PREVOST

Instruction Sheet IS-97049

Independent Supension (Ref:sr97-21)

On vehicles equipped with front independent suspension, the life span of one structural member is problematic and potentially limited. This structural member supports the left idler arm and bell crank. In order to eliminate all rupture possibilities, two bolted and welded brackets must be installed, then the vehicle must be realigned.

MATERIAL

Kit (#172171) includes the following parts.

Part No.	Description	Qty
172179	Bracket	1
172180	Bracket	1
5001366	Washer	3
502246	Bolt	3
502538	Nut	3
509558	Rubber Extrusion	1
IS-97049	Instruction Sheet	1
FI-97049	Feuille d'instructions	1

PROCEDURE

Warning: *Park vehicle safely, apply parking brake, stop engine and set battery master switch(es) to the OFF position prior to working on the vehicle.*

Welding must be done only by a qualified and experienced person.

Protective shields must be placed in order to protect components against heat, welding flash, welding arc and other elements associated with welding.

Always wear the appropriate safety equipment.

Weld in clean and well-ventilated area, and always have an appropriate fire extinguisher within your reach.

The following precautions are to be taken to protect the electronic control components :

Cut off battery power (battery master switch) from battery compartment.

Disconnect wiring harness connectors from ECM (Electronic Control Module). The ECM is mounted on the starter side of the engine.

For vehicles equipped with an automatic transmission, disconnect wiring harness connectors from ECU (Electronic Control Unit). The ECU is located in rear electric compartment.

For vehicles equipped with ABS (Anti-Lock Braking System), disconnect wiring harness connectors from ABS Electronic Control Unit. The ABS Electronic Control Unit is located in steering or in first baggage compartment.

Do not connect welding cables to electronic control components.

Safely support the vehicle at the axle jacking points with a suitable hydraulic floor jack.

Warning: *Only the recommended jacking points must be used as outlined in Section 18 of Maintenance Manual: "Body" or in Operator's Manual.*

Using a grinding wheel, remove asphalt base undercoating (gravel guard) from parts requiring welding.

Note*: In order to avoid porosity on the welding, it is important to remove all painting.*

Welding Technical Informations

Process:	FCAW (Flux Cored Arcwelding)
Classification of electrode	
CANADA:	W48,5: E4801T-9-CH or E701T-9-CH
USA:	AWS A5.20: E71T-1
Diameter of wire:	1.2 mm (0.045)
Type of sheilding gaz:	75% Argon - 25% CO
Flowrate:	35 à 40 CFH.
Electrical stick out:	10 à 15 mm (3/8 à 5/8)
Size of weld:	6 mm (1/4)
Amperage range:	250 -0 + 25 Amps.
Voltage range:	25.5 +- 1 Volts
Wire feed speed:	425 IPM (1080 cm/min)
Travel speed:	11 / min (28 cm/min)
Type and polarity:	DCEP

Note: *The following discontinuities are not permissible in welds: undercut, craters, crack, porosity, inclusions and holes.*

Note: *In order to reduce structure deformation during welding, ensure that brackets are as close as possible to the sub-frame (minimum gap).*

1. On left front ABS valve, turn counterclockwise 90° elbow approximately 30 degrees

Note: *The hose of the front left ABS valve must be slighlty moved because the new bracket (Prevost #172180) will wear it away.*

2. Bolt bracket (Prevost #172180) with a torque of 100 to 110 Lbf ft (136 to 150 N m).

Note: *The brackets are installed on the sructure of the independent suspension just behind the front left wheel (Fig. 1).*

3. Weld bracket as per figure 1.

4. Bolt braket (Prevost #172179) with a torque of 100 to 110 Lbf ft (136 to 150 N m).
5. Weld bracket as per figure 1.
6. Install rubber extrusion (Prevost #509558) on bracket (Prevost #172180) to avoid the wear away of ABS hose.
7. Coat reinforcement plates and surroundings with Gravel Guard 3M undercoating.
8. Reconnect components mentioned at the beginning of the procedure.

