Class C | A.C.E. | Hurricane | Windsport | Serrano


Owner's Manual

## READ THE BOOK

A thorough working knowledge of your motorhome is important if you are going to get the most out of the convenience and safety items built into your unit. Be as familiar with it as you are with your personal car or truck. Study all the booklets included in your Owner's Information Kit. These booklets cover details of operation for the major appliances and equipment built into your motorhome for your comfort, convenience and safety. Your selling dealer should provide you with a complete walk through of your vehicle at the time of purchase. Any questions and concerns should be addressed at that time.

## LICENSES

The vehicle licensing laws vary from state-to-state. Check with your state license bureau or nearest branch office for the requirements of your state. Be sure to renew your license if it has expired or will expire during your trip. Your motorhome is considerably larger and heavier than your car, therefore certain precautions should be exercised. A CDL license may not be required to operate your motorhome, but Thor Motor Coach recommends you attend a CDL class to better understand the motorhomes driving and handling characteristics. Thor Motor Coach wants your driving experience to be pleasant and enjoyable.

## INSURANCE

Talk to your insurance agent about the appropriate coverage for your motorhome. Always carry your policy card.

## INSPECT AND MAINTAIN

Follow a consistent schedule of inspection and maintenance for your motorhome. Your continuing safety and comfort depend on it. This manual includes recommended maintenance intervals and instructions. Adherence to these schedules will minimize the possibility of failure of any important system or part of your motorhome. The time spent inspecting and maintaining your motorhome will provide you with many years of recreational pleasure. Improper inspections or maintenance neglect may invalidate your Limited Warranty.

## LOADING AND WEIGHT DISTRIBUTION

Proper loading is one of the most important considerations when traveling in a motorhome. Your motorhome is built to withstand a certain maximum load. Check the Federal Certification Label located in the driver's area to determine the safe load limits. For safety's sake, NEVER OVERLOAD THE MOTORHOME. This chapter contains information about proper loading and weighing of your motorhome.

## CONTROL OF THE MOTORHOME

Know how to control your motorhome on the highway. Be familiar with passing and stopping requirements, and problems that can develop. Know how to brake properly, how to back up and how to turn. Practice in a secluded place until you become familiar with the handling characteristics and techniques of your motorhome. Don't overlook the laws of your state that govern driving a motorhome. Your state Motor Vehicle Department office can provide you with the applicable vehicle codes that spell out your rights and responsibilities as a motorhome owner.

## PRE-TRAVEL CHECK

Whenever you depart, be it from your home, rest area, or campsite, you should perform these pre-travel checks:

### Tires

Tires should be inspected before each trip for uneven wear, road damage, foreign objects, peeling or bulging, and correct tire pressure. Heat generated by surface friction will increase the tire's air pressure, therefore do not bleed air out of a hot tire. Check tire pressure after the vehicle has been parked for at least one hour. Inflate tires to recommended pressure as indicated on the Federal Certification Label located above the Drivers area.

**Proper tire inflation is extremely important.**

**⚠ CAUTION**

**When purchasing a new tire, be certain it is the same size and has the same ply rating and load range as the original tire. DO NOT mix radial ply with bias or bias-belted tires.**

**⚠ CAUTION**

technician.

- Check sealants around all roof and body seams and windows. Reseal if necessary.
- Lubricate all exterior locks, hinges, and latches.
- Wash and wax exterior. Inspect body for scratches or other damage. Touch up or repair as necessary. Flush underside of the motorhome thoroughly.
- Check all the chassis fluid levels including engine oil, coolant, power steering fluid, brake fluid, transmission, rear axle oil and washer fluid. Top off if necessary.
- Check all exterior lights; clearance, brake, turn, and reverse should be fully functional.

## WEIGHTS

Your motorhome should be ready for a new traveling season. Your dealer can check your preparation and correct any defects or make any necessary adjustments.

These items are the absolute minimum requirements necessary for pre-travel.

Your motor home is designed to carry the loads defined by the Gross Axle Weight Rating (GAWR - the value specified by the chassis manufacturer as the load carrying capacity of a single axle system, as measured at the tire/ground interface.) The Gross Vehicle Weight Rating (GVWR - the maximum permissible loaded weight of the motor home) is shown on the vehicle information sticker posted near the driver's side front window or inside the driver's side door jam. These ratings are for a fully loaded vehicle including passengers and normal belongings

**⚠ WARNING** **EXCEEDING THE GAWR OR GVWR OF YOUR MOTOR HOME CAN CAUSE UNDESIRABLE HANDLING CHARACTERISTICS and may even create a safety hazard. Modification of your vehicle to carry additional equipment or vehicles is not recommended and may void your warranty.**

## Federal Weight Label

**Note:** Be sure the weight of passengers, equipment and supplies does not cause your motor home to exceed axle loads and overall vehicle loads for which it was designed. If in doubt, weigh the vehicle at a public scale. Keep in mind the number of safety belts in a unit are there for the convenience and use of the owner. Carrying the number of people equal to the number of seat belts may exceed the weight ratings. A motor home has the potential to be overloaded and removal or redistribution of weight may be necessary from time to time to stay within weight ratings. Your motor home includes a "Weight Information Label." This label provides specific weight information for your motor home as a guideline so that you can determine the load carrying capabilities.

## Capacity

The Thor Motor Coach Motor Home WEIGHT SPECIFICATIONS yellow label concisely states the occupant and cargo carrying capacity of your motor home ( per the requirements of 49 CFR part 571.120 as issued by the National Highway Traffic Safety Administration - NHTSA).

The yellow MOTOR HOME OCCUPANT AND CARGO CARRYING CAPACITY weight label is affixed to the interior side of the forward-most door of your motor home on the

passenger side  This label indicated how much weight you can safely carry within the vehicle and is affixed to the entrance door, directly below the window screen.

The total weight of passengers, cargo, trailer tongue weight, and water should never exceed the value shown on the label.

A typical example of this label is shown below for reference purposes only.  The numbers shown on this page may not be applicable to your vehicle.  Please reference the Yellow label affixed directly to the door of your motor home for your actual Occupant and Cargo Carrying Capacity:

**MOTOR HOME OCCUPANT AND CARGO CARRYING CAPACITY**

VIN:##################

THE COMBINED WEIGHT OF OCCUPANTS AND CARGO SHOULD NEVER EXCEED:
XXX kg or XXX lbs
SAFETY BELT EQUIPPED SEATING CAPACITY: XXX

**CAUTION:**
A FULL LOAD OF WATER EQUALS XXX kg OR XXX lbs OF CARGO @ 1kg/L (8.3 lb/gal)
AND THE TONGUE WEIGHT OF A TOWED TRAILER COUNTS AS CARGO

**Note:  DO NOT OVERLOAD THE MOTOR HOME**

When loading your cargo, be sure it is distributed evenly to prevent overloading front to back and side to side. Heavy items should be placed low and as close to the axle positions as reasonable. Too many items on one side may overload a tire.

Periodically weigh the motor home at a public scale to determine axle loads.  The following procedure is suggested, although any method recommended by the scale operator which correctly determines weight value is acceptable.  During all measurements, it is important to keep the vehicle as level as possible.

To weigh your motor home correctly, measure the fully loaded vehicle axle by axle and wheel position by wheel position.  You can find several certified public or commercial scales at moving and storage lots, farm suppliers with grain elevators, gravel pits, recycling companies and large commercial truck stops. You can also look in the telephone book under “weighers” or “weighing”.  Allow adequate time, since the entire weighing process can take up to 30 minutes.  There may be a small fee for each weight taken, but the expense is a worth while investment toward the safe and economical operation of your motor home.

Your motor home must be weighed fully loaded. That is with passengers, food, clothing, fuel, water, propane, supplies etc.  Any towed vehicle  (car/pickup, boat, or trailer ) or item loaded on brackets on the back of the motor home  should also be included in the weighing.

1. The following steps are suggested when using a long platform scale:
    a. Pull onto the scale so that only the front axle is on the platform with the end of the scale midway between the front and rear axles and record the scaled weight.
    b. Pull forward until the full unit is on the scale and record the weight.
    c. Pull forward so that only the rear axle is on the scale and record the weight.

## WEIGHING YOUR LOADED MOTORHOME

## Where To Weigh Your Motorhome

## How To Weigh Your Motorhome

Reading a

Reading b

Reading c

**Note:** Even though the weight of the total axle may be within the axle's rating, it may be overloaded on one side. This causes one wheel position to be overloaded. Therefore, side-to-side weighing should be done.

To obtain the individual wheel position weights, repeat this process with only one side of the motor home on the scale. To determine individual wheel position weights, it is necessary to repeat the previous three steps (1a, 1b, and 1c), but this time, use only one side of the scale. To calculate the opposite side of the vehicle wheel position weight, subtract this side's weights from the weights recorded in steps 1a, 1b, and 1c.

Your motor home must remain as level as possible on the scale, even though an axle or side is not physically on the scale. To obtain the side-to-side weights, there must be enough space on either side of the scale to allow the motor home to be partially off the scale.

Individual wheel position weights must not exceed the maximum tire load capacity.

**⚠ CAUTION** **Maximum tire load capacity can only be achieved by utilizing the maximum allowable pressure (psi) as listed on the sidewall of the tire.**

**Note:** The above information is provided by the Tire Industry Safety Council Rubber Manufacturer's Association. Used with permission. ( http://www.rma.org/tire_safety/ )

For improved accuracy, Thor Motor Coach recommends using a segmented 4-pad scale, when possible, to determine individual wheel weights. The corner weights should not exceed half of the respective Gross Axle Weight Rating (GAWR) or the maximum load rating for the tire or set of dual tires at the rear, whichever is less. The maximum load rating for the tire can be found embossed on the tire's sidewall. If any of the corner weights exceed half of the listed GAWR or tire ratings, relocate the passengers and redistribute or remove a portion of the cargo until the weight is within the proper limits for all four corners of the vehicle.

**Note:** Additional cargo carrying capacity can be obtained by reducing the amount of fresh water carried while driving.

Check vehicle weight periodically to obtain optimum mileage from tires and improve handling. Tires should always be inflated as recommended in the chassis manufacturer's instructions or on the tire sidewall. See your chassis operator's manual.

## Weight Distribution

Improper weight distribution or too much weight on your motorhome's suspension system can cause spring, shock absorber, or brake failure, handling or steering problems, irregular tire wear, tire failure or other damage.

An overloaded motor home is hard to drive and hard to stop. In cases of serious overloading, brakes can fail completely, particularly on steep hills. The load a tire will carry safely is a combination of the size of tire, its load range, and corresponding inflation pressure.

The following is an explanation of commonly used weight abbreviations:

- Gross Vehicle Weight Rating (GVWR) is the maximum permissible weight of this motor home.
- Unloaded Vehicle Weight (UVW) is the weight of this motor home as manufactured at the factory with full fuel, engine oil, and coolants.
- Occupant and Cargo Carrying Capacity (OCCC) is equal to the GVWR minus UVW and LP. In other words, OCCC is how much weight in occupants, cargo, water and trailer tongue weight that can be added to the motor home without exceeding the GVWR.
- Gross Combined Weight Rating (GCWR) means the maximum allowable loaded weight of this recreation vehicle with its towed trailer or towed vehicle.
- Gross Axle Weight Rating (GAWR) is the value specified as the load carrying capacity of a single axle system, as measured at the tire-ground interfaces.
- If a boat, trailer or other vehicle is being towed, it should be weighed and combined with the towing vehicle's weight to ensure the total weight does not exceed the GCWR.

**Note:** Always follow the instructions and warnings that come with any infant or child restraint you might use.

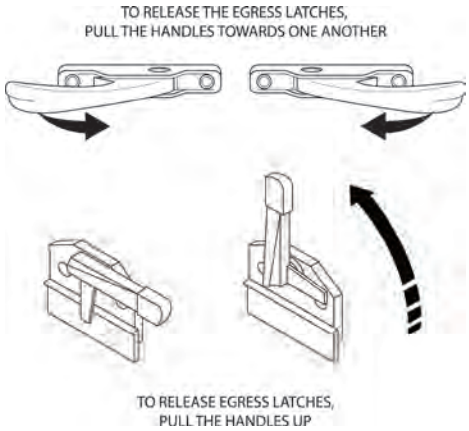
If the child is the proper size, restrain the child in a safety seat. Children who are too large for child safety seats (as specified by your child safety seat manufacturer) should always wear safety belts.

If the shoulder belt portion of a combination lap and shoulder belt can be positioned so it does not cross or rest in front of the child's face or neck, the child should wear the lap and shoulder belt.

Never use pillows, books, or other objects to boost a child.

## EGRESS WINDOW

An egress window is designated for use as an exit in the case of an emergency. Inside the motor home the egress window is easily identified by the red locking handles. There are two common styles of latches, determine the style of locking handle you have and refer to the following illustrations for operation. It is also marked as an "**EXIT**". The glass slider in the egress window operates the same as all other windows;




**TEST**: The egress window should be opened twice a year to ensure proper operation. Over time, the rubber seal will tend to stick to the egress window. Occasional operation will help prevent the rubber seal from sticking.

## TRAILER TOWING

**⚠ WARNING**

**A SEPARATE FUNCTIONING BRAKE SYSTEM IS REQUIRED FOR ANY TOWED VEHICLES OR TRAILERS WEIGHING MORE THAN 1000 LBS WHEN FULLY LOADED. NEVER EXCEED THE GVWR, OR THE GAWR SPECIFIED ON THE MOTOR HOME CERTIFICATION LABEL. Also never exceed the weight ratings of the trailer hitch installed on the motor home. Failure to heed any part of this warning could result in loss of control of the motor home and towed vehicle or trailer and may cause an accident and serious injury. For specific towed vehicle braking requirements, consult the chassis owners manual.**

**⚠ WARNING**

**THE MOTOR HOME FULLY LOADED AND THE TRAILER, OR TOWED VEHICLE, MUST NOT EXCEED THE MOTOR HOME CHASSIS' GROSS COMBINATION WEIGHT RATING (GCWR). Consult with your selling dealer to determine the gcwr of the motor home. Do not exceed the motor home gross combined weight rating (gcwr) or the hitch rating. The tongue weight, the weight pushing down on the hitch, must not exceed 10% of the hitch capacity.**

Always use safety chains between the motor home and the towed trailer or vehicle. Cross chains under the trailer tongue and allow slack for turning corners. Connect safety chains to the trailer or vehicle frame or hook retainers. Never attach chains to the bumper of a vehicle.

Tow bars or car dollies generally are made to travel in a forward direction only. Most towing equipment of this type is not designed for backing. Never attempt short back up distances with a tow bar or tow dolly. Damage to the motor home, towed vehicle or towing device will result.

**Note**: Thor Motor Coach accepts no responsibility for damage to the chassis and other components resulting from towing loads greater than its designated class specifications. Also consider the gross combined weight rating of the motor home before towing a trailer or vehicle. Towing an object such as a boat and trailer or a vehicle behind the motor home results in added driving considerations that you must contend with.

THOR®

MOTOR COACH

Made to fit.

# OWNER'S MANUAL

## Class A & Class C Gas

# Planning and Preparation

## READ THE BOOK

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## INSURANCE

Talk to your insurance agent about the appropriate coverage for your motorhome. Always carry your policy card.

## INSPECT AND MAINTAIN

Follow a consistent schedule of inspection and maintenance for your motorhome. Your continuing safety and comfort depend on it. This manual includes recommended maintenance intervals and instructions. Adherence to these schedules will minimize the possibility of failure of any important system or part of your motorhome. The time spent inspecting and maintaining your motorhome will provide you with many years of recreational pleasure. Improper inspections or maintenance neglect may invalidate your Limited Warranty.

## LOADING AND WEIGHT DISTRIBUTION

Proper loading is one of the most important considerations when traveling in a motorhome. Your motorhome is built to withstand a certain maximum load. Check the Federal Certification Label located in the driver's area to determine the safe load limits. For safety's sake, NEVER OVERLOAD THE MOTORHOME. This chapter contains information about proper loading and weighing of your motorhome.

## CONTROL OF THE MOTORHOME

Know how to control your motorhome on the highway. Be familiar with passing and stopping requirements, and problems that can develop. Know how to brake properly, how to back up and how to turn. Practice in a secluded place until you become familiar with the handling characteristics and techniques of your motorhome. Don't overlook the laws of your state that govern driving a motorhome. Your state Motor Vehicle Department office can provide you with the applicable vehicle codes that spell out your rights and responsibilities as a motorhome owner.

## PRE-TRAVEL CHECK

Whenever you depart, be it from your home, rest area, or campsite. You should perform these pre-travel checks:

### Tires

Should be inspected before each trip for uneven wear, road damage, foreign objects, peeling or bulging, and correct tire pressure. Heat generated by surface friction will increase the tire's air pressure, therefore do not bleed air out of a hot tire. Check tire pressure after the vehicle has been parked for at least one hour. Inflate tires to recommended pressure as indicated on the Federal Certification Label located above the Drivers area.

**Proper tire inflation is extremely important.** ⚠ CAUTION

**When purchasing a new tire, be certain it is the same size and has the same ply rating and load range as the original tire. DO NOT mix radial ply with bias or bias-belted tires.** ⚠ CAUTION

- Check sealants around all roof and body seams and windows. Reseal if necessary.
- Lubricate all exterior locks, hinges, and latches.
- Wash and wax exterior. Inspect body for scratches or other damage. Touch up or repair as necessary. Flush underside of the motorhome thoroughly.
- Check all the chassis fluid levels including engine oil, coolant, power steering fluid, brake fluid, transmission, rear axle oil and washer fluid. Top off if necessary.
- Check all exterior lights; clearance, brake, turn, and reverse should be fully functional.

Your motorhome should be ready for a new traveling season. Your dealer can check your preparation and correct any defects or make any necessary adjustments.

These items are the absolute minimum requirements necessary for pre-travel.

## WEIGHTS

Your motorhome is designed to carry the loads defined by the Gross Axle Weight Rating (GAWR - the value specified by the chassis manufacturer as the load carrying capacity of a single axle system, as measured at the tire/ground interface.) The Gross Vehicle Weight Rating (GVWR - the maximum permissible loaded weight of the motorhome) is shown on the vehicle information sticker posted near the driver's side front window or inside the driver's side door jam. These ratings are for a fully loaded vehicle including passengers and normal belongings

**⚠ WARNING** **EXCEEDING THE GAWR OR GVWR OF YOUR Motorhome CAN CAUSE UNDESIRABLE HANDLING CHARACTERISTICS and may even create a safety hazard. Modification of your vehicle to carry additional equipment or vehicles is not recommended and may void your warranty.**

**Note:** Be sure the weight of passengers, equipment and supplies does not cause your motorhome to exceed axle loads and overall vehicle loads for which it was designed. If in doubt, weigh the vehicle at a public scale. Keep in mind the number of safety belts in a unit are there for the convenience and use of the owner. Carrying the number of people equal to the number of seat belts may exceed the weight ratings. A motorhome has the potential to be overloaded and removal or redistribution of weight may be necessary from time to time to stay within weight ratings. Your motorhome includes a "Weight Information Label." This label provides specific weight information for your motorhome as a guideline so that you can determine the load carrying capabilities.

## Federal Weight Label

The Thor Motor Coach Motorhome WEIGHT SPECIFICATIONS yellow label concisely states the occupant and cargo carrying capacity of your motorhome ( per the requirements of 49 CFR part 571.120 as issued by the National Highway Traffic Safety Administration - NHTSA).

## Capacity

The yellow Motorhome OCCUPANT AND CARGO CARRYING CAPACITY weight label is affixed to the interior side of the forward-most door of your motorhome on the passenger side This label indicated how much weight you can safely carry within the vehicle and is affixed to the entrance door, directly below the window screen for Class A units and on the front door jamb for Class C units.

The total weight of passengers, cargo, trailer tongue weight, and water should never exceed the value shown on the label.

A typical example of this label is shown below for reference purposes only. The numbers shown on this page may not be applicable to your vehicle. Please reference the Yellow label affixed directly to the door of your motorhome for your actual Occupant and Cargo Carrying Capacity:

**MOTOR HOME OCCUPANT AND CARGO CARRYING CAPACITY**

VIN:##################

THE COMBINED WEIGHT OF OCCUPANTS AND CARGO SHOULD NEVER EXCEED:
XXX kg or XXX lbs
SAFETY BELT EQUIPPED SEATING CAPACITY: XXX

**CAUTION:**
A FULL LOAD OF WATER EQUALS XXX kg OR XXX lbs OF CARGO @ 1kg/L (8.3 lb/gal)
AND THE TONGUE WEIGHT OF A TOWED TRAILER COUNTS AS CARGO

**Note: DO NOT OVERLOAD THE Motorhome**

## WEIGHING YOUR LOADED MOTORHOME

When loading your cargo, be sure it is distributed evenly to prevent overloading front to back and side to side. Heavy items should be placed low and as close to the axle positions as reasonable. Too many items on one side may overload a tire.

