



Galion
Service, Part, &
Operator's Manual
303
Motor Grader

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GA-SOP-303 GDR

Service, Part, & Operator's Manual

OPERATION

Book No.

MAINTENANCE

2018

REPAIR PARTS

GALION No. 303

MOTOR GRADER



THE GALION IRON WORKS & MFG. CO.

GALION, OHIO, U. S. A.

Printed in U.S.A.

FPCo. 2M

OPERATION



Controls, Instruments & Gauges - Cont'd.

HYDRAULIC MANIFOLD

17. Complete, centralized control of hydraulic operation.

- a. Control for left hand moldboard lift. Push forward to lower moldboard - Pull back to raise moldboard.
- b. Scarifier control. Push forward to lower scarifier - Pull back to raise scarifier.
- c. Circle reverse control for turning moldboard to desired cutting angle. Push forward to revolve circle to left - Pull back to revolve circle to right.

Safety and pressure regulating valves at center of manifold assembly. Upper valve with hand valve wheel (used only with Hydraulic Booster Steering) controls pressure in hydraulic steering circuit. Lower valve controls pressure for operating valves in manifold.

- d. Moldboard Side Shift Control. Push forward to shift moldboard to left - Pull back to shift moldboard to right.
- e. Front Leaning Wheel Control. Push forward to lean front wheels to right - Pull back to lean front wheels to left.
- f. Control for right hand moldboard lift. Push forward to lower moldboard - Pull back to raise moldboard.
- g. Steering wheel. Operates both manual and hydraulic "booster" control.

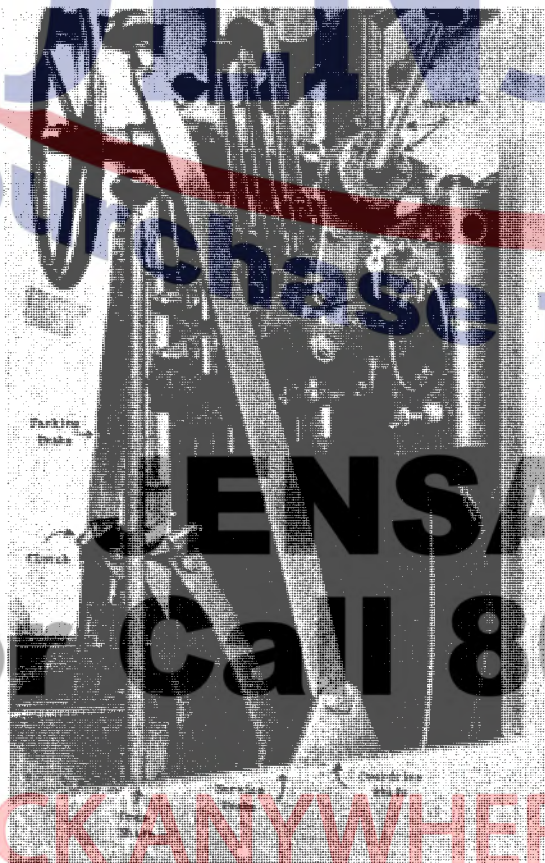


Fig. 2 - Brake, Clutch & Transmission Controls

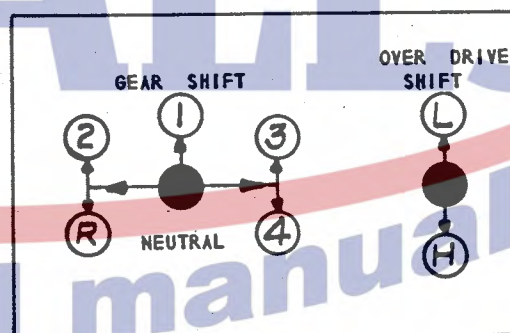


Fig. 3 - Overdrive and Gear Shift Diagrams

NOT ILLUSTRATED

CHOKE - Choke for engine starting, located in heel plate below operator's seat.

CAB HEATER - Hot water type heater can be installed in heel plate below operator's seat. An Accessory.

ODOMETER - Mounts on left hand front wheel hub and records mileage of travel. An accessory.

SERIAL & MODEL Number Plate - Located on heel plate below operator's seat.

POWER UNIT & ENGINE SERIAL NUMBER - See inside front cover.

OPERATION



ACCESSORIES

Air Compressor - Tire Pump

See Fig. 11

For No. 303 Motor Graders operating far from base of service and supply, an air compressor (tire pump) is available as an accessory.

