



ITEM NO.	PART NUMBER	DESCRIPTION	QTY. 2000	QTY. 2400	QTY. 3000
1	605650	FRAME WLDT, CENTER	-	-	1
1	V180299	FRAME WLDT, CENTER	1	1	-
2	V180423	S-TINE			13
3	V180424	POINT			13
4	V180425	CLAMP, S-TINE			13
5	V059779	BOLT, PLOW 1/2-13 X 2			13
6	027260	NUT, HEX 3/8-16 GR5 ZN			13
7	1770608	HHCS, 1/2-13 X 3.25, G5, ZN			13
8	005370	WASHER, LOCK 1/2 ZN			13
9	005360	NUT, HEX, 1/2” Z5			13

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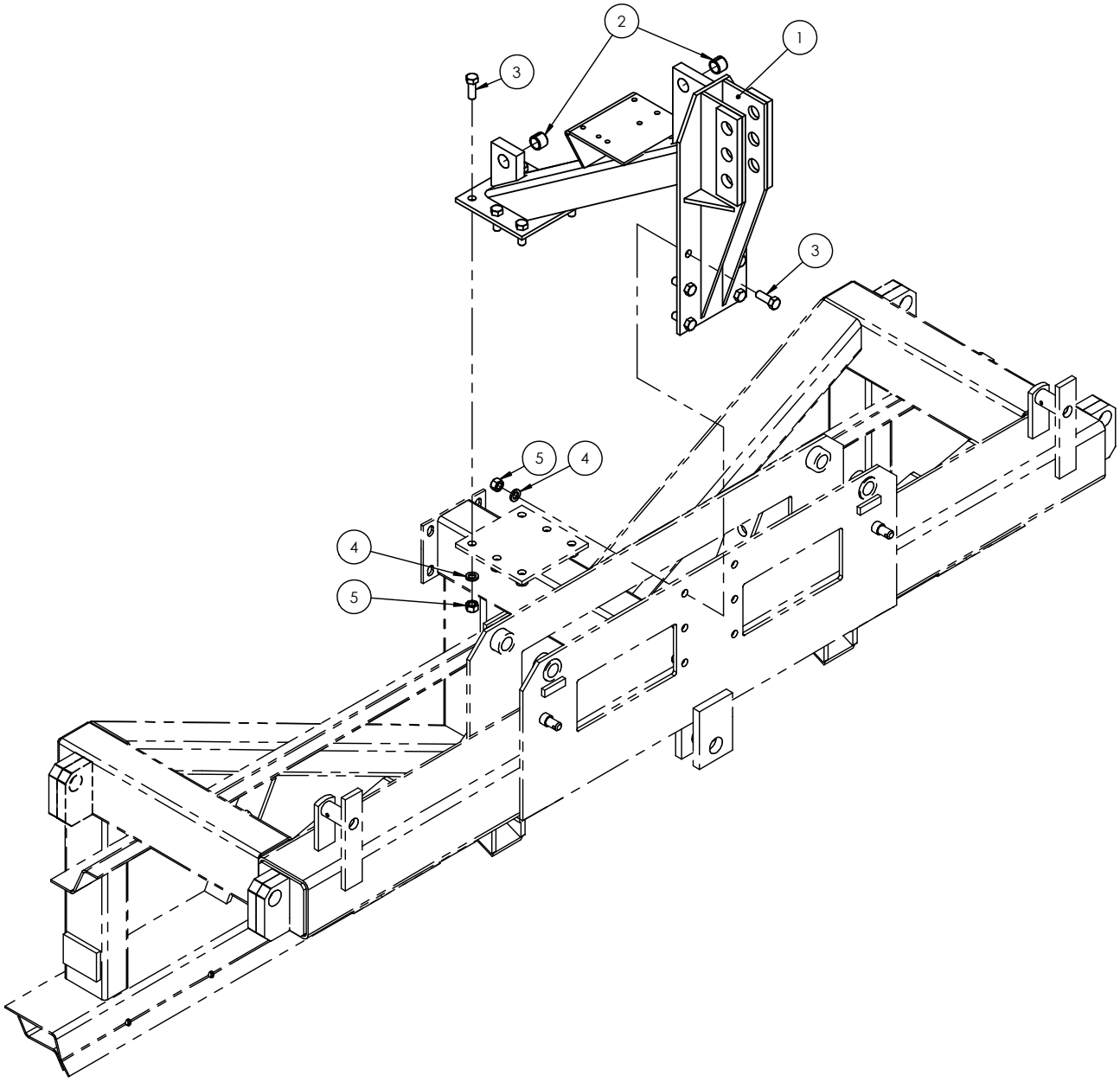
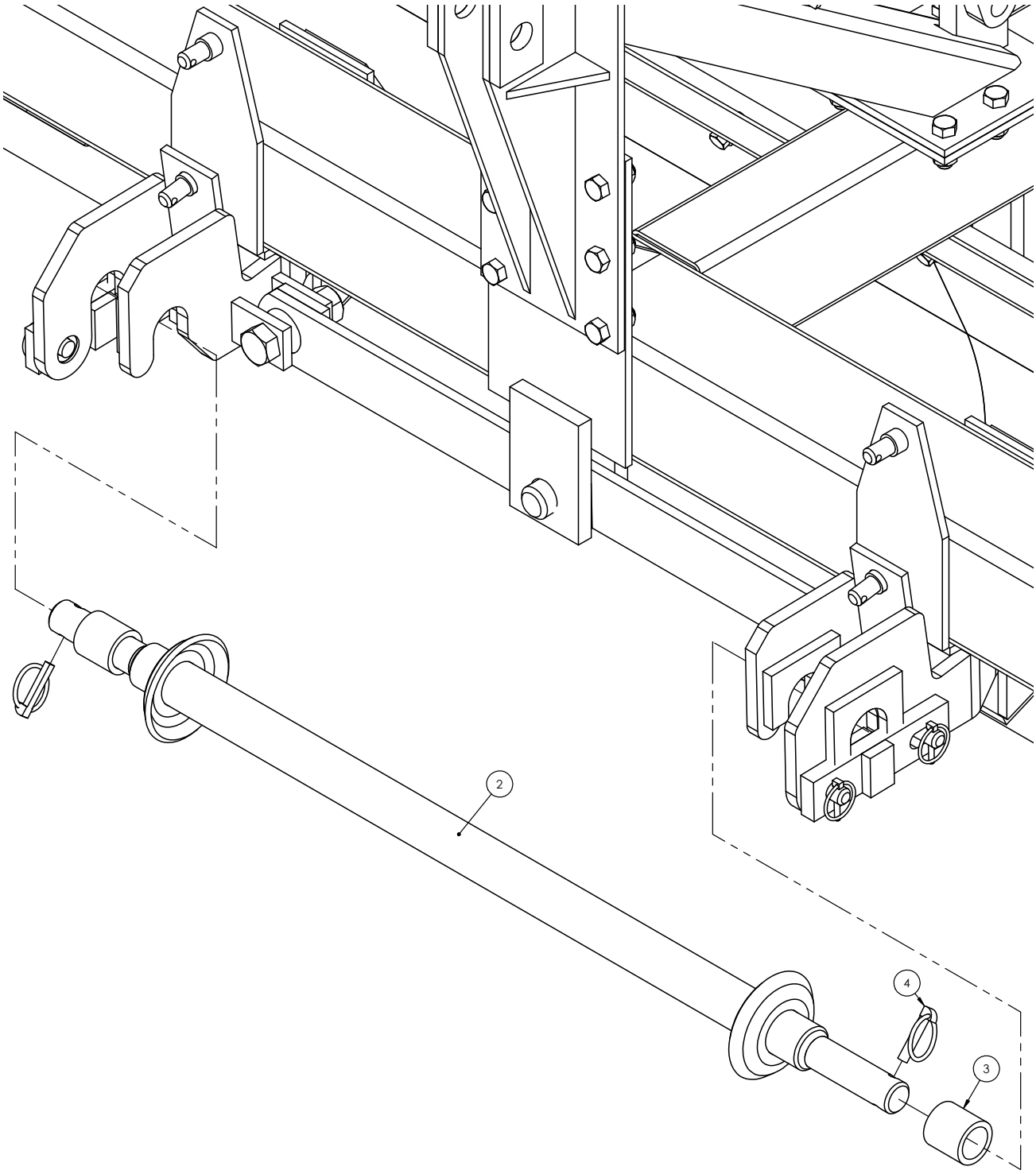
ILLUSTRATEDPARTSLIST:ALLMODELS

