

SHOP MANUAL

BINDER

GRADER

GALION MANUFACTURING COMPANY, Galion, Ohio 44833, U.S.A.

a Jeffrey Galion Inc. Company

FILE

A

SECTION

9^{R1}

**THESE INSTRUCTIONS APPLY TO THE VERTICAL STEERING
SHAFT ASSEMBLY USED ON GALION GRADER MODELS:**

T-500 Series "A & L"
T-600 Series "B"
160 Series "L"
160 Series "B & C"
118 Series "B & C"
104 Series "B & C"
104-H Series "B & C"

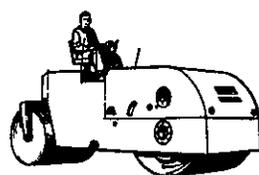
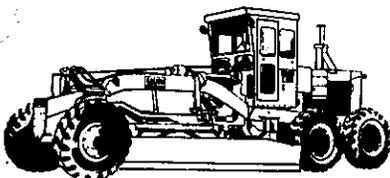
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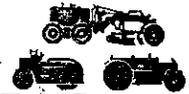
Steering arm nut torque (Top & Bottom): 1,590 Ft.-Lbs.

Tighten daily until torque is maintained.

R1







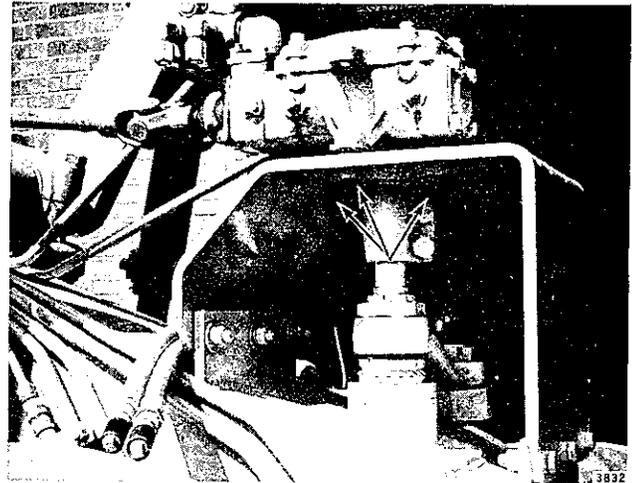
DISASSEMBLY:

1

Disconnect all tubing and hose from steering gear control valve.

Plug or cap all fittings to prevent dirt from entering the system.

Remove steering gear retaining nuts.

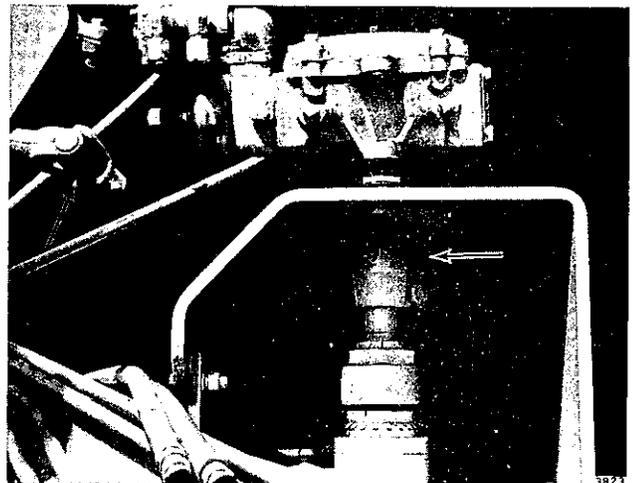


2

Disconnect steering wheel bracket (In operator's cab) and pull steering gear universal joint free of steering gear.

