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SECTION 15 CARBURETOR (MARVEL-SCHEBLER)

ADJUSTMENTS

Make carburetor adjustments with engine at operating temperature. Approximate adjustment settings are listed in Specifications. Governor linkage and high no-load speed adjustments are outlined in governor section.

IDLE MIXTURE — Check carburetor, air cleaner and intake manifold for air leaks. Position governor control at idle. Turn idle mixture adjusting screw (Fig. B30-15-1) in until engine begins to lose speed; then, turn screw out until engine again begins to slow down. Use 1/8 turns and allow time between each setting for engine to adjust itself. Race engine occasionally to 1000 rpm to clear combustion chambers of excess fuel. Continue adjusting to obtain maximum idle speed.

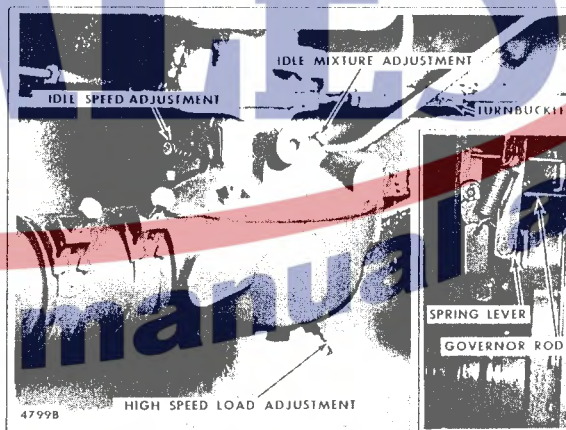


Fig. B30-15-1 Carburetor Adjustments

IDLE SPEED — ADJUST IDLE MIXTURE AND CHECK GOVERNOR LINKAGE ADJUSTMENT BEFORE ADJUSTING IDLE SPEED. Disconnect governor rod (Fig. B30-15-1) from spring lever. Turn idle speed adjusting screw in or out against its stop until correct idle speed is obtained. Move governor control to its maximum idle position, reinstall governor rod and adjust its length at turnbuckle so that hand lever or R-O-T foot pedal and idle speed adjusting screw contact their stops simultaneously.

HIGH SPEED LOAD — ADJUST IDLE MIXTURE BEFORE MAKING THIS ADJUSTMENT. Operate tractor under load (stationary operation). Slowly turn high speed load adjusting screw (Fig. B30-15-1) in until engine begins to lose power; then, turn screw out until full power is regained. Repeat procedure to establish definite setting. If impossible to adjust under stationary load, operate tractor under drawbar load after each change in adjustment. DO NOT ADJUST WHILE TRACTOR IS IN MOTION.



Fig. C10-15-2 Checking Differential End Play



Fig. C10-15-3 Checking Differential Backlash

Check amount of backlash between bevel pinion and bevel drive gear with a dial indicator (Fig. C10-15-3). Always place dial indicator with indicator plunger tangent to gear. Take readings at four places around ring gear and average readings to determine backlash. Large differences in reading may indicate excessive ring gear runout caused by improper tightening of ring gear bolts or foreign material between ring gear and spider. Transfer shims from one brake housing to the other until correct backlash, as marked on bevel gear, is obtained. Transfer shims in the same direction you desire gear to move.

BULL PINION AND BRAKE HOUSING DISASSEMBLY

• Remove bull pinion and brake housing as an assembly as outlined in this section. Slide bull pinion from brake housing. Remove "O" ring, oil collector cup and oil seal from brake housing (Fig. C10-15-1).

Pull bearing cup from brake housing with a suitable puller assembly such as Owatonna Puller 943 with reworked puller jaws. Remove bearing cone from bull pinion. Remove expansion plug from bull pinion if it shows signs of leakage.

BULL PINION AND BRAKE HOUSING ASSEMBLY

Install new expansion plug in outer end of bull pinion if old one was removed (Fig. C10-15-1). Install bearing cone on bull pinion with taper facing splined end.

