

# **ALL TRAFFIC SOLUTIONS**



## **ATS-5 Trailer**

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### **1     ATS-5**

1.1	ATS-5 Trailer	4
1.2	Quick Start - ATS 5	5
1.3	ATS-5 Pre-Tow Checklist	7
1.4	ATS-5 Trailer Power	8
1.5	Setup - ATS-5	12
1.6	ATS-5 Trailer Maintenance	14
1.7	Battery Maintenance and Warnings	15
1.8	Warranty	17

# ATS-5

## ATS-5 Trailer

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The ATS-5 trailer can be outfitted with ATS Variable Message Signs, Radar Message Signs and Radar Speed Displays. One person can easily move and set up the trailer. Power comes from batteries and solar charging. There is an onboard AC charger. The compact trailer is has a low tongue weight making one person deployment possible.



## Quick Start - ATS 5

**This Quick Start shows how to set up an ATS-5 Trailer with any ATS sign.**

Unpack the trailer if it arrived in a crate.

### Place ATS-5 Trailer in location and lower jacks

Park trailer on a stable surface, rotate all 4 jacks down and stabilize trailer. Aim trailer as directly as possible towards targeted motorists and level with the jacks. **DO NOT RAISE DISPLAY UNTIL ALL 4 JACKS ARE DOWN AND SUPPORTING THE TRAILER.**



### Raise Solar Panel

Raise solar panel, if applicable. Pull lock pins on either side of the panel and loosen wing nuts, rotate up and replace lock pins and retighten wing nuts.



### Raise the Display

Make sure all four jacks are lowered. Raise the display. Move handle from the travel position (or from storage in the battery box - stored under the tongue) to the lifting position by removing the handle lock pin, sliding the handle to the lift position, and replacing the lock pin. Remove the lock pins holding the message sign down. Carefully lift the frame and replace both of the sign lock pins.



Display Lock Pin

Handle Lock Pin

## Store lift handle and tongue

Remove the lifting handle and trailer tongue from the trailer and stow them for security.. If desired, these can be conveniently stored in the battery box. Place the handle in position first, followed by the tongue. Make sure none of these components contact the terminals of the battery or wiring.



## Power the display.

Turn on the display by turning on the switch in the battery box. You may need to turn on the unit by pushing the *Power* button on the unit if it was turned off using the on-board controls. If the unit is on when the switch in the battery box is shut off, the unit will come on when the switch is turned back on.



## Power the instALERT Variable Message Sign, or the SpeedAlert Radar Message Sign on older units by plugging them in

On older units, plug the instALERT or SpeedAlert power plug into the receptacle in the trailer. O



instALERT Power Plug  
in Battery Enclosure



instALERT On-Board Controls  
on the back of the instALERT

## ATS-5 Pre-Tow Checklist

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### Preparing the ATS-5 Trailer for towing

<b>Pre-Tow Check List</b>
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#### When removing from Battery Charge Mode:

- The Battery Charging System power cord is unplugged from the battery box.

**CAUTION: Ensure all 4 jacks are down and pinned before raising or lowering Message Display.**

#### When removing from Operational Mode:

- Speed Limit sign is stowed.
- Message Display is folded down and both sides are pinned or padlocked.
- Solar Panel is lowered, pins are in place and wing nuts are tight.
- InstALERT cord is unplugged. (Twist slightly counter-clockwise and pull.)
- SPEEDsentry or Shield toggle switch is OFF.
- For Linked Speed Dependent systems remove SPEEDsentry from bumper mount post

#### When removing from EITHER Mode:

- Battery box is closed and locked.
- Hitch tongue is properly attached to the tow vehicle and trailer.
- Safety chains are attached to the tow vehicle.
- Trailer wiring harness is attached to the tow vehicle and all light operation is verified.
- **All** Leveling jacks (4) are pivoted, and pinned in the up position.

## ATS-5 Trailer Power

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Trailer Power system and connecting units to trailer power

### Trailer power for Shield 12 or Shield 15

When the Shield unit is used on a trailer the power will be supplied through the auxiliary power jack. **It is very important to remove the internal lithium batteries if using trailer power.**

Attach the circular plug on the cord coming from the trailer power to the receptacle on the Shield. Route the cable to the right so that it will route through the notch on the mounting bracket when reattached. When using the auxiliary power connection, the “power” button on the unit is bypassed. As soon as you connect live power the unit will power on and enter the LED start-up routine. It will return to the previous settings in place when power was turned off.