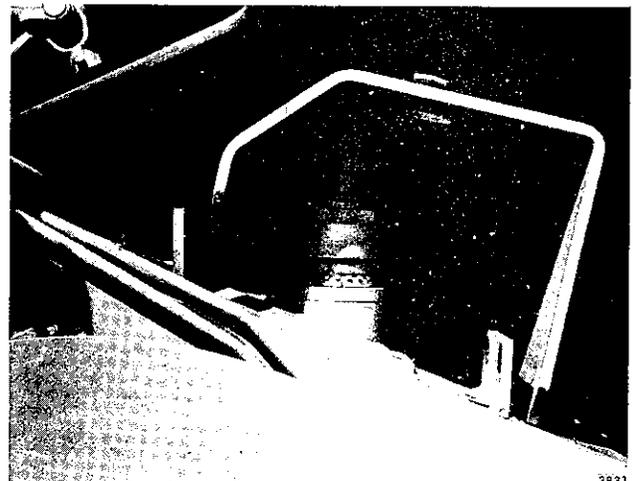
Remove steering gear to steering shaft coupling bolt.

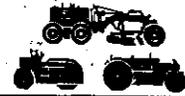
Lift gear from steering gear mounting plate.



3

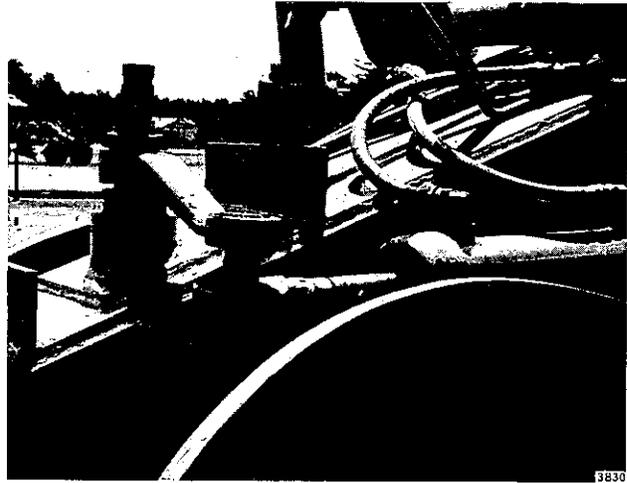
Remove steering gear mounting plate and shaft to gear coupling.





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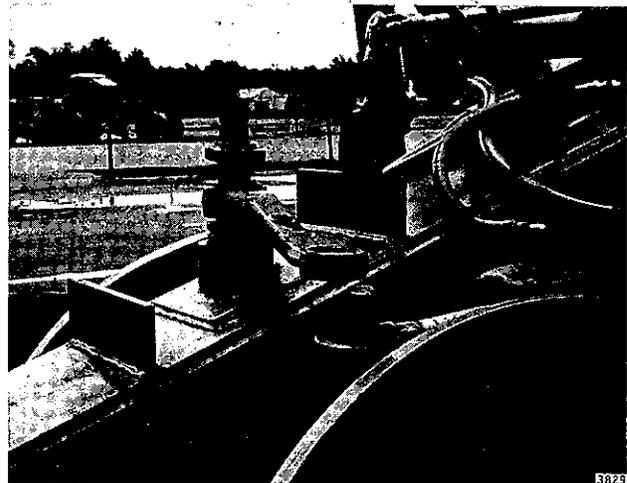
Disconnect steering cylinder from upper steering arm.



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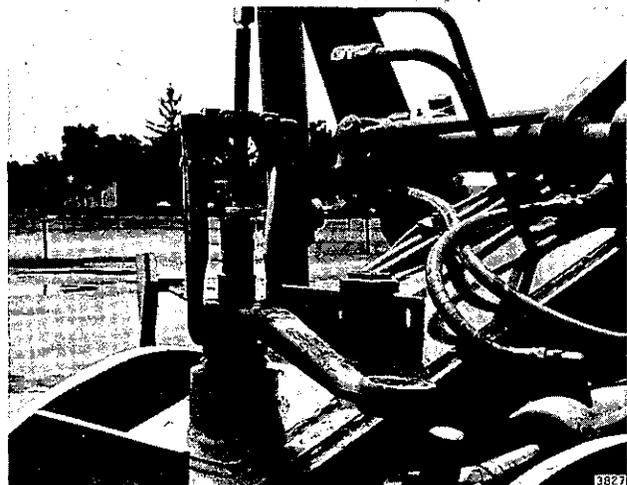
Remove steering arm retaining nut.