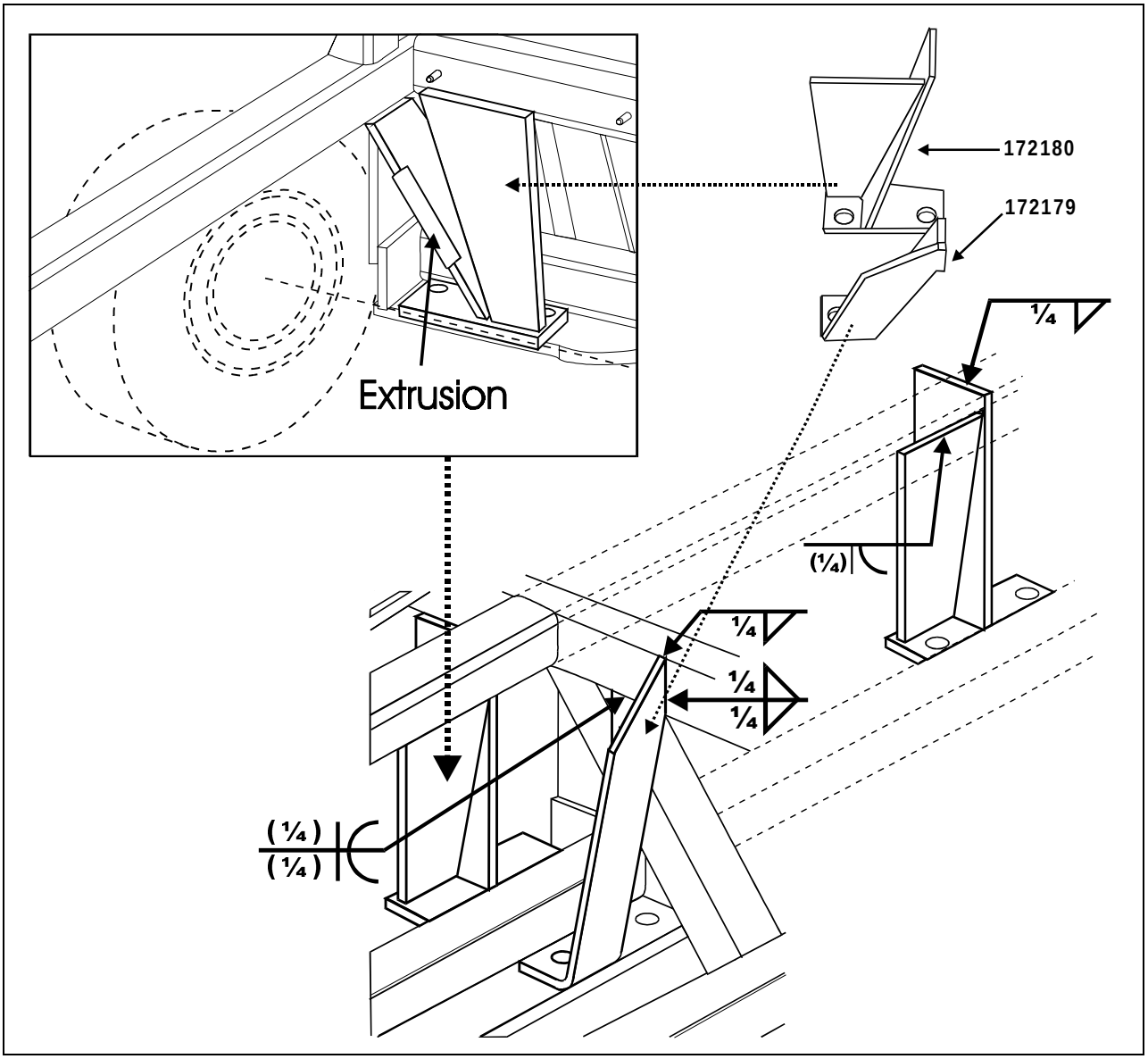

FIGURE 1: LOCATION OF THE BRACKETS ON STRUCTURE LOCATED BEHIND FRONT LEFT WHEEL 16081

9. Align vehicle with Bump steering Alignment Procedure.

INDEPENDENT SUSPENSION

WHEEL DISPLACEMENT VS TOE VARIATION

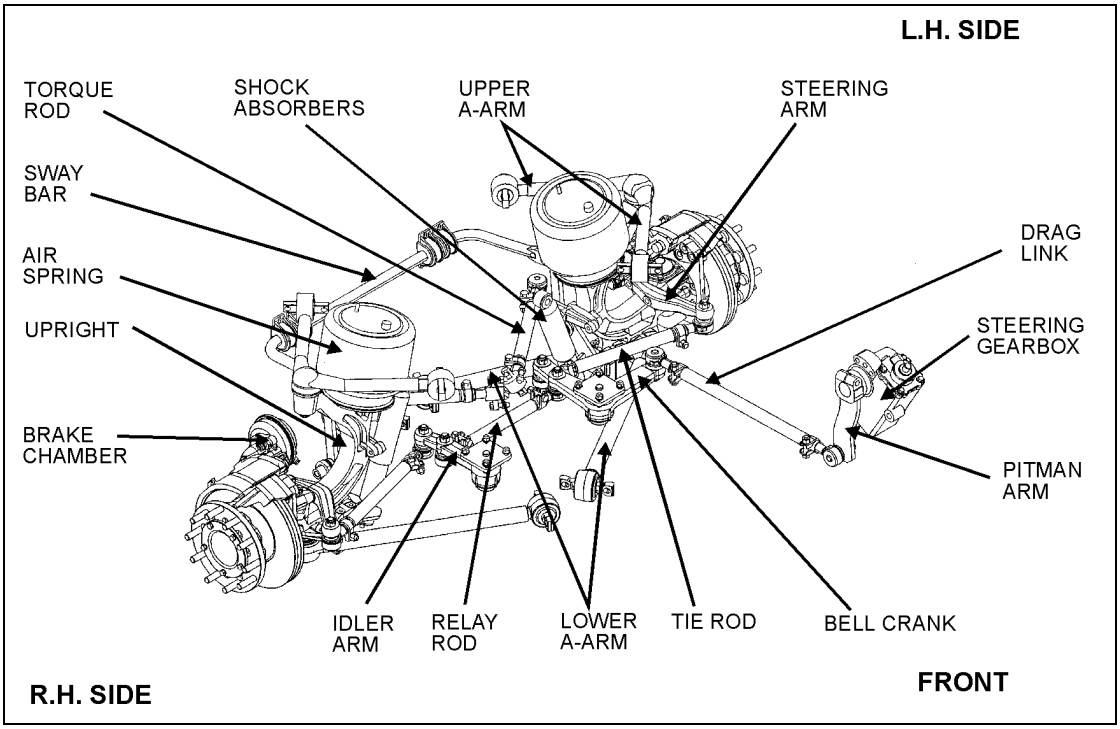

FIGURE 2: INDEPENDENT SUSPENSION **16036**

Tools

Number	Description	Qty
	Pitman arm centering tool	1
Orange tool	Pitman arm immobilizing tool	1
	Arms c/w screw cap, immobilizing tool	1
	Arms c/w interference cap immobilizing tool	1
	Interface to control front suspension	1
	22mm wrench, short	1
	2mm sleeve (machined)	1

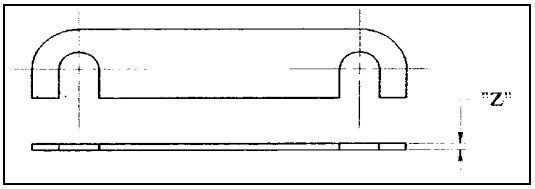

FIGURE 3: SHIM **16082**

MATERIAL

Part No	Description	Qty
161005	Shim, Z=26 GA (.476 mm)	1
161006	Shim, Z=20 GA (.953 mm)	1

Note: *Material can be obtained through regular channels.*

FRONT VEHICLE ALIGNMENT

BEFORE WHEEL DISPLACEMENT PROCEDURE

1. Pump up all suspension air springs to the nominal height (Fig. 7).
2. With alignment system, align front part of vehicle:

   Do the Run out

   The Caster (Verify only, none ajustable)

   The Camber

   Measure the toe.
3. Straighten up idler arms and bell crank in order to install the appropriate tool to immobilize the pitman arm in front of relay rod (Fig. 4).

