

AUTO-CONNECT TOW SYSTEMS

INNOVATIVE . SAFE . EFFORTLESS

FIFTH WHEEL ACS

INSTRUCTION MANUAL

2017-000-00



Dealer/Installer: Read and understand this manual. Fully instruct and physically demonstrate the mating and de-mating procedures to the end user. Include the importance of all warnings herein. Have end user demonstrate he or she understands procedures. Provide this manual to the end user.

End user: Read and understand this manual. Follow the manual every time you use the Fifth Wheel ACS. Observe and follow all warnings included herein.

WARNING! Never position yourself or others in between the truck and tow trailer, underneath the trailer's kingpin area, or in the bed of the tow vehicle during the coupling or uncoupling process. Serious injury or death may result from failure to observe this warning or the instructions within this manual.

FIFTH WHEEL ACS UNPACKING

*System ships brackets partially assembled. Inspect all parts for damage and verify that all parts listed below are included. (Do not disassemble connectors or 3/8 hinge bolt between trailer base bracket and trailer support bracket)

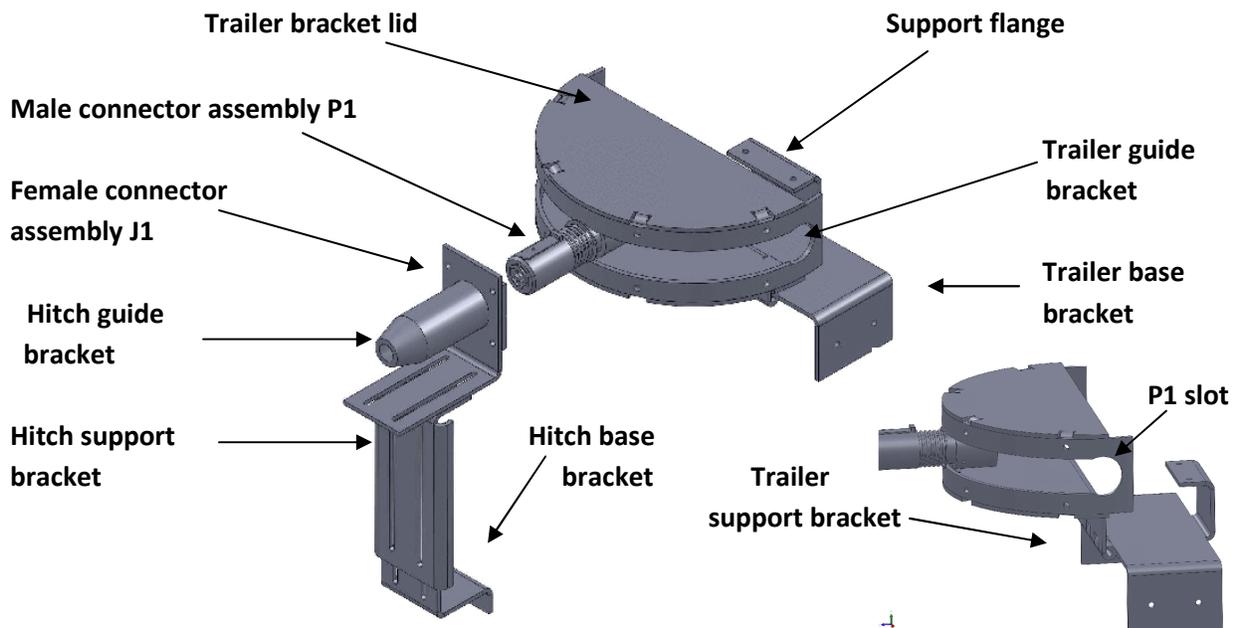
Box contains:

- | | | |
|----------------------------|-----------------------------------|-----------------------------|
| 1) Hitch base bracket | 9) Trailer guide bracket | 17) Nut #10x32 hex (1) |
| 2) Hitch support bracket | 10) Bolts ¼ -20x5/8, panhead (16) | 18) Set screws 8-32x3/8 (3) |
| 3) Hitch guide bracket | 11) KEPS Nuts ¼ -20 (16) | 19) Taptite screws 1/4 (7) |
| 4) Female connector J1 | 12) Bolt 3/8-16x8-1/2 hex (1) | |
| 5) Male connector P1 | 13) Lock washers 3/8 (2) | |
| 6) Trailer bracket lid | 14) KEPS Nut 3/8-16 (1) | |
| 7) Trailer base bracket | 15) Cable guide clamp (1) | |
| 8) Trailer support bracket | 16) Screw #10 x32 (1) | |

TOOLS NEEDED-

Torque wrench, 5.7 mm drill bit
Phillips screw driver, Drill,
5/64 Allen key

* Connectors ship pre- assembled respectively.