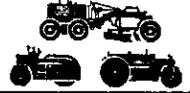
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6

Pull steering arm from shaft.



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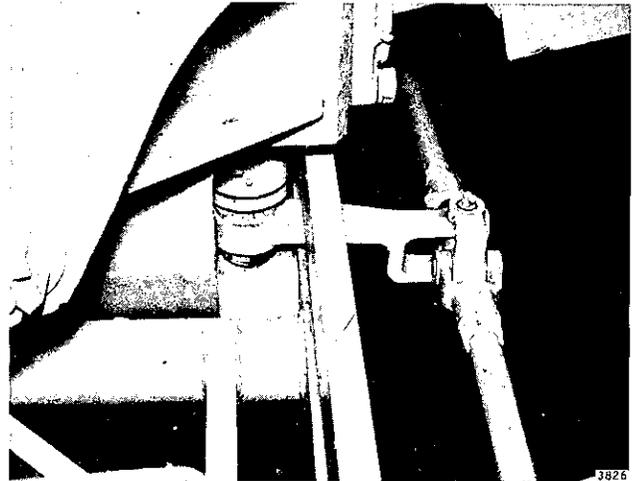
Loosen and back off lower steering arm retaining nut as far as possible. (Nut can not be removed at this time due to limited clearance)

Place large drift against steering arm and knock arm loose and against retaining nut.

Straighten bent lugs of lock-washer to free adjusting nuts.

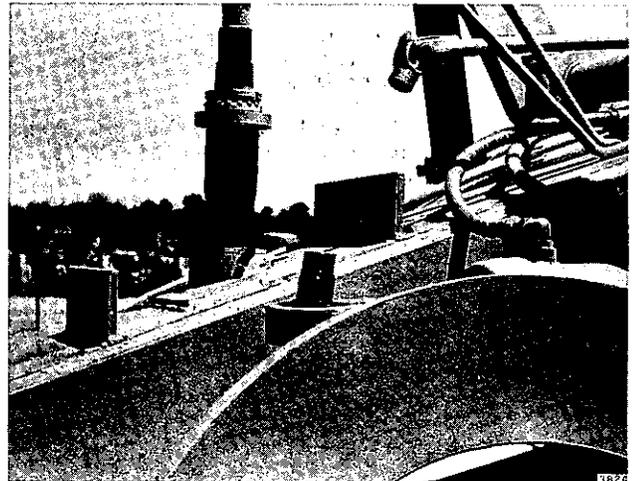
Back off adjusting nuts as far as possible and then raise shaft and back off retaining nut.

Repeat this process until retaining nut, arm, adjusting nuts and thrust washer are free and removed.



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Steering shaft, top thrust washer, adjusting nuts and lock washer may be removed at this time.



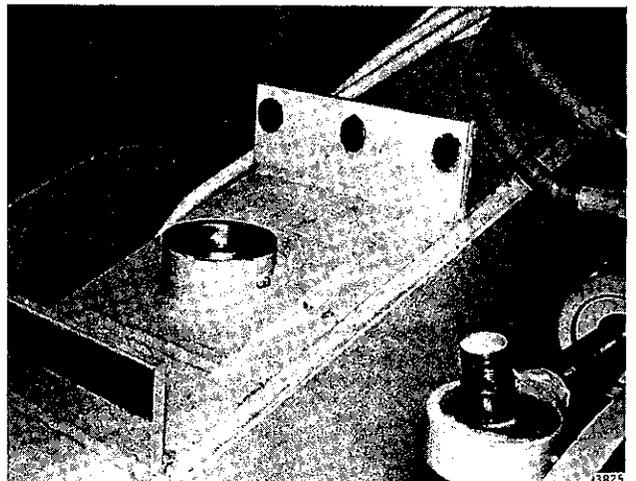
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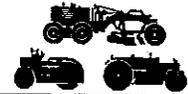
Measure inside diameter of shaft bushings.

Measure outside diameter of shaft bearing area.

