shelby american, inc. 6501 w. imperial hwy. los angeles, calif. 90009
COBRA SHELBY G.T. 350 FORD G.T.
telephone: 213-674-1961 cable address: shelcha

Engineering Department
Service Bulletin

July 1, 1966

TO: All Shelby American Hi-Performance Dealers and Competition Drivers of GT 350 and Group II Mustangs

SUBJECT: In-Vehicle Adjustment of KONI Shock Absorbers

Gentlemen:

The following information applies to the correct adjustment of the Koni shock Absorber.

HOW THE KONI ADJUSTABLE SHOCK ABSORBER WORKS

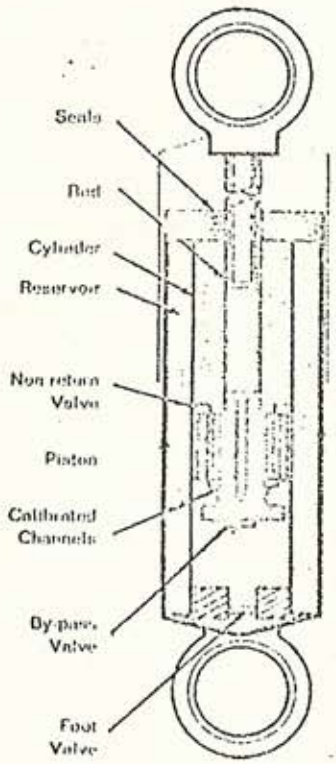
All modern shock absorbers absorb energy developed by the movement of the suspension system. This is accomplished by forcing oil through carefully calibrated holes of various sizes. The engineer in designing the shock absorber has to consider the viscosity or "thickness" of the oil, the energy that has to be absorbed, and variations in control under a wide range of conditions.

The shock absorber makes only two motions, "bump" and "rebound". "Bump" is the motion that compresses the shock absorber when the suspension hits an obstacle, such as a rock, in the road. "Rebound" is the motion that extends the shock absorber after bump has occurred.

The proper relationship of bump and rebound for the modern soft suspension system is of great concern since an improper setting of the adjustable shock absorber either does not adequately absorb the shock (and the suspension hits the stops or "bottoms") or allows the spring to continue Movements over a long period of time (wallowing).

In-Vehicle Adjustments of KONI Shock Absorbers, Cont'd.

HOW THE KONI ADJUSTABLE SHOCK ABSORBER WORKS (CONT'D



The arrangements of the valves and passageways shown in this cutaway of a KONI shock absorber allows the KONI engineers to very carefully tailor the control of the KONI shock to the specific requirements of the suspension. Here is how the KONI operates.

BUMP

Shock absorber being compressed. The piston is forced down through the cylinder. The non-return valve opens, allowing oil to pass thru the piston. Since the volume of the piston rod increases as the rod enters the cylinder, oil is forced thru the foot valve under pressure, slowing the motion of the rod.

REBOUND

Shock absorber being extended.
The piston is forced upward through the cylinder. The non return valve (opened during bump) is closed, placing the oil above the piston under pressure. However, oil is passed through the piston via two controlled passages. The bypass passage opens when the spring on the bypass valve is overcome (under high pressures.) Pressure is normally controlled by oil passing through the calibrated channels, the number of channels available being controlled by the adjustment.

Oil to make up for the decreasing volume of the rod within the cylinder is drawn from the reservoir through the foot valve.

No special tools are required to adjust the KONI shock absorber. The adjustment has two purposes. It can be utilized to compensate for use so that, after many miles of driving, a small amount of adjustment will bring the shock absorbers up to as-new performance. At any time during their life larger adjustments can be made to give a firmer ride for competition purposes.

In-Vehicle Adjustments of KONI Shock Absorbers, Cont'd.

New KONI shock absorbers run a little stiffer than normal until their special rod seal is bedded in. New cars are delivered with their KONI shocks set at the minimum setting. You are advised to retain this setting after the bedding-in period which takes about 500 miles of normal driving or one to two short races.

HOW TO ADJUST THE FRONT KONI SHOCK ABSORBERS

To adjust a KONI shock absorber it must be collapsed completely.

1. Work from the top under the hood. The front wheels must be on the ground because the shocks also serve as rebound stops.

2. Undo two shock absorber mounting bolts. Draw piston rod up to clear top of bracket.

3. Undo three upper bracket retaining nuts. Watch so that they do not drop into the spring.

4. Remove the bracket. Your weight on the fender will then bring the shock absorber into a convenient position.

5. Push the piston rod down until it will go no further. While still pushing turn the rod COUNTERCLOCKWISE until you feel resistance or a slight further collapse and then resistance. You will not have to turn more than 90 degrees to obtain this extra collapse.

6. You have now engaged the dog clutch of the adjuster. It has a right hand thread. Screwing it in firms the damping, unscrewing softens it.
   (New shocks are already set at the softest point)
   There are three full turns of 360 degrees of adjustment. Each half turn of 180 degrees is the normal minimum adjustment.
   NOTE: There are no click stops.

7. To set the KONI shock, keep firm hand pressure down on the piston rod to keep the clutch engaged, check that you are at the minimum setting with hand pressure only (counter-clockwise), then count off half turns clockwise to the setting you want.

In-Vehicle Adjustment of KONI Shock Absorbers, Cont'd.

HOW TO ADJUST THE FRONT KONI SHOCK ABSORBERS; (CON'T)

8. Extend the piston rod at least half an inch without turning to disengage adjuster. The rod can now be turned freely and extended to a convenient position for refitting of upper bracket and reconnection of the shock. NOTE: It is under no circumstance necessary to completely remove the shocks in order to perform necessary adjustments.