FIFTH WHEEL ACS ASSEMBLY OUTLINE

Hitch Bracket Assembly and Install

- 1) Assemble female connector J1 to hitch guide bracket using four 1/4 bolts and four 1/4 nuts. J1 has a guide key slot and should be installed with the slot on top.
- 2) *Important – this step must be done before proceeding.* Wire 7-way RV connector and wire cable (**both not included**) to female connector J1. Insert one set screw to fasten the J1 connector to the J1 conductor block inside. See fig 1.

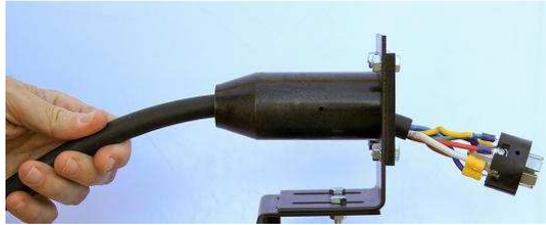


Fig. 1

- 3) Assemble hitch guide bracket (with wired J1) to hitch support bracket, with the support bracket's curved sides facing away from the hitch (Initially for maximum distant during alignment), using two 1/4 bolts and two 1/4 nuts. Hand tighten.
*Hitch support bracket can be installed forwards or backwards to meet compatibility needs of most hitches.
- 4) Place hitch base bracket against forward side of hitch with bracket oriented as shown. See fig 2.



Fig. 3

CAUTION! – Bracket must be centered with king pin slot of hitch, and must be square and level with the hitch ware plate. Fig 3.

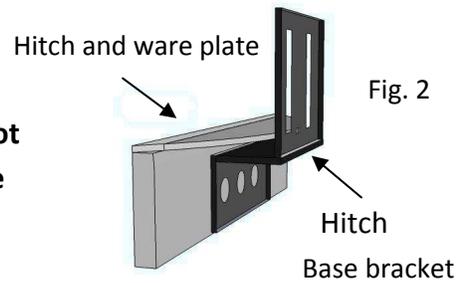


Fig. 2

- 5) Mark mounting holes location on hitch. Drill holes using 5.7mm drill bit. (**Not included**)
- 6) Install hitch base bracket to hitch with two tapite screws and using torque wrench. Torque to **125 lbs-inches** (A third screw may be installed for added support, depending on hitch model).

***An alternate/additional method is to have the bracket tack welded to the hitch, and in some cases may be desirable.**

- 7) Assemble brackets and J1 connector from step 3 to installed hitch base bracket from step 6 using two 1/4 bolts and two 1/4 nuts.
- 8) Adjust hitch guide bracket the maximum distance away from hitch as possible, as shown in fig 4. Hand tighten.

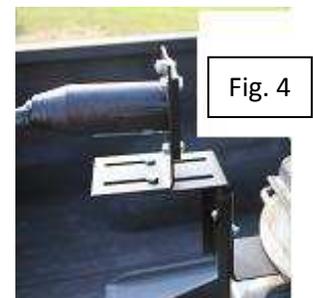


Fig. 4

Trailer Bracket Assembly and Install

- 1) Assemble trailer guide bracket to the assembled trailer base and support brackets using four 1/4 bolts and four 1/4 nuts, as shown. See fig. 5

- 2) Assemble trailer bracket lid to assembly from step 2 using four 1/4 bolts and four 1/4 nuts, as shown.
- 3) Tighten all bolts, **except** hinge bolt, using a torque wrench. Torque to **6 lbs-ft**
- 4) Place full trailer bracket assembly onto fifth wheel pin box as shown. See fig. 5



Fig. 5



Fig. 6

- 5) ***Important*** The trailer bracket assembly hinge **MUST** be placed directly over and in line with the axial center line of the king pin as shown. **See fig. 6.**
CAUTION!! – IF THIS STEP IS NOT PERFORMED PROPERLY, THE ACS WILL NOT FUNCTION PROPERLY AND CAN BE DAMAGED IN USE.
- 6) With the placement of the trailer hitch assembly on the pin box as shown in fig. 4 and 5, mark the four mounting hole locations on the pin box.
- 7) Drill the four holes using a 5.7mm drill bit. **(Not included)**
- 8) Install trailer bracket assembly to pin box with four 1/4 Taptite screws. Tighten to **85 lbs-inches**.

