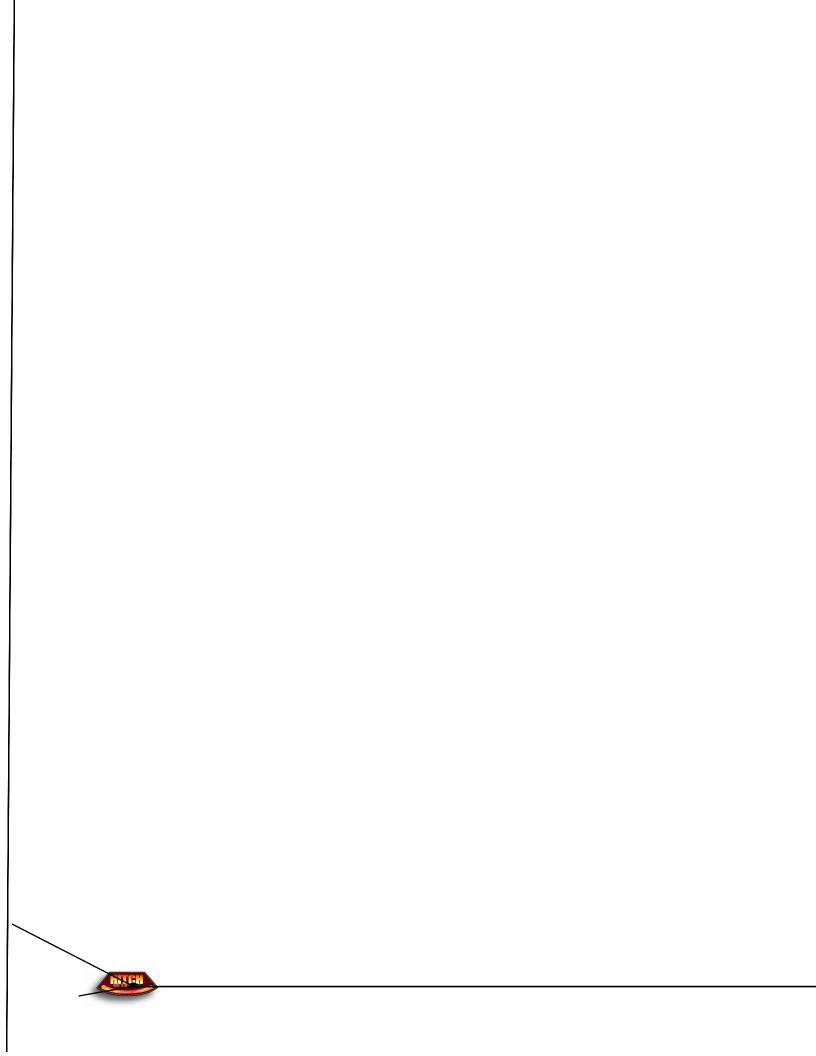
# OUTBACK® HITCH OWNER'S MANUAL



DOM-OBK03



# **Definitions of Safety and Service Statements**

All safety statements in this manual, as well as those found on safety decals, are preceded by the following warning symbols. Carefully read and follow the instructions provided.

THIS SYMBOL MEANS
- ATTENTION!

- BECOME ALERT!

- YOUR SAFETY IS INVOLVED!





Indicates an imminently hazardous situation that, if not avoided, will result in death or

serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purposes, cannot be guarded.





Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury and

includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.







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

It may also be used to alert against unsafe practices.



The IMPORTANT notice gives important instructions to prevent damage to the machine or systems.



A Note will give general information about the correct operation and maintenance of the machine and systems TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.







As the manufacturer of your Outback<sup>®</sup> Hitch Drawbar Implement Guidance System, we care about your safety. In fact, this machine and its systems have been designed to provide maximum safety. Unfortunately, no machine design can prevent operator error or carelessness.

This operator's manual provides instructions for the safe operation and maintenance of the Outback<sup>®</sup>Hitch.

Please read and understand this manual before operating the machine.





**DO NOT Use with PTO Drive-line Powered Equipment.** A tractormounted PTO drive shaft is not designed for use with a swinging drawbar extender, such as the Outback<sup>®</sup> Hitch.





**DO NOT Exceed Weight Limits.** Review tractor specific limits for drawbar extender application. The maximum vertical static load is 4000 lbs. (1800 kg).





**HIGH-PRESSURE FLUID HAZARD.** The Hitch utilizes hydraulic components. Always relieve pressure on the system before repairing or adjusting. To avoid hazard, wear proper hand and eye protection, and keep in good repair.





