

OLD MAN EMU

4X4 SHOCKS & SUSPENSION

INSTALLATION GUIDE



OMETJLK/HK

1997-02 JEEP WRANGLER TJ
LEFT HAND DRIVE MODELS

Part No. IG-TJLK/HK
Revision Date 04/21/05
Copyright © 2005 by ARB Corporation Limited

Table of contents:

1 Introduction

- 1.1 Pre-Installation Preparation
- 1.2 Tool-Kit Recommendations
- 1.3 Vehicle Ride Height Measurement
- 1.4 Vehicle Support

2 Installation of Front Suspension

- 2.1 Removal of Original Front Suspension
- 2.2 OME Front Coil Installation
- 2.3 OME Front Shock Installation

3 Installation of Rear Suspension

- 3.1 Removal of Original Rear Suspension
- 3.2 Panhard Rod Bracket Installation
- 3.3 OME Bumpstop Installation
- 3.4 OME Rear Coils Installation
- 3.5 OME Rear Shock Installation

4 Installation of Gearbox Packer Kit

- 4.1 Is the Spacer Kit Needed?
- 4.2 Gearbox Packer Installation

5 Final Inspection

- 5.1 Vehicle Ride Height Measurement
- 5.2 Vehicle Trimming
- 5.3 Vehicle Rake
- 5.4 Road Test

6 Technical Notes

- 6.1 Suspension System Worksheet
- 6.2 Fitting Kit Diagrams

7 Parts List

- 7.1 Itemized Parts List: OMETJLD
- 7.2 Itemized Parts List: OMETJHD
- 7.3 Optional Parts



1 Introduction

Important:

BEFORE ATTEMPTING TO DISMANTLE YOUR VEHICLE FOR THIS INSTALLATION, PLEASE READ THIS INSTALLATION GUIDE IN ITS ENTIRETY, AS WELL AS ALL APPLICABLE SECTIONS OF YOUR VEHICLE MANUFACTURER'S SERVICE MANUAL.

1.1 Pre-Installation Preparation

This booklet is to be used in conjunction with your vehicle manufacturer's service manual. Old Man Emu endeavors to account for every possible variation in vehicle model when publishing its installation guides, and guides are updated regularly as new model information becomes available, however, the rapid and globally varied release of some vehicles makes it difficult to insure that your vehicle model has been accurately accounted for. In the case of any technical discrepancies between this guide and your service manual, we strongly advise that you adhere to the specifications and techniques as documented in your service manual.

Although your Old Man Emu Suspension comes complete with all the step by step instructions you will need to supplement your vehicle manufacturer's service manual and install your new suspension, Old Man Emu recommends that you have your suspension installed by a trained professional. Many Old Man Emu distributors around the world have been fully instructed in OME suspension installations and have gained a wealth of experience and skill from years of performing similar installations.

Once you begin this installation your vehicle will be immobile until all steps of the installation are complete. Make sure your Old Man Emu kit is correct for your vehicle and that it contains all the parts listed on the back cover of this installation guide. Also be sure you have appropriately equipped yourself with all the necessary tools, parts, and materials to complete this installation (see section *1.2 Tool-Kit Recommendations*), and that you have allowed for an appropriate amount of vehicle down time.

HINT :

Place a ✓ mark inside each of the symbols as you complete each step. It is very important NOT to miss any of the steps!



1 Introduction

1.2 Tool Kit Recommendations

Below is a list of tools and supplies you may need to complete this installation. Requirements for your vehicle may vary. Please consult your vehicle service manual for additional recommendations.

1.2.1 Tools

- Tape measure, notepaper and pen.
- Jack Stands and floor jack or automotive lift.
- Standard automotive sizes (metric and/or imperial) of sockets, Allen keys and drill bits.
- Circlip pliers and a selection of Torx bits.
- Bench mounted vise or hydraulic press.

1.3 Vehicle Ride Height Measurement

IMPORTANT:

To ensure a level ride height, OME recommends checking the vehicle's trim and rake levels prior to suspension installation. To ensure consistency, all suspension measurements should be taken with the vehicle sitting on a level surface. Start from the bottom of the wheel rim, measure up to the bottom of the fender flare with the tape measure passing directly through the wheel's centerline or hub. A Suspension System Worksheet is provided in section 6.1 of this guide to record important information specific to your vehicle. This will help ensure correct coil spring placement and is required for any warranty claims.

