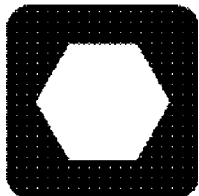


5010

Parts Manual



Ditch Witch®


5010

ISSUE NO. 04PL-08/87

For Replacement Copy Order **P/N 050-650**

This manual contains information concerning the following models:
5010 Trencher

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FOREWORD

Ditch Witch equipment is designed and manufactured to give years of dependable service. This manual helps ensure that by giving you an illustrated Parts List from which to select quality Ditch Witch replacement parts.

When ordering, use part numbers and descriptions (not reference numbers), and refer to the model and serial number of your equipment.

Read all footnotes carefully. Part numbers shown in reverse type (white on black) are not available from The Charles Machine Works, Inc. However, information concerning fabrication or alternate suppliers may be obtained by contacting our Technical Services department. If parts are listed N.A. they are to be replaced by redesigned parts as shown, or no further information is available.

Ordinary vendor items should not be substituted as replacement parts because of variances in grades of materials. Repair or replacement parts should be ordered from your authorized Ditch Witch dealer.

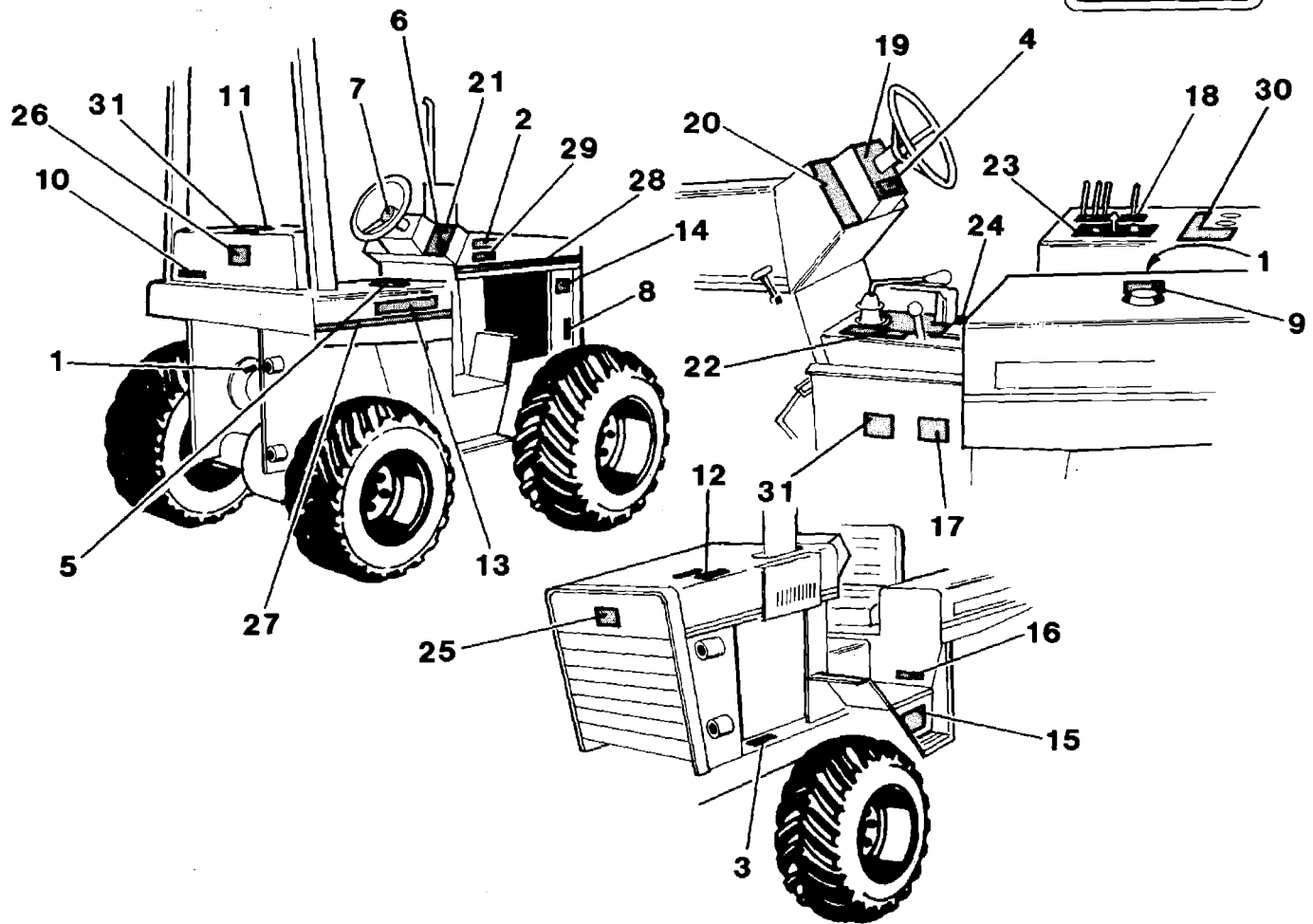
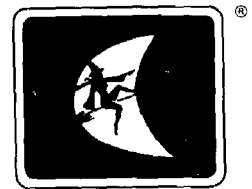
Instructions on safely using and maintaining this equipment appear in the Operator's Manual for your Ditch Witch machine. If you have questions not answered in these publications, your dealer representative will be glad to assist you.

