



Model HW Rotaspikes

ILLUSTRATION AND PARTS LIST

MODEL _____ HW _____

SERIAL NO. _____

TILLAGE WIDTH _____

When ordering parts: Quote part number, model and tillage width.
Serial number is located on main frame directly behind gearbox.

MODEL HW ROTASPIKE

ILLUSTRATION & PARTS LIST

When ordering parts: Quote part number, model and tillage width.

Serial number is located on main frame directly behind gearbox.

Left- and right-hand parts are determined by standing behind machine and looking forward toward tractor.

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SAFETY PRECAUTIONS



THIS SYMBOL IS USED TO CALL YOUR ATTENTION TO SAFETY PRECAUTIONS THAT SHOULD BE FOLLOWED BY THE OPERATOR TO AVOID ACCIDENTS. WHEN YOU SEE THIS SYMBOL, HEED ITS WARNING.

The following precautions should be observed AT ALL TIMES. They apply whenever greasing, cleaning, repairing, adjusting or operating the machine, or whenever removing components from shipping materials.



CAUTION: STAND TO THE SIDE AND DO NOT LEAN OVER BANDS WHEN CUTTING THEM. SUDDEN RELEASE OF TENSION CAN CREATE A SPRING-BACK ACTION WHICH COULD CAUSE SEVERE INJURY.



CAUTION: ALWAYS BLOCK MACHINE WHEN IN A RAISED POSITION. NEVER RELY ON TRACTOR HYDRAULICS.



CAUTION: NEVER MAKE ADJUSTMENTS WITH TRACTOR ENGINE RUNNING.



CAUTION: SWITCH OFF TRACTOR ENGINE BEFORE TOUCHING MACHINE.



CAUTION: DO NOT OPERATE MACHINE WITHOUT ALL SAFETY COVERS IN PLACE.



CAUTION: NEVER OPERATE U-JOINT AT AN ANGLE GREATER THAN 35° OR VIBRATION AND DAMAGE COULD RESULT.

SAFETY & INSTRUCTIONAL DECALS



CAUTION: These decals are placed at strategic positions on the machine to provide the operator with a constant reminder of safe operating practices. "DANGER" means there is the possibility of severe injury if instructions are not followed. If decals become damaged or lost, replace them immediately. They may be obtained from your dealer.



WARNING

1. For your own safety, and that of others, read and understand the "Operator's Manual" before attempting to operate this machine. (If manual is not available, contact your local Howard dealer.)
2. All shields including power take off shields must be kept in place.
3. Disengage power take off and stop engine before adjusting, lubricating, cleaning, or unclogging machine.
4. Wait for all movement to stop before servicing the machine.
5. Keep hands, feet, and clothing away from power driven parts.
6. Keep off of machine and keep all others off.
7. Make certain everyone is clear of machine before starting engine or operation.

7 Point Warning Decal - 601708



DANGER

Do not touch spikes when engine is running!

Spike DANGER Decal - 603096

IMPORTANT

**FILL CHAIN CASE
TO CORRECT OIL
LEVEL BEFORE USING**

603092

Fill Chain Case Decal - 603092

**IMPORTANT
FILL GEARBOX TO
CORRECT OIL LEVEL
BEFORE USING**

Fill Gearbox Decal - 600204

IMPORTANT

**TRACTOR LIFT LINKAGE OR HY-
DRAULIC LIFT LIMIT STOPS MUST BE
ADJUSTED TO PREVENT DAMAGE TO
UNIVERSAL JOINT FROM EXCESSIVE
ANGLE WHEN IMPLEMENT IS FULLY
LIFTED WITH P.T.O. ENGAGED.**

