MAXUS

Mechanical Suspensions Maintenance Manual

MaxiPARTS

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MAXUS SUSPENSION INSTALLATION GUIDE

NEW SUSPENSION

1. Fitting of Hanger Castings and Equalizer Brackets

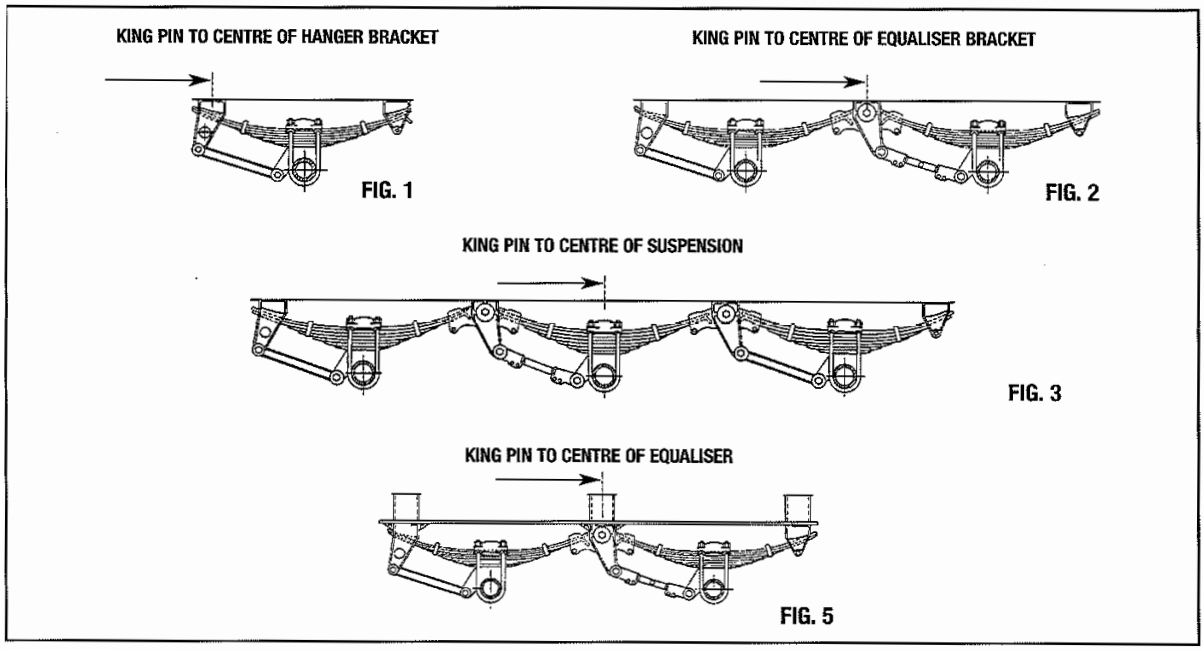
Note: This is a normal procedure to commence the building of new suspensions in an inverted position.

A. Single Axle: Position the front hanger bracket by measuring from the king pin to the centre of the casting. The rear hanger position can then be located from the front hanger after reference to the assembly drawing (**fig.1**)

B. Tandem Axle: The equalizer should be positioned first by taking a measurement from the king pin to the center of the equalizer bracket. The front and rear hanger castings can then be positioned by measuring from the centre pin of the equalizer bracket to the appropriate hanger bracket, again after reference to the assembly drawing (**fig.2**)

C. Tri- Axle: Installation again as above after reference to assembly drawing to ascertain axle centers (**fig.3**).

D. Sub-Frame: When installing a suspension to a sub-frame, check the sub-frame for squareness before the equalizer bracket position is found. The front and rear hanger brackets can then be positioned from the equalizer bracket, and the sub-frame set in position on the trailer by taking a measurement from the king pin to the centre of the equalizer brackets (**fig.5**).



E. Check: All castings should firstly be tack welded in place. A careful check should then be made to ensure that the hangers and brackets are correctly located and are square with the frame. Final welding can then be carried out (with low hydrogen electrode with a minimum of 8mm fillet weld around all sides of the bracket).

