

## Installation Instructions



## 12' Center Pivot Hitch Dual Marker Option

Used with:

- 12' Center Pivot Hitch



*When you see this symbol, the subsequent instructions and warnings are serious - follow without exception. Your life and the lives of others depend on it!*

## General Information

These instructions explain how to install the Dual Marker Option. The 12' Center Pivot Hitch Dual Markers are ground marking disk units that are mounted on both sides of the drill. These instructions apply to:

113-219A 12' CPH Dual Marker

### Manual Update

Refer to the 12' Center Pivot Hitch Operator's Manual for detailed information on safely operating, adjusting, troubleshooting and maintaining the Dual Marker Option.

Refer to the Parts Manual for part identification.

148-152M 12', 15', & 20' CPH Operator's Manual  
148-152P 12', 15', & 20' CPH Parts Manual

### Before You Start

Pages 5 and 6 are a detailed listing of parts included in the Dual Marker Option. Use this list to inventory parts received.

### Tools Required

- Basic Hand Tools

## Assembly Instructions

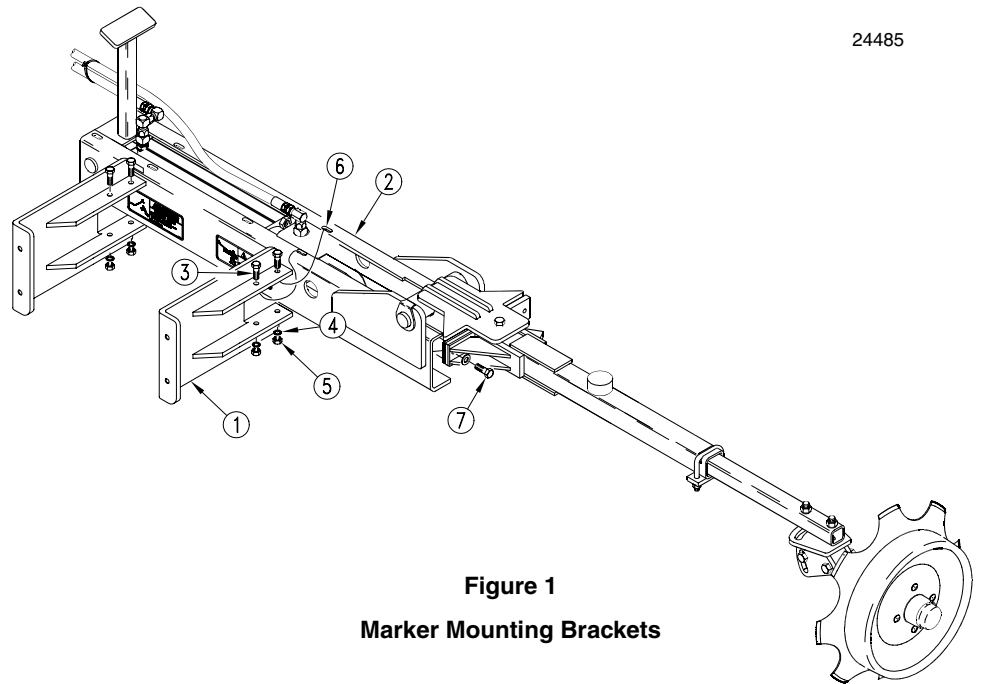
### Marker Assembly

Refer to Figure 1

**NOTE: The RH and LH marker assemblies are identical. The multiple mounting slots (6) in the assembly channel allow for the marker to be attached to the right or left side of the drill with the proper mounting brackets (1).**

**Use the shear bolt (7) to determine which is the left-hand marker and which is the right-hand marker. When markers are installed properly, shear bolt (7) will be oriented towards the front of the hitch.**

1. Attach two mounting brackets (1) to each marker mount (2). **NOTE: Each marker mounts to backside of coultar toolbar.** Make sure shear bolt (7) will be positioned towards front of hitch once markers are attached to toolbar.
2. Secure mounting brackets (1) on marker mount (2) using 3/8-16 X 5 bolts (3), 3/8 lock washers (4), and 3/8-16 hex nuts (5).