603091

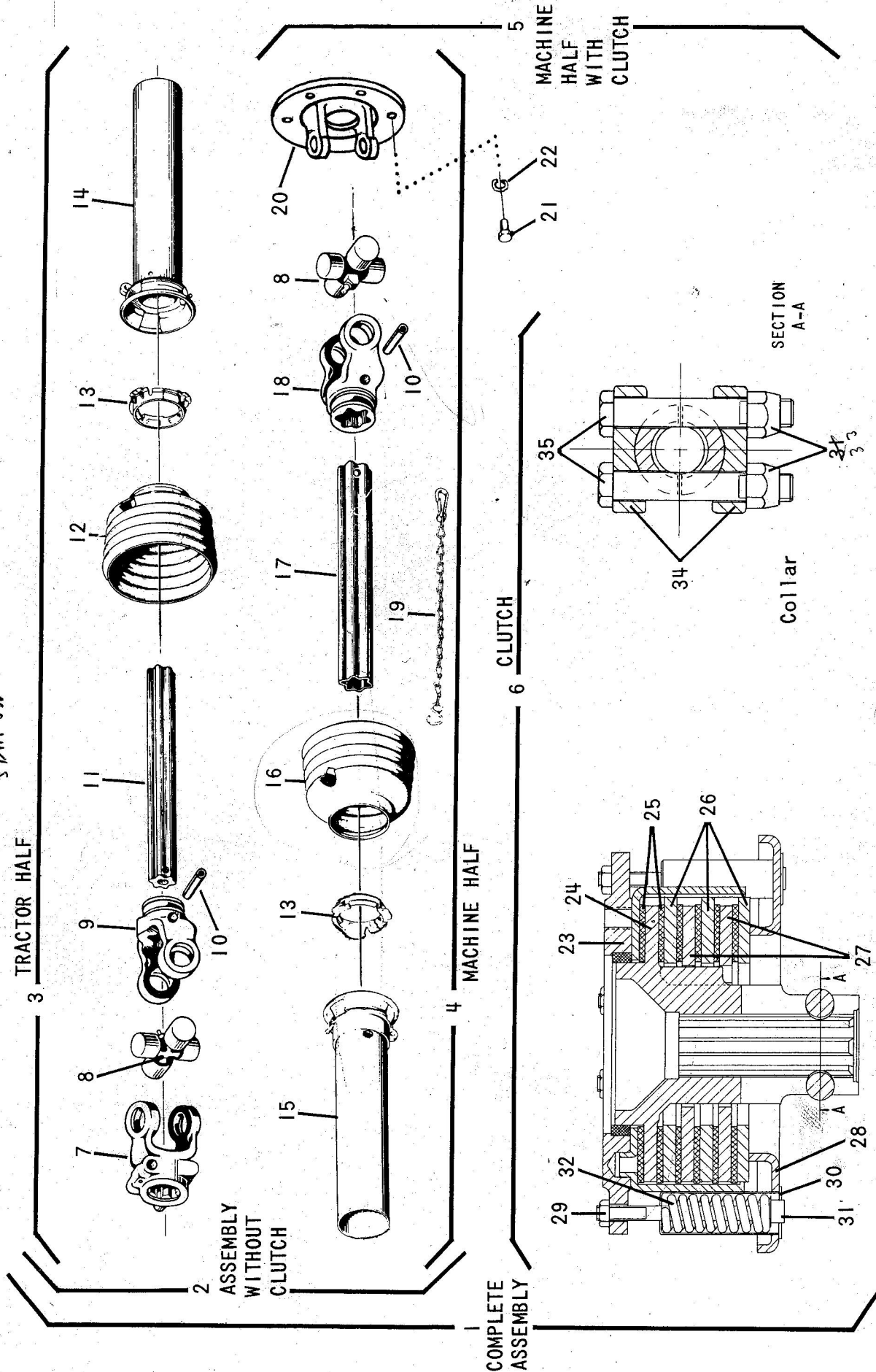
Tractor Linkage Decal - 603091

UNIVERSAL DRIVE JOINT & CLUTCH ASSEMBLY

ILLUSTRATION A

STAR SHAPE

w/s



UNIVERSAL DRIVE JOINT & CLUTCH ASSEMBLY

PARTS LIST A

2500 SERIES STAR SHAPE

ILL. NO.	PART NO.	DESCRIPTION	QTY.	ILL. NO.	PART NO.	DESCRIPTION	QTY.
1	602807	U.J. Drive Assy. c/w clutch, shields and 1-3/4", 20-spline tractor yoke	1	18	603040	Female Shaft Yoke	1
1	602808	U.J. Drive Assy. c/w clutch, shields and 1-3/8", 21-spline tractor yoke	1	19	603041	Shield Retainer Chain	1
2	603146	U.J. Drive Assy. (without clutch) c/w shields & 1-3/4", 20-spline tractor yoke	1	20	603042	Flange Yoke	1
2	603117	U.J. Drive Assy. (without clutch) c/w shields & 1-3/8", 21-spline tractor yoke	1	21	301212250	Hex Hd. Bolt, M12 x 25, Gr. 8.8	6
3	602997	U.J. Drive Tractor Half c/w 1-3/4", 20-spline yoke	1	22	308120040	Spring Washer, M12	6
3	602998	U.J. Drive Tractor Half c/w 1-3/8", 21-spline yoke	1	23	603015	Clutch Housing	1
4	602999	U.J. Drive Machine Half (without clutch)	1	24	603016	Hub, 1-3/4", 20-spline	1
5	603115	U.J. Drive Machine Half c/w clutch	1	25	603017	Clutch Lining	6
6	603014	Friction Clutch Assy.	1	26	603018	Thrust Plate	3
7	603028	Yoke, 1-3/4", 20-spline	1	27	603019	Disc	2
7	603029	Yoke, 1-3/8", 21-spline	1	28	603020	Flange Plate	1
8	603030	Cross and Bearing Kit	2	29	30720805Q	Nyloc Hex Nut, M8	8
9	603031	Male Shaft Yoke	1	30	603021	Spring Retainer	8
10	603032	Tension Roll Pin (10mm Dia. x 85mm)	2	31	351208900	Socket Hd. Capscrew, M8x90, Gr. 8.8	8
11	603033	Male Shaft	1	32	603022	Spring	8
12	603034	Ribbed Shield Cone (Tractor Half)	1	33	307216050	Nyloc Hex Nut, M16	2
13	603035	Bearing Ring and Retainer	2	34	603024	Clamp Collar	2
14	603036	Outer Shield Tube	1	35	301616115	Hex Hd. Bolt, M16x110, Pl., Gr. 8.8	2
15	603037	Inner Shield Tube	1	36 thru 50		Not Allocated	
16	603038	Ribbed Shield Cone (Machine Half)	1				
17	603039	Female Shaft Tube	1				

Quote part number and machine serial number when ordering parts.

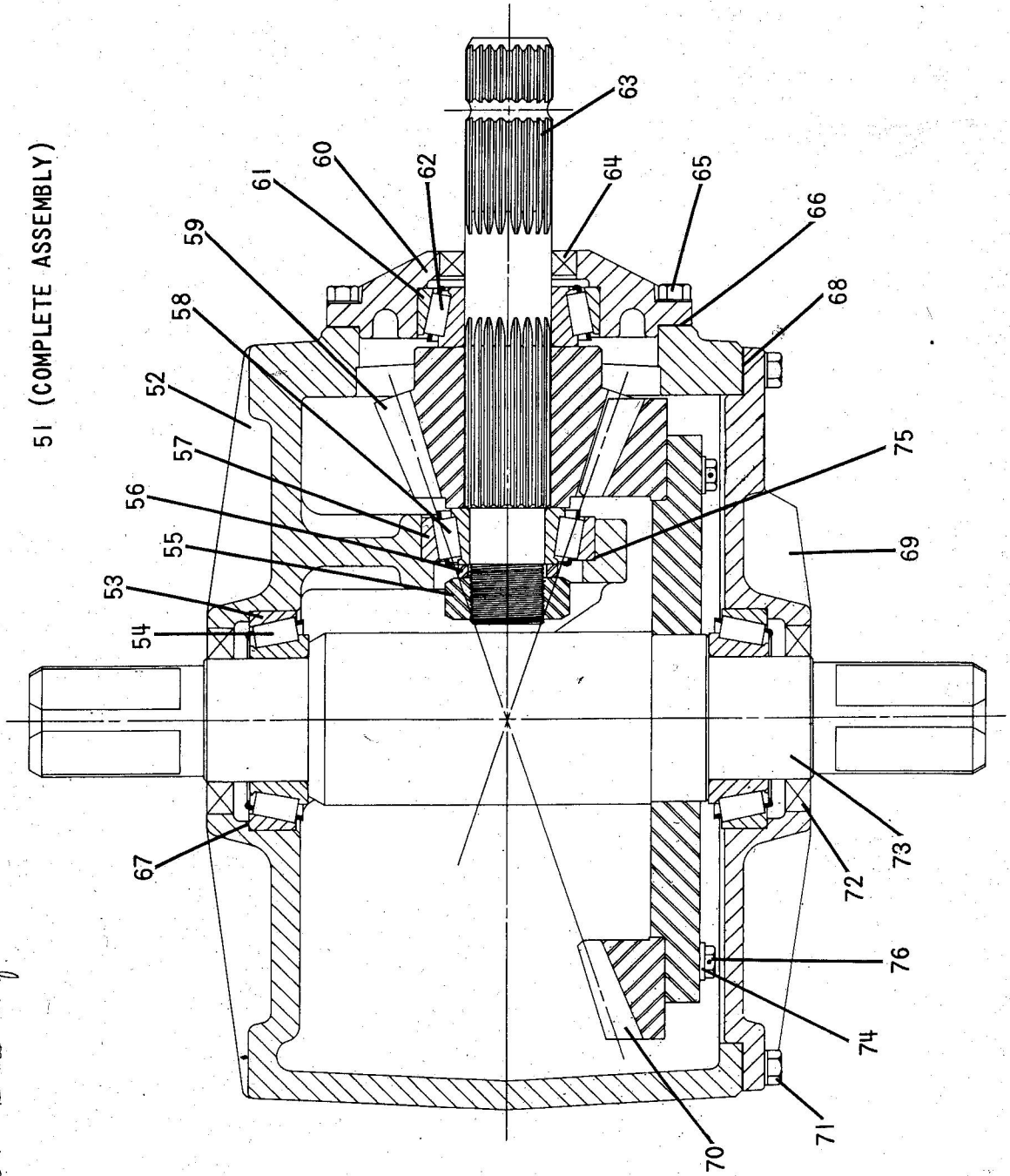
204046840 QD Pin Kit for 603029 1 3/8"
 204046850 QD Pin Kit for 603028 1 3/8"
 3/10/35

GEARBOX ASSEMBLY

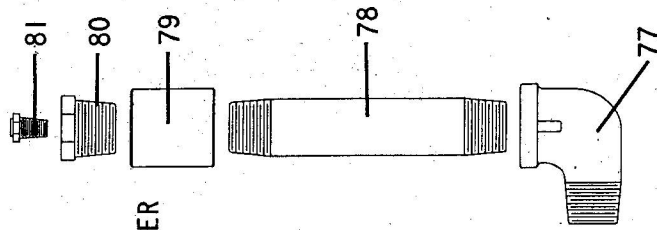
ILLUSTRATION B

603311 Breather for HW 240

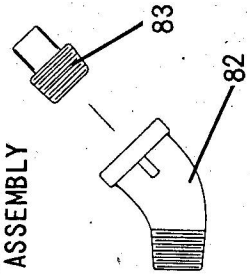
51 (COMPLETE ASSEMBLY)



GEARBOX FILLER & BREATHER ASSEMBLY



GEARBOX OIL LEVEL ASSEMBLY



GEARBOX ASSEMBLY

PARTS LIST B

ILL. NO.	PART NO.	DESCRIPTION	QTY.
51	602804	Gearbox Assembly Complete	1
52	603051	<i>603050 Less Plumbing</i> Gearbox Housing	1
53	603052	Timken Bearing Cup, #39520	2
54	603053	Timken Bearing Cone, #39590	2
55	603054*	Locknut, Jam-Type, 1-1/2" UNF	1
56	603055*	Flat Washer, 1/4" Thick, 1.562" I.D. x 2.00" O.D., Pl.	1
57	603056	Timken Bearing Cup, #414	1
58	603057	Timken Bearing Cone, #415	1
59	603058*	Pinion Gear, 13T	1
60	603059	Input Shaft Cover	1
61	603060	Timken Bearing Cup, #3720	1
62	603061	Timken Bearing Cone, #3782	1
63	603062*	Pinion Shaft	1
64	603063 <i>262770042</i>	Double Lip Seal (1.7485" I.D. x 2.75" O.D.) <i>National 470183</i>	1
65	134207100	Whiz-Lock Capscrew, 3/8" UNC x 1.187"	8
66	603065	Input Shaft Cover Gasket (.015" Thick)	As Req'd.
67	603066	Input Shaft Cover Gasket (.005" Thick)	As Req'd.
67	603067	Input Shaft Cover Gasket (.003" Thick)	As Req'd.
67	603068	Output Shaft Shim (.010" Thick, 3-7/8" I.D. x 4-3/8" O.D.)	As Req'd.
68	603069	Gearbox Side Cover Gasket (.015" Thick)	As Req'd.