The descriptions and specifications in this manual are subject to change. The Charles Machine Works, Inc., reserves the right to modify equipment at any time as part of normal product improvement.

Thank you for your patronage and confidence in Ditch Witch equipment.

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275—572 DECAL KIT

For Models 4010 And 5010

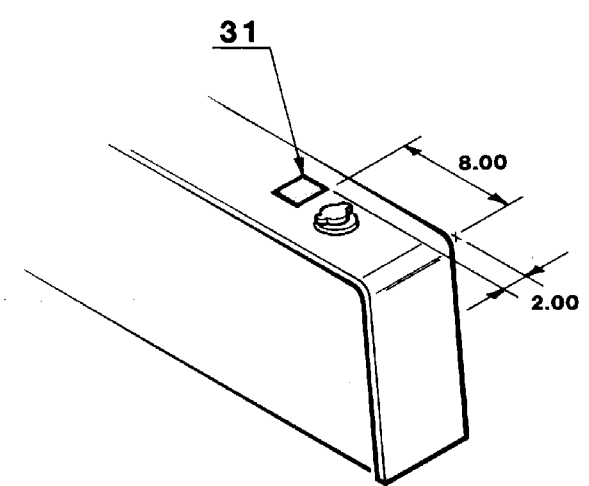
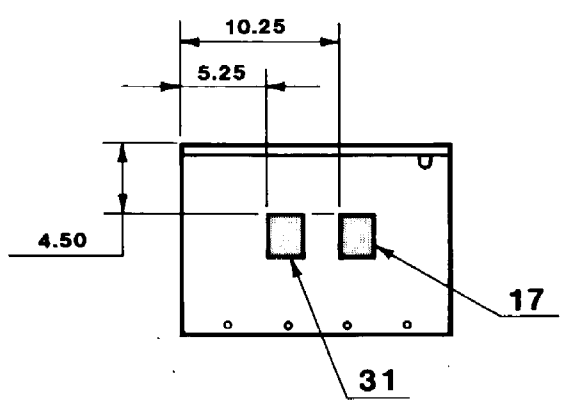
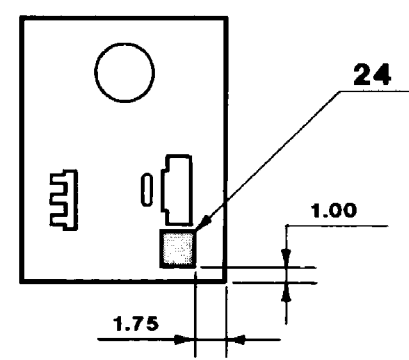
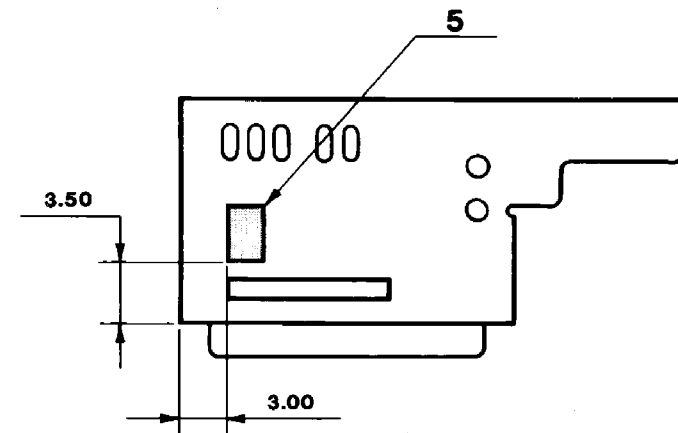
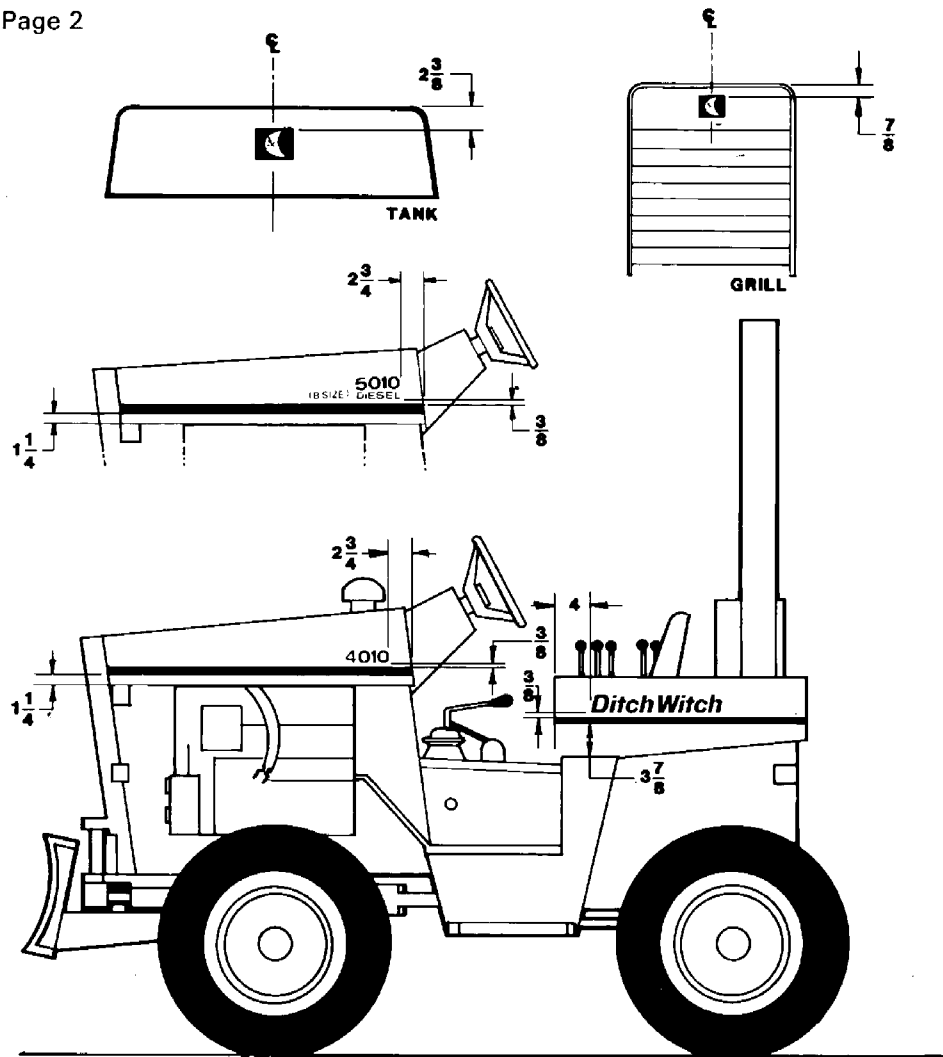
Ref. No.	Part Number	Qty.	Description	Ref. No.	Part Number	Qty.	Description
	050-354		Location Diagram	18.	275-288	1	Control Valve
1.	275-023	2	Oil Level	19.	275-291	1	Instrument Panel
2.	275-028	2	5010 Model-ID	20.	275-292	1	Left Console Panel
	275-071	2	4010 Model-ID	21.	275-293	1	Right Console Panel (Deutz & Perkins)