Shaft diameter should be from .004" to .006" less than bushing inside diameter to provide working clearance for shaft.

Clearance too great in excess of working tolerance could indicate bushing replacement is necessary.



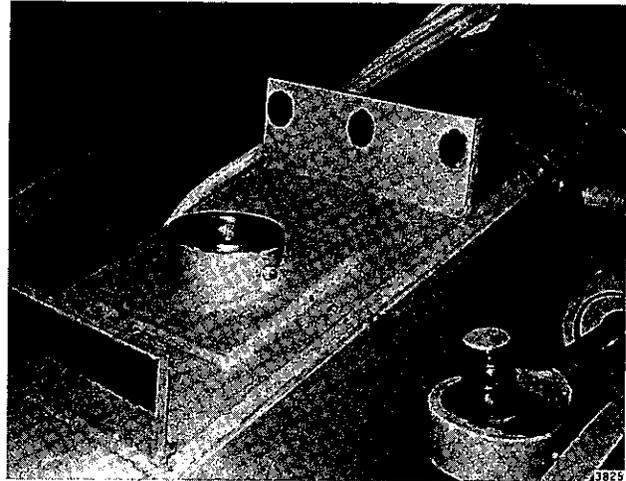


ASSEMBLY:

10

If necessary--press new bushings in tube, top and bottom.

Ream to an inside diameter of .004" to .006" larger than outside diameter of shaft.



11

Place thrust washer (Under cut side down) on top end of shaft followed by adjusting nut, lock washer and nut.

Position washer and nuts so lip of thrust washer extends over shoulder of shaft bearing area.

Insert shaft part way into bushings.



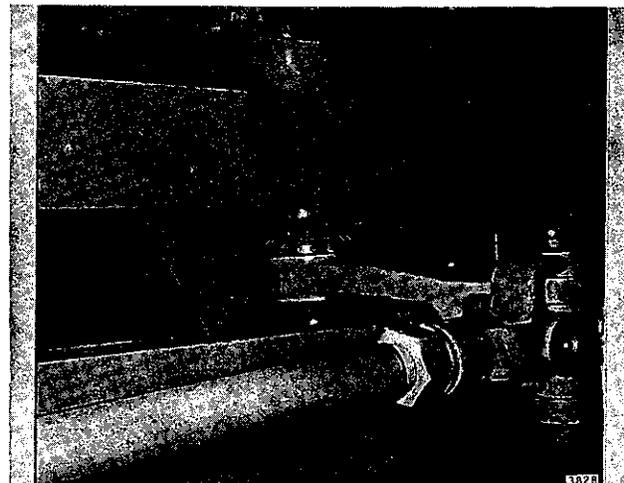
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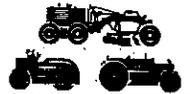
Stack components (from bottom) retaining nut, steering arm, adjusting nut, locking washer, adjusting nut and thrust washer. (Under cut side up)

Lower shaft through assembly until top adjusting nut can be started on threads.

Lower shaft a little more and tighten first nut until enough threads are exposed to start the second nut, lift arm until retaining nut can be started.

Continue tightening nuts until no vertical end play of shaft is present and lower steering arm is tight.

