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> CUSCO SPORT S Coilover Kit Instruction Manual for Toyota GR86 / Subaru BRZ (Model 6C1-64S-CN)

Cusco 6C1-64S-CN

CUSCO SPORT S Coilover Kit Instruction Manual

Model: 6C1-64S-CN

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1. INTRODUCTION

Thank you for purchasing the CUSCO SPORT S Coilover Kit. This product is designed to provide superior handling and ride comfort for both street and circuit driving. It features a large-capacity mono-tube shock absorber with 24-step damping force adjustment and full-length ride height adjustment. Please read this manual thoroughly before installation and use to ensure proper operation and safety.

2. SAFETY PRECAUTIONS

- Installation should only be performed by qualified professionals with appropriate tools and knowledge. Improper installation can lead to serious accidents or product damage.
- Always wear appropriate personal protective equipment (PPE) during installation and adjustment.
- Ensure the vehicle is securely supported on a lift or jack stands before beginning any work. Never work under a vehicle supported only by a jack.
- Do not modify the product in any way. Unauthorized modifications can compromise safety and void the warranty.
- After installation, perform a thorough inspection of all fasteners and connections. Re-check torque specifications after the first 100 km of driving.
- Regularly inspect the coilovers for any signs of damage, leaks, or wear.

3. COMPONENT LIST

The CUSCO SPORT S Coilover Kit includes the following main components:

- Front Coilover Assemblies (2)
- Rear Shock Absorbers (2)

- Rear Springs (2)
- Upper Mounts (Pillow ball or Reinforced Rubber, depending on application)
- Adjustment Wrenches
- Instruction Manual



Figure 3.1: Overview of the CUSCO SPORT S Coilover Kit components. This image displays the front and rear shock absorbers, springs, and upper mounts.



Figure 3.2: CUSCO SPORT S product branding and a close-up of a coilover unit.

4. VEHICLE COMPATIBILITY

This CUSCO SPORT S Coilover Kit (Model: 6C1-64S-CN) is compatible with the following vehicles:

- **Toyota GR86** (Model: ZN8), manufactured from October 2021 onwards.
- **Subaru BRZ** (Model: ZD8), manufactured from August 2021 onwards.

Note: Always verify compatibility with your vehicle's specific model, engine type, drive system, and year using the manufacturer's official website or product catalog before installation.

5. SETUP & INSTALLATION

5.1 Pre-Installation Checks

- Confirm all components are present and undamaged.
- Ensure the vehicle is on a level surface and properly secured.
- Refer to your vehicle's service manual for specific torque specifications and removal procedures for original suspension components.

5.2 Front Coilover Installation (Strut Type)

1. Remove the front wheels.
2. Disconnect brake lines, ABS sensors, and any other components attached to the original strut assembly.
3. Unbolt the lower strut mount from the knuckle.
4. Remove the upper strut nuts from the engine bay. Carefully remove the original strut assembly.
5. Install the CUSCO SPORT S front coilover. Ensure the upper mount is correctly oriented.
6. Secure the upper mount nuts to the specified torque.
7. Attach the lower strut mount to the knuckle. The front coilovers feature an inverted (ram type) shock absorber design for enhanced rigidity.
8. Reconnect all brake lines, ABS sensors, and other components.



- 単筒式ショックアブソーバー
- 減衰力24段調整
- 新開発CUSCO SPORT「Blue spring」採用
- 全長調整式車高調整
- ラム式（倒立式）ショックアブソーバー
※フロントストラット式のみ
- ハイグリップラジアルタイヤ対応

CUSCO SPORT S開発コンセプト

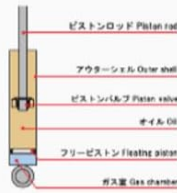
- SPORT Rの設計思想・スペックをそのままに、より多くのユーザーを対象とするストリート向けに減衰力・バネレート・ストロークをセッティング
- スポーブラジアルタイヤでのスポーツ走行をターゲットとしたセットアップ
- ストリートでの使用を考慮し（音、乗り心地など）リアアッパーマウントには強化ゴムアッパーマウントを採用（ウィッシュボーン車は前後共に採用）
- 大きな入力にもしっかり対応する為、大口径ピストンを使用し安定した減衰力を発生

こんな方にオススメです！

- スポーブラジアルタイヤをメインにスポーツ走行を行う方（Sタイヤメインで走行する方はSPORT Rがオススメ）
- 街乗り、通勤時の乗り心地を求める方

Figure 5.1: Close-up of the front coilover upper mount. This shows the mounting points and the top of the shock absorber shaft.