MAST ASSEMBLY, FRAME



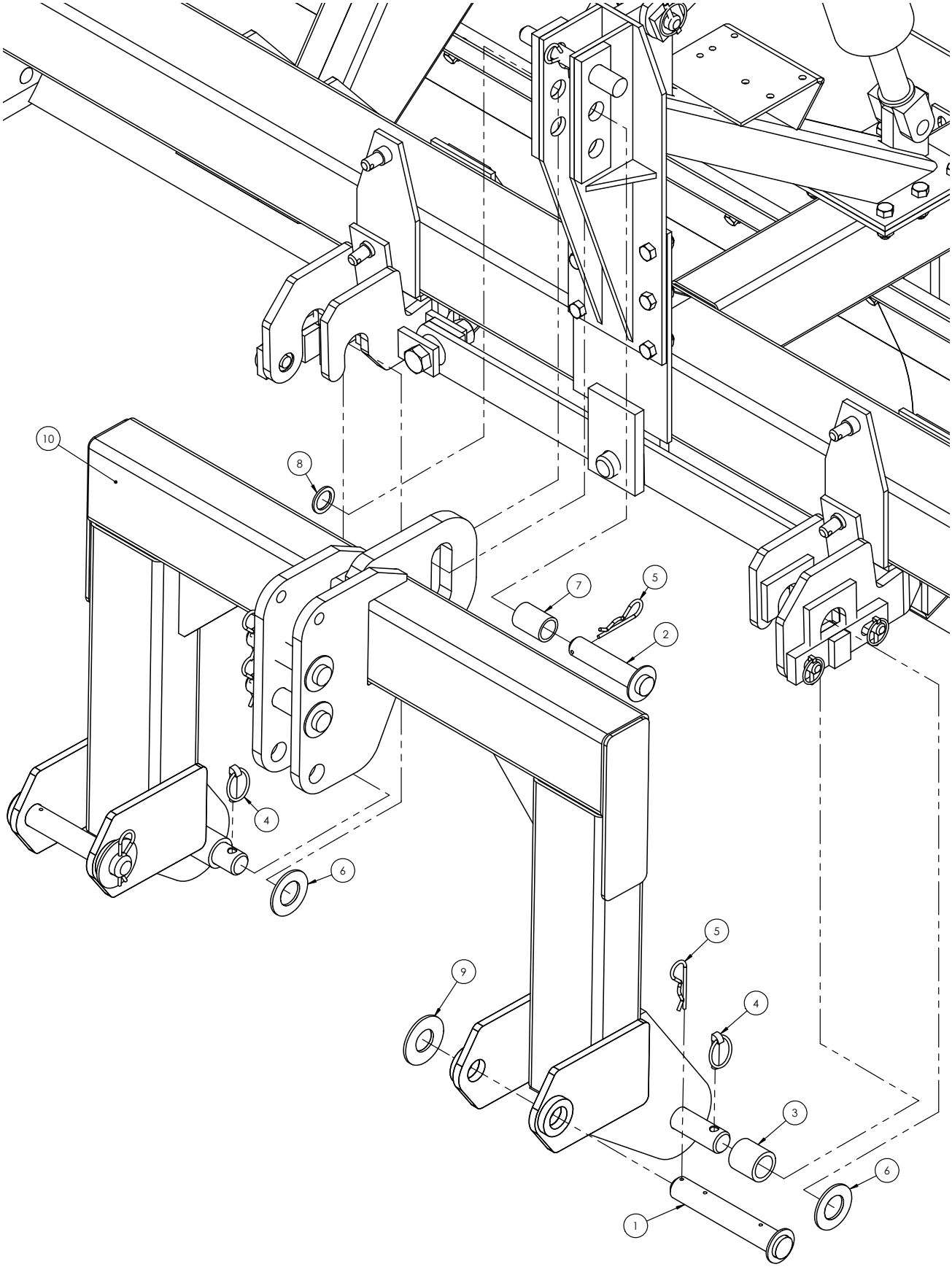
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	V180204	MAST WDLT	1
2	V180220	BUSHING, STEEL 1X1-1/4X1	2
3	025100	HBOLT 0.6250-11X1.75X1.75-N	12
4	020450	NUT, HEX 5/8-11	12
5	020440	WASHER, LOCK 5/8	12

HITCH ASSEMBLY, CATEGORY 3



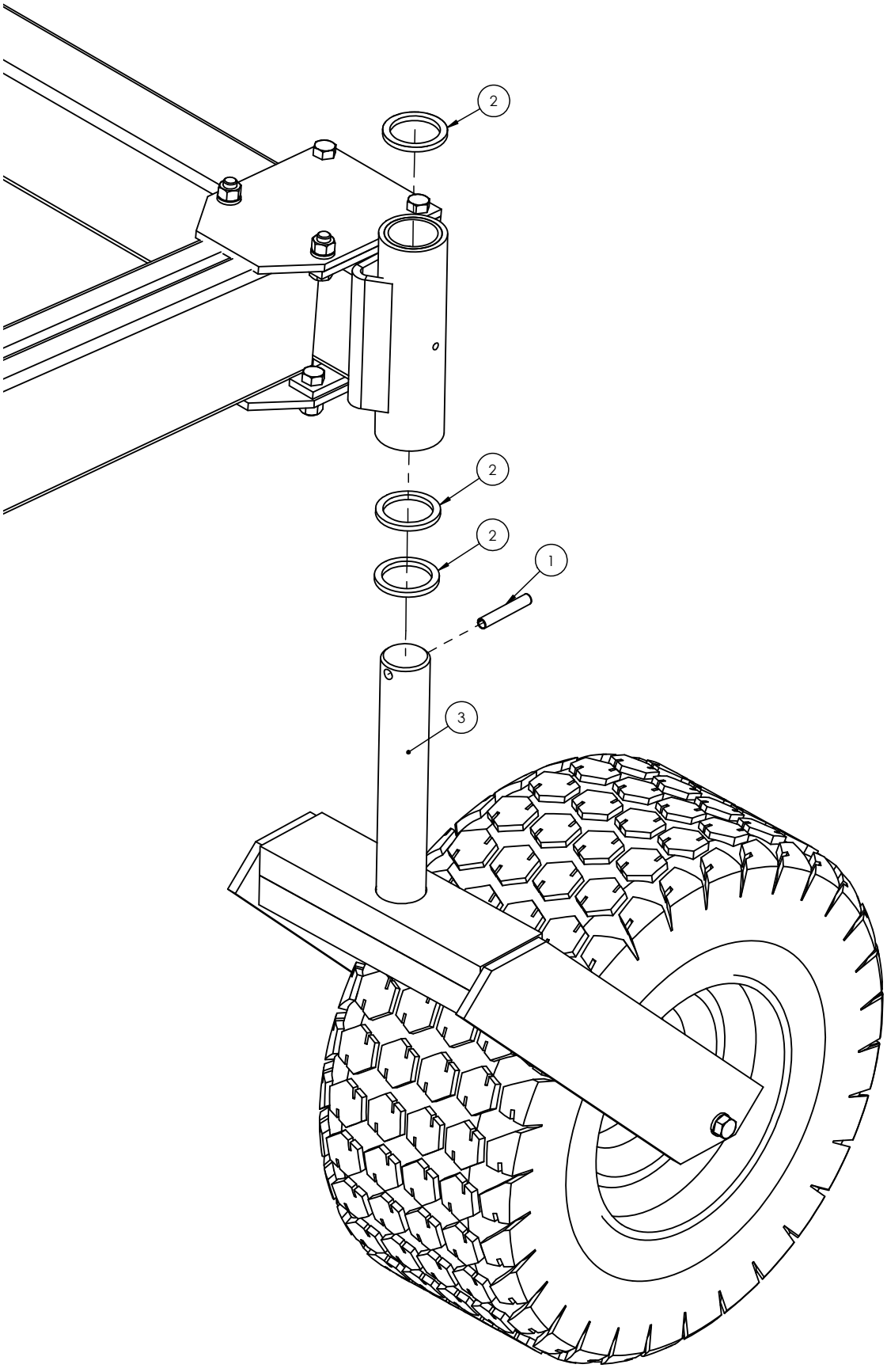
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	V180720	KIT CAT 3, HITCH BAR	1
2	V180799	HITCH BAR WLDMNT.	1
3	V180664	SLEEVE, OUTER	2
4	V240437	LYNCH PIN, 7/16X2	2