1.4 Vehicle Support

- Safely secure the vehicle on jack stands or an automotive lift. We recommend supporting the vehicle on an automotive chassis lift to keep the suspension area at a convenient working height and to allow the original suspension components to be easily removed.
- Before raising vehicle, loosen wheel lug nuts slightly to help ease wheel removal.
- Lift vehicle off the ground high enough to allow easy removal of tires.
- Remove tires.



2 Installation of Front Suspension

2.1 Removal of Original Front Suspension

- Disconnect both sway bar links.
- Support axle housing with floor jack or underhoist stand.
- Remove hardware holding shocks in place and remove shocks.
- Remove coil retaining clips, if so equipped.
- Lower axle housing to free the original coil springs.
- Remove original coil springs from vehicle, making sure to note pigtail placement on the bottom of the coil.

2.2 OME Front Coil Installation

IMPORTANT:

Old Man Emu TJ coils have a different free height for the right and left hand side of the vehicle. Each coil is marked with a 'RH' (Right Hand) or 'LH' (Left Hand) tag, depending on its designated location when installed on a *right hand drive* vehicle. If this suspension is being fitted to a left hand drive vehicle, install as directed below.

- Remove the Old Man Emu coils from the box, set them side-by-side and note which coil is the taller of the two.
- Install the taller of the coils to the left hand side of the vehicle by inserting the small end of the coil up over the bumpstop and into position against the upper spring seat and then onto the lower spring seat. You may need to push down on the axle housing to gain enough clearance to position the coil onto the lower seat. Rotate the bottom pigtail on the coil into proper position as noted above.
- Re-install coil retaining clip, if so equipped.
- Install the shorter coil to the right hand side of the vehicle using the same process as above.

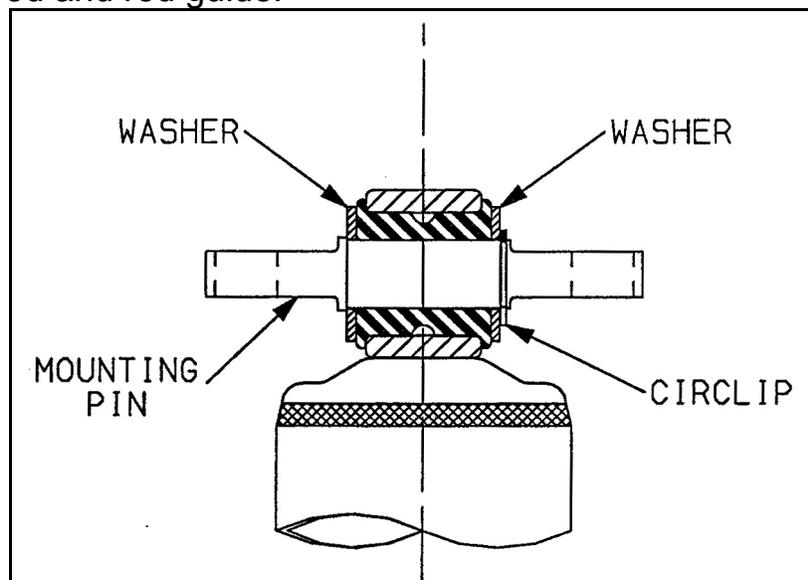


2 Installation of Front Suspension

2.3 OME Front Shock Installation

2.3.1 OME Shock T-Bar Installation

OME shocks for the TJ use a special T-Bar mounting system that utilizes 2 washers to contain the urethane bushing thus keeping the T-Bar centrally located. The Cir-clip holds the assembly together and adds a slight preload to the urethane bushing. This mounting system still allows angular movement between the T-Bar and eye of the shock absorber, while preventing damaging side load on the weld eye, shock absorber rod and rod guide.



HINT : Installation of T-Bar mounting system should be performed using a vice and Circlip pliers.

Refer to [Figure 1](#).

