



Patrol Wing Operation and Maintenance Manual

FOR SERIAL NUMBERS 1367 & UP



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**When ordering parts, please refer to the
 Model & serial number of your plow.**

They are on the back cover of this manual.

Manual No. BON-000913

SAFETY FIRST

Please read this manual before attempting to install or operate this equipment.



The symbol at left means ALERT. Any time you see this symbol, you are being warned that your safety is in danger! Please be careful!

GUIDELINES TO FOLLOW:

1. Turn off all power including truck engine when servicing or installing equipment.
2. Follow all recommended operation procedures.
3. Follow a regular maintenance schedule so that your equipment is kept in good operating condition at all times. Improper maintenance can lead to failure during operation, which makes for unsafe conditions.
4. Recognize and avoid hazardous situations during the installation, operation, maintenance, and servicing of equipment.
5. Please pay attention to, and respect, safety decals. They are there to protect you from injury.

AVOID ACCIDENTS

Most accidents, whether they occur in industry, on the farm, at home, or on the highway, are caused by failure of some individual to follow simple and fundamental safety rules or regulations. For this reason, most accidents can be prevented by recognizing the real cause and doing something about it before the accident occurs.

Regardless of the care used in the design and construction of any type of equipment, there are many conditions that cannot be completely safeguarded against without interfering with reasonable accessibility and efficient operation.

A careful operator is the best insurance against an accident. The complete observance of one simple rule would prevent many thousand serious injuries each year. That rule is:

***NEVER ATTEMPT TO CLEAN, OIL, OR ADJUST
A MACHINE WHILE IT IS IN MOTION.***

NATIONAL SAFETY COUNCIL

PLEASE, ALWAYS THINK SAFETY FIRST!

The purpose of this manual is to inform the person using the unit with the necessary information to properly install, operate, and maintain this unit. These instructions cannot replace the fundamental knowledge that a person must possess in order to safely and adequately operate this unit. The person must be qualified and possess the clear thinking necessary to install and operate this equipment. Since the life of any machine depends largely upon the care it is given, we suggest that this manual be read thoroughly and referred to regularly by anyone working on or around this unit. If for any reason you do not understand the instructions, please call your authorized service center or our office at (815) 284-3819. It has been our experience that by following these installation and maintenance instructions, and by observing the operation of this equipment, you will have sufficient understanding of how to troubleshoot and correct all normal problems that you may encounter during the life of the equipment.

THE NEED FOR SAFETY CANNOT BE STRESSED ENOUGH. WE URGE YOU TO MAKE SAFETY YOUR TOP PRIORITY WHEN OPERATING THIS UNIT OR ANY OTHER EQUIPMENT.

**ACCIDENTS HURT!
ACCIDENTS COST!
ACCIDENTS CAN BE AVOIDED!**

General Maintenance Guidelines



Caution – the following items must be checked before initial start-up of the new wing.

Initial servicing:

- Check all bolts for tightness. Torque as required if loose.
- Check for missing or broken cotter pins.
- Grease all fittings as required.
- Verify all hydraulic fittings are tight and not leaking.
- Check all hydraulic lines for damage or kinks.

After first hour of operation and every 8 hours thereafter:

- Check all bolts for tightness. Torque as required if loose.
- Check for missing or broken cotter pins.
- Verify all hydraulic fittings are tight and not leaking.
- Check cutting edge wear.



Caution – failure to check and replace worn cutting edges will result in damage to wing moldboard!

Opening the truck hood:

- **No side shift cylinder:** the wing post is installed with clearance provided to tilt the hood open
- **Side shift cylinder:** activate the side shift cylinder to shift the post to the side. Then open the hood.

Summer storage:

The wing moldboard can be removed during the summer months, or the complete front post can be slid out of the side plates.

It is a good idea to power wash your equipment after each use and prior to summer storage to prevent corrosion damage.

Lubrication

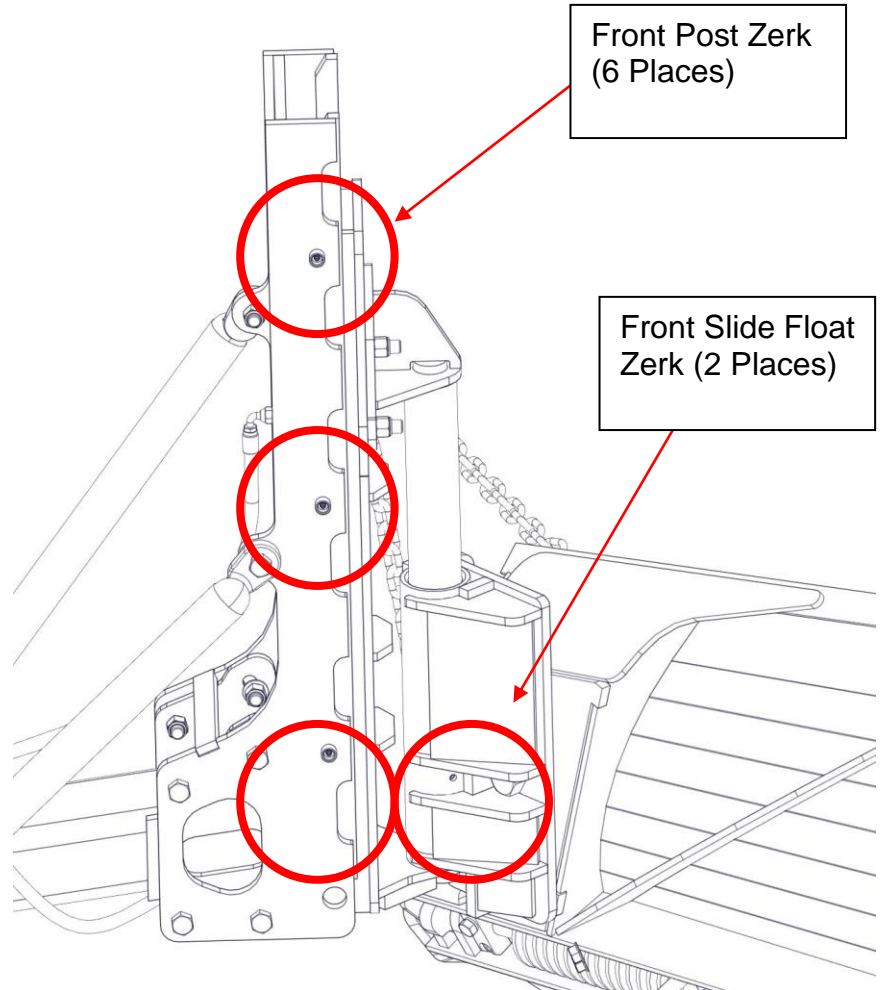
Several areas on your wing need regular lubrication. These components are high friction, constant motion parts, and lubrication will increase life of the wing, and eliminate binding & wear.

Front Post:

Each side of the post is equipped with 6 grease zerks. Lubricate these after each use of the wing.

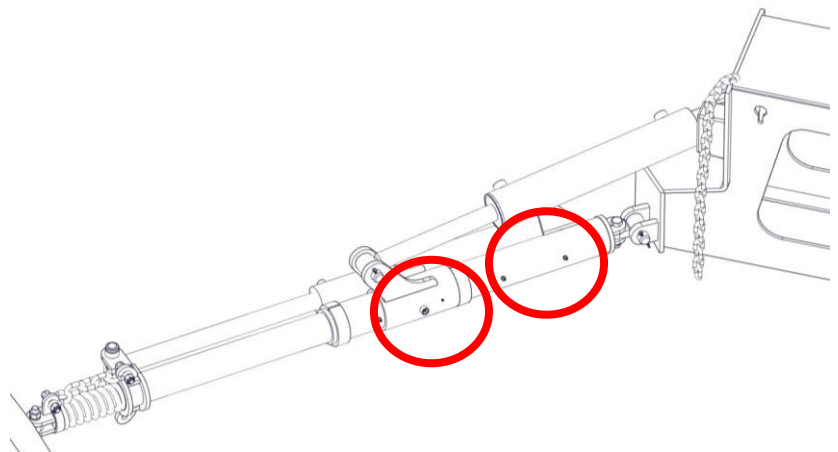
Front slide float:

The moldboard slide bracket floats up and down as the wing is plowing, taking up any variations in road surface, etc. This needs to be lubricated regularly. A grease fitting is located on both the front and back sides of the float. Lubricate these after each use of the wing.



Rear Buffer Brace:

The Buffer brace is equipped with grease fittings for the telescoping mechanism & slide mechanism. Lubricate these after each use of the wing



TIP:

Lubrication at the end of each shift rather than at the start assists in pushing moisture and salt out of the area being lubricated when it is still wet, reducing the time corrosion can build up.

General Operating Instructions

Special note: this manual is intended for use as a supplement to your specific municipal guidelines in snow plow operation, and is not intended to be a “*complete snow plowing guide*”. Training is the key to safe and proper operation of this equipment.



Warning – make sure all persons are in the clear before operating equipment.

General operation:

Special care and alertness needs to be practiced when plowing snow, because often conditions are hazardous and visibility is poor.

- Always be sure to have the truck’s hazard lighting system in operation while plowing. Plow hook up or shift change is a good time to check that all lighting is working properly.
- Maximum plowing speeds are recommended not to exceed 15 mph while plowing city streets, and 25 mph for rural routes.
- If the wing moldboard is equipped with a trip mechanism, allowing the cutting edge to trip and clear obstructions. This tripping mechanism should automatically return the cutting edge to its plowing position. However, if the springs are weak or if one or more are broken, then the operator may have to raise the wing slightly to allow the cutting edge to return to its normal position.
- When lowering the wing onto the road surface, picture how an airplane lands. Always touch down the heel (rear) of the moldboard first, followed by the toe (front). This will prevent the lead corner of the cutting edge from digging into the roadway, and potentially causing damage to the truck or road surface.
- If the wing is equipped with a hydraulic buffer brace, only operate this cylinder when the wing is on the ground. **Never operate the buffer brace cylinder with the wing in the stowed position.** Note: this does not apply if the wing is equipped with a rear heel cylinder, illustrated on page 16.

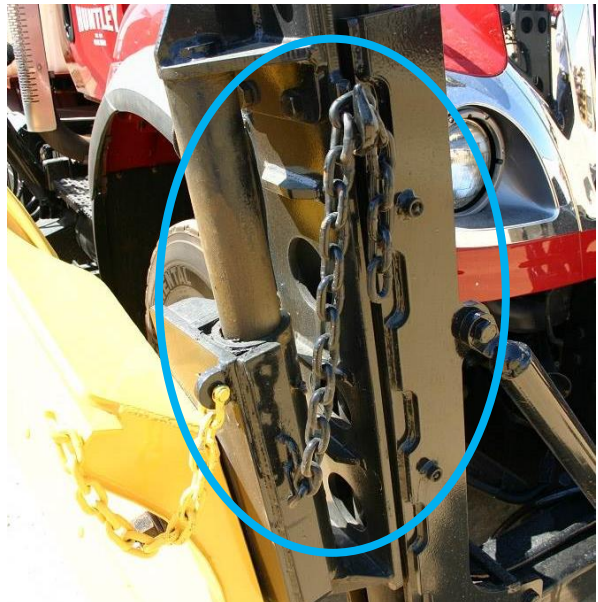
Safety chains:

The wing is equipped with three safety chains: two at the front, and one at the rear near the buffer brace. Use them as follows:

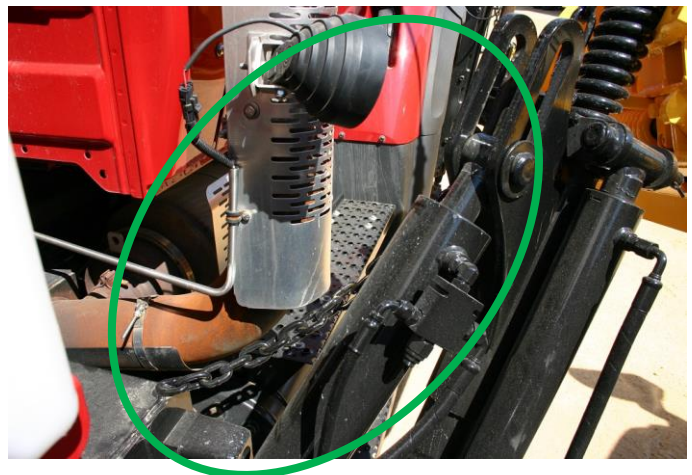
- The chain attached to the moldboard is a safety for the main moldboard mount bolt, keeping the moldboard from swinging back into the truck should the bolt break. **This chain needs to be hooked at all times.**



- The chain attached to the front post is a downward limit chain. This can be adjusted to limit the extreme lower position of the front of the moldboard. **This should be adjusted with the front of the moldboard approx. 2" off the ground, and should remain hooked while in operation.**