HITCH ASSEMBLY, QUICK ATTACH



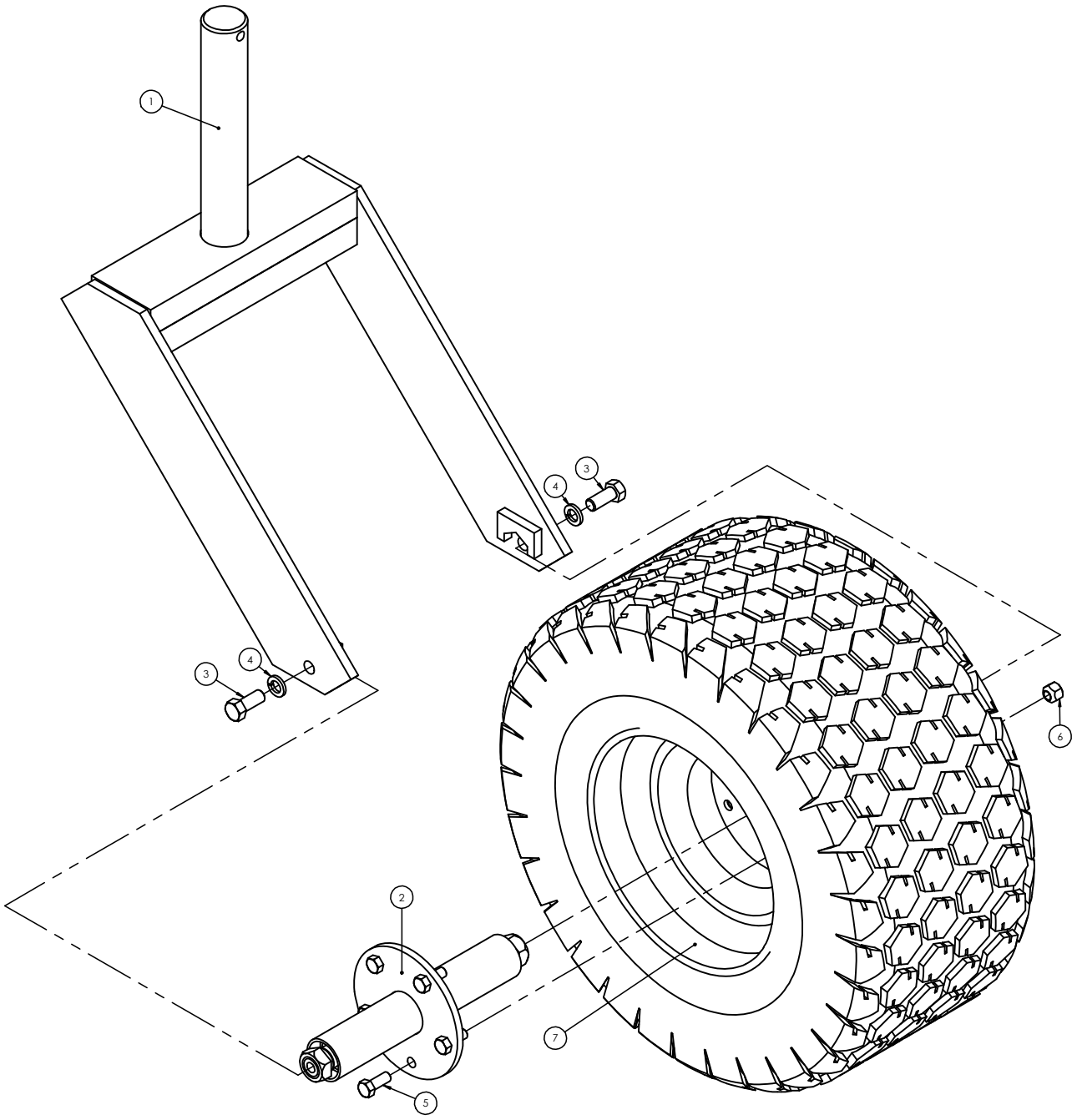
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	558060	PIN WLDT, LOWER	2
2	558040	PIN WLDT, UPPER	3
3	V180664	SLEEVE, OUTER	4
4	V240437	LYNCH PIN, 7/16X2	4
5	035830	Pin, Cotter 3/16 x 1-1/2 ZN	5
6	V063596	WASHER,	4
7	557990	BUSHING 1.63 OD X	1
8	1100925	WASHER, MACHINE, 1-1/4” 10 GA Z5	3
9	R61502	FW 1.375	2
10	558010	QUICK HITCH WLDT,	1

SINGLE WHEEL ASSEMBLY, FRAME



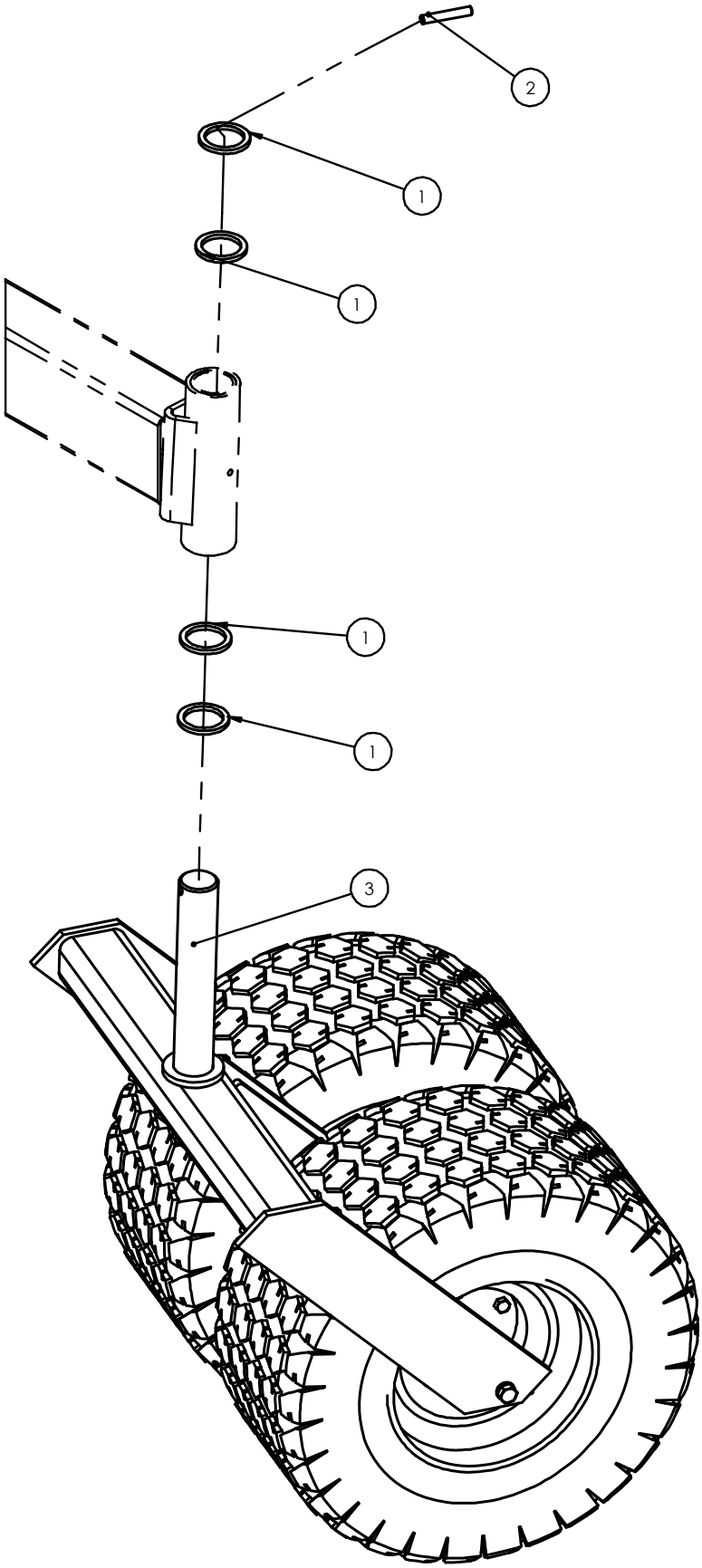
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	V064499	PIN, ROLL 1/2 x 3 ZN SLOTTED	2
2	V180428	WASHER, SPECIAL	6
3	V180274	WHEEL ASSY,	2

SINGLE WHEEL ASSEMBLY



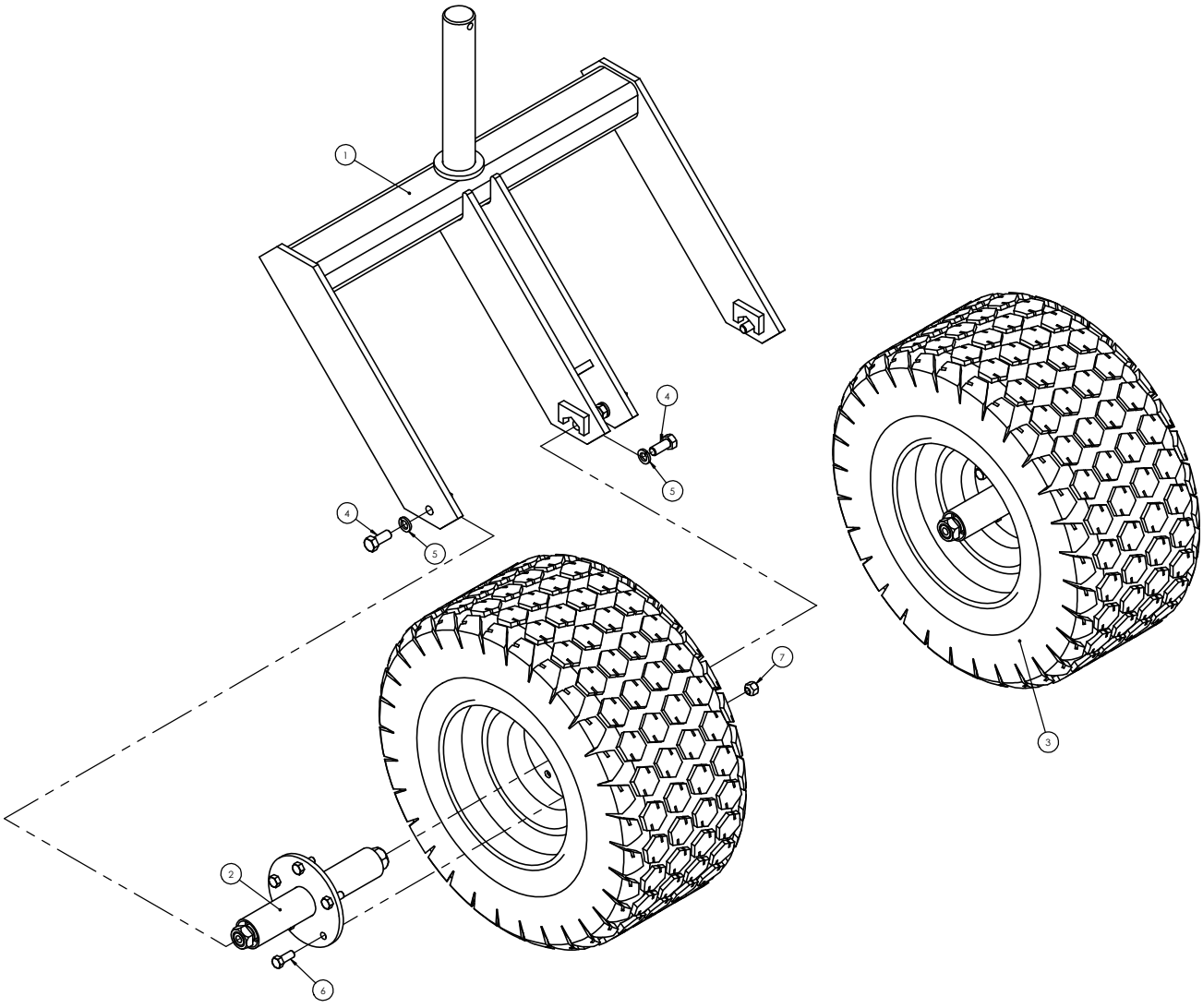
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	V180219	CASTER WLDT, SINGLE	1
2	V180225	BW ASSEMBLY	1
3	990610	BOLT, HHCS 5/8-11 X 1 1/2 GR5 ZN	2
4	020440	WASHER, LOCK 5/8	2
5	V059112	HHCS 1/2-20UNF X 1 1/4 GR5 ZN	5
6	020730	HTNUT 0.5000-20-D-N	5
7	V180290	RIM AND TIRE ASSY.	1

