SAFETY NOTICE

STOP! Before you begin, please read this manual carefully. The repair procedures outlined in this manual are for repairing the Sheppard Integral Power Steering Gear. To ensure safe and reliable operation, these service and repair procedures must be followed carefully.

WARNING

THIS MANUAL CONTAINS A NUMBER OF SAFETY SIGNAL WORDS LIKE: DANGER, WARNING, CAUTION, IMPORTANT, or NOTE. The information following a safety signal word is very important.

When you see the word DANGER it means the information will help you avoid an extreme hazard that could kill or cause a very serious injury every time.

When you see the word WARNING it means there is a hazard that is not as serious as DANGER but the hazard could cause injury or death if you do not follow the proper rules or procedures.

When you see the CAUTION it means the information that follows will help avoid damage to the steering gear.

The signal words IMPORTANT or NOTE are used to draw attention to ways of doing your job better or right.

Dual Steering Gear Systems

Two or more integral steering gears are sometimes used where front axle weights exceed 16,000lbs gross front axle weight rating. Dual steering systems are used to balance the steering gear output across two or more steering arms and conserve under hood space.

The secondary or slave unit is mounted on the right hand side of the vehicle and operates off of pressure supplied by the master or left hand steering gear. Dual steering systems are mechanically linked to the front end components by a drag link and steer arm on the right hand spindle on the axle. No physical link exists between the master and slave. Hydraulic pressure and flow reacting on the slave gear piston causes the slave gear to operate under pressure in the opposite direction of the master gear assisting in the power steering operation of the system. Hydraulic relief plungers are not used in the slave gear. Master gear relief plungers will relieve hydraulic pressure for both gears when properly adjusted.

There are three dual system configurations common with the Sheppard M-Series steering gears M-Series Cooling Slave, M-Series Standard Slave and 92 series slave gears. Operation of the slave is consistent no matter which slave configuration you are working with.

Dual systems can be plumbed one of two ways depending on slave gear configuration. Typical plumbing configurations are:

M-Series Cooling Slave - Cooling slaves have a low pressure return port cast along the length of the slave gear housing. Return oil from the master gear is routed through this port and back to the reservoir. The additional line provides a cooling effect as well as using the slave gear as a heat sink.

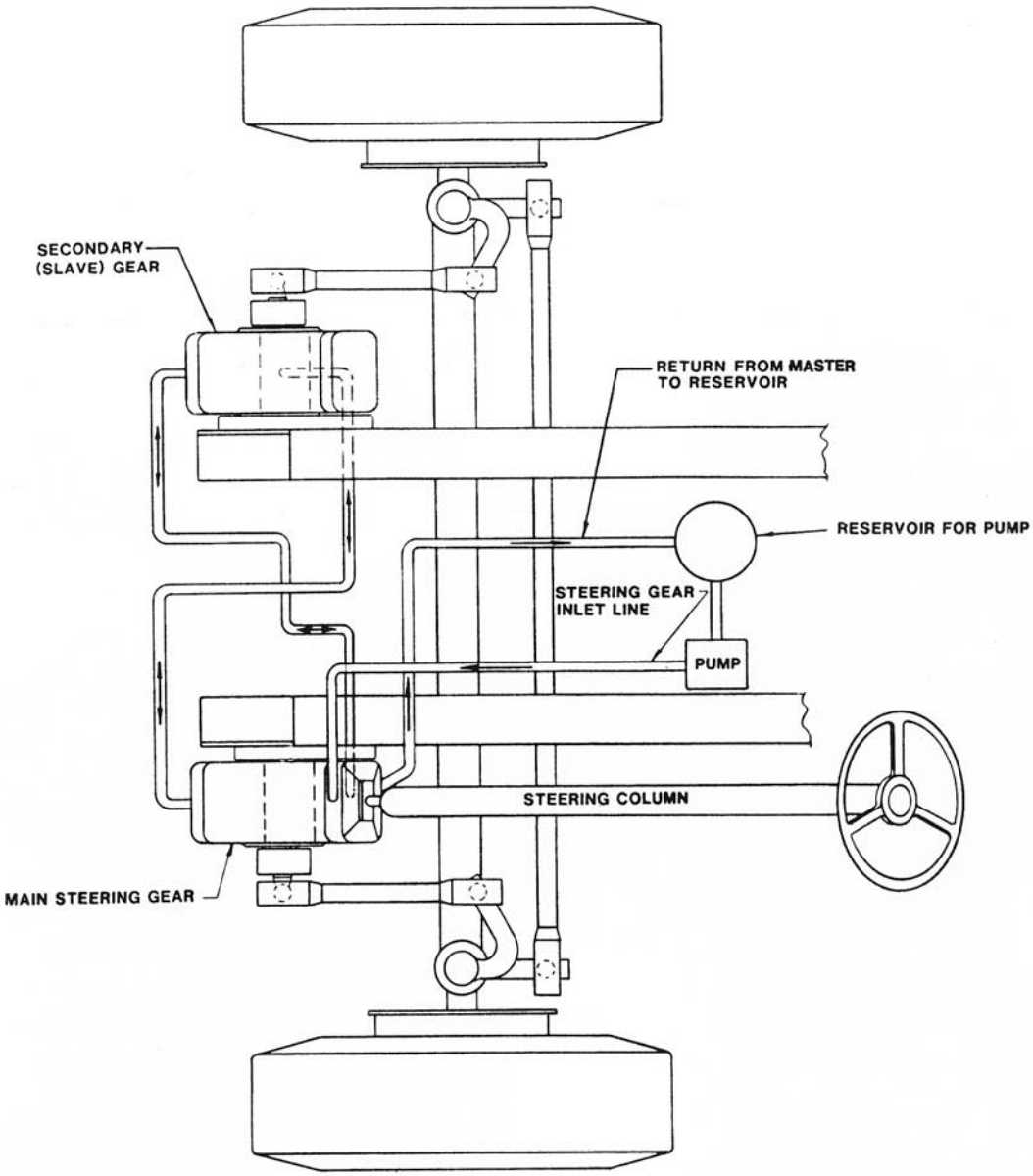
92 Series Slave Gear - Return oil is routed from the return side of the master gear through the sector shaft bore of the 92 series slave then back to the reservoir. The additional line provides a cooling effect as well as using the slave gear as a heat sink. Refer to page 63 for diagram