Note: *Choose immobilizing tool, (screw cap or interference cap), depending of your vehicle installation (Fig. 4)*

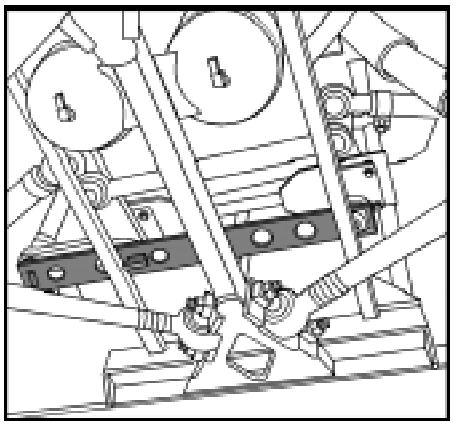

FIGURE 4 **16083**

4. Center the pitman arm using the appropriate tool. The pitman arm is centered when the tool is in line with the two verification lines (Fig. 5).

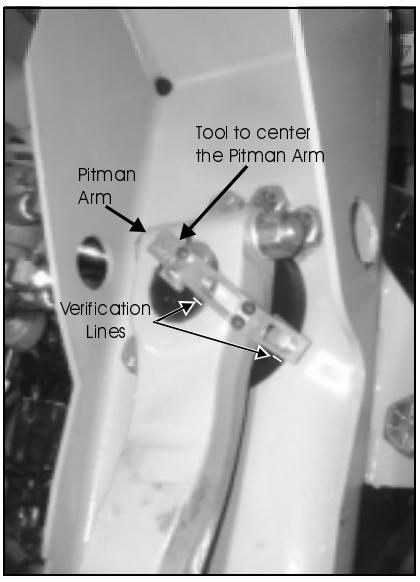

FIGURE 5:PITMAN ARM **16084**

5. Immobilize the pitman arm using the appropriate tool (Fig. 6).

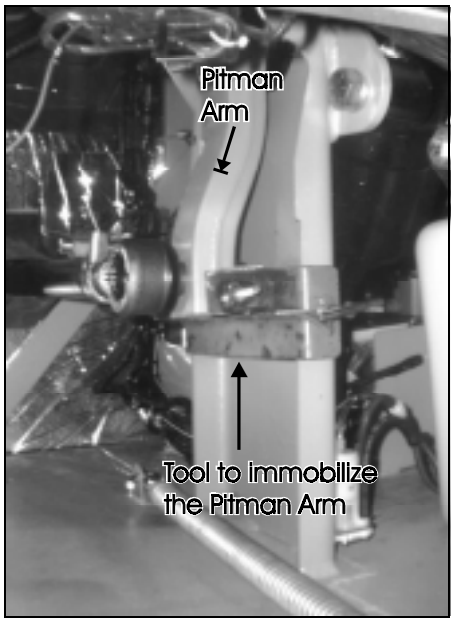

FIGURE 6 **16085**

6. Ajust the toe when suspension is at the nominal height. The distance between the two air spring plates must be 11 11/16 inches (Fig. 7).

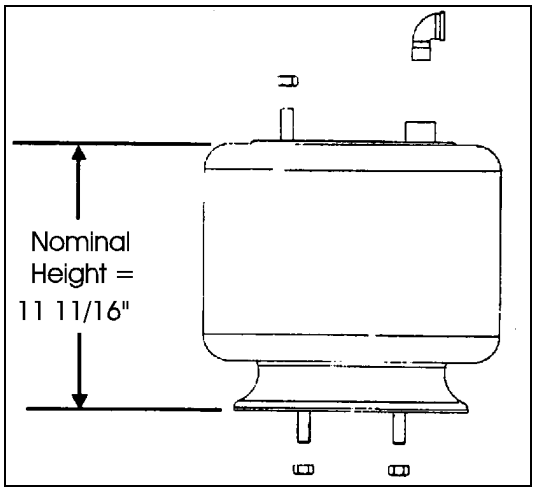

FIGURE 7

7. Center the steering wheel (remove it and place it centered with the steering). Torque it properly (see figure 11).

WHEEL DISPLACEMENT PROCEDURE

Note: *With steering immobilized, verify the computer to avoid reading variation.*