3.	275-033	1	Notice Alternator		275-295	1	Right Console Panel (Continental & Wisconsin)
4.	275-048	1	Important Safety Rules	22.	275-297	1	Transmission & Operation
5.	275-070	1	Danger Runaway	23.	275-302	1	Crowd Speed/Direction
6.	275-087	1	Ignition Switch	24.	275-303	1	Danger Rollover
7.	275-089	1	Power Steering Cap	25.	275-306	1	Ditch Witch Emblem
8.	275-100	1	Manifold	26.	275-307	1	Ditch Witch Emblem
9.	275-120	1	Reservoir	27.	275-312	2	Accent Stripe (1" x 34")
10.	275-131	1	Modularmatic®-ID	28.	275-312	2	Accent Stripe (1" x 45")
11.	275-148	1	Fuel Tank (Diesel)	29.	275-364	2	Diesel-ID (Deutz & Perkins Diesel)
	275-173	1	Fuel Tank (Gasoline)	30.	275-416	1	Control Valve (PaceFinder Option)
12.	275-149	1	Radiator (Coolant)— Continental & Perkins	31.	275-419	2	Warning Flammable
13.	275-172	2	Ditch Witch®-ID				
14.	275-184	2	Warning Moving Parts				
15.	275-185	2	Danger Single Operator				
16.	275-203	1	Battery				
17.	275-245	1	Caution Battery Acid				