**MOVING PARTS HAZARD.** To avoid injury, keep hands and fingers away from the swinging Hitch drawbar area.



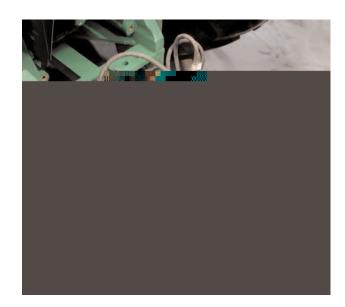


**ALWAYS Attach Safety Chain Between Tractor and Implement.** 





**3. Mounting the Hitch:** Using a forklift, floor jack, or chain hoist, position the Outback® Hitch under the tractor drawbar as shown. Notice that the hydraulic hoses to the left cylinder must route over the top of the tractor drawbar. Center the hitch directly under the tractor drawbar with the drawpin hole lined up over the center of the corresponding hitch mounting hole.



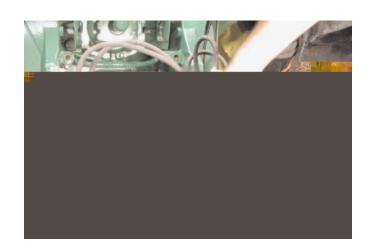
**4. Install Hammerstrap at Front of Hitch:** Insert mounting bolt **(A)** into the front slot of the hitch, on both sides of the drawbar, and install hammerstrap plate **(E)**. Secure with lock washers **(C)** and hex nuts **(D)**. Do not tighten hardware at this time. Slight adjustments of the hitch forward or backward may be required to install mounting hardware at the rear of the hitch.

**5. Remove Hitch Shipping Pallet:** The hitch is secured to the shipping pallet with two lag screws and washers. Remove both screws and lower the shipping pallet, allowing the hitch to be suspended from the front hammerstrap.

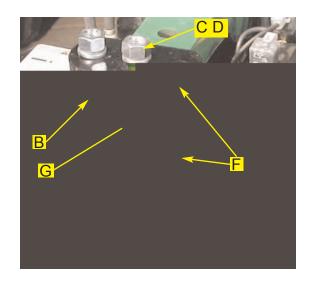
**6.** Connect Hydraulic Feed Hoses: The hitch hydraulic supply lines have colored grips. Connect the supply lines to the tractor remote outlets so that the red grip is pressure and the black grip is return. During operation the hitch requires a fixed 1.5 gpm oil flow, up to 3000 psi. Adjust the tractor remote outlet oil flow to closely match this requirement.



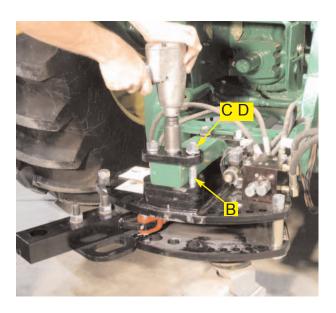
7. Move Hitch Drawbar Right: Start the tractor and enable the hitch hydraulic remote outlet. The coils on the hitch hydraulic control block have manual push button overrides. Using a small screwdriver or common nail, push the manual override at the center of the rear coil to move the hitch drawbar to the far right extent. Disable the hitch hydraulic remote outlet, and shut off the tractor.



8. Install Mounting Hardware at Rear of Hitch: Add necessary hitch spacer plates (F) between the hitch and the tractor drawbar so that the hitch is level. Insert the proper sized draw pin bushing (G) into the tractor hitch pin hole. Make certain that the bushing is not longer than the thickness of the tractor drawbar. Insert mounting bolts (B) up from the bottom of the hitch through the top hitch plate, spacer plates, and draw pin bushing. Install 3/4" thick spacer plate (F) on top of the tractor drawbar, and secure with lock washers (C) and hex nuts (D).