Periodically weigh the motorhome at a public scale to determine axle loads. The following procedure is suggested, although any method recommended by the scale operator which correctly determines weight value is acceptable. During all measurements, it is important to keep the vehicle as level as possible.

### Where To Weigh Your Motorhome

To weigh your motorhome correctly, measure the fully loaded vehicle axle by axle and wheel position by wheel position. You can find several certified public or commercial scales at moving and storage lots, farm suppliers with grain elevators, gravel pits, recycling companies and large commercial truck stops. You can also look in the telephone book under “weighers” or “weighing”. Allow adequate time, since the entire weighing process can take up to 30 minutes. There may be a small fee for each weight taken, but the expense is a worth while investment toward the safe and economical operation of your motorhome.

### How To Weigh Your Motorhome

Your motorhome must be weighed fully loaded. That is with passengers, food, clothing, fuel, water, propane, supplies etc. Any towed vehicle (car/pickup, boat, or trailer ) or item loaded on brackets on the back of the motorhome should also be included in the weighing.

1. The following steps are suggested when using a long platform scale:
    a. Pull onto the scale so that only the front axle is on the platform with the end of the scale midway between the front and rear axles and record the scaled weight.
    b. Pull forward until the full unit is on the scale and record the weight.
    c. Pull forward so that only the rear axle is on the scale and record the weight.

Reading a

Reading b

Reading c

**Note:** Even though the weight of the total axle may be within the axle's rating, it may be overloaded on one side. This causes one wheel position to be overloaded. Therefore, side-to-side weighing should be done.

To obtain the individual wheel position weights, repeat this process with only one side of the motorhome on the scale. To determine individual wheel position weights, it is necessary to repeat the previous three steps (1a, 1b, and 1c), but this time, use only one side of the scale. To calculate the opposite side of the vehicle wheel position weight, subtract this side's weights from the weights recorded in steps 1a, 1b, and 1c.

**Your motorhome must remain as level as possible on the scale, even though an axle or side is not physically on the scale.** To obtain the side-to-side weights, there must be enough space on either side of the scale to allow the motorhome to be partially off the scale.

Individual wheel position weights must not exceed the maximum tire load capacity.

**⚠ CAUTION** **Maximum tire load capacity can only be achieved by utilizing the maximum allowable pressure (psi) as listed on the sidewall of the tire.**

**Note:** The above information is provided by the Tire Industry Safety Council Rubber Manufacturer's Association. Used with permission. ( http://www.rma.org/tire_safety/ )

For improved accuracy, Thor Motor Coach recommends using a segmented 4-pad scale, when possible, to determine individual wheel weights. The corner weights should not exceed half of the respective Gross Axle Weight Rating (GAWR) or the maximum load rating for the tire or set of dual tires at the rear, whichever is less. The maximum load rating for the tire can be found embossed on the tire's sidewall. If any of the corner weights exceed half of the listed GAWR or tire ratings, relocate the passengers and redistribute or remove a portion of the cargo until the weight is within the proper limits for all four corners of the vehicle.

**Note:** Additional cargo carrying capacity can be obtained by reducing the amount of fresh water carried while driving.

Check vehicle weight periodically to obtain optimum mileage from tires and improve handling. Tires should always be inflated as recommended in the chassis manufacturer's instructions or on the tire sidewall. See your chassis operator's manual.

## Weight Distribution

Improper weight distribution or too much weight on your motorhome's suspension system can cause spring, shock absorber, or brake failure, handling or steering problems, irregular tire wear, tire failure or other damage.

An overloaded motorhome is hard to drive and hard to stop. In cases of serious overloading, brakes can fail completely, particularly on steep hills. The load a tire will carry safely is a combination of the size of tire, its load range, and corresponding inflation pressure.

The following is an explanation of commonly used weight abbreviations:

- Gross Vehicle Weight Rating (GVWR) is the maximum permissible weight of this motorhome.
- Unloaded Vehicle Weight (UVW) is the weight of this motorhome as manufactured at the factory with full fuel, engine oil, and coolants.
- Occupant and Cargo Carrying Capacity (OCCC) is equal to the GVWR minus UVW and LP. In other words, OCCC is how much weight in occupants, cargo, water and trailer tongue weight that can be added to the motorhome without exceeding the GVWR.
- Gross Combined Weight Rating (GCWR) means the maximum allowable loaded weight of this recreation vehicle with its towed trailer or towed vehicle.
- Gross Axle Weight Rating (GAWR) is the value specified as the load carrying capacity of a single axle system, as measured at the tire-ground interfaces.
- If a boat, trailer or other vehicle is being towed, it should be weighed and combined with the towing vehicle's weight to ensure the total weight does not exceed the GCWR.

**Note:** Check your local and state or provincial laws for specific requirements regarding the safety of children in your vehicle.

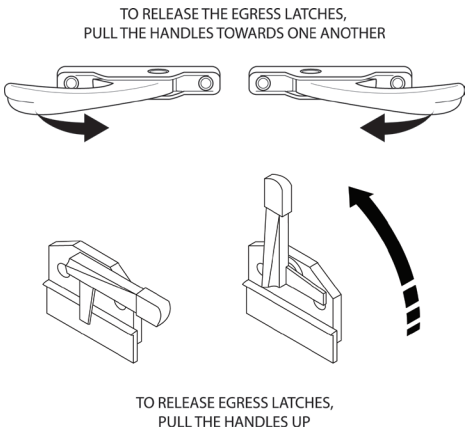
**Note:** Always follow the instructions and warnings that come with any infant or child restraint you might use.

If the child is the proper size, restrain the child in a safety seat. Children who are too large for child safety seats (as specified by your child safety seat manufacturer) should always wear safety belts.

If the shoulder belt portion of a combination lap and shoulder belt can be positioned so it does not cross or rest in front of the child's face or neck, the child should wear the lap and shoulder belt.

Never use pillows, books, or other objects to boost a child.

## EGRESS WINDOW



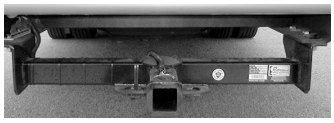

An egress window is designated for use as an exit in the case of an emergency. Inside the motorhome the egress window is easily identified by the red locking handles. There are two common styles of latches, determine the style of locking handle you have and refer to the following illustrations for operation. It is also marked as an "**EXIT**". The glass slider in the egress window operates the same as all other windows;

**TEST**: The egress window should be opened twice a year to ensure proper operation. Over time, the rubber seal will tend to stick to the egress window. Occasional operation will help prevent the rubber seal from sticking.

## TRAILER TOWING

**⚠ WARNING**

**A SEPARATE FUNCTIONING BRAKE SYSTEM IS REQUIRED FOR ANY TOWED VEHICLES OR TRAILERS WEIGHING MORE THAN 1000 LBS WHEN FULLY LOADED. NEVER EXCEED THE GVWR, OR THE GAWR SPECIFIED ON THE Motorhome CERTIFICATION LABEL. Also never exceed the weight ratings of the trailer hitch installed on the motorhome. Failure to heed any part of this warning could result in loss of control of the motorhome and towed vehicle or trailer and may cause an accident and serious injury. For specific towed vehicle braking requirements, consult the chassis owner's manual.**



**⚠ WARNING** **THE Motorhome FULLY LOADED AND THE TRAILER, OR TOWED VEHICLE, MUST NOT EXCEED THE Motorhome CHASSIS' GROSS COMBINED WEIGHT RATING (GCWR). Consult with your selling dealer to determine the GCWR of the motorhome. Do not exceed the motorhome gross combined weight rating (GCWR) or the hitch rating. The tongue weight, the weight pushing down on the hitch, must not exceed 10% of the hitch capacity.**

**⚠ WARNING** **DO NOT TOW LOADS THAT EXCEED THE GROSS COMBINED VEHICLE WEIGHT RATING OR OTHER TOW RATINGS OF THIS MOTORHOME.**

**⚠ WARNING** **THE DESIGNATED HITCH RATING MAY EXCEED THE GCWR OR OTHER TOWING CAPACITY LIMITS OF THE MOTORHOME. It is your responsibility to properly load the motorhome, while staying within the tow ratings, gross combined and gross vehicle weight ratings.**

Always use safety chains between the motorhome and the towed trailer or vehicle. Cross chains under the trailer tongue and allow slack for turning corners. Connect safety chains to the trailer or vehicle frame or hook retainers. Never attach chains to the bumper of a vehicle.

Tow bars or car dollies generally are made to travel in a forward direction only. Most towing equipment of this type is not designed for backing. Never attempt short back up distances with a tow bar or tow dolly. Damage to the motorhome, towed vehicle or towing device will result.

 **Note**: Thor Motor Coach accepts no responsibility for damage to the chassis and other components resulting from towing loads greater than its designated class specifications. Also consider the gross combined weight rating of the motorhome before towing a trailer or vehicle. Towing an object such as a boat and trailer or a vehicle behind the motorhome results in added driving considerations that you must contend with.


# OWNER'S MANUAL

## Class A and Class C Motorhomes

# Weighing, Loading, and Towing

**⚠WARNING**

**Do not exceed any applicable motorhome weight ratings. Doing so could damage your motorhome or affect handling and braking characteristics.**

**Your motorhome's braking system is designed and rated for operation at the gross vehicle weight rating (GVWR) listed on the unit's weight labels, not the gross combined weight rating (GCWR).**

Proper loading is one of the most important considerations when traveling in a motorhome. Your motorhome is built to withstand a set maximum load (GVWR). Read and follow the information listed on your motorhome's Federal Certification Label (located in the driver's area) to determine safe load limits. For safety's sake, NEVER OVERLOAD YOUR MOTORHOME.



## Federal Weight Label

**MANUFACTURED BY:** THOR MOTOR COACH, INC.
**GVWR:** XXXX KG (XXXXX LB)
**INC. VEH. MFG. BY:** <Insert Chassis Manufacturer>

**OFFLINE:** MM/YY
**SERIAL:** XXXXXXXXXXXXX
**MODEL:** XXXX

| | GAWR KG(LB) | TIRES | RIMS | COLD INFLATION PRESSURE | SINGLE | DUAL |
|---|---|---|---|---|---|---|
| **FRONT:** | XXXX (XXXX) | LT215/85R16 | 5.5 J X 16 | XXX KPA(XX PSI) | ☐ | ☐ |
| **REAR:** | XXXX (XXXX) | LT215/85R16 | 5.5 J X 16 | XXX KPA(XX PSI) | ☐ | ☐ |
| **TAG:** | | | | | ☐ | ☐ |

**THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT IN MM/DD/YYYY**

**V.I.N.:**XXXXXXXXXXXXXXXXX

**TYPE:** MULTIPURPOSE PASSENGER VEHICLE

Typical Federal Weight Label, including GVWR, GAWR, and tire pressure information

The TMC Motorhome Weight Specifications label concisely states the occupant and cargo carrying capacity of your motorhome and meets the requirements of 49 CFR part 571.120 as issued by the National Highway Traffic Safety Administration (NHTSA).

## Motorhome Occupant and Cargo Carrying Capacity Weight Label

**MOTORHOME OCCUPANT AND CARGO CARRYING CAPACITY**
**VIN# 1XXXXXXXXXXXXXXX**
**THE COMBINED WEIGHT OF OCCUPANTS AND CARGO SHOULD NEVER EXCEED:**
**XXX kg or XXX lbs**
**Safety belt equipped seating capacity: X**
**CAUTION:**
**A full load of water equals XXX kg or XXX lbs of cargo @ 1kg/L (8.3 lb/gal) and the tongue weight of a towed trailer counts as cargo**
(Serial #: XXXXXXXXXXXXXX)

Typical Motorhome Occupant and Cargo Carrying Capacity Label

The Motorhome Occupant and Cargo Carrying Capacity weight label is affixed to the interior side of the forward-most door of your motorhome on the passenger side, directly below the window screen for Class A motorhomes, or on the front door jamb for Class C motorhomes. This label indicates how much weight you can safely carry within the motorhome. The total weight of passengers, cargo, trailer tongue weight, and water should never exceed the value shown on this label.

NOTE: If a boat, trailer, or other vehicle is being towed, it should be weighed and combined with the motorhome's weight to ensure the total weight does not exceed the gross combined weight rating (GCWR).

## Weight Terminology

### GROSS VEHICLE WEIGHT RATING (GVWR)
the maximum permissible weight of this motorhome.

### UNLOADED VEHICLE WEIGHT (UVW)
the weight of this motorhome as manufactured at the factory with full fuel, engine oil, and coolants.

### OCCUPANT AND CARGO CARRYING CAPACITY (OCCC)
equal to the GVWR minus UVW and LP. In other words, OCCC is how much weight in occupants, cargo, water, and trailer tongue weight that can be added to the motorhome without exceeding the GVWR.

### GROSS COMBINED WEIGHT RATING (GCWR)
the maximum allowable loaded weight of this recreation vehicle with its towed trailer or towed vehicle.

### GROSS AXLE WEIGHT RATING (GAWR)
the value specified as the load carrying capacity of a single axle system, as measured at the tire ground interfaces.

## Weighing Your Motorhome

When loading your cargo, be sure it is distributed evenly to prevent overloading front to back and side to side. Heavy items should be placed low and as close to the axle positions as reasonable. Too many items stored on one side of your motorhome may overload a tire. Periodically weigh your motorhome at a public scale to determine axle loads.

To weigh your motorhome correctly, measure the fully loaded vehicle axle by axle and wheel position by wheel position. You can find certified public or commercial vehicle scales at moving and storage lots, farm suppliers with grain elevators, gravel pits, recycling companies, and large commercial truck stops. You can also look in the telephone book under "weighers" or "weighing".

Allow adequate time, since the entire weighing process can take around 30 minutes. There may be a small fee for each weight taken, but the expense is a worthwhile investment toward the safe and economical operation of your motorhome.

Your motorhome must be weighed fully loaded. That is with passengers, food, clothing, fuel, water, propane, supplies etc. Any towed vehicle (car/pickup, boat, or trailer) or item loaded on brackets on the back of the motorhome should also be included in the weighing.

The following procedure is suggested when using a long platform scale, although any method recommended by the scale operator which correctly determines weight value is acceptable. During all measurements, it is important to keep the vehicle as level as possible.

1. Pull onto the scale so that only the front axle is on the platform with the end of the scale midway between the front and rear axles and record the weight **(Reading A).**
2. Pull forward until the full unit is on the scale and record the weight **(Reading B).**
3. Pull forward so that only the rear axle is on the scale and record the weight **(Reading C).**
4. To determine the weight of individual wheel positions, repeat the previous three steps, but this time, use only one side of the motorhome on the scale. Record the weight readings. To calculate the wheel position weight for the opposite side of the motorhome, subtract these weight readings from weight readings A, B, and C recorded in steps 1, 2, and 3.

   Your motorhome must remain as level as possible on the scale, even though an axle or side

Reading A: Front

Reading B: Total Coach

Reading C: Back

NOTE: Thick Black Lines in the illustrations above represent a vehicle weighing scale.

is not physically on the scale. To obtain the side-to-side weights, there must be enough space on either side of the scale to allow the motorhome to be partially off the scale.

NOTE: Additional cargo carrying capacity can be obtained by reducing the amount of fresh water carried while driving.

For improved accuracy, Thor Motor Coach recommends using a segmented 4-pad scale, when possible, to determine individual wheel weights. The corner weights should not exceed half of the respective Gross Axle Weight Rating (GAWR) or the maximum load rating for the tire or set of dual tires at the rear, whichever is less.

Individual wheel position weights must not exceed the maximum tire load capacity. The maximum load rating for the tire can be found embossed on the tire's sidewall.

If any of the corner weights exceed half of the listed GAWR or tire ratings, relocate the passengers and redistribute or remove a portion of the cargo until the weight is within the proper limits for all four corners of the vehicle.

Check your motorhome vehicle weight periodically to obtain optimum mileage from your tires, and to improve vehicle handling. Tires should always be inflated as recommended in the chassis manufacturer's instructions or on the tire sidewall (refer to your Chassis Packet).



## Weight Distribution

Improper weight distribution or too much weight on your motorhome's suspension system can cause spring, shock absorber, or brake failure, handling or steering problems, irregular tire wear, tire failure, or other damage. An overloaded motorhome is hard to drive and hard to stop. In cases of serious overloading, brakes can fail completely, particularly on steep hills. The load a tire will carry safely is a combination of the size of tire, its load range, and corresponding inflation pressure.

## Loading Tips

Store and secure all loose items inside the motorhome before traveling. Overlooked items such as canned goods, or small appliances on the countertop, cooking pans on the range or free-standing furniture items can become dangerous projectiles during a sudden stop. Distribute cargo side-to-side so the weight on each tire does not exceed one-half of the GAWR for either axle. For traveling safety, it is important to make sure any tie down straps (if so equipped) on appliances or furniture are secured.

## Packing for Travel

Pay careful attention to where and what type of flammable materials you store. Certain storage areas are clearly labeled DO NOT STORE COMBUSTIBLE MATERIALS. Examples of spark producing areas, depending on the motorhome model, are: base kitchen cabinets, front dinette base, exterior refrigerator service compartment, as well as refrigerator cabinet. Please use discretion as to what potentially dangerous products your motorhome contains while traveling. Be sure all canisters and bottle tops are secure and leak free.

The following checklist will assist your preparing the living quarters for a trip:

- In winter, make sure that the fresh water system is freeze protected.
- Make sure that all storage items are secured, and heavy items are stored low so they do not fall.
- Make sure all of your motorhome appliances work (if so equipped: stove, oven, microwave, refrigerator, water heater, water pump, furnace, etc.).
- Check that you have up-to-date and correct paperwork such as an owner's registration card, vehicle registration, proof of insurance, valid driver's license, etc.
- When preparing for your trip, always consider vehicle weight when loading the motorhome.
- When traveling, you may want to drain the fresh water tank, or keep the quantity of water in it to a minimum. This reduces the total weight of the motorhome. A full tank of fresh water can affect the handling and CCC of the motorhome.

## Towing With Your Motorhome

**⚠WARNING**

- **An auxiliary braking system may be required for control of a towed vehicle behind the motorhome. Do not assume the braking capabilities of the motorhome cover the towed vehicle.**
- **The designated hitch rating may exceed the GCWR or other towing capacity limits of the motorhome. It is your responsibility to properly load the motorhome, while staying within the tow ratings, GCWR, GVWR, and GAWRs of the motorhome.**
- **Do not tow loads that cause the motorhome to exceed the Gross Combined Vehicle Weight Rating (GCWR).**
- **Do not exceed the vertical hitch load rating (tongue weight) as listed on the hitch label.**
- **Consult your owner's manual for additional information regarding towing guidelines for this motorhome.**
- **Failure to comply can result in loss of vehicle control resulting in death or serious injury.**

**⚠WARNING**

**A SEPARATE FUNCTIONING BRAKE SYSTEM IS REQUIRED FOR ANY TOWED VEHICLES OR TRAILERS WEIGHING MORE THAN 1000 LBS WHEN FULLY LOADED. NEVER EXCEED THE GVWR, OR THE GAWR SPECIFIED ON THE Motorhome CERTIFICATION LABEL. Also never exceed the weight ratings of the trailer hitch installed on the motorhome. Failure to heed any part of this warning could result in loss of control of the motorhome and towed vehicle or trailer and may cause an accident and serious injury. For specific towed vehicle braking requirements, consult your chassis owner's manual.**

**⚠WARNING**

**THE Motorhome FULLY LOADED AND THE TRAILER, OR TOWED VEHICLE, MUST NOT EXCEED THE Motorhome CHASSIS' GROSS COMBINED WEIGHT RATING (GCWR). Consult with your selling dealer to determine the GCWR of the motorhome. Do not exceed the motorhome gross combined weight rating (GCWR) or the hitch rating. The tongue weight, the weight pushing down on the hitch, must not exceed 10% of the hitch capacity.**

**⚠WARNING**

**DO NOT TOW LOADS THAT EXCEED THE GROSS COMBINED VEHICLE WEIGHT RATING OR OTHER TOW RATINGS OF THIS MOTORHOME.**

**⚠WARNING**

**THE DESIGNATED HITCH RATING MAY EXCEED THE GCWR OR OTHER TOWING CAPACITY LIMITS OF THE MOTORHOME. It is your responsibility to properly load the motorhome, while staying within the tow ratings, gross combined and gross vehicle weight ratings.**

Always use safety chains between your motorhome and the towed trailer or vehicle. Cross the chains under the trailer tongue and allow slack for turning corners. Connect the safety chains to the trailer or vehicle frame or hook retainers. Never attach safety chains to the bumper of a vehicle.