ILL. NO.	PART NO.	DESCRIPTION	QTY.
	603070	Gearbox Side Cover Gasket (.003" Thick)	As Req'd.
69	603071	Gearbox Side Cover Gasket (.005" Thick)	As Req'd.
	603072	Gearbox Side Cover	1
70	603073	Ring Gear, 38T	1
71	134207100	Whiz Lock Capscrew, 7/16" UNC x 1.187"	10
72	603074	Double Lip Seal (2.498" I.D. x 3.75" O.D.) <i>2.625" I.D. x 3.75" O.D.</i> NOK AD 7825E	2
73	603075	Output Shaft Assembly	1
74	108061145	Lock Washer, 3/8" Dia., Med.	8
75	603076	Input Shaft Shim (.010" Thick, 2-7/8" I.D. x 3-7/16" O.D.)	As Req'd.
76	603077	Hex Ring Gear Bolt, 3/8" UNF x 1.25"	8
NI	603064	Stainless Steel Safety Wire (.051" Dia. 12" Long)	4
77	603043	90° Street Elbow, 3/4" NPT	1
78	603044	Extension Pipe, 3/4" NPT x 5"	1
79	603045	Coupler, 3/4" NPT	1
80	603046	Reducer, 3/4" NPT x 1/8" NPT	1
81	603047	Breather	1
82	603048	45° Street Elbow, 3/4" NPT	1
83	603049	Pipe Plug, 3/4" NPT, Square Hd.	2
84	thru 100	Not Allocated	

* Replaced by one piece pinion shaft + gear
603078

NI - Not Illustrated
Quote part number and machine serial number when ordering parts.

PARTS/SERVICE INFORMATION



IMPORTANT INFORMATION FOR YOUR SALES, SERVICE AND PARTS DEPARTMENTS!

'HW' ROTASPIKE (ALL MODELS)

OUTPUT SHAFT
KIT P/N 603110

Part Changes and Improvements to Gearbox

Output Shaft Part No. 603075

The shaft is now made entirely out of a one-piece forging. Previous construction of this shaft was in two pieces with the gear mounting flange keyed or welded to the shaft.

No part number change has occurred as the item is completely interchangeable with existing components.

Pinion Shaft & Pinion Gear

Parts Effected:

603062	Pinion Shaft
603058	Pinion Gear 13T
603055	Flat Washer, 1/4" x 1-9/16" ID x 2" OD
603054	1 1/2" UNF Hex Locknut

The above parts have all been replaced by a single component P/N 603078 Pinion Shaft & Gear, 13T (Teeth). P/N 603078 replaces 603062 Pinion Shaft and 603058 Pinion Gear 13T.

The nut and washer used previously is no longer required with the new design.

All other parts including bearings and gearbox housings remain the same.

These changes have been made due to improved techniques in manufacturing which offer further reliability to the parts at overall reduced cost. This will be reflected in some changes in Spare Parts prices.

Existing Stocks

No action required. Use up all stocks of existing parts.

Component Assembly & Service Adjustment

All basic assembly and bearing adjustment procedures remain unchanged.

PI/87
GDT/mkc

4/5/84

Howard Rotavator Co., Inc.

A Member of the Howard Group

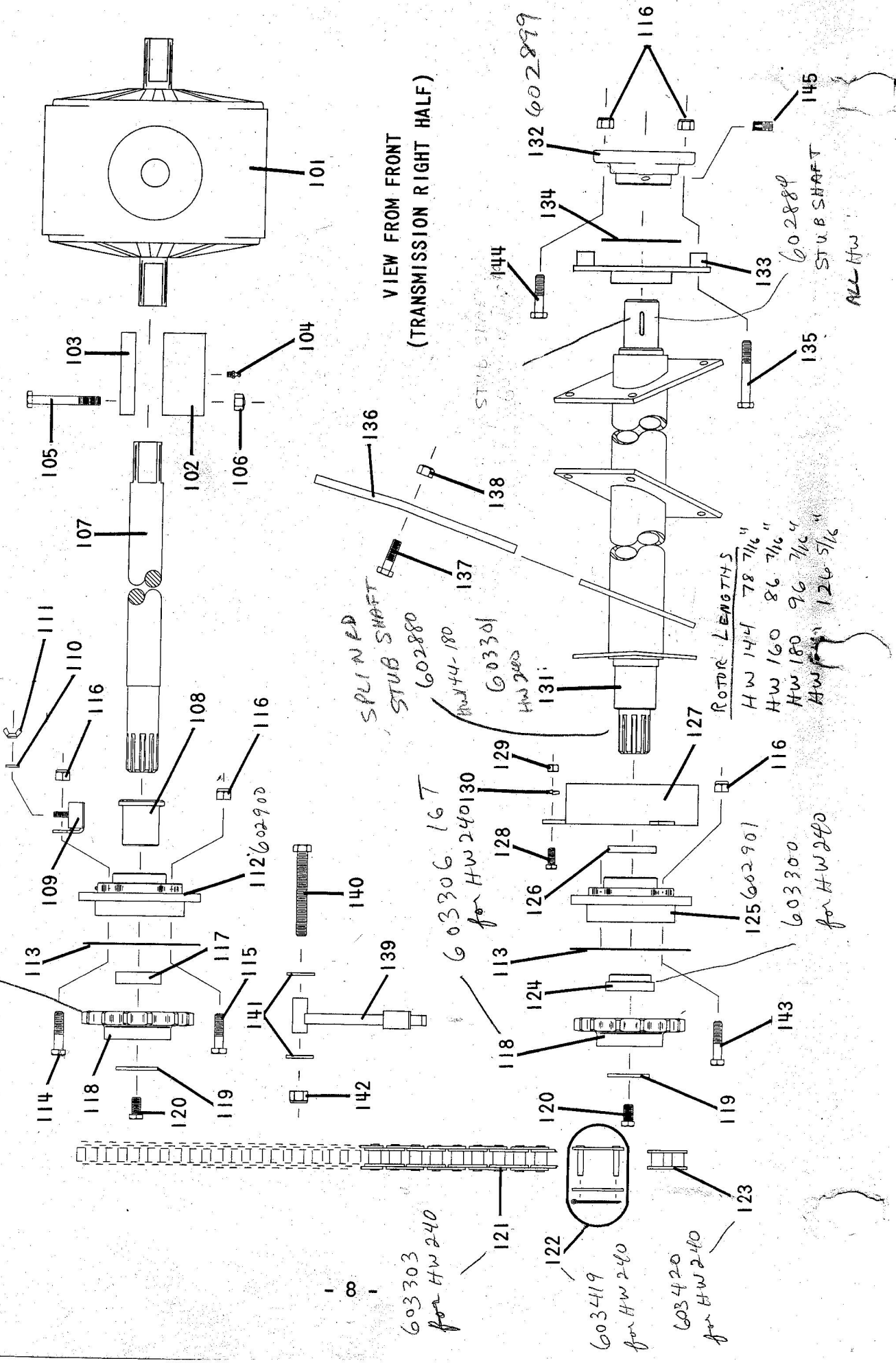
Home Office: 102 Howard Ave., P.O. Box 7, Muscoda, WI 53573 (608) 739-3106
Branch Office: 2348 Auburn Blvd., Sacramento, CA 95821 (916) 483-2777