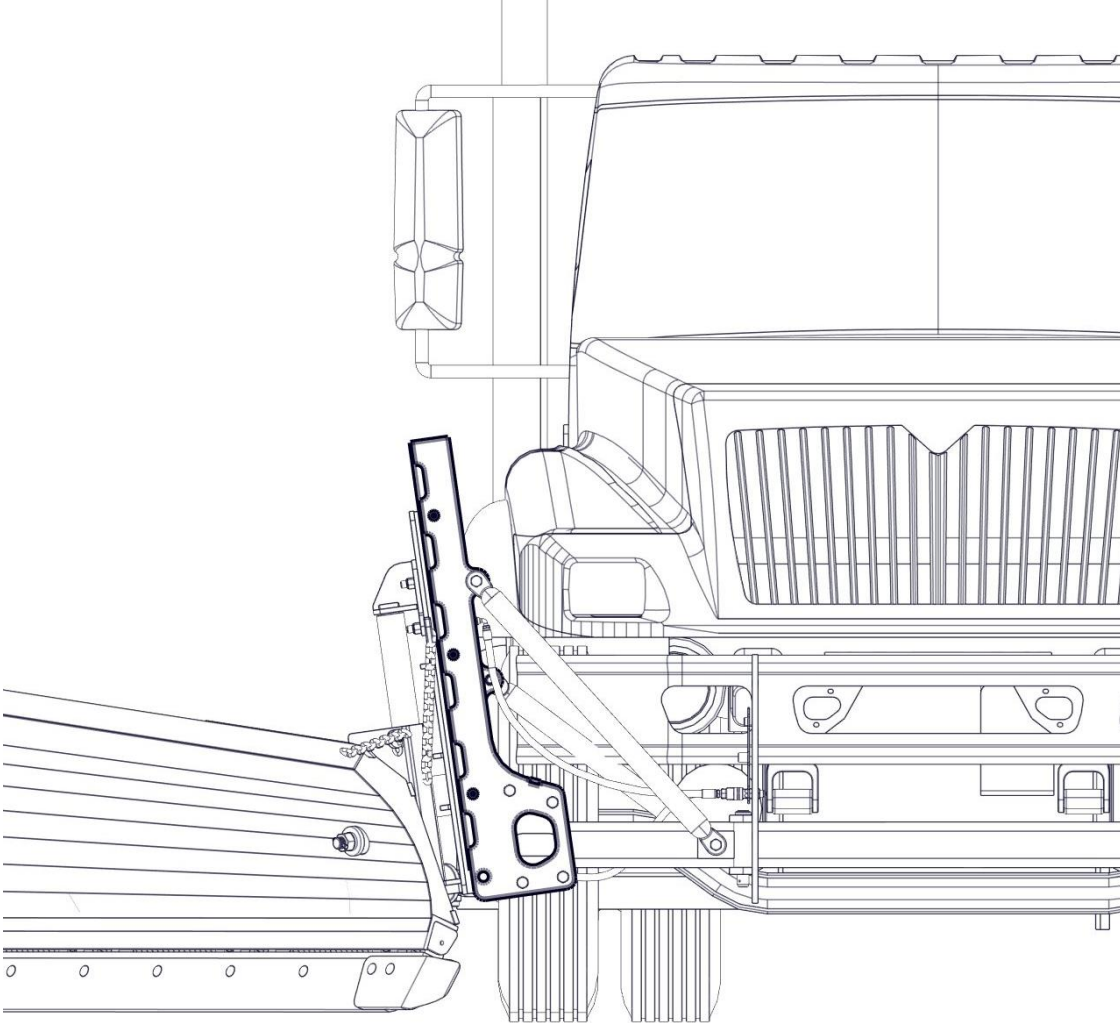
- The chain attached to the buffer brace is a stowage safety chain. **When the wing is stowed in the up position, this chain needs to be hooked.**



Tip Out Feature

Tip Out Feature: The Bonnell Front Mount Wing Post contains a tip out feature. The post can be positioned either vertically, or tipped out at the top. The following advantages apply when the post is tipped out:

- More clearance is provided for opening of the truck hood. This allows the post to be closer to the truck grill.
- Increased tire clearance is gained as the wing moldboard is raised, reducing potential tire damage when turning.
- The wing moldboard will be inboard farther when in the down position, providing more overlap with the front plow. This reduces the amount of windrow left between the plow & wing when turning.



Torsion Spring Replacement



The following instructions need to be followed step by step. Bonnell industries had proven these steps to be successful, repeatable and safe. Bonnell industries will not be responsible for any failure or injury with respect to these operations if these guidelines have not been followed. If there are any questions pertaining to these instructions, please contact us before proceeding.

Removing springs:

Tools required:

- One person
- One ½" pneumatic impact
- One helper bar (heavy wall tubing with at least 7/8" id by 4-5' long).
- Two 5/8"-11 x 6" bolts
- One 5/8" flat washer
- One 15/16" impact socket
- One ½" allen wrench for impact



WARNING – never remove all four bolts on the spring retainer blocks at one time! This may cause the spring to fly out of its position and cause injury to anyone in its path!

1. Flip the plow over on its face and place supports under the cutting edge to hold the springs up at a good working height. **Warning – be sure the plow is very secure on stands before proceeding to change springs.**
2. Change one spring at a time so that there is always tension against the cutting edge. Failing to do this may allow the plow to start to trip after removing two or more springs which may in turn cause the plow to become unstable on the stands, creating a dangerous situation.
3. Remove the standard hex head bolt on the left (drivers) side of the spring, and replace with a 5/8"x6" bolt.
4. Remove the allen head bolt on the left (drivers) side of the spring, and replace with a 5/8"x6" bolt and flat washer. The flat washer is to keep the bolt from damaging the counter bore in the retainer block.
5. Loosen both bolts on the right (curb) side of the spring about five turns.
6. Slip the helper bar over the left end "tang" of the spring, and slowly but forcefully apply tension to it. Then release slowly. The spring should come up out of its nested position. Note – if the spring is broken, there may be little or no tension on it. If this is the case proceed to step 8.
7. At this point the spring will still hold some tension against the four bolts holding it. To relieve this tension loosen each of the four bolts a little at a time respectively until the spring is loose.
8. Remove the bolts and the spring and proceed to the spring installation section of this manual.

Two person spring installation:

Tools required:

- One ½” pneumatic impact
- One helper bar (heavy wall tubing with At least 7/8” id by 4-5’ long).
- One 5/8”-11 tap
- One 15/16” impact socket
- One ½” allen wrench for impact
- Anti-seize lubricant
- Air nozzle

1. Remove springs following the preceding instructions in this manual. Note – be sure to clean out all threaded holes in the retainer blocks with a tap. Use an air nozzle to blow out these holes, and apply anti-seize to the threads.
2. Slip the short end “tang” of the spring into the hole in the lower moldboard angle.
3. Coat the outer surface of the spring tube with anti-seize lubricant **NOTE: spring tube required for springs with ¾” diameter wire only!**
4. Insert the spring tube into the spring and slide the spring rod through the spring tube until it is nested in the retainer block on the right end of the spring.
5. Place the top half of the retainer block over the rod and start the proper bolts into the block. **Note – be sure to use anti-seize on the bolts.**
6. Using an impact, turn the bolts in as far as the spring tension will allow.
7. Note – this step requires two persons – one person needs to slip the helper bar over the spring and twist it until the spring drops down into its nested position. At the same time a second person needs to tighten the bolts as much as possible. This should bring the spring rod within ½” of being nested in the left end of the retainer block.
8. Place the top half of the retainer block over the rod on the left end of the spring and start the standard hex head bolt with a lock washer. Tighten this bolt down securely before trying to start the allen head bolt.
9. Start and tighten the allen head bolt, and retighten the bolts on the right end of the spring.

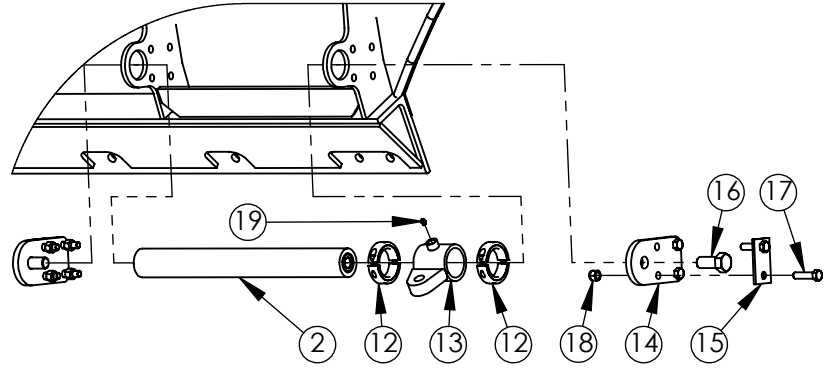
Spring installation complete.



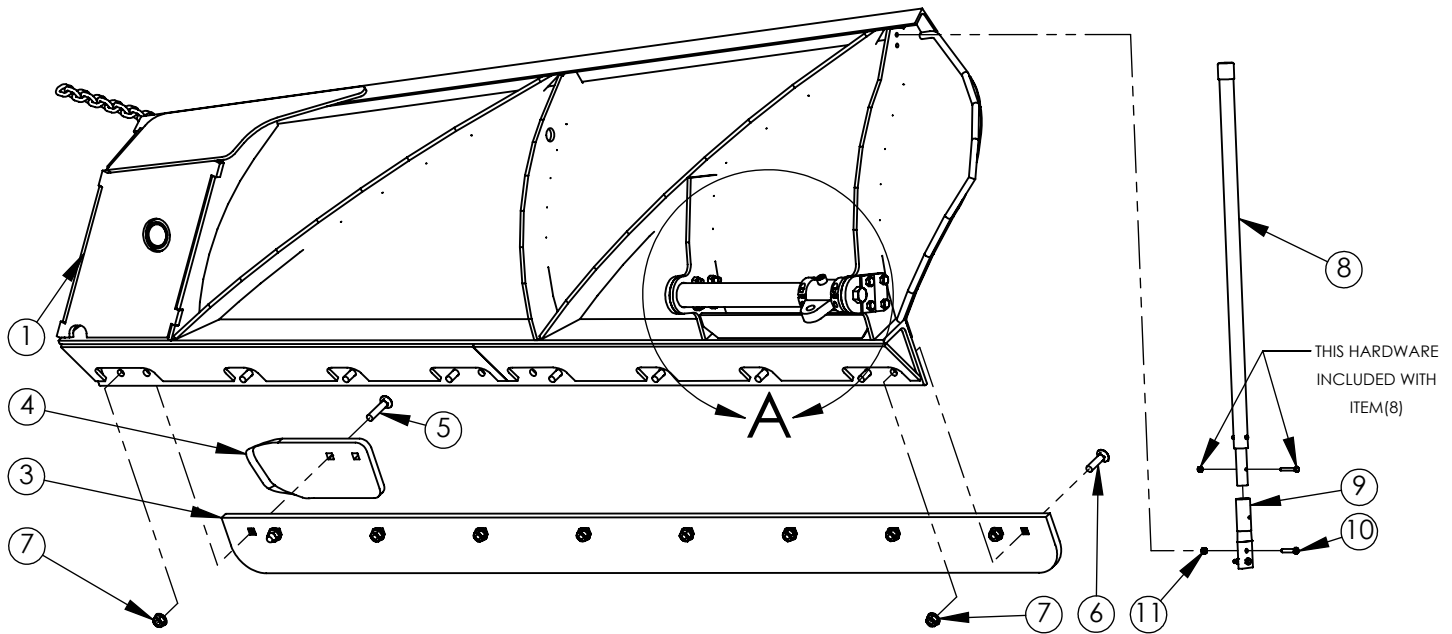
FILE NAME	PATROL WING MOLDBOARDS
DWG NAME	BOM

PATROL WING MOLDBOARDS AND STANDARD HARDWARE

DETAIL A



ITEM	DESCRIPTION	8' WING	9' WING	10' WING	11' WING
1	NON-TRIPPING WING MOLDBOARD	BON-007350	BON-007351	BON-007352	BON-007353
	EDGE TRIPPING WING MOLDBOARD	BON-007354	BON-007355	BON-007356	BON-007357
	MOLDBOARD TRIPPING WING MOLDBOARD	BON-007358	BON-007359	BON-007360	BON-007361



19	1	BON-000658	GREASE FITTING STRAIGHT, 1/4" - 28TPI THREAD STD.
18	8	BON-000321	1/2"-13TPI HEX LOCK NUT NYLON INSERT
17	8	BON-000109	1/2"-13TPI X 2" LONG GR.8 BOLT
16	2	BON-000209	7/8"-9TPI X 2" LONG YZ8 BOLT
15	2	BON-007371	NUT RETAINER PLATE FOR WING BUFFER BRACE CROSS TUBE
14	2	BON-007181	RETAINER PLATE FOR WING BUFFER BRACE CROSS TUBE
13	1	BON-007168	WING, BUFFER BRACE PIVOT END
12	2	6436K54	2-1/4" TWO PIECE CLAMP ON SHAFT COLLAR
11	2	BON-000320	5/16"-18TPI HEX LOCK NUT NYLON INSERT
10	2	BON-000032	5/16"-18TPI X 1 1/2" LONG GR.8 BOLT
9	1	BON-008000	BLADE GUIDE BRACKET
8	1	BON-008000-36	JUMBO BLADE GUIDE, 36"
7	AR	BON-000307F	5/8"-11TPI HEX NUT FLANGED GRADE 8
6	AR	BON-CB8250	CARRIAGE BOLT, 5/8"-11TPI X 2-1/2" GRADE 8
5	2	BON-CB8300	CARRIAGE BOLT, 5/8"-11TPI X 3" GRADE 8
4	1	BON-003234.3	CURB SHOE, WING TOE, 3/4" X 6"
3	1	BON-000710	11' PATROL WING STANDARD CUTTING EDGE
		BON-000706	10' PATROL WING STANDARD CUTTING EDGE
		X300643	9' PATROL WING STANDARD CUTTING EDGE
		X300642	8' PATROL WING STANDARD CUTTING EDGE
2	1	BON-007491	11' PATROL WING OUTER BRACE MOUNTING ROD, 16-27/32" O.A.L.
		BON-007414	10' PATROL WING OUTER BRACE MOUNTING ROD, 24-3/8" O.A.L.
		BON-007391	9' PATROL WING OUTER BRACE MOUNTING ROD, 12-1/4" O.A.L.
		BON-007055	STANDARD INNER BUFFER BRACE MOUNTING ROD, 20" O.A.L.
1	1	SEE TABLE ABOVE	SEE TABLE ABOVE
ITEM	QTY	PART NUMBER	DESCRIPTION

NOTE: TRIP EDGE MOLDBOARDS DO NOT INCLUDE TRIP SECTIONS, SPRINGS, OR HARDWARE. SEE FOLLOWING PAGES FOR TRIP SECTION HARDWARE.