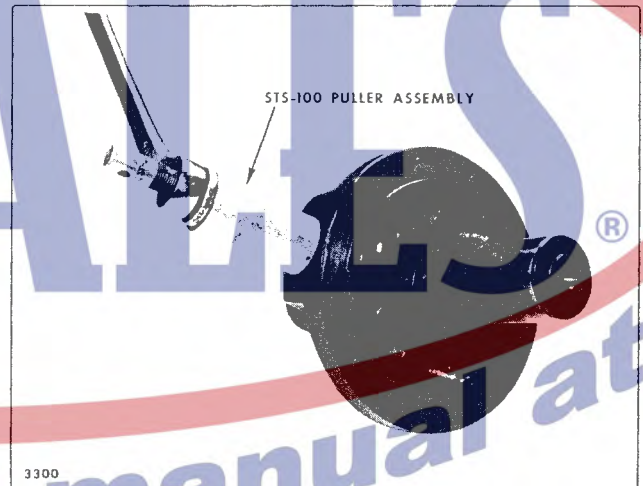


Fig. C10-15-4 Pulling Pinion Pin

Install outer bearing cup in brake housing with taper facing inward. Install new oil seal in brake housing so that lip faces bearing cup. Install a new "O" ring on brake housing. Install oil collector cup in brake housing with cup side facing inward.

DIFFERENTIAL DISASSEMBLY

Remove differential from rear main frame. Remove nuts and bolts securing ring gear to spider. Remove ring gear from spider. Remove differential pinion pin retaining rings. Remove differential pinion pins and pinion gears using STS-100 Puller Assembly (Fig. C10-15-4).



Fig. Q20-10-9 Input Shaft Assembly Removed

Remove dip stick from filler neck and remove strainer from inside of filler neck.

Remove input shaft assembly rearward from case. Remove countershaft gear and thrust washers from case. Be careful not to lose roller bearings when removing countershaft gear. Remove roller bearings and spacer from countershaft gear.

Drive on front of idler shaft and remove shaft from case. NOTE: IDLER GEAR SHAFT is manufactured with front end 0.002-inch larger where it fits into case, therefore, never drive on rear of shaft when removing.

Remove idler gear spacer, idler gear, space washer, thrust washer and roller bearings from case. Be careful not to lose roller bearings. Remove expansion and pipe plugs from case if they show evidence of leaking. Remove filler neck from case if it is damaged.

Remove snap ring from inside edge of front clutch assembly. Remove input shaft assembly from clutch cylinder. Do not remove cast iron sealing rings from input shaft unless they are stuck in their grooves, broken, have lost their tension or a 0.015-inch feeler gauge will go between side of ring and groove. Press bearing from input shaft if replacement of either is required.

Check oil sleeve sealing rings for wear and remove rings from sleeves if replacement is necessary (Fig. Q20-10-9). Remove thrust washer from output shaft. Work plates and drive hub from clutch assembly and output shaft.



Fig. Q20-10-10 Checking External Tooth Plate Slope

CAUTION: DO NOT HAMMER or push on output shaft oil sleeves as damage to sleeves will result. Replace clutch plates if warped or scored. Check cone of external tooth plates (Fig. Q20-10-10).

Remove snap ring and remove front clutch cylinder assembly from output shaft (Fig. Q20-10-11). Depress coil spring and spring retainers slightly with a press and remove snap ring from cylinder hub. Back off press slowly and cautiously. Remove spring retainer and spring from cylinder hub. Blow piston from cylinder by plugging both holes in inside of cylinder hub and applying air pressure to hole in outer edge of back side of cylinder. Remove steel ball from clutch cylinder. Remove oil seals from piston and cylinder.

Remove snap ring from inside edge of rear clutch cylinder. Remove rear clutch cylinder assembly from output shaft. Disassemble rear clutch cylinder assembly as previously outlined for front clutch cylinder assembly.

Check output shaft sealing rings for wear and remove rings from shaft if they are stuck in their grooves, broken, have lost their tension or a 0.015-inch feeler gauge will go between side of ring and groove. Remove snap ring and remove rear clutch plates and drive hub from output shaft. Remove thrust washer from output shaft. Remove output gear assembly from output shaft. Remove thrust washer from output shaft. Press output shaft bearing from shaft if replacement of either is required.

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SECTION 10 MANUAL STEERING GEAR (SAGINAW)

MANUAL PREVIEW

GENERAL

Refer to Figure U10-10-1 and U10-10-2.