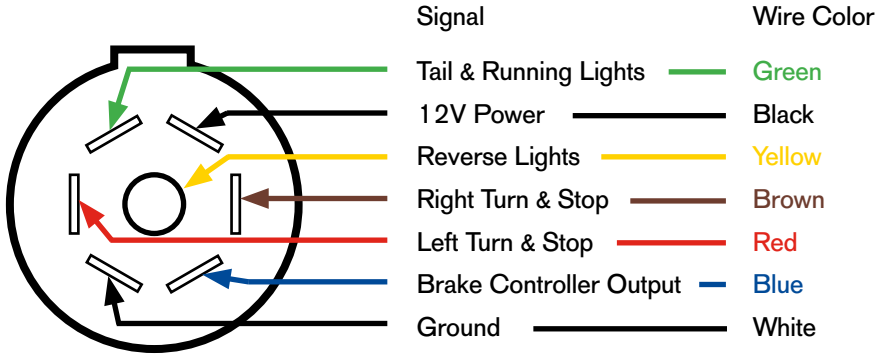
Tow bars or car dollies generally are made to travel in a forward direction only. Most towing equipment of this type is not designed for backing. Never attempt short back up distances with a tow bar or tow dolly. Damage to the motorhome, towed vehicle or towing device will result.

NOTE: Thor Motor Coach accepts no responsibility for damage to the chassis and other components resulting from towing loads greater than its designated class specifications. Also consider the gross combined weight rating (GCWR) of the motorhome before towing a trailer or vehicle. Towing an object such as a boat, trailer, or vehicle behind the motorhome results in added driving considerations that you must contend with.

NOTE: Aftermarket adapters are available to convert the wiring of a 7-way towing vehicle connector to a 4-way trailer plug.

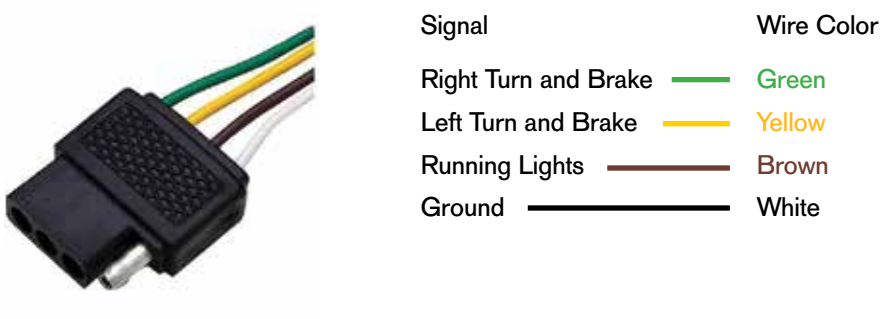
## Electrical Connections to a Towed Vehicle

A 4-way or 7-way trailer plug, supplied by the chassis manufacturer, is prewired to the chassis electrical system. This plug provides electrical power for running lights, turn signals, stop lights, and electric trailer brakes. Before connecting your motorhome to any towed vehicle, verify that the wiring of the towed vehicle plug conforms to your motorhome connector wiring. Refer to your Chassis Packet for additional information regarding vehicle towing.




Typical 7-way trailer connection

4-way connectors (towing vehicle side) are typically wired as follows:




Typical 4-way trailer connection


# Owner's Manual

TMC Part Number 0441434
Rev. 03.01.2019

# Weighing, Loading, and Towing

Proper loading is one of the most important considerations when traveling in a motorhome. Your motorhome is built to withstand a set maximum load (GVWR). Read and follow the information listed on your motorhome's Federal Certification Label (located in the driver's area) to determine safe load limits. For safe operation, NEVER OVERLOAD YOUR MOTORHOME.

## Federal Weight Label

**⚠WARNING**

**Do not exceed any applicable motorhome weight ratings. Doing so could damage your motorhome or affect handling and braking characteristics.**

**Your motorhome's braking system is designed and rated for operation at the gross vehicle weight rating (GVWR) listed on the unit's weight labels, not the gross combined weight rating (GCWR).**



The TMC Motorhome Weight Specifications label concisely states the occupant and cargo carrying capacity of your motorhome and meets the requirements of 49 CFR part 571.120 as issued by the National Highway Traffic Safety Administration (NHTSA).

**MANUFACTURED BY:** THOR MOTOR COACH, INC.
**GVWR:** XXXX KG (XXXXX LB)
**INC. VEH. MFG. BY:** <Insert Chassis Manufacturer>

**OFFLINE:** MM/YY
**SERIAL:** XXXXXXXXXXXXX
**MODEL:** XXXX

| | GAWR KG(LB) | TIRES | RIMS | COLD INFLATION PRESSURE | SINGLE | DUAL |
|---|---|---|---|---|---|---|
| FRONT: | XXXX (XXXX) | LT215/85R16 | 5.5 J X 16 | XXX KPA(XX PSI) | ☐ | ☐ |
| REAR: | XXXX (XXXX) | LT215/85R16 | 5.5 J X 16 | XXX KPA(XX PSI) | ☐ | ☐ |
| TAG: | | | | | ☐ | ☐ |

**THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT IN MM/DD/YYYY**

**V.I.N.:**XXXXXXXXXXXXXXXXX

**TYPE:** MULTIPURPOSE PASSENGER VEHICLE

Typical Federal Weight Label, including GVWR, GAWR, and tire pressure information

## Motorhome Occupant and Cargo Carrying Capacity Weight Label

**MOTORHOME OCCUPANT AND CARGO CARRYING CAPACITY**
**VIN# 1XXXXXXXXXXXXXXXX**
**THE COMBINED WEIGHT OF OCCUPANTS AND CARGO SHOULD NEVER EXCEED:**
**XXX kg or XXX lbs**
**Safety belt equipped seating capacity: X**
**CAUTION:**
**A full load of water equals XXX kg or XXX lbs of cargo @ 1kg/L (8.3 lb/gal) and the tongue weight of a towed trailer counts as cargo**
(Serial #: XXXXXXXXXXXXXX)

Typical Motorhome Occupant and Cargo Carrying Capacity Label

The Motorhome Occupant and Cargo Carrying Capacity weight label is affixed to the interior side of the forward-most door of your motorhome, on the passenger side, directly below the window screen for Class A motorhomes, or on the front door jamb for Class C motorhomes. This label indicates how much weight you can safely carry within the motorhome. The total weight of passengers, cargo, trailer tongue weight, and water (fresh and waste) should never exceed the value shown on this label.

NOTE: If a boat, trailer, or other vehicle is being towed, it should be weighed and combined with the motorhome's weight to ensure the total weight does not exceed the gross combined weight rating (GCWR).



## Weight Terminology

### GROSS VEHICLE WEIGHT RATING (GVWR)
The maximum permissible weight of this motorhome.

### UNLOADED VEHICLE WEIGHT (UVW)
The weight of this motorhome as manufactured at the factory with full fuel, engine oil, and coolants.

### OCCUPANT AND CARGO CARRYING CAPACITY (OCCC)
Equal to the GVWR minus UVW and LP. Occupant and cargo carrying capacity (OCCC) is how much weight in occupants, cargo, water, and trailer tongue weight that can be added to the motorhome without exceeding the GVWR.

### GROSS COMBINED WEIGHT RATING (GCWR)
The maximum allowable loaded weight of this recreation vehicle with its towed trailer or towed vehicle.

### GROSS AXLE WEIGHT RATING (GAWR)
The value specified as the load carrying capacity of a single axle system, as measured at the tire ground interfaces.

## Weighing Your Motorhome

When loading your cargo, be sure weight is distributed evenly to prevent overloading front to back and side to side. Heavy items should be placed low and as close to the axle positions as possible. Too many items stored on one side of your motorhome may overload tires and cause handling issues.

Periodically weigh your motorhome at a public vehicle scale to determine axle loads. You can find certified public or commercial vehicle scales at moving and storage lots, farm suppliers with grain elevators, gravel pits, recycling companies, and large commercial truck stops.

To weigh your motorhome correctly, measure the fully loaded vehicle axle by axle and wheel position by wheel position. Allow adequate time, since the entire weighing process can take around 30 minutes. There may be a small fee for each weight reading taken, but the expense is a worthwhile investment toward the safe operation of your motorhome.

Your motorhome must be weighed fully loaded, which includes passengers, food, clothing, fuel, water, propane, supplies, etc. Any towed vehicle (car/pickup, boat, or trailer) or items loaded on brackets on the back of the motorhome should also be included in the weighing process.

The following procedure is suggested when using a long platform scale, although any method recommended by the scale operator which correctly determines weight value is acceptable. During all measurements, it is important to keep the vehicle as level as possible.

1. Pull onto the scale so that only the front axle is on the platform with the end of the scale midway between the front and rear axles and record the weight **(Reading A).**
2. Pull forward until the full unit is on the scale and record the weight **(Reading B).**
3. Pull forward so that only the rear axle is on the scale and record the weight **(Reading C).**
4. To determine the weight of individual wheel positions, repeat the previous three steps, but this time, use only one side of the motorhome on the scale. Record the weight readings.

   To calculate the wheel position weight for the opposite side of the motorhome, subtract these weight readings from weight readings A, B, and C recorded in steps 1, 2, and 3.

Reading A: Front

Reading B: Total Coach

Reading C: Back

## OTHER FACTORS TO CONSIDER:

- Your motorhome must remain as level as possible on the scale, even though an axle or side is not physically on the scale. To obtain the side-to-side weights, there must be enough space on either side of the scale to allow the motorhome to be partially off the scale.
- For improved accuracy, Thor Motor Coach recommends using a segmented 4-pad scale, when possible, to determine individual wheel weights. The corner weights should not exceed half of the respective Gross Axle Weight Rating (GAWR) or the maximum load rating for the tire or set of dual tires at the rear, whichever is less.
- Individual wheel position weights must not exceed the maximum tire load capacity. The maximum load rating for the tire can be found embossed on the tire's sidewall.
- If any of the corner weights exceed half of the listed GAWR or tire ratings, redistribute or remove a portion of the cargo until the weight is within the proper limits for all four corners of the vehicle.
- Periodically check and adjust your motorhome's cargo weight to obtain optimum mileage from your tires and to optimize vehicle handling. Tires should always be inflated as recommended in the chassis manufacturer's instructions or on the tire sidewall (refer to your Chassis Packet).

NOTE: Thick Black Lines in the illustrations above represent a vehicle weighing scale.

NOTE: At approximately 8 pounds per gallon, water can add a considerable amount of weight to your motorhome. Additional cargo carrying capacity for other items can be obtained by reducing the amount of fresh and waste water carried while traveling.

However, it is recommended to always keep a few gallons of water in the black tank to help prevent the build-up of sludge, which can lead to blockages.

## Weight Distribution

Improper weight distribution, or too much weight on your motorhome's suspension system, can cause failure or damage to:

- Springs and suspension components
- Shock absorbers
- Brakes
- Tires
- Steering components

An overloaded motorhome is hard to drive and hard to stop. In cases of serious overloading, brakes can fail completely, particularly on steep hills. Proper weight distribution also affects tire performance. The load a tire will safely carry is a combination of its size, its construction, its load range, and corresponding inflation pressure.



## Loading and Travel Tips

When preparing for any trip, always consider vehicle weight when loading the motorhome. Not overloading the motorhome and keeping the weight balanced side-to-side and as close to the axles as possible will help improve the drivability and safe handling of the vehicle.

- Store and secure all loose items inside the motorhome before traveling. Overlooked items such as canned goods, or small appliances on the countertop, cooking pans on the range or free-standing furniture items can become dangerous projectiles during a sudden stop.
- Before traveling, ensure all appliances are in good working order (if equipped): stove, oven, microwave, refrigerator, water heater, water pump, furnace, etc.
- Distribute cargo side-to-side so the weight on each tire does not exceed one-half of the GAWR for either axle. For traveling safety, it is important to make sure any tie down straps (if equipped) on appliances or furniture are secured.
- Pay careful attention to where and what type of flammable materials you store and transport. Certain storage areas are clearly labeled DO NOT STORE COMBUSTIBLE MATERIALS. Examples of potential spark producing areas are: base kitchen cabinets, front dinette base, exterior refrigerator service compartment, as well as refrigerator cabinet. Be sure all canisters are secure and leak free.
- When traveling, keep the quantity of fresh and gray water within the storage tanks to a minimum. This reduces the total weight of the motorhome, therefore increasing available carrying weight for other items (refer to Occupant Cargo Carrying Capacity (OCCC) of the motorhome on page 46).
- In winter or colder climates, make sure that the fresh water system is winterized.
- Check that you have up-to-date and correct paperwork such as an owner's registration card, vehicle registration, proof of insurance, valid driver's license, etc.

## Towing With Your Motorhome

**⚠WARNING**

- **An auxiliary braking system may be required for control of a towed vehicle behind the motorhome. Do not assume the braking capabilities of the motorhome can also adequately stop the combined weight of the motorhome and towed vehicle.**
- **The designated hitch rating may exceed the GCWR or other towing capacity limits of the motorhome. It is your responsibility to properly load the motorhome, while staying within the tow ratings, GCWR, GVWR, and GAWRs of the motorhome.**
- **Do not tow loads that cause the motorhome to exceed the Gross Combined Vehicle Weight Rating (GCWR).**
- **Do not exceed the vertical hitch load rating (tongue weight) as listed on the hitch label.**
- **Consult your owner's manual for additional information regarding towing guidelines for this motorhome.**
- **Failure to comply can result in loss of vehicle control resulting in death or serious injury.**

**⚠WARNING**

**A SEPARATE FUNCTIONING BRAKE SYSTEM IS REQUIRED FOR ANY TOWED VEHICLES OR TRAILERS WEIGHING MORE THAN 1000 LBS WHEN FULLY LOADED. NEVER EXCEED THE GVWR, OR THE GAWR SPECIFIED ON THE MOTORHOME'S CERTIFICATION LABEL.**

**Never exceed the weight ratings of the trailer hitch installed on the motorhome. Failure to heed any part of this warning could result in loss of control of the motorhome and towed vehicle or trailer and may cause an accident and serious injury. For specific towed vehicle braking requirements, consult your chassis owner's manual.**

**⚠WARNING**

**THE Motorhome FULLY LOADED AND THE TRAILER, OR TOWED VEHICLE, MUST NOT EXCEED THE Motorhome CHASSIS' GROSS COMBINED WEIGHT RATING (GCWR). Consult with your selling dealer to determine the GCWR of the motorhome.**

**Do not exceed the motorhome gross combined weight rating (GCWR) or the hitch rating. The tongue weight, the weight pushing down on the hitch, must not exceed 10% of the hitch capacity.**

**⚠WARNING**

**DO NOT TOW LOADS THAT EXCEED THE GROSS COMBINED VEHICLE WEIGHT RATING OR OTHER TOW RATINGS OF THIS MOTORHOME.**

**THE DESIGNATED HITCH RATING MAY EXCEED THE GCWR OR OTHER TOWING CAPACITY LIMITS OF THE MOTORHOME. It is your responsibility to properly load the motorhome, while staying within the tow ratings, gross combined and gross vehicle weight ratings.**

## Safe Towing Tips:

- Always use safety chains between your motorhome and the towed trailer or vehicle. Cross the chains under the trailer tongue and allow slack for turning corners. Connect the safety chains to the trailer or vehicle frame or hook retainers. Never attach safety chains to the bumper of a vehicle.
- Tow bars or car dollies generally are made to travel in a forward direction only. Most towing equipment of this type is not designed for backing. Never attempt short back up distances with a tow bar or tow dolly; damage to the motorhome, towed vehicle or towing device could result.
- Always check brake lights, running lights, emergency flashers, and turn signals of the towed vehicle at the start of the trip and often during the trip.

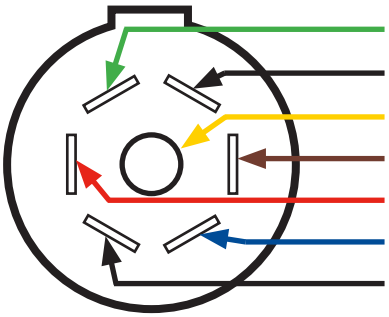
NOTE: Thor Motor Coach accepts no responsibility for damage to the chassis and other components resulting from towing loads greater than its designated class specifications.

Always consider the gross combined weight rating (GCWR) of the motorhome and towed vehicle.

## Electrical Connections to a Towed Vehicle

A 4-way or 7-way trailer plug, supplied by the chassis manufacturer, is pre-wired to the chassis electrical system. This plug provides electrical power for running lights, turn signals, stop lights, and electric trailer brakes. Before connecting your motorhome to any towed vehicle, verify that the wiring of the towed vehicle plug conforms to your motorhome connector wiring. Refer to your Chassis Packet for additional information regarding vehicle towing.

### 7-WAY CONNECTOR WIRING



| Signal | Wire Color |
|---|---|
| Tail & Running Lights | Green |
| 12V Power | Black |
| Reverse Lights | Yellow |
| Right Turn & Stop | Brown |
| Left Turn & Stop | Red |
| Brake Controller Output | Blue |
| Ground | White |

### 4-WAY CONNECTOR WIRING

| Signal | Wire Color |
|---|---|
| Right Turn and Brake | Green |
| Left Turn and Brake | Yellow |
| Running Lights | Brown |
| Ground | White |

# OWNER'S MANUAL

## CLASS A AND CLASS C MOTORHOMES

THOR MOTOR COACH

Made to fit.

# Weighing, Loading, and Towing

## Introduction

**⚠ WARNING**

**Do not exceed any applicable motorhome weight ratings. Doing so could damage your motorhome or affect handling and braking characteristics.**

**Your motorhome's braking system is designed and rated for operation at the gross vehicle weight rating (GVWR) listed on the unit's weight labels, not the gross combined weight rating (GCWR).**

Proper loading is one of the most important considerations when traveling in a motorhome. Your motorhome is built to carry a certain safe maximum load (GVWR). Read and follow the information listed on your motorhome's Federal Certification Label to determine safe load limits. For safe operation, NEVER OVERLOAD YOUR MOTORHOME.

## Weight Terminology

### GROSS VEHICLE WEIGHT RATING (GVWR)

The maximum permissible weight of this motorhome.

### UNLOADED VEHICLE WEIGHT (UVW)

The weight of this motorhome as manufactured at the factory with full fuel tank, engine oil, and coolants.

### OCCUPANT AND CARGO CARRYING CAPACITY (OCCC)

Equal to the GVWR minus UVW plus the weight of any carried LP fuel. Occupant and cargo carrying capacity (OCCC) is how much weight in occupants, cargo, water, and trailer tongue weight that can be added to the motorhome without exceeding the GVWR.

### GROSS COMBINED WEIGHT RATING (GCWR)

The maximum allowable loaded weight of this recreation vehicle with its towed trailer or towed vehicle.

### GROSS AXLE WEIGHT RATING (GAWR)

The value specified as the load carrying capacity of a single axle system, as measured at the tire ground interfaces.

6

## Federal Weight Label

The Federal Weight Label is typically affixed to the driver's door jamb for Class B and C motorhomes and near the driver's seat for Class A motorhomes. This label concisely states the gross vehicle weight rating (GVWR) of your motorhome, along with the gross axle weight rating (GAWR) (both front and rear), tire size, tire weight rating, and proper tire inflation. This information meets the requirements of 49 CFR part 571.120 as issued by the National Highway Traffic Safety Administration (NHTSA).