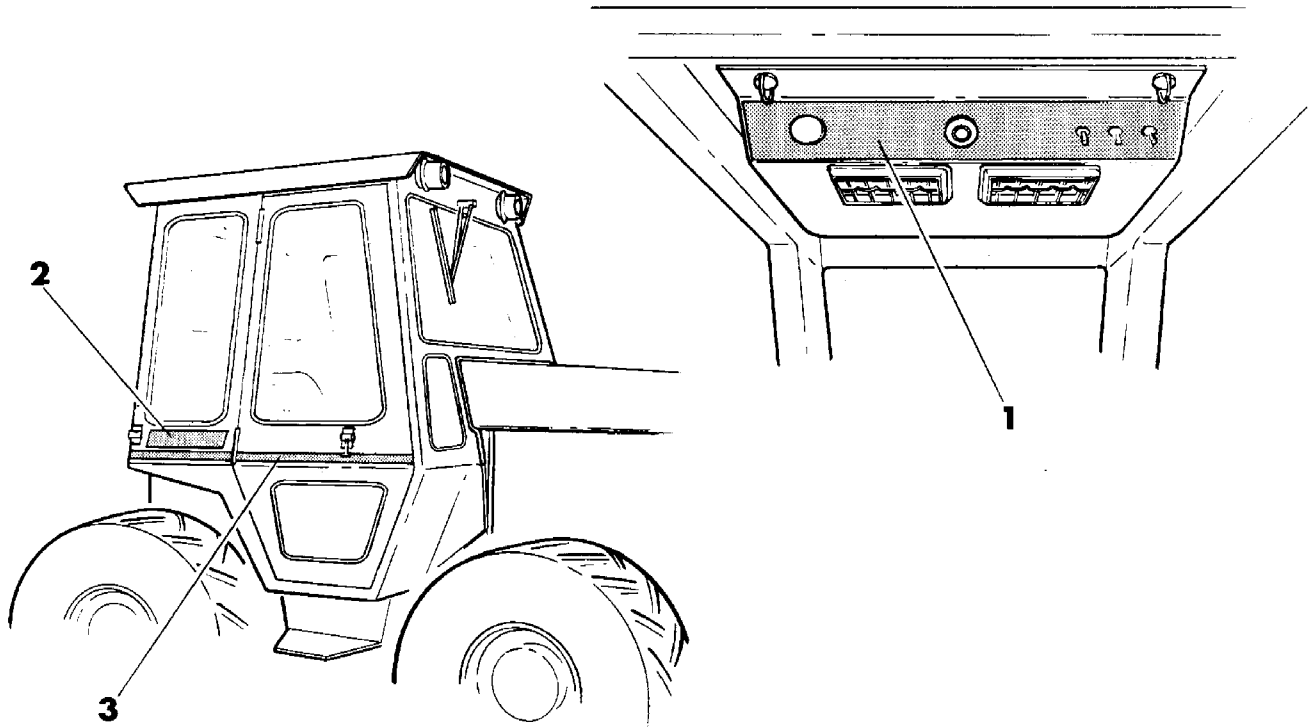
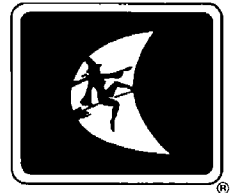
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050-354