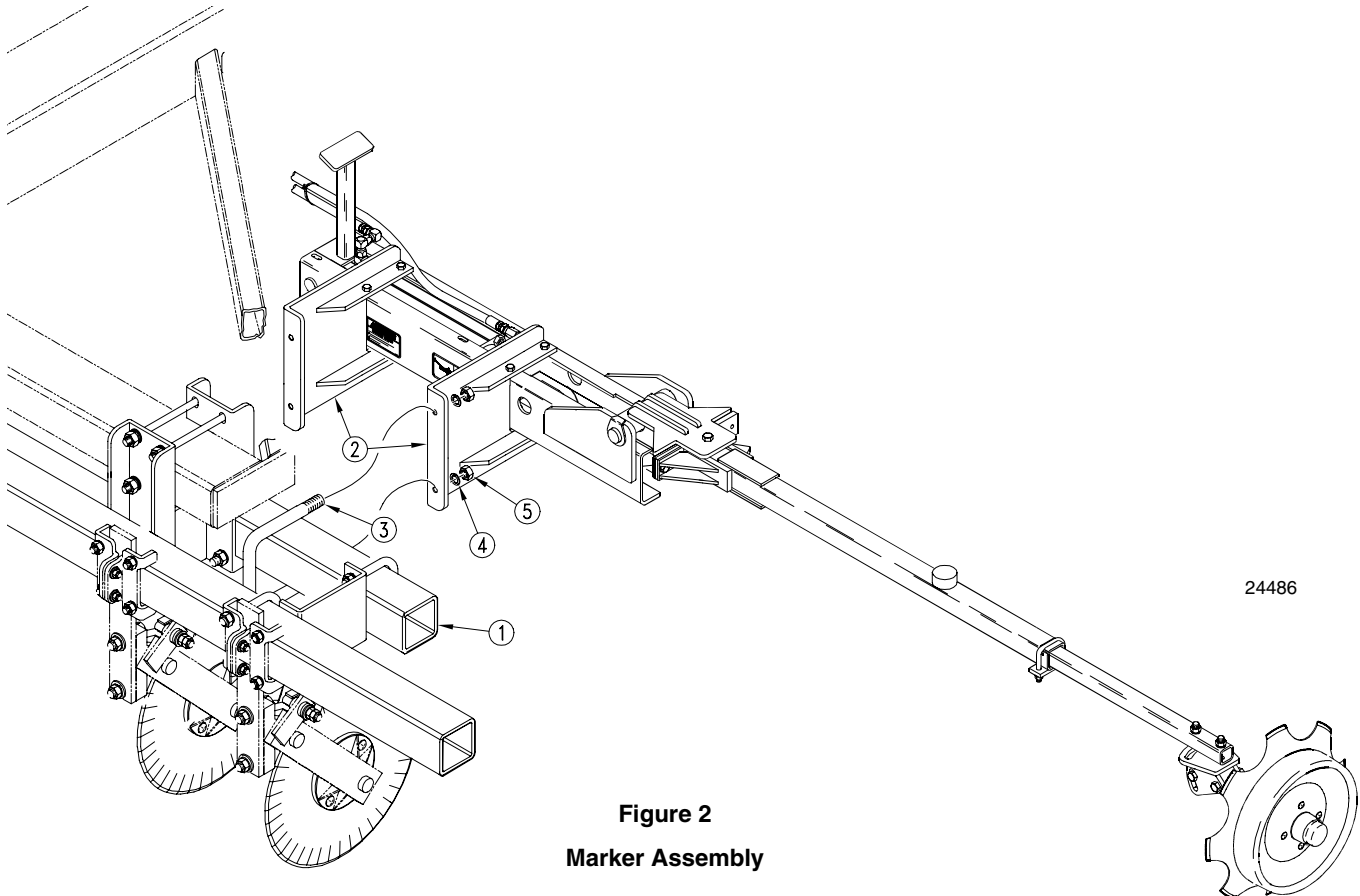
**Figure 1**  
**Marker Mounting Brackets**

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## 2 | Dual Marker Option

### Refer to Figure 2

3. U-bolt mounting brackets (2) to rear coulters toolbar (1) as coulters spacing allows. Use 5/8-11 X 4 X 5 1/4 u-bolts (3), 5/8 lock washers (4), and 5/8-11 hex nuts (5) to secure mounting brackets (2) to coulters toolbar (1).
4. Check to make sure shear bolt is oriented towards front of hitch.
5. Complete steps 3 and 4 to attach opposite marker and mount to rear coulters toolbar.