Tire pump is mounted on an arch base secured to grader frame in front of top of side shift case.

TO OPERATE AIR COMPRESSOR

1. To operate compressor: Drive out universal joint pins from front and rear universal joints on side shift drive shaft. Take up slack at rear joint and slip front joint on squared end of drive shaft to clear end of fluid motor output shaft. Remove front universal joint.
2. Couple compressor using short drive shaft furnished with pump and using same front universal joint and pin as is used with side shift drive shaft.
3. Remove dust guard pipe plug from compressor cylinder at top left, and connect hose.

Hose is equipped with pressure gauge and tire valve connector.

Service compressor air cleaner and compressor lubrication as per instruction sheet furnished with compressor.

When not in use, remove compressor drive shaft and hose and store in tool box. Replace dust guard pipe plug in compressor cylinder outlet.

Replace side shift drive shaft in reverse of instructions in Paragraph (1) one.

OPERATION RECORDS

Two accessories are available for owners who wish to keep record of costs of operation. Costs per mile or per hour. Records of miles, hours, or fuel consumed per job, etc.

ODOMETER

ODOMETER - An accessory to be mounted on left hand front wheel hub. Records travel mile-

age. Specify if dials are to record kilos or miles and give size of front tires.

HOURLMETER

HOURLMETER - An attachment for engine to show hours of operation.

ELECTRIC LIGHTS

When it is desired to operate the #303 on overtime shifts, electric lighting equipment can be installed.

OPERATOR'S CAB, Etc.

For protection and comfort of operator when necessary to operate #303 Grader in stormy or cold weather, enclosed cab, windshield wipers and cab heaters are available as extras.

Radiator curtain is available as an aid to more efficient operation of engine in cold weather



Fig. 8 - Scarifier

MOLDBOARD LIFT SHAFT & INDEXING TURRET

Moldboard lift shafts are each supported in two bearings with removable bronze bushings. In case of wear, these bushings can be pressed out and new bushings installed.

The lift shaft can be removed by disconnecting piston rod from turret center adjustable lift arm and hang rod from blade lift (front) arm.

Loosen set screws in collar at rear of front bearing, set screws and clamp bolts in both front and rear lift arm adjusting collars (turret front & rear plates). Pull front collar forward on shaft and remove key. Pull turret center forward and repeat operation to remove rear collar key.

Lift shaft and blade lift arm assembly can then be pulled straight forward out of dash and frame bracket bearings. Index turret parts being removed after shaft is clear of dash bearing.

In reassembly be sure keys are properly installed in lift arm adjusting collars, set screws and clamp bolts securely tightened.

See Fig. 5

Rear lift arm adjusting collar and collar at rear of front bearing not only position the lift shaft but take any end thrust on shaft.

The adjustable lift arm (turret center) is to be free on shaft and can be rotated when the lock pin is removed. This adjustment permits a wide range of moldboard positions and adjustments.

The two moldboard hang rods as well as the side shift drag link are telescopic type and a range of adjustment holes are provided in the shaft (male) section. Lock pins are used to secure desired adjustment. These adjustments are used in extended berm, shoulder and bank cuts.

Lift cylinder piston rods and hang rods have ball socket end connections. These ball sockets are provided with shims for adjustment. Service as required to remove any play.

All working parts should be lubricated regularly and grease fittings are provided for this service.

Moldboard Lift Cylinder

The moldboard lift cylinders are assembled right and left and in taking either of the cylinders apart they should be marked with proper location of all parts for reassembly.

To remove cylinders; pull stub pivot shafts which support cylinders, after disconnecting hydraulic hose and ball socket on piston rod.

The pivot shafts (two per cylinder) are drilled for bolts to be inserted for the purpose of pulling the shaft.

Bronze bushings in cylinder connections can be replaced if worn. Lubricate regularly.

For repair of cylinder and hose connections refer to Hydraulic Section.