**MANUFACTURED BY:** THOR MOTOR COACH, INC.
**GVWR:** XXXX KG (XXXXX LB)
**INC. VEH. MFG. BY:** <Insert Chassis Manufacturer>

**OFFLINE:** MM/YY
**SERIAL:** XXXXXXXXXXXXX
**MODEL:** XXXX

| | GAWR KG(LB) | TIRES | RIMS | COLD INFLATION PRESSURE | SINGLE | DUAL |
|---|---|---|---|---|---|---|
| **FRONT:** | XXXX (XXXX) | LT215/85R16 | 5.5 J X 16 | XXX KPA(XX PSI) | ☐ | ☐ |
| **REAR:** | XXXX (XXXX) | LT215/85R16 | 5.5 J X 16 | XXX KPA(XX PSI) | ☐ | ☐ |
| **TAG:** | | | | | ☐ | ☐ |

**THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT IN MM/DD/YYYY**

**V.I.N.:**XXXXXXXXXXXXXXXXX

**TYPE:** MULTIPURPOSE PASSENGER VEHICLE

Typical Federal Weight Label, including GVWR, GAWR, and tire pressure information

## Motorhome Occupant and Cargo Carrying Capacity Weight Label

The Motorhome Occupant and Cargo Carrying Capacity weight label is affixed to the interior side of the forward-most passenger door of Class B and C motorhomes and on the interior surface of the entry door of Class A motorhomes. This label indicates how much weight you can safely carry within the motorhome. The total weight of passengers, cargo, trailer tongue weight, and water (fresh and waste) should never exceed the values shown on this label.

This label also includes important safety belt seating capacity information and the measured overall length of the motorhome.

NOTE:

- If a boat, trailer, or other vehicle is being towed, it should be weighed and combined with the motorhome's weight to ensure the total weight of the motorhome and towed vehicle does not exceed the gross combined weight rating (GCWR) of the motorhome. Contact your dealer or the chassis manufacturer for GCWR ratings.
- Depending on the date of manufacturer, the OCCC label attached to your motorhome may not include length specifications.

**MOTOR HOME OCCUPANT AND CARGO CARRYING CAPACITY**
**VIN# XXXXXXXXXXXXXXXXX**
**THE COMBINED WEIGHT OF OCCUPANTS AND CARGO SHOULD NEVER EXCEED:**
**XXX kg or XXX lbs**
**Safety belt equipped seating capacity: X**
**CAUTION: A full load of water equals XXX kg or XXX lbs of cargo @ 1kg/L (8.3 lb/gal)**
**and the tongue weight of a towed trailer counts as cargo**
(Serial #: XXXXXXXXXXXXX)
**Recreational vehicle overall length XX' XX" (X.XXXm) as manufactured**

Typical Motorhome Occupant and Cargo Carrying Capacity Label

## Weight Capacity of Rear Garage Area

Motorhomes that include a rear garage area have a separate weight capacity rating for this cargo area. This weight capacity is listed on a label attached to the inside wall of the garage. The total weight of garage cargo must never exceed the labeled capacity AND the weight of cargo carried in the garage must be included in the total weight of occupants and cargo of the motorhome. The total weight of the occupants, garage cargo, water (fresh and waste), trailer tongue weight, and other supplies must NOT exceed the Occupant and Cargo Carrying Capacity (OCCC) of the motorhome.

**XXXX lb Capacity for Garage Area**
**Please reference your owner's manual for proper weight distribution**
(Serial #: XXXXXXXXXXXXX)

Typical Garage Area Weight Capacity Label

## Weighing Your Motorhome

When loading your cargo, be sure weight is distributed evenly to prevent overloading front to back and side to side. Heavy items should be placed low and as close to the axle positions as possible. Too many items stored on one side of your motorhome may overload tires and cause handling issues.

Periodically weigh your motorhome at a public vehicle scale to determine axle loads. You can find certified public or commercial vehicle scales at moving and storage lots, farm suppliers with grain elevators, gravel pits, recycling companies, and large commercial truck stops.

To weigh your motorhome correctly, measure the fully loaded vehicle axle by axle and wheel position by wheel position. Allow adequate time, since the entire weighing process can take around 30 minutes. There may be a small fee for each weight reading taken, but the expense is a worthwhile investment toward the safe operation of your motorhome.

Your motorhome must be weighed fully loaded, which includes passengers, food, clothing, fuel, water, propane, supplies, etc. Any towed vehicle (car/pickup, boat, or trailer) or items loaded on brackets on the back of the motorhome should also be included in the weighing process.

The following procedure is suggested when using a long platform scale, although any method recommended by the scale operator that correctly determines weight value is acceptable. During all measurements, it is important to keep the vehicle as level as possible.

1. Pull onto the scale so that only the front axle is on the platform with the end of the scale midway between the front and rear axles and record the weight **(Reading A).**
2. Pull forward until the full unit is on the scale and record the weight **(Reading B).**
3. Pull forward so that only the rear axle is on the scale and record the weight **(Reading C).**
4. To determine the weight of individual wheel positions, repeat the previous three steps, but this time, use only one side of the motorhome on the scale. Record the weight readings.
5. To calculate the wheel position weight for the opposite side of the motorhome, subtract these weight readings from weight readings A, B, and C recorded in steps 1, 2, and 3.

Reading A: Front

Reading B: Total Coach

Reading C: Back

NOTE: Thick Black Lines in the illustrations above represent a vehicle weighing scale.

### OTHER FACTORS TO CONSIDER:

- Your motorhome must remain as level as possible on the scale, even though an axle or side is not physically on the scale. To obtain the side-to-side weight measurements, there must be enough space on either side of the scale to allow the motorhome to be partially off the scale.
- For improved accuracy, Thor Motor Coach recommends using a segmented 4-pad scale, when possible, to determine individual wheel weight measurements. The corner weight measurements should not exceed half of the respective Gross Axle Weight Rating (GAWR) or the maximum load rating for the tire or set of dual tires at the rear, whichever is less.
- Individual wheel position weight measurements must not exceed the maximum tire load capacity. The maximum load rating for the tire can be found embossed on the tire's sidewall.

- If any of the corner weight measurements exceed half of the listed GAWR or tire ratings, redistribute or remove a portion of the cargo until the weight is within the proper limits for all four corners of the vehicle.
- Periodically check and adjust your motorhome's cargo weight to obtain optimum mileage from your tires and to optimize vehicle handling. Inflate ties as recommended on the Federal Weight Label affixed to your motorhome.

NOTE: At approximately 8 pounds per gallon, water can add a considerable amount of weight to your motorhome. Additional cargo carrying capacity for other items can be obtained by reducing the amount of fresh and waste water carried while traveling.

However, to prevent the build-up of sludge, keep a few gallons of water in the black tank.



## Weight Distribution

Improper weight distribution, or too much weight on your motorhome's suspension system, can cause failure or damage to:

- Springs and suspension components
- Shock absorbers
- Brakes
- Tires
- Steering components

An overloaded motorhome is hard to drive and hard to stop. In cases of serious overloading, brakes can fail completely, particularly on steep hills. Proper weight distribution also affects tire performance. The load a tire will safely carry is a combination of its size, its construction, its load range, and corresponding inflation pressure.

## Loading the Motorhome

Always consider proper vehicle loading when preparing for travel. By not overloading the motorhome and keeping the weight balanced side-to-side and as close to the axles as possible, the drivability and safe handling of the vehicle will be maximized.

- Store and secure all loose items inside the motorhome before traveling. Overlooked items such as canned goods, or small appliances on the countertop, cooking pans on the range or free-standing furniture items can become dangerous projectiles during a sudden stop.
- Distribute cargo side-to-side so the weight on each tire does not exceed one-half of the GAWR for either axle. For traveling safety, it is important to make sure any tie-down straps (if equipped) on appliances or furniture are secured.
- Give careful attention to where and what type of flammable materials you store and transport. Certain storage areas are clearly labeled DO NOT STORE COMBUSTIBLE MATERIALS. Examples of potential spark producing areas are: base kitchen cabinets, front dinette base, exterior refrigerator service compartment, as well as refrigerator cabinet. Be sure all canisters are secure and leak free.
- When traveling, keep the quantity of fresh, gray, and black water within the storage tanks to a minimum. This reduces the total weight of the motorhome, therefore increasing available carrying weight for other items (refer to Occupant Cargo Carrying Capacity (OCCC) of the motorhome).

## Towing With Your Motorhome

**⚠ WARNING**

- **An auxiliary braking system may be required for control of a towed vehicle behind the motorhome. Do not assume the braking capabilities of the motorhome can also adequately stop the combined weight of the motorhome and towed vehicle.**
- **The designated hitch rating may exceed the GCWR or other towing capacity limits of the motorhome. It is your responsibility to properly load the motorhome, while staying within the tow ratings, GCWR, GVWR, and GAWR of the motorhome.**
- **Do not tow loads that cause the motorhome to exceed the Gross Combined Vehicle Weight Rating (GCWR).**
- **Do not exceed the vertical hitch load rating (tongue weight) as listed on the hitch label.**
- **Consult your owner's manual for additional information regarding towing guidelines for this motorhome.**

**Failure to comply can result in loss of vehicle control resulting in death or serious injury.**

**⚠ WARNING**

**A SEPARATE FUNCTIONING BRAKE SYSTEM IS REQUIRED FOR ANY TOWED VEHICLES OR TRAILERS WEIGHING MORE THAN 1500 LBS WHEN FULLY LOADED. NEVER EXCEED THE GVWR, OR THE GAWR SPECIFIED ON THE MOTORHOME'S CERTIFICATION LABEL.**

**Never exceed the weight ratings of the trailer hitch installed on the motorhome. Failure to heed any part of this warning could result in loss of control of the motorhome and towed vehicle or trailer and may cause an accident and serious injury. For specific towed vehicle braking requirements, consult your chassis owner's manual.**

**⚠ WARNING**

**THE FULLY LOADED MOTORHOME AND THE TRAILER, OR TOWED VEHICLE, MUST NOT EXCEED THE MOTORHOME'S GROSS COMBINED WEIGHT RATING (GCWR).**

**Do not exceed the motorhome gross combined weight rating (GCWR), the hitch rating (in pounds), or the maximum tongue weight rating of the hitch (note: tongue weight is the weight in pounds pushing down on the hitch).**

**Consult with your selling dealer to determine the GCWR of the motorhome and the towing capacity of the motorhome.**

**⚠ WARNING**

**DO NOT USE WEIGHT DISTRIBUTING HITCHES OR WEIGHT DISTRIBUTING TOWING DEVICES WITH THIS MOTORHOME. Applies to Class A and Class C motorhomes.**

### Towing a Vehicle with Your Motorhome

There are three basic methods of towing a vehicle with your motorhome; all have advantages and disadvantages.

1. Flat towing with a tow-bar. With this method, a vehicle-specific tow bar is attached to front of the towed vehicle and the tow-hitch is attached to the motorhome. All four wheels of the towed vehicle remain on the ground. This method does not add tongue weight to the motorhome, which is an advantage. However, it is not recommended to back-up with a tow-bar due to the likely-hood of jack-knifing the towed vehicle.

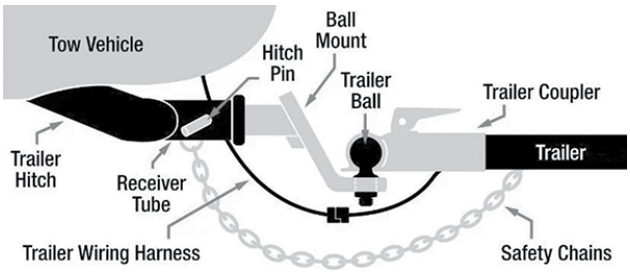
2. Towing with a tow dolly. A tow dolly is designed to tow a variety of vehicles, therefore, the advantage is that it is not a vehicle-specific piece of equipment. It also presents minimal tongue weight to the motorhome; another advantage. However, like the tow-bar, it is not recommended to back-up with a tow-dolly, due again, to the likely-hood of jack-knifing the towed vehicle.

3. Towing a vehicle using a full vehicle trailer, either open or enclosed. A vehicle trailer presents the advantage of backing-up and since the towed vehicle is not in direct contact with the road surface, there is no additional wear to the vehicle while it is being towed. However, like all trailers, a vehicle trailer adds tongue weight to the motorhome.

If you are considering towing a vehicle behind your motorhome, consult with your dealer or qualified towing expert about the towing equipment options appropriate for your motorhome and travel needs.

## Towing Hitch

Your motorhome is equipped with a Class III towing hitch receiver and trailer wiring receptacle. Depending on the weight rating of your motorhome's chassis, hitch ratings range from 5,000 to 10,000 pounds. Please refer to the chassis manufacturer's owner's manual for towing recommendations and towing limitations for this vehicle.




Components of a typical tow coupling



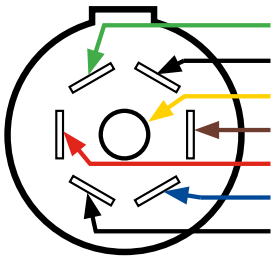
## Safe Towing Tips:

- Never exceed the hitch tow rating, the hitch tongue weight rating and the towing capacity of your motorhome.
- There are several sizes of trailer balls available. BE SURE THE TRAILER BALL MATCHES THE SIZE OF THE TRAILER COUPLER!
- Always ensure the trailer coupler is properly seated and locked onto the trailer ball (see illustration).
- Always ensure the hitch pin is properly installed, securing the ball mount to the receiver tube (see illustration).
- Always use safety chains between your motorhome and the towed trailer or vehicle. Cross the chains under the trailer tongue and allow slack for turning corners. Connect the safety chains to the trailer or vehicle frame or hook retainers. Never attach safety chains to the bumper of a vehicle (see illustration).
- Always check brake lights, running lights, emergency flashers, and turn signals of the towed vehicle at the start of the trip and often during the trip.
- Tow bars or car dollies generally are made to travel in a forward direction only. Most towing equipment of this type is not designed for backing. Never attempt back-up maneuvers with a tow bar or tow dolly; doing so could result in damage to the motorhome, towed vehicle or towing device.

## Electrical Connections for Towing

A 4-way or 7-way trailer plug, supplied by the chassis manufacturer, is pre-wired to the chassis electrical system. This plug provides electrical power for running lights, turn signals, stop lights, and electric trailer brakes. Before connecting your motorhome to any towed vehicle, verify that the wiring of the towed vehicle plug conforms to your motorhome connector wiring. Refer to your Chassis Packet for additional information regarding vehicle towing.

### 7-WAY CONNECTOR WIRING



| Signal | Wire Color |
|---|---|
| Tail & Running Lights | Green |
| 12V Power | Black |
| Reverse Lights | Yellow |
| Right Turn & Stop | Brown |
| Left Turn & Stop | Red |
| Brake Controller Output | Blue |
| Ground | White |

### 4-WAY CONNECTOR WIRING

| Signal | Wire Color |
|---|---|
| Right Turn and Brake | Green |
| Left Turn and Brake | Yellow |
| Running Lights | Brown |
| Ground | White |

NOTE: Thor Motor Coach accepts no responsibility for damage to the chassis, property, and other components resulting from towing with your motorhome or towing loads greater than its designated specifications.

# OWNER'S MANUAL

## CLASS A AND CLASS C MOTORHOMES

THOR MOTOR COACH

Made to fit.

# Weighing, Loading, and Towing

## Introduction

**⚠ WARNING**

**Do not exceed any applicable motorhome weight ratings. Doing so could damage your motorhome or affect handling and braking characteristics.**

**Your motorhome's braking system is designed and rated for operation at the gross vehicle weight rating (GVWR) listed on the unit's weight labels, not the gross combined weight rating (GCWR).**

Proper loading of the vehicle is one of the most important considerations when traveling in a motorhome. Your motorhome is designed to carry a certain safe maximum load. This is the Gross Vehicle Weight Rating, or GVWR. When towing a trailer or vehicle, the added weight calculates towards the total weight of your motorhome (Gross Combined Weight, or GCW). Staying within the weight limits of your motorhome will help to ensure your motorhome performs and operates safely for your journeys.

Both the chassis manufacturer and Thor Motor Coach provide weight ratings and recommendations for loading your motorhome. Read and follow the information provided by the chassis manufacturer in the chassis manufacturer's owner's manual as well as information provided by Thor Motor Coach in this owner's manual. Important weight ratings are listed on labels affixed to your motorhome. Do not remove these important safety labels. For safe operation, **NEVER OVERLOAD YOUR MOTORHOME OR TOW A TRAILER OR VEHICLE THAT IS BEYOND THE SAFE TOWING WEIGHT RESTRICTIONS OF YOUR TOWING HITCH AND MOTORHOME**.

## Important Weight Terminology

Listed on the following pages are several important terms that you need to become familiar with in order to safely load and use your motorhome as a towing vehicle. Please consult your chassis (van) owner's manual for additional information provided by the chassis manufacturer.

### CURB WEIGHT:

The weight of an unloaded motorhome plus the weight of a full tank of fuel. Does not include propane, water, passengers, cargo, or aftermarket add-ons.

### UNLOADED VEHICLE WEIGHT (UVW):

The curb weight of the unloaded motorhome plus a full propane tank.

### CARGO WEIGHT:

The total weight of all cargo added to your motorhome, including food, clothing, camping gear, pots and pans, tools, water (fresh and waste), propane, and all aftermarket equipment added to the motorhome. Also includes trailer tongue weight. Keep in mind, carrying unnecessary water quantities (fresh or waste) adds significantly to the total cargo weight:

- 1 gallon of water = 8.3 pounds
- 1 gallon of propane = 4.2 pounds
- 1 gallon of gasoline = 6 pounds
- 1 gallon of diesel fuel = 7 pounds

### OCCUPANT AND CARGO CARRYING CAPACITY (OCCC):

The maximum weight of all cargo and occupants that can be safely carried by the motorhome. The tongue weight of your towed trailer or vehicle must be included in the total cargo weight. **DO NOT EXCEED THE OCCC RATING OF YOUR MOTORHOME.**

OCCC is determined by subtracting the UVW of the motorhome from the GVWR of the chassis, plus the weight of any carried LP fuel. The OCCC of your motorhome is listed on the yellow OCCC label, affixed to the forward, right-side entry or passenger door.

### GROSS VEHICLE WEIGHT RATING (GVWR):

The maximum permissible weight of a fully-loaded motorhome. GVWR is determined by the chassis manufacturer and takes into consideration the design of the frame, suspension components, axles, and tires. This rating can be found on the Incomplete Vehicle Identification Data Label affixed to the driver's door jamb.

### GROSS VEHICLE WEIGHT (GVW):

The actual measured weight of your loaded vehicle. Gross Vehicle Weight = Curb Weight + Total Cargo Weight + Total Passenger Weight). **THE MEASURED GVW MUST NEVER EXCEED THE GVWR OF THE MOTORHOME.**

### GROSS COMBINED WEIGHT RATING (GCWR):

The maximum allowable loaded weight of this recreational vehicle, including the weight of its towed trailer or towed vehicle. This rating is determined by the chassis manufacturer and takes into consideration the design of the chassis, suspension components, tires, engine torque and horsepower, and drivetrain components.

### GROSS COMBINED WEIGHT (GCW):
The actual measured combined weight of your loaded motorhome plus the weight of your loaded trailer or towed vehicle. This weight measurement is found by weighing the motorhome with its towed vehicle on a commercial vehicle scale. **THE MEASURED GCW MUST NEVER EXCEED THE GCWR OF THE MOTORHOME.**

NOTE: The motorhome's braking system is rated for operation at the GVWR, not the GCWR. A supplementary braking system should be used for safe control of towed vehicles and for trailers weighing more than 1,500 pounds when loaded. Supplemental braking systems are required by transportation laws.

### GROSS AXLE WEIGHT RATING (GAWR):
The value specified as the load carrying capacity of a single axle system, as measured at the tire ground interfaces. This rating is determined by the manufacturer of the chassis. This rating can be found on the Federal Weight Label, affixed to the driver's door jamb (Class C and B) or near the driver's seat (Class A).

### GROSS AXLE WEIGHT (GAW):
Gross axle weight is the total weight of the fully loaded motorhome on each axle. This weight figure is determined by actually weighing the fully loaded motorhome with a loaded trailer or towed vehicle. See your owner's manual for instructions on weighing your motorhome.

### TONGUE WEIGHT:
Weight directly transferred to the hitch of the motorhome by a loaded trailer. The maximum tongue weight is listed on the motorhome's hitch label. Be sure that tongue weight never exceeds the GAWR of the rear axle of the motorhome. DO NOT EXCEED THE TONGUE WEIGHT RATING OF THE HITCH.

When loading a trailer, remember to place heavy cargo over the axle(s) of the trailer, however the trailer must have some tongue weight to help stabilize the trailer while being towed.

### MAXIMUM LOADED TRAILER WEIGHT:
The highest possible weight of a fully loaded trailer or towed vehicle the motorhome can tow based on a minimally loaded motorhome (GVW).