- Slide one washer on the mounting pin and push the pin 15mm into the bush.
- Support the back side of the bush with the second washer and assembly tube.
- Using a vice, push the pin through the bush until home.

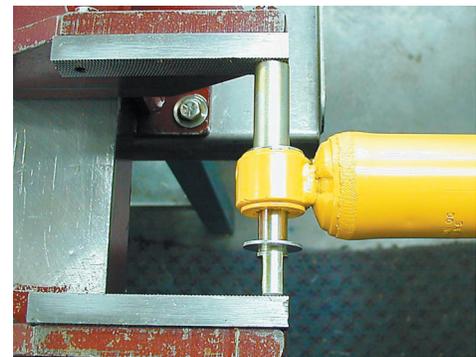


Figure 1.

continued on page 6



2 Installation of Front Suspension

Refer to Figure 2.

- Ensure the second washer is in place and use circlip pliers to expand and slide the circlip over the pin.



Figure 2.

Refer to Figure 3.

- Slide the assembly tube up against the circlip and use a vice to push the circlip home.



Figure 3.

When installing upper mounting stud hardware onto shock, assemble the shock stud mounting parts as shown in Figure 4.

- Install one retainer onto shock stud.
- Install one Poly Cushion.
- Slide shock stud into upper mount.
- Install second poly Cushion.
- Install second retainer.
- Install self locking nut, turn down until cushions begin to compress, then tighten an additional three (3) turns- **DO NOT TIGHTEN EXCESSIVELY!**

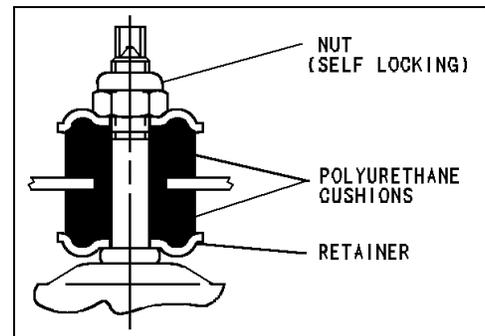


Figure 4.

- Push lower shock eye with T-Bar into position and re-install lower OE shock bolts. **NOTE: You may need to raise axle housing to bolt up shocks.**
- Repeat for opposite side.
- Reconnect sway bar links.



3 Installation of Rear Suspension

3.1 Removal of Original Rear Suspension

- Support axle housing with floor jack or underhoist stand.
- Disconnect both sway bar links
- Remove hardware holding shocks in place and remove shocks.
- Remove coil retaining clips, if so equipped.
- Lower axle housing to free the original coil springs.
- Remove original coil springs from vehicle, making sure to note pigtail placement on the bottom of the coil.

3.2 Panhard Rod Bracket Installation

- Installation of the Panhard Rod bracket is covered in detail in the specific installation instructions included with the bracket.

3.3 Bumpstop Spacer Installation

- Pull rear bumpstop from retaining cup.
- Remove bumpstop cup bolt located inside the retaining cup.
- Place bumpstop spacer between cup and tower.
- Fit longer OME bumpstop cup bolt.



3 Installation of Rear Suspension

3.4 OME Rear Coils Installation

IMPORTANT:

Old Man Emu TJ coils have a different free height for the right and left hand side of the vehicle. Each coil is marked with a 'RH' (Right Hand) or 'LH' (Left Hand) tag, depending on its designated location when installed on a *right hand drive* vehicle. If this suspension is being fitted to a left hand drive vehicle, install as directed below.

- Remove the Old Man Emu coils from the box, set them side-by-side and note which coil is the taller of the two.
- Install the taller of the coils to the right hand side of the vehicle by inserting the small end of the coil up over the bumpstop and into position against the upper spring seat and then onto the lower spring seat. You may need to push down on the axle housing to gain enough clearance to position the coil onto the lower seat. Rotate the bottom pigtail on the coil into proper position as noted above.
- Re-install coil retaining clip, if so equipped.
- Install the shorter coil to the left hand side of the vehicle using the same process as above.