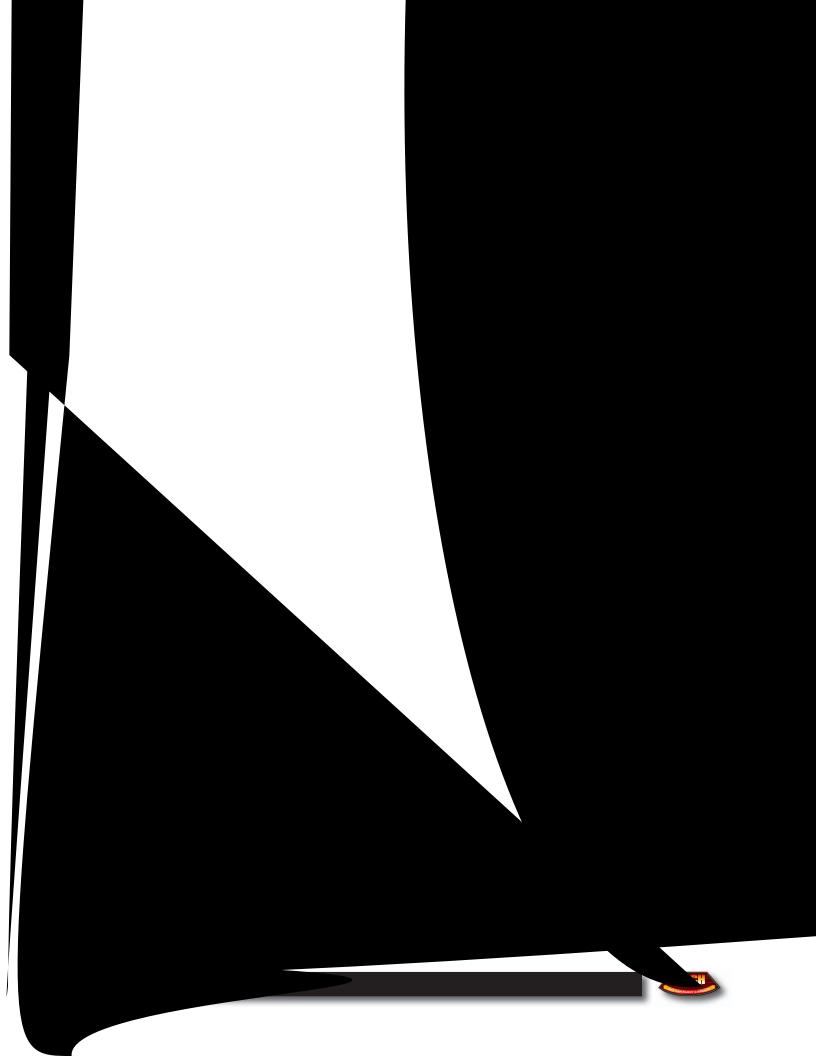


- **9. Move Hitch Drawbar Left:** Start the tractor and enable the hitch hydraulic remote outlet. Push the manual override at the center of the front coil to move the hitch drawbar to the far left extent. Disable the hitch hydraulic remote outlet, and shut off the tractor.
- 10. Complete the Hitch Mounting: Insert the remaining mounting bolt (B) up from the bottom of the hitch along the right side of the tractor drawbar, and secure with lock washer (C) and hex nut (D). Securely tighten all mounting hardware (5 places), beginning with the rear center hex nut. Make certain that the spacer plates tighten uniformly so that no gaps are observed between the hitch and the tractor drawbar.



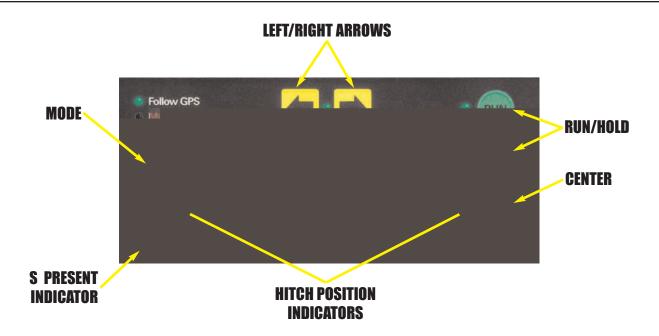








## **GET ACQUAINTED WITH THE CONTROLS**



**HITCH POSITION INDICATORS:** A series of 21 lights indicate the current hitch pin position relative to the center of the tractor. Each light represents approximately one inch of hitch pin offset.

S PRESENT INDICATOR: This light indicates the presence of the Outback® S along with its GPS operational status. If the light is off, communication with the S cannot be established. A blinking light indicates that the S cannot establish DGPS. A solid green light must be present to provide automatic hitch control.

**MODE:** Press the MODE button to change the current hitch operating mode. Indicator lights show the current mode as either Follow GPS, Match Tracks, or Manual.

**LEFT/RIGHT ARROWS:** Press the Left or Right Arrow buttons to manually position the hitch pin position. The arrow buttons are also used in Match Tracks mode to adjust the amount of compensation necessary to match the implement tracks to the tractor. The light between the arrows indicates when the left and right arrow buttons are active.