『CUSCO SPORT エス』の主な仕様



◎ 単筒式ショックアブソーバー

ショックアブソーバー本体が一本の筒になっている構造。ピストン径を大きくし、バルブなどの改善によって路面からの微細な入力により繊細な減衰力を発生させ、より速いピストンスピードにも追従します。またシリンダー（筒）が直接外気に接するため放熱性に優れ、安定した減衰力特性を発揮します。



◎ 減衰力24段調整

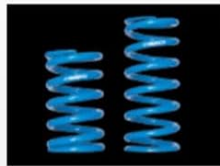


街乗りからサーキット走行まで緻密な設定を可能にする、超精密特殊ニードルバルブの減衰力24段調整



◎ 全長調整式車高調整

車高を下げてでもサスペンションストロークが変わらない「全長調整式」。きめ細かい車高調整と、高い乗り心地を両立しました



◎ 新開発CUSCO SPORT「Blue spring」採用

ダブルショットピーニング加工による強度アップと耐へたり性能を大幅に向上し、公差を極めて小さくすることで、これまで以上の緻密なセッティングを可能にしました。



◎ アッパーマウント



センターロック
ピロアッパーマウント

CCピロアッパ
マウント

ストラットタイプのフロントには、キャンバー調整式ピロアッパーマウントを採用、それ以外には、キャンバー固定式強化ゴムアッパーマウントを設定。

アッパーマウントレス構造車には、センターロック・ピロアッパーマウント（別売）の装着が可能です。

フロントストラットタイプの一部車種には、新開発CCピロアッパーマウント(キャンバー・キャスター独立調整タイプ)をオプション設定しています。

Figure 5.2: Detail of the front coilover lower bracket, which connects to the vehicle's knuckle.

5.3 Rear Shock Absorber and Spring Installation

1. Remove the rear wheels.
2. Remove the original rear shock absorbers and springs.
3. Install the CUSCO SPORT S rear springs into their designated seats.
4. Install the CUSCO SPORT S rear shock absorbers, securing both upper and lower mounting points to the specified torque.

5.4 Post-Installation

- Reinstall all wheels and torque lug nuts to vehicle manufacturer specifications.
- Lower the vehicle and perform an initial ride height adjustment (see Section 6.1).
- Perform a wheel alignment immediately after installation and ride height adjustment.
- Test drive the vehicle carefully to ensure proper function and no abnormal noises.

6. OPERATING & ADJUSTMENT

6.1 Ride Height Adjustment (Full-Length Type)

The CUSCO SPORT S coilovers feature a full-length adjustment mechanism, allowing ride height changes without altering the spring preload or shock stroke. This ensures optimal suspension performance regardless of ride height.

1. Loosen the lower lock collar and the main body lock collar using the provided adjustment wrenches.
2. Rotate the main body of the shock absorber to raise or lower the vehicle. Turning clockwise lowers the vehicle, and counter-clockwise raises it.
3. Once the desired ride height is achieved, tighten both lock collars securely to prevent movement.
4. Ensure both left and right sides are adjusted equally to maintain balance.



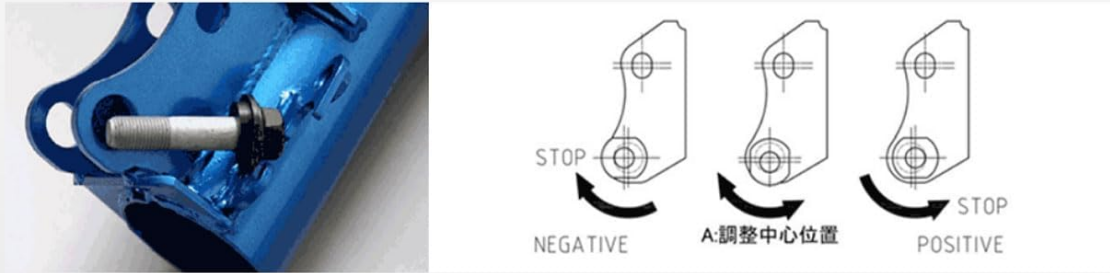
Figure 6.1: Close-up of the threaded shock body for full-length ride height adjustment. This mechanism allows height changes without affecting spring preload.

6.2 Damping Force Adjustment (24-Step)

The shock absorbers feature 24 levels of damping force adjustment, allowing fine-tuning for various driving conditions, from comfortable street use to aggressive circuit driving. The adjustment knob is typically located at the top of the shock absorber shaft (front) or bottom (rear, depending on design).

1. Locate the damping adjustment knob.
2. Turn the knob clockwise for firmer damping (harder ride) and counter-clockwise for softer damping (softer ride).
3. Each click represents one step of adjustment. Start from the softest setting and gradually increase until the desired feel is achieved.
4. Ensure all four corners are adjusted consistently for balanced handling.