Fifth Wheel ACS Alignment

- 1) Fully couple the tow vehicle to fifth wheel trailer so that the full weight of the trailer is on the hitch and then secure the kingpin.
- 2) Level trailer bracket assembly as shown in fig. 7. Tighten 3/8 hinge bolt to **20 lbs-ft**.
- 3) Mate fifth wheel power cable to the ACS trailer male connector P1. Insert and tighten the two set screws into both sides of the connector. See fig. 8.
- 4) Coil the excess of the fifth wheel power cable around the cable support flange. See fig 9.
- 5) Install the ACS trailer male connector P1 into the trailer guide bracket slot as shown in fig 10. A nylon washer will be on both sides of the guide slot, as shown. Then place the male connector P1 to the center position of the guide slot. Male connector P1 should be installed with the self guiding key on top.



Fig 7



Fig 8

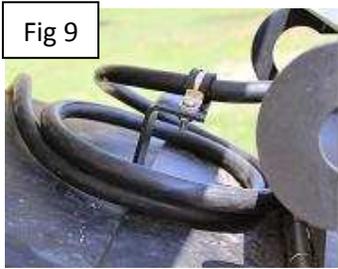


Fig 9

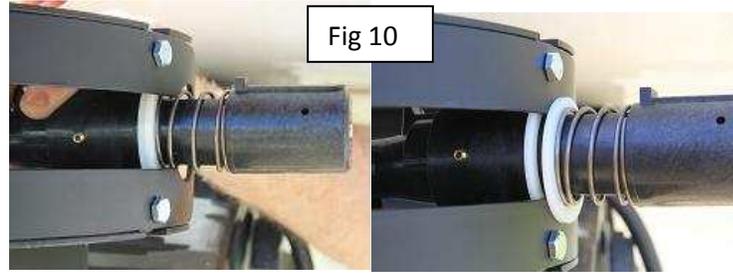


Fig 10

- 6) Position the cable guide clamp around the power cable behind the trailer bracket and fastened to the cable support flange with the #10 screw and #10 nut, as shown in fig 11.
- 7) Align the hitch bracket assembly and the hitch female connector J1 such that connector J1 and the connector P1 are fully mated. Verify that the P1 key is fully inserted into the J1 key slot.

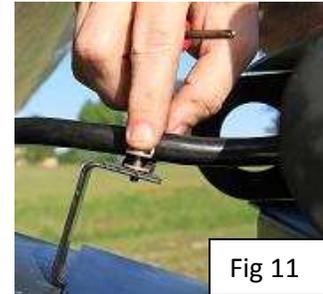


Fig 11

- 8) **Caution** – care should be taken that when J1 and P1 are mated, P1 is level and approximately free-floating in the trailer guide bracket slot.
- 9) Secure the hitch bracket vertical adjustment by tightening the bolts on the hitch base and support brackets to **6 lbs-ft**.
- 10) Adjust the hitch guide bracket such that the male connector P1 spring is compressed $1/4'' \pm 1/8''$.
- 11) Tighten the bolts between the hitch support and guide brackets to **6 lbs-ft**, while maintaining the spring compression in step 10.
- 12) Connect the 7-way connector and interface cable to the tow vehicle's power source.
- 13) Installation Complete!
- 14) Uncouple from the trailer and slowly pull away.



Preparing For First Use

Your Fifth Wheel ACS is now installed and you are ready to travel. But, before you use the system, take a few steps to ensure everything is functioning properly and that the system is properly aligned. **NOTE – System will self align only if the angle of approach to the fifth wheel trailer is approximately +/- 20 degrees.**

- 1) Make sure that the fifth wheel trailer is on level ground, the wheels are blocked, and the jacks are stable.
- 2) Place the male connector P1 to the center position of the trailer guide bracket.
- 3) Lower the tail gate of the tow vehicle and slowly back, directly in line, towards the trailer.
- 4) Ensure that the bottom plate of the king pin box slides onto the ware plate and that kingpin slides completely into the hitch head. Watch the system connectors and they should mate completely if the system was aligned correctly.