ROTOR SPEEDS 144", 160" & 180" 342 RPM
240" 305 RPM

TRANSMISSION

ILLUSTRATION C

603307 14T
for HW 240



603303 for HW 240

603419 for HW 240

603420 for HW 240

603300 for HW 240

ALL HW

TRANSMISSION

PARTS LIST C

ILL. NO.	PART NO.	DESCRIPTION	QTY.
101	602804	Gearbox	1
102	602894	Coupling Channel	2
103	602895	Coupling Cap	2
104	603080	Grease Fitting, 1/8" NPT	2
105	1501104005	Hex Hd. Bolt, 5/8" UNF x 5", Gr. 8	12
106	107110330	Crown Locknut, 5/8" UNF, Gr. 8	12
107	602891	Jackshaft 180" Model 187" <i>603302 117"</i>	2
	603162	Jackshaft 160" Model 77" <i>HW 240</i>	2
	603161	Jackshaft 144" Model <i>69 1/4</i>	2
108	602889	Jackshaft Bearing Sleeve	2
109	602814	Jackshaft Cover Bracket	2
110	108061215	Flat Washer, 3/8" Dia., Pl.	4
111	603079	Nyloc Wing Nut, 3/8" UNC	4
112	602900	Jackshaft Bearing (FL.Type, 2-11/16" Bore)	2
113	602887	Bearing Gasket	4
114	101210225	Hex Hd. Bolt, 5/8" UNC x 2-3/4", Pl., Gr. 5	4
115	101210205	Hex Hd. Bolt, 5/8" UNC x 2-1/2", Pl., Gr. 5	4
116	107210175	Nyloc Hex Nut, 5/8" UNC, Pl.	20
117	602890	Jackshaft Spacer	2
118	602902	Sprocket, 15T	4
119	602897	Sprocket Retainer	4
120	208063170	Hex Hd. Bolt, 5/8" UNF x 1-1/4"	5
121	602898	Patchlock, Gr. 5	2
		Drive Chain, #120, 46-pitch (includes part Ill. #122)	As Req'd
122	603081	Connector Link Kit, #120 chain*	As Req'd
123	603082	Inner Link, #120 chain	As Req'd
124	602892	Rotor Drive Spacer	2
125	602901	Rotor Drive Bearing (FL. Type, 3" Bore)	2
126	602893	Spacer	2
NI	602817	Trash Ring, L.H.	1
127	602818	Trash Ring, R.H.	1
128	101208105	Hex Hd. Bolt, 1/2" UNC x 1-1/4" Pl., Gr. 5	6

ILL. NO.	PART NO.	DESCRIPTION	QTY.
129	107208355	Hex Nut, 1/2" UNC, Pl.	6
130	108081445	Lock Washer, 1/2" Dia., Med., Pl.	6
131	602820	Rotor, R.H. 180" Model <i>603320 for HW 240</i>	1
	603130	Rotor, R.H. 160" Model	1
	603129	Rotor, R.H. 144" Model	1
NI	602819	Rotor, L.H. 180" Model	1
	603139	Rotor, L.H. 160" Model	1
	603138	Rotor, L.H. 144" Model	1
132	602899	Center Rotor Bearing (FL.Type 2-1/2" Bore)	2
133	602842	Bearing Guard	2
134	603083	Bearing Guard Gasket	2
135	101210445	Hex Hd. Bolt, 5/8" UNC x 5-1/2", Pl., Gr. 5	2
136	602888	Spike 180" Model	72
		Spike 160" Model	64
		144" Model	56
137	150110180	Hex Hd. Bolt, 5/8" UNF x 2-1/4", Gr. 8	72
		180" Model	64
		160" Model	56
		144" Model	72
		180" Model	64
		160" Model	56
		144" Model	72
138	107110330	Crown Locknut, 5/8" UNF, Gr. 8	64
139	602816	Chain Tensioner, R. H.	56
NI	602815	Chain Tensioner, L. H.	1
140	603084	Hex Hd. Bolt, 3/4" UNC x 4-1/2", Gr. 5, Full Thread	1
141	108122415	Flat Washer, 3/4" Dia., Pl.	2
142	107212175	Nyloc Hex Nut, 3/4" UNC, Pl.	4
143	101210205	Hex Hd. Bolt, 5/8" UNC x 2-1/2", Pl., Gr. 5	2
144	101210225	Hex Hd. Bolt, 5/8" UNC x 2-3/4", Pl., Gr. 5	8
145	603103	3/8" UNF x 1/2" Half Dog Point Set Screw	2
146 thru 160		Not Allocated	2

*Special #120 Chain Connector Kit must be used. Kit includes hardened cotter key.

NI - Not Illustrated
Quote part number and machine serial number when ordering parts.

Changes
12
9
8
7

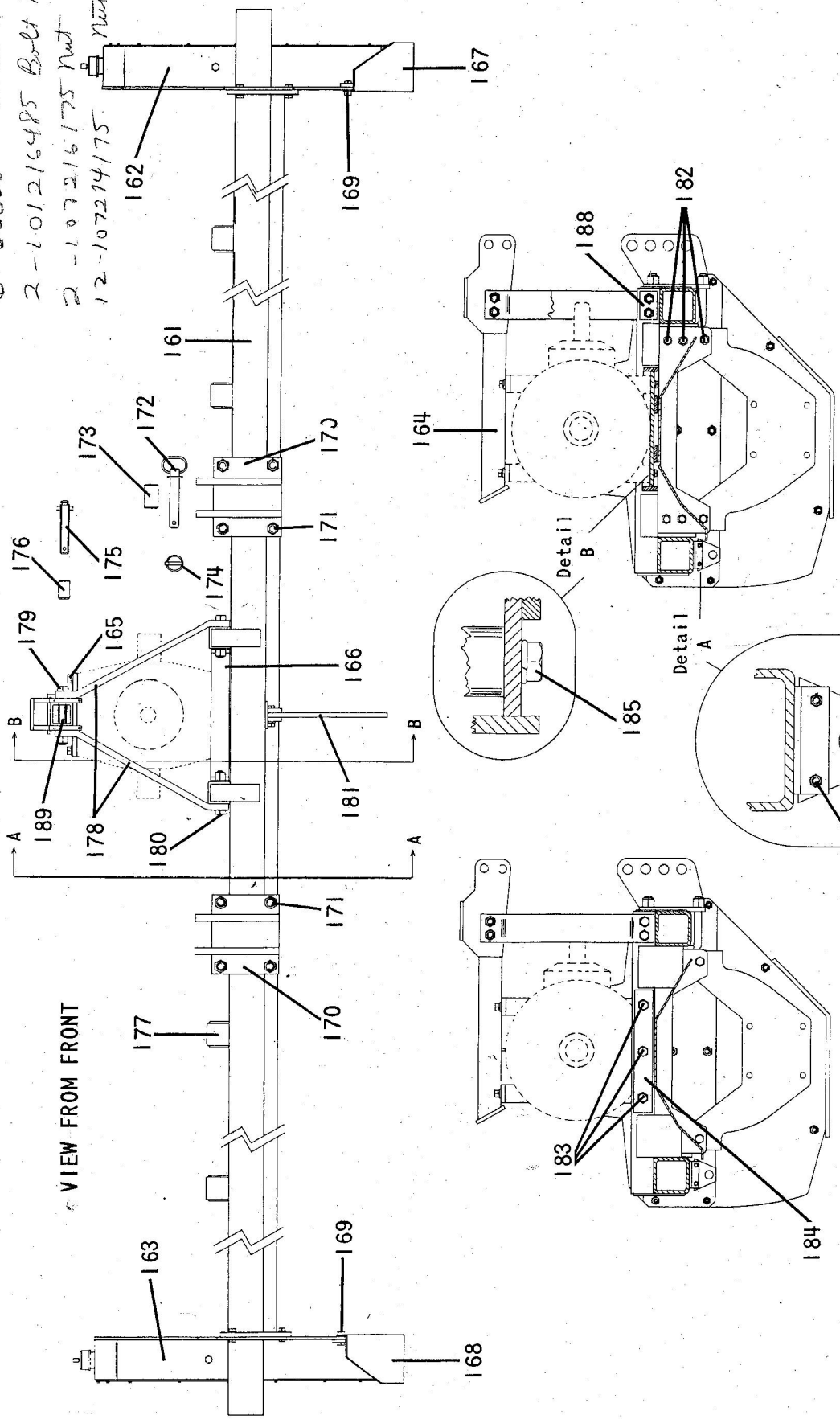
602809 Hitch Extension Kit

Consists of

- 1 - 602846 Upper Ext. Bibb
- 2 - 602847 Lower "
- 6 - 600052 U Bolt
- 2 - 101216485 Bolt 1x6 in
- 2 - 107216175 Nut
- 12 - 107214175 Nut

