

Owner Manual with Parts List

BOLENS
ROTARY MOWERS

TYPE 22443-01



To attach the center mounted mower to the Model 231 and 232 tractors it is necessary to replace the short front tractor countershaft with the longer shaft and bearings supplied with the mower.

REMOVAL OF TRACTOR COUNTERSHAFT

- (1) Loosen wing nuts of tractor belt guard and swing guard outward.
- (2) Remove large lower tension spring by prying front loop of spring off mounting stud.
- (3) Place tractor Versa-matic lever in neutral position and remove outer belt from Versa-matic sheave to sheave on countershaft.
- (4) Remove retaining ring and washer from end of countershaft. Remove the three hex nuts inside

tractor frame securing countershaft to tractor frame. The countershaft can now be removed leaving the sprocket, sheave, and drive chain intact.

INSTALLATION OF REPLACEMENT COUNTERSHAFT

- (1) Place one bearing (Reference 43) between two bearing flanges (Reference 42) so the flanges contact one another at the bolt holes and form a housing for the bearing.
 - (2) Position bearing assembly inside tractor frame with shoulder of bearing to the inside. Insert carriage bolts from the outside, add lockwashers and nuts but do not tighten completely. Mount the remaining bearing assembly to the opposite side of tractor frame in the same manner (collar inward).
- (CONT ON PAGE 2)



BOLENS PRODUCTS DIVISION

Food Machinery & Chemical Corporation
Port Washington Wisconsin

(3) Insert the end of countershaft with the threaded hole through the right side bearing from the outside. Slip the two set collars (Reference 45) over end of countershaft beneath tractor frame with the shoulder of set collars facing the bearings. Move end of countershaft through left side bearing and tighten bearing mounting bolts securely.

(4) Position one spacer washer supplied with mower over left end of countershaft and replace tractor sprocket and sheave assembly. Insert woodruff key in key way at left end of countershaft. Mount drive sheave (hub outward) on shaft with approximate 1/4 inch of shaft extending beyond sheave hub and secure with set screws. Place spacer washer over right end of countershaft and install remaining sheave (hub outward) in the same manner.

(5) Move set collars on countershaft under tractor frame so they are firmly against the bearings and tighten set screws securely.

(6) Install grease fitting to left end of countershaft. Reinstall drive belt from Versa-matic sheave to

sheave on countershaft and replace tension spring.

INSTALLATION OF IDLER PULLEY

(1) Insert the threaded end of support stud (Reference 49) through the lower hole located on left side of tractor frame between the front axle and countershaft. Secure stud with lockwasher and hex nut.

(2) Mount the lower end of idler assembly to support stud by placing U shaped bracket over stud and securing with spring cotter. Position center hole in upper idler link over pin on upper front of tractor idler arm and secure with spring cotter.

INSTALLATION OF DRIVE SHEAVE TO ENGINE

(1) Position drive sheave (Reference 56) so the centering plug is seated in engine sheave, align holes and secure with capscrews (Reference 58).

(2) Install drive belt (Reference 57) from sheave mounted on engine to outer sheave on countershaft. The mower idler pulley must be inside the drive belt.

(CONT ON PAGE 4)