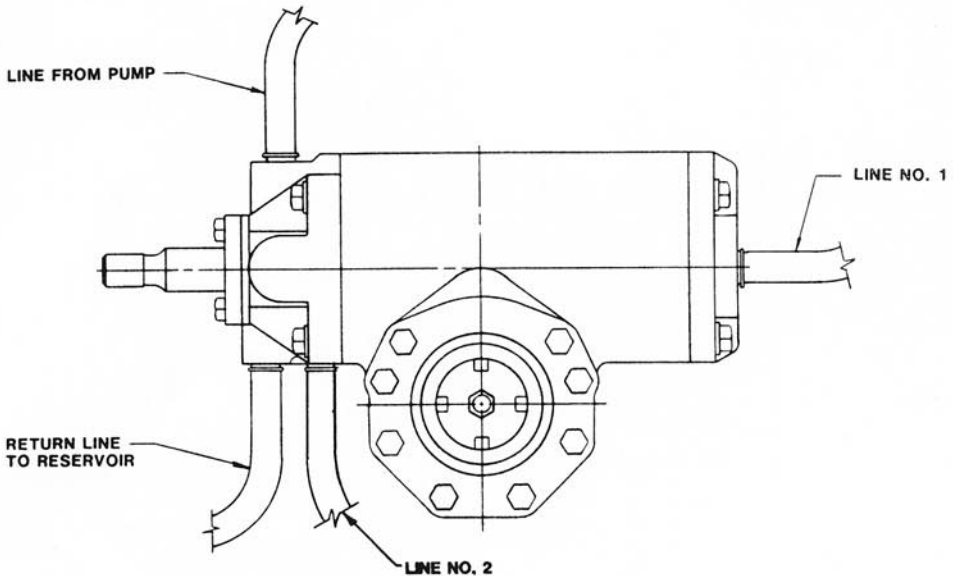
M-series Standard Slave - Requires only the cross over pressure lines between the master gear and the slave steering gear. No additional line is required in the plumbing of the standard slave dual system. Refer to page 62 for diagram

NOTE: The Sheppard M-Series steering gear may also be used with an assist cylinder. Refer to your truck manufacturer's service manual for operation, bleeding and repair procedures for hydraulic assist cylinders.

