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# INSTALLATION GUIDE



## TCP RCKM-05

### Manual Rack & Pinion - Left-Hand Drive

### 1971-1973 Mustang/Cougar

### Small-Block or Big-Block Engines



**Description:** High-clearance manual TCP Rack & Pinion with mounting brackets and hardware ONLY. Bracket and center-link combination increases oil-pan and exhaust header clearance. **This product requires installation of bump steer kit (TCP TIER-XX) to maintain correct steering geometry.**

**Applications:** Fits '71-73 Mustang/Cougar with small-block or big-block V8 engines

#### **WARRANTY NOTICE:**

There are NO WARRANTIES, either expressed or implied. Neither the seller nor manufacturer will be liable for any loss, damage or injury, direct or indirect, arising from the use or inability to determine the appropriate use of any products. Before any attempt at installation, all drawings and/or instruction sheets should be completely reviewed to determine the suitability of the product for its intended use. In this connection, the user assumes all responsibility and risk. We reserve the right to change specification without notice. Further, Chris Alston's Chassisworks, Inc., makes **NO GUARANTEE** in reference to any specific class legality of any component. **ALL PRODUCTS ARE INTENDED FOR RACING AND OFF-ROAD USE AND MAY NOT BE LEGALLY USED ON THE HIGHWAY.** The products offered for sale are true race-car components and, in all cases, require some fabrication skill. **NO PRODUCT OR SERVICE IS DESIGNED OR INTENDED TO PREVENT INJURY OR DEATH.**

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# PARTS LIST

## RCKM-05 - Manual Rack and Pinion, Increased Clearance SB or BB Mustang Left Hand Drive

Qty	Part Number	Description
1	7900-292	Mounting bracket and frame plate kit
1	TCP COLM-06	Column lower bushing
1	TCP EE-02	Eccentric eliminator kit
1	TCP ISFT-05	Intermediate steering shaft with U-joints
1	TCP RCKM-05	Manual rack and pinion, left-hand drive, increased clearance Mustang/Cougar
1	TCP TIER-03	Rack tie-rod adapters

## 7900-292 - Mounting Bracket Set

Qty	Part Number	Description
3	7900-100	Clamp collar drilled half
1	7900-113	Frame bracket, passenger side
2	7900-115	Lower-arm bracket
1	7900-287	Frame C-notch plate
1	7900-290	Mounting plate (weld-in), driver side
1	7900-291	Mounting plate (weld-in), passenger side
1	7918-073	Hardware bag

## 7918-073 - Hardware Bag

Qty	Part Number	Description
2	3100-050-C1.50Y	Bolt, 1/2-13 x 1-1/2" hex head Grade 8
2	3100-050-C4.50Y	Bolt, 1/2-13 x 4-1/2" hex head Grade 8
2	3101-050-13C	Locknut, 1/2-13 nylon insert
6	3103-031F1.00C	Socket head, 5/16-24 x 1" cap screw
6	3108-031H-S	High-collar lockwasher, 5/16", stainless steel
2	3108-050L-C	Lockwasher 1/2" regular
6	3120-050S-Y	Washer, 1/2" hardened flat SAE
2	7900-022	Frame spacer, 1.175 x 1.875 x .25 thick, slotted
2	7900-203	Frame spacer, 1.175 x 1.875 x .125 thick, slotted

# INSTRUCTIONS

A detailed video is available online that covers basic installation. Visit the rack and pinion page of the TCP website for viewing.

[www.totalcontrolproducts.com/rack.html](http://www.totalcontrolproducts.com/rack.html)