Manual steering Wheatland and Industrial tractors are equipped with a Saginaw steering gear. Gear operates on recirculating ball principle. When steering worm is rotated ball nut moves with helix formed by balls and turns sector and pitman shaft. This steering gear design provides steering ease, but prevents danger of steering wheel kick-back from ground shock.

WHEEL, COLUMN AND SHAFTS

Refer to Figure U10-10-3 to disassemble or assemble wheel, column and shaft when required. Assembly of steering shafts and universal joints can be accomplished in only one way, insuring correct universal joint phasing. When installing steering column pins, thread pins into supports equally to center column and prevent binding of column during tilt adjustments.

REMOVAL AND INSTALLATION

Remove radiator and disconnect tie rods from steering sector arm. Remove universal joint from steering gear and remove steering gear from tractor.

Install steering gear by reversing preceding operations.

DISASSEMBLY

Remove steering gear. Remove steering sector arm nut and lock washer and pull arm from shaft. Remove side cover, gasket and pitman shaft from housing. If there is difficulty removing pitman shaft sector, turn steering shaft to align sector with opening in housing.

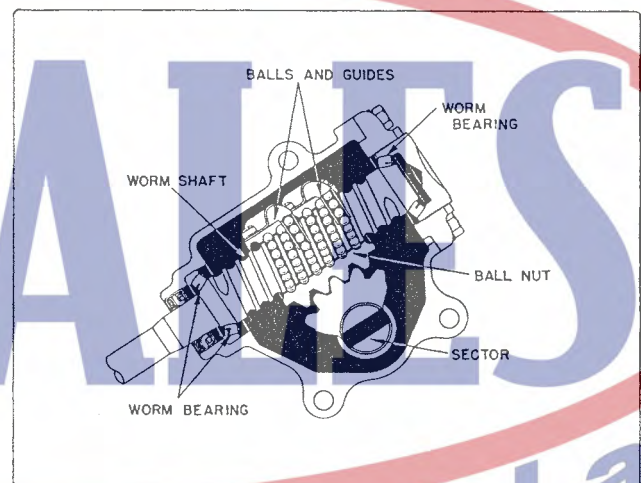


Fig. U10-10-1 Saginaw Steering Gear Showing Ball Nut

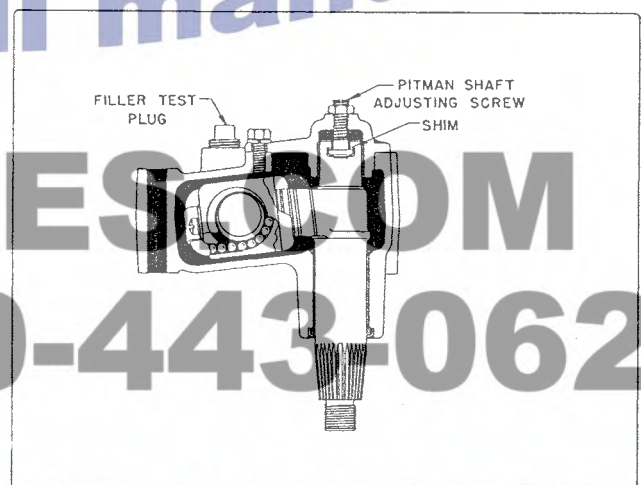


Fig. U10-10-2 Saginaw Steering Gear Showing Pitman Shaft

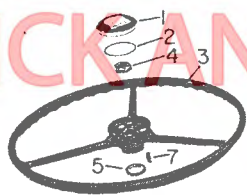


Fig. U10-10-3 Manual Steering Columns And Shafts

Remove lock nut from lash adjuster and unscrew lash adjuster from side cover. Remove lash adjuster and shim from slot in end of pitman shaft. Remove end cover, gasket and lower worm thrust bearing. Remove Woodruff key from worm shaft. Remove steering shaft and ball nut assembly and thrust bearing from housing. Remove grease from housing.

Push pitman shaft bushing, packing and retainer out of housing. Remove worm bearing adjuster and nut from housing and cover. Remove worm thrust bearing cup and steering shaft seal from steering gear housing. Remove guide retainer and withdraw guides from nut. CAUTION: DO NOT LOSE STEEL BALLS HOUSED IN GUIDES.