The Shield 12 attaches to the trailer using the mounting bracket. The Shield 15 uses screws to attach the unit directly to the trailer, but the mounting bracket still needs to be locked into place to prevent tampering with the unit's settings or power cable.

### Trailer Power for Shield 18

Connect power to a Shield 18 by removing the cover in the back center of the unit and plugging the power cord into the unit.





## Trailer power for Speedsentry 12 when Linked to an instALERT Variable Message Sign

The trailer battery cable connects to the receptacle on the bottom of the Speedsentry unit. The Speedsentry can only be mounted on the accessory post on the trailer bumper for use in the dependent message system with the instALERT message sign. The Speedsentry will not fit in the trailer's primary display position.



SPEEDsentry Mounted to Plate with Power Cord Attached



SPEEDsentry Mounting Plate on Post held in with Locking Hitch Pin



SPEEDsentry Power Cord – take out through hole in bottom of battery enclosure.

## Power Switch for Speed Displays

The switch in the battery compartment controls power to the speed displays. Turn it on or off as desired. The speed display will come on to the same state it was in when turned off.



## Trailer Power for Message Signs

Message sign power cord is routed into the battery compartment. It is plugged into the mating receptacle to turn the power on or off. Line up the word *insert* on the plug with the triangle on the receptacle. Insert the plug and turn to lock.



instALERT Power Plug  
in Battery Enclosure

## Trailer Batteries

The trailer system voltage is 12VDC. The standard power supply is a pair of 235 Amp Hour deep cycle 6V batteries in series for 12VDC operation. With the proper battery power cable, a second pair of 235 Amp Hour batteries can be connected in parallel with the first pair. A 20A slow blow fuse is installed between the batteries and the load. Using batteries, cables or chargers not supplied by All Traffic Solutions will void the product warranty. The battery power level can be determined by looking at the power level displayed at message sign start up, on the pda or using the SmartApps either locally or remotely.



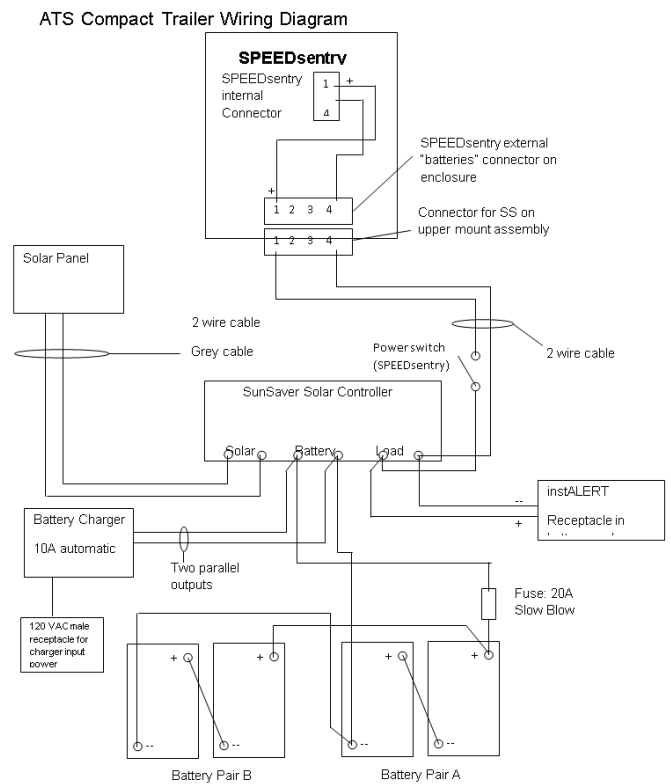
## Trailer Battery Charging

To charge the trailer batteries, connect a 120VAC supply to the external AC plug on the battery enclosure. The red light on the charger indicates charging in process, and the green light indicates a full charge.



Charger plug, 120VAC only

## ATS-5 Trailer Wiring Diagram



The ATS trailer is a **12 VDC** system, comprising up to 2 pairs of 6VDC batteries in series.

The switch only controls the SPEEDsentry. The instALERT is simply plugged into the receptacle.