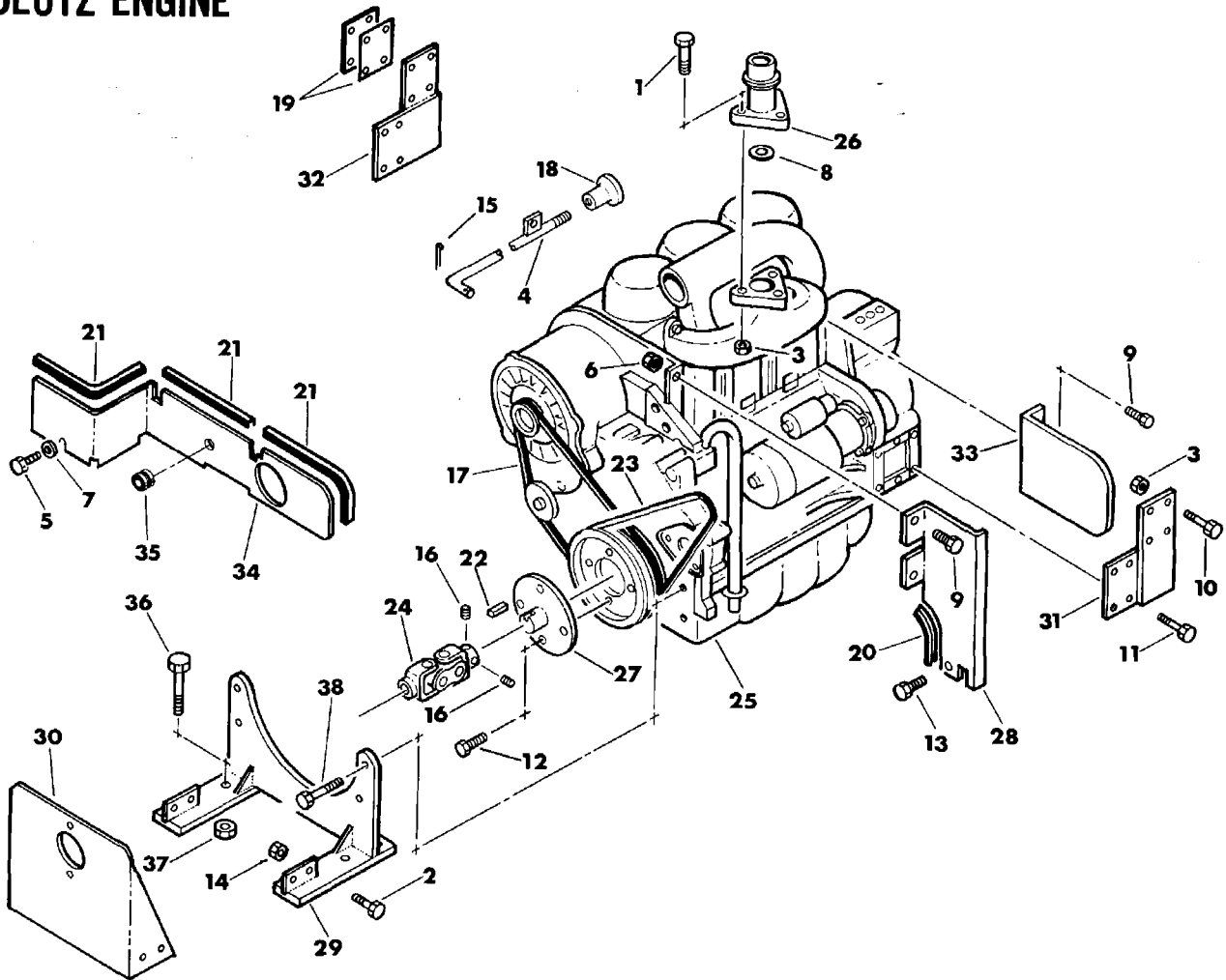
275-555 DECAL KIT.