8. Open front service compartment (Fig. 8).

9. Connect interface wires to connector C181 in front service compartment (Fig. 8).

FIGURE 8

10. Verify if suspension is still at nominal height. The distance between the two air spring plates must be 11 11/16 inches. Record the readings of the toe at this height (left and right side).
11. Using the interface, lower the vehicle 3 inches (the distance between the two air spring plates must be 8 11/16 inches). Record the readings (left and right side)

Using the computer program: Toe.BAT

Note: *This computer program evaluate the true curvature of the toe produced by the vehicle.*

Insert diskette in driver A.

In Window, Select RUN in the file menu

Write: A: TOE

Enter vehicle number (then press enter)

Enter the readings of the toe at nominal height, left side (then press enter) and right side (then press enter

Enter the readings of the toe to -3 inches height (the distance between the two air spring plates must be 8 11/16 inches), left side (then press enter) and right side (then press enter).

Note: *The program gives the needed quantity of shims and where you have to install them on the idler arms. These new shims must be added to the existing ones (If needed).*

Note: *To print screen press simultaneously SHIFT and PRINTSCREEN.*

12. Partially unscrew idler arm bolts (only at necessary places). Install shim as requested by the computer program.

13. Install shim on rear side of vehicle to lower the arm (Fig. 9).

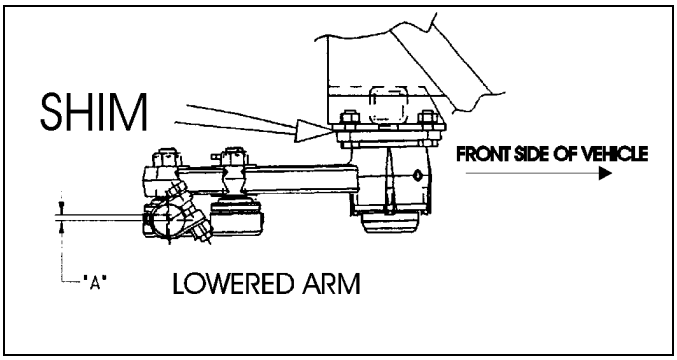

FIGURE 9 **16086**

14. Install shim on front side of vehicle to lift the arm (Fig. 10).

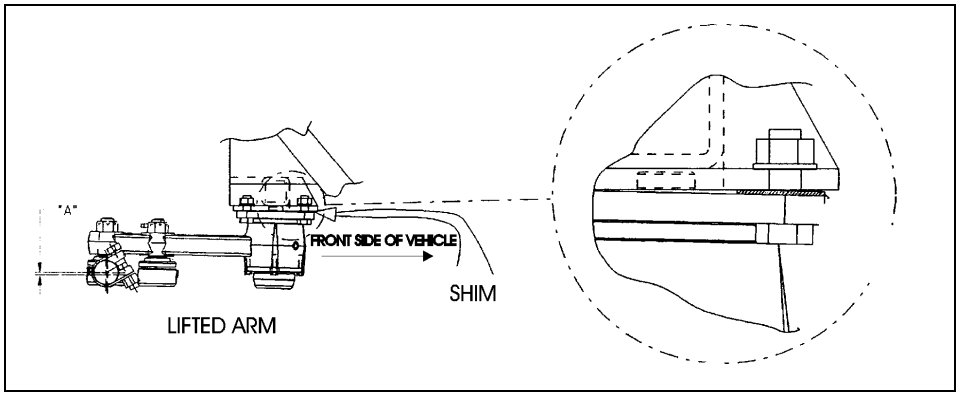

FIGURE 10 **16087**

15. Torque bolts as per figure 11.

Note: *In order to verify the alignment, redo the travel procedure. The computer program should not suggest to install shims anymore.*

16. After the wheel displacement procedure, the front end suspension must be realigned for the toe since this porcedure introduce a total toe variation.