キャンバー調整式ブラケット（ストラット式フロントのみ）



ストラット式サスペンション車のナックルブラケット側にキャンバー調整機能を設け、キャンバー調整式アッパーマウントが装着できなかった車種でのキャンバー調整が可能。キャンバー調整式ピロアッパーマウントを採用している車種においても、ナックルブラケット側にもキャンバー調整機構を設ける設計にしております。（純正のキャンバー調整ボルトを使用する場合があります。）

Figure 6.2: Close-up of the 24-step damping force adjustment knob, typically found at the top of the shock absorber.

6.3 Front Camber Adjustment

For strut-type front suspensions, camber adjustment is possible via the pillow ball upper mount and/or an eccentric collar on the knuckle bracket. This allows for a camber range of approximately -1.5° to -4.5° .

- **Upper Mount Adjustment:** Loosen the bolts on the pillow ball upper mount and slide the mount to adjust camber.
- **Knuckle Bracket Adjustment:** Some models may utilize an eccentric collar on the knuckle bracket for additional camber adjustment.
- Always perform a wheel alignment after any camber adjustments.



Figure 6.3: Diagram illustrating the camber adjustment mechanism on the knuckle bracket, showing negative, center, and positive positions.

7. MAINTENANCE

- **Regular Inspection:** Periodically inspect the coilovers for any signs of oil leaks, rust, damage to the dust boots, or loose fasteners.
- **Cleaning:** Keep the coilover bodies and threads clean from dirt and debris. Use a mild soap and water solution. Avoid harsh chemicals that may damage coatings.
- **Thread Lubrication:** Apply a thin layer of anti-seize grease to the threaded sections of the shock body to prevent corrosion and ensure smooth ride height adjustments.
- **Re-torque:** After initial installation and after any adjustments, re-torque all mounting bolts to the specified values.
- **Overhaul Service:** CUSCO offers an overhaul service for the SPORT S coilovers, which can include damping force and stroke changes. Contact CUSCO support for details.

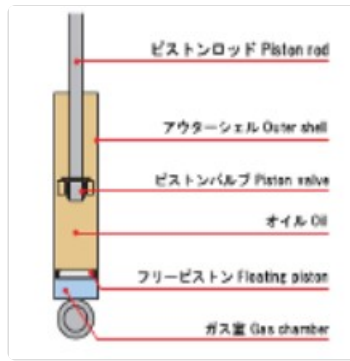


Figure 7.1: Cross-section diagram of a mono-tube shock absorber, illustrating its internal components like the piston rod, piston valve, and gas chamber.

8. TROUBLESHOOTING

Problem	Possible Cause	Solution
Abnormal noise from suspension	Loose mounting bolts, damaged bushings, spring coil bind, incorrect installation.	Check all mounting bolts for proper torque. Inspect bushings and springs for damage. Re-verify installation steps.
Uneven ride height	Incorrect ride height adjustment, uneven spring preload.	Re-measure and adjust ride height on all four corners. Ensure lock collars are tightened.
Poor ride comfort or handling	Incorrect damping force setting, improper spring rate for application, incorrect tire pressure.	Adjust damping force settings. Check tire pressures. Consider professional tuning if issues persist.
Oil leakage from shock absorber	Damaged seal, internal component failure.	Discontinue use and contact CUSCO support or an authorized service center for inspection and repair/replacement.

9. SPECIFICATIONS

- **Model:** CUSCO SPORT S (6C1-64S-CN)
- **Shock Absorber Type:** Mono-tube
- **Damping Force Adjustment:** 24-step
- **Ride Height Adjustment:** Full-length adjustable (Full-tap type)
- **Front Shock Design:** Inverted (Ram type) strut
- **Upper Mount:** Pillow ball type or Reinforced rubber type (application dependent)
- **Front Camber Adjustment Range:** Approx. -1.5° to -4.5° (via upper mount and/or knuckle bracket eccentric collar)
- **Springs:** CUSCO SPORT "Blue spring"
- **Corrosion Protection:** Anti-rust coating, 500-hour salt spray test cleared for threaded parts.
- **Manufacturing:** Domestic production (Japan), ISO9001 certified, ASEA standard compliant.
- **Weight:** Approximately 30 kg (packaged)
- **Package Dimensions:** 70 x 50 x 40 cm

10. WARRANTY & SUPPORT

CUSCO SPORT S Coilover Kits come with a manufacturer's warranty of **1 year or 10,000 km**, whichever comes first.

User registration is required to activate the warranty.

For warranty claims, technical support, or inquiries regarding overhaul services, please contact CUSCO customer service or an authorized CUSCO dealer. Please have your product model number (6C1-64S-CN) and proof of purchase ready.

Manufacturer: Cusco ()

Official Website: www.cusco.co.jp (Please check for the latest contact information and product details.)