***8' NON-TRIP WING SHOWN**

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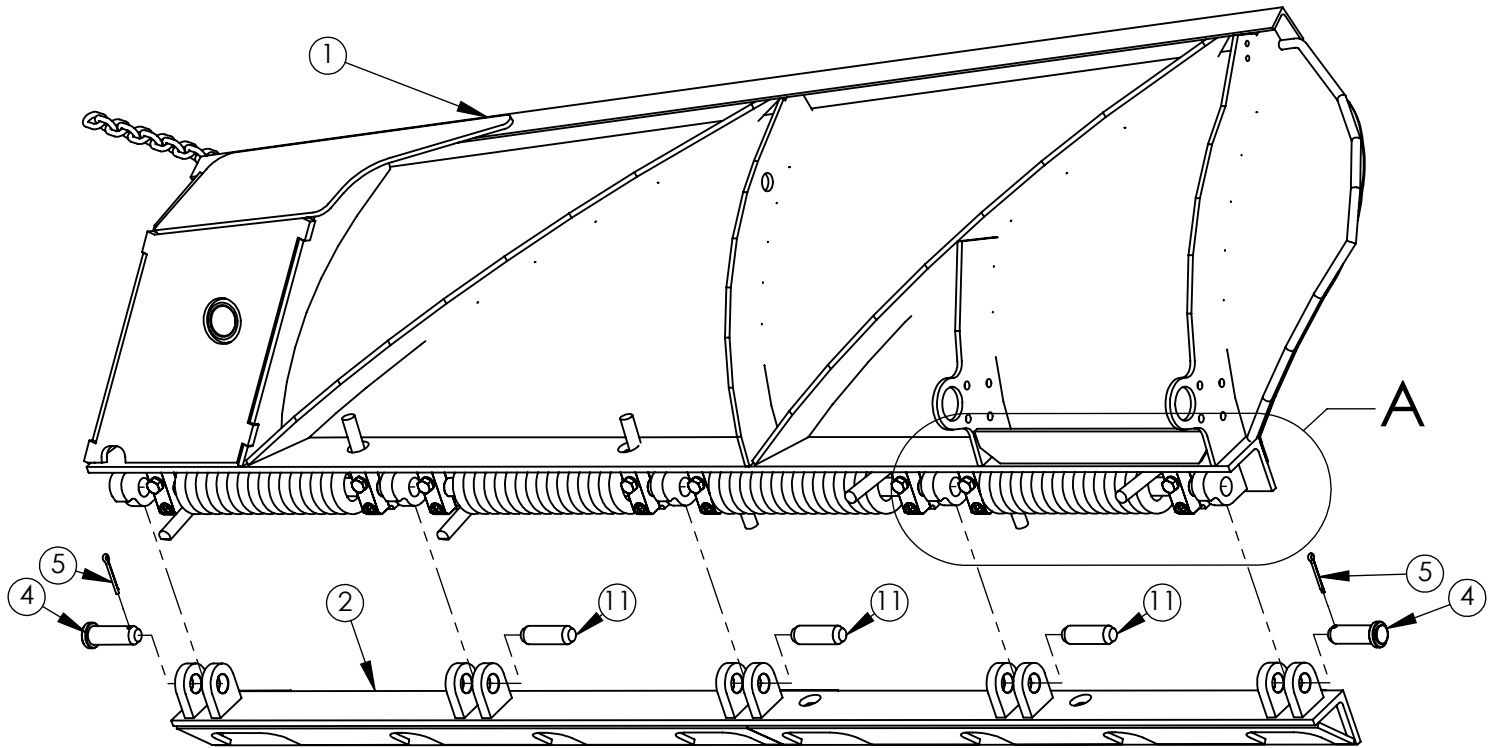
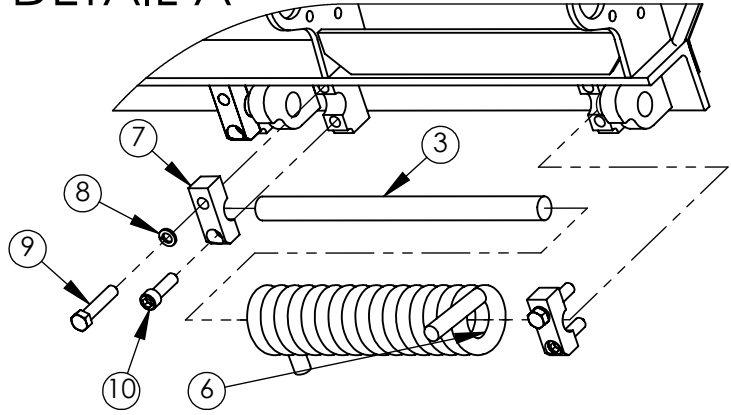


DIXON, ILLINOIS
PHONE: 800-851-9664

FILE NAME	PATROL WING MOLDBOARDS
DWG NAME	8' & 9' TRIP SECTIONS

DETAIL A

8' & 9' WING TORSION TRIP SECTION ASSEMBLY



11	3	BON-007029	HINGE PIN 8'/9' TORS TRIP WINGS, 1045 MATERIAL
10	8	SCS-5/8-11X2	5/8"-11TPI X 2" LONG SOCKET HEAD CAP SCREW
9	8	BON-000157	5/8"-11TPI X 3" LONG GR.8 BOLT
8	8	BON-000355	9/16" LOCK WASHER
7	8	BON-003427	TRIP EDGE SPLIT LUG
6	4	BON-007025	7/8 INCH DIA. TORSION TRIP SPRING
5	5	BON-000385	COTTER PIN 1/4 X 2
4	5	BON-003261	PIN, 1-1/4"x5-1/8", 4" WORKING LENGTH
3	4	BON-007030	9' PATROL WING TORSION TRIP SPRING ROD
		BON-007041	8' PATROL WING TORSION TRIP SPRING ROD
2	1	BON-010371	9' TORSION TRIP PATROL WING TRIP SECTION
		BON-010369	8' TORSION TRIP PATROL WING TRIP SECTION
1	1	BON-007355	9' TORSION TRIP PATROL WING MOLDBOARD
		BON-007354	8' TORSION TRIP PATROL WING MOLDBOARD
ITEM	QTY	PART NUMBER	DESCRIPTION

*8' TORSION TRIP WING SHOWN

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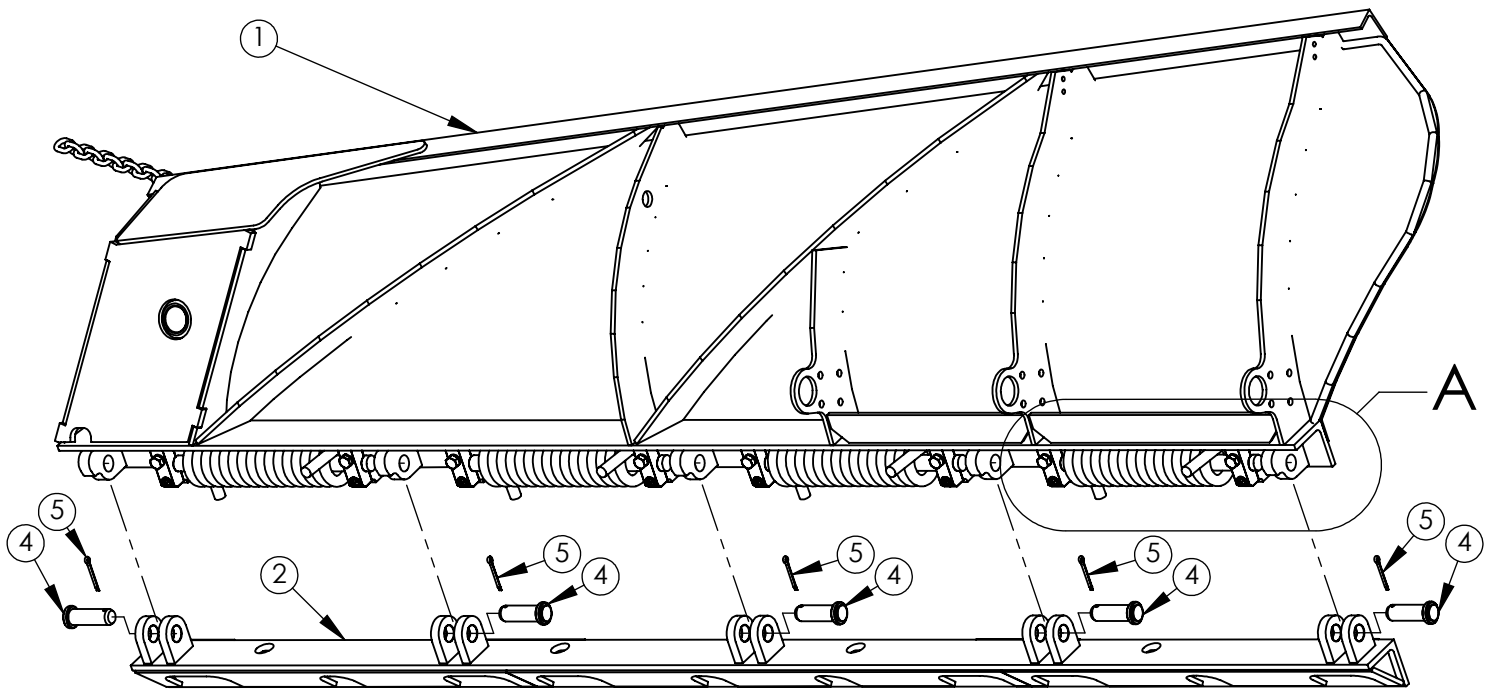
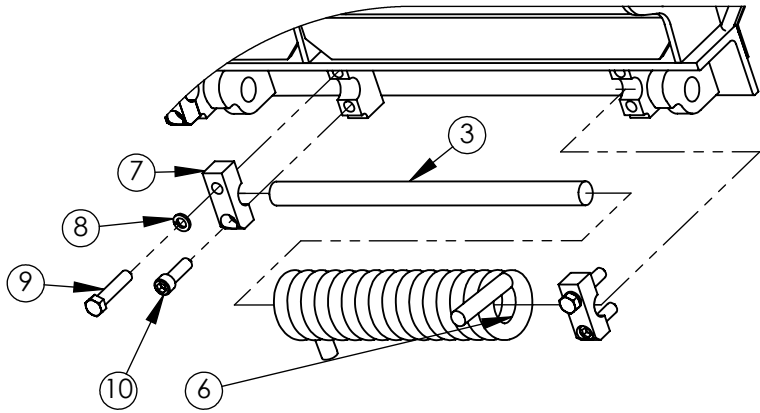


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FILE NAME	PATROL WING MOLDBOARDS
DWG NAME	10' & 11' TRIP SECTIONS

DETAIL A

10' & 11' WING TORSION TRIP SECTION ASSEMBLY



10	8	SCS-5/8-11X2	5/8"-11TPI X 2" LONG SOCKET HEAD CAP SCREW
9	8	BON-000157	5/8"-11TPI X 3" LONG GR.8 BOLT
8	8	BON-000355	9/16" LOCK WASHER
7	8	BON-003427	TRIP EDGE SPLIT LUG
6	4	BON-007025	7/8 INCH DIA. TORSION TRIP SPRING
5	5	BON-000385	COTTER PIN 1/4 X 2
4	5	BON-003261	PIN, 1-1/4"x5-1/8", 4" WORKING LENGTH
3	4	BON-003441	SPRING ROD 1-1/4" CRR X 20"
2	1	BON-010373	11' TORSION TRIP PATROL WING TRIP SECTION
		BON-010372	10' TORSION TRIP PATROL WING TRIP SECTION
1	1	BON-007357	11' TORSION TRIP PATROL WING MOLDBOARD
		BON-007356	10' TORSION TRIP PATROL WING MOLDBOARD
ITEM	QTY	PART NUMBER	DESCRIPTION