DUAL WHEEL ASSEMBLY, FRAME



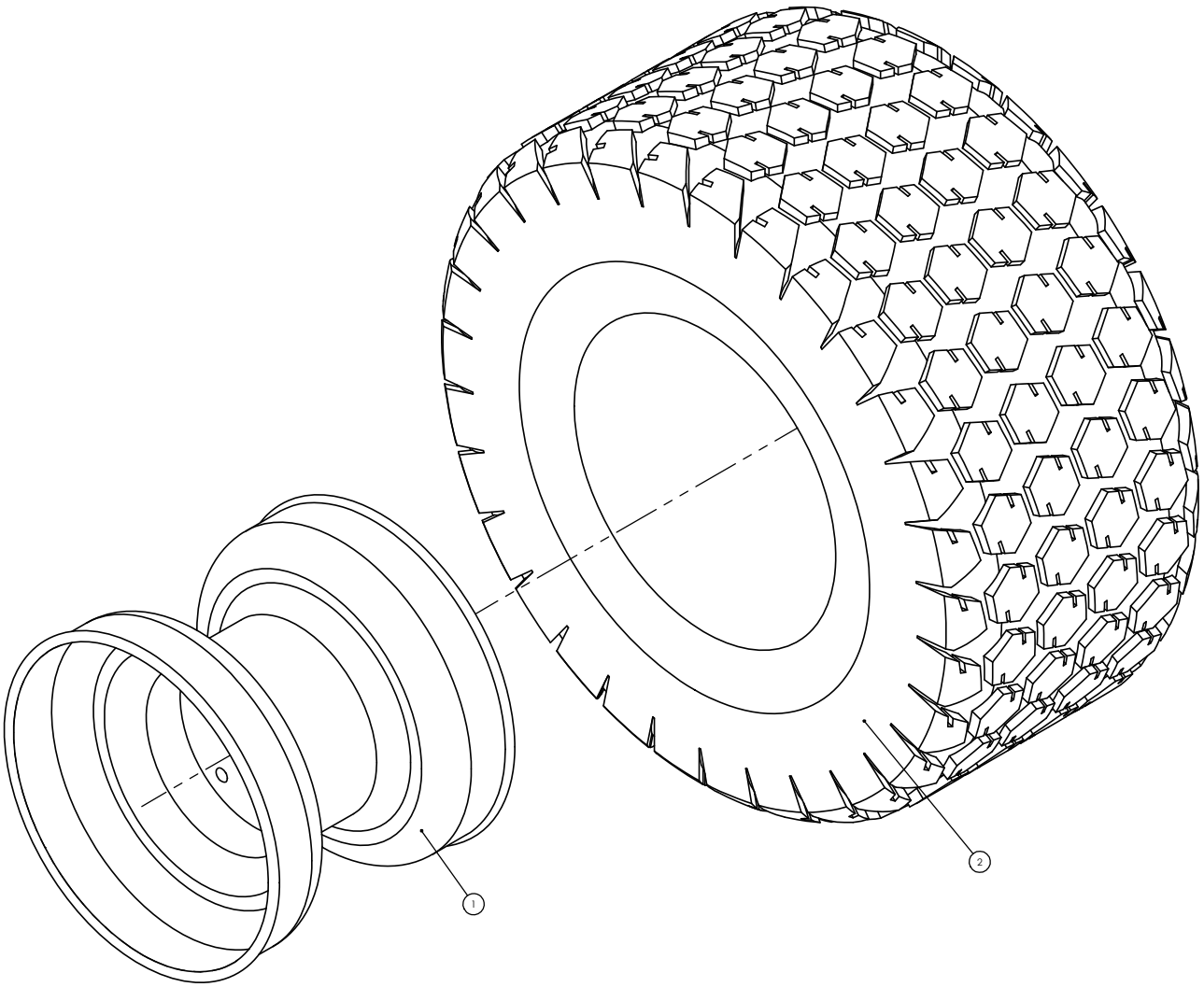
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	V180428	WASHER, SPECIAL	8
2	V064499	PIN, ROLL 1/2 X 3 ZN SLOTTED	2
3	V180865	DUAL CASTER ASSY	2

DUAL WHEEL ASSEMBLY



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	599510	CASTER WLDT, DUAL	1
2	V180225	BW ASSEMBLY	2
3	V180290	RIM AND TIRE ASSY.	2
4	990610	BOLT, HHCS 5/8-11 X 1 1/2 GR5 ZN	4
5	020440	WASHER, LOCK 5/8	4
6	V059112	HHCS 1/2-20UNF X 1 1/4 GR5 ZN	10
7	020730	HTNUT 0.5000-20-D-N	10