MAIN FRAME ASSEMBLY

ILLUSTRATION D



VIEW FROM FRONT

SECTION A-A

SECTION B-B

MAIN FRAME ASSEMBLY

PARTS LIST D

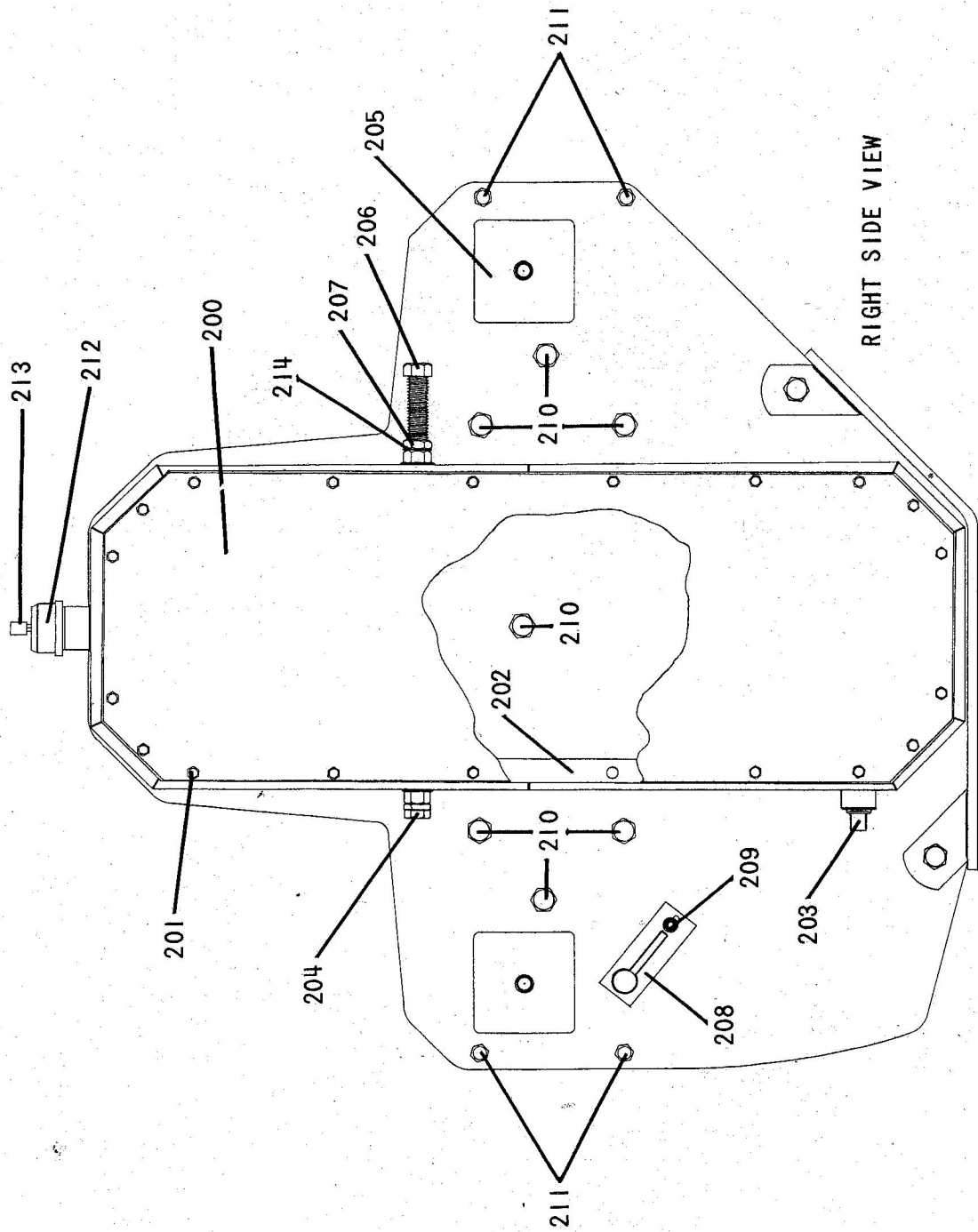
ILL. NO.	PART NO.	DESCRIPTION	QTY.	ILL. NO.	PART NO.	DESCRIPTION	QTY.
161	602821	Main Frame 180" Model	1	177	602949	Tube Cap (Small, Plastic)	8
	603133	Main Frame 160" Model	1	178	602944	Top Mast Stay	2
	603132	Main Frame 144" Model	1	179	101212525	Hex. Hd. Bolt, 3/4" UNC x 6-1/2", Pl., Gr. 5	2
162	602824	End Panel, L.H.	1	108122415	Flat Washer, 3/4" Dia., Pl.	4	
163	602825	End Panel, R.H.	1	107212175	Nyloc Hex Nut, 3/4" UNC, Pl.	2	
164	602826	Topmast	1	101212365	Hex Hd. Bolt, 3/4" UNC x 4-1/2", Pl., Gr. 5	4	
165	101212145	Hex Hd. Bolt, 3/4" UNC x 1-3/4", Pl., Gr. 5	4	108122415	Flat Washer, 3/4" Dia., Pl.	4	
	108122045	Lock Washer, 3/4" Dia., Pl.	4	107212175	Nyloc Hex Nut, 3/4" UNC, Pl.	4	
	108122415	Flat Washer, 3/4" Dia., Pl.	4	602947	Center Bearing Hanger	1	
166	602827	Gearbox Carrier	1	101210205	Hex Hd. Bolt, 5/8" UNC x 2-1/2", Pl., Gr. 5	6	
167	602828	Ground Skid, L.H.	1	107210175	Nyloc Hex Nut, 5/8" UNC, Pl.	6	
168	602829	Ground Skid, R.H.	1	101212325	Hex Hd. Bolt, 3/4" UNC x 4" Pl., Gr. 5	6	
169	101210145	Hex Hd. Bolt, 5/8" UNC x 1-3/4", Pl., Gr. 5	4	107212175	Nyloc Hex Nut, 3/4" UNC, Pl.	6	
	108101645	Lock Washer, 5/8" Dia., Pl.	4	602945	Clamping Strip (Long) ^{3/16 THICK}	2	
	107210355	Hex Nut, 5/8" UNC, Pl.	4	101212145	Hex Hd. Bolt, 3/4" UNCx1-3/4", Pl., Gr. 5	4	
170	602810	Hitch Lug	4	108122045	Lock Washer, 3/4" Dia., Pl.	4	
171	600052	U-Bolt, Sq. Corner, 7/8" UNC, Pl., 4" x 5-1/2"	2	602948	Pivot Lug	3	
	107214175	Nyloc Hex Nut, 7/8" UNC, Pl.	4	150205105	Hex Hd. Bolt, 5/16" UNC x 1-1/4", Pl., Gr. 8	6	
172	600022	Hitch Pin, Lower Link	2	107205155	Hex Locknut, 5/16" UNC, Pl.	6	
173	600049	Bushing (Cat. II to Cat. III Lower Link Converter)	2	602946	Clamping Strip (Short)	2	
174	600099	Quik Pin	3	603088	Top Link Spacer ^{TO SERVO 819B/282}	2	
175	600097	Hitch Pin, Top Link	1	190 thru 199	Not Allocated	2	
176	600050	Bushing (Cat. II to Cat. III Top Link Converter)	1				

GEAR BOX CARRIER 5/11/70

Quote part number and machine serial number when ordering parts.

