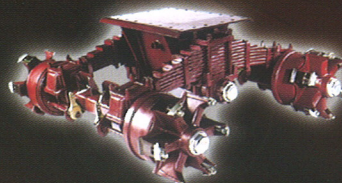
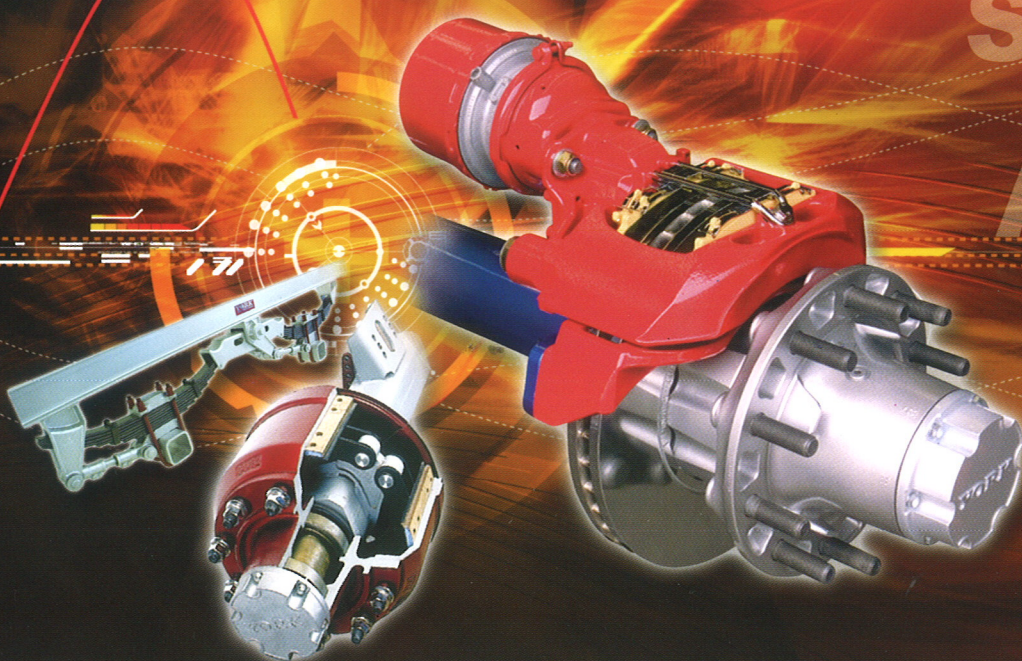


# York Tecair FB VRH Air Suspension Installation Manual

**SIMPLY  
MILES  
AHEAD**



**YORK**  
SIMPLY MILES AHEAD

**YTE** *Leading*  
Trailer Parts



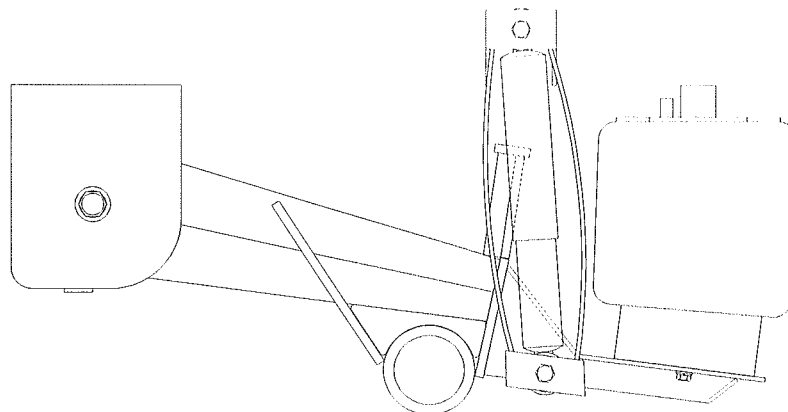
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ISO 9001: 2000



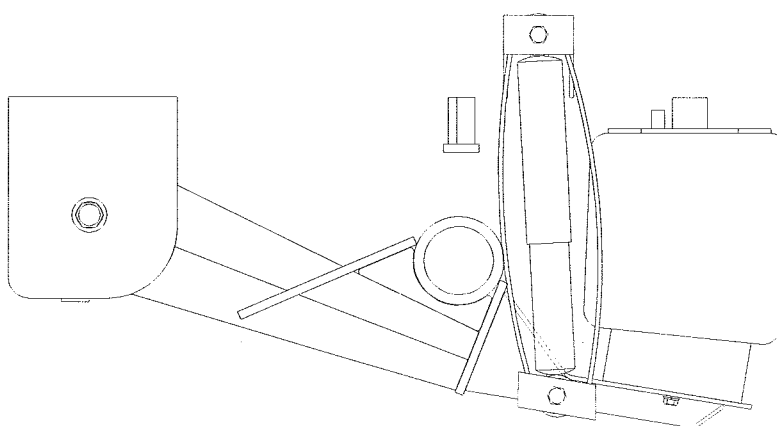
[www.yorktransport.com](http://www.yorktransport.com)



## ***OVERSLUNG SUSPENSIONS***



## ***UNDERSLUNG SUSPENSIONS***



### **ADR 38/02 CERTIFICATION NUMBERS**

Single axle - 8163SS or 8219SS

Tandem axle - 8164SS or 8220SS

Tri axle - 8162SS or 8221SS

# **TECAIR FB VRH AIR SUSPENSION MANUAL INDEX**

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| Installation Recommendations                               | Page 7 to 9   |
| Procedure for setting Height Control<br>(levelling) Valves | Page 10 to 11 |
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## **ASSEMBLY INSTRUCTIONS**

The fitting of the Tecair FB VRH air suspension only requires normal workshop equipment. The air suspension will normally be supplied pre-welded to an axle assembly, however if the air suspension assembly is supplied in kit form the following instructions must be adhered to.

### **List of tools:-**

Arc welder (preferably M.I.G. type).

Hand angle grinder.

Lifting equipment.

Tape measure.

Spanners.

The order of assembly of the air suspension is not critical as long as all the components are fitted into the correct position and welded correctly.

It is suggested that the welding of the axle beam to air suspension trailing arms is done first, then fitting this axle/air suspension assembly to the trailer frame is easier as a unit than assembling the air suspension to the axles on the trailer frame.

**NOTE:- DO NOT TIGHTEN THE FRONT PIVOT PINS INTO THE FRONT SUSPENSION HANGERS UNTIL THE FINAL WHEEL ALIGNMENT HAS BEEN COMPLETED.**

## **ASSEMBLING THE SUSPENSION TO THE CHASSIS**

- 1 Accurately mark the axle position on the trailer frame.
- 2 Measure forward and mark the hanger bracket centre as per the dimensional layout drawing of your model. Check the diagonals to ensure the wheel alignment will be correct.
- 3 Measure back from the axle position and mark out the shock absorber and airbag top plate positions as shown on the dimensional layout drawing.
- 4 For all the suspension models, trim the shock absorber bracket as necessary to clear chassis flanges.
- 5 Set the components in the positions as marked out and weld. (Materials used are to AS3678/350 grade 350) typically.

## **BRACING**

The front suspension hangers should all have some form of bracing attached to them. If the air suspension will be taking high side loadings (i.e. locked turntables on dog trailers or tri axle suspensions), or if the chassis requires extra bracing, a crossmember, or some form of suspension hanger bracing must be fitted. See page 7 for suggested bracing arrangements.

If bracing is needed but the central area of the trailer needs to be clear of obstructions, the hanger can be braced diagonally to a trailer crossmember (see page 7).

## **FRONT HANGER INSTALLATION**

It is recommended that the front suspension hangers are attached to the trailer frame by welding all around the top of the hanger to the trailer frame with a continuous weld of not less than 8mm c.f.w. Further it is recommend that a doubler plate of 10mm minimum thickness is fitted between the top of the front hanger and the trailer frame. The doubler plate size should extend 25mm minimum front and rear of the top of the front suspension hanger and 10mm minimum wider each side of the front suspension hanger. This doubler plate must be welded adequately to the trailer frame to support the front suspension hanger.

(see page 8 Fig A).

When the front suspension hanger is of the extended type (i.e. the dimension between the front suspension hangers pivot bolt and the top of the hanger exceeds 200mm) then extra reinforcing in the form of a closed in gusset must be added to the front of the hanger. This gusset is to be welded to the frame and the front suspension hanger after the front suspension hanger has been fully welded to the frame. (see page 8 Fig. B). All extended front suspension hangers must also be fitted with cross bracing generally as per page 7 Fig. 2.

### **DURING ASSEMBLY ENSURE THE FOLLOWING:**

- a] The shock absorber bracket has the hole centre the correct distance up from the bottom of the chassis flange (trim as necessary to take into account the flange thickness).
- b] The airbag top mount plate is offset inwards 50mm from the trailing arm centre line.
- c] The air inlet (supply) line to the airbag has sufficient clearance for installation of the air bag supply line and fittings.