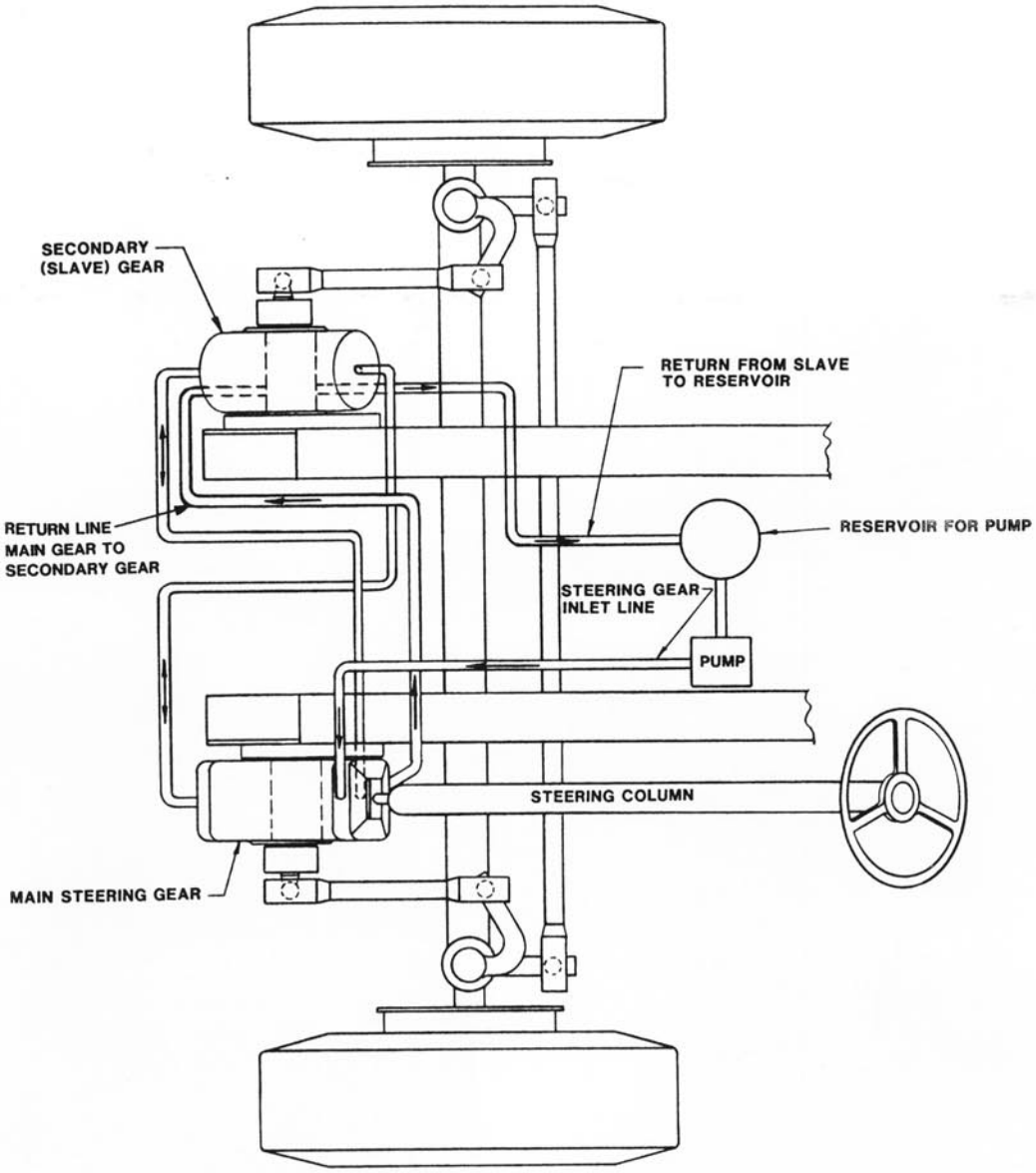
IMPORTANT: Bleeding of the dual system is critical whenever the oil has been changed, the system has been opened to atmosphere or a steering gear has been replaced. Follow the Dual System Bleed procedure in the Common Procedures section of this manual.