ROTARY MOWER

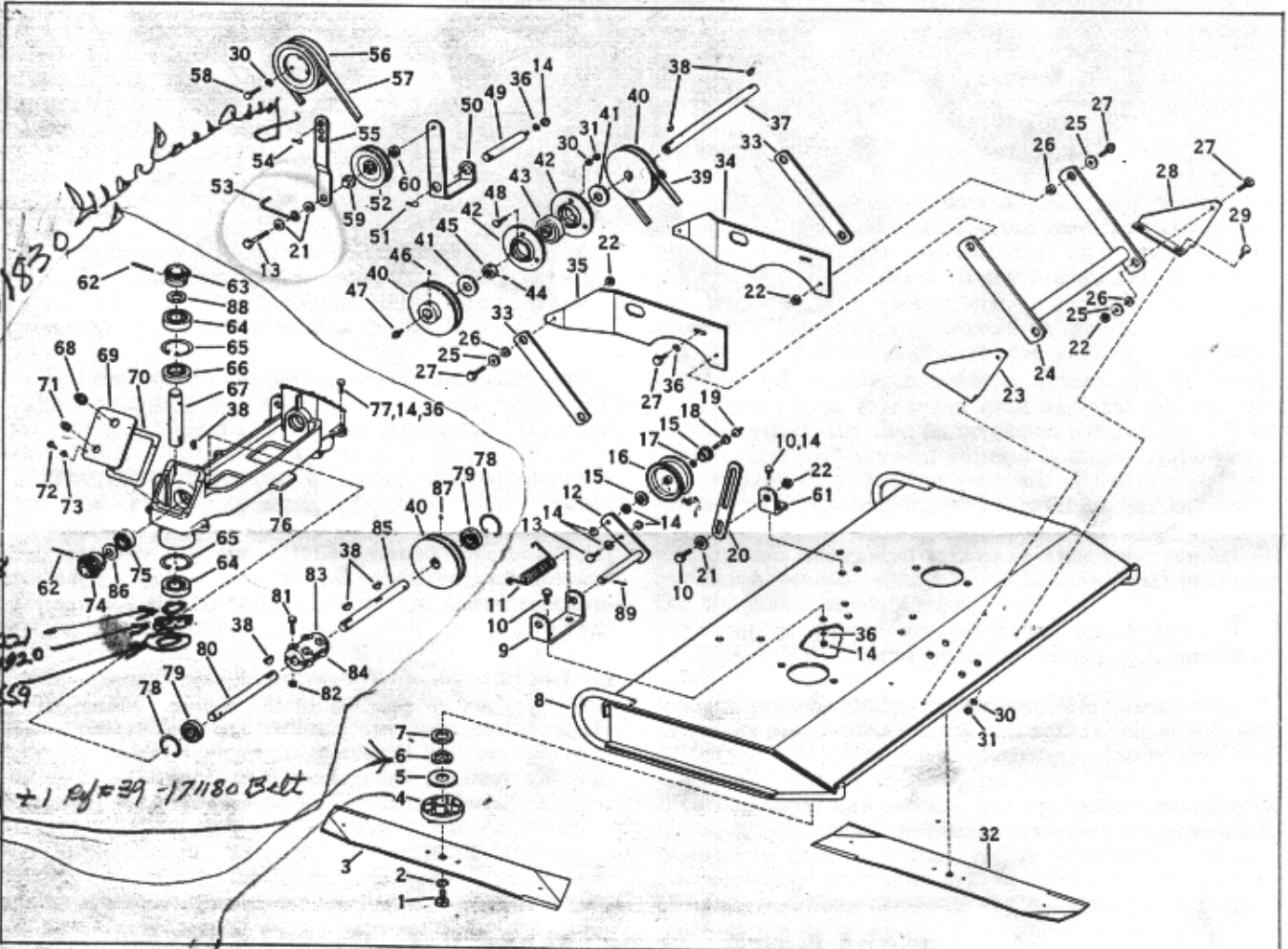


Figure 1

ROTARY MOWER

Ref. No.	Part No.	Description	No. Req'd.
1	1103380	Capscrew 7/16-12 x 1-1/4	2
2	1100244	Lockwasher 7/16	2
3	1711905	Cutter Blade L.H.	1
• 4	1711894	Drive Hub	2
5	1707559	Flat Washer	2
• 6	1711920	Wave Washer	2
7	101221	Thrust Washer	2
• 8	1711835	Mower Base	1
• 9	1711821	Bracket	1
10	1106915	Capscrew 3/8-16 x 3/4	5
• 11	1711915	Spring	1
• 12	1711837	Idler Bracket	1
13	1106922	Capscrew 3/8-16 x 2	2
14	1103840	Hex Nut 3/8-16	12
15	1185045	Ball Bearing	2
16	1703081	Idler Pulley	1
17	1104008	Serrated Washer 3/8	1
18	1703739	Idler Bolt	1
19	1104957	Grease Fitting	1
• 20	1711911	Lift Bracket	1
21	1107383	Flat Washer 3/8	4
22	1110108	Lock Nut 3/8-16	10
23	1708614	Bracket - L.H.	1
24	1708722	Parallel Arm	1
25	1708755	Flat Washer	8
26	1708754	Spacer	8
27	1106919	Capscrew 3/8-16 x 1	10
28	1708613	Bracket - R.H.	1
29	1106874	Capscrew 5/16-18 x 3/4	4
30	1100242	Lockwasher 5/16	13
31	1103839	Hex Nut 5/16-18	10
32	1711904	Cutter Blade R.H.	1
33	1708720	Arm	2
34	1708625	Hanger R.H.	1
35	1708625	Hanger L.H.	1
36	1100243	Lockwasher 3/8	13
• 37	1711919	Counter Shaft	1
38	1104436	Woodruff Key 3/16 x 3/4	7
• 39	1711880	Belt <i>SPECIAL 35" A</i>	1
40	1708624	Pulley	3
41	1708550	Flat Washer	2
42	1800418	Bearing Flange	4
• 43	1800757	Bearing	2
44	1103437	Set Screw 1/4-20 x 1/4	2
45	1800417	Set Collar (Incl. Ref. 44)	2
• 46	1185554	Set Screw 5/16-18 x 3/8	4