*10' TORSION TRIP WING SHOWN

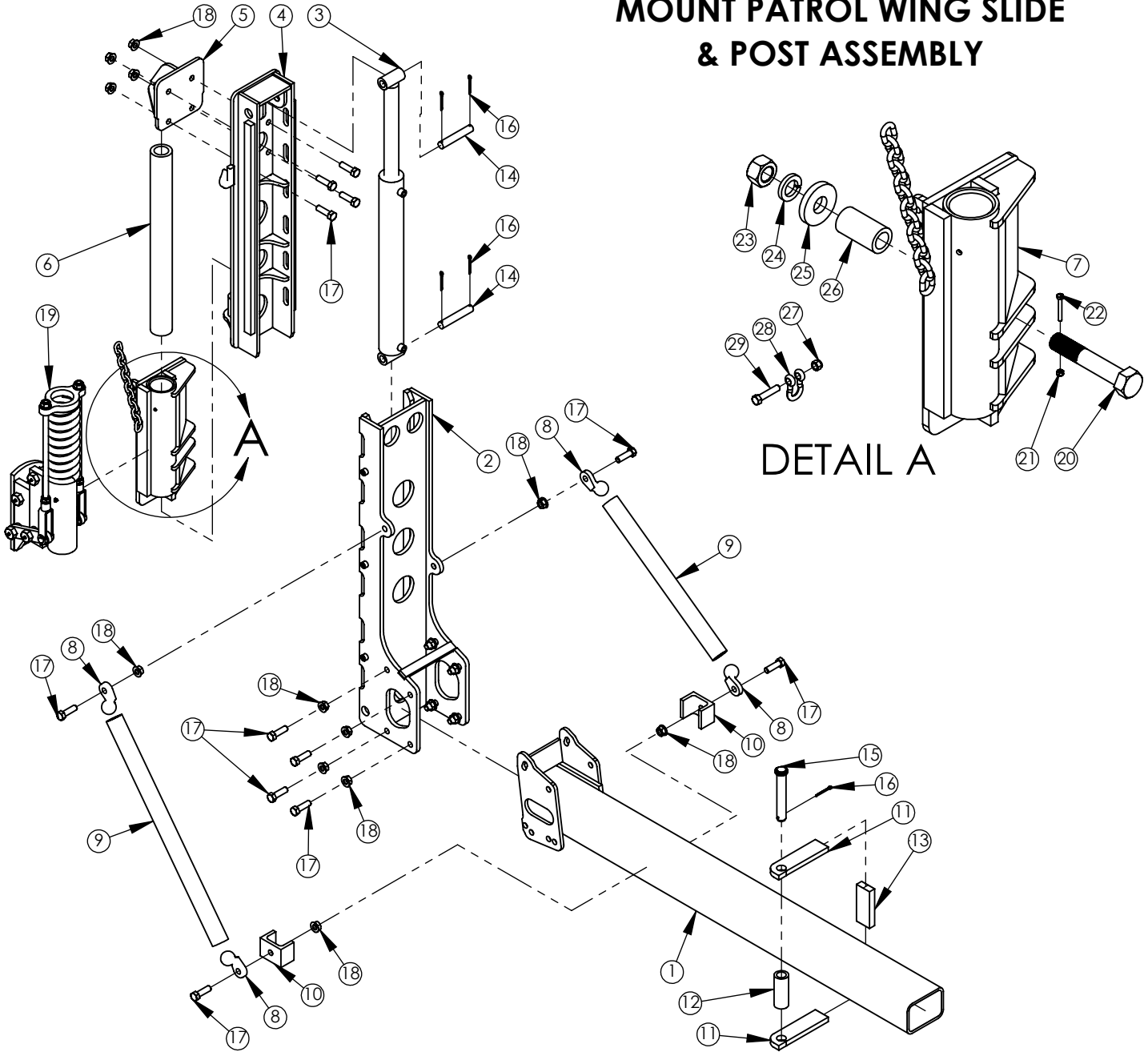
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FILE NAME	ASSY - WING POST
DWG NAME	24" & 30" STROKE

24" & 30" STROKE FRONT MOUNT PATROL WING SLIDE & POST ASSEMBLY



DETAIL A

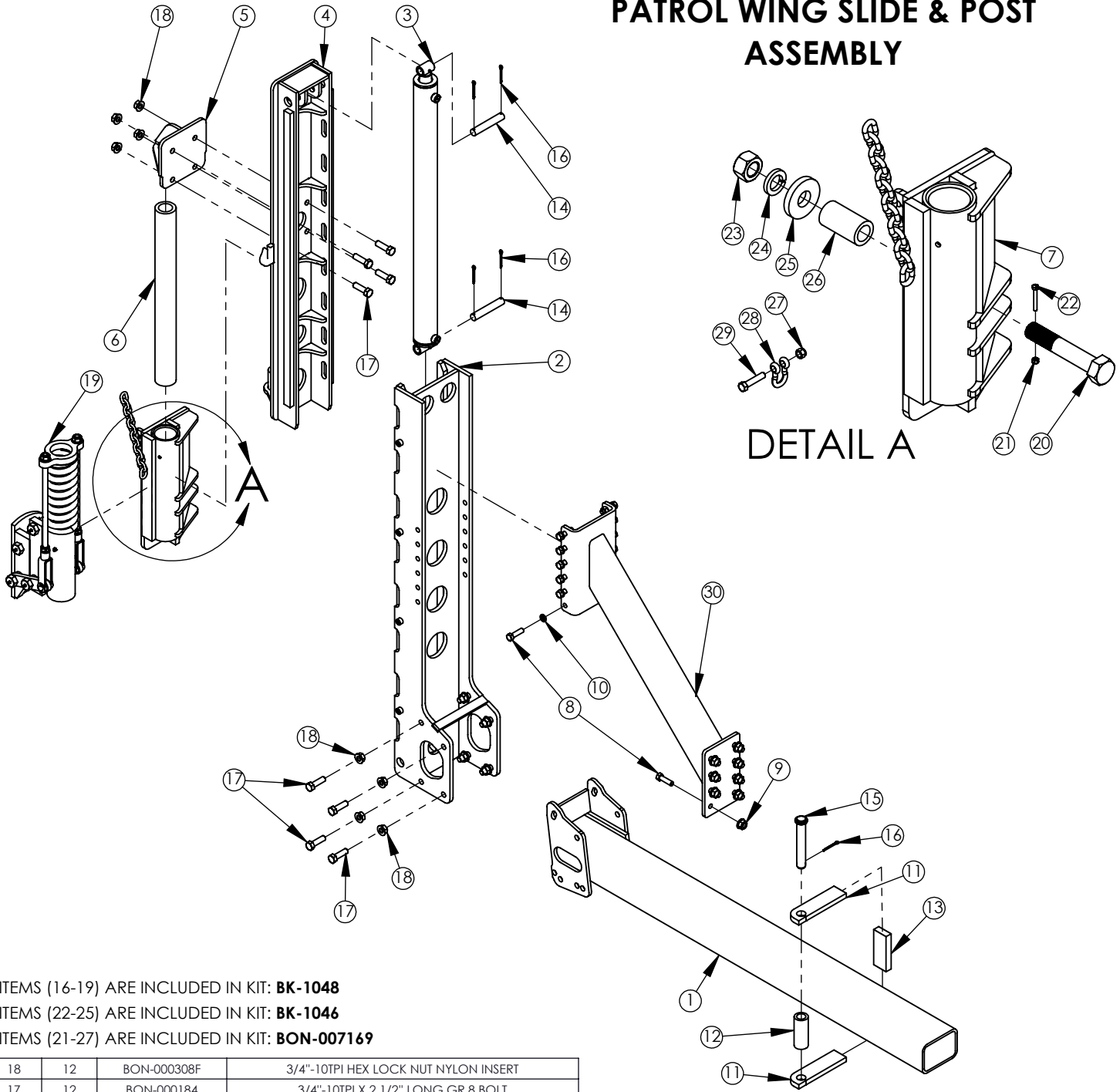
ITEM	QTY	PART NUMBER	DESCRIPTION
15	1	BON-001000	PIN, 1-1/4" X 8", 7" WORKING LENGTH
14	2	BON-007210-15	TOE CYLINDER PIN
13	1	BON-007210-8H	REAR GUIDE PLATE
12	1	BON-007210-9H	ANCHOR TUBE
11	2	BON-007210-5H	ANCHOR PLATE
10	2	BON-007210-10H	CHANNEL BRACKET
9	2	BON-007210-16	PIPE BRACE
8	4	BON-007105	WELD ON PIPE END
7	1	BON-007230	OUTER FLOAT WELDMENT
6	1	BON-007099	INNER SLIDE TUBE, WING 3X1/2W RT X 29-15/16 LONG
5	1	BON-007229	FLOAT TUBE RETAINER CAP
4	1	BON-007331	INNER SLIDE WELDMENT FOR 30" STROKE CYLINDER
		BON-007228	INNER SLIDE WELDMENT FOR 24" STROKE CYLINDER
3	1	BON-007200P-30	CYLINDER, HYD, 3" BORE X 30" STROKE CYLINDER
		BON-007200PN	CYLINDER, HYD, 3" BORE X 24" STROKE CYLINDER
2	1	BON-007330	OUTER SLIDE WELDMENT FOR 30" STROKE CYLINDER
		BON-007226	OUTER SLIDE WELDMENT FOR 24" STROKE CYLINDER
1	1	BON-007227	FRONT CROSS TUBE WELDMENT

ITEMS (16-18) ARE INCLUDED IN KIT: **BK-1048**
 ITEMS (21-24) ARE INCLUDED IN KIT: **BK-1046**
 ITEMS (20-26) ARE INCLUDED IN KIT: **BON-007169**

29	1	BON-000088	7/16"-14TPI X 2" LONG GR.8 BOLT
28	1	BON-000660.6	ROUND PIN ANCHOR SHACKLE 3/8" 1 TON RPAS S213
27	1	BON-000320.5	7/16"-14TPI HEX LOCK NUT NYLON INSERT
26	1	BON-007155	2X11/32W DOM X 3-11/16 IN. LG
25	1	BON-007156	PIVOT BUSHING RETAINER WASHER
24	1	BON-000361	1-1/4" LOCK WASHER
23	1	BON-000311	1 1/4"-7TPI HEX NUT GRADE 2 NUT
22	1	BON-000009	1/4"-20TPI X 2" LONG GR.8 BOLT
21	1	BON-000318.5	1/4"-20TPI HEX LOCK NUT NYLON INSERT
20	1	BON-007163	WING MOLDBOARD BOLT, DRILLED 1-1/4X7, GRADE 8
19	1	MOLDBOARD TRIP FLOAT ASSEMBLY - SEE SEPARATE BREAKDOWN	
18	16	BON-000308F	3/4"-10TPI HEX LOCK NUT NYLON INSERT
		BON-000184	3/4"-10TPI X 2 1/2" LONG GR.8 BOLT
16	5	BON-000385	COTTER PIN 1/4 X 2

