



EQUIPPING TOW CAR

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YOUR CAR.

Since your Airstream is designed and built for easy towing, almost any car has enough power and weight to tow it under level, dry conditions. However, experience has proven that a heavier car is advisable for towing the larger units (27-foot and up) under difficult weather conditions and on hills. A heavier car will also help you maintain complete control on slippery downgrades.

WEIGHT-TO-HORSEPOWER RATIO.

From the experience of thousands of trailer travelers, Airstream engineers have developed a "weight-to-horsepower" ratio to serve as a guide for matching tow cars to Airstreams. To obtain this ratio, add the weight of the trailer to the advertised weight of the automobile and divide by the advertised horsepower of the automobile.

Example: To determine the weight-to-horsepower ratio for a 250 horsepower Ford sedan weighing 3829 pounds and a 27 foot Airstream weighing 3950 pounds, the formula would read:

$$\frac{3950 + 3829}{250} = 31.12 \text{ pounds per horsepower}$$

Experience has shown that the practical upper limit for most road conditions is 60 pounds per horsepower. Anything in the range of 30-40 pounds per horsepower is very adequately powered, with any lower ratio being a "hot rod."

Another guide for matching the tow car to your Airstream is to have the car and trailer weights nearly the same. Your Airstream will tow easier if it is not markedly heavier than the tow car. Of course, if your car is heavier than the Airstream so much the better.

The car transmission can be manual or automatic as you

prefer. Automatic transmissions are recommended by the automobile manufacturers because they do a better job of controlling engine loads than the average driver can with a manual shift. An automatic transmission will prolong your car's engine life.

THE HITCH.

We strongly recommend the use of a frame mounted, weight equalizing type hitch. We do not recommend the use of an axle hitch except for emergency use and then only for a minimum distance. The weight equalizing hitch, by use of the load bars, transmits the hitch weight of the trailer equally onto all four wheels of the automobile and at the same time transmits a portion of the load back onto the wheels of the trailer. The amount of load equalization provided by this hitch is adjusted by means of the amount of tension placed on the load leveling bars. When the hitch is properly installed and adjusted, the rear car and trailer hitch should be slightly high when **parked** on level pavement.

The illustration on page 30 shows the relationship between the tow car and the trailer with various hitch conditions. You will note that if the load leveling bars do not have enough tension on them, the nose of the trailer and the rear of the car will ride low. A "nose low" trailer does not tow as well as one which is riding level and at the same time a car which has most of the weight on the rear axle will be dangerous to steer because of the light load on the front wheels. If the load bars are pulled up too tight, then the nose of the trailer and the rear of the car are raised up above the level position. The biggest problem encountered with this type of hookup is that you lose much of the traction on the rear wheels of the car making acceleration

the hitch

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difficult on loose gravel, snow or ice. Make certain the attaching points for the safety chain and the breakaway switch are on the portion of the hitch that is welded to the car, and not on the removable ball mount.

SWAY CONTROL.

Several types of sway control devices have been introduced in the last couple of years to help reduce the swaying tendency when towing trailers at high speeds. There are two basic types of sway control devices . . . cam type and friction type. Because both of these devices do a very good job of controlling trailer sway, we recommend either type. In order to properly align the cams on the cam-type sway control hitch, it is necessary to park the car and the trailer in a perfectly straight line on level pavement. With the car and trailer in a straight line, adjust the cam arms so that the mating portion of the cam on the load leveling bars and those on the trailing arms are in perfect alignment. Be certain this is done with the car and trailer absolutely straight. With the cams aligned as described, tighten the nuts on the "U" bolts securely so that the cams cannot move out of adjustment. Adjustment of the sway control device on the friction type hitch is not as critical as the cam type, however, it must be properly adjusted for optimum performance. The amount of sway control obtained from this device is controlled by adjusting the tension on the friction plates.

HITCH BALL HEIGHT.

By far the worst situation in hitch installation is if the hitch ball is installed too low on the car. If the hitch is welded on the car frame so that the ball is too low for the particular trailer, no amount of adjustment of the hitch or the linkage to the trailer will compensate for this error. We

have determined through the statistics from Caravanner Insurance that this is, by far, the most frequent cause of accidents. Proper hitch ball height is especially important when towing a tandem axle trailer, since a low hitch ball will lower the nose of the trailer thus throwing more of the weight on the front wheels of the trailer. This changes the center of support for the trailer and increases the tail-wagging tendencies.

The only correction which can be made in this situation is to have the hitch changed so that the ball is at proper height for the particular trailer. The recommended hitch ball height for the 1969 Airstream trailers is 19" for the 23-ft. through 31-ft. models. This height is measured from the ground to the top of the hitch ball, with the car parked on level pavement. To be absolutely certain of proper hitch height on your car, use the following method. Park the trailer on level pavement and get the trailer level with the ground by raising or lowering the front hitch post. With the trailer perfectly level measure the distance from the ground to the top of the ball socket in the trailer coupler. Then have the distance from the ground to the top of the hitch ball on your car made to this dimension plus an additional $\frac{1}{2}$ " to 1" for the car settling due to additional weight. In other words, if the distance from the ground to your trailer hitch socket is 19" then set the distance from the ground to the top of the hitch ball on your car at about 19 $\frac{1}{2}$ " to 20". If your present hitch ball is too low for your particular trailer, it can be raised slightly by the use of a higher ball fitting. However, we do not recommend this for extended periods. Use this remedy only for a temporary time and then have your hitch modified for the correct height. Do not panic if your hitch ball is off up to 1", however, we would recommend having it raised at your earliest con-

venience. On tandem trailers, it is better to have the hitch ball a little too high, which will assure that your Airstream does not become tail heavy. If you find your hitch ball is over 1" too low, we strongly urge you to have it corrected at once.

THE ELECTRICAL CONNECTOR.

A seven-conductor auto cord wiring system is used to connect your Airstream to your car. Through a single, locking, polarized connector, your trailer battery will be charged, its brakes will be operated, and the running and signal lights will be activated simultaneously with those on your car. This cord is supplied with a connector at the point it exits from the trailer and therefor can be removed completely and stored when not in use.

When hitching up check both connectors. See wiring diagram in chapter 7.

BRAKE CONTROLLER.

Your Airstream is equipped with Kelsey Hayes two shoe adjustable brakes... the finest trailer brakes available. To insure proper operation, your car should be equipped with a genuine Kelsey Hayes controller and resistor. Your Airstream dealer will either make the installation, or supervise and road test it for you. If you have any other controller already on your car, have it removed, and have a Kelsey Hayes controller installed.

ACCESSORIES FOR YOUR CAR.

A truck or trailer type rear view mirror is required by law in most states. This is to allow you to see out past the trailer. Several good makes are available from your dealer. A right-side rear view mirror is also highly recommended.

If your car has an automatic transmission and you intend

to travel through mountainous country, you may wish to have a transmission oil radiator such as the Hayden Trans-Cooler installed to help your engine and transmission to run cooler and prevent possible damage. This is available through your Airstream dealer, and heartily recommended if you plan much driving in mountainous, or in hot climates, or if your car is air conditioned. If you plan to buy a new car and intend to keep it for several years we strongly recommend purchasing the trailer towing options offered by most car manufacturers. These options include such things as oversized generator, oversized radiator, heavy duty springs and shock absorbers, oversized fan and other items depending on the make of car.

electrical connector
brake controller
accessories

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