F. Gussets: It is recommended that gussets are fitted in all instances where brackets are welded to underside of frame (**fig.6**).

G. Pipe Brace: After all hangers and equalizers have been installed, cut pipe braces to fit between right and left front hangers, equalizer brackets and rear hangers on tri-axle suspension. For positioning of braces see fig. 6, cut length to suit, recommended size 60mm O/Dx4.00mm wall minimum.

H. Slope: Always take into account the angle of slope, if the slope angle is excessive, it will cause equalizer to tilt and strike the frame under uneven road conditions. This can be overcome by specifying higher spring seats on the forward axle than the seats at the rear or alternatively by welding packing pieces into the existing spring seats.

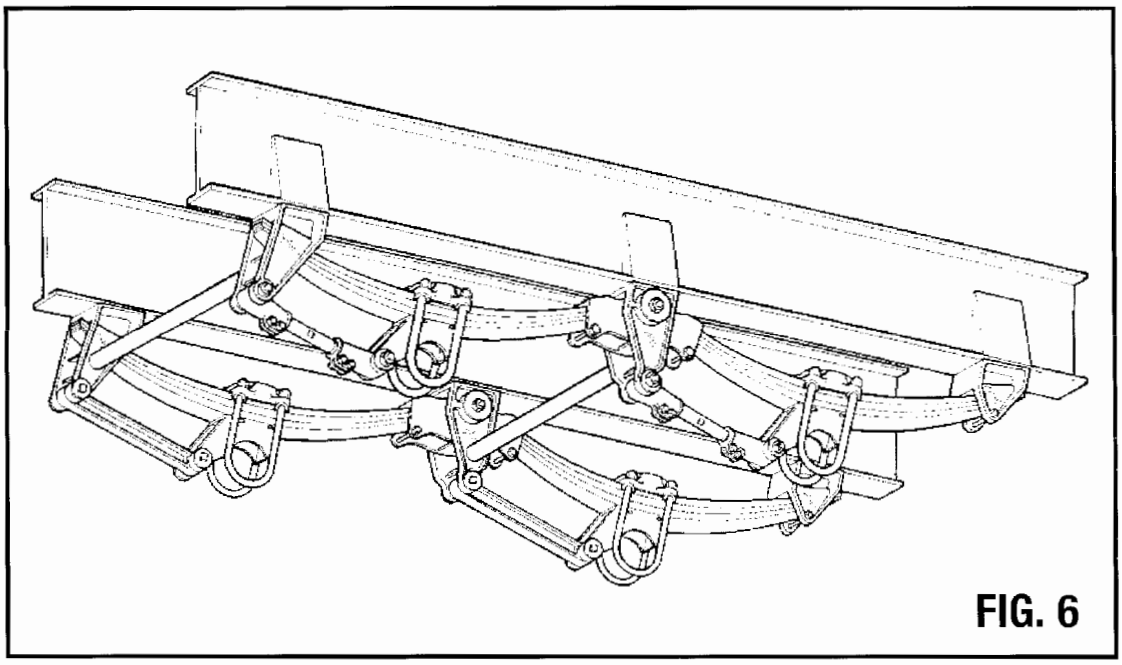


FIG. 6

2. Assembly to Frame

Note: One important aspect of assembly which should always be closely watched is the allowance of sufficient clearance in the positioning of air chambers, brackets, etc., for the withdrawal of torque arm bolts and the equalizer bolt.

A. Fitting Of Spring Seats And Spring To Axle:

(i) Weld spring seats into position on axle to predetermined centers. Refer spring seats welding drawing for instructions. Ensure the axles and spring seats weld zones are preheated to a temperature of 200 deg C.

(ii) Lift springs on to spring seats and position "U" bolts on axle beam ensuring they are as close as possible to the Spring Seat.

(iii) When "U" bolts are in position place top plate in position on springs and fit washers and nuts on to "U" bolts. Recommended torque value is 510-545 Nm (370/400 lb ft). U bolts must be tensioned evenly.