TIRE AND RIM ASSEMBLY



ITEM NO.	PART NUMBER	DESCRIPTION	QTY.
1	V180257	RIM	
2	V180255	TIRE	

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ILLUSTRATED PARTS LIST: HYDRAULICS AND DECALS

HYDRAULICS, V1200-V1650

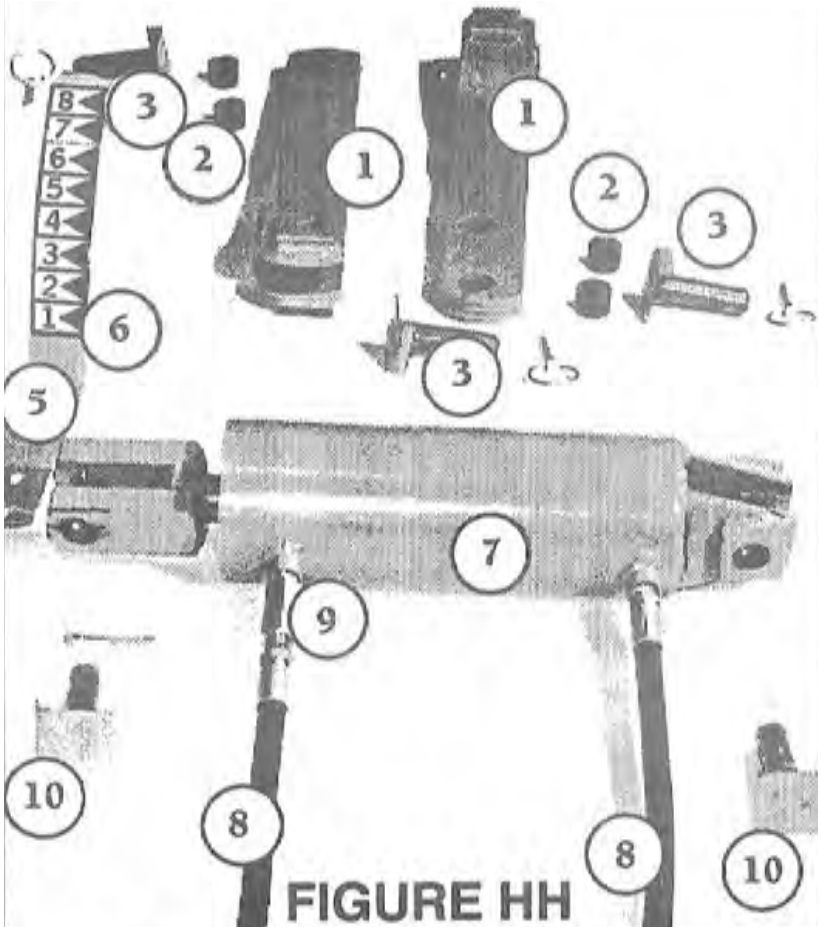


FIGURE HH

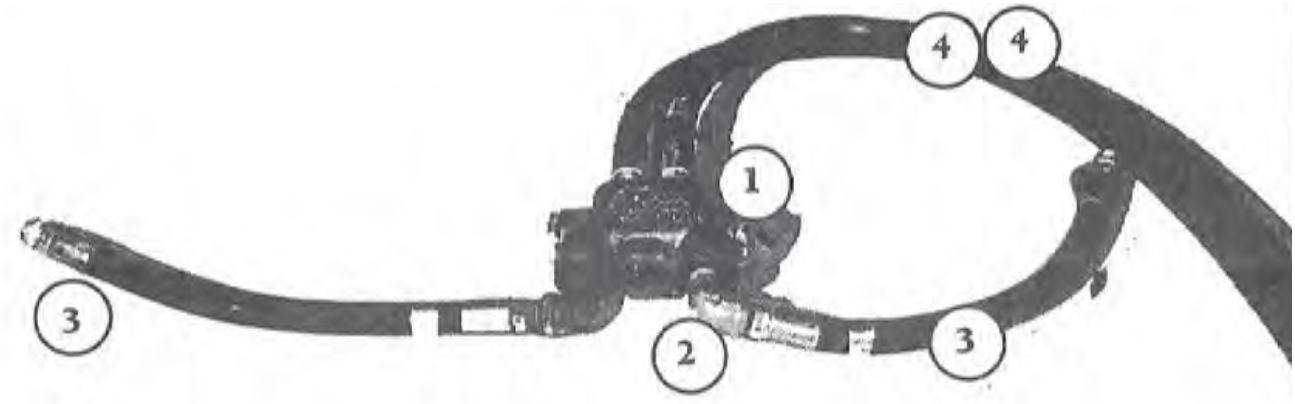


FIGURE II

Fig. No.	Ref. No.		Part No. 1200	No. Req.
HH	1	Link Arm	V180460	2
	2	Bushing (1" I.D. x 1-1/4" O.D. x 1")	V180220	4
	3	Clevis Pin	V180647	3
	4	Hair Pin	035830	3
	-	Gauge Mounting Strip	V180542	1
	-	5/16 x 1" Carriage Bolt	V050910	4
	5	Gauge Decal Mounting Strip	V180543	1
	6	Indicator Decal	V180565	1
	7	Depth Control Cylinder (8" Stroke)	510640	1
	8	28" Hose	V609200	2
	9	Restrictor	V180624	1
	10	Clevis Pin	V180647	2
	-	1/4 x 2 Cotter	114370	2
II	1	Check Valve	V308250	1
	2	1/2 x 90° St. Elbow	006240	2
	-	1/2" M-F Swivel Fitting (Not Shown)	V710402	2
	3	1/2 x 28" Hose	V609200	2
	4	1/2 x 72" Hose	166160	2

HYDRAULICS, V1200-V1650

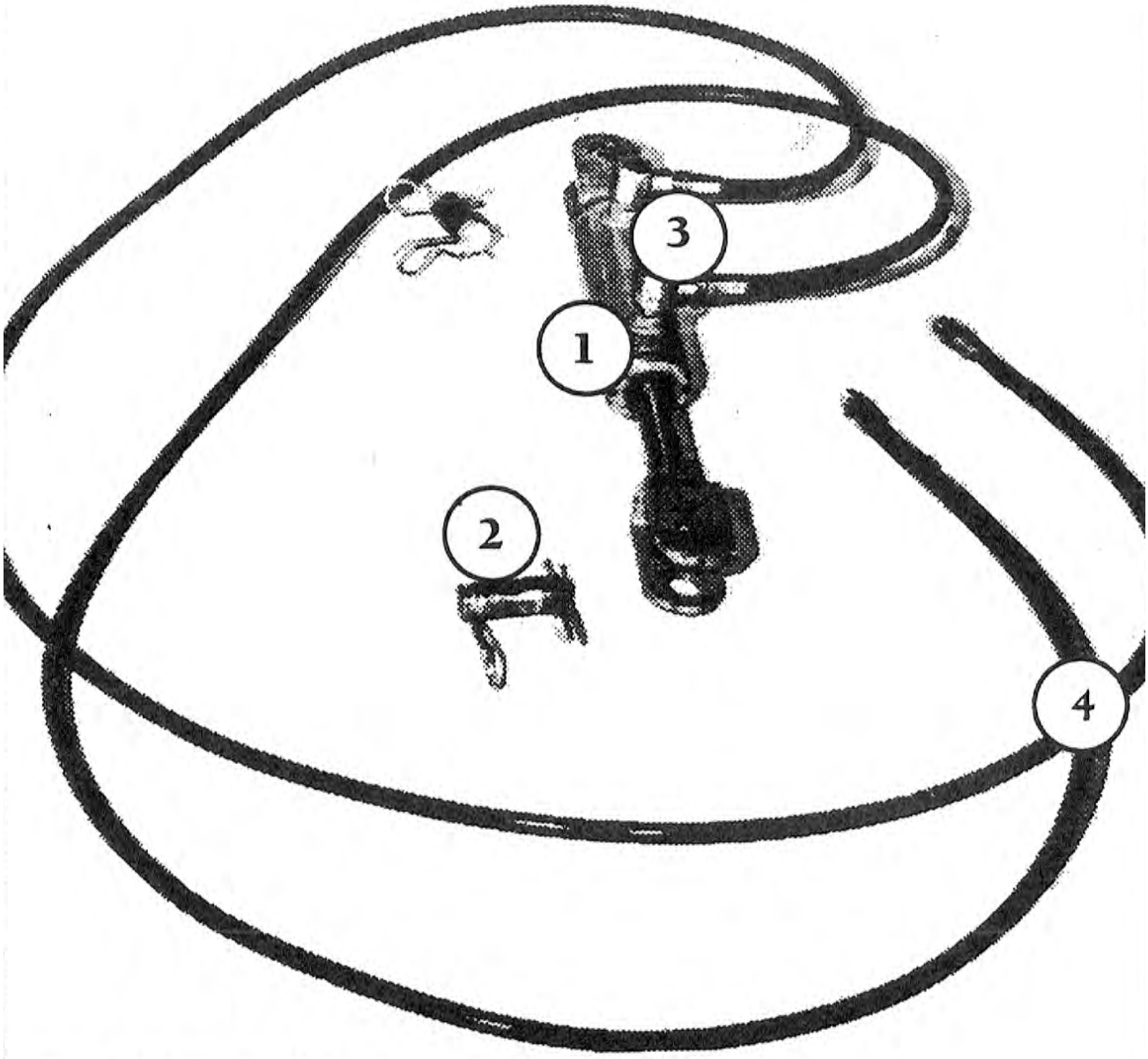


FIGURE LL

	1	2" x 4" Stroke Cylinder (b)	V180910	1	V180910	2
	2	Clevis Pin	V701026	2	V701026	4
	-	Hairpin	035830	4	035830	4
	3	1/4 x 90° Swivel Fitting	V612024	2	V612024	4
	4	1/4 x 112" Hose	V180433	2	-	-
	-	1/4 x 88" Hose	-	-	V180438	2
	-	1/4 x 64" Hose	-	-	V180561	4
	-	1/4 x 1/4 Straight Swivel Fitting	-	-	V612032	4
	-	1/2 to 1/4 Bushing	277780	2	277780	2
	-	1/4" Tee	-	-	V623010	2