**RUN/HOLD:** Pressing these buttons enables or disables the active hitch position control. The RUN button enables the active hitch control in the selected mode, whereas the HOLD button suspends active control of the hitch position.

**Note:** As a safety feature, the tractor must be traveling faster than one mile per hour before the RUN button can enable active hitch control.

**CENTER:** Press the CENTER Button to easily move the hitch pin to center position and quickly prepare for road travel. This CENTER feature may be initiated at any time in all operating modes. A single press of the CENTER button automatically centers the hitch pin, puts the operating mode in manual, and puts the status in hold.



### **POWER UP**

1. Power up both units: Turn on the power switches of the S and Hitch in any order. The S will boot up and begin acquiring a DPGS signal. The Hitch will establish communication with the S and wait for the DPGS signal to be acquired.



Outback<sup>®</sup> Hitch Power Switch



Outback<sup>®</sup> S Power Switch

**2. Power up S only:** Turn the power switch of the S on and leave the Hitch off. This causes the S to operate as normal. Refer to the Outback® S Manual for operation.

### **SETUP**



Configuration of the Outback® Hitch is accomplished through the S, or 360, menu system. During power-up, the Hitch is detected, and an additional menu option is included to configure the Hitch for operation.

**To access the menu:** Press the MENU button. Then choose the HITCH CALIBRATE item. All functions in the Outback® S console menu are navigated and selected using the UP/DOWN ARROWS and the ENTER key.

- 1. **POSITION:** This function establishes the relation between the actual hitch pin position and the measured position as displayed on the Hitch console. Selecting this function brings up three successive display screens to calibrate the left, right, and center hitch pin positions. Use the LEFT/RIGHT ARROWS on the Hitch console to position the physical hitch pin at the required location; then press ENTER to update the calibration values.
- 2. CURVE: This function adjusts the amount of hitch pin compensation necessary to match the implement tracks to the tractor while driving around a curve. Drive the tractor and implement to an open area which is relatively flat. Proceed to drive around a large curve (typically 150 foot radius or more). Observe how the implement is trailing behind the tractor and use the LEFT/RIGHT ARROWS on the Hitch console to adjust the hitch pin position so the implement tracks match those of the tractor. Press ENTER to update the curvature compensation value.
- **3. SLOPE:** This function enables the Tilt Sensor for side slope compensation and establishes a level reference value. Selecting this function first displays an ON/OFF choice selection. Selecting ON brings up a subsequent display screen to adjust the level reference value. Park the tractor on a nearly level surface. Press ENTER to update the level reference value.

	SETUP : HITCH CALIBRATE MENU					
Menu Item	Display Sequence	Instructions				
		Press LEFT ARROW until hitch pin is at far left position.  Press ENTER to update left position.				
	ADJ RIGHT ?? Press RIGHT ARROW until hitch pin is at far right position.  ENTER TO UPDATE Press ENTER to update right position.					
	ADJ CENTER ?? ENTER TO UPDATE	Press LEFT ARROW until hitch pin is in the center. Press ENTER to update center position.				
CURVE	ADJ CURVE ?? ENTER TO UPDATE	Drive around a curve on relatively flat ground and observe trailing implement tracking. Press LEFT or RIGHT ARROW until implement track matches those of the tractor. Press ENTER to update curvature compensation value.				
SLOPE	>ON OFF	Select if Tilt Sensor is to be used for side slope compensation.				
	LEVEL GND ?? ENTER TO UPDATE	Park the tractor on a nearly level surface. Press ENTER to update the level reference value.				



### **OPERATION**

The operation of the Outback® Hitch is quite simple. Turn it on, activate the tractor hydraulics, select the desired MODE, press RUN, and the rest is automatic.

**Note:** As a safety feature, the tractor must be traveling faster than one mile per hour before the RUN button can enable active hitch control.

**Manual Mode:** This mode allows the operator to position the hitch pin at any desired offset using the LEFT/RIGHT ARROWS. When operating with the Hitch in manual mode, the Outback® S and 360 operate as normal. All functions of the S and 360 are affected by the presence of the hitch.

**Follow GPS Mode:** This mode causes the hitch to seek the GPS guideline you are following. For example, if you



drive right of the guideline, the hitch will move left to compensate.

In follow GPS mode, use the Outback® S as normal. You can establish a guideline using either straight or contour guidance. Simply drive the tractor near the guideline, and the Hitch will position the hitch pin directly over the line.