FOR MODEL CAB

Ref. No.	Part Number	Qty.	Description
	050-365		Location Diagram
1.	275-081	1	Console Panel
2.	275-172	2	Ditch Witch®-ID

Ref. No.	Part Number	Qty.	Description
3.	275-312	2	Accent Stripe (1" x 57")-6510
	275-312	2	Accent Stripe (1" x 61")-4010 & 5010

DEUTZ ENGINE



Ref. No.	Part Number	Qty.	Description
1.	105-002	3	Bolt (1/2-NC x 2-1/4")
2.	105-031	4	Bolt (3/8-NC x 1")
3.	105-065	11	Locknut (1/2-NC)
4.	361-652	1	Kill Rod (w/o tab)
	361-772	1	'Kill Rod (w/tab)
5.	105-865	1	Bolt (1/4-NC x 3/4", GD 8)
6.	105-085	3	Locknut (1/4-NC)
7.	105-095	1	Washer (1/4")
8.	195-825	1	Exhaust Gasket
9.	105-174	4	Bolt (1/4-NC x 1/2")
10.	105-885	8	Flange Bolt (1/2-NC x 2")
11.	105-247	8	Bolt (M12-1.75 x 35 mm)
12.	105-272	4	Bolt (M8-1.25 x 30 mm, GD 8)
13.	105-274	1	Bolt (M10-1.5 x 20 mm, GD 8)
14.	105-047	4	Locknut (3/8-NC)
15.	105-508	1	Cotter Pin (3/32" x 1")
16.	105-708	2	Setscrew (3/8-NC x 3/8", Nylok)
17.	170-068	1	Blower Belt
18.	110-071	1	Knob (black)—early models
	110-360	1	Knob (red)—replacements
19.	312-220	AR	Shim (.1875" THK)
	312-221	AR	Shim (.0747" THK)
20.	115-686	1	Grommet Edging (use 8")
21.	115-686	1	Grommet Edging (use 27")
22.	165-933	1	Key (1/4" SQ x 3/4" LG)
23.	170-053	1	Alternator Belt

Ref. No.	Part Number	Qty.	Description
24.	180-763	1	² Double Universal Joint (13 spline)
	180-792	1	³ Double Universal Joint (9 spline)
	182-116	1	⁴ Double Universal Joint (9 spline)
25.	195-810	1	Engine (Incl. ref. no.'s 8, 11 and 17)
26.	195-919	1	Muffler Adapter
27.	301-196	1	Hydraulic Pump Drive
28.	301-283	1	Front Exhaust Baffle
29.	312-084	1	Front Engine Mount
30.	312-101	1	Pump Bracket
31.	312-102	1	Left Rear Engine Mount
32.	312-103	1	Right Rear Engine Mount
33.	312-134	1	Exhaust Baffle
34.	312-148	1	Front Cross Baffle
	312-260	1	¹ Front Cross Baffle
35.	115-349	1	Grommet
36.	105-002	4	Bolt (1/2-NC x 2-1/4")—early style
	105-831	4	Flange Lock Bolt (1/2-NC x 1-1/2")
37.	105-065	4	Locknut (1/2-NC)—early style
	105-833	4	Flange Locknut (1/2-NC)
38.	105-235	4	Bolt (M14-2.00 x 90mm)