**Do not weld across the chassis flanges.** Stop any weld a minimum of 15mm from the edge of the chassis flanges.

### **COMPONENT ASSEMBLY**

- 1] Bolt the airbag piston to the trailing arm using thread lock and tighten. Weld the front and rear of the piston to the trailing arm with a short run of weld to stop any possibility of the piston rocking (non sealed airbags only).
- 2] Install the shock absorber with the restraint strap around the outside of it. Using thread lock tighten both top and bottom bolts.
- 3] Weld the bump stops to the trailing arms of trailer frame as per the dimensional layout drawing. Cut the bump stops to length as requires for your model of suspension, see layout drawing.

### **WHEN FITTING THE BUMP STOPS ENSURE THE FOLLOWING:**

There is a minimum gap of 8mm between the airbag piston and the top airbag mounting plate on non sealed airbags when the bump stop contacts the frame. With sealed airbags the bump stop length is to be cut and fitted as per the installation drawing.

610052 shock absorbers cannot compress to less than 400mm centres. After fitting of the bump stops compress the suspension fully and ensure this dimension, between shock absorber mounting points, is not less than 400mm.

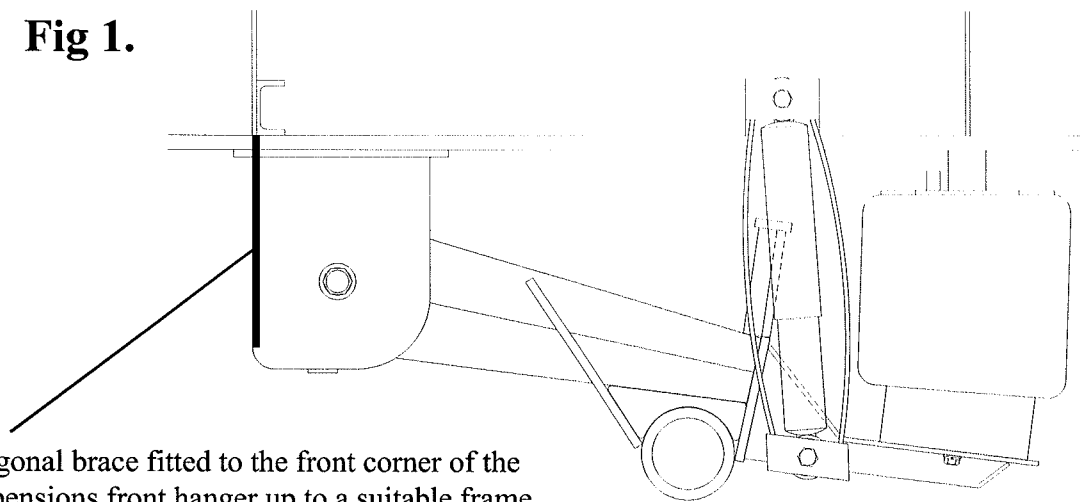
- 4] Fit the levelling valve to the chassis in a suitable position. (see page 11.) Choose a position where it is protected from damage and has sufficient clearance around it so as it can function correctly.
- 5] Install the pneumatics as shown on the air circuit. Care should be paid when running the nylon air lines that they are properly supported to prevent chaffing and wear when the trailer is operating. Refer to York for the required pneumatic circuit layout.

### **COMPONENT ASSEMBLY.** - Continued.

- 6] Fit the airbags over their mounting beads with the writing on the airbags the correct way up. The use of tubeless tyre bead sealant is recommended. Using an external air supply to each airbag individually, and holding each axle just short of full axle travel downwards makes fitting easier. Place the lower end of the airbag onto the piston and manoeuvre the top end to seal against the top airbag mounting plate whilst applying air pressure to the airbag via the air inlet.
- 7] Adjust the ride height by the levelling valve to the correct height for your suspension model.
- 8] Axle alignment can now be carried out using the eccentric front mounting pins. See page 15 in the service instructions for full details on alignment procedures.
- 9] Fit the safety locking bars into the front mounting pins and weld only the ends as per the alignment instructions.

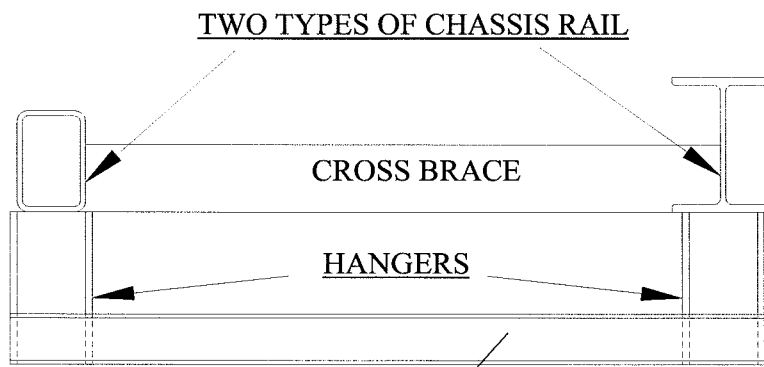
## ALTERNATIVE HANGER CROSS BRACING ARRANGEMENT

**Fig 1.**

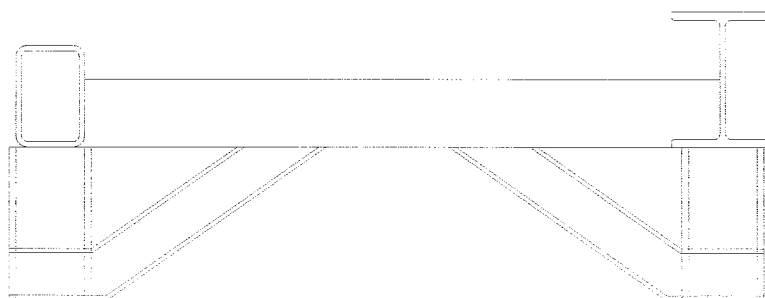


Diagonal brace fitted to the front corner of the suspensions front hanger up to a suitable frame crossmember. The front hanger can be braced by any of the alternative types of bracing depicted on this page. Bracing of the front hanger is recommended to ensure safe operation of the suspension. For installation where high side loads are envisaged bracing is mandatory i.e. Tri-axle suspensions and front dolly's on lockable dog trailers.

**Fig 2. SECTION THROUGH CENTRE OF TRAILER AT RIDE HEIGHT POSITION**



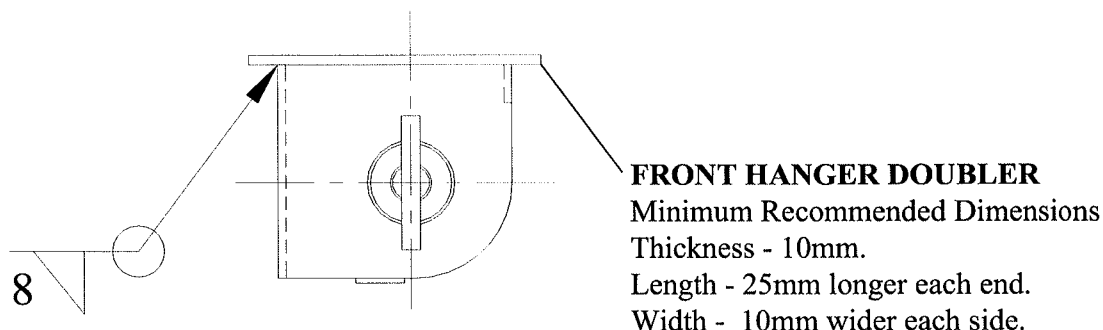
ALTERNATIVE BRACE, 75mm CHANNEL or RHS



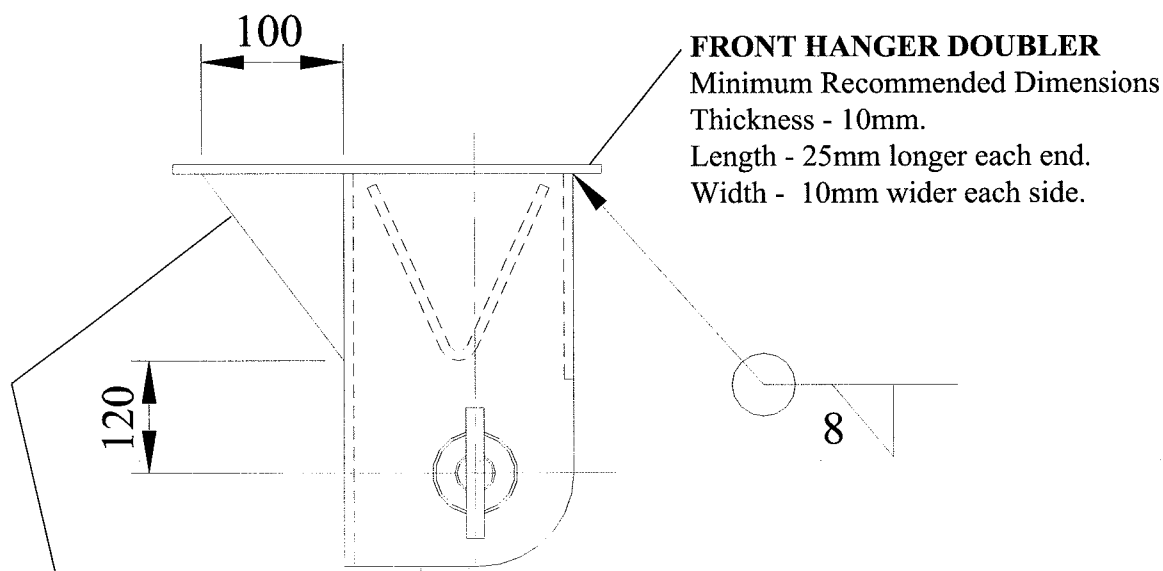
**CHANNEL or RHS ARRANGED TO LEAVE THE MIDDLE OF THE FRAME CLEAR**