B. Fitting Axle To Trailer Frame: Position axle and spring assembly under trailer frame inserting the springs, first into front hanger bracket and then into equalizer bracket.

C. Fitting Spring Retaining Bolts: Fit spring retaining bolts (**A**) and nuts in position in equalizer bracket (**fig.7**) and tighten. Lower axle. Repeat for rear axle.

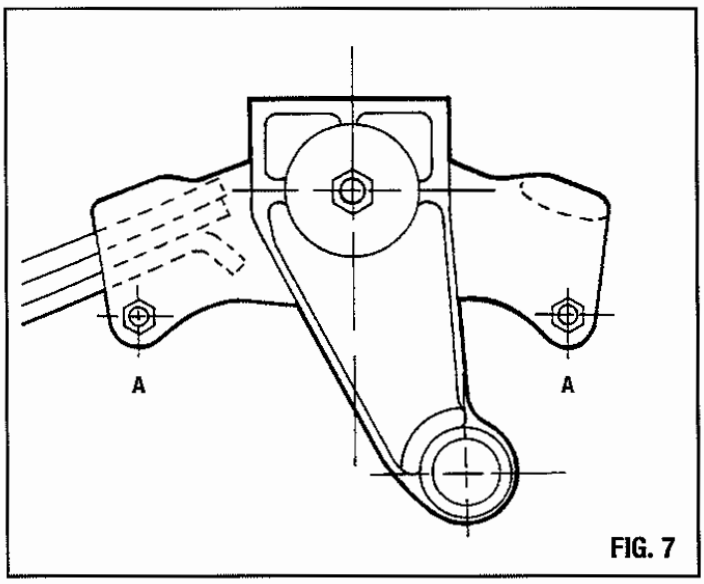


FIG. 7

Note: - Fit spring with hooks to the rear.

D. Equalizer Assemblies: It should be noted by the trailer builder that the equalizer can be installed in two different ways: one, with the head of equalizer bolt facing outwards – this should be preferred, because the equalizer bolt can easily be removed in the event of the bushes being replaced.

Alternatively, if the trailer builder's preference is for the equalizer bolt nut to be outside then sufficient clearance must be allowed under the trailer for the removal of the equalizer bolt so the bushes can be replaced when required.

E. Fitting Of Torque Arms: Adjustable torque arms fitted kerb side. Install torque arms between hanger bracket lugs: dip torque arm bushings into a solution of 50% water and 50% liquid soap. Then insert from each side into hanger bracket and torque arm bores.

Tap bushing into position with hide hammer to ensure no damage is done to bushes. Fit torque arm bolt, clamp washer and nut.

Note: - Torque arms with ½" dia. bolts should be tightened to 100Nm (70lb ft) (**fig.12**). After a period of running in, check all nuts for correct torque, then again after 1,000 km, and subsequently at every 25,000 km intervals. Check all nuts for correct torque. The equalizer bolt should be checked for torque at 295/350 Nm (215/260lb ft).