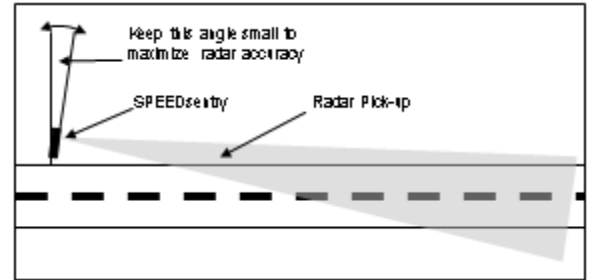
## Setup - ATS-5

Deploying the ATS-5 Trailer with a message sign or speed display

### Choose location

Choose a location that is far enough away from traveling vehicles to not pose an unnecessary risk to normal traffic. When possible, the trailer should be placed off the shoulder, behind barriers or behind cones.

Tow the trailer to the desired location and disconnect from the tow vehicle. Position the ATS Trailer so that the speed display is visible to the motorist, yet so that the trailer is not in the traffic lane. Where possible, the trailer should be aligned to face oncoming traffic as directly as possible, enhancing accuracy and visibility.



### Set stabilizing jacks

Set the stabilizing jacks on all 4 corners, lifting the trailer off the street and getting the trailer approximately level. **Failure to set the stabilizing jacks will cause the trailer to tip backwards when the display is lifted causing possible injury or damage to the sign. Always set stabilizing jacks before raising the sign.**

### Install static speed limit sign, if applicable

Set up the optional static Speed Limit Sign, if applicable. Remove the locking hitch pin holding the static speed limit sign in the stored position. Slide out the speed limit sign and insert it into the holder on top of the trailer display. Insert the hitch pin to lock it in place.



### Deploy solar panel, if applicable

If the trailer has the solar power option, raise the solar panel before raising the sign. Loosen the wing nuts and remove the pins that hold the solar panel the stowed position, rotate the panel and reinsert the locking pins with their spring pins. Retighten the wing nuts to hold the panel in the raised position.



Solar panel pins and wing nuts



Solar panel deployed

## Raise the display

**Never raise the sign without all jacks lowered.** Before raising the mast, pull out the two pins that hold the display in the stowed position. Take the raising bar out of the storage location in the battery box and slide the bar into the raising collar. Use the locking pin to hold the bar in this position. Using the raising bar, raise the display. Be sure to hold the bar tightly and not let it slip from your grip. Stand to the side so that if you do lose your grip and it slips, you will not come into contact with the raising bar.



## Replace locking pin

Place the closest holding pin into the locking holes. Once this pin is in place, insert the pin on the other side of the trailer. If it is desired to lock the display in the raised position, place a padlock through the second hole in the holding pin bracket. When lowering, remove the pin on the far side of the trailer from the raising bar first. Then remove the pin on the side with the raising bar while holding the raising bar.



Display Lock Pin

Handle Lock Pin

## Trailer deployment checklist

- Trailer is positioned in a safe location as far as possible from approaching traffic
- Leveling jacks are down and trailer is approximately level.
- Display holding pins are both fully inserted.
- Solar holding nuts are tight, and solar panel is not shaded
- Hitch tongue is removed and locked in battery compartment, if desired
- Display is facing oncoming traffic and is visible from the desired distance
- Battery box and Speedsentry enclosures are closed and locked

## ATS-5 Trailer Maintenance

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### Maintenance steps for the ATS-5 Trailer

The trailer should be periodically inspected and maintained in a condition that ensures safe operation and compliance with federal and state regulations.

- Make sure all lights are operational.
- Grease wheel bearings periodically.
- Check tires for wear and optimal air pressure. Follow guidelines on tire.
- Maintain batteries per the recommendations in the Battery Maintenance Section
- Check all electrical connections for wear or damage. Make sure the screw connections on the solar controller are tight. These may loosen over time and the batteries may not have a good connection to the load. **When tightening, be sure not to touch two terminals at once as you will short the batteries and this could cause an explosion.**

# Battery Maintenance and Warnings

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## Battery Maintenance for Lithium Ion and Lead Acid Batteries

### Lead Acid Battery Maintenance

**Battery maintenance:** In order to maximize the life of your batteries and their ability to hold a charge, you should follow several important steps in using and storing lead acid batteries