### TOWING CAPACITY:
Towing capacity is determined by subtracting the measured Gross Vehicle Weight (GVW) from the Gross Combined Weight Rating (GCWR). **DO NOT EXCEED THE TOWING CAPACITY RATING OF THE HITCH AND YOUR MOTORHOME.**

## Federal Weight Label

The Federal Weight Label is typically affixed to the driver's door jamb for Class B and C motorhomes and near the driver's seat for Class A motorhomes. This label concisely states the gross vehicle weight rating (GVWR) of your motorhome, along with the gross axle weight rating (GAWR) (both front and rear), tire size, tire weight rating, and proper tire inflation. This information meets the requirements of 49 CFR part 571.120 as issued by the National Highway Traffic Safety Administration (NHTSA).

**MANUFACTURED BY:** THOR MOTOR COACH, INC.
**GVWR:** XXXX KG (XXXXX LB)
**INC. VEH. MFG. BY:** <Insert Chassis Manufacturer>

**OFFLINE:** MM/YY
**SERIAL:** XXXXXXXXXXXXX
**MODEL:** XXXX

| | GAWR KG(LB) | TIRES | RIMS | COLD INFLATION PRESSURE | SINGLE | DUAL |
|---|---|---|---|---|---|---|
| **FRONT:** | XXXX (XXXX) | LT215/85R16 | 5.5 J X 16 | XXX KPA(XX PSI) | ☐ | ☐ |
| **REAR:** | XXXX (XXXX) | LT215/85R16 | 5.5 J X 16 | XXX KPA(XX PSI) | ☐ | ☐ |
| **TAG:** | | | | | ☐ | ☐ |

**THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT IN MM/DD/YYYY**

**V.I.N.:**XXXXXXXXXXXXXXXXX

**TYPE:** MULTIPURPOSE PASSENGER VEHICLE

Typical Federal Weight Label, including GVWR, GAWR, and tire pressure information

## Motorhome Occupant and Cargo Carrying Capacity Weight Label

The Motorhome Occupant and Cargo Carrying Capacity weight label is affixed to the interior side of the forward-most passenger door of Class B and C motorhomes and on the interior surface of the entry door of Class A motorhomes. This label indicates how much weight you can safely carry within the motorhome. The total weight of passengers, cargo, trailer tongue weight, and water (fresh and waste) should never exceed the values shown on this label.

This label also includes important safety belt seating capacity information and the measured overall length of the motorhome.

NOTES:

- If a boat, trailer, or other vehicle is being towed, it should be weighed and combined with the motorhome's weight to ensure the total weight of the motorhome and towed vehicle does not exceed the gross combined weight rating (GCWR) of the motorhome. Contact your dealer or the chassis manufacturer for GCWR ratings.
- Depending on the date of manufacturer, the OCCC label attached to your motorhome includes length specifications.

**MOTOR HOME OCCUPANT AND CARGO CARRYING CAPACITY**
**VIN# XXXXXXXXXXXXXXXX**
**THE COMBINED WEIGHT OF OCCUPANTS AND CARGO SHOULD NEVER EXCEED:**
**XXX kg or XXX lbs**
**Safety belt equipped seating capacity: X**
**CAUTION: A full load of water equals XXX kg or XXX lbs of cargo @ 1kg/L (8.3 lb/gal) and the tongue weight of a towed trailer counts as cargo**
(Serial #: XXXXXXXXXXXXX)
**Recreational vehicle overall length XX' XX" (X.XXXm) as manufactured**

Typical Motorhome Occupant and Cargo Carrying Capacity Label



## Weight Capacity of Rear Garage Area

Motorhomes that include a rear garage area have a separate weight capacity rating for this cargo area. This weight capacity is listed on a label attached to the inside wall of the garage. The total weight of garage cargo must never exceed the labeled capacity AND the weight of cargo carried in the garage must be included in the total weight of occupants and cargo of the motorhome. The total weight of the occupants, garage cargo, water (fresh and waste), trailer tongue weight, and other supplies must NOT exceed the Occupant and Cargo Carrying Capacity (OCCC) of the motorhome.

**XXXX lb Capacity for Garage Area**
**Please reference your owner's manual for proper weight distribution**
(Serial #: XXXXXXXXXXXXX)

Typical Garage Area Weight Capacity Label

## Weighing Your Motorhome

When loading your cargo, be sure weight is distributed evenly to prevent overloading front to back and side to side. Heavy items should be placed low and as close to the axle positions as possible. Too many items stored on one side of your motorhome may overload tires and cause handling issues.

Periodically weigh your motorhome at a public vehicle scale to determine axle loads. You can find certified public or commercial vehicle scales at moving and storage lots, farm suppliers with grain elevators, gravel pits, recycling companies, and large commercial truck stops.

To weigh your motorhome correctly, measure the fully loaded vehicle axle by axle and wheel position by wheel position. Allow adequate time, since the entire weighing process can take around 30 minutes. There may be a small fee for each weight reading taken, but the expense is a worthwhile investment toward the safe operation of your motorhome.



Your motorhome must be weighed fully loaded, which includes passengers, food, clothing, fuel, water, propane, supplies, etc. Any towed vehicle (car/pickup, boat, or trailer) or items loaded on brackets on the back of the motorhome should also be included in the weighing process.

The following procedure is suggested when using a long platform scale, although any method recommended by the scale operator that correctly determines weight value is acceptable. During all measurements, it is important to keep the vehicle as level as possible.

1. Pull onto the scale so that only the front axle is on the platform with the end of the scale midway between the front and rear axles and record the weight **(Reading A).**
2. Pull forward until the full unit is on the scale and record the weight **(Reading B).**
3. Pull forward so that only the rear axle is on the scale and record the weight **(Reading C).**
4. To determine the weight of individual wheel positions, repeat the previous three steps, but this time, use only one side of the motorhome on the scale. Record the weight readings.
5. To calculate the wheel position weight for the opposite side of the motorhome, subtract these weight readings from weight readings A, B, and C recorded in steps 1, 2, and 3.

Reading A: Front

Reading B: Total Coach

Reading C: Back

NOTE: Thick Black Lines in the illustrations above represent a vehicle weighing scale.

### OTHER FACTORS TO CONSIDER:

- Your motorhome must remain as level as possible on the scale, even though an axle or side is not physically on the scale. To obtain the side-to-side weight measurements, there must be enough space on either side of the scale to allow the motorhome to be partially off the scale.
- For improved accuracy, Thor Motor Coach recommends using a segmented 4-pad scale, when possible, to determine individual wheel weight measurements. The corner weight measurements should not exceed half of the respective Gross Axle Weight Rating (GAWR) or the maximum load rating for the tire or set of dual tires at the rear, whichever is less.
- Individual wheel position weight measurements must not exceed the maximum tire load capacity. The maximum load rating for the tire can be found embossed on the tire's sidewall.

- If any of the corner weight measurements exceed half of the listed GAWR or tire ratings, redistribute or remove a portion of the cargo until the weight is within the proper limits for all four corners of the vehicle.
- Periodically check and adjust your motorhome's cargo weight to obtain optimum mileage from your tires and to optimize vehicle handling. Inflate ties as recommended on the Federal Weight Label affixed to your motorhome.

NOTE: At approximately 8 pounds per gallon, water can add a considerable amount of weight to your motorhome. Additional cargo carrying capacity for other items can be obtained by reducing the amount of fresh and waste water carried while traveling.

However, to prevent the build-up of sludge, keep a few gallons of water in the black tank.

## Weight Distribution

Improper weight distribution, or too much weight on your motorhome's suspension system, can cause failure or damage to:

- Springs and suspension components;
- Shock absorbers;
- Brakes;
- Tires;
- Steering components.

An overloaded motorhome is hard to drive and hard to stop. In cases of serious overloading, brakes can fail completely, particularly on steep hills. Proper weight distribution also affects tire performance. The load a tire will safely carry is a combination of its size, its construction, its load range, and corresponding inflation pressure.

## Loading the Motorhome

Always consider proper vehicle loading when preparing for travel. By not overloading the motorhome and keeping the weight balanced side-to-side and as close to the axles as possible, the drivability and safe handling of the vehicle will be maximized.

- Never overload your motorhome. Always observe and stay under the GVWR and OCCC ratings.
- Distribute cargo side-to-side so the weight on each tire does not exceed one-half of the GAWR for either axle.
- Store and secure all loose items inside the motorhome before traveling. Overlooked items such as canned goods, small appliances on the countertop, cooking pans on the range, or free-standing furniture items can become dangerous projectiles during a sudden stop.
- When traveling, keep the quantity of fresh, gray, and black water within the storage tanks to a minimum. This reduces the total weight of the motorhome, therefore increasing available carrying weight for other items (refer to Occupant Cargo Carrying Capacity (OCCC) of the motorhome).
- Give careful attention to where and what type of flammable materials you store and transport. Certain storage areas are clearly labeled; DO NOT STORE COMBUSTIBLE MATERIALS. Be sure all canisters are secure and leak free. DO NOT TRANSPORT LP TANKS OR CANISTERS INSIDE THE VEHICLE (see Propane Section).
- For traveling safety, it is important to make sure tie down straps on appliances, furniture, and cargo (inside the vehicle) and cargo (outside the vehicle) are secured and remain tight. Check straps regularly to ensure they have not loosened during travel.
- Be sure not to overload roof racks with cargo that is heavier than the load-carrying capacity of the roof rack system.
- If you are towing a trailer or vehicle, be sure to stay under the towing capacity of your motorhome and that the added weight stays under the GCWR for your motorhome.

## Towing With Your Motorhome

**⚠ WARNING**

- **An auxiliary braking system may be required for control of a towed vehicle behind the motorhome. Do not assume the braking capabilities of the motorhome can also adequately stop the combined weight of the motorhome and towed vehicle.**
- **The designated hitch rating may exceed the GCWR or other towing capacity limits of the motorhome. It is your responsibility to properly load the motorhome, while staying within the tow ratings, GCWR, GVWR, and GAWR of the motorhome.**
- **Do not tow loads that cause the motorhome to exceed the Gross Combined Vehicle Weight Rating (GCWR).**
- **Do not exceed the vertical hitch load rating (tongue weight) as listed on the hitch label.**
- **Consult your owner's manual for additional information regarding towing guidelines for this motorhome.**

**Failure to comply can result in loss of vehicle control resulting in death or serious injury.**

**⚠ WARNING**

**DO NOT USE WEIGHT DISTRIBUTING HITCHES OR WEIGHT DISTRIBUTING TOWING DEVICES WITH THIS MOTORHOME. Applies to Class A and Class C motorhomes.**

**⚠ WARNING**

**A SEPARATE FUNCTIONING BRAKE SYSTEM IS REQUIRED FOR ANY TOWED VEHICLES OR TRAILERS WEIGHING MORE THAN 1500 LBS WHEN FULLY LOADED. NEVER EXCEED THE GVWR, OR THE GAWR SPECIFIED ON THE MOTORHOME'S CERTIFICATION LABEL.**

**Never exceed the weight ratings of the trailer hitch installed on the motorhome. Failure to heed any part of this warning could result in loss of control of the motorhome and towed vehicle or trailer and may cause an accident and serious injury. For specific towed vehicle braking requirements, consult your chassis owner's manual.**

**⚠ WARNING**

**THE FULLY LOADED MOTORHOME AND THE TRAILER, OR TOWED VEHICLE, MUST NOT EXCEED THE MOTORHOME'S GROSS COMBINED WEIGHT RATING (GCWR).**

**Do not exceed the motorhome gross combined weight rating (GCWR), the hitch rating (in pounds), or the maximum tongue weight rating of the hitch (note: tongue weight is the weight in pounds pushing down on the hitch).**

**Consult with your selling dealer to determine the GCWR of the motorhome and the towing capacity of the motorhome.**

**NOTICE**

**For safe towing a trailer or vehicle with your motorhome, always stay within the limits of your motorhome's GVWR, GCWR, GAWR and weight ratings of the hitch.**

**NOTICE**

**TMC Motorhomes are factory equipped with a towing hitch and wiring harness. However, TMC motorhomes are not factory equipped with supplemental trailer braking systems. Always have trailer braking systems professionally installed and routinely inspected by a qualified technician.**

**If you are unsure of any aspect of safe towing, seek professional advice from a reputable hitch installer, trailer, or RV dealer.**

## Towing a Vehicle with Your Motorhome

There are three basic methods of towing a vehicle with your motorhome; all have advantages and disadvantages.

1. Flat towing with a tow-bar. With this method, a vehicle-specific tow bar is attached to front of the towed vehicle and the tow-hitch is attached to the motorhome. All four wheels of the towed vehicle remain on the ground. This method does not add tongue weight to the motorhome, which is an advantage. However, it is not recommended to back-up with a tow-bar due to the likely-hood of jack-knifing the towed vehicle.

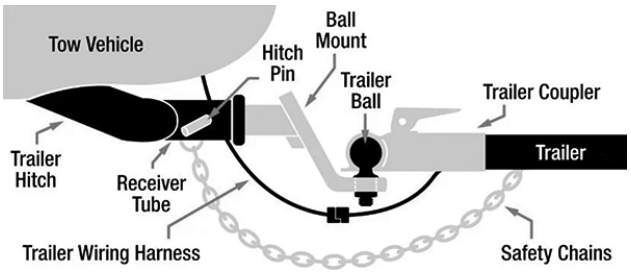
2. Towing with a tow dolly. A tow dolly is designed to tow a variety of vehicles, therefore, the advantage is that it is not a vehicle-specific piece of equipment. It also presents minimal tongue weight to the motorhome; another advantage. However, like the tow-bar, it is not recommended to back-up with a tow-dolly, due again, to the likely-hood of jack-knifing the towed vehicle.

3. Towing a vehicle using a full vehicle trailer, either open or enclosed. A vehicle trailer presents the advantage of backing-up and since the towed vehicle is not in direct contact with the road surface, there is no additional wear to the vehicle while it is being towed. However, like all trailers, a vehicle trailer adds tongue weight to the motorhome.

If you are considering towing a vehicle behind your motorhome, consult with your dealer or qualified towing expert about the towing equipment options appropriate for your motorhome and travel needs.

## Towing Hitch

Your motorhome is equipped with a Class III towing hitch receiver and trailer wiring receptacle. Depending on the weight rating of your motorhome's chassis, hitch ratings range from 5,000 to 10,000 or more pounds. Please refer to the chassis manufacturer's owner's manual for towing recommendations and towing limitations for this vehicle.




Components of a typical tow coupling

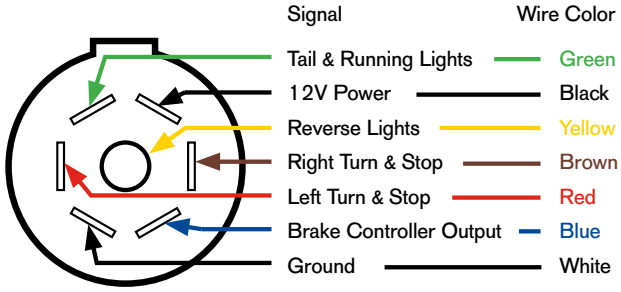
If you are considering towing a trailer or vehicle behind your motorhome, consult with your dealer or qualified towing expert about available towing equipment and towing options appropriate for your motorhome and travel needs.

NOTE: Thor Motor Coach accepts no responsibility for damage to the chassis, property, and other components resulting from towing with your motorhome or towing loads greater than its designated specifications.

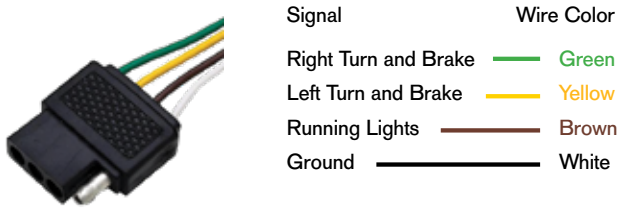
## Electrical Connections for Towing

A 4-way or 7-way trailer plug, supplied by the chassis manufacturer, is pre-wired to the chassis electrical system. This plug provides electrical power for running lights, turn signals, stop lights, and electric trailer brakes. Before connecting your motorhome to any towed vehicle, verify that the wiring of the towed vehicle plug conforms to your motorhome connector wiring. Refer to your Chassis Packet for additional information regarding vehicle towing.

### 7-WAY CONNECTOR WIRING




### 4-WAY CONNECTOR WIRING




## Safe Towing Tips

- Never exceed the hitch tow rating, the hitch tongue weight rating and the towing capacity of your motorhome. Exceeding the maximum towing capacity can result in dangerous handling, insufficient braking performance, or serious damage to the vehicle's suspension, engine and drive train.
- Make sure your trailer hitch is capable of handling your trailer's loaded weight.
- When loading and towing with your vehicle, do not exceed the GVWR and GCWR of your motorhome.
- There are several sizes of trailer balls available. **BE SURE THE TRAILER BALL MATCHES THE SIZE OF THE TRAILER COUPLER!**
- Always ensure the trailer coupler is properly seated and locked onto the trailer ball (see illustration).
- Always ensure the hitch pin is properly installed, securing the ball mount to the receiver tube (see illustration).
- Always use safety chains between your motorhome and the towed trailer or vehicle. Cross the chains under the trailer tongue and allow slack for turning corners. Connect the safety chains to the trailer or vehicle frame or hook retainers. Never attach safety chains to the bumper of a vehicle (see illustration).
- Always check brake lights, running lights, emergency flashers, and turn signals of the motorhome and trailer (or towed vehicle) at the start of the trip and often during the trip.

  Accidents can occur if the taillights are not working or are improperly connected. While the vehicle is in PARK, have a partner stand to the rear, **but not directly behind the vehicle,** to check that the turn signals, taillights and brake lights are functioning properly.
- Always pack your trailer so that most of the weight is over the axles, yet allowing sufficient tongue weight for safe control of the trailer.

  Not only do you want roughly 60% of the trailer's load placed over the front half of the trailer, you also should load it in a way that results in a tongue weight that is between 10-15% of the total weight of the loaded trailer. Ensure weight is evenly distributed on the left and right sides of the trailer. Once the load is properly distributed and an ideal tongue weight is achieved, all cargo should be secured to prevent the load from shifting.
- Check both **TRAILER AND MOTORHOME** tires daily for proper inflation and for any unusual wear (check tire pressure with cold tires). Don't forget the inner tires

of the dual tire/wheel set-up and spare tires for both the motorhome and trailer.

Tires that are not properly inflated can negatively affect handling. Further, under-inflated tires can create more rolling resistance, which not only forces the engine to work harder and consume more fuel, but also increases tire temperatures and may contribute to a blow-out. Additionally, check the speed and load rating on the tires for both your motorhome and trailer, and ensure you never exceed that these limits.

- Check your trailer's hub bearings before starting your trip, and often during your travels. Ensure bearings are in good order and properly greased.
- Check trailer brakes at the start of each trip and daily. Smaller, lighter trailers may not need trailer brakes of any kind, but heavier trailers, or those designed to carry heavier loads, will usually incorporate a trailer brake system. If your trailer is equipped with hydraulic or electric surge brakes, make sure the emergency "breakaway" cable is properly attached to your tow vehicle. In case your trailer somehow disconnects from the hitch, this cable is designed to trigger the brakes on the trailer and quickly bring it to a halt.
- Adjust your mirrors. Before taking off, make sure your side view mirrors are adjusted to create a clear view that extends to the end of the trailer.
- Ensure your back-up cameras are in proper working order. Some cameras may be able to be placed in monitor mode, so that the towed vehicle can be observed while traveling.
- Tow bars or car dollies generally are made to travel in a forward direction only. Most towing equipment of this type is not designed for backing. Never attempt back-up maneuvers with a tow bar or tow dolly; doing so could result in damage to the motorhome, towed vehicle or towing device.
- Be mindful of the extra length a trailer or towed vehicle adds to your motorhome. Your motorhome is a long vehicle, and with the added length of a trailer, it can be very long. Be extra careful when merging into traffic or making lane changes. Allow extra time to make these maneuvers. **ALWAYS SIGNAL YOUR INTENTIONS WITH PROPER USE OF TURN SIGNALS.**
- Allow for extra braking distance caused by the added weight of a trailer or towed vehicle.
- Be extra cautious when making turns. Allow for the extra length and large turning radius caused by the added length of the trailer or towed vehicle.
- Use the aid of a spotter when backing the trailer. Be sure the spotter is always in view of your rear view mirrors. **STOP THE VEHICLE IF YOU CANNOT SEE YOUR SPOTTER.**
- Always chock trailer or towed vehicle wheels when disconnected from the towing vehicle (motorhome) or when parking on an incline.

Reference:
https://www.gmc.com/gmc-life/trucks/tips-for-safe-trailering-and-towing

# OWNER'S MANUAL

## CLASS A AND CLASS C MOTORHOMES

THOR MOTOR COACH

Made to fit.