- 5) If the system was incorrectly aligned or the user approached the trailer at too great of an angle, the system will have compressed the spring and possibly pushed the trailer bracket to a vertical position (As by design as a safety feature). If you see this begin to happen, stop the vehicle and slowly pull away. Then start from the beginning of the alignment procedures.
- 6) If the system was aligned correctly and the connectors are fully mated, then place the vehicle in park and engage the parking brake.
- 7) Ensure that the lights and brakes are functioning properly.
- 8) Inspect that male connector still appears to be free floating and that the spring is not overly compressed.
- 9) Check the trailer bracket to ensure it is still level and re-tighten all the bracket and hinge bolts.
- 10) If the systems functions properly and brackets are tight, your system is ready for the road!

Once at your destination

- 1) Ensure the trailer and truck is on a firm, dry, and level surface and block the trailer wheels.
- 2) Extend the front landing gear of the trailer until the weight is just off of the hitch. Do not exceed a 1/16" gap between the bottom of the king pin box and the wear plate. **CAUTION!** -
Raising your trailer too high while connected to your hitch can damage the ACS and/or components of your truck, hitch, or trailer.
- 3) Engage the hitch king pin release lever and lower the tailgate.
- 4) Slowly pull away from the trailer. The ACS will automatically de-mate.

Hooking up to your Fifth Wheel ACS

- 1) Always hook to your trailer on a firm, dry, and level surface.
- 2) Make sure the wheel chocks are in place
- 3) Lower the tail gate and slowly back directly in line towards the trailer, and stop just short of the king pin box and ensure that the bottom of the box is ½ to 1 inch below the top of the hitch wear plate. If needed adjust the landing gear to the correct height. **NEVER LOWER THE KING PIN INTO THE HITCH.**
- 4) Slowly back directly into the king pin box and with the ACS aligned within approximately +/- 20 degrees of the tow vehicle's approach angle and the ACS will engage. Place the truck in park. If the lights do not immediately start to function; **with your foot on the brake**, place the truck in drive, back to reverse, then to park. This will compress the spring and the lights should function. (If not, there is an alignment issue)
- 5) Engage and secure the hitch's king pin lever and raise the tail gate.
- 6) Raise the landing gear of the trailer and remove the chocks.
- 7) **ALWAYS** ensure that all lights and brakes are functioning properly before moving the trailer, and then proceed with the utmost caution.

Warnings, Care, and Maintenance

- 1) The ACS will operate +/- 85 degrees in yaw relative to the tow vehicle. In the unlikely event angles greater than +/- 85 degrees are anticipated during operation, disengage the ACS by unhooking the trailer power cable from the P1 ACS connector. Connect the trailer power connector directly to the tow vehicle. At angles GREATER than this you may risk damage to your trailer.
- 2) You should never tow your fifth wheel on hazardous road conditions or during hazardous weather conditions. If you must pull your fifth wheel in icy conditions or if it has been exposed to rain and ice while stationary, be sure that during initial hookup that the ACS P1 connector is free of ice.
- 3) Periodically through the year, and especially after prolonged use, check all bolts and screws for tightness, ensure the trailer bracket assembly is level, and check set screws and connections to the electrical cables. This will ensure safe and proper functioning of the ACS.
- 4) ***CAUTION- Disconnect power cable from the power source in the truck bed before attempting to wire or perform maintenance on the J1 connector or P1 connector. Failure to do so could result in serious injury or death.***

NOTES

THREE YEAR LIMITED WARRANTY

AUTO-CONNECT TOW SYSTEMS, LLC. warrants the Fifth Wheel Auto-Connect Systems against defects in material and workmanship under normal use and service, ordinary wear and tear excepted for Three Years from the first date of purchase at retail, and is only available to the original purchaser. Any part found to have a defect in material or workmanship, will be repaired or replaced at the option of AUTO-CONNECT TOW SYSTEMS, LLC. Transportation charges prepaid. This warranty does not cover the appearance, durability, or condition of the product finish.

Any damage to the system as a result of improper installation, alteration, motor vehicle accident, misuse, unreasonable use, or any use in violation of the instruction furnished by us, AUTO-CONNECT TOW SYSTEMS, LLC. shall not be required to replace or repair such product. Labor charges and/or damage incurred during installation or replacement as well as incidental and consequential damages connected therewith are excluded. In every case, this warranty covers only the defective part and does not provide reimbursement of the retail price of the part or labor charges.

There are no warranties that extend beyond the description of the face hereof. AUTO-CONNECT TOW SYSTEMS, LLC. is extending no other warranties, implied or expressed, nor the warranties of merchantability or fitness for a particular purpose are expressly excluded.

Auto-Connect Tow Systems, LLC.
20471 ST HWY 21 E
Grapeland, TX 75844

For Installation Assistance or Technical Help, Call 936-687-4541