**Note:** When operating with the Hitch in follow GPS mode, the Outback® S and 360 use the actual hitch pin position for contour guidance logging and application mapping.

**Match Tracks Mode:** This mode is for driving through standing crop in side-hills and curves. For example, when

the tractor leans left on a sidehill, the hitch adjusts right so the implement tires don't damage the crop. The amount of adjustment is proportional to the measured tilt of the tractor. The sensitivity of the slope compensation may be adjusted using the LEFT/RIGHT ARROWS, as you drive through the standing row crop.





Likewise, when following rows around a curve to the right, the hitch adjusts left to minimize crop damage. The amount of adjustment is proportional to the sharpness of the turn. The sensitivity of the curve compensation is adjusted in the HITCH CALIBRATE setup menu.

Note: When operating with the Hitch in match tracks mode, the Outback® S displays MATCH TRACKS and does not provide driving guidance. The Outback® 360 operates as normal and records the GPS antenna position for application mapping.



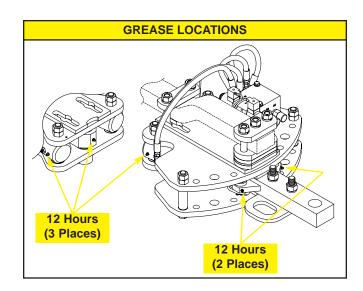
### **MAINTENANCE**

Proper maintenance of the Outback® Hitch mechanical components will ensure years of dependable service and protect your investment.

**Initial Installation:** After the first few hours of operation, check the tightness of all Hitch mounting bolts and hardware. Substantial wear will occur to the Hitch and tractor drawbar if mounting bolts are not properly tensioned.

**Grease Fittings:** Proper lubrication of the 5 grease locations at 12-hour intervals will dramatically prolong the life of friction production parts. Use an SAE multi-purpose type grease. Make sure to clean the fittings thoroughly before using any grease gun.

**Replace Worn Components:** At the begining of each application season, check the hitch drawbar for any signs of free-play, both up and down and side to side. All wear points of the Hitch include serviceable replacement parts. Refer to pages A4 and A5 for details.



### TROUBLE-SHOOTING TIPS

Problem - Probable Cause. Action

### Hitch Drawbar Doesn't Move

- √ *Tractor Hydraulics Not Active.* Make sure hydraulic hoses are hooked up correctly (red hand grip to pressure; black hand grip to return). Use push button over-rides on hydraulic block coils to verify operation.
- √ **Poor Electrical Connection.** Check the indicator lights on the hydraulic block coil connectors. If no lights, check cable connections. If lights show, then replace coil.

### **Hitch Drawbar Moves in the Wrong Direction**

√ *Tractor Hydraulics Reversed.* Make sure hydraulic hoses are hooked up correctly (red hand grip to pressure; black hand grip to return).



# CONTACTING THE FACTORY

Outback Guidance® Division of RHS, Inc. 2005 West Oregon Street, Box 394 Hiawatha, KS 66434 USA

All correspondence to the factory must be in English.

### **ONLINE:**

http://www.outbackguidance.com

### **PHONE:**

Monday Through Friday 8 A.M. - 5 P.M. U.S. Central Time U.S:

1-800-247-3808 (Customer Service & Ordering)

1-866-888-4472 (Customer Service & Ordering)

From all other countries: 01-785-742-2949

### E-MAIL:

24 hours / 7 days a week

Your inquiry will receive a response from one of our Customer Support Representatives within one business day. Sales: outbacksales@outbackguidance.com

Customer Service: outbackcs@outbackguidance.com Website Feedback: outbackweb@outbackguidance.com

### FAX:

24 hours / 7 days a week Your inquiry will receive a response from one of our Customer Support Representatives within one business day. 1-785-742-4584



# Limited Outback® Hitch One-Year Warranty

RHS, Inc. ("RHS") manufactures its hardware products from parts and components that are in accordance with industry standard practices. RHS warrants that the hardware products it manufactures will be free from defects in materials and workmanship. The limited warranty term is one year, beginning on the date of invoice to the original purchaser.

Damage caused by shipping the product(s) to the original purchaser is covered under this limited warranty. Otherwise, this limited warranty does not cover damage due to external causes, including accident, abuse, misuse, problems with electrical power, servicing not authorized by RHS, usage not in accordance with product instructions, failure to perform required preventive maintenance and problems caused by use of parts and components not supplied by RHS.

