

The following are general guidelines only; it is recommended that these procedures be carried out in accordance with the directions in the vehicle service manual.

RECOMMENDED FLUIDS

*TRW/ROSS	*FORD SPEC	*SHEPPARD
ATF Type "E" or "F"	M2C138CJ SAE	10W40 MOTOR
DEXTRON/MERCON II	10W40 MTOT	5&6 GEAR & M-SERIES

NOTES:

Mixing different types of oils is inadvisable as deterioration and leaks may result.

We highly recommend that the oil and filter be replaced, and hoses and fittings be inspected upon installation of a Hydra Steer steering box, pump, or cylinder. Fasteners and pitman arms must be torqued to recommendations by vehicle manufacturers upon installation.

FLUID LEVELS

Crank the engine without starting it. Check and refill the reservoir. Repeat at least 3 times, each time checking and refilling the reservoir. DO NOT ALLOW fluid to drop significantly, as this may induce air into the system.

It will be necessary to continue filling after starting the engine and during the bleeding process to keep the oil at the proper level. DO NOT ALLOW the fluid level to drop significantly.

PURGING AIR-SINGLE STEERING BOX

Set the parking brake, chock the wheels, start the engine and allow idling. Turn the steering wheel from left to right, making at least 3 complete cycles to remove all air from the system.

If the steering box is equipped with a manual bleed screw, loosen the screw while the gear is in its center position, allowing air and aerated fluid to bleed out around the bleed screw. Repeat procedure until all of the air is purged from system (do not turn bleed screw while turning steering wheel). If "binding" occurs, excessive force is required when turning the steering wheel, or abnormal noise occurs, this indicates that air is still present in the steering system. Repeat procedure once more.

PURGING AIR-DUAL STEERING BOX SYSTEM

With the steering gears installed, the pitman arms may be installed if there is no clearance issue with the pitman arm when full travel

is used. Install the arm checking to see that the timing mark on the sector shaft and pitman arm are aligned.

NOTE:

Torque to recommendations by vehicle manufacturers.

Fill the pump reservoir, set the parking brake, start the engine and allow idling at a fast speed.

With the engine running and the drag links disconnected, turn the steering wheel to the left and hold until the secondary or slave gear pitman arm moves to its full travel. Repeat this process 3-4 times. Keep checking the reservoir and add fluid as required.

Connect the drag link to the master gear, but do not connect the drag link to the secondary gear at this time. Turn the steering wheel to the left and hold until the secondary gear pitman arm moves to its full travel. Turn to the right and hold until the secondary gear again moves to its full travel. Repeat this process 3-4 times. Turn the steering wheel until the secondary gear pitman arm lines up with the drag link. Install the pitman arm to drag link.

Do not move the pitman arm by hand or air will be drawn into the system.

Scan the QR Codes for video links to:



TRW Bleed Procedure



Sheppard Bleed Procedure

PRESSURE RELIEF VALVE ADJUSTMENT FOR HF, HFB, 292, 392, 492, 592 & M-SERIES GEARS

This adjustment should be made periodically and at any point where the gears, springs, axle, etc. are disturbed. This adjustment protects the pump, steering gear and steering linkage from overloading when the wheels are at full turn. Some steering boxes have an automatic unloader for one direction of turn. Start the engine and run at fast idle. With the full weight of the vehicle on its wheels, turn the steering wheel in one direction until an increase of effort is felt. Hold the wheel at this position and do not force the wheel beyond this point.

Check the clearance between the axle stop and beam. Turn the appropriate plunger in or out until the clearance is 1/8 inch between the axle stop and axle beam. A high pressure "HISS" is heard. Tighten the lock nut. Apply the same procedure in the opposite direction if gear has two adjusters.

NOTE:

System relief pressure should be maintained for no longer than 5 seconds, as this may result in damage to the system.

PRESSURE RELIEF VALVE ADJUSTMENT FOR TAS & THP SERIES

All TAS and THP series gears are equipped with self-adjusting poppets. They are set once the unit is mounted to the vehicle and the linkage is connected.

NOTE:

Do not turn the input shaft prior to installation of linkages.

Axle stops and all steering linkage must be set to OEM specifications, and the pitman arm must be correctly aligned on the sector shaft for poppets to be set correctly

With the engine at idle and the vehicle unloaded turn the steering wheel to full travel in one direction until axle stop contact is made. Maximum input torque to be applied during this procedure is 40 lb. rim pull on a 20 in. diameter steering wheel.

Follow the same procedure while turning the steering wheel in the other direction. The poppets are now positioned to trip and reduce pressure as the steered wheel approaches the axle stops in either direction.

NOTE:

System relief pressure should be maintained for no longer than 5 seconds, as this may result in damage to the steering pump.



Scan the QR Code for a video link to the: TRW Steering Gear Poppet Setting and Resetting Procedure

M, HD, SD, XD SERIES AUTO POPPET ADJUSTMENT PROCEDURE:

1. Park the vehicle on a solid surface. Set the parking brake, chock the wheels and tilt the hood or cab to access the front tires.
2. Verify that your steering gear has auto plungers. Steering gears with auto plungers will have the word "AUTO" cast into the housing.
3. Raise the front wheels until the tires clear the surface. Make sure axle stops are set to manufacturer's specifications.
4. Start the engine and turn the wheel to a full lock in both directions. Contacting the axle stop with the wheels off the ground will set the auto plunger to the correct position.
5. Return the wheels to straight ahead. Lower the vehicle.

ALL ADJUSTMENTS SHOULD BE DONE IN ACCORDANCE WITH RECOMMENDATIONS BY VEHICLE MANUFACTURERS



Scan the QR Code for a video link to the: Sheppard Poppet Relief Plunger Adjustment

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