## FRONT SUSPENSION HANGER INSTALLATION

**Fig A. STANDARD FRONT HANGER**



**Fig B. EXTENDED FRONT HANGERS**



A boxed in gusset must be added to front of extended front suspension hangers.  
Minimum length along frame - 100mm  
Minimum depth - to extend down to within 120mm of the pivot pin centre line.  
The gusset is to be welded to the front hanger after the hanger has been fully welded to the trailer frame. Gusset is to be fabricated from minimum 6mm thick material.  
Note all extended front suspension hangers are to be fitted with cross bracing, see page 7 figure 2.



## **MOUNTING TRAILING ARMS TO AXLE BEAMS**

- 1] Position the trailing arms (beams) on a flat surface with the axle seats facing upwards and the airbag mounting plates set inwards.
- 2] Locate the axle into the trailing arms and ensure it is seated properly into the seat areas. Grind the mounting plates locally to ensure a snug fit.
- 3] Position the trailing arms onto the axle with their centre lines at 980mm or the same dimension as the centres of the frame rails. It is sometimes necessary to trim the mounting plates on the trailing arms to clear brake drums or dust covers on special wide frames or short track axles.
- 4] ENSURE THAT:  
The arms are equi-distant from the axle centre.  
The trailing arms are parallel.  
The brake drums and tyres will clear the airbags. The space required for an airbag is 325mm dia.  
The hangers are at the designed centres.
- 5] Tack the trailing arms to the axle and re check that all dimensions are still the same.
- 6] When all dimensions have been double checked and you are satisfied, weld the mount plate to the axle beam using a low hydrogen process and recognized welding techniques. Prior to welding pre heat the axle weld area to 100 degrees Celsius. Weld both the open edge and exposed portions of the inside of the mount plates to the axle. Start welds approximately 15mm from the mount plate edge (both sides) and finish weld in the centre region of the beam. Overlap by 5-8mm. For second or third pass welds applied, start welds as above, but finish weld by staggering approximately 30mm from the centre region..

**Welds should be minimum 12mm continuous fillet. Note: Weld parallel to the axle only and only as shown on the diagram.**

### **UNDER NO CIRCUMSTANCES SHOULD YOU:-**

- 1 WELD AROUND THE AXLE TUBE
- 2 ALLOW WELD UNDERCUT/UNDERFILL
- 3 ALLOW WELD COLD LAP.
- 4 ALLOW POOR WELD TERMINATION ON THE AXLE TUBE

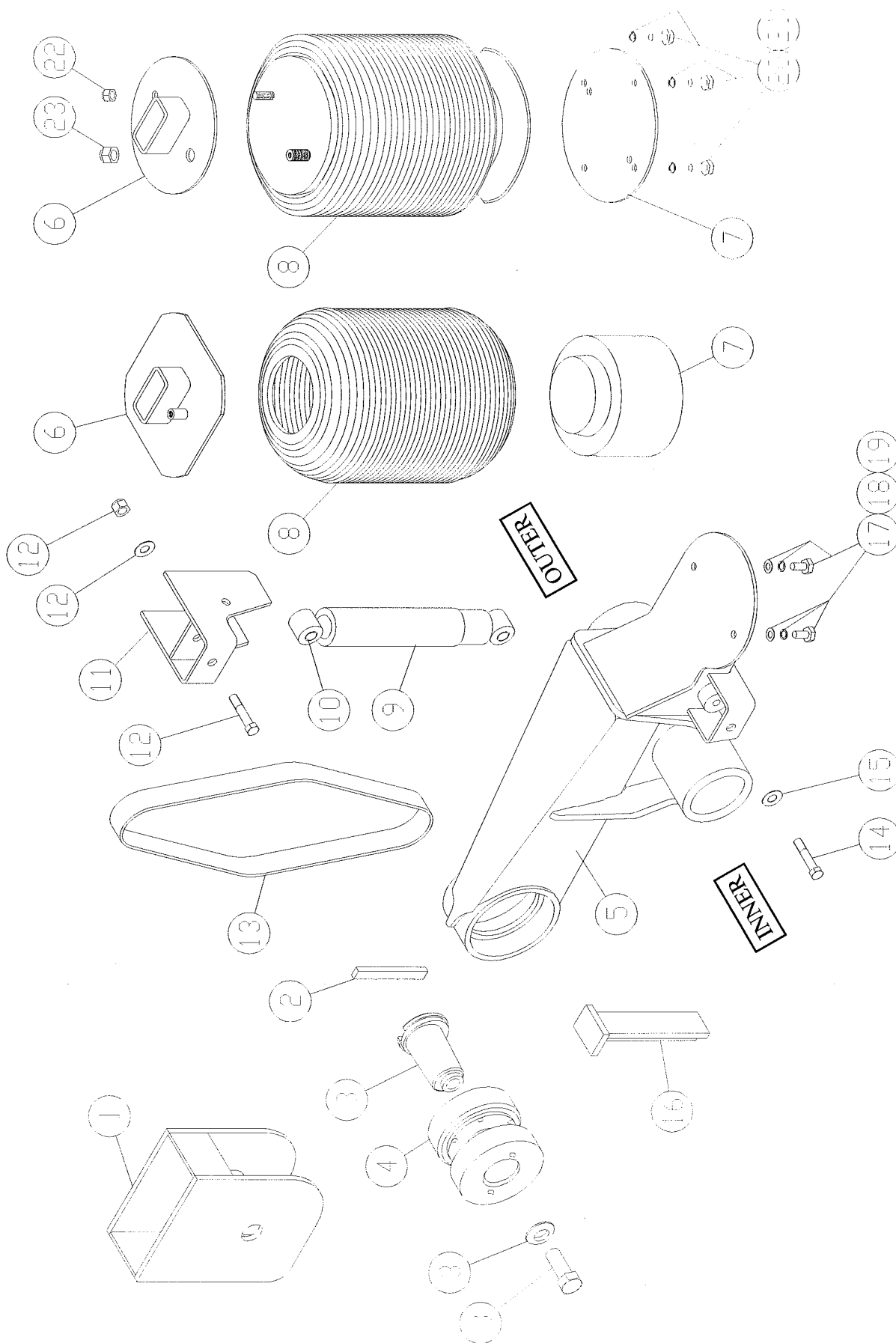
Full welding procedures and specifications for attaching the trailing arms to axles are available on request.

## **PROCEDURE FOR SETTING LEVELLING VALVES**

### **There are two methods for setting levelling valves**

1. If the valve is being set by the trailer manufacturer then this is best achieved without use of air in the system, preferably with the trailer inverted with the axle resting on the airspring bump stops.
  - a. Adjust the levelling valve arm to a 225mm radius ensuring that the arm enters through the side of the boss marked with a 'V', and lock the quadrant in the neutral position by inserting a 4mm drill shank through one of the holes provided.
  - b. Lift the axle to ride height and connect the levelling valve link to a bracket attached to the axle.  
Remove drill shanks before releasing axle.  
On no account must spacers be welded to axle beam to maintain axle ride height while the levelling valve is being set.
  
2. If for any reason the valve is being set at a later stage then the following procedure may be used.
  - a. Have the trailer on even ground, preferably with the vehicle laden and with a prime mover under the front. Air reservoirs to be fully pressurised and hand brake if fitted must be released for safety reasons.
  - b. Exhaust air bags by turning valve arm downwards to deflate airsprings.
  - c. Open valve and raise suspension to ride height by turning lever upwards, insert 4mm drill shanks or dowels into holes provided to lock arm in neutral position.
  - d. Attach rod of required length to axle bracket with the lever radius operating on a 225mm radius.

Once set the ride height may be finely adjusted using the rod adjustment nut on the lower rod linkage.