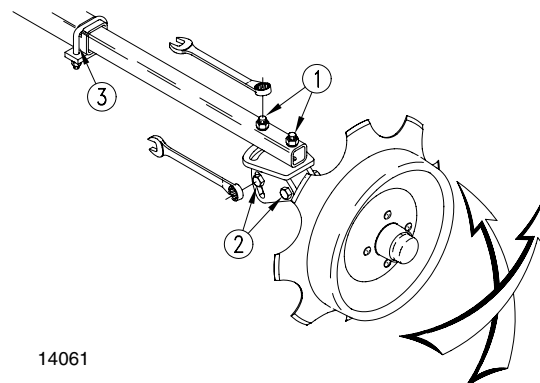
**Figure 2**  
Marker Assembly

### Disk Adjustment

#### Refer to Figure 3

The aggressiveness and the mark left by the disk may be changed by two methods:

- a. **Disk Angle:** To change the angle of cut, loosen the two vertical bolts (1) in the marker arm and rotate the disk assembly. Retighten bolts.
- b. **Disk Tip:** To change the tip of the disk, loosen the two horizontal bolts (5) in the pivot adjustment. Rotate the disk assembly and retighten. The marker width adjustments are made by loosening the marker tube u-bolt (3) and sliding it in or out to the desired width. Retighten the u-bolt.