This limited warranty does not cover any items that are in one or more of the following categories: software (RHS authorized revision updates may be purchased), external devices (except as specifically noted), accessories or parts added to an Outback® Hitch system after the system is shipped from RHS, accessories or parts that are not installed in the RHS factory.

RHS will repair or replace product(s) covered under this limited warranty that are returned to the RHS facility. To request warranty service, you must call RHS (800-247-3808) or go to outbackguidance.com for information, within the warranty period. If warranty service is required, RHS will issue a Return Material Authorization Number. You must ship the products back to RHS in their original or equivalent packaging, prepay shipping charges, and insure the shipment or accept risk of loss or damage during shipment. RHS will ship by UPS Ground Service the repaired or replacement products, within 5 business days, freight paid. In any instance in which RHS issues a Return Material Authorization Number, RHS must receive the product(s) for repair prior to the expiration of the warranty period in order for the repair(s) to be covered by the limited warranty.

RHS owns all parts removed from repaired products. RHS uses new and reconditioned parts made by various manufacturers in performing warranty repairs and building replacement products. If RHS repairs or replaces a product, its warranty term is the remainder of the limited warranty term.

RHS MAKES NO EXPRESS WARRANTIES OR CONDITIONS BEYOND THOSE STATED IN THIS LIMITED WARRANTY STATEMENT. RHS DISCLAIMS ALL OTHER WARRANTIES AND CONDITIONS, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES AND CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. SOME STATES (OR JURISDICTIONS) DO NOT ALLOW LIMITATIONS ON IMPLIED WARRANTIES OR CONDITIONS, SO THIS LIMITATION MAY NOT APPLY TO YOU.

RHS RESPONSIBILITY FOR MALFUNCTIONS AND DEFECTS IN HARDWARE IS LIMITED TO REPAIR AND REPLACEMENT AS SET FORTH IN THIS LIMITED WARRANTY STATEMENT. THESE WARRANTIES GIVE YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS, WHICH VARY FROM STATE TO STATE (OR JURISDICTION TO JURISDICTION).

RHS DOES NOT ACCEPT LIABILITY BEYOND THE REMEDIES SET FORTH IN THIS LIMITED WARRANTY STATEMENT OR LIABILITY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION ANY LIABILITY FOR PRODUCTS NOT BEING AVAILABLE FOR USE OR FOR LOST DATA OR SOFTWARE.

SOME STATES (OR JURISDICTIONS) DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE PRECEDING EXCLUSION OR LIMITATION MAY NOT APPLY TO YOU.

These provisions apply to the RHS Limited Outback® Hitch One-Year Warranty only. For provisions of any extended service plan covering your system, refer to your invoice or the separate extended service plan that you received.

RHS reserves the right to make improvements in design or changes in specifications at any time, without incurring any obligation to owners of units previously sold.

No one is authorized to alter, modify, or enlarge this warranty nor the exclusions, limitations, and reservations.



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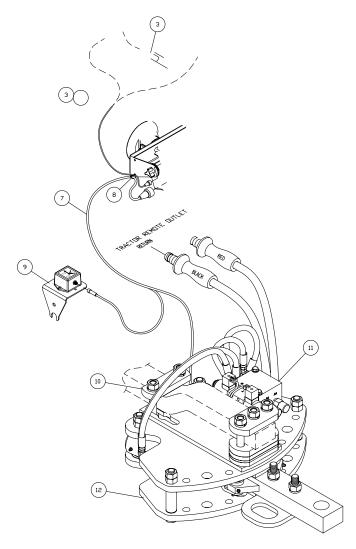
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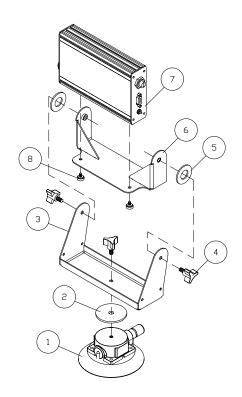
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# Outback-Hitch Drawbar Guidance System

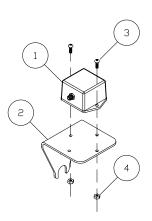
REF.	P/N	DESCRIPTION	QTY.
1	OBK-S	Outback-S Guidance System	
2	OBK-360	Outback-360 Mapping System	
3	60081	CAN/Power Cable, OBK-360/Hitch - 10ft Lg/15ft Lg, CL	A 1
4	60099	Cable, CAN Expansion - 5'	1
5	60098	Cable, Auxiliary Power - 12'	1
6		Console Mounting Details, see page A2	
7	AB674	Cable, Hitch Interface - OBK Hitch	1
3	TS-7R	Tie Strap, 7" - Releasable	6
)		Tilt Sensor Mounting Details, see page A2	
10		Mounting Hardware Details, see page A7	
11		Hydraulic & Electrical Assy, see page A3	
12		Mechanical Assy, see page A4	
	DOM-OBK03	Owner's Manual, OBK-Hitch	1