MAIN FRAME END PANEL

ILLUSTRATION E



MAIN FRAME END PANEL

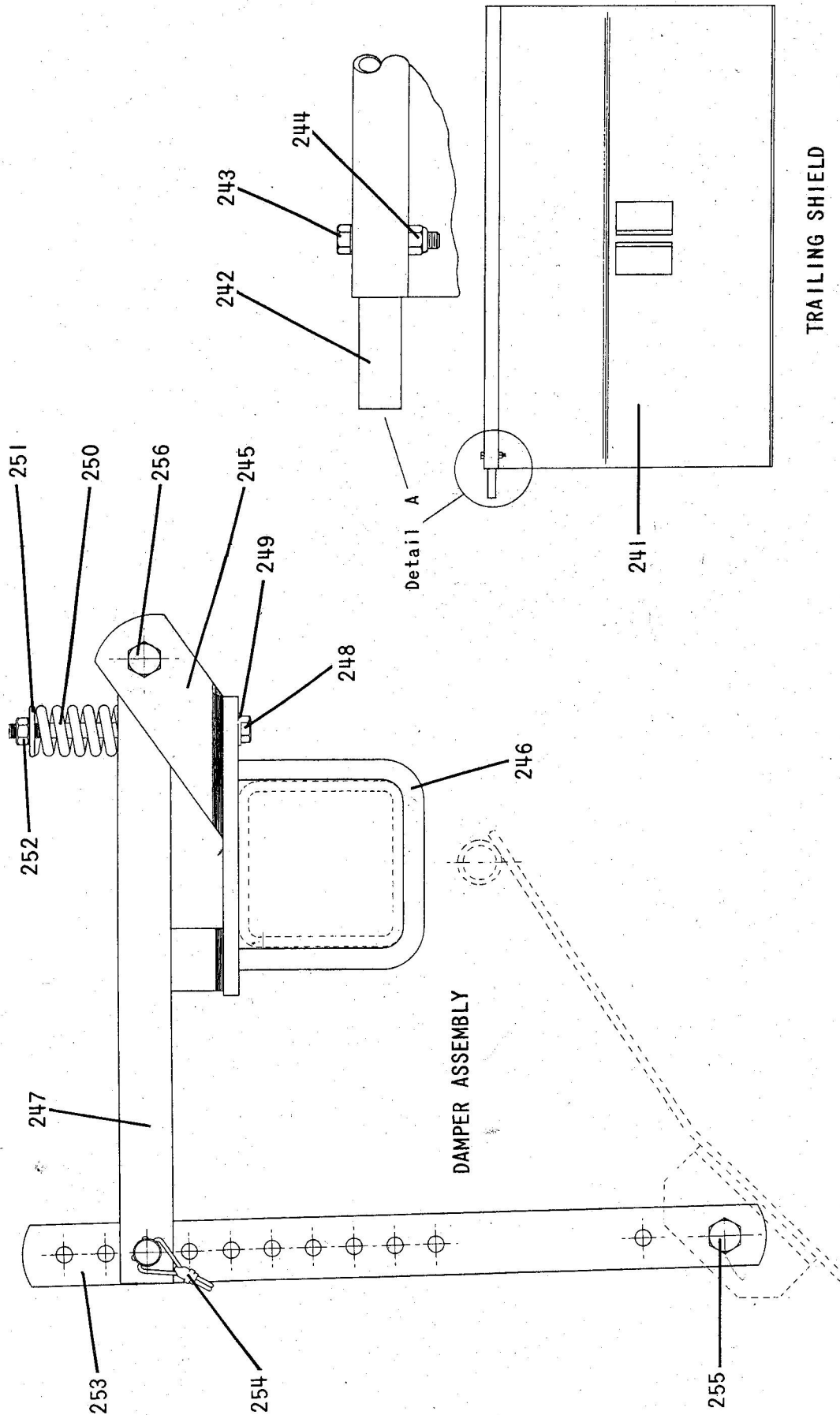
PARTS LIST E

ILL. NO.	PART NO.	DESCRIPTION	QTY.	ILL. NO.	PART NO.	DESCRIPTION	QTY.
200	602942	Chaincase Cover	2	210	101210145	Hex Hd. Bolt, 5/8" UNC x 1-3/4", Pl., Gr. 5	14
201	101206085	Hex Hd. Bolt, 3/8" UNC x 1", Pl., Gr. 5	40	108101645	Lock Washer, 5/8" Dia., Pl.		14
202	108061145	Lock Washer, 3/8" Dia., Pl.	40	107210855	Hex Nut, 5/8" UNC, Pl.		14
203	602943	Gasket, Chaincase Cover	2	101208125	Hex Hd. Bolt, 1/2" UNC x 1-1/2", Pl., Gr. 5		8
204	603087	Oil Level Plug, 3/4" NPT, Sight-Type	2	108081445	Lock Washer, 1/2" Dia., Pl.		8
205	101212085	Hex Hd. Bolt, 3/4" UNC x 1", Pl., Gr. 5	2	107208355	Hex Nut, 1/2" UNC, Pl.		8
206	108122045	Lock Washer, 3/4" Dia., Pl.	2	603086	Chaincase Oil Fill Cap		2
207	602950	Tube Cap (Large, Plastic)	2	603089	Chaincase Breather		2
208	603085	Hex Hd. Bolt, 3/4" UNC x 6", Pl., Gr. 5, Full Thread	4	108122035	Lock Washer, 3/4" Dia., Internal Tooth Type, Pl.		2
209	107212025	Hex Jam Nut, 3/4" UNC, Pl.	2	215 thru 240	Not Allocated		
210	602813	Trailing Shield End Hinge Pin	1				
211	101206105	Hex Hd. Bolt, 3/8" UNC x 1-1/4", Pl., Gr. 5	1				
212	107206315	Hex Flange Locknut, 3/8" UNC, Pl.	1				

Quote part number and machine serial number when ordering parts.

TRAILING SHIELD & DAMPER

ILLUSTRATION F



TRAILING SHIELD & DAMPER

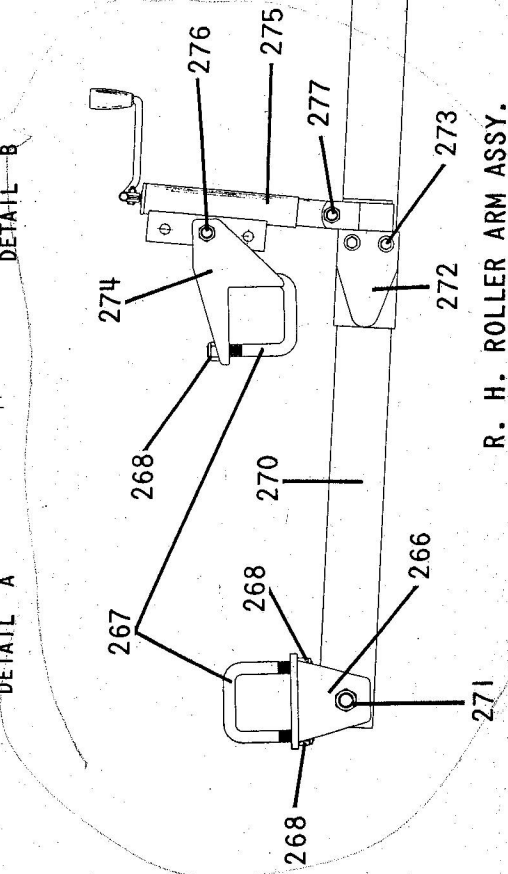
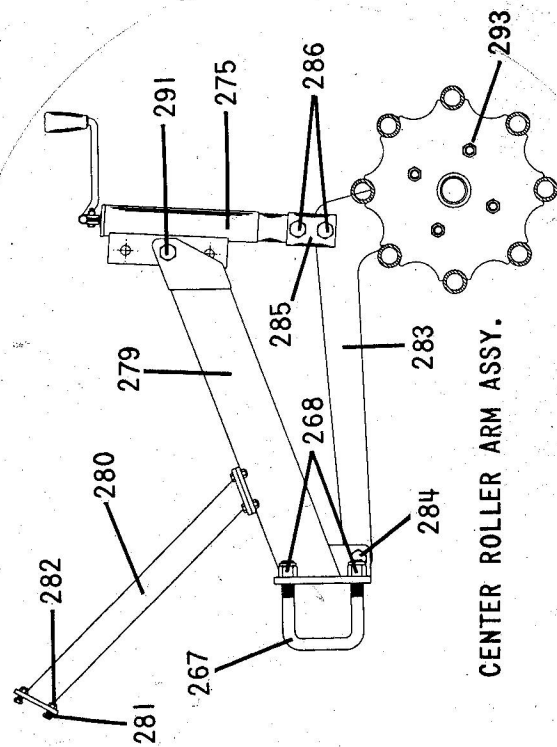
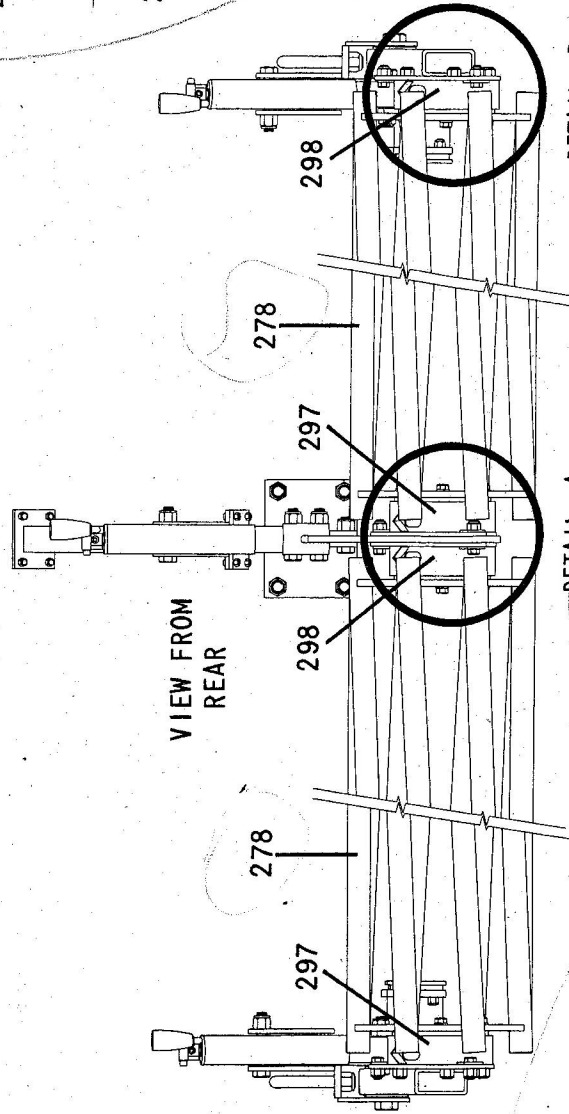
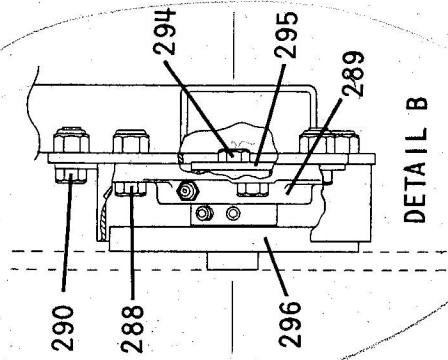
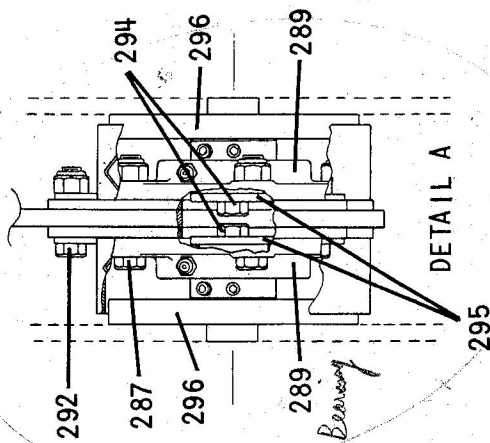
PARTS LIST F