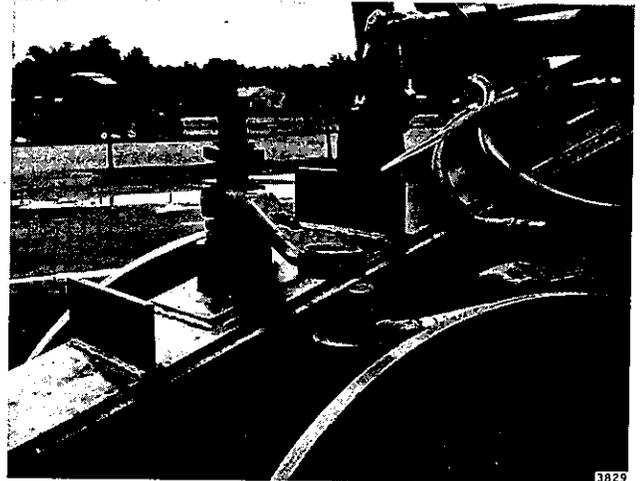




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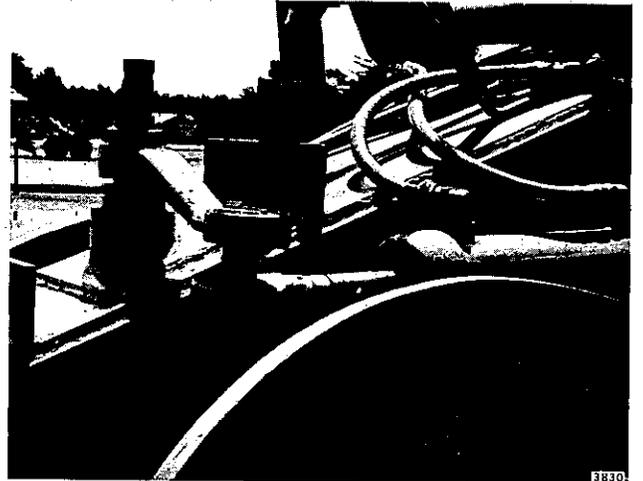
Install upper steering arm and tighten nut until arm is seated securely on shaft.

Lock both upper and lower adjusting nuts by bending lug on washer into slots on nuts.



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Connect steering cylinder and arm.

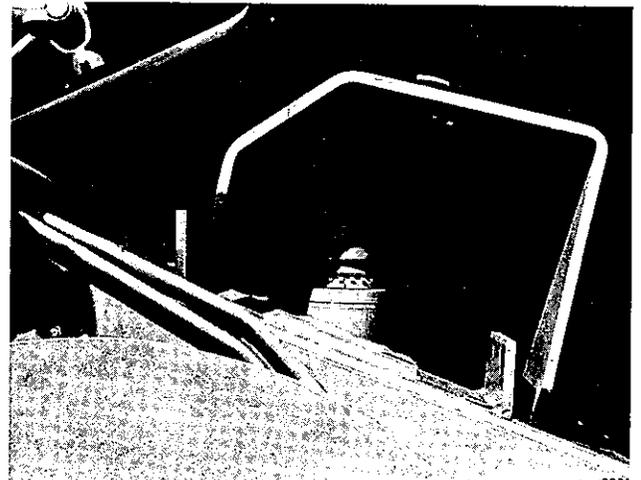


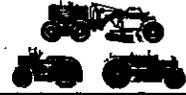
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Install shaft and gear coupling.

Position coupling on shaft and lock in place with bolt.

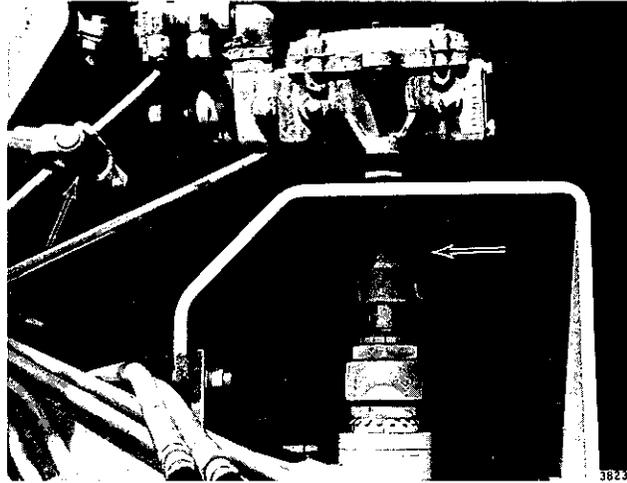
Install gear mounting plate.





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Install gear on mounting plate and shaft into coupling.



17

Connect steering shaft universal joint.

Install gear retaining bolts, nuts, and coupling bolt.

Connect hydraulic tubing and hose.

Steer machine from side to side several times and then re-tighten all fasteners.

Pay particular attention to re-tightening steering arm retaining nuts.

If all components are replaced in same position from which they were removed, no further adjustment is necessary.