FILE NAME	ASSY - WING POST
DWG NAME	40" STROKE

40" STROKE FRONT MOUNT PATROL WING SLIDE & POST ASSEMBLY



ITEMS (16-19) ARE INCLUDED IN KIT: **BK-1048**

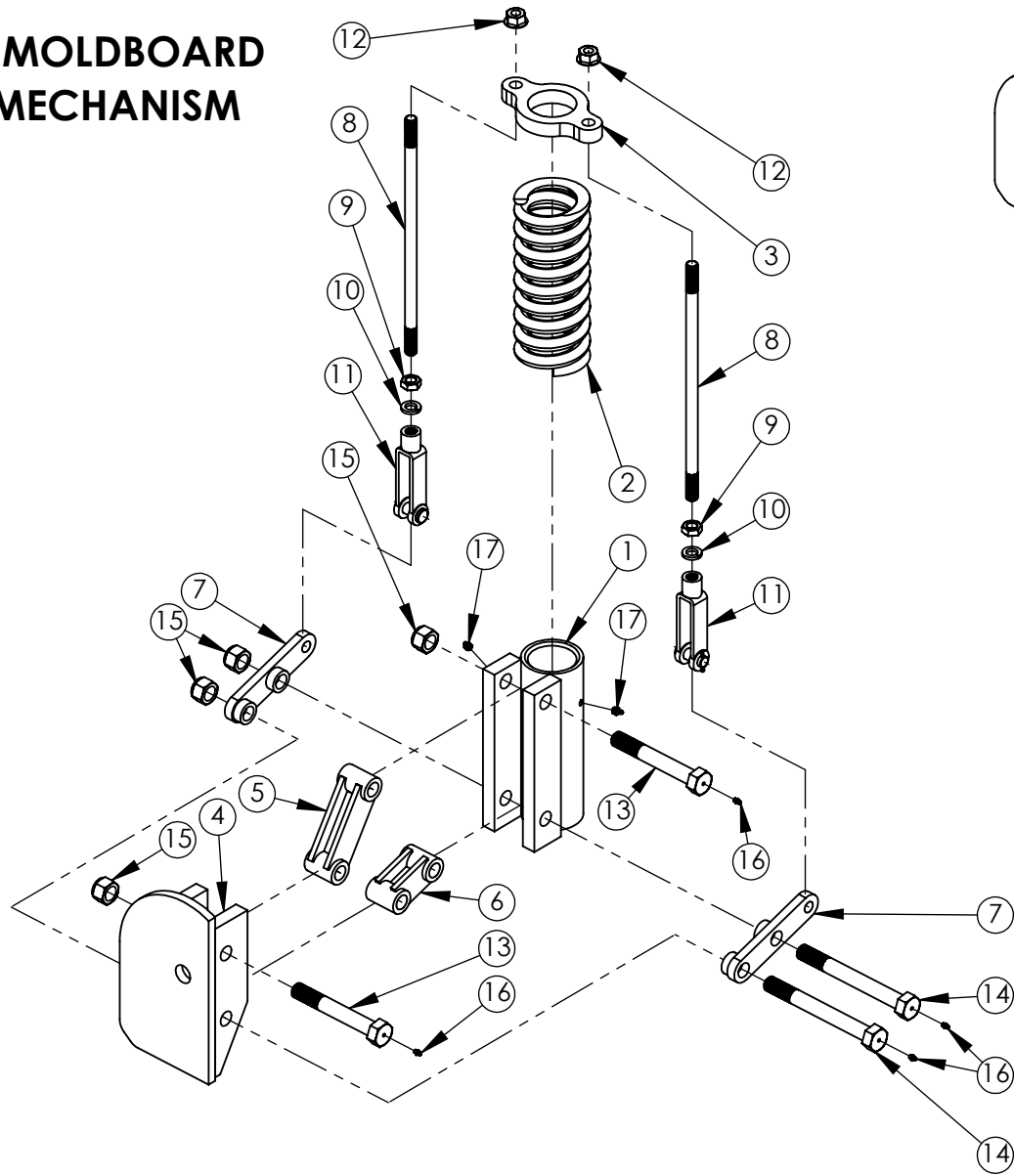
ITEMS (22-25) ARE INCLUDED IN KIT: **BK-1046**

ITEMS (21-27) ARE INCLUDED IN KIT: **BON-007169**

18	12	BON-000308F	3/4"-10TPI HEX LOCK NUT NYLON INSERT				
17	12	BON-000184	3/4"-10TPI X 2 1/2" LONG GR.8 BOLT				
16	5	BON-000385	COTTER PIN 1/4 X 2				
15	1	BON-001000	PIN, 1-1/4" X 8", 7" WORKING LENGTH				
14	2	BON-007210-15	TOE CYLINDER PIN				
13	1	BON-007210-8H	REAR GUIDE PLATE				
12	1	BON-007210-9H	ANCHOR TUBE	30	1	BON-007424	36" BENCHING BRACE
11	2	BON-007210-5H	ANCHOR PLATE	29	1	BON-000088	7/16"-14TPI X 2" LONG GR.8 BOLT
10	12	BON-000356	5/8" LOCK WASHER	28	1	BON-000660.6	ROUND PIN ANCHOR SHACKLE 3/8" 1 TON RPAS S213
9	8	BON-000322	5/8"-11TPI HEX LOCK NUT NYLON INSERT	27	1	BON-000320.5	7/16"-14TPI HEX LOCK NUT NYLON INSERT
8	20	BON-000154	5/8"-11TPI X 2 1/4" LONG GR.8 BOLT	26	1	BON-007155	2X11/32W DOM X 3-11/16 IN. LG
7	1	BON-007230	OUTER FLOAT WELDMENT	25	1	BON-007156	PIVOT BUSHING RETAINER WASHER
6	1	BON-007099	INNER SLIDE TUBE, WING 3X1/2W RT X 29-15/16 LONG	24	1	BON-000361	1-1/4" LOCK WASHER
5	1	BON-007229	FLOAT TUBE RETAINER CAP	23	1	BON-000311	1 1/4"-7TPI HEX NUT GRADE 2 NUT
4	1	BON-007421	INNER SLIDE WELDMENT FOR 40" STROKE CYLINDER	22	1	BON-000009	1/4"-20TPI X 2" LONG GR.8 BOLT
3	1	BON-007423	CYLINDER, HYD, 3" BORE X 40" STROKE CYLINDER	21	1	BON-000318.5	1/4"-20TPI HEX LOCK NUT NYLON INSERT
2	1	BON-007442	OUTER SLIDE WELDMENT FOR 40" STROKE CYLINDER	20	1	BON-007163	WING MOLDBOARD BOLT, DRILLED 1-1/4X7, GRADE 8
1	1	BON-007227	FRONT CROSS TUBE WELDMENT	19	1	MOLDBOARD TRIP FLOAT ASSEMBLY - SEE SEPARATE BREAKDOWN	
ITEM	QTY	PART NUMBER	DESCRIPTION	ITEM	QTY	PART NUMBER	DESCRIPTION

FILE NAME	WING MOLDBOARD TRIP MECHANISM
DWG NAME	BOM

WING MOLDBOARD TRIP MECHANISM



17	2	BON-000652	GREASE FITTING, STRAIGHT 1/8" NPT
16	4	BON-000658	GREASE FITTING, STRAIGHT 1/4" NPT
15	4	BON-000310.3	1"-8 TPI NYLON HEX LOCK NUT GRADE 2
14	2	BON-007213	WING MOLDBOARD TRIP - LONG HINGE BOLT
13	2	BON-007214	WING MOLDBOARD TRIP - SHORT HINGE BOLT
12	2	BON-000308F	3/4"-10TPI HEX NUT FLANGED GRADE 8 LOCK NUT
11	2	BON-007205	WING MOLDBOARD TRIP - CLEVIS END
10	2	BON-000357	3/4" LOCK WASHER
9	2	BON-000333.3	3/4"-10 TPI HEX JAM NUT
8	2	BON-007204	WING MOLDBOARD TRIP - THREADED ROD
7	2	BON-007197	WING MOLDBOARD TRIP - UPPER PIVOT LINKAGE
6	1	BON-007198	WING MOLDBOARD TRIP - LOWER PIVOT LINKAGE
5	1	BON-007194	WING MOLDBOARD TRIP - UPPER TRIP LINKAGE
4	1	BON-007199	WING MOLDBOARD TRIP - OUTER TRIP WELDMENT
3	1	BON-007196	WING MOLDBOARD TRIP - SPRING CAP
2	1	BON-007195	WING MOLDBOARD TRIP - SPRING
1	1	BON-007193	WING MOLDBOARD TRIP - FLOAT WELDMENT
ITEM	QTY	PART NUMBER	DESCRIPTION

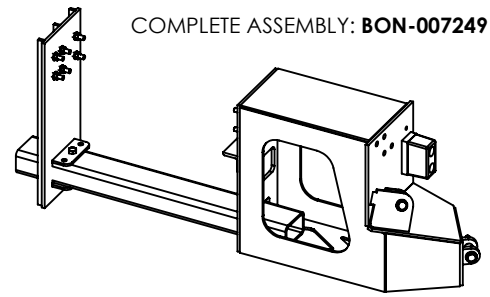
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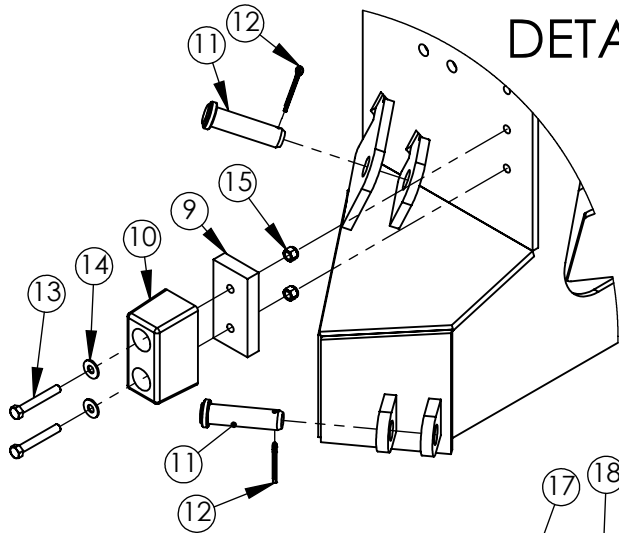
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FILE NAME	WING BOX
DWG NAME	BOM

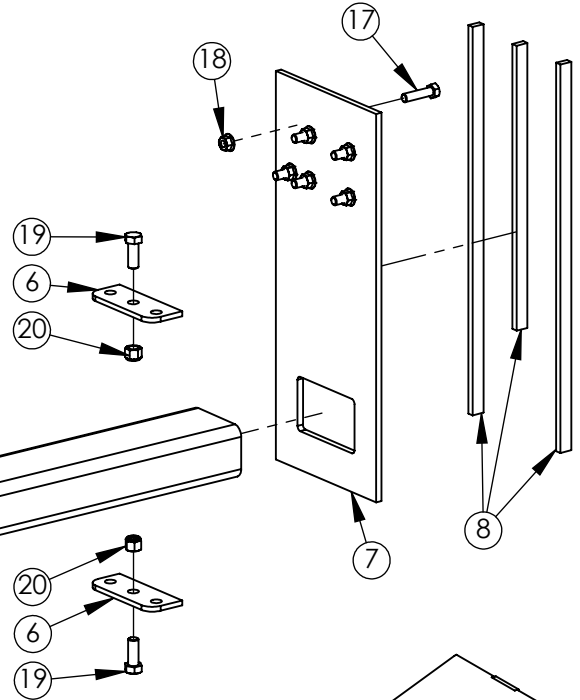
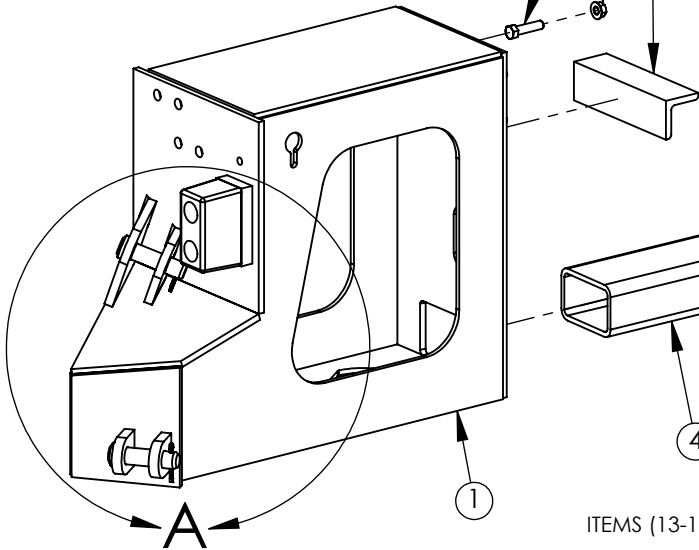
COMPLETE ASSEMBLY: **BON-007249**



DETAIL A



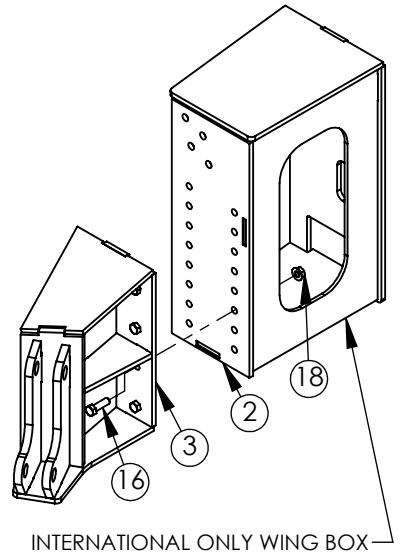
**FRONT MOUNT PATROL WING
SUPPORT BOX ASSEMBLY**