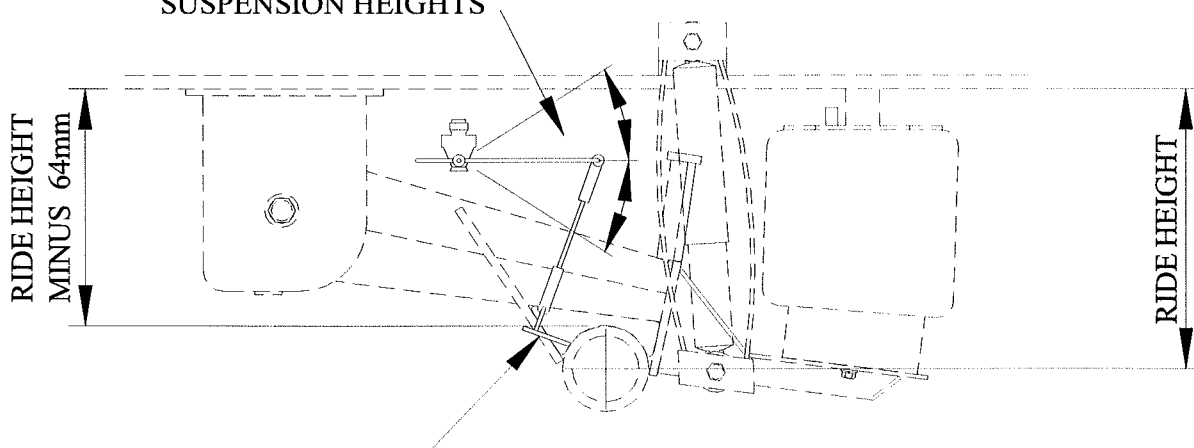


**YORK***Your Partner in Transport***Tecair FB VRH Suspension Spare Parts**

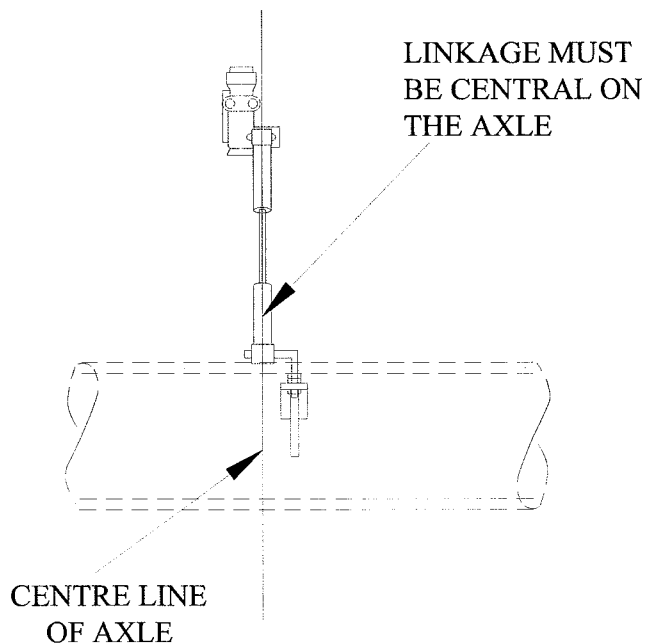
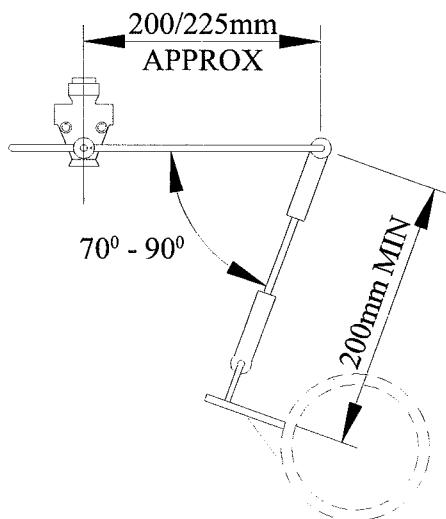
| <u>Item</u> | <u>Part No.</u> | <u>Description</u>                             |
|-------------|-----------------|--|
| 1           | 61610207/01     | Front suspension hanger LH 190/360 ride ht     |
|             | 61610207/02     | Front suspension hanger RH 190/360 ride ht     |
|             | 61610208/01     | Front suspension hanger LH 235/405 ride ht     |
|             | 61610208/02     | Front suspension hanger RH 235/405 ride ht     |
|             | 61610209/01     | Front suspension hanger LH 280/450 ride ht     |
|             | 61610209/02     | Front suspension hanger RH 280/450 ride ht     |
| 2           | 61610008        | Front hanger - locking bar                     |
| 3           | 61SB610009      | Pivot pin assembly                             |
| 4           | 61610013        | Pivot bush (inner)                             |
|             | 61610012        | Pivot bush (outer)                             |
| 5           | 61610187/01     | O'slung beam assy LH (non sealed bag)          |
|             | 61610187/02     | O'slung beam assy RH (non sealed bag)          |
|             | 61610188/01     | O'slung beam assy LH (sealed bag)              |
|             | 61610188/02     | O'slung beam assy RH (sealed bag)              |
|             | 61610185/01     | U'slung beam assy LH (non sealed bag)          |
|             | 61610185/02     | U'slung beam assy RH (non sealed bag)          |
|             | 61610186/01     | U'slung beam assy LH (sealed bag)              |
|             | 61610186/02     | U'slung beam assy RH (sealed bag)              |
| 6           | 61610205        | Airbag top mount assy 190/360 (non sealed bag) |
|             | 61610196/01     | Airbag top mount assy 235/405 (non sealed bag) |
|             | 61610196/02     | Airbag top mount assy 280/450 (non sealed bag) |
|             | 61610156        | Airbag top mount assy 190/360 (sealed bag)     |
|             | 61610197/01     | Airbag top mount assy 235/405 (sealed bag)     |
|             | 61610197/02     | Airbag top mount assy 280/450 (sealed bag)     |
| 7           | 61610043        | Air spring piston (non sealed bag)             |
|             | 61610128        | Airbag bottom plate (sealed bag)               |
| 8           | 61610049        | Airbag (non sealed bag)                        |
|             | 61610121        | Airbag (sealed bag)                            |
| 9           | 61610052        | Shock absorber                                 |
| 10          | 61610234/01     | Shock absorber bush (Boge) sleeve              |
|             | 61610234/02     | Shock absorber bush (Boge) rubber              |
| 11          | 61610054        | Top shocker bracket - standard                 |
| 12          | 61SB786157      | Top shocker bolt assembly                      |
| 13          | 61610065/05     | Restraint strap (red)                          |
| 14          | 49HB5/8UNC3.25  | Hex bolt 5/8" UNC x 3.25"                      |
| 15          | 49FWH5/8        | Flat washer heavy 5/8"                         |
| 16          | 61610067        | Chassis stop 190/235/280/360 ride ht           |
|             | 61610067/1      | Chassis stop 405/450 ride ht                   |
| 17          | 49HBM12175030   | Hex bolt M12x1.75x30 (non sealed bag)          |
| 18          | 49SWM12         | Spring washer M12 (non sealed bag)             |
| 19          | 49FWM12         | Flat washer M12 (non sealed bag)               |
| 20          | 49HB1/2UNC1.50  | Hex bolt 1/2" UNC x 1.50" (sealed bag)         |
| 21          | 49SW1/2         | Spring washer 1/2" (sealed bag)                |
| 22          | 49LNT1/2UNC     | Nyloc nut 1/2" UNC (sealed bag)                |
| 23          | 49LNT3/4UNF     | Nyloc nut 3/4" UNF (sealed bag)                |
| #           | 61786911        | Levelling valve (standard)                     |
| #           | 61786827        | Levelling valve (fast acting)                  |
| #           | 61100558        | Linkage assembly for levelling valve           |