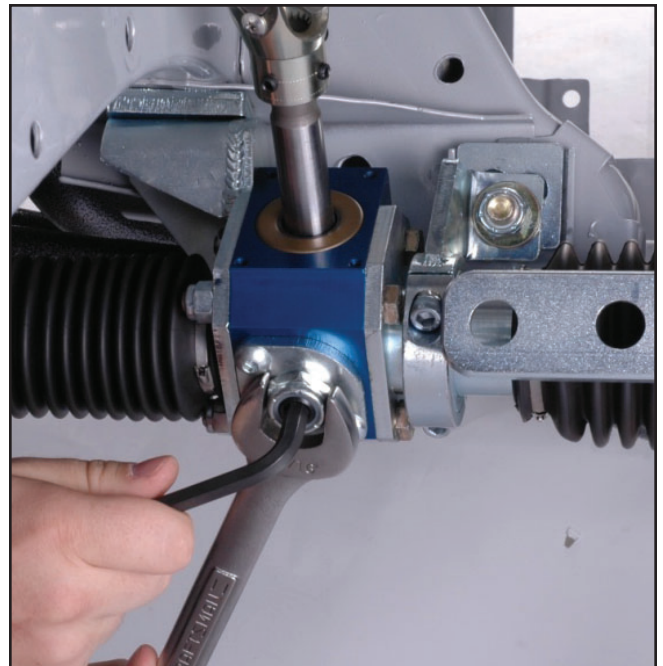
## TROUBLE SHOOTING

### Check for Binding

At each step of final tightening, the rack must be checked for binding or tightness throughout its range of travel. A slight bend in the rack tube or the tube being pinched into a slight oval will create additional friction against the rack's internal guide bushing or piston (power rack). Binding symptoms, probable causes, and solutions are explained in the following steps.

1. Using an even motion, turn the steering wheel from lock-to-lock. The amount of resistance should feel even from one end of the travel range to the other. Any noticeable increase or decrease in tension indicates a possible issue.

- **Notchy feeling or bump every 1/8th turn** – The pinion set screw adjustment at the base of the pinion housing is too tight. Loosen the large lock nut (15/16" hex) surrounding the set screw (5/16" allen) at the bottom of the pinion housing. While lightly rocking the steering wheel back and forth, tighten the set screw until it is seated then loosen 1/4 turn. Hold the set screw in position with an allen wrench and tighten the lock nut. The steering should feel smooth and have 1/16" to 1/8" of play at the steering wheel. Too loose of an adjustment allows excessive play at the steering wheel. Too tight of an adjustment makes steering overly sensitive and can prevent the system from returning to center while driving.
- **Notchy feeling or bump every 1/2 or 1/4 turn** – This usually indicates a binding condition at the intermediate steering shaft u-joints. Verify that the steering shafts do not extend into the open area of u-joint, causing it to bind.
- **Gradual increase in resistance** - The rack tube may be slightly bent due to bracket misalignment. This must be corrected before proceeding.
- **Light variations in tension** – This is very common and will smooth out once the internal guide bushings have developed wear patterns (approx. 1,000 miles); similar to piston rings seating within a cylinder.



2. Continue by tightening the passenger-side outer clamp to 13-15 lb-ft., and check for binding.
  - **Tightness near full-left lock (manual rack) or center of travel (power rack)** indicates that the passenger-side clamp has created one of the following issues.
    - The clamp is too tight and needs to be loosened slightly.
    - The clamp is not square to the bracket-side clamp. Check by measuring the gap at the opposite ends of the clamp.
    - There is debris, a burr, or other imperfection on the clamp or rack tube that must be removed.
    - Recheck for binding.
3. Tighten the two inner clamps to 13-15 lb-ft., and check for binding.
  - **Tightness near full-left lock (manual rack) or center of travel (power rack)** indicates that the passenger-side clamp has created one of the following issues.
    - The clamp is too tight and needs to be loosened slightly.
    - The clamp is not square to the bracket-side clamp. Check by measuring the gap at the opposite ends of the clamp.
    - There is debris, a burr, or other imperfection on the clamp or rack tube that must be removed.
    - Recheck for binding.

### Tie-Rod Installation

4. Verify that the rack has full travel.
5. Turn the steering wheel to full left lock.
6. From one of the frame rails, measure the distance that the center link travels from full left to full right lock. The rack should travel 6-3/8".
7. If travel is less than 6-3/8", look for binding at the u-joints or with exhaust headers that may be limiting travel.



### Centering the Rack and Pinion

8. From full right lock, move the center link 3-3/16" toward the left. This is the rack and pinion's center of travel.
9. Tie-rod assemblies can now be installed as described in their respective installation guides (7903-TIER-XX).
10. Installation of inner tie rod requires use of vehicle specific tie-rod adapter packaged with rack and pinion.
11. Adjusting the tie-rods to correctly set the alignment toe must be done with the suspension fully weighted and the rack and pinion at its center of travel.
12. Recheck all hardware for each portion of the steering system (aftermarket and OEM) to ensure it has been tightened to the proper torque specification. The installation for the complete subframe connector package is complete.