# Weighing, Loading, and Towing

## Introduction

**⚠ WARNING**

**Do not exceed any applicable motorhome weight ratings. Doing so could damage your motorhome or affect handling and braking characteristics.**

**Your motorhome's braking system is designed and rated for operation at the gross vehicle weight rating (GVWR) listed on the unit's weight labels, not the gross combined weight rating (GCWR).**

Proper loading of the vehicle is one of the most important considerations when traveling in a motorhome. Your motorhome is designed to carry a certain safe maximum load. This is the Gross Vehicle Weight Rating, or GVWR. When towing a trailer or vehicle, the added weight calculates towards the total weight of your motorhome (Gross Combined Weight, or GCW). Staying within the weight limits of your motorhome will help to ensure your motorhome performs and operates safely for your journeys.

Both the chassis manufacturer and Thor Motor Coach provide weight ratings and recommendations for loading your motorhome. Read and follow the information provided by the chassis manufacturer in the chassis manufacturer's owner's manual as well as information provided by Thor Motor Coach in this owner's manual. Important weight ratings are listed on labels affixed to your motorhome. Do not remove these important safety labels. For safe operation, **NEVER OVERLOAD YOUR MOTORHOME OR TOW A TRAILER OR VEHICLE THAT IS BEYOND THE SAFE TOWING WEIGHT RESTRICTIONS OF YOUR TOWING HITCH AND MOTORHOME**.

## Important Weight Terminology

Listed on the following pages are several important terms that you need to become familiar with in order to safely load and use your motorhome as a towing vehicle. Please consult your chassis (van) owner's manual for additional information provided by the chassis manufacturer.

### CURB WEIGHT:

The weight of an unloaded motorhome plus the weight of a full tank of fuel. Does not include propane, water, passengers, cargo, or aftermarket add-ons.

### UNLOADED VEHICLE WEIGHT (UVW):

The curb weight of the unloaded motorhome plus a full propane tank.

### CARGO WEIGHT:

The total weight of all cargo added to your motorhome, including food, clothing, camping gear, pots and pans, tools, water (fresh and waste), propane, and all aftermarket equipment added to the motorhome. Also includes trailer tongue weight. Keep in mind, carrying unnecessary water quantities (fresh or waste) adds significantly to the total cargo weight:

- 1 gallon of water = 8.3 pounds
- 1 gallon of propane = 4.2 pounds
- 1 gallon of gasoline = 6 pounds
- 1 gallon of diesel fuel = 7 pounds

### OCCUPANT AND CARGO CARRYING CAPACITY (OCCC):

The maximum weight of all cargo and occupants that can be safely carried by the motorhome. The tongue weight of your towed trailer or vehicle must be included in the total cargo weight. **DO NOT EXCEED THE OCCC RATING OF YOUR MOTORHOME.**

OCCC is determined by subtracting the UVW of the motorhome from the GVWR of the chassis, plus the weight of any carried LP fuel. The OCCC of your motorhome is listed on the yellow OCCC label, affixed to the forward, right-side entry or passenger door.

### GROSS VEHICLE WEIGHT RATING (GVWR):

The maximum permissible weight of a fully-loaded motorhome. GVWR is determined by the chassis manufacturer and takes into consideration the design of the frame, suspension components, axles, and tires. This rating can be found on the Incomplete Vehicle Identification Data Label affixed to the driver's door jamb.

### GROSS VEHICLE WEIGHT (GVW):

The actual measured weight of your loaded vehicle. Gross Vehicle Weight = Curb Weight + Total Cargo Weight + Total Passenger Weight). **THE MEASURED GVW MUST NEVER EXCEED THE GVWR OF THE MOTORHOME.**

### GROSS COMBINED WEIGHT RATING (GCWR):

The maximum allowable loaded weight of this recreational vehicle, including the weight of its towed trailer or towed vehicle. This rating is determined by the chassis manufacturer and takes into consideration the design of the chassis, suspension components, tires, engine torque and horsepower, and drivetrain components.

### GROSS COMBINED WEIGHT (GCW):

The actual measured combined weight of your loaded motorhome plus the weight of your loaded trailer or towed vehicle. This weight measurement is found by weighing the motorhome with its towed vehicle on a commercial vehicle scale. **THE MEASURED GCW MUST NEVER EXCEED THE GCWR OF THE MOTORHOME.**

NOTE: The motorhome's braking system is rated for operation at the GVWR, not the GCWR. A supplementary braking system should be used for safe control of towed vehicles and for trailers weighing more than 1,500 pounds when loaded. Supplemental braking systems are required by transportation laws.

### GROSS AXLE WEIGHT RATING (GAWR):

The value specified as the load carrying capacity of a single axle system, as measured at the tire ground interfaces. This rating is determined by the manufacturer of the chassis. This rating can be found on the Federal Weight Label, affixed to the driver's door jamb (Class C and B) or near the driver's seat (Class A).

### GROSS AXLE WEIGHT (GAW):

Gross axle weight is the total weight of the fully loaded motorhome on each axle. This weight figure is determined by actually weighing the fully loaded motorhome with a loaded trailer or towed vehicle. See your owner's manual for instructions on weighing your motorhome.

### TONGUE WEIGHT:

Weight directly transferred to the hitch of the motorhome by a loaded trailer. The maximum tongue weight is listed on the motorhome's hitch label. Be sure that tongue weight never exceeds the GAWR of the rear axle of the motorhome. DO NOT EXCEED THE TONGUE WEIGHT RATING OF THE HITCH.

When loading a trailer, remember to place heavy cargo over the axle(s) of the trailer, however the trailer must have some tongue weight to help stabilize the trailer while being towed.

### MAXIMUM LOADED TRAILER WEIGHT:

The highest possible weight of a fully loaded trailer or towed vehicle the motorhome can tow based on a minimally loaded motorhome (GVW).

### TOWING CAPACITY:

Towing capacity is determined by subtracting the measured Gross Vehicle Weight (GVW) from the Gross Combined Weight Rating (GCWR). **DO NOT EXCEED THE TOWING CAPACITY RATING OF THE HITCH AND YOUR MOTORHOME.**

## Federal Weight Label

The Federal Weight Label is typically affixed to the driver's door jamb for Class B and C motorhomes and near the driver's seat for Class A motorhomes. This label concisely states the gross vehicle weight rating (GVWR) of your motorhome, along with the gross axle weight rating (GAWR) (both front and rear), tire size, tire weight rating, and proper tire inflation. This information meets the requirements of 49 CFR part 571.120 as issued by the National Highway Traffic Safety Administration (NHTSA).

MANUFACTURED BY: THOR MOTOR COACH, INC. OFFLINE: MM/YY
GVWR: XXXX KG (XXXXX LB) SERIAL: XXXXXXXXXXXXX
INC. VEH. MFG. BY: <Insert Chassis Manufacturer> MODEL: XXXX

| | GAWR KG(LB) | TIRES | RIMS | COLD INFLATION PRESSURE | SINGLE | DUAL |
|---|---|---|---|---|---|---|
| FRONT: | XXXX (XXXX) | LT215/85R16 | 5.5 J X 16 | XXX KPA(XX PSI) | ☐ | ☐ |
| REAR: | XXXX (XXXX) | LT215/85R16 | 5.5 J X 16 | XXX KPA(XX PSI) | ☐ | ☐ |
| TAG: | | | | | ☐ | ☐ |

THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT IN MM/DD/YYYY

V.I.N.:XXXXXXXXXXXXXXXXX TYPE: MULTIPURPOSE PASSENGER VEHICLE

Typical Federal Weight Label, including GVWR, GAWR, and tire pressure information

## Motorhome Occupant and Cargo Carrying Capacity Weight Label

The Motorhome Occupant and Cargo Carrying Capacity weight label is affixed to the interior side of the forward-most passenger door of Class B and C motorhomes and on the interior surface of the entry door of Class A motorhomes. This label indicates how much weight you can safely carry within the motorhome. The total weight of passengers, cargo, trailer tongue weight, and water (fresh and waste) should never exceed the values shown on this label.

This label also includes important safety belt seating capacity information and the measured overall length of the motorhome.

NOTES:

- If a boat, trailer, or other vehicle is being towed, it should be weighed and combined with the motorhome's weight to ensure the total weight of the motorhome and towed vehicle does not exceed the gross combined weight rating (GCWR) of the motorhome. Contact your dealer or the chassis manufacturer for GCWR ratings.
- Depending on the date of manufacturer, the OCCC label attached to your motorhome includes length specifications.

**MOTOR HOME OCCUPANT AND CARGO CARRYING CAPACITY**
**VIN# XXXXXXXXXXXXXXXXX**
**THE COMBINED WEIGHT OF OCCUPANTS AND CARGO SHOULD NEVER EXCEED:**
**XXX kg or XXX lbs**
**Safety belt equipped seating capacity: X**
**CAUTION: A full load of water equals XXX kg or XXX lbs of cargo @ 1kg/L (8.3 lb/gal) and the tongue weight of a towed trailer counts as cargo**
(Serial #: XXXXXXXXXXXXX)
**Recreational vehicle overall length XX' XX" (X.XXXm) as manufactured**

Typical Motorhome Occupant and Cargo Carrying Capacity Label



## Weight Capacity of Rear Garage Area

Motorhomes that include a rear garage area have a separate weight capacity rating for this cargo area. This weight capacity is listed on a label attached to the inside wall of the garage. The total weight of garage cargo must never exceed the labeled capacity AND the weight of cargo carried in the garage must be included in the total weight of occupants and cargo of the motorhome. The total weight of the occupants, garage cargo, water (fresh and waste), trailer tongue weight, and other supplies must NOT exceed the Occupant and Cargo Carrying Capacity (OCCC) of the motorhome.

**XXXX lb Capacity for Garage Area**
**Please reference your owner's manual for proper weight distribution**
(Serial #: XXXXXXXXXXXXXX)

Typical Garage Area Weight Capacity Label

## Weighing Your Motorhome

When loading your cargo, be sure weight is distributed evenly to prevent overloading front to back and side to side. Heavy items should be placed low and as close to the axle positions as possible. Too many items stored on one side of your motorhome may overload tires and cause handling issues.

Periodically weigh your motorhome at a public vehicle scale to determine axle loads. You can find certified public or commercial vehicle scales at moving and storage lots, farm suppliers with grain elevators, gravel pits, recycling companies, and large commercial truck stops.

To weigh your motorhome correctly, measure the fully loaded vehicle axle by axle and wheel position by wheel position. Allow adequate time, since the entire weighing process can take around 30 minutes. There may be a small fee for each weight reading taken, but the expense is a worthwhile investment toward the safe operation of your motorhome.



Your motorhome must be weighed fully loaded, which includes passengers, food, clothing, fuel, water, propane, supplies, etc. Any towed vehicle (car/pickup, boat, or trailer) or items loaded on brackets on the back of the motorhome should also be included in the weighing process.

The following procedure is suggested when using a long platform scale, although any method recommended by the scale operator that correctly determines weight value is acceptable. During all measurements, it is important to keep the vehicle as level as possible.

1. Pull onto the scale so that only the front axle is on the platform with the end of the scale midway between the front and rear axles and record the weight **(Reading A).**
2. Pull forward until the full unit is on the scale and record the weight **(Reading B).**
3. Pull forward so that only the rear axle is on the scale and record the weight **(Reading C).**
4. To determine the weight of individual wheel positions, repeat the previous three steps, but this time, use only one side of the motorhome on the scale. Record the weight readings.
5. To calculate the wheel position weight for the opposite side of the motorhome, subtract these weight readings from weight readings A, B, and C recorded in steps 1, 2, and 3.

Reading A: Front

Reading B: Total Coach

Reading C: Back

NOTE: Thick Black Lines in the illustrations above represent a vehicle weighing scale.

### OTHER FACTORS TO CONSIDER:

- Your motorhome must remain as level as possible on the scale, even though an axle or side is not physically on the scale. To obtain the side-to-side weight measurements, there must be enough space on either side of the scale to allow the motorhome to be partially off the scale.
- For improved accuracy, Thor Motor Coach recommends using a segmented 4-pad scale, when possible, to determine individual wheel weight measurements. The corner weight measurements should not exceed half of the respective Gross Axle Weight Rating (GAWR) or the maximum load rating for the tire or set of dual tires at the rear, whichever is less.
- Individual wheel position weight measurements must not exceed the maximum tire load capacity. The maximum load rating for the tire can be found embossed on the tire's sidewall.
- If any of the corner weight measurements exceed half of the listed GAWR or tire ratings, redistribute or

remove a portion of the cargo until the weight is within the proper limits for all four corners of the vehicle.

- Periodically check and adjust your motorhome's cargo weight to obtain optimum mileage from your tires and to optimize vehicle handling. Inflate ties as recommended on the Federal Weight Label affixed to your motorhome.

NOTE: At approximately 8 pounds per gallon, water can add a considerable amount of weight to your motorhome. Additional cargo carrying capacity for other items can be obtained by reducing the amount of fresh and waste water carried while traveling.

However, to prevent the build-up of sludge, keep a few gallons of water in the black tank.

## Weight Distribution

Improper weight distribution, or too much weight on your motorhome's suspension system, can cause failure or damage to:

- Springs and suspension components;
- Shock absorbers;
- Brakes;
- Tires;
- Steering components.

An overloaded motorhome is hard to drive and hard to stop. In cases of serious overloading, brakes can fail completely, particularly on steep hills. Proper weight distribution also affects tire performance. The load a tire will safely carry is a combination of its size, its construction, its load range, and corresponding inflation pressure.

## Loading the Motorhome

Always consider proper vehicle loading when preparing for travel. By not overloading the motorhome and keeping the weight balanced side-to-side and as close to the axles as possible, the drivability and safe handling of the vehicle will be maximized.

- Never overload your motorhome. Always observe and stay under the GVWR and OCCC ratings.
- Distribute cargo side-to-side so the weight on each tire does not exceed one-half of the GAWR for either axle.
- Store and secure all loose items inside the motorhome before traveling. Overlooked items such as canned goods, small appliances on the countertop, cooking pans on the range, or free-standing furniture items can become dangerous projectiles during a sudden stop.
- When traveling, keep the quantity of fresh, gray, and black water within the storage tanks to a minimum. This reduces the total weight of the motorhome, therefore increasing available carrying weight for other items (refer to Occupant cargo carrying capacity (OCCC) of the motorhome).
- Give careful attention to where and what type of flammable materials you store and transport. Certain storage areas are clearly labeled; DO NOT STORE COMBUSTIBLE MATERIALS. Be sure all canisters are secure and leak free. DO NOT TRANSPORT LP TANKS OR CANISTERS INSIDE THE VEHICLE (see Propane Section).
- For traveling safety, it is important to make sure tie down straps on appliances, furniture, and cargo (inside the vehicle) and cargo (outside the vehicle) are secured and remain tight. Check straps regularly to ensure they have not loosened during travel.
- Be sure not to overload roof racks with cargo that is heavier than the load-carrying capacity of the roof rack system.
- If you are towing a trailer or vehicle, be sure to stay under the towing capacity of your motorhome and that the added weight stays under the GCWR for your motorhome.

## Towing With Your Motorhome

**⚠ WARNING**

**NEVER TOW LOADS THAT EXCEED EITHER THE TOW WEIGHT RATING AND/OR THE TONGUE WEIGHT RATING OF THE TRAILER HITCH INSTALLED ON THE MOTORHOME (Note: Tow weight is the total weight of a fully loaded trailer or towed vehicle. Tongue weight is the downward weight in pounds transferred to the hitch by the loaded trailer or towed vehicle).**

**THE WEIGHT OF THE FULLY LOADED MOTORHOME AND THE WEIGHT OF THE TRAILER, OR TOWED VEHICLE, MUST NOT EXCEED THE MOTORHOME'S GROSS COMBINED WEIGHT RATING (GCWR). Consult with your selling dealer to determine the GCWR and towing capacity of the motorhome.**

**THE DESIGNATED HITCH RATING MAY EXCEED THE GCWR OR OTHER TOWING CAPACITY LIMITS OF THE MOTORHOME. It is your responsibility to properly load the motorhome and trailer, while staying within the limits of the hitch ratings, GCWR, GVWR, and GAWR specified on the certification label(s) of the motorhome.**

**A SEPARATE FUNCTIONING BRAKE SYSTEM IS REQUIRED FOR CONTROLLING ANY TOWED TRAILERS OR VEHICLES WEIGHING MORE THAN 1,500 LBS WHEN FULLY LOADED. Do not assume the braking capabilities of the motorhome can also adequately stop the combined weight of the motorhome and towed vehicle. For specific towed vehicle braking requirements, consult your chassis owner's manual.**

**DO NOT USE WEIGHT DISTRIBUTING HITCHES OR WEIGHT DISTRIBUTING TOWING DEVICES WITH THIS MOTORHOME (applies to Class A and Class C motorhomes). The length of the chassis prevents proper weight distribution to the rear axle of the motorhome.**

**Consult your chassis owner's manual for additional information regarding towing guidelines for this motorhome.**

**Failure to heed any part of these warnings could result in loss of control of the motorhome and towed vehicle or trailer and may cause an accident and serious injury.**

**NOTICE**

**TMC Motorhomes are factory equipped with a towing hitch and wiring harness. However, TMC motorhomes are not factory equipped with supplemental trailer braking systems. Always have trailer braking systems professionally installed and routinely inspected by a qualified technician.**

**If you are unsure of any aspect of safe towing, seek professional advice from a reputable hitch installer, trailer, or RV dealer.**

### Towing Hitch

Your motorhome is equipped with a Class III towing hitch receiver and trailer wiring receptacle. Depending on the weight rating of your motorhome's chassis, hitch ratings range from 5,000 to 10,000 or more pounds. Please refer to the chassis manufacturer's owner's manual for towing recommendations and towing limitations for this vehicle.

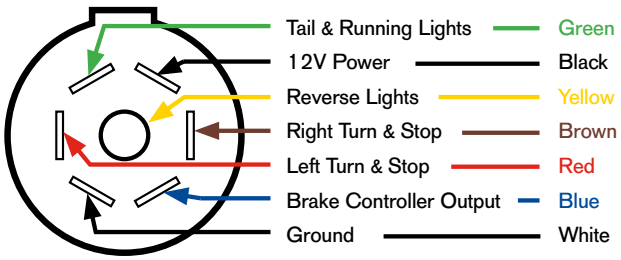
If you are considering towing a trailer or vehicle behind your motorhome, consult with your dealer or qualified towing expert about available towing equipment and towing options appropriate for your motorhome and travel needs.

NOTE: Thor Motor Coach accepts no responsibility for damage to the chassis, property, and other components resulting from towing with your motorhome or towing loads greater than its designated specifications.

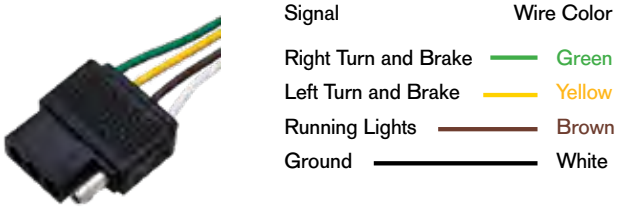
### Electrical Connections for Towing

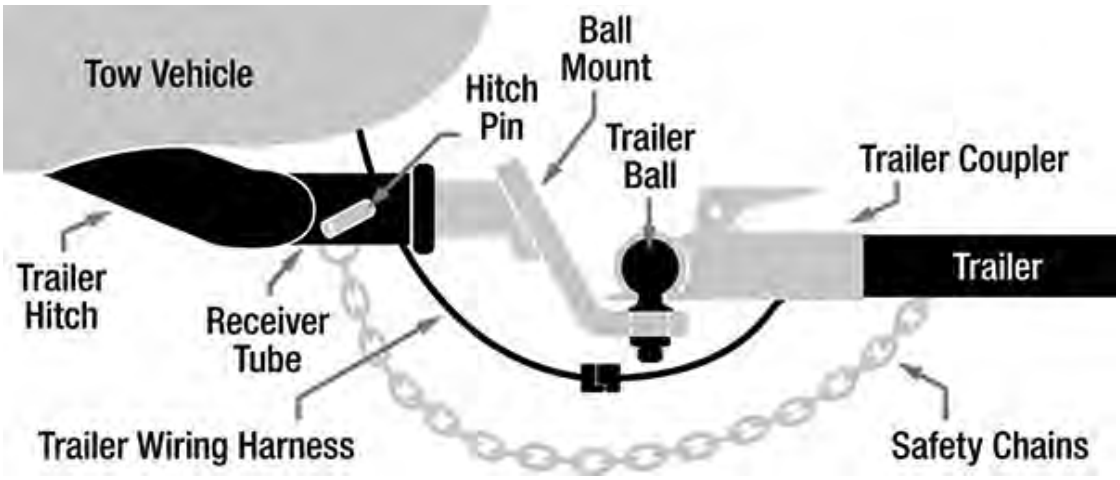
A 4-way or 7-way trailer plug, supplied by the chassis manufacturer, is pre-wired to the chassis electrical system. This plug provides electrical power for running lights, turn signals, stop lights, and electric trailer brakes. Before connecting your motorhome to any towed vehicle, verify that the wiring of the towed vehicle plug conforms to your motorhome connector wiring. Refer to your Chassis Packet for additional information regarding vehicle towing.