## LEVELLING VALVE INSTALLATION

PROVIDE ADEQUATE CLEARANCE FOR THE LEVELLING VALVE LINKAGE TO MOVE FROM MAXIMUM TO MINIMUM SUSPENSION HEIGHTS

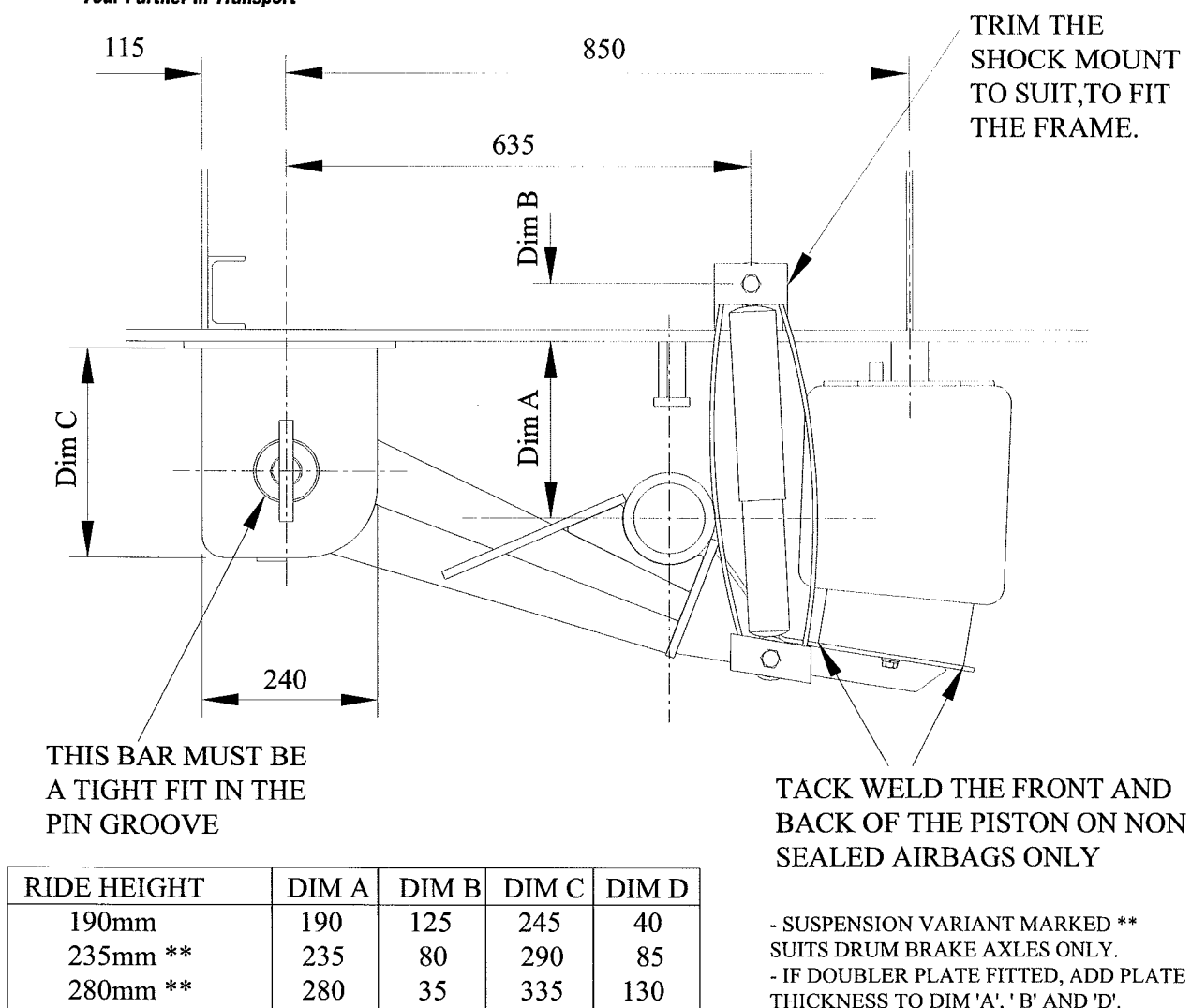


FIT LEVELLING VALVE LINKAGE TO THE FRONT OF AXLE TUBE IN THE CENTRE OF THE VEHICLE GENERALLY AS SHOWN

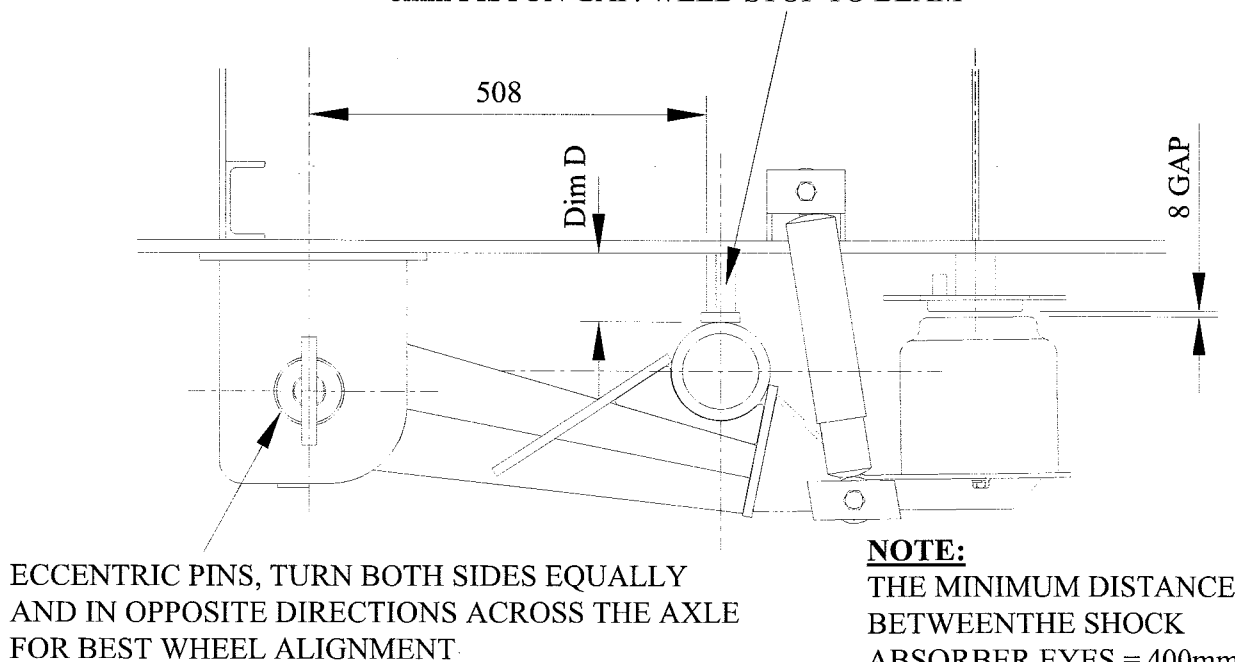




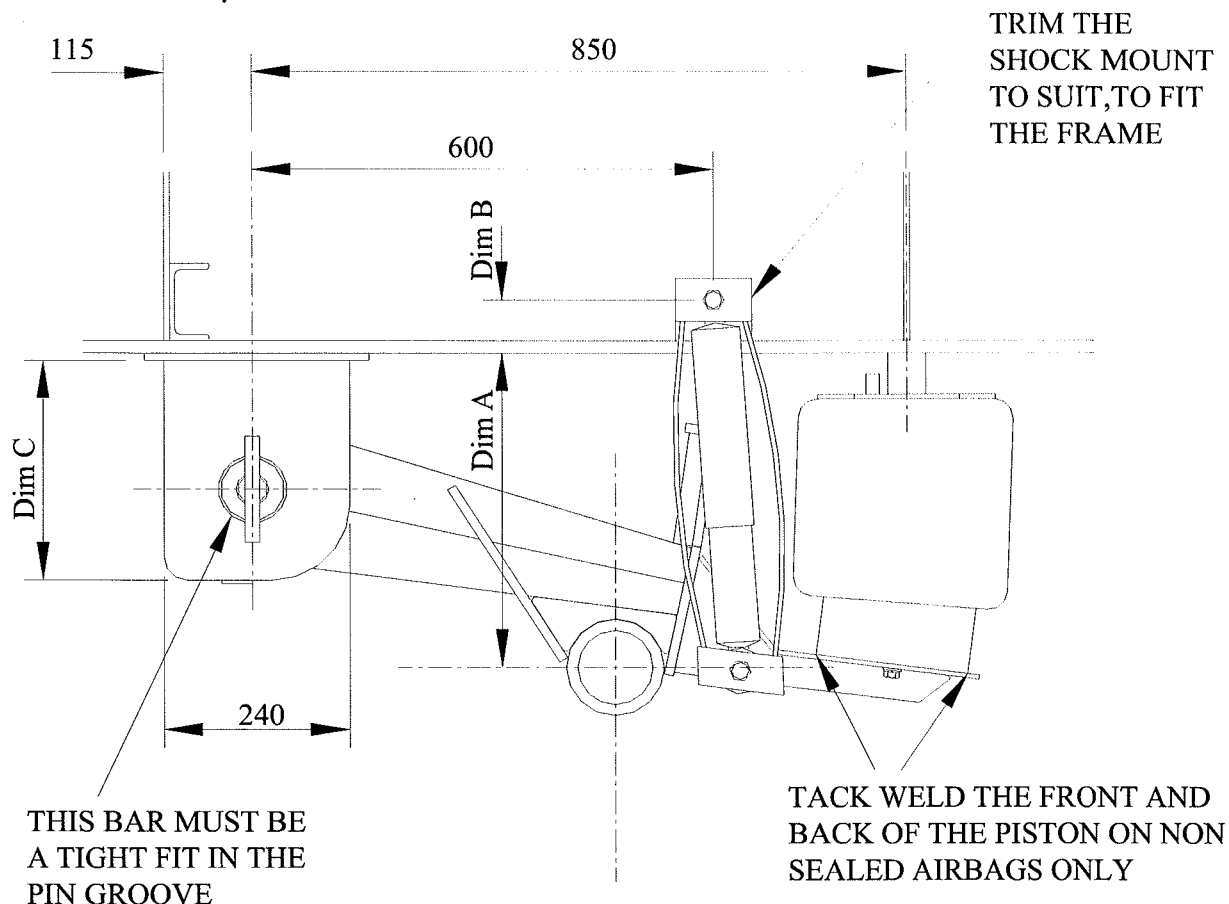
## FITTING INSTRUCTIONS UNDERSLUNG SUSPENSIONS 190 / 235 / 280 RIDE HEIGHTS