# **Console Mounting Details**

REF.	P/N	DESCRIPTION	QTY.	
1	60066	Vacuum Cup, 4-1/2" /w 1/4NC Insert	1	
2	60063	Washer, Rubber - 2-1/4OD x 3/8ID x 1/8T	1	
3	AB440	Base, Console Mounting - OBK-S/360	1	
4	60065	Knob, 3-Arm - 1/4NC x 1/2 Stud, 1-1/8 Dia.	3	
5	60064	Washer, Rubber - 1-1/2OD x 3/4ID x 3/32T	2	
6	AB441	Frame, Console Mounting - OBK-S	1	
7	60097	Outback Hitch Console	1	
8	60068	Knob, Thumbscrew - #8-32 x 1/4" Stud	2	

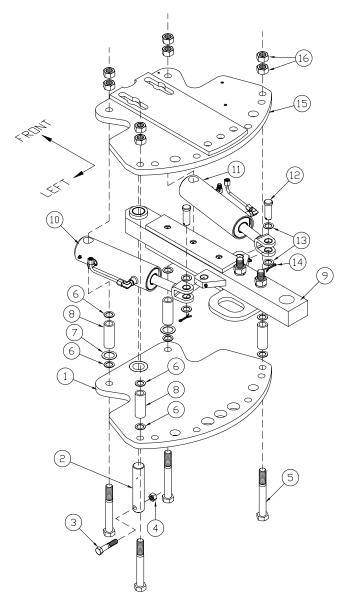


# **Tilt Sensor Mounting Details**

REF.	P/N	DESCRIPTION	QTY.
1	AB673	Tilt Sensor - OBK Hitch	1
2	AB677	Bracket, Tilt Sensor Mount - OBK Hitch	1
3	B#8.12	Bolt, #8 x 1/2 Phil Rnd Hd, ZP	2
4	LN#8K	Nut, Keeper Lock - #8-32	2



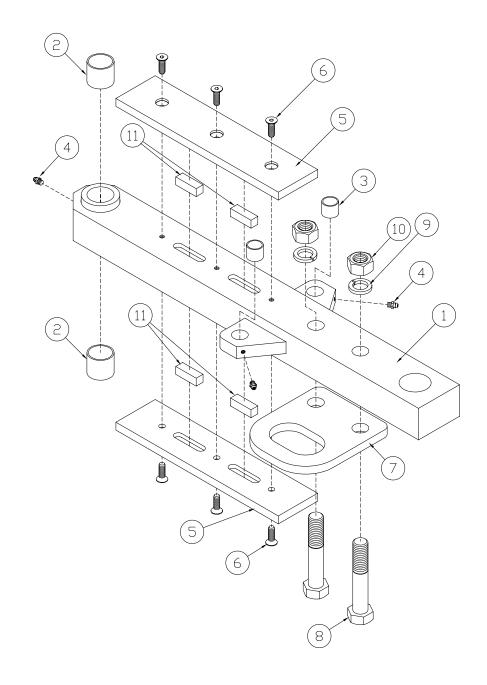




# **Mechanical Assembly**

REF.	P/N	DESCRIPTION	QTY.
	AB663	Wment, Hitch Bottom	1
,	60214	Pin, Hitch Main	1
	B12.212	Bolt, 1/2NC x 2-1/2 Gr5 ZP	1
	LN12	Nut, Lock - 1/2NC ZP	1
	B34.6	Bolt, 3/4NC x 6 Gr5 ZP	4
	60220	Washer, Shim - 1-1/8"OD x 3/4"ID x 0.062"TH	8
	60217	Washer, Shim - 1-5/8"OD x 1-1/8"ID x 0.047"TH	2
	60216	Bushing, Hitch Spacer	4
		Drawbar Sub-Assembly, see page A5	
)	60218	Left Cylinder Assy, see page A6	1
	60219	Right Cylinder Assy /w Sensor, see page A6	1
2	CLP34.2	Pin, Clevis - 3/4" x 2" ZP	2
3	60220	Washer, Shim - 1-1/8"OD x 3/4"ID x 0.062"TH	4
4	CP532.114	Pin, Cotter - 5/32" x 1-1/4", ZP	2
5	AB664	Wment, Hitch Top	1
5	N34	Nut, 3/4NC Gr5 ZP	8