ILL. NO.	PART NO.	DESCRIPTION	QTY.	ILL. NO.	PART NO.	DESCRIPTION	QTY.
241	602839	Trailing Shield 180" Model	4	254	18892	Snapper Pin	4
	603137	Trailing Shield 160" Model	4	255	101208125	Hex Hd. Bolt, 1/2" UNC x 1-1/2", Pl., Gr. 5	4
	603136	Trailing Shield 144" Model	4		107208175	Nyloc Hex Nut, 1/2" UNC, Pl.	4
242	603321	" " 240" "	6		101208205	Hex Hd. Bolt, 1/2" UNC x 2-1/2", Pl., Gr. 5	4
	602863	Hinge Pin	4		107208175	Nyloc Hex Nut, 1/2" UNC, Pl.	4
243	150205145	Hex Hd. Bolt, 5/16" UNC x 1-3/4", Pl., Gr. 8	4	256	101208205	Hex Hd. Bolt, 1/2" UNC x 2-1/2", Pl., Gr. 5	4
244	107205155	Hex Locknut, 5/16" UNC, Pl.	4		107208175	Nyloc Hex Nut, 1/2" UNC, Pl.	4
245	602840	Damper Mount Plate	4	257	thru 265	Not Allocated	4
246	600613	U-Bolt, Sq. Corner, 1/2" UNC, Pl., 4" x 5-1/4"	4				
	108081445	Lock Washer, 1/2" Dia., Med., Pl.	8				
	107208355	Hex Nut, 1/2" UNC, Pl.	8				
247	602864	Damper Arm	4				
248	101206445	Hex Hd. Bolt, 3/8" UNC x 5-1/2", Pl., Gr. 5	4				
249	108061215	Flat Washer, 3/8" Dia., Pl.	4				
250	600454	Damper Spring	4				
251	600455	Special Shouldered Washer	4				
252	107206155	Hex Locknut, 3/8" UNC, Pl.	4				
253	602865	Damper Adjusting Link	4				

Quote part number and machine serial number when ordering parts.