ITEMS (13-15) ARE INCLUDED IN KIT: **BK-1033**

ITEMS (17-18) ARE INCLUDED IN KIT: **BK-1031**

ITEMS (19-20) ARE INCLUDED IN KIT: **BK-1034**



INTERNATIONAL ONLY WING BOX

ITEM	QTY	PART NUMBER	DESCRIPTION
20	2	BON-000323	3/4"-10TPI HEX LOCK NUT NYLON INSERT
19	2	BON-000182	3/4"-10TPI X 2" LONG GR.8 BOLT
18	AR	BON-000307F	5/8"-11TPI HEX NUT GR.8 FLANGED
17	12	BON-000155	5/8"-11TPI X 2 1/2" LONG GR.8 BOLT
16	8	BON-000153	5/8"-11TPI X 2" LONG GR.8 BOLT
15	2	BON-000321	1/2"-13TPI HEX LOCK NUT NYLON INSERT
14	2	BON-000340	1/2" FLATWASHER
13	2	BON-000115	1/2"-13TPI X 3 1/2" LONG GR.8 BOLT
12	2	BON-000385	COTTER PIN 1/4 X 2
11	2	BON-003261	PIN, 1-1/4" X 5-1/8", 4" WORKING LENGTH
10	1	BUY-B5500	RUBBER BUMPER, 3"X3-1/2"X6", 2 BOLT HOLES
9	1	BON-007206	RUBBER BUMPER SPACER
8	3	BON-007142	STIFFENER, 1/2X1 HR FLAT A36X 30"
7	1	BON-007143	DRIVER SIDE FRT TUBE PLATE
6	2	BON-007188	UNIVERSAL TUBE MTG PLATE
5	1	BON-007296	KICKER ANGLE, L3X3X1/2 ANGLE A36 X 11"
4	1	BON-007225	CROSS TUBE, 6X4X3/8W RECT. TUBE A500 X 48"
3	1	BON-007393	BOLT ON EXTENSION, IH HV ONLY
2	1	BON-007392	BUFFER BRACE MOUNTING BOX, IH HV ONLY
1	1	BON-007215	BUFFER BRACE MOUNTING BOX, UNIVERSAL
ITEM	QTY	PART NUMBER	DESCRIPTION

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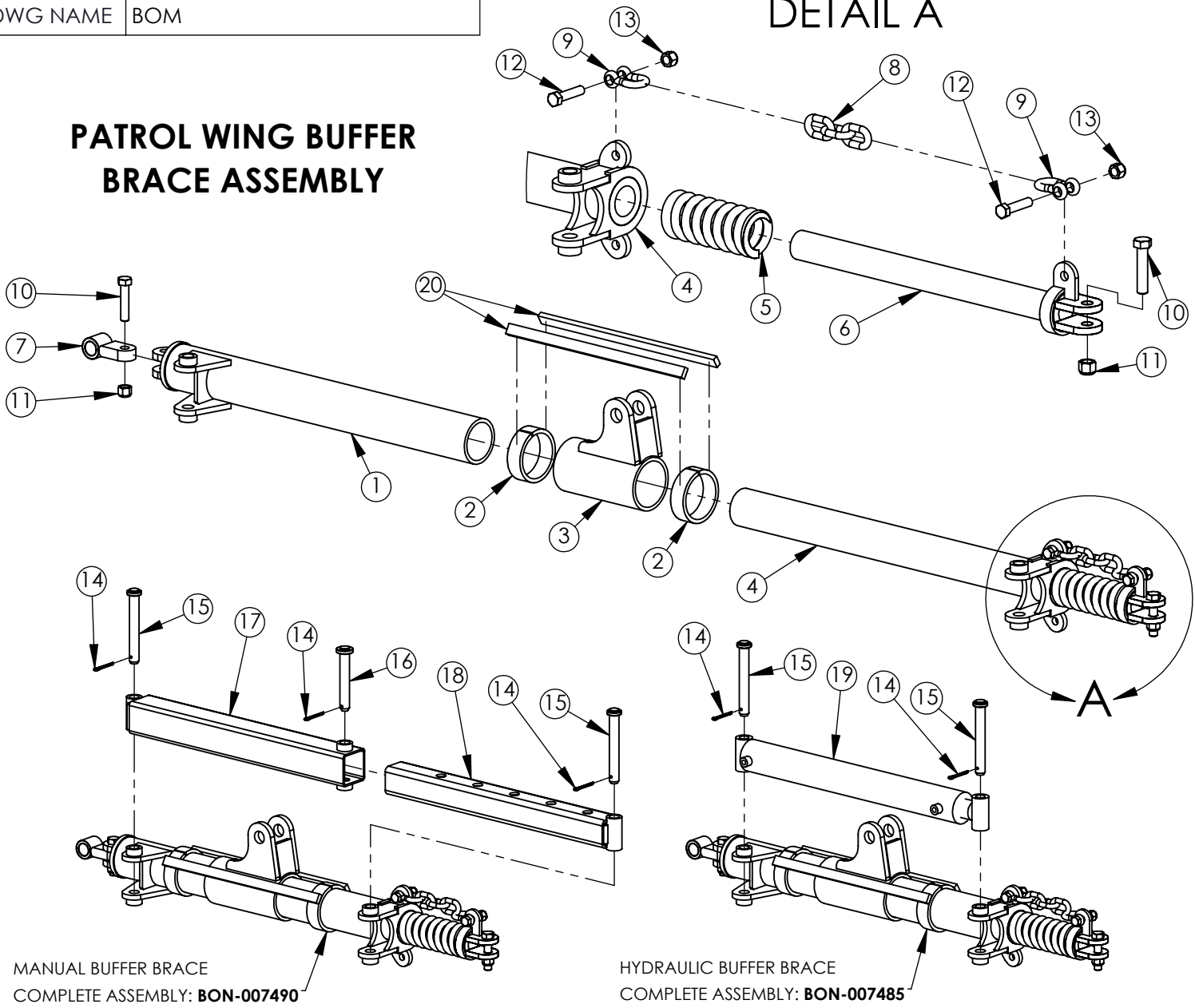


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FILE NAME	BUFFER BRACE
DWG NAME	BOM

DETAIL A

PATROL WING BUFFER BRACE ASSEMBLY



MANUAL BUFFER BRACE
COMPLETE ASSEMBLY: **BON-007490**

HYDRAULIC BUFFER BRACE
COMPLETE ASSEMBLY: **BON-007485**

ITEMS (10-14) ARE INCLUDED IN KIT: **BK-1032**

ITEM	QTY	PART NUMBER	DESCRIPTION
20	2	1/2X1	FLAT, HOT ROLLED A-36 1.7 LB/FT
19	1	BON-007200PN	HYDRAULIC CYLINDER, HYD, 3.000" X 24.000"
18	1	BON-007207	MANUAL BUFFER BRACE, INNER HOUSING
17	1	BON-007238	MANUAL BUFFER BRACE, OUTER HOUSING
16	1	BON-000994	PIN, 1" X 6-3/8" LG 5-3/4" WORKING LENGTH
15	2	BON-000995	PIN, 1" X 7-1/2" LG 6-5/8" WORKING LENGTH
14	2	BON-000385	COTTER PIN 1/4 X 2
13	2	BON-000322	5/8"-11TPI HEX LOCK NUT NYLON INSERT
12	2	BON-000156	5/8"-11TPI X 2 3/4" LONG GR.8 BOLT
11	2	BON-000323	3/4"-10 TPI HEX LOCK NUT NYLON INSERT
10	2	BON-000188	3/4"-10TPI X 3 1/2" LONG GR.8 BOLT
9	2	BON-000660.5	ROUND PIN ANCHOR SHACKLES
8	1	BON-007243	CHAIN FOR BUFFER BRACE, 3 LINKS
7	1	BON-007126	BUFFER BRACE PIVOT END
6	1	BON-007133	BUFFER BRACE INSERT, SPRING END
5	1	BON-007135	BUFFER BRACE SPRING
4	1	BON-007242	INNER SLIDE TUBE, FRONT MOUNT WING
3	1	BON-007335-16	HEEL CYLINDER FLOAT FOR 14" STROKE
2	2	BON-007349	BUFFER BRACE FLOAT STOP
1	1	BON-007241	OUTER SLIDE TUBE, FRONT MOUNT WING
ITEM	QTY	PART NUMBER	DESCRIPTION

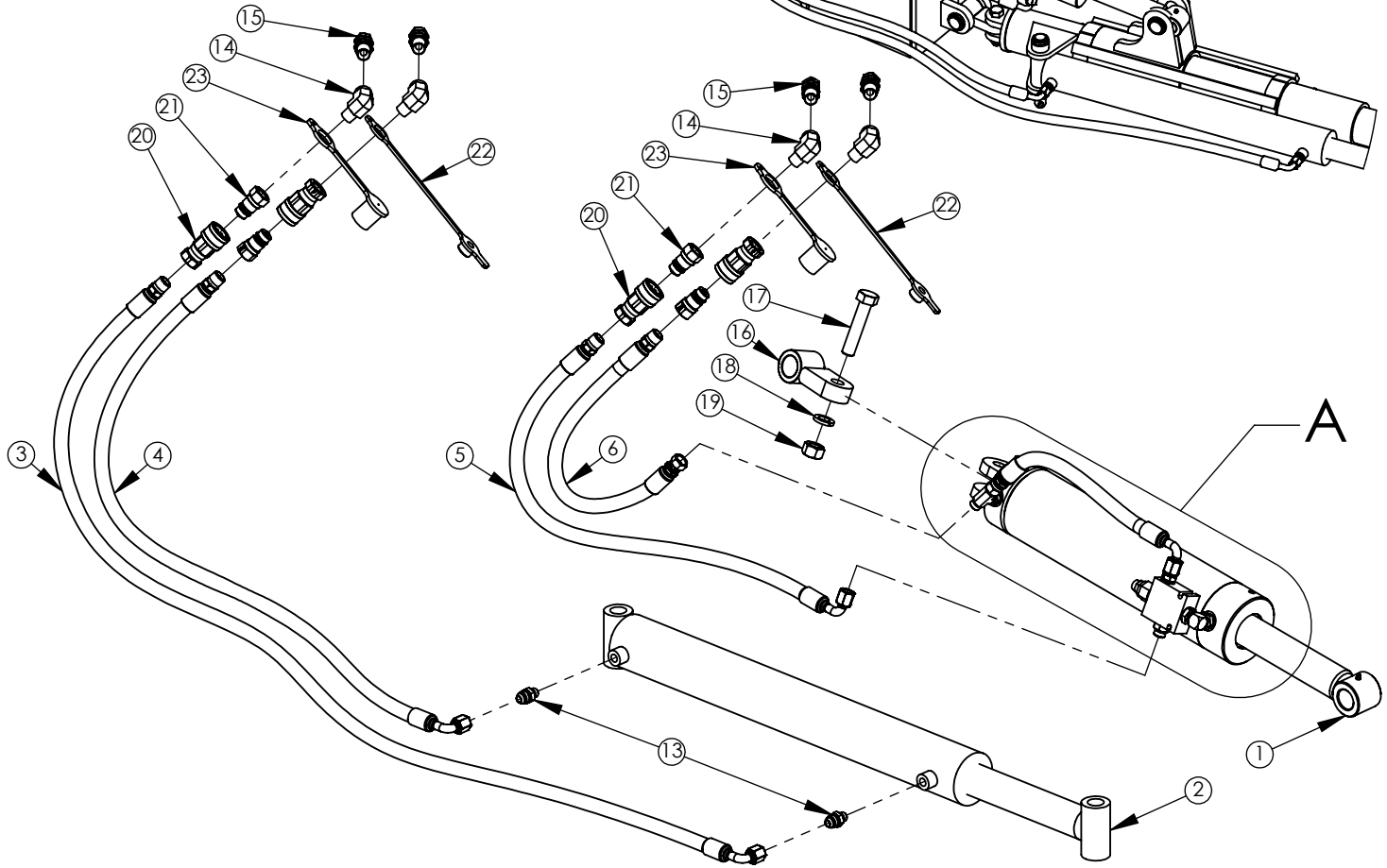
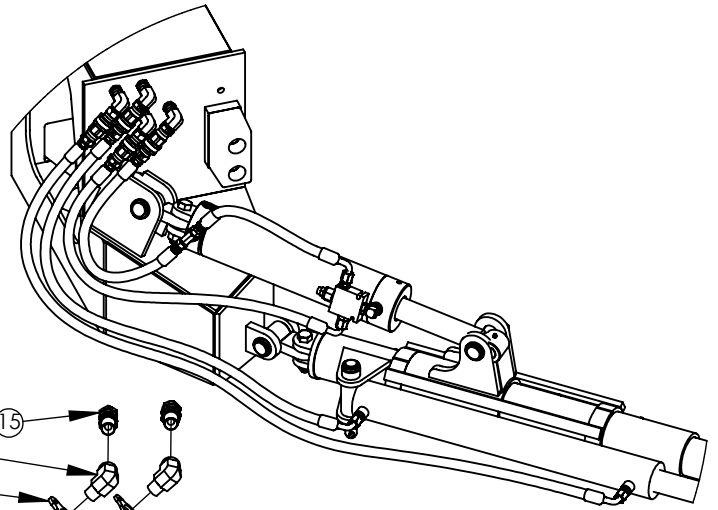
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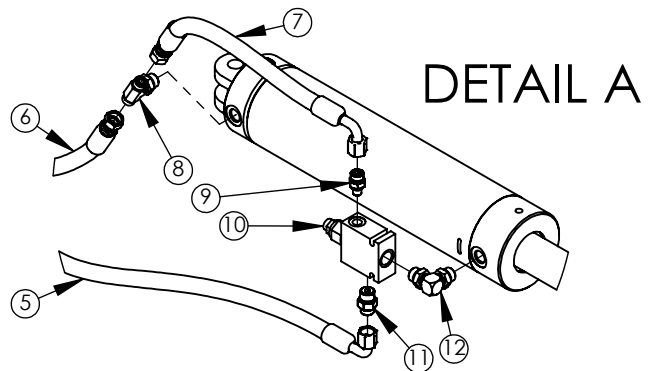
FILE NAME	PATROL WING HYDRAULICS
DWG NAME	BOM