Ref. No.	Part No.	Description	No. Req'd.
47	1104954	Grease Fitting	1
48	1111265	Carriage Bolt 5/16-18 x 3/4	6
• 49	1711822	Stud	1
• 50	1711823	Idler Arm	1
51	135035	Spring Cotter	1
• 52	1710567	Idler Pulley	1
• 53	1711921	Belt Guide	1
54	1703011	Spring Cotter	1
• 55	1711913	Idler Link	1
56	1708008	Pulley	1
• 57	1711916	Belt <i>SPECIAL 39" A</i>	1
58	1106882	Capscrew 5/16-18 x 1-1/4	3
• 59	1711914	Spacer	1
60	1707758	Flat Washer	1
• 61	1711912	Bracket	1
• 62	1185502	Drive Pin	4
• 63	1711826	Bevel Gear	2
64	1703974	Ball Bearing	4
65	1113528	Retaining Ring	4
66	1708455	Oil Seal	2
• 67	1711828	Blade Shaft	2
68	1706566	Breather Plug	2
69	1708463	Cover	2
70	1708464	Gasket	2
71	1105620	Filler Plug	2
72	1118172	Screw 10-24 x 5/8	8
73	1100240	Lockwasher #10	8
• 74	1711827	Bevel Gear	2
75	1708456	Ball Bearing	2
• 76	1711829	Gear Housing	1
77	1106923	Capscrew 3/8-16 x 1-3/4	6
78	1118730	Retaining Ring	2
79	1708454	Oil Seal	2
• 80	1711824	Transmission Shaft - L.H.	1
81	1103201	Capscrew 5/16-18 x 1-3/4	4
82	1110107	Lock Nut 5/16-18	4
83	1710064	Coupling - Keyed	1
84	1710063	Coupling - Plain	1
• 85	1711825	Transmission Shaft - R.H.	1
86	1709224	Washer	As Req.
	1701446	Shim	As Req.
87	1103466	Set Screw 5/16-18 x 3/8	2
88	1800338	Shim - .015" Thick	As Req.
	1800751	Shim - .005" Thick	As Req.
89	1100356	Spring Cotter 3/32	1