HYDRAULICS, V2000-V3000

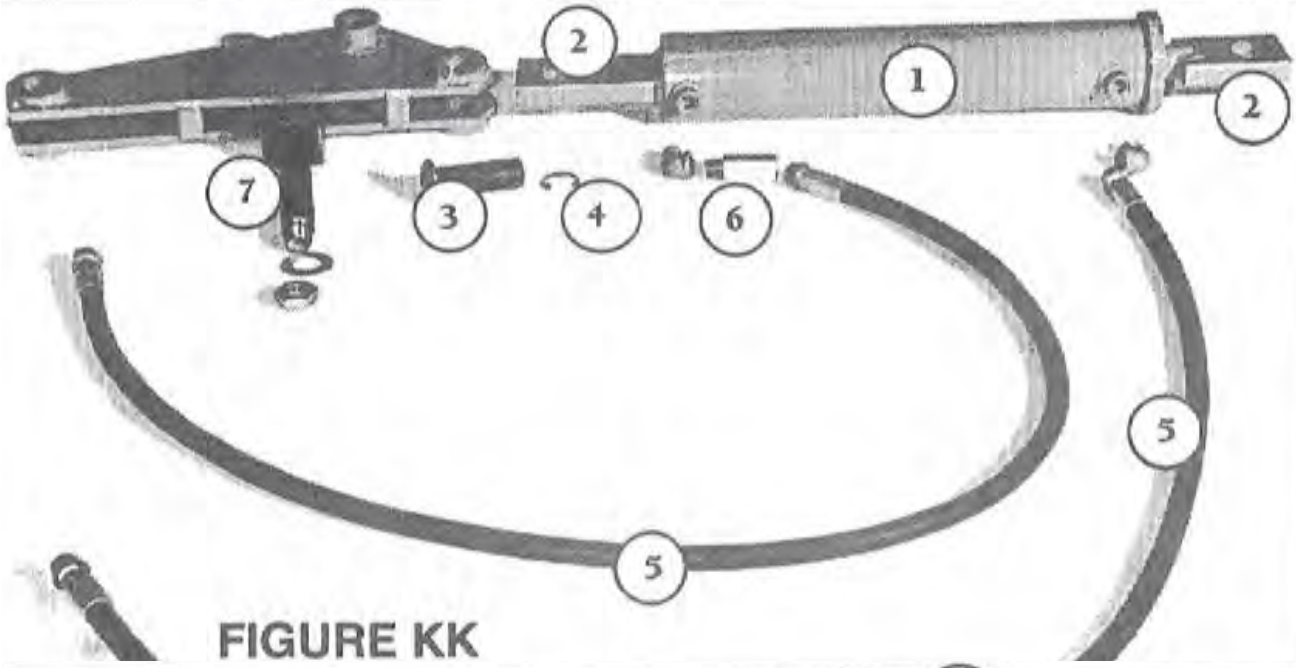


FIGURE KK

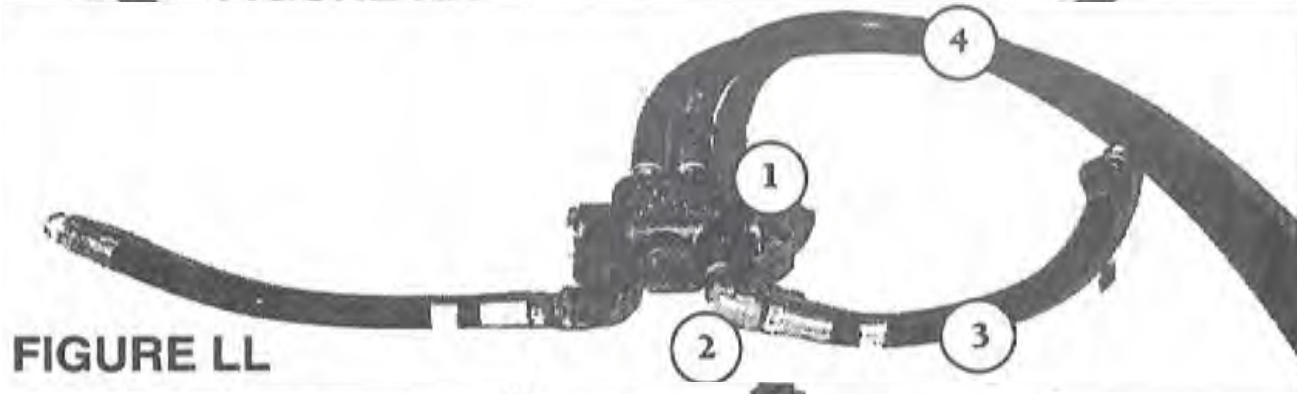


FIGURE LL

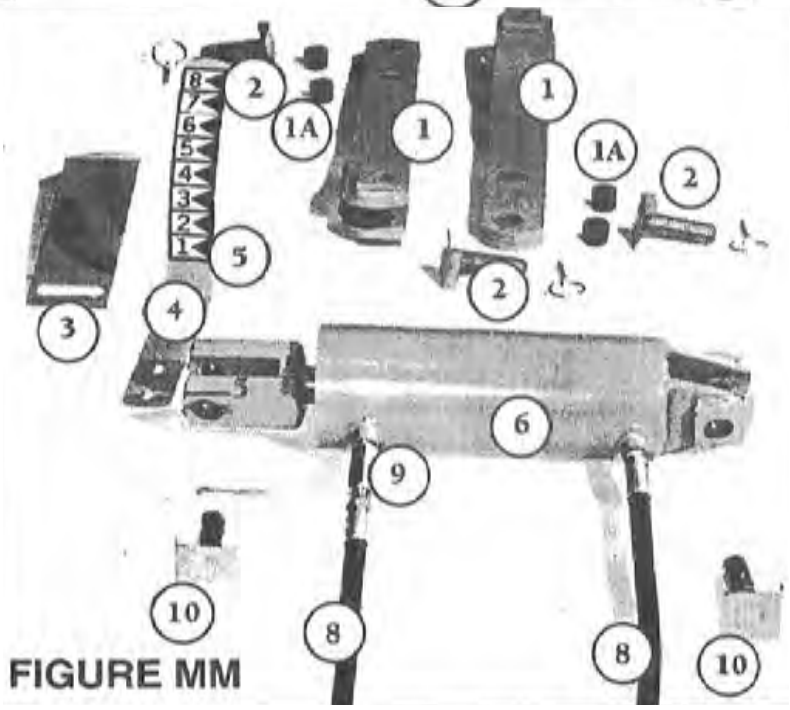
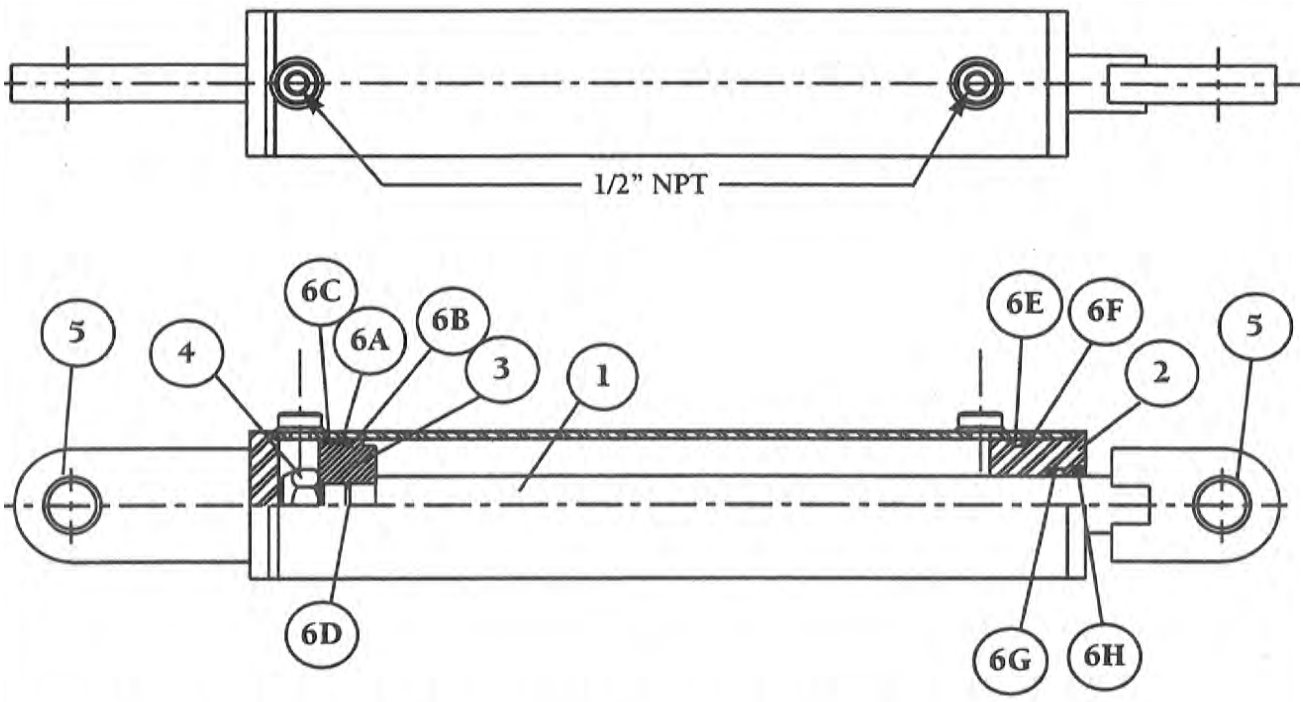