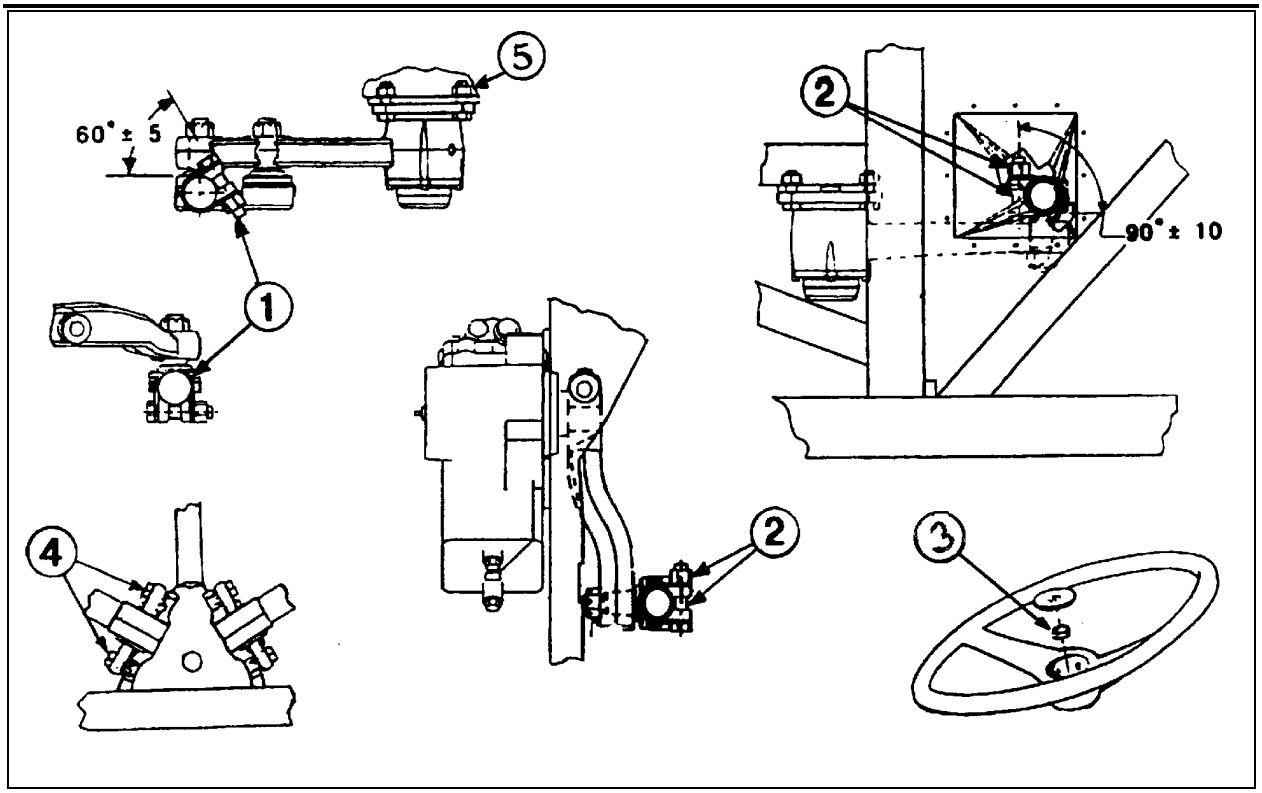

FIGURE 11: TORQUE REFERENCE (SEE TABLE BELOW)

Number	Description	Torque
1	Relay Rod Bolts	53 ± 7 lbf ft
2	Pitman Arm Bolts	53 ± 7 lbf ft
3	Steering Wheel Nut	40 ± 5 lbf ft
4	Lower A-Arm Bolts	265 ± 26 lbf ft lubricated
5	Idler Arm Bolts	115 ± 11 lbf ft