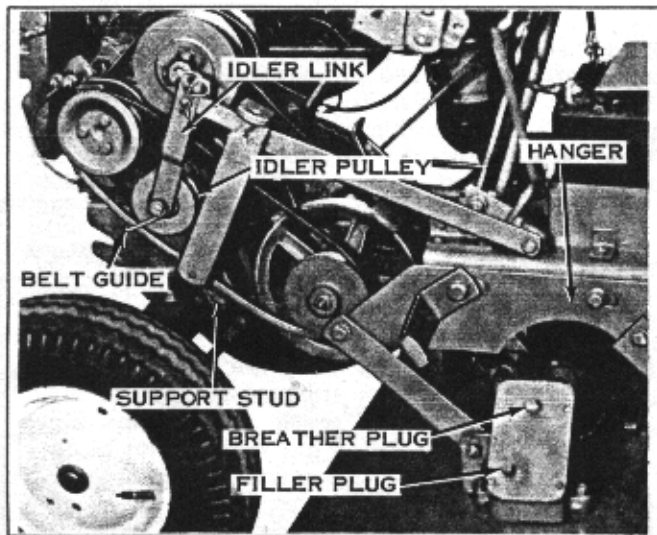


Figure 2

INSTALLATION OF MOWER TO TRACTOR

- (1) Remove tractor foot rests. Position mower beneath tractor with mower drive sheave to the right.
- (2) Position large slotted holes in mower hanger plates over studs on tractor frame directly behind foot rests. Secure rear end of hanger plates to tractor frame with capscrews but do not tighten completely. Install drive belt from mower sheave, over belt tightener sheave, to drive sheave on right end of countershaft. Move hangers back on tractor frame as far as possible and tighten capscrews in rear of hangers. Replace tractor foot rests.
- (3) Attach free end of mower lift bracket to arm in front of tractor tool lift lever with capscrew and lock nut but do not tighten completely so as to allow clearance for lift bracket to slide in the slot.
- (4) With the engine drive belt engaged, adjust the belt guides on the engine sheave so that there is approximately 1/4 inch clearance between belt and guides. Next, disengage the drive belt and adjust belt guide on idler assembly. When correctly positioned, the belt will be free from drag but still remain aligned with idler pulley.
- (5) Finally, recheck the entire assembly to see all screws are properly tightened and all sheaves and drive belts are in line.

OPERATION

The mower should be operated with the tractor drive chain in intermediate speed setting. Be sure the mower is disengaged before starting the engine. FOR BEST CUTTING RESULTS IN AVERAGE CONDITIONS THE ENGINE SHOULD BE RUN AT FULL THROTTLE TO MAINTAIN SUFFICIENT BLADE SPEED. The Versa-matic control lever should be used to control travel speed to obtain clean cutting. The best travel speed depends on grass conditions and should be varied with Versa-matic lever as con-

ditions permit. The mower will not cut clean when the ground speed is too high or when blade speed drops.

CAUTION: BEFORE USING MOWER, REMOVE STONES, WIRE, ETC. FROM AREA TO BE MOWED. BE SURE TO AVOID STRIKING PROTRUDING OBJECTS SUCH AS PIPES AND ROOTS WITH CUTTING BLADES. NEVER PLACE HANDS OR FEET UNDER MOWER HOUSING WHEN ENGINE IS RUNNING.

There are two controls for operation of the mower: (1) the belt tightener lever on the left side of tractor for engaging and disengaging the mower blades; (2) the tool lift lever on right side of tractor to raise and lower the mower.

The right side belt is under constant spring tension and the tightener pulley is only to absorb belt slack when the mower is raised to a higher operating position. If after use the belt stretches, adjustment should be made by moving both mower hangers backward on the tractor frame. When the belt is too loose, the idler bolt will strike the tractor frame when mower is raised reducing belt tension. Tension on the engine drive belt is adjusted by use of the three holes in upper link of mower idler assembly.

The height of cut is regulated by raising or lowering the mower with the tractor tool lift lever. To transport, disengage the mower blades and lock tractor tool lift lever in extreme backward position.

CUTTING BLADES

The mower is designed with a right hand blade rotating counterclockwise and a left hand blade rotating clockwise which are assembled at approximately 90 degrees to each other. If the blades are removed for sharpening or replacement, be sure they are correctly reinstalled in regard to direction of rotation and relative position to one another. Be sure the blades are mounted securely.

Maintaining sharp cutting edges on the blades will always give best cutting results by cutting the grass blades instead of beating them off. When sharpening blades be sure to grind equal portions off both ends of blade to maintain a balanced blade as an unbalanced blade will cause excessive vibration. Before replacing blades, check blade balance by centering the blade on a straight edge.

LUBRICATION

Each gear housing cover is equipped with an upper breather plug and a lower oil filler plug. The gear housings are filled at the factory to level of filler plug hole with SAE #90 gear lubricant. Check oil level before using mower and regularly thereafter. Maintain oil level to filler plug holes at all times. Lubricate grease fitting on belt tightener pulley countershaft, and idler pulley regularly with pressure gun grease. Occasionally lubricate all linkages with engine oil to insure free movement at all moving joints.