CRUMBLE ROLLER ASSEMBLY

ILLUSTRATION G



CRUMBLE ROLLER ASSEMBLY

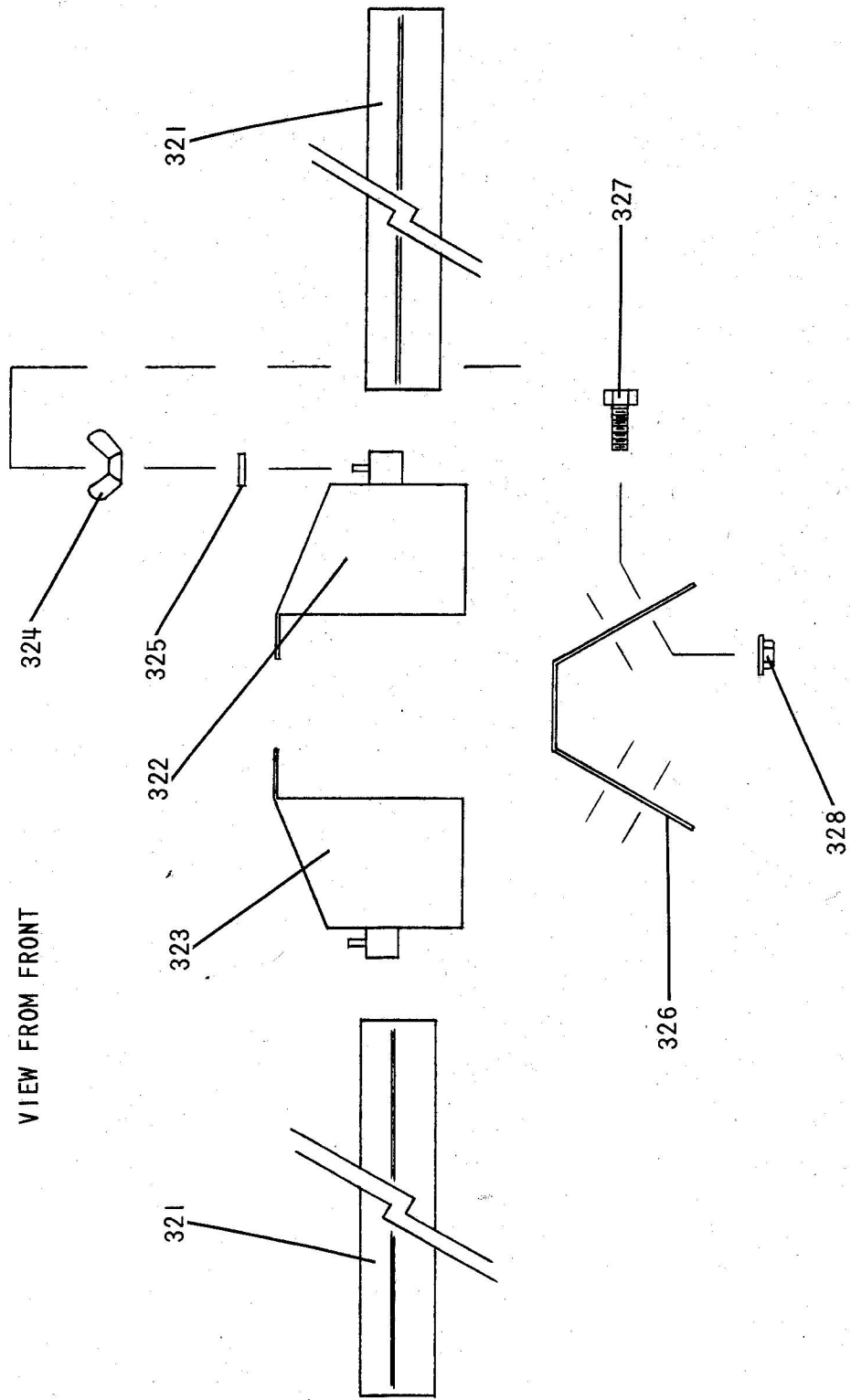
PARTS LIST G

ILL. NO.	PART NO.	DESCRIPTION	QTY.	ILL. NO.	PART NO.	DESCRIPTION	QTY.
266	602838	Pivot Lug	2	282	107206155	Hex Locknut, 3/8" UNC, Pl.	8
267	600052	U-Bolt, Sq. Corner, 7/8" UNC, Pl., 4" x 5-1/2"	6	283	602835	Center Roller Arm	1
268	107214175	Nyloc Hex Nut, 7/8" UNC, Pl.	12	284	101212185	Hex Hd. Bolt, 3/4" UNC x 2-1/4", Pl., Gr. 5	1
269	602832	Roller Arm, L.H.	1	285	107212175	Nyloc Hex Nut, 3/4" UNC, Pl.	1
270	602833	Roller Arm, R.H.	1	286	602884	Clevis	1
271	101216365	Hex Hd. Bolt, 1" UNC x 4-1/2", Pl., Gr. 5	2	287	107212175	Hex Hd. Bolt, 3/4" UNC x 3-1/2", Pl., Gr. 5	1
272	107216175	Nyloc Hex Nut, 1" UNC, Pl.	2	288	101209245	Nyloc Hex Nut, 3/4" UNC, Pl.	2
273	602837	Roller Arm Shoe	2	289	107209175	Hex Hd. Bolt, 9/16" UNC x 3", Pl., Gr. 5	2
274	101208125	Hex Hd. Bolt, 1/2" UNC x 1-1/2", Pl., Gr. 5	4	290	101209145	Nyloc Hex Nut, 9/16" UNC, Pl.	4
275	107208175	Nyloc Hex Nut, 1/2" UNC, Pl.	4	291	107209175	Hex Hd. Bolt, 9/16" UNC x 1-3/4", Pl., Gr. 5	4
276	602836	Jack Lug	2	292	101209145	Nyloc Hex Nut, 9/16" UNC, Pl.	6
277	602836	Jack	3	293	602987	Roller Bearing (Flange Type, 2" Bore)	6
278	101212365	Hex Hd. Bolt, 3/4" UNC x 4-1/2", Pl., Gr. 5	2	294	101209105	Hex Hd. Bolt, 9/16" UNC x 1-1/4", Pl., Gr. 5	4
279	107212175	Nyloc Hex Nut, 3/4" UNC, Pl.	2	295	107209175	Nyloc Hex Nut, 9/16" UNC, Pl.	6
280	101212325	Hex Hd. Bolt, 3/4" UNC x 4", Pl., Gr. 5	2	296	101212305	Hex Hd. Bolt, 3/4" UNC x 3-3/4", Pl., Gr. 5	6
281	107212175	Nyloc Hex Nut, 3/4" UNC, Pl.	2	297	107212175	Nyloc Hex Nut, 3/4" UNC, Pl.	1
	602831	Crumble Roller 180" Model	2	298	101209185	Hex Hd. Bolt, 9/16" UNC x 2-1/4", Pl., Gr. 5	1
	603135	Crumble Roller 160" Model	2	299	107209175	Nyloc Hex Nut, 9/16" UNC, Pl.	3
	603134	Crumble Roller 144" Model	2		101209125	Hex Hd. Bolt, 9/16" UNC x 1-1/2", Pl., Gr. 5	3
	603324	Support Arm	2		108091545	Lock Washer, 9/16" Dia., Pl.	16
	602831	Support Arm	1		101209105	Hex Hd. Bolt, 9/16" UNC x 1-1/2", Pl., Gr. 5	16
	602830	Brace	1		608102	Axle Retainer	4
	603212	Brace for 240" model	1		602845	Axle 603325 Circle for #W 240	4
	101206085	Hex Hd. Bolt, 3/8" UNC x 1", Pl., Gr. 5	8		602843	Roller Bearing Guard, L.H.	4
					602844	Roller Bearing Guard, R.H.	2
					thru 320	Not Allocated	2

Quote part number and machine serial number when ordering parts.

SAFETY GUARDS

ILLUSTRATION H



SAFETY GUARDS

PARTS LIST H

ILL. NO.	PART NO.	DESCRIPTION	QTY.	ILL. NO.	PART NO.	DESCRIPTION	QTY.
321	602866	Jackshaft Cover 180" Model	2				
	603160	Jackshaft Cover 160" Model	2				
	603159	Jackshaft Cover 144" Model	2				
	603141	" " 240" "	2				
322	602811	Coupler Guard, L.H.	1				
323	602812	Coupler Guard, R.H.	1				
324	603079	Nyloc Wing Nut, 3/8" UNC	4				
325	108061215	Flat Washer, 3/8" Dia., Pl.	4				
326	602867	Clutch Guard	1				
327	101206105	Hex Hd. Bolt, 3/8" x 1-1/4", Pl., Gr. 5	4				
328	107206315	Hex Flange Locknut, 3/8" UNC, Pl.	4				
329	thru 340	Not Allocated					

* Not used on 240" model

Quote part number and machine serial number when ordering parts.

NUMERICAL PARTS LIST

NOTE: COMMON FASTENERS ARE NOT LISTED.

PART NO.	PAGE	ILL.	PART NO.	PAGE	ILL.	PART NO.	PAGE	ILL.	PART NO.	PAGE	ILL.	PART NO.	PAGE	ILL.
18892	15	254	602825	11	163	602892	9	124	603018	5	26	603053	7	54
600022	11	172	602826	11	164	602893	9	126	603019	5	27	603054	7	55
600049	11	173	602827	11	166	602894	9	102	603020	5	28	603055	7	56
600050	11	176	602828	11	167	602895	9	103	603021	5	30	603056	7	57
600052	11	171	602829	11	168	602897	9	119	603022	5	32	603057	7	58
	17	267	602830	17	280	602898	9	121	603024	5	34	603058	7	59
600097	11	175	602831	17	279	602899	9	132	603028	5	7	603059	7	60
600099	11	174	602832	17	269	602900	9	112	603029	5	7	603060	7	61
600204	3	None	602833	17	270	602901	9	125	603030	5	8	603061	7	62
600454	15	250	602834	17	278	602902	9	118	603031	5	9	603062	7	63
600455	15	251	602835	17	283	602942	13	200	603032	5	10	603063	7	64
600613	15	246	602836	17	274	602943	13	202	603033	5	11	603064	7	N.I.
601708	3	None	602837	17	272	602944	11	178	603034	5	12	603065	7	66
602804	7	51	602838	17	266	602945	11	184	603035	5	13	603066	7	66
	8	101	602839	15	241	602946	11	188	603036	5	14	603067	7	66
602807	5	1	602840	15	245	602947	11	181	603037	5	15	603068	7	67
602808	5	1	602842	9	133	602948	11	186	603038	5	16	603069	7	68
602810	11	170	602843	17	297	602949	11	177	603039	5	17	603070	7	68
602811	19	322	602844	17	298	602950	13	205	603040	5	18	603071	7	68
602812	19	323	602845	17	296	602984	17	285	603041	5	19	603072	7	69
602813	13	208	602863	15	242	602986	17	275	603042	5	20	603073	7	70
602814	9	109	602864	15	247	602987	17	289	603043	7	77	603074	7	72
602815	9	N.I.	602865	15	253	602997	5	3	603044	7	78	603075	7	73
602816	9	139	602866	19	321	602998	5	3	603045	7	79	603076	7	75
602817	9	N.I.	602867	19	326	602999	5	4	603046	7	80	603077	7	76
602818	9	127	602887	9	113	603014	5	6	603047	7	81	603079	9	111
602819	9	N.I.	602888	9	136	603015	5	23	603048	7	82	603080	9	104
602820	9	131	602889	9	108	603016	5	24	603049	7	83	603081	9	107
602821	11	161	602890	9	117	603017	5	25	603051	7	52	603082	9	122
602824	11	162	602891	9	107	603052	7	53	603083	9	134	603083	9	107

N.I. - Not Illustrated