3.5 OME Rear Shock Installation

- Follow instructions in section 2.3.1 to install T-Bar into upper shock eye.
- Lift T-Bar end of shock up into the upper shock mounting position and install re-using OE shock mounting bolts.
- Follow steps covered in section 2.3 OME Front Shock Install, Fig. 4 to install lower shock mounting stud.
- Repeat for opposite side.
- NOTE: You may need to raise axle housing to bolt up shocks.**
- Reconnect sway bar links.



4 Installation of Gearbox Packer Kit

Although instructions for installing the Gearbox Packer Kit are included with the kit, we feel some extra information is warranted.

4.1 Is the Gearbox Packer Kit Needed?

The OME Gearbox Packer kit lowers the gearbox and skidplate slightly to alleviate any vibration that may occur at the rear driveshaft. This is a common effect experienced when a short wheelbase vehicle is lifted. You may not need to use the gearbox packer kit if your TJ is a special edition "Rubicon" model with the 5 speed transmission. Also, there are some aftermarket products that can help alleviate vibration, making the installation of the Gearbox Packer kit optional. Most notable are a short shaft kit for the T-case and CV driveshaft or a body/engine lift combination.

4.2 Gearbox Packer Installation

- Support skid Plate with floor jack or underhoist stand.
- Remove skid plate mounting bolts.
- Lower skid plate just enough to slide in the aluminum packers.
- Insert aluminum packers between skid plate and chassis rails.
- Fit the longer OME bolts (and taper cones if installing on older TJ) into place and torque to manufacturer's specifications.



5 Final Inspection

5.1 Road Test

Following suspension installation, road test the vehicle for a minimum of 5 miles. During the road test, pay special attention to: brake performance, steering response, ride quality, vibrations, handling behavior, steering wheel re-centering, and headlight alignment.

The road test will help settle the suspension prior to ride height measurements, ensuring accurate measurements and comparisons.

A complete 4 wheel alignment must be carried out and required adjustments made to ensure vehicle is within manufacturer's specifications.

5.2 Vehicle Ride Height Measurement

IMPORTANT:

To ensure a level ride height, OME recommends checking the vehicle's trim and rake levels prior to suspension installation. To ensure consistency, all suspension measurements should be taken with the vehicle sitting on a level surface. Start from the bottom of the wheel rim, measure up to the bottom of the fender flare with the tape measure passing directly through the wheel's centerline or hub. A Suspension System Worksheet is provided in section 6.1 of this guide to record important information specific to your vehicle. This will help ensure correct coil spring placement and is required for any warranty claims.

5.3 Vehicle Trimming

Compare the before and after measurements you noted on the OME Suspension System Worksheet. If the vehicle's trim (side-to-side height) is off by more than 3/8", a trim spacer may be added to the low side or the coils can be swapped from side-to-side to level the vehicle's trim. If swapping coils from side-to-side, do not swap both front and rear coils at the same time. Swap the coils only on the end that shows the most amount of trim variance.



5 Final Inspection

5.4 Vehicle Rake

Compare the before and after measurements you noted on the OME Suspension System Worksheet.

If the vehicle's rake (front-to-rear height) is more than desired, it can be adjusted by 3/8" or more by utilizing one or two trim space on both the right and left coils on either the front or rear.

IMPORTANT NOTE: Old Man Emu does not recommend using more than two (2) trim spacers per corner.

If more rake adjustment is needed, it is recommended to re-evaluate spring choices and/or look towards aftermarket coil spacers.

6 Technical Notes

- **IMPORTANT:** Old Man Emu coil springs may vary in free height due to uneven vehicle weight distribution. The coils are marked either a RH or LH tag, which indicates Right hand or Left hand coil placement on *RIGHT HAND DRIVE VEHICLES*. Contrary to these labels, the coils may (and sometimes must) be installed in opposite placement depending on driver positioning and vehicle weight characteristics.
- An additional bumpstop spacer kit (pn# FK16) can be fitted to the front suspension if the vehicle's tires contact the fenders under full suspension compression.
- Any deviation from Old Man Emu parameters may affect your warranty. In addition, suspension performance and vehicle safety could be sacrificed.
- Old Man Emu coil springs and shock combinations are specifically matched to each other, creating an integrated suspension system. For best results, refrain from using another manufacturer's springs or shocks to substitute any parts in your Old Man Emu suspension system.
- Correct fitment of shock absorber T-bar hardware must happen to prevent premature bushing failure due to poor bushing containment. Please refer to section 2.3 OME Front Shock Install for proper assembly sequence.