PATROL WING HEEL AND EXTEND CYLINDER HYDRAULIC GROUP



ITEMS (1 & 16-19) ARE INCLUDED IN KIT: **BON-007224-16**
 ITEM (2) IS INCLUDED WITH BUFFER BRACE ASSEMBLY: **BON-007485**
 PHD-4010-4P & PHD-4050-4P ARE INCLUDED IN KIT: **PHD-4000-4P**

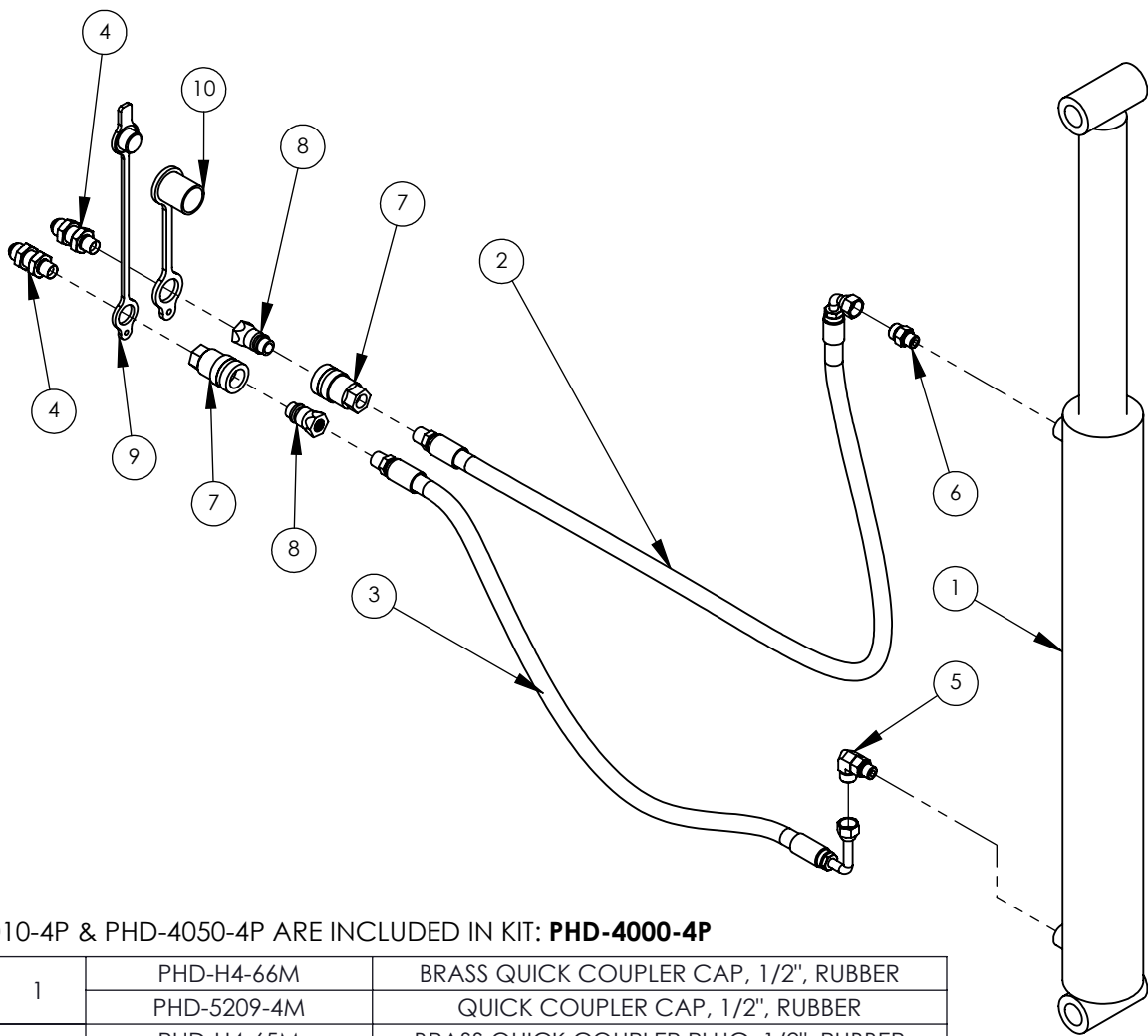
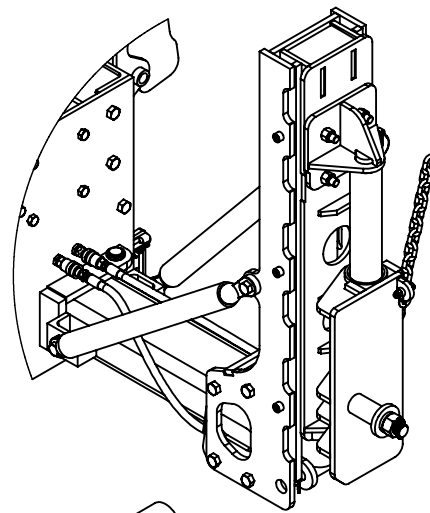
19	1	BON-000308	3/4"-10 TPI HEX NUT
18	1	BON-000357	3/4" LOCK WASHER
17	1	BON-000188	3/4"-10 TPI X 3-1/2" LONG GR.8 BOLT
16	1	BON-007126	PIVOT END
15	4	2706-08-08LN	BULKHEAD; 1/2"MNPT X #08 37* MALE JIC
14	4	25UG 08	MALE PIPE X 90DEG FEMALE PIPE 1/2" NPTF
13	2	848FSO 08X08	STRAIGHT ADAPTER MALE 37 DEG JIC TO MALE O.R.B.
12	1	6807-8-8 NWO	90 DEG ELBOW,MALE O-RING BOSS BOTH ENDS
11	1	848FSO 08X08	STRAIGHT ADAPTER MALE 37 DEG JIC TO MALE O.R.B.
10	1	WING CHECK	WING LOCK; SAE #8 PORTS; BODY & CARTRIDGE ONLY
9	1	848FSO 08X04	STRAIGHT ADAPTER MALE 37 DEG JIC TO MALE O.R.B.
8	1	8 S5OX-S	MALE JIC TEE W/ ADJUSTABLE MALE BOSS BRANCH
7	1	BON-007378	HOSE, HYD, FMW, CHECK VALVE HOSE
6	1	BON-007377	HOSE, HYD, FMW, HEEL LIFT CYLINDER EXTEND
5	1	BON-007381	HOSE, HYD, FMW, HEEL LIFT CYLINDER RETRACT
4	1	BON-007382	HOSE, HYD, FMW, BUFFER BRACE CYLINDER EXTEND
3	1	BON-007383	HOSE, HYD, FMW, BUFFER BRACE CYLINDER RETRACT
2	1	BON-007200PN	CYLINDER, HYD, 3" BORE X 24" STROKE CYLINDER
1	1	BON-007233-16	CYLINDER, HYD, 4" BORE X 14" STROKE CYLINDER
ITEM	QTY	PART NUMBER	DESCRIPTION



23	1	PHD-H4-66M	BRASS QUICK COUPLER CAP, 1/2", RUBBER
		PHD-5209-4M	QUICK COUPLER CAP, 1/2", RUBBER
22	1	PHD-H4-65M	BRASS QUICK COUPLER PLUG, 1/2", RUBBER
		PHD-5205-4M	QUICK COUPLER PLUG, 1/2", RUBBER
21	1	804501107	STUCCHI BRASS NIPPLE 1/2" NPT, MALE
		PHD-4010-4P	QUICK COUPLING 1/2" MALE TIP
20	1	804501106	STUCCHI BRASS COUPLER 1/2" NPT, FEMALE
		PHD-4050-4P	QUICK COUPLING 1/2" FEMALE BODY
ITEM	QTY	PART NUMBER	DESCRIPTION

FILE NAME	ASSY - WING POST
DWG NAME	TOE CYLINDER

PATROL WING TOE CYLINDER HYDRAULIC GROUP



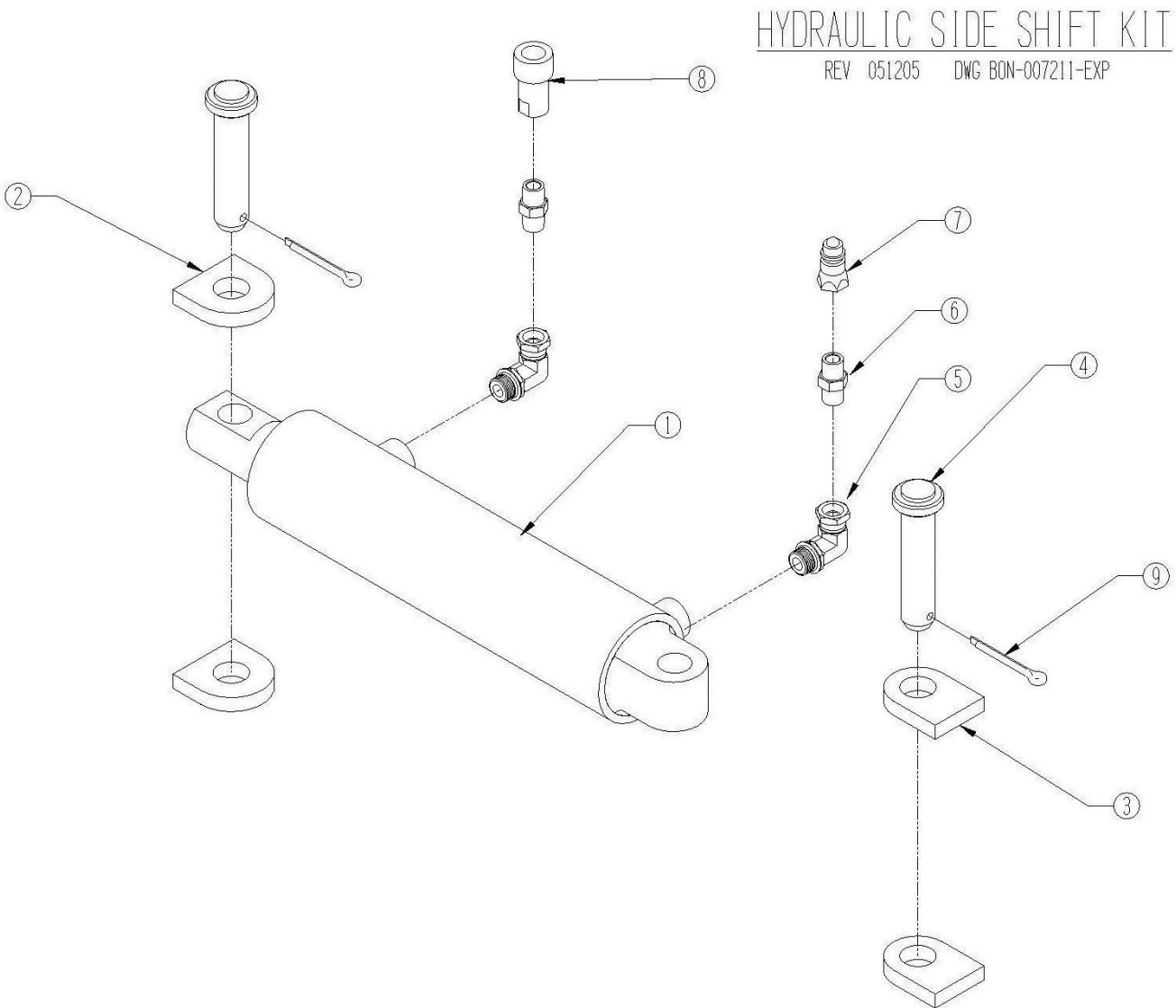
PHD-4010-4P & PHD-4050-4P ARE INCLUDED IN KIT: **PHD-4000-4P**

10	1	PHD-H4-66M	BRASS QUICK COUPLER CAP, 1/2", RUBBER
		PHD-5209-4M	QUICK COUPLER CAP, 1/2", RUBBER
9	1	PHD-H4-65M	BRASS QUICK COUPLER PLUG, 1/2", RUBBER
		PHD-5205-4M	QUICK COUPLER PLUG, 1/2", RUBBER
8	1	804501107	STUCCHI BRASS NIPPLE 1/2" NPT, MALE
		PHD-4010-4P	QUICK COUPLING 1/2" MALE TIP
7	1	804501106	STUCCHI BRASS COUPLER 1/2" NPT, FEMALE
		PHD-4050-4P	QUICK COUPLING 1/2" FEMALE BODY
6	2	848FSO 08X08	STRAIGHT ADAPTER MALE JIC TO MALE ORB
5	2	849FSO 08X08	MALE 37DEG X ADJ MALE ORB 90DE
4	2	2706-08-08LN	BULKHEAD; 1/2"MNPT X #08 37* MALE JIC
3	1	BON-007379	PATROL WING TOE CYLINGER HOSE, EXTEND
1	1	BON-007380	PATROL WING TOE CYLINGER HOSE, RETRACT
		BON-007423	CYLINDER, HYD, 3" BORE X 40" STROKE CYLINDER
		BON-007200P-30	CYLINDER, HYD, 3" BORE X 30" STROKE CYLINDER
		BON-007200PN	CYLINDER, HYD, 3" BORE X 24" STROKE CYLINDER
		BON-007183	CYLINDER, HYD, 3" BORE X 14" STROKE CYLINDER
ITEM	QTY	PART NUMBER	DESCRIPTION