Enclosed find a photo illustration of the front KONI SHOCKS being adjusted.

HOW TO ADJUST THE REAR SHOCK ABSORBERS

Work from under the car.

1. Note the position of the rubber bushes and washers on the lower mounting stud; then disconnect it.

2. Push lower barrel of shock upwards to engage dog clutch of adjuster as mentioned in steps #5 and #6 above, on page 3.

3. With hand pressure only, check that shock is in minimum position (fully counter-clockwise), then mark upper and lower barrels for reference.

4. Adjust shock absorber as in step #7, page 3. Make sure top half of shock does not turn during adjustment.

5. Extend shock absorber for reconnection pulling out the first half inch without turning.

6. Reconnect shock absorber, compressing rubbers enough to expose about five threads on the stud before replacing the lock nut. Enclosed find a photo illustration of the rear shock absorber being adjusted.

To adjust for wear, one half turn will usually be enough to compensate for any detectable loss of damping force due to long use. Adjustment for wear will only be required very occasionally.

For the competion GT 350 and the Group II Mustang, individual drivers will tend to find their own setting but tests have shown that on a new car 1.5 turns at the front and 2 turns at the rear work out well.

In-Vehicle Adjustment of KONI Shock Absorbers, Cont'd.

NOTE: A pair of KONI shock absorbers for the same car adjusted the same number of half turns will always balance. If in doubt, turn back to the minimum setting; then count in half turns to new setting.

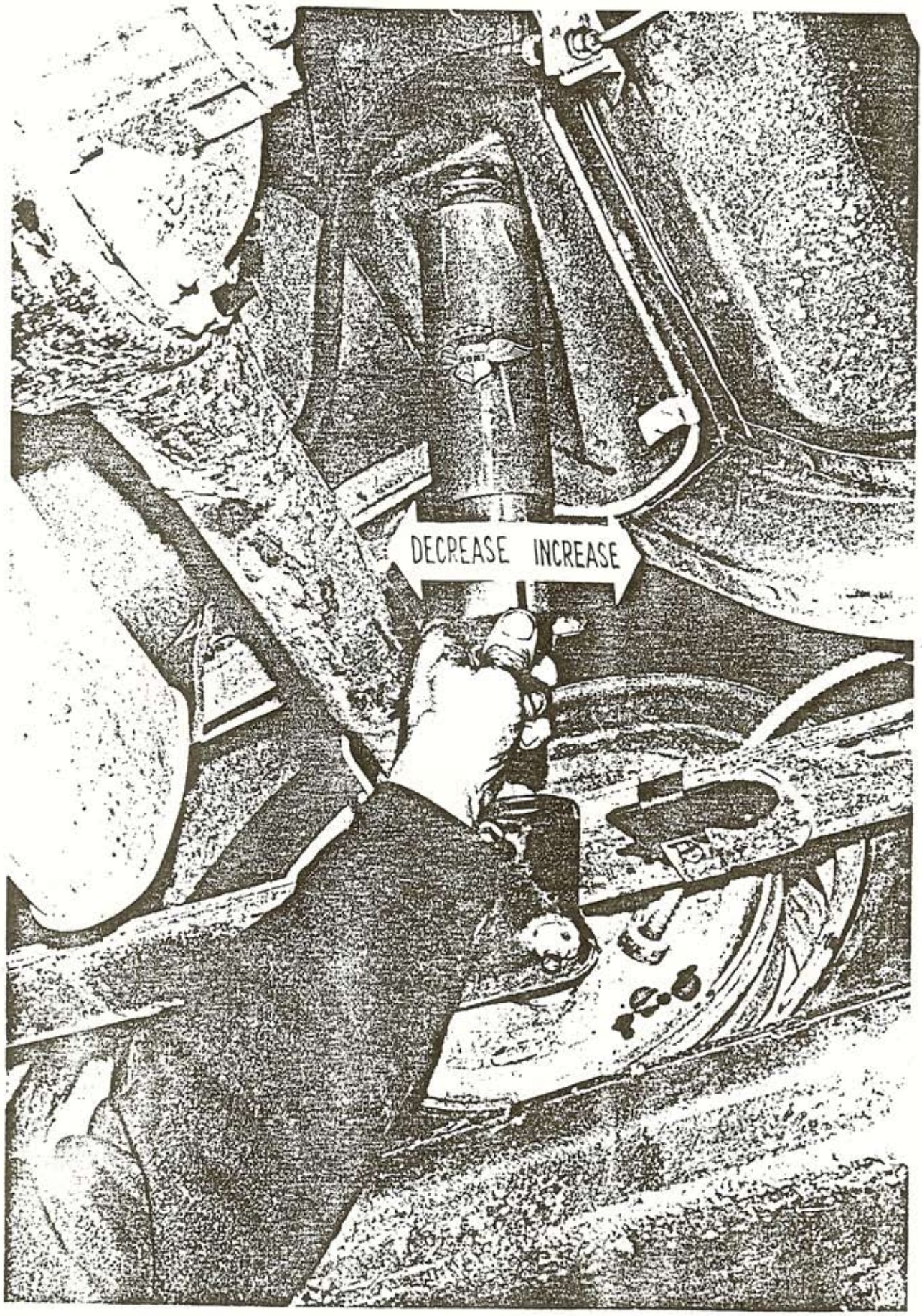
SHELBY AMERICAN, INC.

H. Neumann
Service & Warranty Manager

J. Lichfield
Administrative Engineer

HN/hn

Enclosures:
Photo Illustrations


DECREASE INCREASE

FRONT