6 Technical Notes

6.1 Suspension System Worksheet

IMPORTANT:

The following Suspension System Worksheet must be completed at time of installation and submitted to the Old Man Emu warranty department in order to activate your 24 month / 25,000 mile warranty. Refer to the contact information on the inside front cover of this installation guide to submit your worksheet.

PURCHASE DATE:				INSTALLATION DATE:			
1. CUSTOMER INFORMATION							
NAME:				RETAILER:			
LOCATION:				LOCATION:			
PHONE:				PHONE:			
2. VEHICLE INFORMATION							
MAKE:				MILEAGE:			
MODEL:				USAGE:			
YEAR:				OTHER:			
3. LOAD INFORMATION (LIST ANY INFORMATION THAT WILL AFFECT VEHICLE WEIGHT)							
FRONT				REAR			
APPROX. WEIGHT				APPROX. WEIGHT			
BUMPER:				BUMPER:			
WINCH:				RACK:			
ENGINE:				PASSENGERS:			
OTHER:				OTHER:			
TOTAL WEIGHT:				TOTAL WEIGHT:			
4. MEASUREMENTS							
BEFORE				AFTER			
LEFT FRONT		RIGHT FRONT		0 mi		LEFT FRONT	
				300 mi		RIGHT FRONT	
LEFT REAR		RIGHT REAR				LEFT REAR	
						RIGHT REAR	
1. CUSTOMER INFORMATION				3. LOAD INFORMATION			
NAME: Customer name				FRONT BUMPER: Bumper type and weight			
LOCATION: Customer city and state				FRONT WINCH: Winch type and weight			
PHONE: Customer phone number				FRONT ENGINE: Engine type, size, and weight difference			
RETAILER: ARB/OME dealer				if engine conversion performed (petrol/diesel/4cyl/6cyl/8cyl)			
LOCATION: Location of retailer				FRONT OTHER: Other information that may affect vehicle weight (dual battery)			
PHONE: Retailer phone number				REAR BUMPER: Bumper type, weight, and accessories (stock/aftermarket/tire carrier)			
2. VEHICLE INFORMATION				REAR RACK: Rack type, weight, and location (roof/outboard)			
MAKE: Vehicle make				REAR PASSENGERS/CARGO: Typical, minimum, & maximum cargo weight			
MODEL: Vehicle model				REAR OTHER: Other information that may affect vehicle weights such as vehicle			
YEAR: Vehicle model year				top and trailer tongue weight (hard top/soft top)			
MILEAGE: Vehicle mileage				4. MEASUREMENTS			
USAGE: Vehicle usage (% off-road/% towing)				STOCK SUSPENSION: Height measurements before installing OME suspension			
OTHER: Other important vehicle information				0 MI: Height measurements immediately after installing OME suspension			
(body lift/chassis damage/existing modifications)				300 MI: Height measurements with OME suspension after 300 miles			



6 Technical Notes

6.2 Fitting Kit Diagrams

Installation of the following components is covered in the detailed fitting instructions supplied with each fitting kit.

FIG. A REAR PANHARD ROD EXTENSION BRACKET (#FKWTJ02)