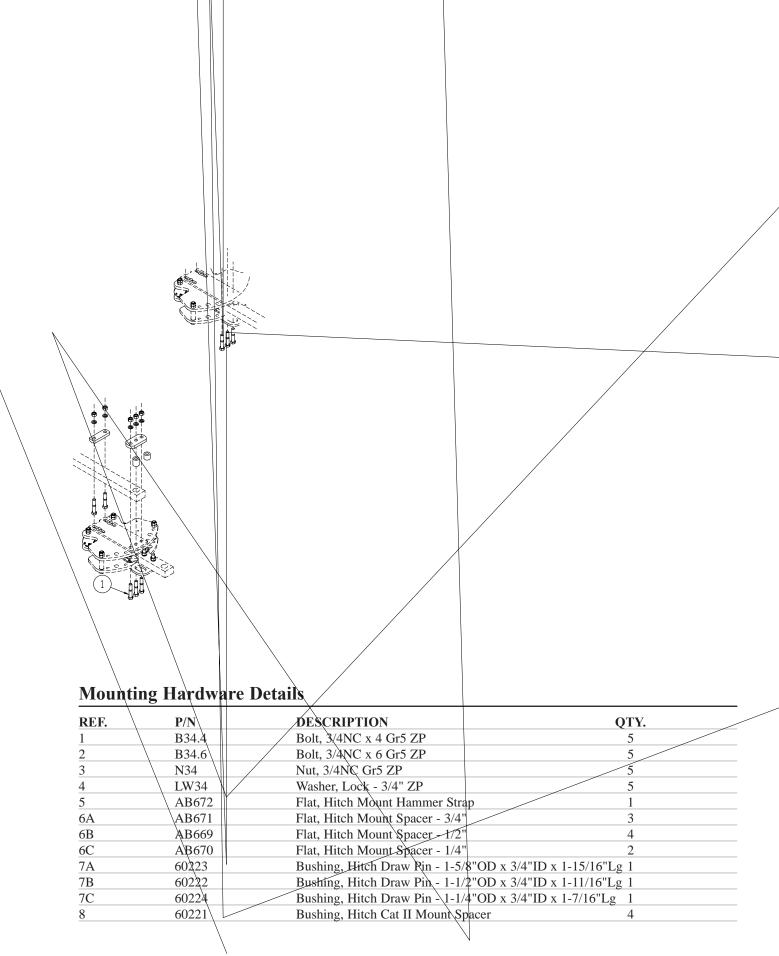


# **Drawbar Sub-Assembly**

REF.	P/N	DESCRIPTION	QTY.
1	AB665	Wment, Hitch Drawbar	1
2	LSI-2022-20	Sleeve, L280 - 1.25"ID x 1.375"OD x 1.25"Lg	2
3	60245	Bearing, Composite Sleeve - 3/4"ID x 7/8"OD x 3/4"Lg	2
4	69573	Zerk, Grease 1/4-28 Threaded	3
5	AB667	Wear Plate, Hitch Drawbar	2
6	B56.1FSC	Bolt, Hex Socket Flat Head - 5/16NC x 1", ZP	6
7	AB676	Flat, Safety Chain Support	1
8	BM20.110	Bolt, Hex - 20m2.5 x 110, YZ	2
9	LWM20	Washer, Lock - M20, YZ	2
10	NM20	Nut, Hex - 20m2.5, YZ	2
11	60205	Key, 1/2"SQ. x 1-1/2" - 1018, ZP, undersized	4







# **Clevis Hitch Attachment [Optional]**

REF.	P/N	DESCRIPTION	QTY.
1	60246	Hammerstrap, Cat. 3 Drawbar	1
2	60248	Hitch Pin Trigger, Cat 3 Drawbar	1
3	60247	Hitch Pin, Cat 3 Drawbar	1
*4	BM20.110	Bolt, Hex - 20m2.5 x 110, YZ	2
*5	LWM20	Washer, Lock - M20, YZ	2
*6	AB676	Flat, Safety Chain Support	1
	DIP-OB014	Installation Instructions, Clevis Hitch Attachment	1

<sup>\*</sup>Items 4, 5, & 6 supplied with drawbar hitch assembly.