Not Shown:
195-814 Oil Filter Element

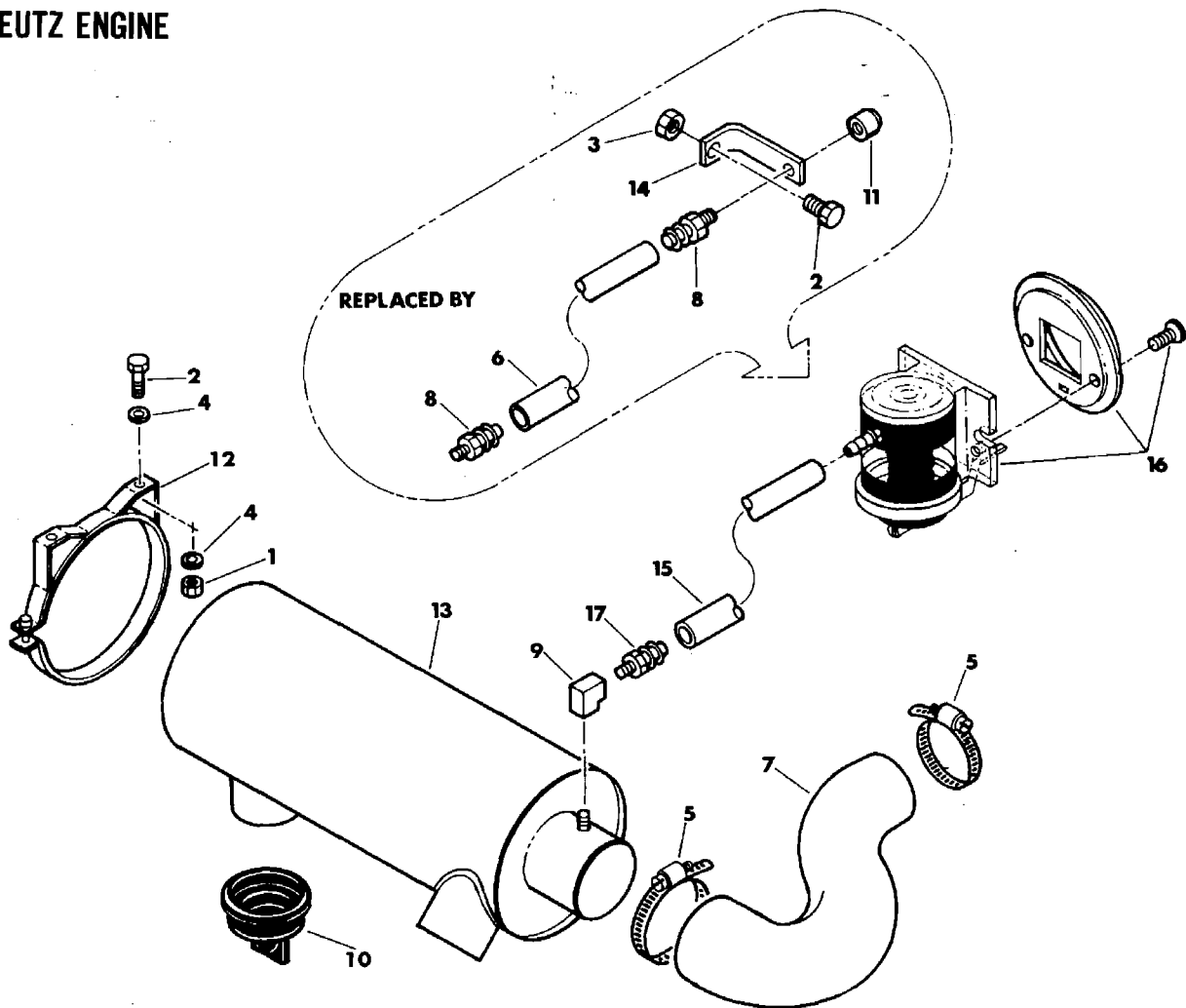
¹Kill rod (w/tab) is required when using remote engine controls associated with backhoe. Front cross baffle must be altered or replaced with special design cross baffle. Refer to installation diagram 050-164.

²Ends with S/N 500218. Used with 13 spline hydraulic pump.

³Begins with S/N 500219. Associated with 9 spline Rexroth hydraulic pumps. See footnote 4.

⁴Associated with 9 spline Cessna hydraulic pumps. Replacement (Cessna) pumps require this u-joint.