AXLE STOP. CUT TO LENGTH TO ENSURE  
8mm PISTON GAP. WELD STOP TO BEAM



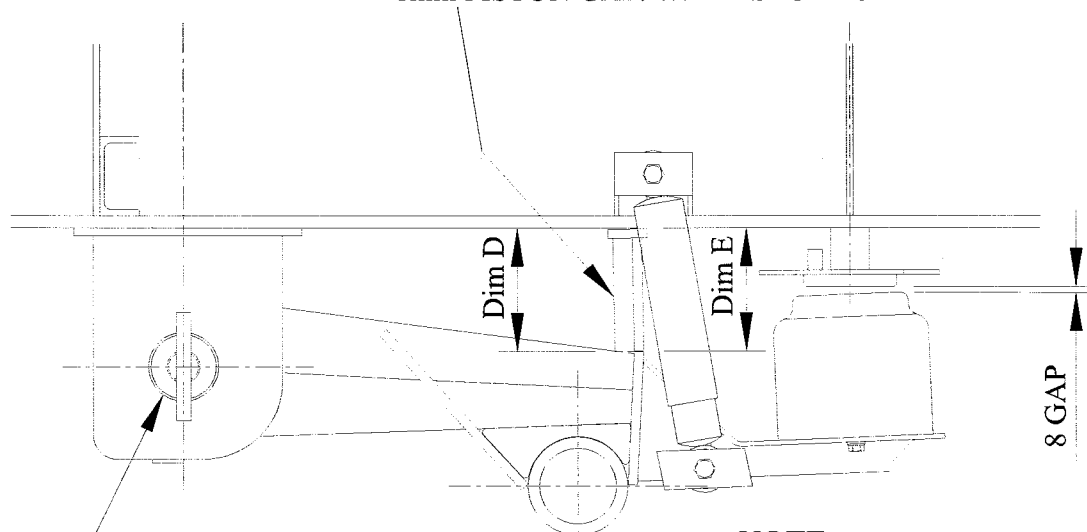
## FITTING INSTRUCTIONS OVERSLUNG SUSPENSIONS 360 / 405 / 450 RIDE HEIGHTS



| RIDE HEIGHT | DIM A | DIM B | DIM C | DIM D | DIM E |
|-------------|-------|-------|-------|-------|-------|
| 360mm       | 360   | 140   | 245   | 115   | 117   |
| 405mm       | 405   | 95    | 290   | 160   | 162   |
| 450mm       | 450   | 50    | 335   | 205   | 207   |

- IF DOUBLER PLATE FITTED, ADD PLATE THICKNESS TO DIM 'A', 'B', 'D' AND 'E'.

AXLE STOP. CUT TO LENGTH TO ENSURE 8mm PISTON GAP. WELD STOP TO BEAM



ECCENTRIC PINS, TURN BOTH SIDES EQUALLY AND IN OPPOSITE DIRECTIONS ACROSS THE AXLE FOR BEST WHEEL ALIGNMENT

**NOTE:**  
THE MINIMUM DISTANCE BETWEEN THE SHOCK ABSORBER EYES = 400mm



## **MAINTAINANCE SCHEDULE**

**Tecair FB VRH Air Suspensions** have no grease nipples U-bolts or other components that need regular attention.

However we still advise that it is necessary to check your suspension during normal trailer service inspections.

### **Servicing Inspection Intervals**

- 1) After 500km.
- 2) Quarterly or every 25,000km.

### **Ensure that:**

- The air bags have not been damaged.
- The height control valve is set and operating correctly.
- The air lines are not wearing (rubbing).
- The shock absorber mounting rubbers are in good order.
- The pivot pin bolt is tight and the locating washer is seated correctly in the hanger.
- The locking bar on the pivot pin is still in place and allowing no movement.
- The attachment welds to the axles are still sound.
- The attachment welds to the chassis are still sound.
- The rubber bushes in the front pivot are not worn out.  
ie:- movement more than 20mm in any direction in the bush area when one wheel is jacked up vertically.

### **ASSEMBLY TORQUES:**

|  |                      |
|--|----------------------|
| M24. Pivot Pin bolt                                | - 400 Nm (300 ftlbs) |
| 5/8" UNC. Shocker bolts                            | - 150 Nm (110 ftlbs) |
| M12 bolt. Airbag piston (non sealed airbag)        | - 70 Nm (50 ftlbs)   |
| 3/4" UNF stud. Airbag top plate (sealed airbag)    | - 70 Nm (50 ftlbs)   |
| 1/2" UNC stud. Airbag top plate (sealed airbag)    | - 35 Nm (25 ftlbs)   |
| 1/2" UNC bolt. Airbag piston bolts (sealed airbag) | - 70 Nm (50 ftlbs)   |

## ADJUSTING AXLE ALIGNMENT

One of the most impressive features of the **Tecair FB VRH air suspension** is the patented offset pivot pin making it possible to adjust the alignment of each axle individually. This may be necessary due to accident, incorrect fitting or service replacement of parts.

### To Adjust the Alignment of the Axles:

- 1) Ensure that the suspension is set at the correct ride height. It is essential that the ride height is checked and corrected before any alignment work or resetting of the suspension is carried out.
- 2) Remove the front pivot pin locking bars.
- 3) Loosen the pivot pin locking bolt and pull the pivot pin out 6 to 8mm so that the pivot pin can be rotated. (Use a Tecair FB pivot pin puller or make one up from a M24 x 200 bolt).
- 4) Adjust the axle alignment by rotating the pivot pins on each side of the vehicle in opposite directions. **NOTE: ROTATE BOTH SIDES EQUALLY, DO NOT ROTATE THE PIVOT PINS MORE THAN 90 DEGREES WHICH IS THE MAXIMUM DISPLACEMENT.**
- 5) When the axles are correctly aligned, re check the suspension ride height and re adjust if necessary. Re torque the pivot pin locking bolts to 400Nm (300lbf/ft) making sure the locating washer is still correctly seated in the hanger, then refit the locking bars. Reweld each end of each locking bar (6mm fillet weld approximately 19mm long).

## **REPLACEMENT OF AIRBAGS**

The trailer can be driven at reduced speed (maximum 30kph) with no air in the air bags. Blocking off of the air supply to the damaged bag is possible so that the other bags can be used normally (either by crimping the air line or plugging the air port) to travel to a service area. **NOTE: THIS IS A TEMPORARY EMERGENCY PROCEDURE ONLY AND AIRBAG REPLACEMENT MUST BE EFFECTED AS SOON AS PRACTICABLE.**

### **Non Sealed Airbags**

Replacing the airbag is a simple procedure. You will need two blunt tyre levers.

Using the two tyre levers prise the damaged airbag off its mounts, being careful not to damage or mark the mounts. (See page 6).

Then set the height of the trailer so that the airbag fits comfortably between the mounts.

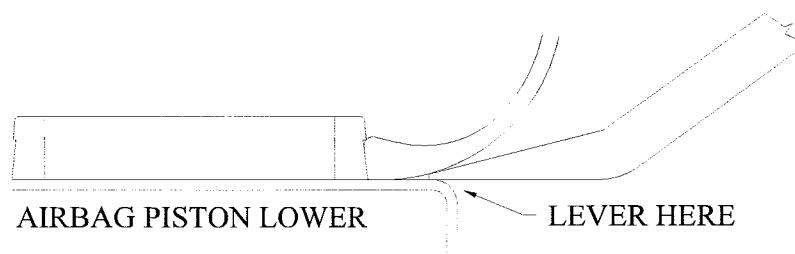
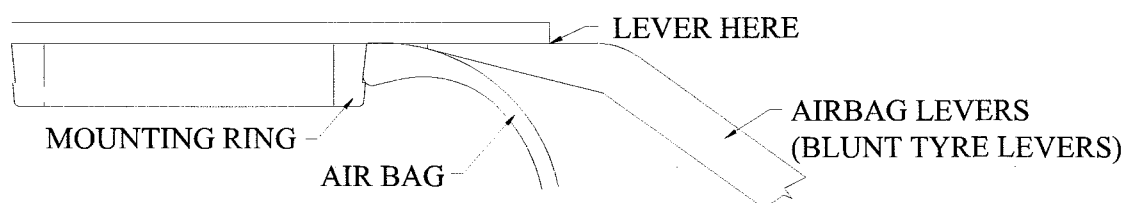
Apply air pressure and manipulate the airbag to create a seal, use of a suitable rubber lubricant is recommended. Once the bag seals the air pressure will push the airbag home.