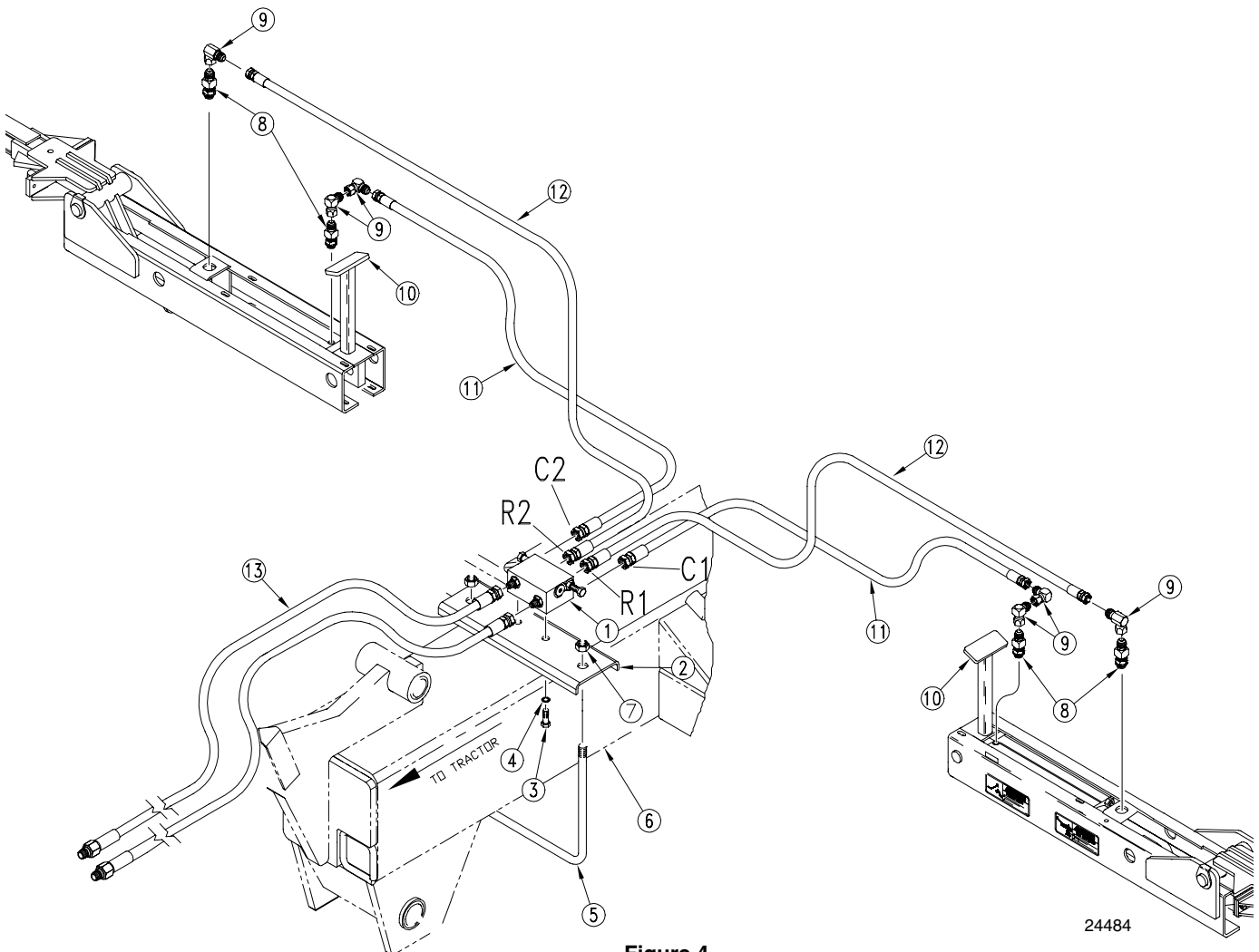
**Figure 3**  
Disk Adjustment

### Hydraulic Assembly

**NOTE: JIC fittings do not require high torque. JIC and O-Ring fittings do not require sealant. Always use liquid pipe sealant when adding or replacing pipe thread fittings. To avoid possible danger of cracking hydraulic fittings from overtightening -DO NOT use plastic sealant tape.**

#### Refer to Figure 4

1. Mount sequence valve (1) on sequence valve mount (2). Secure valve (1) on mount (2) with 3/8-16 X 1 bolts (3) and 3/8 lock washers (4).
2. U-bolt sequence valve mount (2) on hitch (6) using 1/2-13 X 8 1/16 X 9 u-bolt (5). Position sequence valve (1) so four ports point to the rear of the implement and two ports face the tractor. Secure u-bolt (5) with 1/2-13 nylock nuts (7).
3. If not already done, install a 9/16" male o-ring boss x 9/16" male JIC adapter (8) into each end of both hydraulic cylinders.
4. Install a 9/16" female JIC X 9/16" male JIC 90 degree elbow (9) into each end of the marker cylinders.
5. Two more 9/16" female JIC x 9/16" male JIC 90 degree elbows (9) are required on on the base end of the marker cylinders to offset the hoses around the marker rest post (10).
6. Route the 57" long hydraulic hoses (11) from the elbows (9) at the ports marked C1 & C2 on the sequence valve (1) to the elbows (9) on the base ends of the marker cylinders.
7. The 70" hoses (12) attach to the elbows (9) on the sequence valve (1) ports marked R1 & R2 and the elbows (9) on the rod end of the marker cylinders.
8. The two 156" hoses (13) attach to the remaining two elbows (9) on the sequence valve (1) opposite the marker ports and are routed to the hitch (6).
9. Tie all loose hoses together with cable ties provided.



**Figure 4**  
**Hydraulic Hose Assembly**

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## Bleeding the Hydraulic System

### CAUTION!

Escaping fluid under pressure can have sufficient force to penetrate the skin. Check all hydraulic lines and hoses before applying pressure. Fluid escaping from a very small hole can be almost invisible. Use paper or cardboard, not body parts, to check for suspected leaks. If injured, seek medical assistance from a doctor that is familiar with this type of injury. Foreign fluids in the tissue must be surgically removed within a few hours or gangrene will result.

**NOTE:** JIC fittings do not require high torque. JIC and o-ring fittings do not require sealant. Always use liquid pipe sealant when adding or replacing pipe thread fittings. To avoid possible danger of cracking hydraulic fittings from overtightening - DO NOT use plastic sealant tape.

**NOTE:** Check the hydraulic fluid level in the tractor reservoir and fill to the proper level before starting procedure. Add fluid to the system as needed. A low reservoir level may draw air back into the system, and can cause jerky or uneven cylinder movements.