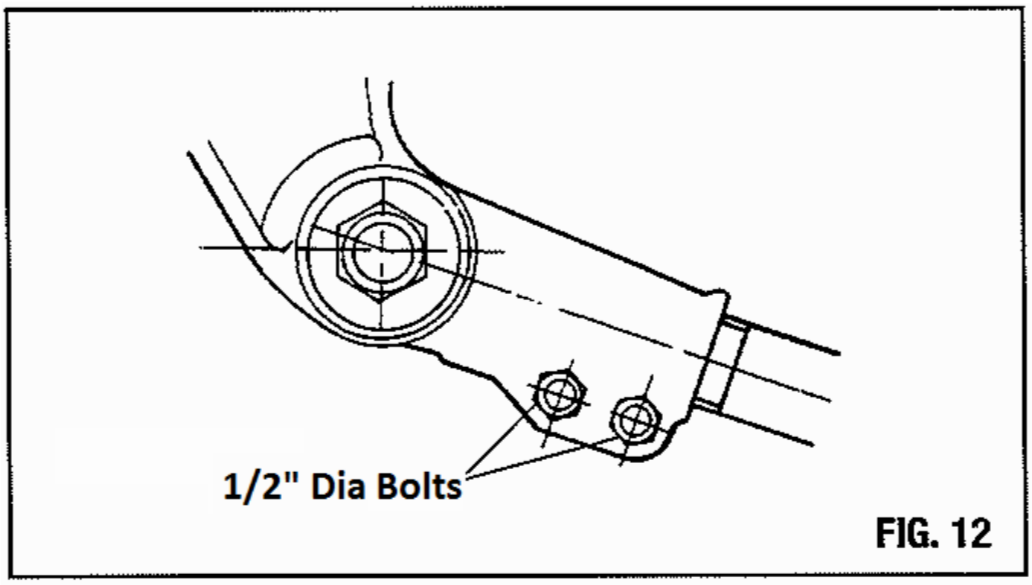


FIG. 12

F. Alignment And Adjustment: Commence alignment by measuring from the centre of the fifth wheel king pin to the outside centre of the front axle. Adjust by turning torque arm screw until the dimensions X-X are within 1.5mm of each other.

Tighten clamp bolts to recommended torque. Alignment of the rear axle is then carried out using the same procedure as with the front axle until the dimensions Y-Y are within 3mm of each other (**fig.11**). Tighten clamp bolts.

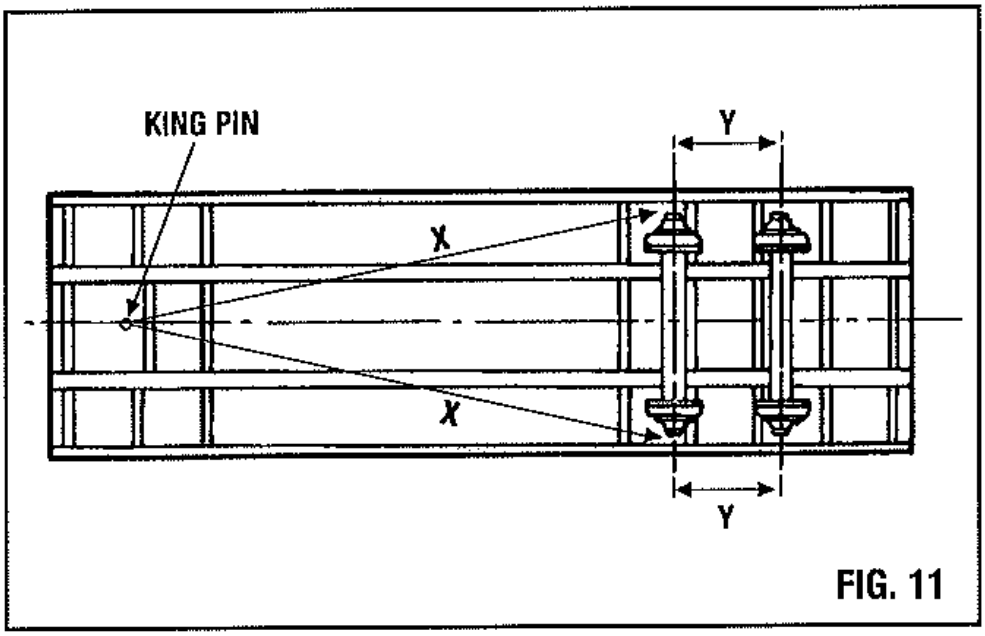


FIG. 11

MAINTENANCE REQUIREMENTS

- Inspect & re-torque (if needed) all fasteners at first service which must be done at 1000-1500kms of operation and subsequently inspect all fasteners at every 25,000kms.
- More frequent checks may be required in heavy duty applications.
- Inspect axle seat and hangers for any weld cracks
- Inspect radius rod and equalizer hanger bushes for any sign of wear & tear.

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