### **Sealed Airbags**

Unbolt the airbags from the suspension bracketry and replace with a new airbag. Retorque the airbag mounting bolts as per the instructions

## **AIRBAG REMOVAL**

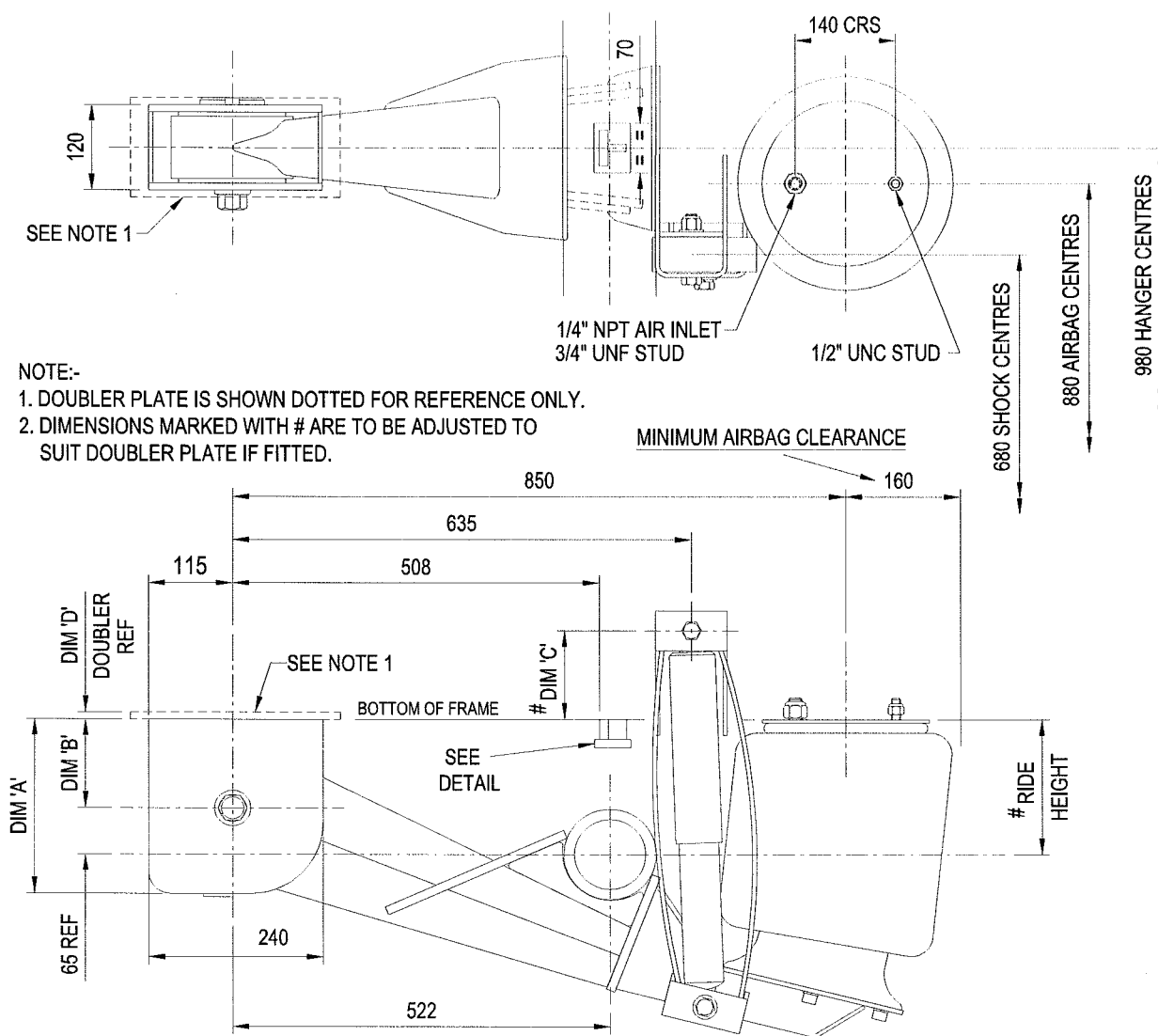
### **Non Sealed Air Bags**





## GENERAL ARRANGEMENT

### UNDERSLUNG SUSPENSION - 190/235/280 RIDE HEIGHTS



NOTE:-

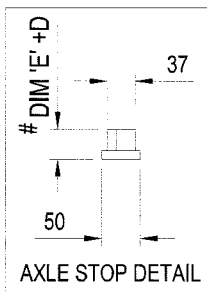
1. DOUBLER PLATE IS SHOWN DOTTED FOR REFERENCE ONLY.
2. DIMENSIONS MARKED WITH # ARE TO BE ADJUSTED TO SUIT DOUBLER PLATE IF FITTED.

| Ride Height | Dim 'A' | Dim 'B' | Dim 'C' | Dim 'E' |
|-------------|---------|---------|---------|---------|
| 190         | 245     | 125     | 125     | 40      |
| 235 **      | 290     | 170     | 80      | 85      |
| 280 **      | 335     | 215     | 35      | 130     |

Axle Travel - From Nominal Ride Height  
= 85 UP  
= 65 DOWN  
Ride Height Variation =  $\pm 10$

ADR APPROVAL NUMBERS  
SINGLE AXLE - 8163SS or 8219SS  
TANDEM AXLE - 8164SS or 8220SS  
TRI AXLE - 8162SS or 8221SS

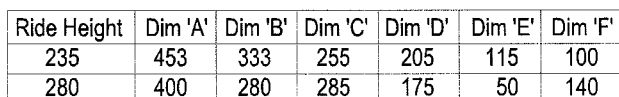
SUSPENSION VARIANT MARKED \*\*  
SUITS DRUM BRAKE AXLES ONLY.



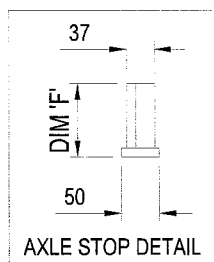
#### Torque Settings:

M24 Pivot Pin Bolt - 400 Nm (300 ftlbs)  
5/8" UNC Shock-absorber Bolt - 150 Nm (110 ftlbs)  
1/2" UNC Airbag Mounting Bolt - 70 Nm (50 ftlbs)  
1/2" UNC Airbag Top Plate Stud - 35 Nm (25 ftlbs)  
3/4" UNF Airbag Top Plate Stud - 70 Nm (50 ftlbs)