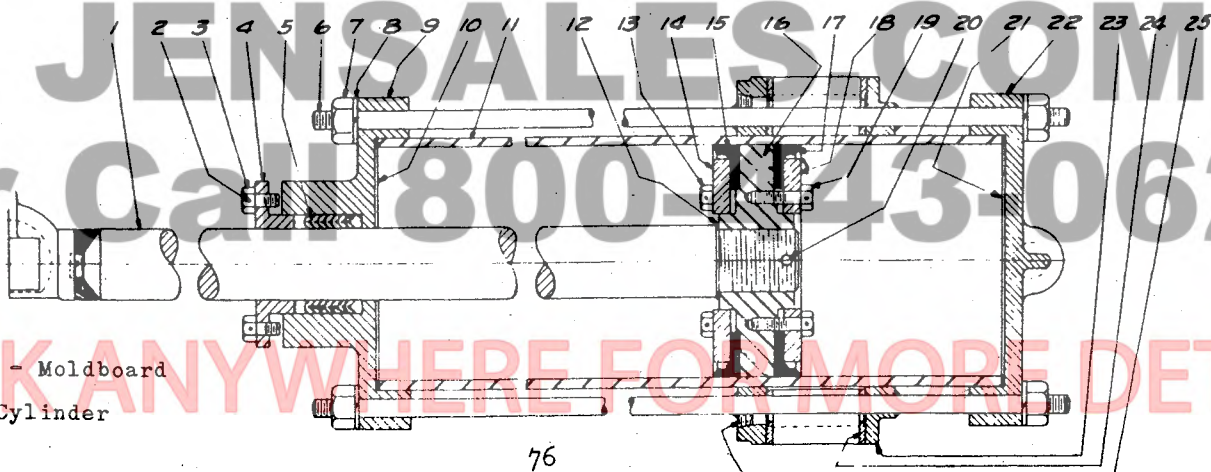


Fig. 73 - Moldboard
Lift Cylinder

Throttle - Governor Control Parts

Item No. Part No. DESCRIPTION No. Req.

GOVERNOR (THROTTLE) CONTROL, CONT'D.

D-29314	Yoke, Governor Control - - - - -	1
D-29315	Pin, Governor Control Yoke - - - - -	1
SA-32012	Rod Assembly, Governor Control (Diesel Only) - - - - -	1
	Includes: D-31977 Rod, Governor Control - - - - -	
	D-29317 Coupling, Governor Control Rod) Welded	
D-29358	"U" Bolt, Governor Control Mounting - - - - - Gas. 1 Diesel 2	
D-29359	Bracket, Governor Control Cable Mounting (Diesel) - - - - -	1
H-32037	Bracket, Governor Control Cable Mounting (Gasoline) - - - - -	1
D-30969	Yoke, Governor Control (Diesel) - - - - -	1
D-32029	Lever, Governor (Diesel) - - - - -	1
	Use: Nut, Hex. N.F. Jam 5/8"-18 - - - - -	1
	Nut, Hex. N.C. 5/16"-18 - - - - -	8
	Lock Washer 5/16" - - - - -	4

Fig. 99 - Governor
(Throttle)
Control.

See Fold-in Assembly
Drawing in back of
manual for side
elevation

D-29310-PIN
H-29309
48356-D
64583-D
48356-D
6649-D
48358-D
15042-D
1/2" HEX NUT N.C.
D-30305

D-6899

D-29311

5/8"-18 HEX.
CHECK
NUT

H-29312

D-29316

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Woodruff "E" - - -	98	MI-251 - - -	161	A-627-A - - -	130	FC-779 - - -	151
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6-JTX-S - - -	112	MI-267 - - -	161	A-632 - - -	134	962 - - -	111
8MA-8UFS - - -	108-112	A-300 - - -	138	634-A - - -	165	FD-962 - - -	147
8MAX-8UFS - - -	108-112	A-332 - - -	94	C-637-A - - -	127	963 - - -	111
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10-BTS - - -	112	A-398 - - -	138	C-639-A - - -	127	965 - - -	111
10-CX-S - - -	111	432 Timk. - - -	89	DS-643-B - - -	131	FC-965 - - -	151
10-FX-S - - -	108	447 Timk. - - -	89	D-644-B - - -	131	FC-966 - - -	151
10-G - - -	111-112	XA-456-E - - -	153	D-645-A - - -	131	FC-967 - - -	151
10-GTX-S - - -	111-112	CL-486 - - -	123	C-647 - - -	131	FC-968 - - -	151
10-T-S - - -	112	MI-486 - - -	161	C-649-B - - -	131	FC-969 - - -	151
Woodruff #11 - - -	109	552-A Timk. - - -	145	C-650-B - - -	131	FC-975 - - -	151
13-A - - -	161	559 Timk. - - -	145	C-651-B - - -	131	FC-996 - - -	147
16-FX-S - - -	111	563 Timk. - - -	101	C-652-C - - -	131	W-1000-A - - -	160
FC-17 - - -	147	567 Timk. - - -	143	FC-655 - - -	151	W-1001 - - -	160
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