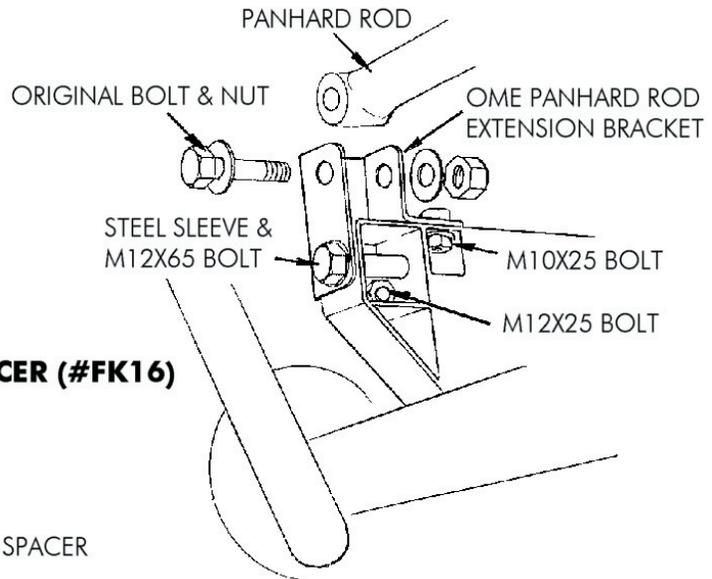


FIG. B REAR BUMPSTOP SPACER (#FK16)

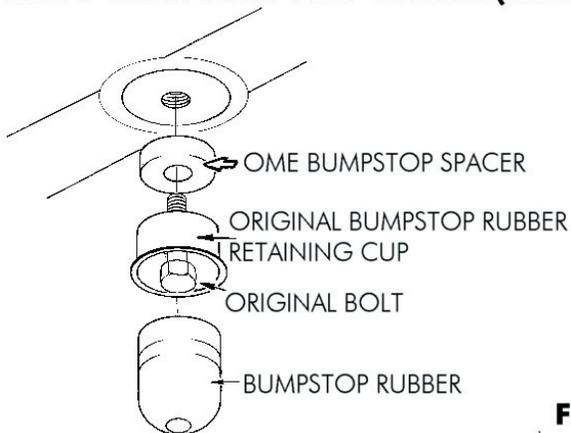
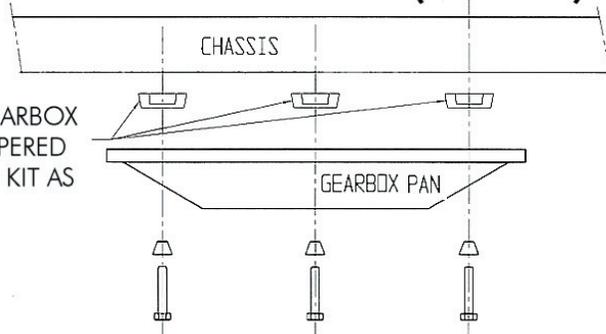


FIG. C GEARBOX PACKER (#JWKG01)



PLACE ALUMINIUM PACKERS BETWEEN GEARBOX PAN AND CHASSIS, USING BOLTS AND TAPERED CONE WASHERS SUPPLIED WITH FITTING KIT AS PER DIAGRAM.



7 Parts List

7.1 Itemized Parts List: OMETJLK

1997-02 Jeep Wrangler TJ, Stock/Light Load, 1.50-2.0" Approx. Lift		
QTY	DESCRIPTION	PART #
2	Stock/Light Load Coils, Front	OME932
2	Light Load/Soft Top Coils, Rear	OME941
2	Light Load/Comfort Shocks, Front	N66C
2	Light Load/Comfort Shocks, Rear	N67C
1	Panhard Rod Bracket	FKWTJ02
1	Bumpstop Spacer Kit	FK16

7.2 Itemized Parts List: OMETJHK

1997-02 Jeep Wrangler TJ, Heavy Load, 1.50-2.0" Approx. Lift		
QTY	DESCRIPTION	PART #
2	Heavy Load Coils, Front	OME933
2	Heavy Load/Hard Top Coils, Rear	OME942
2	Heavy Load Shocks, Front	N66
2	Heavy Load Shocks, Rear	N67
1	Panhard Rod Bracket	FKWTJ02
1	Bumpstop Spacer Kit	FK16

7.3 Optional Parts

Optional (Sold Separately)		
QTY	DESCRIPTION	PART #
1	Steering Damper, 1997 on TJ models	OMESD40
1	Front Trim Spacer, 10mm (3/8")	OMEJGF10
1	Rear Trim Spacer, 10mm (3/8")	OMEWTJPR10
1	Gearbox Packer Kit, 2003 on TJ models w/ Manual Transmission	JWVGK02
1	Gearbox Packer Kit, 2003 on TJ models w/ O.D. Automatic Transmission	JWVGK03