**UNDERSLUNG SUSPENSION - 235/280 RIDE HEIGHTS - DISC BRAKES**

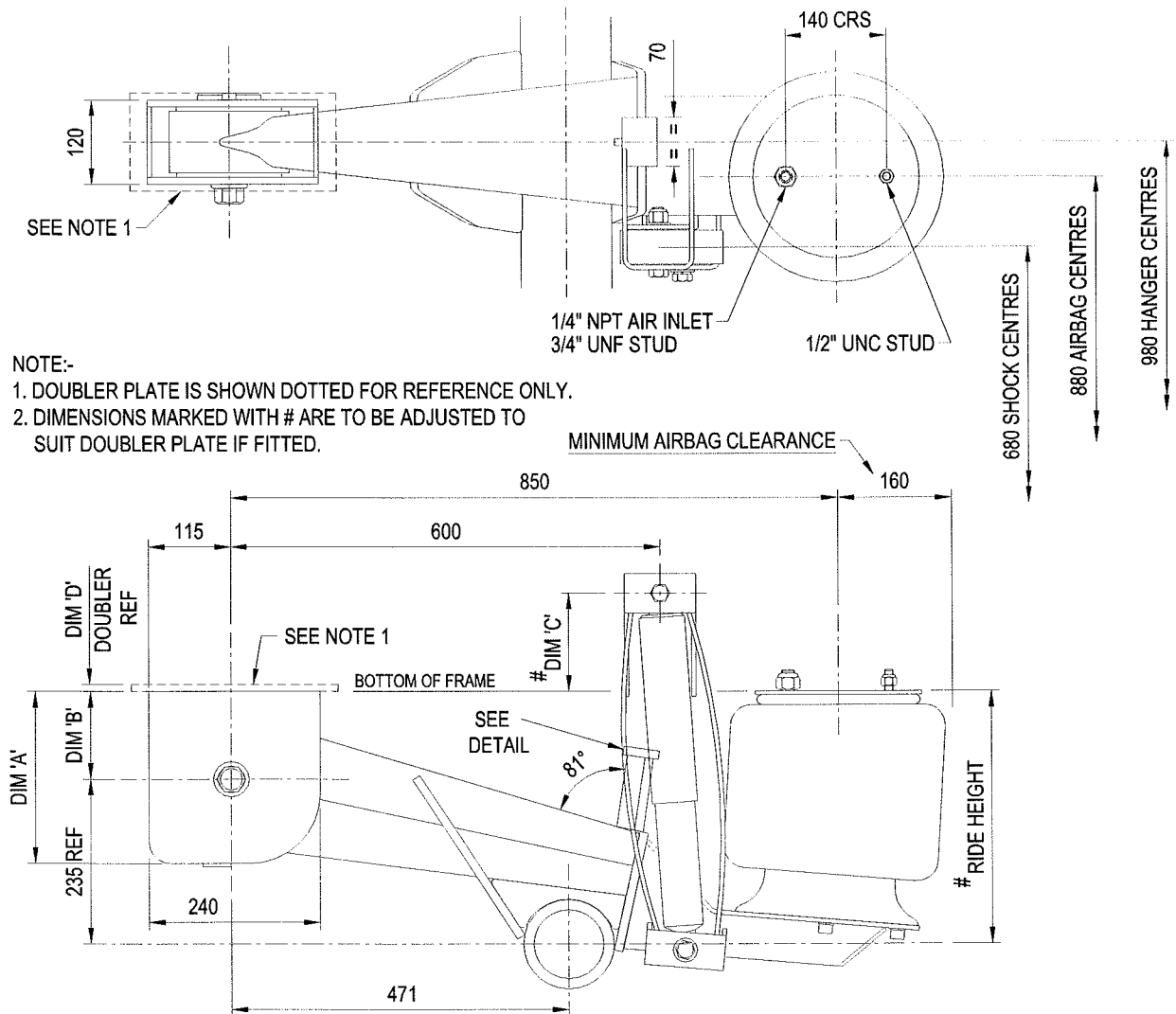


**ADR APPROVAL NUMBERS**  
 SINGLE AXLE - 8163SS or 8219SS  
 TANDEM AXLE - 8164SS or 8220SS  
 TRI AXLE - 8162SS or 8221SS



M24 Pivot Pin Bolt - 400 Nm (300 ftlbs)  
5/8" UNC Shock-absorber Bolt - 150 Nm (110 ftlbs)  
1/2" UNC Airbag Mounting Bolt - 70 Nm (50 ftlbs)  
1/2" UNC Airbag Top Plate Stud - 35 Nm (25 ftlbs)  
3/4" UNF Airbag Top Plate Stud - 70 Nm (50 ftlbs)

## GENERAL ARRANGEMENT OVERSLUNG SUSPENSION - 360/405/450 RIDE HEIGHTS



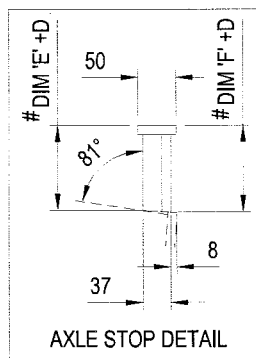
### NOTE:-

1. DOUBLER PLATE IS SHOWN DOTTED FOR REFERENCE ONLY.
2. DIMENSIONS MARKED WITH # ARE TO BE ADJUSTED TO SUIT DOUBLER PLATE IF FITTED.

| Ride Height | Dim 'A' | Dim 'B' | Dim 'C' | Dim 'E' | Dim 'F' |
|-------------|---------|---------|---------|---------|---------|
| 360         | 245     | 125     | 140     | 115     | 117     |
| 405         | 290     | 170     | 95      | 160     | 162     |
| 450         | 335     | 215     | 50      | 205     | 207     |

### Torque Settings:

- M24 Pivot Pin Bolt - 400 Nm (300 ftlbs)
- 5/8" UNC Shock-absorber Bolt - 150 Nm (110 ftlbs)
- 1/2" UNC Airbag Mounting Bolt - 70 Nm (50 ftlbs)
- 1/2" UNC Airbag Top Plate Stud - 35 Nm (25 ftlbs)
- 3/4" UNF Airbag Top Plate Stud - 70 Nm (50 ftlbs)



Axle Travel - From Nominal Ride Height  
= 70 UP  
= 75 DOWN  
Ride Height Variation =  $\pm 10$

ADR APPROVAL NUMBERS  
SINGLE AXLE - 8163SS or 8219SS  
TANDEM AXLE - 8164SS or 8220SS  
TRI AXLE - 8162SS or 8221SS

## **FAULT FINDING**

### **This section covers fault finding in the basic pneumatics system.**

#### **1. Suspension will not inflate.**

- a. Check for dump valve and if fitted, ensure it is in 'raise' position.
- b. Check that the levelling valve has not become disconnected.
- c. Check very carefully for air leaks.
- d. Check that there is air in the suspension tank by unseating its drain valve. If there is little or no pressure check that the brake tank has sufficient pressure.  
**REMEMBER THAT THE PRESSURE GAUGE IN THE PRIME MOVER DOES NOT SHOW THE PRESSURE IN THE TRAILER TANKS.**

If no leaks exist and providing there is pressure in the brake tank two possibilities exist:  
Either the compressor on the prime mover is incapable of providing significant output above the 6 bar required to make air flow through the pressure protection valve to the air suspension tank.

Or the pressure protection valve has malfunctioned.

Before replacing the pressure protection valve (NEVER TRY TO ADJUST A PRESSURE PROTECTION VALVE) it is advisable to get a new or different prime mover unit and try again.

Finally if the weather is cold, try warming the pressure protection valve in case it is damp and has frozen.

If the initial checks on the tank pressures revealed plenty of air in both tanks then the levelling valve must be examined.

Disconnect the link to the axle and tilt the levelling valve arm to 45 deg. above the horizontal : if the airsprings still will not inflate the levelling valve will need to be changed. Again in cold weather try warming first.

#### **2. Suspension Inflates One Side Only.**

With only one levelling valve fitted this is not really possible. If the airspring has this appearance then one side has a serious leak.

#### **3. Trailer Bounces Excessively.**

Shock Absorbers are worn and need replacing.

## **THE FOLLOWING ARE NOT FAULTS**

1. Trailer suspension deflates while being loaded.
  - a. This occurs because the volume and pressure of air in the suspension tank is insufficient to inflate the suspension airsprings to their laden pressure.  
  
Fit a dump valve and dump the suspension on to its bump stops before loading commences.
  - b. Load while a prime mover is coupled with its engine running.
  - c. Fit an additional suspension air tank to the trailer.
2. Trailer parked on ramp : Suspension deflates.
  - a. This can happen if the axle to which the levelling valve is fitted is to some extent left hanging. The suspension will inflate once the trailer is moved to flatter ground although inflation may take a few minutes because the levelling valve will have emptied the suspension tank.



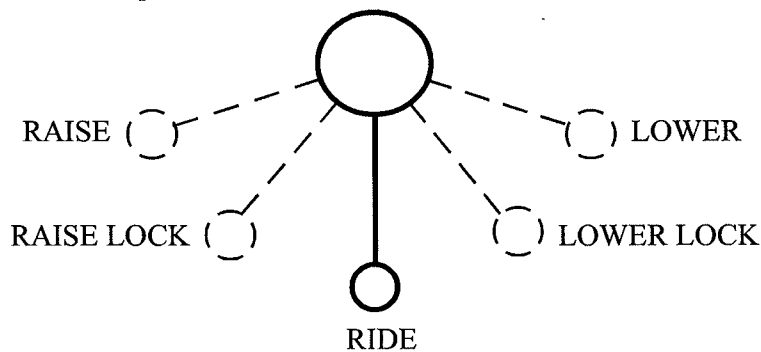
## DRIVER TRAINING

Drivers should not be expected to maintain or repair Tecair suspensions but should be trained in the following areas.

### **USE OF RAISE LOWER VALVE**

By far the most common cause of failure associated with air suspensions of all types is directly related to the misuse of the raise lower valve.

Typically a raise lower valve has five positions.



The valve must be in the central ride position when the vehicle is in transit.

If the trailer is allowed to travel in the "raise" or "raise lock" position the shock absorbers and the airsprings will only avoid damage if cable restraints are fitted and even then secondary damage may result from the trailer having virtually no suspension. If the trailer is allowed to travel in the "lower" or "lower lock" position the bump stops inside the airsprings and the back axle may be damaged. Used properly a raise lower valve is a useful means of dock levelling for rear end loading (and in the workshop an aid to quick wheel removal. i.e. raise the suspension before jacking the frame up).

### **USE OF DUMP VALVE**

A dump valve has only "ride" and "dump" positions. If the trailer is allowed to travel with the valve in the dump position the rear airsprings and the rear axle will be damaged. If the driver is uncertain as to which position is ride and which is dump then simply look at the airsprings and see if there is any piston showing beneath the rubber diaphragm. If there is piston showing the valve must be in ride; if there is no piston showing the valve must be in dump or the suspension may simply not have had time to inflate. Allow the tractor to charge the trailer for a few more minutes and then recheck.

### **WHAT TO DO IF AN AIRSPRING BURSTS (or suspension deflates for some other reason)**

Airsprings virtually never burst when in normal use. They may burst if the raise lower valve has been left on raise but by far the most common cause is a tyre burst and the disintegrating tyre then cutting the airspring.

Once the airspring is cut the entire suspension will deflate. The entire suspension load, perhaps 20 tonnes is now on the back axle. The trailer can be still driven in this condition but certain restrictions must be applied.

**30 kph maximum speed - reduce to 20 kph on bad roads.**

**No more than 100 km in this condition.**

If these restrictions are observed the trailer can be moved to a place where repairs can be effected without further damage.