- Batteries should be placed on charge immediately after use regardless of the discharge status. Failure to do so will shorten the battery's life.
- The less the battery is drained before recharging, the longer the expected life of the battery. Charging the battery more often, with a lower discharge, will extend its life.
- Whenever the batteries are not in use, even if they are mostly charged, it is always recommended to fully charge the battery to maintain the charge and preserve the battery's life. If the batteries are going to be stored for an extended period of time, they should be fully charged before being stored and charged up regularly (at least monthly.) Store the battery in a cool area, not directly on concrete.
- Charge the battery in a cool location. The cooler the battery is, the better it will charge.
- During use, keep the battery as cool as possible. This will extend the battery's charge. If you have a choice between a shaded location and a direct sun location, choose the shade if practical. This is not possible if using a solar panel.
- To recharge the batteries, plug a 120V extension cord into the plug in the side of the battery box. This will charge all the enclosed batteries. The display on the installed battery charger will indicate when the batteries are fully charged. Use of any battery charger other than the unit supplied will void the warranty.
- **In the winter, it is important that the batteries are protected from freezing.** It is best to store the batteries where there is no chance of freezing. If this is not possible, keep the batteries charged while in storage. A fully charged battery can resist freezing better than one with a low charge. If the trailer is to be stored inside and the solar panel will not be able to maintain the charge on the system it is necessary to charge the batteries regularly. **Batteries that are allowed to freeze are not covered under warranty.**
- If your trailer is equipped with a solar panel, the panel should always be connected to the solar controller, which will allow the batteries to remain fully charged whenever the trailer is in transit or in storage outdoors. Keep the solar panel clean for optimal charging.
- If flooded trailer batteries are removed from the battery box, they must be stored upright.
- For flooded trailer batteries, check the battery water level when charging. If it is low, fill **using distilled water only.**
- Clean excessive corrosion on the terminals with a mixture of baking soda and water. Make sure battery terminals are tight.
- To test the charger: Measure the voltage on the batteries. Plug in the charger and the voltage should go higher.
- To test the solar panel: On a sunny day, check the voltage on the solar connection on the solar controller. It should be higher than the voltage on the batteries.

### Lead Acid Battery Warnings

**Lead based batteries can be dangerous. Note the following precautions:**

- **Always charge batteries in a ventilated area.**
- **Never smoke or allow a spark or fire in the vicinity of a charging battery.**
- **The batteries should only be charged with the provided automatic charger to prevent overcharging. The display on the battery charger will indicate when the batteries are fully charged. Use of any**

**battery charger other than the unit supplied will void the warranty.**

- **Do not use the charger if any of the cords or electrical connections on the charger or battery are damaged. Contact ATS for replacement of damaged parts.**
- **Never try to charge a battery with any physical damage.**
- **Be careful of shorting the terminals of the battery inadvertently with a tool, jewelry or any other conductive item. Shorting the terminals could cause the battery to explode.**
- **Monitor charger and battery frequently during charging to make sure both are functioning properly.**
- **Do not allow the batteries to freeze. Batteries that have been frozen are not covered under warranty.**
- **Never attempt to charge a frozen battery.**



## Warranty

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### All Traffic Solutions Warranty

All Traffic Solutions warrants this product to the original purchaser to be free of manufacturing defects for a period of 1 year and ATS reserves the right to repair or replace the warranted part or parts at its sole discretion. The following items are specifically not covered under warranty.

- The warranty does not cover misuse or abuse that includes using the product in ways for which it was not intended and vandalism.
- The warranty does not cover damage to the product due to incorrect installation or operation nor does it cover normal wear and tear such as frayed cords or cables, broken connectors, scratched or broken enclosures.
- This warranty does not cover batteries that are allowed to freeze.
- The warranty is void if any physical changes are made to the product by anyone but an ATS authorized service representative.
- During the warranty period, there will be no charge for parts or labor. If components require factory service, purchaser shall return failed parts to the factory or authorized service location, freight prepaid. ATS will pay to return the parts.
- If damage to the product during the warranty period is determined to be due of a non-warranted nature, ATS reserves the right to charge for damages resulting from abuse or extraordinary environmental damage to the product at rates normally charged for repairing such products not covered under warranty
- ATS is not responsible for any consequential damages and as an expressed warning, the user should be aware that harmful personal contact may be made with the product in the event of violent maneuvers, collisions, or other circumstances even though the device(s) are used according to instructions. ATS specifically disclaims any liability for injury caused by the product in all such circumstances.

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*A sign of the future.™*

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