#### 7-WAY CONNECTOR WIRING *(VEHICLE SIDE)*




#### 4-WAY CONNECTOR WIRING *(VEHICLE SIDE)*






Typical towing components

## Towing a Vehicle with Your Motorhome

There are three basic methods of towing a vehicle with your motorhome; all have advantages and disadvantages.

1. Flat towing with a tow-bar. With this method, a vehicle-specific tow bar is attached to front of the towed vehicle and the tow-hitch is attached to the motorhome. All four wheels of the towed vehicle remain on the ground. This method does not add tongue weight to the motorhome, which is an advantage. However, it is not recommended to back-up with a tow-bar due to the likely-hood of jack-knifing the towed vehicle.

2. Towing with a tow dolly. A tow dolly is designed to tow a variety of vehicles, therefore, the advantage is that it is not a vehicle-specific piece of equipment. It also presents minimal tongue weight to the motorhome; another advantage. However, like the tow-bar, it is not recommended to back-up with a tow-dolly, due again, to the likely-hood of jack-knifing the towed vehicle.

3. Towing a vehicle using a full vehicle trailer, either open or enclosed. A vehicle trailer presents the advantage of backing-up and since the towed vehicle is not in direct contact with the road surface, there is no additional wear to the vehicle while it is being towed. However, like all trailers, a vehicle trailer adds tongue weight to the motorhome.

If you are considering towing a vehicle behind your motorhome, consult with your dealer or qualified towing expert about the towing equipment options appropriate for your motorhome and travel needs.

## Safe Towing Tips

- Never exceed the hitch tow rating, the hitch tongue weight rating and the towing capacity of your motorhome. Exceeding the maximum towing capacity can result in dangerous handling, insufficient braking performance, or serious damage to the vehicle's suspension, engine and drive train.
- Make sure your trailer hitch is capable of handling your trailer's loaded weight.
- When loading and towing with your vehicle, do not exceed the GVWR and GCWR of your motorhome.
- There are several sizes of trailer balls available. **BE SURE THE TRAILER BALL MATCHES THE SIZE OF THE TRAILER COUPLER!**
- Always ensure the trailer coupler is properly seated and locked onto the trailer ball (see illustration).
- Always ensure the hitch pin is properly installed, securing the ball mount to the receiver tube (see illustration).
- Always use safety chains between your motorhome and the towed trailer or vehicle. Cross the chains under the trailer tongue and allow slack for turning corners. Connect the safety chains to the trailer or vehicle frame or hook retainers. Never attach safety chains to the bumper of a vehicle (see illustration).
- Always check brake lights, running lights, emergency flashers, and turn signals of the motorhome and trailer (or towed vehicle) at the start of the trip and often during the trip.

  Accidents can occur if the taillights are not working or are improperly connected. While the vehicle is in

PARK, have a partner stand to the rear, **but not directly behind the vehicle,** to check that the turn signals, taillights and brake lights are functioning properly.

- Always pack your trailer so that most of the weight is over the axles, yet allowing sufficient tongue weight for safe control of the trailer.

  Not only do you want roughly 60% of the trailer's load placed over the front half of the trailer, you also should load it in a way that results in a tongue weight that is between 10-15% of the total weight of the loaded trailer. Ensure weight is evenly distributed on the left and right sides of the trailer. Once the load is properly distributed and an ideal tongue weight is achieved, all cargo should be secured to prevent the load from shifting.

- Check both **TRAILER AND MOTORHOME** tires daily for proper inflation and for any unusual wear (check tire pressure with cold tires). Don't forget the inner tires of the dual tire/wheel set-up and spare tires for both the motorhome and trailer.

  Tires that are not properly inflated can negatively affect handling. Further, under-inflated tires can create more rolling resistance, which not only forces the engine to work harder and consume more fuel, but also increases tire temperatures and may contribute to a blow-out. Additionally, check the speed and load rating on the tires for both your motorhome and trailer, and ensure you never exceed that these limits.

- Check your trailer's hub bearings before starting your trip, and often during your travels. Ensure bearings are in good order and properly greased.

- Check trailer brakes at the start of each trip and daily. Smaller, lighter trailers may not need trailer brakes of any kind, but heavier trailers, or those designed to carry heavier loads, will usually incorporate a trailer brake system. If your trailer is equipped with hydraulic or electric surge brakes, make sure the emergency "breakaway" cable is properly attached to your tow vehicle. In case your trailer somehow disconnects from the hitch, this cable is designed to trigger the brakes on the trailer and quickly bring it to a halt.

- Adjust your mirrors. Before taking off, make sure your side view mirrors are adjusted to create a clear view that extends to the end of the trailer.

- Ensure your back-up cameras are in proper working order. Some cameras may be able to be placed in monitor mode, so that the towed vehicle can be observed while traveling.

- Tow bars or car dollies generally are made to travel in a forward direction only. Most towing equipment of this type is not designed for backing. Never attempt back-up maneuvers with a tow bar or tow dolly; doing so could result in damage to the motorhome, towed vehicle or towing device.

- Be mindful of the extra length a trailer or towed vehicle adds to your motorhome. Your motorhome is a long vehicle, and with the added length of a trailer, it can be very long. Be extra careful when merging into traffic or making lane changes. Allow extra time to make these maneuvers. **ALWAYS SIGNAL YOUR INTENTIONS WITH PROPER USE OF TURN SIGNALS.**

- Allow for extra braking distance caused by the added weight of a trailer or towed vehicle.

- Be extra cautious when making turns. Allow for the extra length and large turning radius caused by the added length of the trailer or towed vehicle.

- Use the aid of a spotter when backing the trailer. Be sure the spotter is always in view of your rear view mirrors. **STOP THE VEHICLE IF YOU CANNOT SEE YOUR SPOTTER.**

- Always chock trailer or towed vehicle wheels when disconnected from the towing vehicle (motorhome) or when parking on an incline.

Reference:
https://www.gmc.com/gmc-life/trucks/tips-for-safe-trailering-and-towing

# OWNER'S *MANUAL*

## CLASS A AND CLASS C MOTORHOMES

# Section 6: Weighing, Loading, and Towing

## Introduction

### ⚠ WARNING

**Do not exceed any applicable motorhome weight ratings. Doing so could damage your motorhome or affect handling and braking characteristics.**

**Your motorhome's braking system is designed and rated for operation at the gross vehicle weight rating (GVWR) listed on the unit's weight labels, not the gross combined weight rating (GCWR).**

Proper loading of the vehicle is one of the most important considerations when traveling in a motorhome. Your motorhome is designed to carry a certain safe maximum load. This is the Gross Vehicle Weight Rating, or GVWR. When towing a trailer or vehicle, the added weight calculates towards the total weight of your motorhome (Gross Combined Weight, or GCW). Staying within the weight limits of your motorhome will help to ensure your motorhome performs and operates safely for your journeys.

Both the chassis manufacturer and Thor Motor Coach provide weight ratings and recommendations for loading your motorhome. Read and follow the information provided by the chassis manufacturer in the chassis manufacturer's owner's manual as well as information provided by Thor Motor Coach in this owner's manual. Important weight ratings are listed on labels affixed to your motorhome. Do not remove these important safety labels. For safe operation, **NEVER OVERLOAD YOUR MOTORHOME OR TOW A TRAILER OR VEHICLE THAT IS BEYOND THE SAFE TOWING WEIGHT RESTRICTIONS OF YOUR TOWING HITCH AND MOTORHOME**.

## Important Weight Terminology

Listed in this section are several important terms that you need to become familiar with in order to safely load and use your motorhome as a towing vehicle. Please consult your chassis ~~(van)~~ owner's manual for additional information provided by the chassis manufacturer.

### Curb Weight:

The weight of an unloaded motorhome plus the weight of a full tank of fuel. Does not include propane, water, passengers, cargo, or aftermarket add-ons.

### Unloaded Vehicle Weight (UVW):

The curb weight of the unloaded motorhome plus a full propane tank.

### Cargo Weight:

The total weight of all cargo added to your motorhome, including food, clothing, camping gear, pots and pans, tools, water (fresh and waste), propane, and all aftermarket equipment added to the motorhome. Also includes trailer tongue weight. Keep in mind, carrying unnecessary water quantities (fresh or waste) adds significantly to the total cargo weight:

- 1 gallon of water = 8.3 pounds
- 1 gallon of propane = 4.2 pounds
- 1 gallon of gasoline = 6 pounds
- 1 gallon of diesel fuel = 7 pounds

### Occupant and Cargo Carrying Capacity (OCCC):

The maximum weight of all cargo and occupants that can be safely carried by the motorhome. The tongue weight of your towed trailer or vehicle must be included in the total cargo weight. **DO NOT EXCEED THE OCCC RATING OF YOUR MOTORHOME.**

OCCC is determined by subtracting the UVW of the motorhome from the GVWR of the chassis, plus the weight of any carried LP fuel. The OCCC of your motorhome is listed on the yellow OCCC label, affixed to the forward, right-side entry or passenger door.

### Gross Vehicle Weight Rating (GVWR):

The maximum permissible weight of a fully loaded motorhome. GVWR is determined by the chassis manufacturer and takes into consideration the design of the frame, suspension components, axles, and tires. This rating can be found on the Incomplete Vehicle Identification Data Label affixed to the driver's door jamb.

### Gross Vehicle Weight (GVW):

The actual measured weight of your loaded vehicle. Gross Vehicle Weight = Curb Weight + Total Cargo Weight + Total Passenger Weight). **THE MEASURED GVW MUST NEVER EXCEED THE GVWR OF THE MOTORHOME.**

### Gross Combined Weight Rating (GCWR):

The maximum allowable loaded weight of this recreational vehicle, including the weight of its towed trailer or towed vehicle. This rating is determined by the chassis manufacturer and takes into consideration the design of the chassis, suspension components, tires, engine torque and horsepower, and drivetrain components.

### Gross Combined Weight (GCW):

The actual measured combined weight of your loaded motorhome plus the weight of your loaded trailer or towed vehicle. This weight measurement is found by weighing the motorhome with its towed vehicle on a commercial vehicle scale. **THE MEASURED GCW MUST NEVER EXCEED THE GCWR OF THE MOTORHOME.**

*NOTE: The motorhome's braking system is rated for operation at the GVWR, not the GCWR. A supplementary braking system should be used for safe control of towed vehicles and for trailers weighing more than 1,500 pounds when loaded. Supplemental braking systems are required by transportation laws.*

### Gross Axle Weight Rating (GAWR):

The value specified as the load carrying capacity of a single axle system, as measured at the tire ground interfaces. This rating is determined by the manufacturer of the chassis. This rating can be found on the Federal Weight Label, affixed to the driver's door jamb (Class C and B) or near the driver's seat (Class A).

### Gross Axle Weight (GAW):

Gross axle weight is the total weight of the fully loaded motorhome on each axle. This weight figure is determined by weighing the fully loaded motorhome with a loaded trailer or towed vehicle. See your owner's manual for instructions on weighing your motorhome.

### Tongue Weight:

Weight directly transferred to the hitch of the motorhome by a loaded trailer. The maximum tongue weight is listed on the motorhome's hitch label. Be sure that tongue weight never exceeds the GAWR of the rear axle of the motorhome. DO NOT EXCEED THE TONGUE WEIGHT RATING OF THE HITCH.

When loading a trailer, remember to place heavy cargo over the axle(s) of the trailer, however the trailer must have some tongue weight to help stabilize the trailer while being towed.

### Maximum Loaded Trailer Weight:

The highest possible weight of a fully loaded trailer or towed vehicle the motorhome can tow based on a minimally loaded motorhome (GVW).

### Towing Capacity:

Towing capacity is determined by subtracting the measured Gross Vehicle Weight (GVW) from the Gross Combined Weight Rating (GCWR). **DO NOT EXCEED THE TOWING CAPACITY RATING OF THE HITCH AND YOUR MOTORHOME.**

## Federal Weight Label (USA)

The Federal Weight Label is typically affixed to the driver's door jamb for Class B and C motorhomes and near the driver's seat for Class A motorhomes. This label concisely states the gross vehicle weight rating (GVWR) of your motorhome, along with the gross axle weight rating (GAWR) (both front and rear), tire size, tire weight rating, and proper tire inflation. This information meets the requirements of 49 CFR part 571.120 as issued by the National Highway Traffic Safety Administration (NHTSA).

**MANUFACTURED BY:** THOR MOTOR COACH, INC. **OFFLINE:** MM/YY
**GVWR:** XXXX KG (XXXXX LB) **SERIAL:** XXXXXXXXXXXXX
**INC. VEH. MFG. BY:** <Insert Chassis Manufacturer> **MODEL:** XXXX

| | GAWR KG(LB) | TIRES | RIMS | COLD INFLATION PRESSURE | SINGLE | DUAL |
|---|---|---|---|---|---|---|
| **FRONT:** | XXXX (XXXX) | XXXXX/XXXXX | XXXXXX | XXX KPA(XX PSI) | ☐ | ☐ |
| **REAR:** | XXXX (XXXX) | XXXXX/XXXXX | XXXXXX | XXX KPA(XX PSI) | ☐ | ☐ |
| **TAG:** | | | | | ☐ | ☐ |

**THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY STANDARDS IN EFFECT ON** MM/DD/YYYY

**V.I.N.:**XXXXXXXXXXXXXXXXX **TYPE:** MOTORHOME

Typical Federal Weight Label, including GVWR, GAWR, and tire pressure information

## Occupant and Cargo Carrying Capacity Weight Label (OCCC)

The Motorhome Occupant and Cargo Carrying Capacity (OCCC) weight label is affixed to the interior side of the forward-most passenger door of Class B and C motorhomes and on the interior surface of the entry door of Class A motorhomes. This label indicates how much weight you can safely carry within the motorhome. The total weight of passengers, cargo, trailer tongue weight, and water (fresh and waste) should never exceed the values shown on this label.

This label also includes important safety belt seating capacity information and the measured overall length of the motorhome.

*NOTES:*

- *If a boat, trailer, or other vehicle is being towed, it should be weighed and combined with the motorhome's weight to ensure the total weight of the motorhome and towed vehicle does not exceed the gross combined weight rating (GCWR) of the motorhome. Contact your dealer or the chassis manufacturer for GCWR ratings.*
- *Depending on the date of manufacturer, the OCCC label attached to your motorhome includes length specifications.*

**MOTOR HOME OCCUPANT AND CARGO CARRYING CAPACITY**
**VIN# XXXXXXXXXXXXXXXXX**
**THE COMBINED WEIGHT OF OCCUPANTS AND CARGO SHOULD NEVER EXCEED:**
**XXX kg or XXXX lbs**
**Safety belt equipped seating capacity: X**
**CAUTION: A full load of water equals XXX kg or XXX lbs of cargo @ 1kg/L (8.3 lb/gal) and the tongue weight of a towed trailer counts as cargo**
(Serial #: XXXXXXXXXXXXX)
**Recreational vehicle overall length XX' XX" (X.XXXm) as manufactured**

Typical Motorhome Occupant and Cargo Carrying Capacity Label

## Weight Capacity of Rear Garage Area

Motorhomes that include a rear garage area have a separate weight capacity rating for this cargo area. This weight capacity is listed on a label attached to the inside wall of the garage. The total weight of garage cargo must never exceed the labeled capacity AND the weight of cargo carried in the garage must be included in the total weight of occupants and cargo of the motorhome. The total weight of the occupants, garage cargo, water (fresh and waste), trailer tongue weight, and other supplies must NOT exceed the Occupant and Cargo Carrying Capacity (OCCC) of the motorhome.

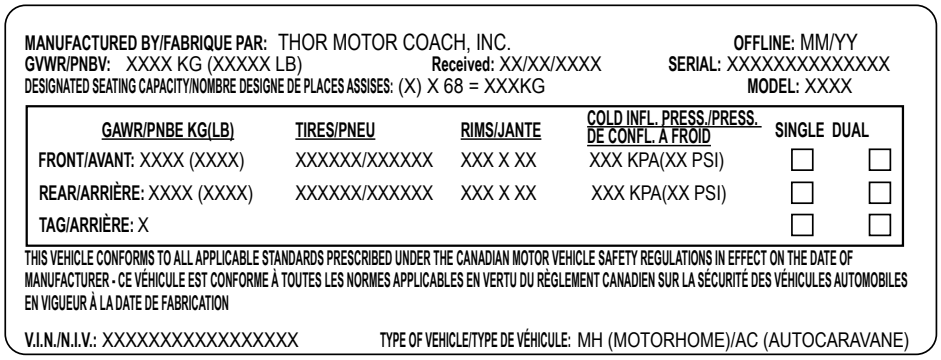
**XXXX lb Capacity for Garage Area**
**Please reference your owner's manual for proper weight distribution**
(Serial #: XXXXXXXXXXXXX)

Typical Garage Area Weight Capacity Label

## Canadian Weight Label / Statement of Compliance

For the Canadian market, a dual language (English/French) weight label is affixed to the driver's-side door jamb for Class B and C motorhomes and near the driver's seat for Class A motorhomes.

This label concisely states the gross vehicle weight rating (GVWR) of your motorhome, along with the gross axle weight rating (GAWR) (both front and rear), tire size, tire weight rating, and proper tire inflation. This label states that the motorhome conforms to all applicable standards prescribed under the Canadian Motor Vehicle Safety Regulations in effect on the date of manufacturer.



**MANUFACTURED BY/FABRIQUE PAR:** THOR MOTOR COACH, INC. **OFFLINE:** MM/YY
**GVWR/PNBV:** XXXX KG (XXXXX LB) **Received:** XX/XX/XXXX **SERIAL:** XXXXXXXXXXXXX
**DESIGNATED SEATING CAPACITY/NOMBRE DESIGNE DE PLACES ASSISES:** (X) X 68 = XXXKG **MODEL:** XXXX

| GAWR/PNBE KG(LB) | TIRES/PNEU | RIMS/JANTE | COLD INFL. PRESS./PRESS. DE CONFL. À FROID | SINGLE | DUAL |
|---|---|---|---|---|---|
| FRONT/AVANT: XXXX (XXXX) | XXXXXX/XXXXXX | XXX X XX | XXX KPA(XX PSI) | ☐ | ☐ |
| REAR/ARRIÈRE: XXXX (XXXX) | XXXXXX/XXXXXX | XXX X XX | XXX KPA(XX PSI) | ☐ | ☐ |
| TAG/ARRIÈRE: X | | | | ☐ | ☐ |

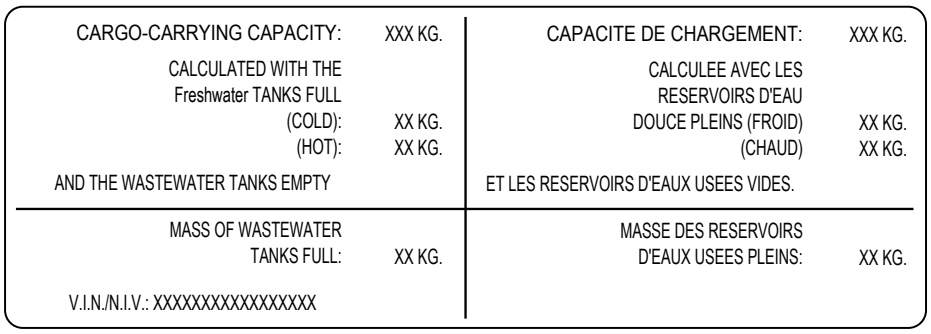
THIS VEHICLE CONFORMS TO ALL APPLICABLE STANDARDS PRESCRIBED UNDER THE CANADIAN MOTOR VEHICLE SAFETY REGULATIONS IN EFFECT ON THE DATE OF MANUFACTURER - CE VÉHICULE EST CONFORME À TOUTES LES NORMES APPLICABLES EN VERTU DU RÈGLEMENT CANADIEN SUR LA SÉCURITÉ DES VÉHICULES AUTOMOBILES EN VIGUEUR À LA DATE DE FABRICATION

**V.I.N./N.I.V.:** XXXXXXXXXXXXXXXXX **TYPE OF VEHICLE/TYPE DE VÉHICULE:** MH (MOTORHOME)/AC (AUTOCARAVANE)

## Canadian Cargo Carrying Capacity Label

For the Canadian market, a dual language Cargo Carrying Capacity (CCC) (English/French) label is affixed to the driver's-side door jamb for Class B and C motorhomes and near the driver's seat for Class A motorhomes.