### DANGER!

Keep all persons clear.

**NOTE:** The following instructions must be followed to bleed the markers hydraulic system. The markers must be properly bled to displace air in the hydraulic system and for the sequence valve to work properly. Failure bleed the hydraulic system could cause the marker to drop quickly to the ground causing damage to the marker and voiding the warranty.

Refer to Figure 5

1. Markers should be manually folded into transport position when charging the hydraulic system for the first time. Remove cylinder pin securing rod end of each cylinder to marker link arms. Swing link arm up and out of the way.
2. Connect hoses to tractor's remote hydraulic outlets.
3. Loosen hydraulic hose fittings at rod end of marker cylinders. With tractor at idle speed, slowly work tractor remote lever in the direction which would retract the cylinder. DO NOT try to retract the cylinder. The goal is to push the air from the lines leading to the cylinder. This will only happen on one side which is dependent on which way the sequence valve is shifted. When the air is expelled and oil starts being pushed out, tighten hose connection at this cylinder.
4. Slowly work tractor's remote lever in the same direction to retract the cylinder. When it is retracted, loosen hose fitting at base end of the same cylinder. With tractor at idle speed, slowly work tractor remote lever in the opposite direction which should put oil to the

cylinder base port. When the air is expelled and oil starts being pushed out, tighten hose connection at this cylinder.

5. Once again, slowly work tractor's remote lever in the direction to fully extend the cylinder and hold it there for a few seconds. This will shift the sequence valve which will allow you to bleed the opposite cylinder.
6. Repeat steps 3 - 5 for opposite marker cylinder.
7. Once the system is bled, operate tractor's remote lever several times until both cylinders stop when fully extended. Reconnect cylinders to marker link arms.

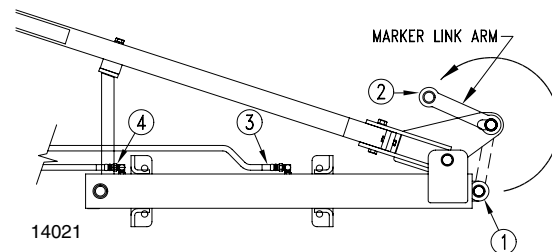


Figure 5  
Bleeding the Marker Cylinder

8. The marker hydraulic system is equipped with needle valves to control how fast each marker operates. Needle valves are built into the sequence valve body. There are two hex adjustment screws, one for raising and one for lowering the markers. The "raise" and "lower" needle valves are identified by stamped markings in the valve body next to the adjustment screws. Turn adjustment screws clockwise to slow the speed down and counter-clockwise to speed it up. Adjustments should be made for safe speeds at operating rpm. Excessive folding speeds can cause marker damage and may void the warranty. Be sure to tighten the jam nuts on the hex adjustment screws to hold desired settings.

The markers cycle in the following sequence:

- a. right up, left up
- b. right down, left up
- c. right up, left up
- d. right up, left down
- e. sequence repeats

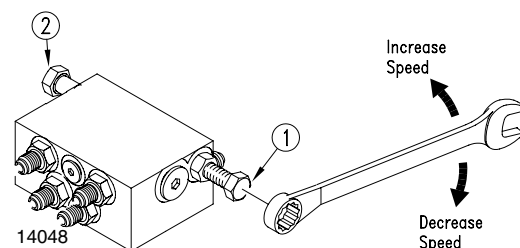


Figure 6  
Sequence Valve Speed Adjustments

**113-219A 12' CPH Dual Marker**

Your kit includes:

Qty.	Part No.	Part Description
<b>1</b>	<b>113-220K</b>	<b>12' CPH DUAL MARKER HRDW BDL</b>
Includes:		
4	113-538H	MARKER MOUNTING BRACKET WLMT
1	148-629D	1000 MARKER SEQUENCE VALVE MNT
6	800-035C	CABLE TIE .31X28 8DIA 120LB
4	800-150C	CABLE TIE 22.2 LONG REL
2	802-017C	HHCS 3/8-16 X 1 GR5
8	802-318C	HHCS 3/8-16 X 5 GR5
8	803-014C	NUT HEX 3/8-16 PLT
8	803-021C	NUT HEX 5/8-11 PLT
2	803-178C	NUT NYLOCK JAM NUT 1/2-13
10	804-013C	WASHER LOCK SPRING 3/8 PLT
8	804-022C	WASHER LOCK SPRING 5/8 PLT
4	806-008C	U-BOLT 5/8-11 X 4 X 5 1/4
1	806-038C	U-BOLT 1/2-13 X 8 1/16 X 9 1038
1	810-197C	VALVE, SEQUENCE SHOEMAKER
6	811-169C	EL 9/16 MJIC 9/16 FJIC
4	811-170C	AD 9/16 MORB 9/16 MJIC
<b>1</b>	<b>113-434V</b>	<b>12' CPH DUAL MARKER HOSE BDL</b>
Includes:		
2	811-180C	HH1/4R1 057 9/16FJIC
2	811-436C	HH1/4R1 156 9/16FJIC
2	811-518C	HH1/4R1 070 9/16FJIC
<b>2</b>	<b>113-541K</b>	<b>12' EWNT MARKER ASSY</b>
Includes:		
1	113-534H	MARKER HINGE WELDMENT
1	113-535H	MARKER CYLINDER CHANNEL WLMT
1	113-536H	MARKER ARM WELDMENT
1	113-537H	MARKER DISC ADJUSTMENT WLMT
1	113-539H	MARKER PIVOT PIN WLMT
1	113-546D	MARKER LINK ARM
1	113-547S	NO-TILL MARKER DISC HUB ASSY
1	113-548D	MARKER DISC MOUNTING TUBE
2	800-001C	GREASE ZERK STRAIGHT 1/4-28
1	802-012C	HHCS 5/16-18 X 1 1/2 GR5
2	802-039C	HHCS 1/2-13 X 3 GR5
3	802-041C	HHCS 1/2-13 X 3 1/2 GR5
1	802-130C	HHCS 1/2-13 X 2 1/2 GR5
2	802-440C	RHSNB 1/2-13 X 2 3/4 GR5
1	803-011C	NUT LOCK 5/16-18 PLT
4	803-020C	NUT HEX 1/2-13 PLT
2	803-078C	NUT LOCK 3/8-16 NYLON INSERT
1	803-147C	NUT HEX NYLOCK 1/2-13
1	804-010C	WASHER FLAT 5/16 USS PLT
5	804-015C	WASHER LOCK SPRING 1/2 PLT
2	804-017C	WASHER FLAT 1/2 USS PLT
2	804-028C	WASHER FLAT 1 USS PLT
1	804-035C	WASHER FLAT 1 1/4 USS PLT
2	805-058C	PIN COTTER 3/16 X 2
1	805-060C	PIN COTTER 7/32 X 2
1	805-187C	PIN CLEVIS 1 X 2 1/4 GR5 PLT
1	806-004C	U-BOLT 3/8-16 X 2 X 2 3/4
1	810-269C	CYL 2 X 14X 1.12 ROD (TIE ROD)

## 6 | Dual Marker Option

**113-219A 12' CPH Dual Marker**

Your kit includes:

Qty.	Part No.	Part Description
1	816-170C	RD BUMP STOP 2 X 1 X 1/2-13
2	818-579C	DECAL WARNING PINCH
2	818-580C	DECAL WARNING OVERHEAD MKR
2	890-005C	BUSHING CYL 1 1/4 X 1 X 1
1	<b>113-479M</b>	<b>12' CPH DUAL MARKER MANUAL</b>
1	<b>502-067D</b>	<b>HYD HOSE CLAMP LABEL</b>
1	<b>502-068D</b>	<b>HYD HOSE CLAMP BRACKET</b>
1	<b>800-300C</b>	<b>CABLE TIE 2 DIA MIN - ORG</b>
1	<b>802-009C</b>	<b>RHSNB 5/16-18 X 1 1/4 GR5</b>
1	<b>803-199C</b>	<b>NUT HEX FLANGE 5/16-18 PLT</b>
2	<b>838-265C</b>	<b>DECAL REFLECTOR AMBER 1 1/2 X 9</b>

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