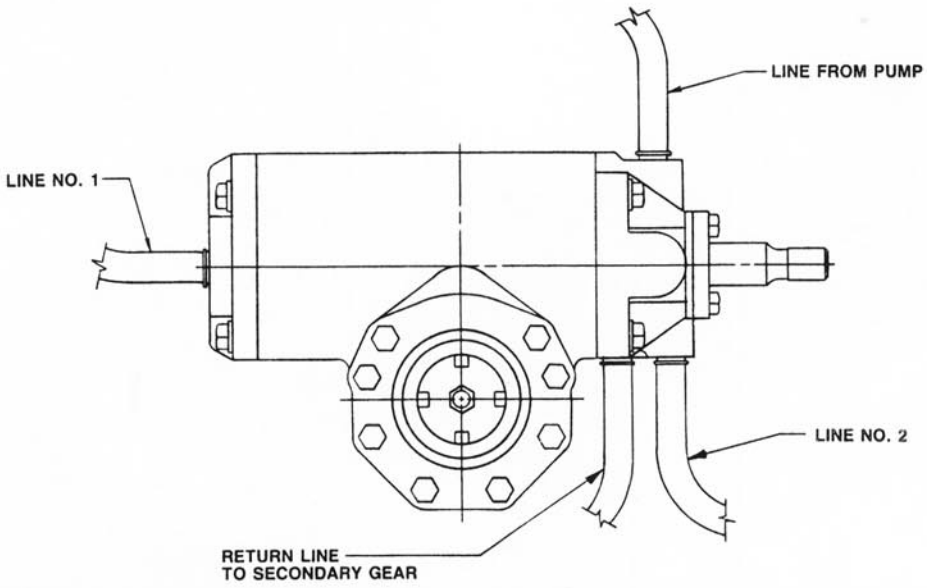
Standard Slave System





Cooling Slave System



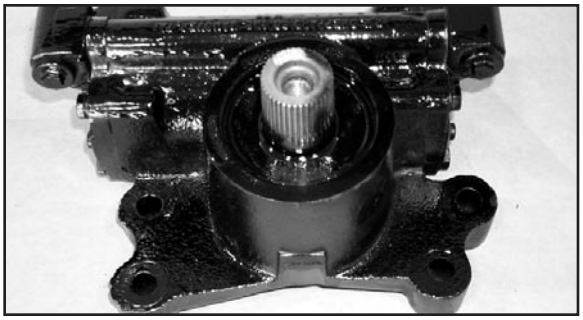


M-Series Slave Gears - Cooling Slave & Standard Slave

The Sheppard M-Series slave gear is simple in operation and should not require disassembly for repair.

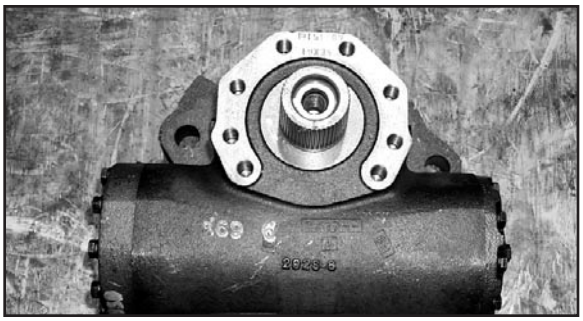
Sheppard M-Series slave gears contain only two moving parts, a power piston and a sector shaft. Repairs can be completed, if necessary, by following the procedures in the disassembly & reassembly sections of this manual. Keep in mind that slave steering gears do not have input shafts or relief plungers should you have a need for disassembly.

Typical M-Series Cooling Slave Gear

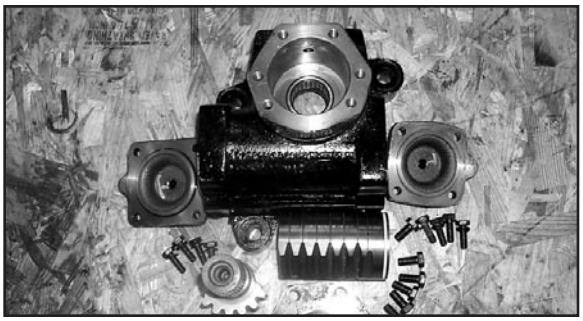


Typical M-Series Standard Slave Gear

Typical 92 Series Slave Gear



Disassembled Slave Steering Gear - M-Series.



Refer to **Sheppard Service Manual 1000485** for 92 Series Slave repairs.