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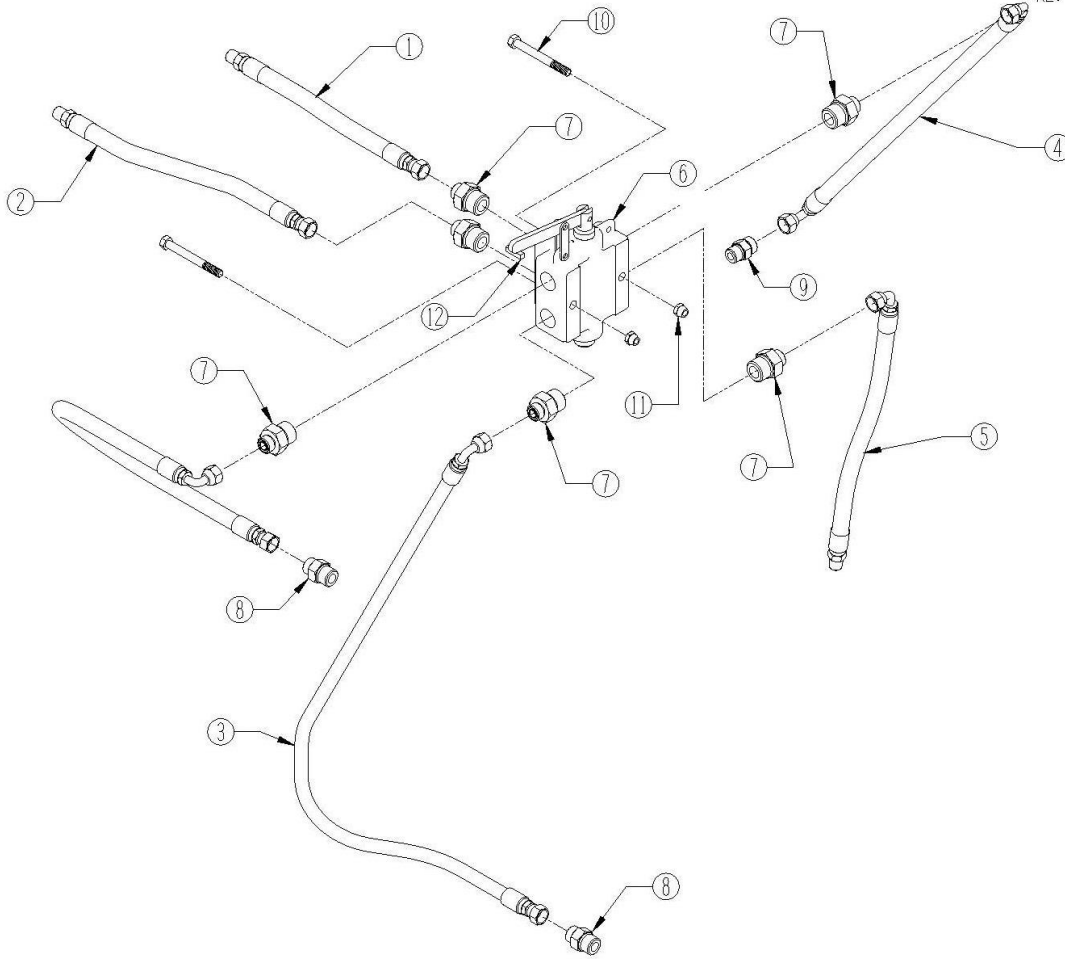
HYDRAULIC SIDE SHIFT KIT

ITEM #	PART #	QTY.	DESCRIPTION
1	CD3001000011	1	SIDE SHIFT CYLINDER
2	BON-007211-2	2	SIDE PLATE MOUNTING EAR
3	BON-007211-3	2	WING POST MOUNTING EAR
4	BON-000991	2	PIN
5	60UB 08X06	2	HYDRAULIC FITTING, ELBOW
6	24SA 06	2	HYDRAULIC FITTING, NIPPLE
7	PHD-4010-3P	1	MALE QUICK COUPLER*
8	PHD-4050-3P	1	FEMALE QUICK COUPLER*
7,8	PHD-4000-3P	1	QUICK COUPLER KIT*
9	BON-000385	2	COTTER PIN, 1/4 X 2

* PARTS ARE SHOWN FOR REFERENCE ONLY. THEY ARE NOT SUPPLIED WITH THE KITS.

WING SIDE SHIFT SELECTOR VALVE KIT

REV 051305 DWG BON-007212-EXP

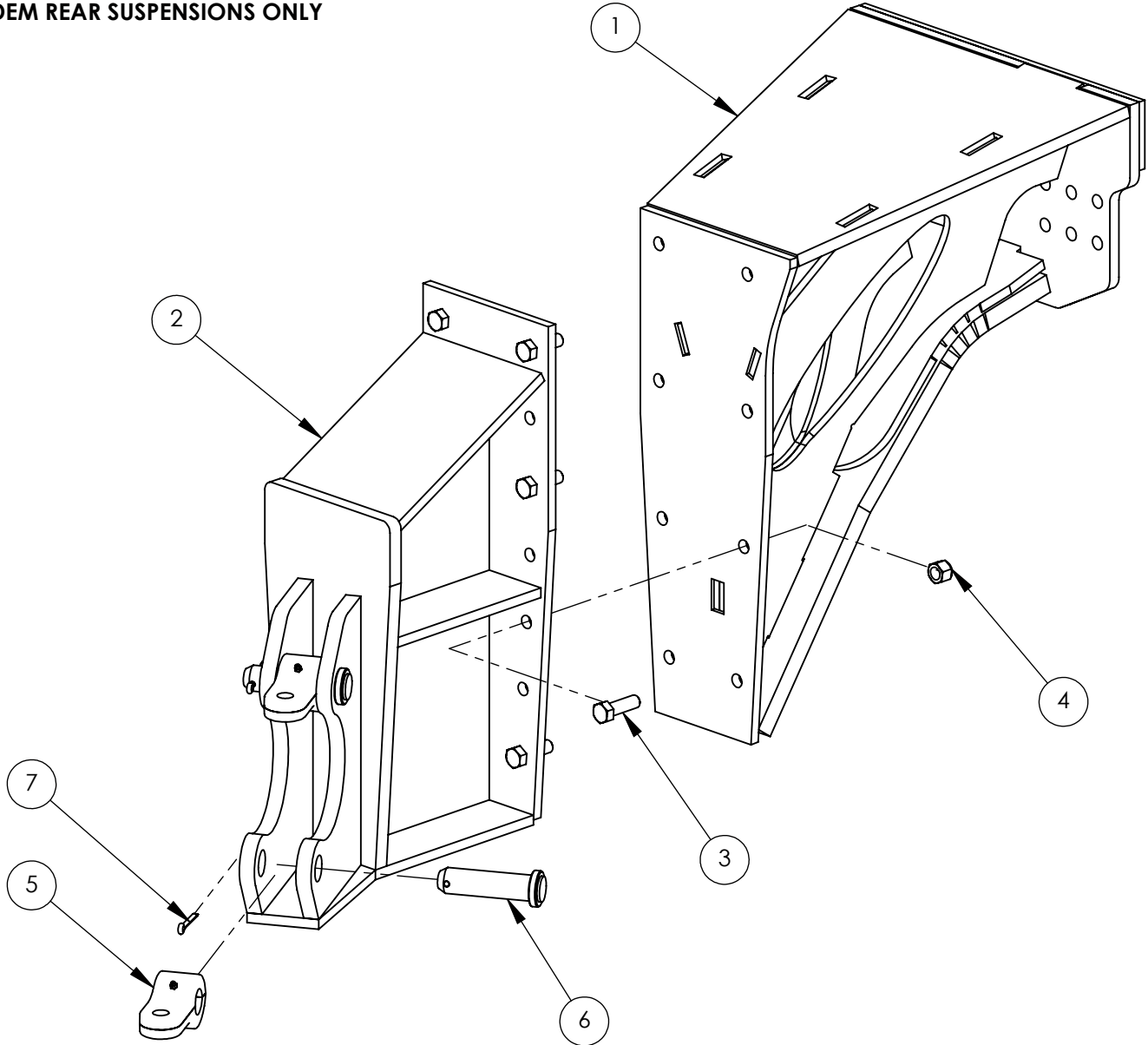


SIDE SHIFT SELECTOR VALVE KIT

ITEM #	PART #	QTY.	DESCRIPTION
1	BON-007212-1	2	SUPPLY HOSE x 18"
2	BON-007212-2	1	UPPER TOE CYLINDER HOSE x 16"
3	BON-007212-3	1	LOWER TOE CYLINDER HOSE x 25"
4	BON-007212-4	1	SIDE SHIFT CYLINDER LONG HOSE x 42"
5	BON-007212-5	1	SIDE SHIFT CYLINDER SHORT HOSE x 24"
6	DS-12	1	SELECTOR VALVE
7	848TTO 08X12	6	HYDRAULIC ADAPTOR
8	848TTO 08X10	2	HYDRAULIC ADAPTOR
9	848TTO 08X08	1	HYDRAULIC ADAPTOR
10	BON-000067	2	3/8" X 3-1/2" BOLT
11	BON-000319	2	3/8" LONG NUT
12	BON-007212-7	1	LEVER RETAINER

FILE NAME	M1517	REV.	DESCRIPTION	DATE	INITIALS
DWG NAME	M1517	-	ORIGINAL	6/29/2023	EDG

**MID MOUNT PATROL WING, MOUNTING BOX ASSEMBLY
TANDEM REAR SUSPENSIONS ONLY**



ITEM 1 OPTIONS:

- BON-007504: INTERNATIONAL HV WITH HAULMAX EX400 SUSPENSION
- BON-007339: KW T470, WESTERN STAR 4700, WORKSTAR AND PETERBUILT 348 WITH HAULMAX SUSPENSION
- BON-007384: MACK GRANITE WITH HAULMAX SUSPENSION
- BON-007370: INTERNATIONAL WITH HENDRICKSON HN SUSPENSION
- BON-007376: INTERNATIONAL WITH HENDRICKSON KR/RTE SUSPENSION

7	BON-000385	2	1/4" X 2" COTTER PIN
6	BON-003261	2	1-1/4" PIN
5	BON-007126	2	PIVOT EAR
4	BON-000322	8	5/8-11 NYLOCK NUT
3	BON-000153	8	5/8-11 X 2" HEX BOLT, GRADE 8
2	BON-007334	1	MID MOUNT PATROL WING BOLT ON EXTENSION
1	VARIABLES	1	MID MOUNT WING TANDEM BRACKET, SUSPENSION SPECIFIC
ITEM	PART NUMBER	QTY	DESCRIPTION

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WARRANTY

Issued: January 1, 1998

Bonnell Industries, Inc. warrants to the original purchaser that if any part of the product proves to be defective in workmanship or material within one year of the date of original installation and is returned to us freight prepaid within 30 days after such defect is discovered and notification thereof is provided Bonnell, we will either replace or repair the defective part (our option). This warranty does not apply to damage resulting from neglect, misuse, accident or improper installation or maintenance. Charges for field service, labor, or other expenses not previously authorized and approved in writing by Bonnell Industries, Inc. will not be accepted. This warranty is exclusive and in lieu of all other warranties whether expressed or implied. Bonnell Industries, Inc. neither assumes nor authorizes anyone to assume for it any other obligation or liability in connection with this warranty, and will not be liable for consequential damages. This warranty applies only to products made and/or supplied by Bonnell Industries, Inc. and does not apply to other products not made or supplied by us and to which our products may be attaches, such as trucks. We accept no responsibility for damages to such other products, even if our product is alleged to have contributed to the damage of the other product.

Hydraulic, electrical, or other components furnished by other manufacturers and used with our products are warranted by that manufacturer and not by Bonnell Industries, Inc. the manufacturer's own warranty will apply to these parts. Hydraulic or electrical components are not to be disassembled without the express written permission of Bonnell Industries, Inc.

All defective parts returned from an end user must include the unit model, serial number, date installed, and dealer from whom purchased.

Bonnell Industries, Inc. reserves the right to make changes or improvements to its products without incurring any liability or obligation and without being required to make corresponding changes or improvements to products manufactured or sold prior to those changes or improvements.

The Bonnell Industries, Inc. Warranty Policy is subject to change without notice.

Product Information

When ordering parts, please refer to the information below.

INSTALLATION DATE:

Certificate of Origin

This product was manufactured at Bonnell Industries, Inc.,
located at 1385 Franklin Grove Rd.,
in the city of Dixon, Illinois, U.S.A.

MADE IN THE USA 