FIGURE MM

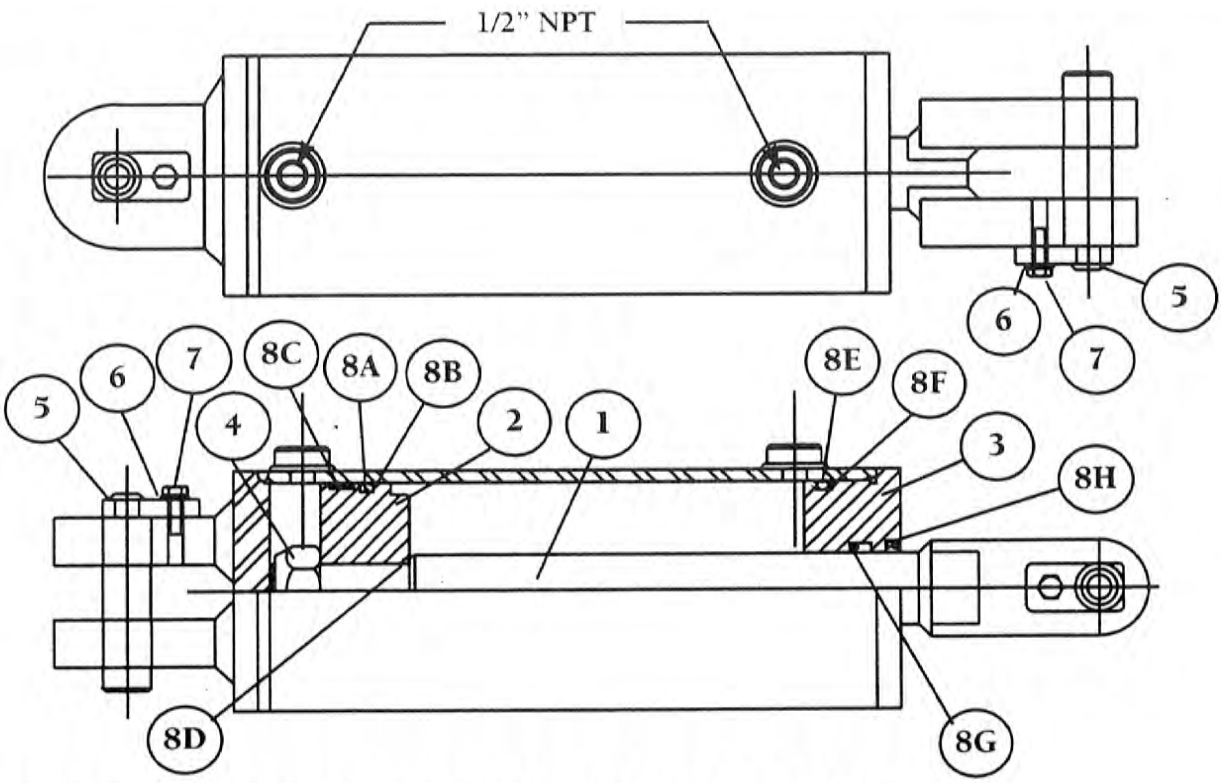
Fig. No.	Ref. No.	Description	Part No.	No. Req.
KK	1	Wing Lift Cylinder (3-1/2 x 16" Stroke)	386540	1
	2	Split Bushing	V180258	2
	3	Cylinder Pin	V180638	2
	4	E-Ring	V067251	4
	5	72" Hose	166160	2
		1/2 x 45° Street Elbow	V622020	2
	6	Restrictor	V180624	1
	7	Hinge Linkage Pin	1107389	2
		1" SAE Washer	1107389	2
		1" Elastic Jam Nut	V066513	2
LL	1	Check Valve	V308250	1
		5/16 x 1-3/4" Bolt	117530	1
		5/16 x 2-1/2" Hex Bolt	009800	1
	2	1/2 x 90° Street Elbow	006240	2
		1/2" M-F Swivel Fitting (Not Shown)	V710402	2
	3	28" Hose	V609200	2
	4	72" Hose	166160	2
MM	1	Link Arm	V180460	2
	1A	Bushing (1" I.D. x 1-1/4" O.D. x 1")	V180220	4
	2	Clevis Pin	V180647	3
		Lynch Pin	V180579	3
	3	Gauge Mounting Strip	V180542	1
		5/16 x 1" Carriage Bolt	V050910	4
	4	Gauge Decal Mounting Strip	V180543	1
	5	Indicator Label	V180565	1
	6	Depth Control Cylinder (4-1/2 x 8" Stroke)	510640	1
	8	28" Hose	V609200	1
	9	Restrictor	V180624	1
	10	Clevis Pin	V180647	2
		1/4 x 2" Cotter	114370	2

HYDRAULICS, V2000-V3000



386540 - 3-1/2 x 16-3/16 x 1-1/2 Hydraulic Cylinder

Ref. No.	Description	Part No.	No. Req.
1	Shaft	386550	1
2	Unit Head	386560	1
3	Piston	386570	1
4	Lock Nut 1-14	386580	1
5	Bushing	386860	2
6	Seal Kit	386590	1
6A	Piston Seal	-	*1
6B	O-Ring	-	*1
6C	Wear Ring	-	*1
6D	Shaft O-Ring	-	*1
6E	O-Ring	-	*1
6F	Back Up Washer	-	*1
6G	Loaded U-Cup	-	*1
6H	Rod Wiper	-	*1



510640 4-1/2 x 8-3/16 x 1-1/2 Hydraulic Cylinder

Ref. No.	Description	Part No.	No. Req.
1	Shaft Weldment	510650	1
2	Piston	386620	1
3	Unit Head	510660	1
4	Lock Nut	387020	1
5	Clevis Pin Weld	386640	2
6	5/16 Lock Washer	023620	2
7	Hex Bolt 5/16 x 3/4	012140	2
8	Seal Kit	386650	1
8A	Piston Seal	-	*1
8B	O-Ring Load	-	*1
8C	Wear Ring	-	*1
8D	Shaft O-Ring	-	*1
8E	O-Ring	-	*1
8F	Back Up Washer	-	*1
8G	U-Cup	-	*1
8H	Rod Wiper	-	*1

HYDRAULICS, V2000-V3000

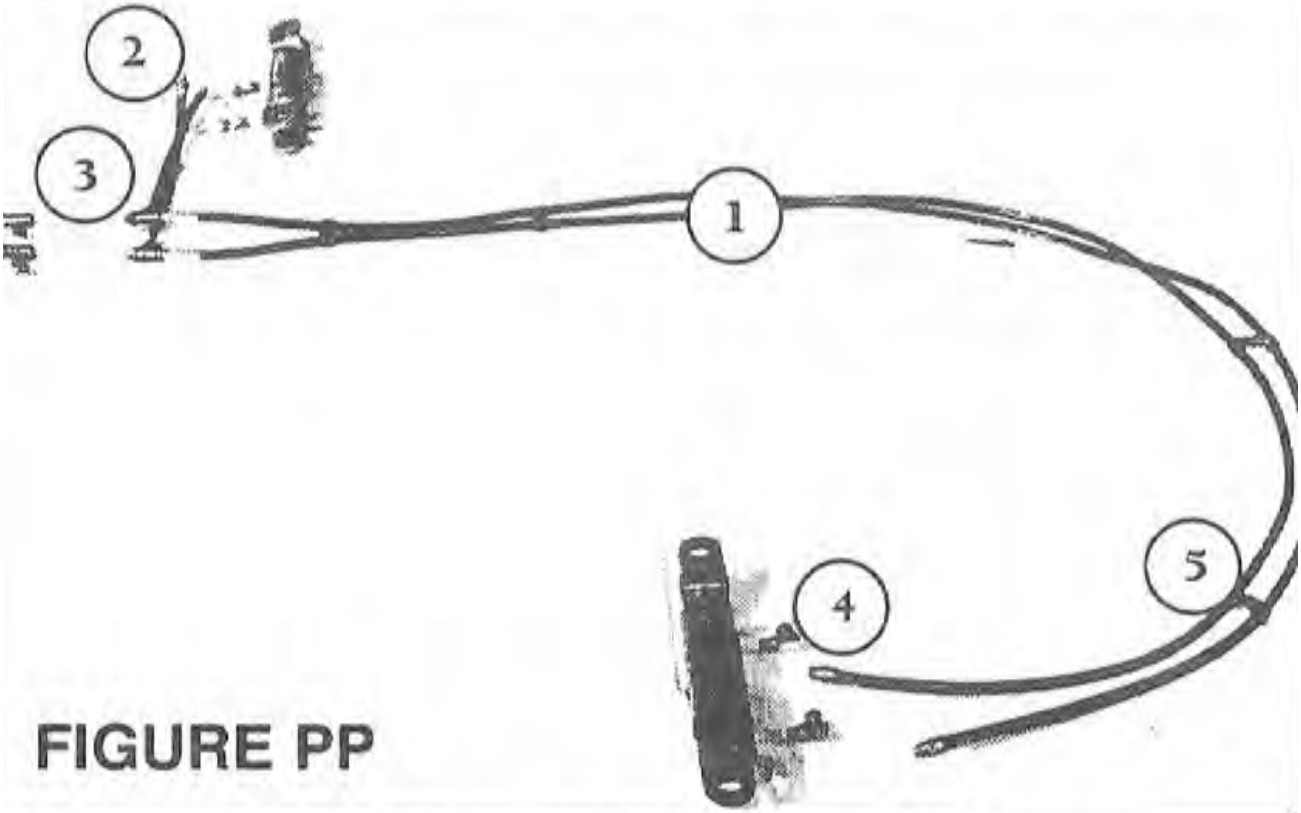
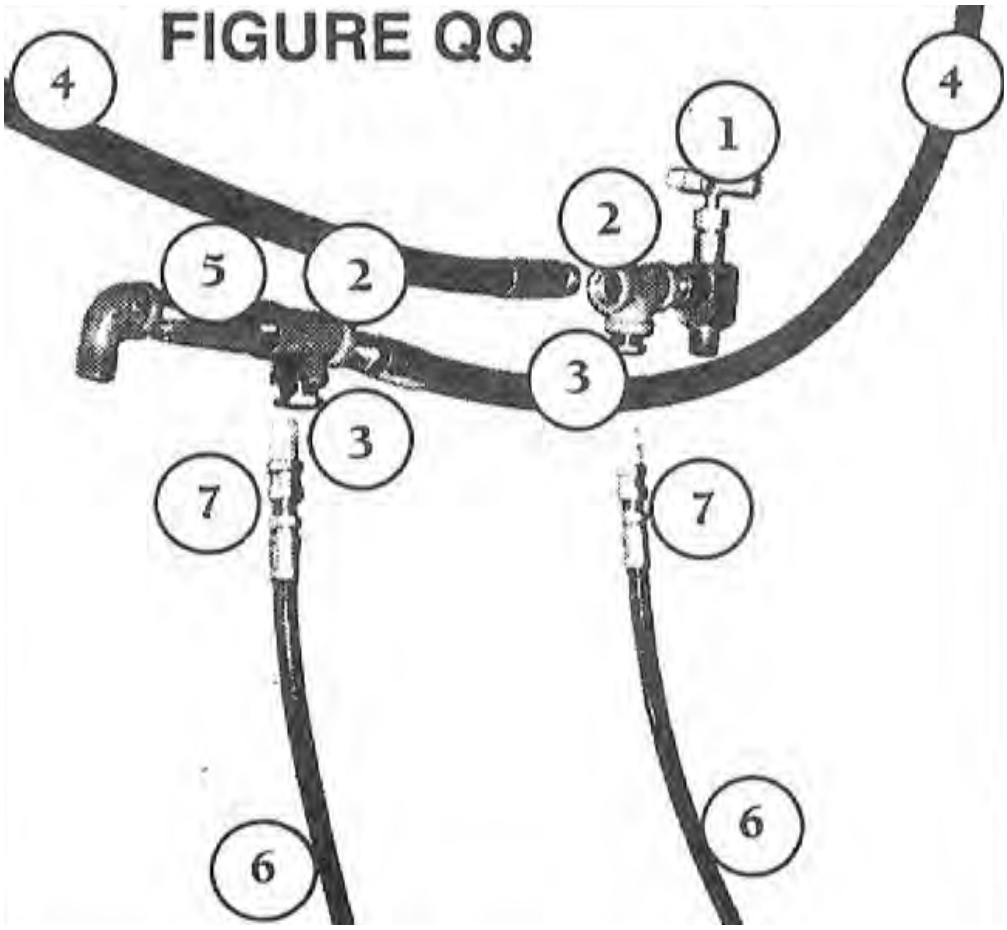