This label states the cargo carrying capacity (in kilograms) of the motorhome and is calculated with full freshwater holding tanks, including a full hot water heater, if applicable.



| | | | |
|---|---|---|---|
| CARGO-CARRYING CAPACITY: | XXX KG. | CAPACITE DE CHARGEMENT: | XXX KG. |
| CALCULATED WITH THE Freshwater TANKS FULL (COLD): | XX KG. | CALCULEE AVEC LES RESERVOIRS D'EAU DOUCE PLEINS (FROID) | XX KG. |
| (HOT): | XX KG. | (CHAUD) | XX KG. |
| AND THE WASTEWATER TANKS EMPTY | | ET LES RESERVOIRS D'EAUX USEES VIDES. | |
| MASS OF WASTEWATER TANKS FULL: | XX KG. | MASSE DES RESERVOIRS D'EAUX USEES PLEINS: | XX KG. |
| V.I.N./N.I.V.: XXXXXXXXXXXXXXXXX | | | |

## Canadian Recreational Vehicle Length Label

For the Canadian market, a dual language recreational vehicle length label is located on the most forward passenger side door. For Class A motorhomes, this location description applies to the main right-side entrance door.

**THOR MOTOR COACH**
**NIV#/VIN#: XXXXXXXXXXXXXXXXX / SERIAL: XXXXXXXXXXXXXX**
**THORMOTORCOACH.COM**
**Longueur hors tout du véhicule de loisirs XX' X" (XXm) tel que fabriqué**
**Recreational vehicle overall length XX' X" (XXm) as manufactured**

## Weighing Your Motorhome

When loading your cargo, be sure weight is distributed evenly to prevent overloading front to back and side to side. Heavy items should be placed low and as close to the axle positions as possible. Too many items stored on one side of your motorhome may overload tires and cause handling issues.

Periodically weigh your motorhome at a public vehicle scale to determine axle loads. You can find certified public or commercial vehicle scales at moving and storage lots, farm suppliers with grain elevators, gravel pits, recycling companies, and large commercial truck stops.

To weigh your motorhome correctly, measure the fully loaded vehicle axle by axle and wheel position by wheel position. Allow adequate time, since the entire weighing process can take around 30 minutes. There may be a small fee for each weight reading taken, but the expense is a worthwhile investment toward the safe operation of your motorhome.

Your motorhome must be weighed fully loaded, which includes passengers, food, clothing, fuel, water, propane, supplies, etc. Any towed vehicle (car/pickup, boat, or trailer) or items loaded on brackets on the back of the motorhome should also be included in the weighing process.

Reading A: Front

Reading B: Total Coach

Reading C: Back

Thick Black Lines in the illustrations above represent a vehicle weighing scale.

The following procedure is suggested when using a long platform scale, although any method recommended by the scale operator that correctly determines weight value is acceptable. During all measurements, it is important to keep the vehicle as level as possible.

1. Pull onto the scale so that only the front axle is on the platform with the end of the scale midway between the front and rear axles and record the weight **(Reading A).**
2. Pull forward until the full unit is on the scale and record the weight **(Reading B).**
3. Pull forward so that only the rear axle is on the scale and record the weight **(Reading C).**
4. To determine the weight of individual wheel positions, repeat the previous three steps, but this time, use only one side of the motorhome on the scale. Record the weight readings.
5. To calculate the wheel position weight for the opposite side of the motorhome, subtract these weight readings from weight readings A, B, and C recorded in steps 1, 2, and 3.

### Other factors to consider:

- Your motorhome must remain as level as possible on the scale, even though an axle or side is not physically on the scale. To obtain the side-to-side weight measurements, there must be enough space on either side of the scale to allow the motorhome to be partially off the scale.
- For improved accuracy, Thor Motor Coach recommends using a segmented 4-pad scale, when possible, to determine individual wheel weight measurements. The corner weight measurements should not exceed half of the respective Gross Axle Weight Rating (GAWR) or the maximum load rating for the tire or set of dual tires at the rear, whichever is less.
- Individual wheel position weight measurements must not exceed the maximum tire load capacity. The maximum load rating for the tire can be found embossed on the tire's sidewall.
- If any of the corner weight measurements exceed half of the listed GAWR or tire ratings, redistribute or remove a portion of the cargo until the weight is within the proper limits for all four corners of the vehicle.
- Periodically check and adjust your motorhome's cargo weight to obtain optimum mileage from your tires and to optimize vehicle handling. Inflate ties as recommended on the Federal Weight Label affixed to your motorhome.

## Weight Distribution

Proper loading and weight distribution are extremely important factors of safe motorhome travel. An overloaded motorhome is difficult to drive and hard to stop. In cases of serious overloading, brakes can fail completely, particularly on steep hills. Proper weight distribution also affects tire performance, while overloading can cause premature wear to the vehicle's engine, transmission, and drive train components. The load a tire will safely carry is a combination of its size, its construction, its load range, and corresponding inflation pressure.

Improper weight distribution, or too much weight on your motorhome's suspension system, can cause failure or damage to:

- Springs and suspension components
- Shock absorbers
- Brakes
- Tires
- Steering components

## Loading Your Motorhome

Always consider proper vehicle loading when preparing for travel. By not overloading the motorhome and keeping the weight balanced side-to-side and as close to the axles as possible, the drivability and safe handling of the vehicle will be maximized.

- Never overload your motorhome. Always observe and stay under the GVWR and OCCC ratings.
- Distribute cargo side-to-side so the weight on each tire does not exceed one-half of the GAWR for either axle.
- Store and secure all loose items inside the motorhome before traveling. Overlooked items such as canned goods, small appliances on the countertop, cooking pans on the range, or free-standing furniture items can become dangerous projectiles during a sudden stop.
- When traveling, keep the quantity of fresh, gray, and black water within the storage tanks to a minimum. This reduces the total weight of the motorhome, therefore increasing available carrying weight for other items (refer to Occupant Cargo Carrying Capacity (OCCC) of the motorhome).
- Give careful attention to where and what type of flammable materials you store and transport. Certain storage areas are clearly labeled **DO NOT STORE COMBUSTIBLE MATERIALS.** Be sure all canisters are secure and leak free. **DO NOT TRANSPORT LP TANKS OR CANISTERS INSIDE THE VEHICLE** (see Propane Section).
- For traveling safety, it is important to make sure tie down straps on appliances, furniture, and cargo (inside the vehicle) and cargo (outside the vehicle) are secured and remain tight. Check straps regularly to ensure they have not loosened during travel.
- Be sure not to overload roof racks with cargo that is heavier than the load-carrying capacity of the roof rack system.
- If you are towing a trailer or vehicle, be sure to stay under the towing capacity of your motorhome and that the added weight stays under the GCWR for your motorhome.

*NOTE: At approximately 8 pounds per gallon, water can add a considerable amount of weight to your motorhome. Additional cargo carrying capacity for other items can be obtained by reducing the amount of fresh and wastewater carried while traveling.*

*However, it is recommended to always keep a few gallons of water in the black tank to help prevent the build-up of sludge, which can lead to wastewater system blockages.*

## Loading Motorhomes with Rear Cargo Door

### ⚠ WARNING

- **Failure to properly stow, secure, and prevent movement of cargo can result in death or severe injury.**
- **The hauling and storage of fuel-powered equipment or vehicles is prohibited. Failure to adhere to this prohibition can lead to death or severe injury.**
- **Exceeding the vehicle's Occupancy Cargo Carrying Capacity can lead to vehicle instability, which can result in occupant death or severe injury.**

Select TMC motorhomes are equipped with a rear door that allows access to a large interior cargo area when the bed is secured in an upright position. Always follow safety warnings regarding suitable cargo types, load weight, load distribution, and cargo securing when using this space for cargo storage and transportation. See page 23, page 66, and page 94.

## Towing With Your Motorhome

### ⚠ WARNING

**NEVER TOW LOADS THAT EXCEED EITHER THE TOW WEIGHT RATING AND/OR THE TONGUE WEIGHT RATING OF THE TRAILER HITCH INSTALLED ON THE MOTORHOME (Note: Tow weight is the total weight of a fully loaded trailer or towed vehicle. Tongue weight is the downward weight in pounds transferred to the hitch by the loaded trailer or towed vehicle).**

**THE WEIGHT OF THE FULLY LOADED MOTORHOME AND THE WEIGHT OF THE TRAILER, OR TOWED VEHICLE, MUST NOT EXCEED THE MOTORHOME'S GROSS COMBINED WEIGHT RATING (GCWR). Consult with your selling dealer to determine the GCWR and towing capacity of the motorhome.**

**THE DESIGNATED HITCH RATING MAY EXCEED THE GCWR OR OTHER TOWING CAPACITY LIMITS OF THE MOTORHOME. It is your responsibility to properly load the motorhome and trailer, while staying within the limits of the hitch ratings, GCWR, GVWR, and GAWR specified on the certification label(s) of the motorhome.**

**A SEPARATE FUNCTIONING BRAKE SYSTEM IS REQUIRED FOR CONTROLLING ANY TOWED TRAILERS OR VEHICLES WEIGHING MORE THAN 1,500 LBS WHEN FULLY LOADED. Do not assume the braking capabilities of the motorhome can also adequately stop the combined weight of the motorhome and towed vehicle. For specific towed vehicle braking requirements, consult your chassis owner's manual.**

**DO NOT USE WEIGHT DISTRIBUTING HITCHES OR WEIGHT DISTRIBUTING TOWING DEVICES WITH THIS MOTORHOME (applies to Class A and Class C motorhomes). The length of the chassis prevents proper weight distribution to the rear axle of the motorhome.**

**Consult your chassis owner's manual for additional information regarding towing guidelines for this motorhome.**

**Failure to heed any part of these warnings could result in loss of control of the motorhome and towed vehicle or trailer and may cause an accident and severe injury.**

### *NOTICE*

**TMC Motorhomes are factory equipped with a towing hitch and wiring harness. However, TMC motorhomes are not factory equipped with supplemental trailer braking systems. Always have trailer braking systems professionally installed and routinely inspected by a qualified technician.**

**If you are unsure of any aspect of safe towing, seek professional advice from a reputable hitch installer, trailer, or RV dealer.**

## Towing Hitch

Your motorhome is equipped with a towing hitch receiver and trailer wiring receptacle. Depending on the weight rating of your motorhome's chassis, hitch ratings range from 5,000 to 10,000 or more pounds. Please refer to the chassis manufacturer's owner's manual for towing recommendations and towing limitations for this vehicle.

If you are considering towing a trailer or vehicle behind your motorhome, consult with your dealer or qualified towing expert about available towing equipment and towing options appropriate for your motorhome and travel needs.

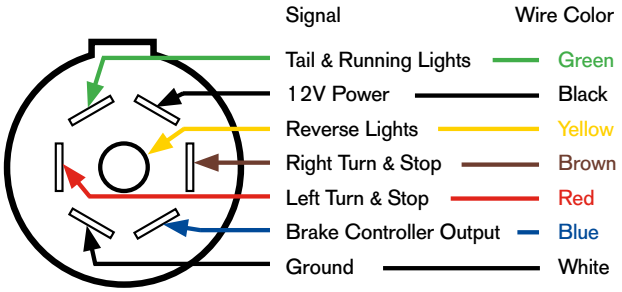
*NOTE: Thor Motor Coach accepts no responsibility for damage to the chassis, property, and other components resulting from towing with your motorhome or towing loads greater than its designated specifications.*

## Electrical Connections for Towing

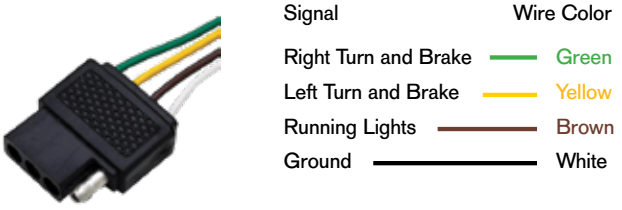
A 4-way or 7-way trailer plug, supplied by the chassis manufacturer, is pre-wired to the chassis electrical system. This plug provides electrical power for running lights, turn signals, stop lights, and electric trailer brakes. Before connecting your motorhome to any towed vehicle, verify that the wiring of the towed vehicle plug conforms to your motorhome connector wiring.

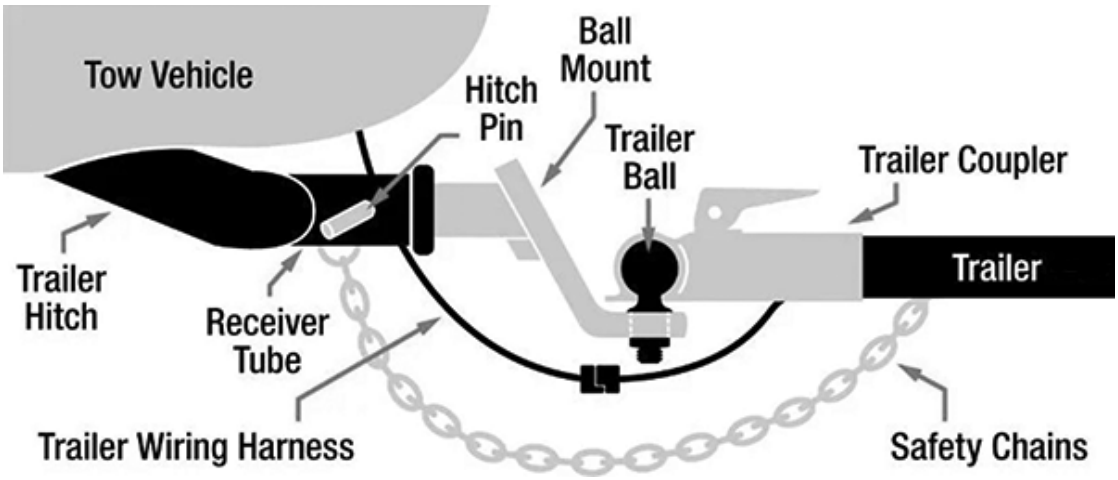
Refer to your vehicle manufacturer's owner's manual for additional information regarding vehicle towing.

### 7-Way Connector Wiring (vehicle side):




### 4-way connector wiring (vehicle side):






Typical towing components

## Towing a Vehicle with Your Motorhome

There are three basic methods of towing a vehicle with your motorhome; all have advantages and disadvantages.

1. **Flat towing with a tow bar.** With this method, a vehicle-specific tow bar is attached to front of the towed vehicle and the tow-hitch is attached to the motorhome. All four wheels of the towed vehicle remain on the ground. This method does not add tongue weight to the motorhome, which is an advantage. However, it is not recommended to back-up with a tow bar due to the likely-hood of jack-knifing the towed vehicle.

2. **Towing with a tow dolly.** A tow dolly is designed to be used with a variety of vehicles; therefore, the advantage is that it is not a vehicle-specific piece of equipment. Tow dollies place one set of the towed vehicle's axles on the dolly, while the other set of axles remain on the road surface. Like the tow bar, tow dollies add minimal tongue weight to the motorhome. However, also like the tow bar, it is not recommended to back-up with a tow-dolly, due again, to the likely-hood of jack-knifing the towed vehicle.

3. **Towing a vehicle using a full vehicle trailer;** either open or enclosed. A vehicle trailer presents the advantage of backing-up and since the towed vehicle is not in direct contact with the road surface, there is no additional wear to the vehicle while it is being towed. However, like all trailers, a vehicle trailer adds tongue weight to the motorhome.

If you are considering towing a vehicle behind your motorhome, consult with your dealer or qualified towing expert about the towing equipment options appropriate for your motorhome and travel needs.

## Safe Towing Tips

- Never exceed the hitch tow rating, the hitch tongue weight rating and the towing capacity of your motorhome. Exceeding the maximum towing capacity can result in dangerous handling, insufficient braking performance, or serious damage to the vehicle's suspension, engine and drive train.
- Make sure your trailer hitch is capable of handling your trailer's loaded weight.
- When loading and towing with your vehicle, do not exceed the GVWR and GCWR of your motorhome.
- There are several sizes of trailer balls available. **BE SURE THE TRAILER BALL MATCHES THE SIZE OF THE TRAILER COUPLER!**
- Always ensure the trailer coupler is properly seated and locked onto the trailer ball (see illustration).
- Always ensure the hitch pin is properly installed, securing the ball mount to the receiver tube (see illustration).
- Always use safety chains between your motorhome and the towed trailer or vehicle. Cross the chains under the trailer tongue and allow slack for turning corners. Connect the safety chains to the trailer or vehicle frame or hook retainers. Never attach safety chains to the bumper of a vehicle (see illustration).
- Always check brake lights, running lights, turn signals, and emergency flashers of the motorhome and trailer (or towed vehicle) at the start of the trip and often during the trip.

Accidents can occur if the taillights are not working or are improperly connected. While the vehicle is in PARK, have a partner stand to the rear, **but not directly behind the vehicle,** to check that the turn signals, taillights and brake lights are functioning properly.

- Always pack your trailer so that most of the weight is over the axles, yet allowing sufficient tongue weight for safe control of the trailer.

  Not only do you want roughly 60% of the trailer's load placed over the front half of the trailer, you also should load it in a way that results in a tongue weight that is between 10-15% of the total weight of the loaded trailer. Ensure weight is evenly distributed on the left and right sides of the trailer. Once the load is properly distributed and an ideal tongue weight is achieved, all cargo should be secured to prevent the load from shifting.

- Check both **TRAILER AND MOTORHOME** tires daily for proper inflation and for any unusual wear (check tire pressure with cold tires). Do not forget the inner tires of the dual tire/wheel set-up and spare tires for both the motorhome and trailer.

  Tires that are not properly inflated can negatively affect handling. Further, under-inflated tires can create more rolling resistance, which not only forces the engine to work harder and consume more fuel, but also increases tire temperatures and may contribute to a blow-out. Additionally, check the speed and load rating on the tires for both your motorhome and trailer, and ensure you never exceed that these limits.

- Check your trailer's hub bearings before starting your trip, and often during your travels. Ensure bearings are in good order and properly greased.

- Check trailer brakes at the start of each trip and daily. Smaller, lighter trailers may not need trailer brakes of any kind, but heavier trailers, or those designed to carry heavier loads, will usually incorporate a trailer brake system. If your trailer is equipped with hydraulic or electric surge brakes, make sure the emergency "breakaway" cable is properly attached to your tow vehicle. In case your trailer somehow disconnects from the hitch, this cable is designed to trigger the brakes on the trailer and quickly bring it to a halt.

- Adjust your mirrors. Before departure, make sure your side view mirrors are adjusted to create a clear view that extends to the end of the trailer.

- Ensure your back-up cameras are in proper working order. Some cameras may be able to be placed in monitor mode, so that the towed vehicle can be observed while traveling.

- Tow bars and tow dollies generally are made to travel in a forward direction only. Most towing equipment of this type is not designed for backing. Never attempt back-up maneuvers with a tow bar or tow dolly; doing so could result in damage to the motorhome, towed vehicle or towing device.

- Be mindful of the extra length a trailer or towed vehicle adds to your motorhome. Your motorhome is a long vehicle, and with the added length of a trailer, it can be very long. Be extra careful when merging into traffic or making lane changes. Allow extra time to make these maneuvers. **ALWAYS SIGNAL YOUR INTENTIONS WITH PROPER USE OF TURN SIGNALS WELL IN ADVANCE OF YOUR INTENDED MANEUVER.**

- Allow for extra braking distance caused by the added weight of a trailer or towed vehicle.

- Be extra cautious when making turns. Allow for the extra length and large turning radius caused by the added length of the trailer or towed vehicle.

- Use the aid of a spotter when backing the trailer. Be sure the spotter is always in view of your rear-view mirrors. **STOP THE VEHICLE IF YOU CANNOT SEE YOUR SPOTTER.**

- Always chock trailer or towed vehicle wheels when disconnected from the towing vehicle (motorhome) or when parking on an incline.

Reference:
https://www.gmc.com/gmc-life/trucks/tips-for-safe-trailering-and-towing