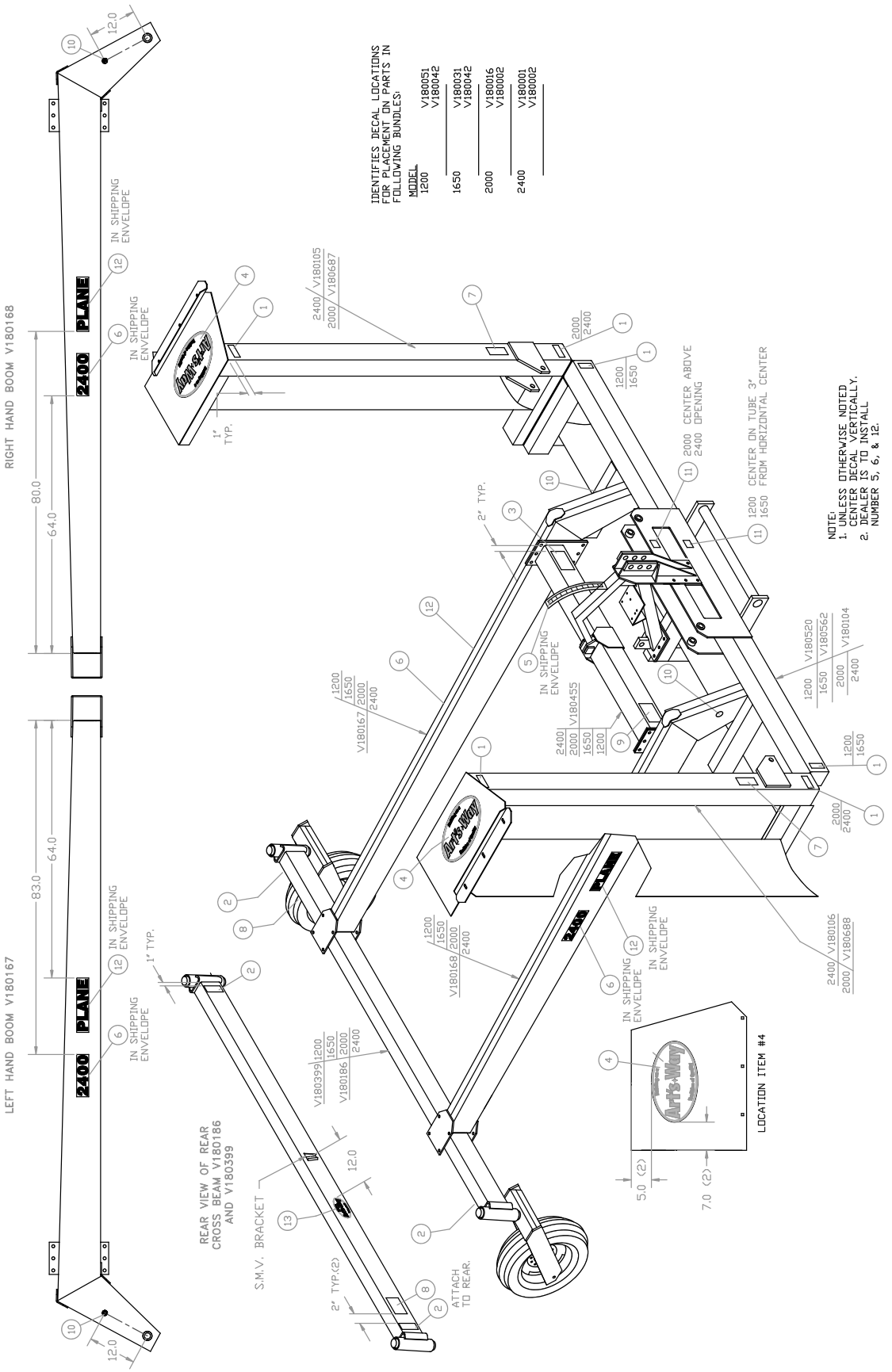
FIGURE PP

FIGURE QQ



PP	1	1/4 x 112" Hose (100" Hose on 2000, V180694)	V180433	4
	2	1/4 x 18" Hose	V291005	2
	3	1/4 x 6" Nipple	V625605	2
	-	1/4 Tee	V623010	4
	4	1/4 x 90° Swivel Fitting	V612024	6
	5	Hose Clamp	V180454	**
QQ	1	Shut-Off Valve	V180583	1
	2	1/2" Tee	V623020	2
	-	1/2 x 1-1/8" Nipple	V626605	2
	3	1/2 x 1/4" Bushing	277780	2
	4	1/2 x 72" Hose	166160	2
	5	Restrictor	V180624	1
	6	1/4 x 30" Hose	V180434	2
	7	1/4 Swivel Fitting	V612032	2

DECALS


IDENTIFIES DECAL LOCATIONS FOR PLACEMENT ON PARTS IN FOLLOWING BUNDLES:
MODEL
1200 V180051 V180042
1650 V180031 V180042
2000 V180016 V180002
2400 V180001 V180002
RIGHT HAND BOOM V180168
LEFT HAND BOOM V180167
80.0
64.0
83.0
PLANE
2400
IN SHIPPING ENVELOPE
1" TYP.
2" TYP.
12.0
REAR VIEW OF REAR CROSS BEAM V180186 AND V180399
S.M.V. BRACKET
2" TYP.(2)
ATTACH TO REAR.
LOCATION ITEM #4
5.0 (2)
7.0 (2)
2000 CENTER ABOVE 2400 OPENING
1200 1650 CENTER ON TUBE 3" FROM HORIZONTAL CENTER
NOTE:
1. UNLESS OTHERWISE NOTED CENTER DECAL VERTICALLY.
2. DEALER IS TO INSTALL NUMBER 5, 6, & 12.

ITEM NO.	PART NUMBER	DESCRIPTION	1200 QTY.	1650 QTY.	2000 QTY.	2400 QTY.	3000 QTY.
1	227420	AMBER REFLECTOR	4				
2	227430	RED REFLECTOR	2				
3	V180588	DECAL, PRE-OPERATION	1				
4	582430	DECAL, ART'S-WAY 20.1 L	2				
5	V180565	DECAL, INDICATOR	1				
6	531280	DECAL, 1200 PLANE	2	-	-	-	-
6	531290	DECAL, 1650 PLANE	-	2	-	-	-
6	531300	DECAL, 2000 PLANE	-	-	2	-	-
6	531310	DECAL, 2400 PLANE	-	-	-	2	-
6	599350	DECAL, 3000 PLANE	-	-	-	-	2
7	470130	DECAL, DANGER FALLING W.	2				
8	470140	DECAL, WARNING CRUSHING	1				
9	352530	DECAL, CAUTION, READ...	1				
10	146670	DECAL, GREASE	2				
11	220230	SERIAL NUMBER TAG	1				
12	531270	DECAL, PLANE	2				
13	582450	DECAL, ART'S-WAY 4X7	1				

NOTES:

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NOTES:

Art's-Way Manufacturing Co., Inc. TECHNICAL MANUALS

Manuals are available from your local dealer or Art's-Way Manufacturing Co., Inc. for the operation, service, and repair of your machine. For prompt convenient service, contact your local dealer for assistance in obtaining the manuals for your machine.

Your local dealer can expedite your order for operator manuals, illustrated parts catalogs, service manuals, and maintenance records.

Always give the Machine Name, Model, and Serial Number so your local dealer can provide the correct manuals for your machine.

Art's-Way Manufacturing Co., Inc. reserves the right to make improvements in design or changes in specifications at any time without incurring any obligation to install them on units previously sold.

ART'S-WAY MANUFACTURING CO., INC.
HWY 9 WEST - PO Box 288
Armstrong, IA. 50514 U.S.A