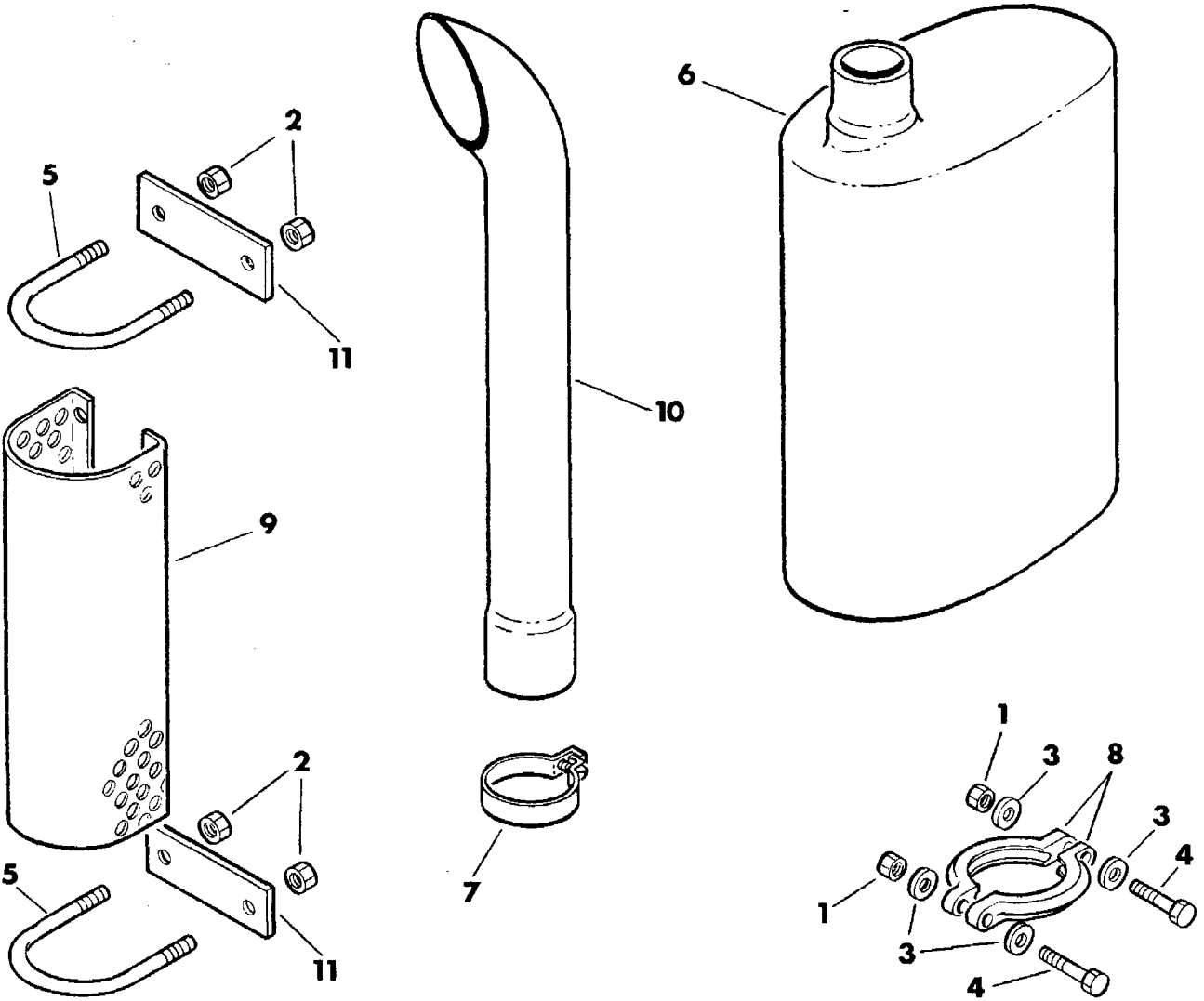
AIR FILTER SYSTEM DEUTZ ENGINE



Ref. No.	Part Number	Qty.	Description
1.	105-089	4	Locknut (5/16-NC)
2.	105-090	5	Bolt (5/16-NC x 3/4")
3.	105-092	1	Nut (5/16-NC)
4.	105-117	8	Washer (5/16")
5.	110-169	2	Clamp
6.	115-381	50"	Hose (1/4" ID)
7.	116-171	1	Air Cleaner Hose
8.	155-107	2	Slip-On Coupler (1/8-NPT M x 1/4" hose)
9.	156-228	1	Elbow (1/8-NPT FM x 1/8-NPT FM x 90°)
10.	195-428	1	Discharge Valve
11.	195-633	1	Restriction Indicator
12.	195-656	2	Mounting Band

Ref. No.	Part Number	Qty.	Description
13.	195-808	1	Air Cleaner (Incl. ref. no. 10)
	195-819		Air Cleaner (w/safety element)—Incl. ref. no. 10
	195-690		Primary Element (used with STD and safety cleaners)
	195-809		Safety Element (for safety cleaner only)
	195-815		Wing Nut
	195-823		Access Cover Plate
14.	312-139	1	Restriction Indicator Bracket
15.	116-192	1	Hose (7/64" ID)—use 45"
16.	215-150	1	Restriction Indicator
17.	155-150	1	Slip-On Coupler (1/8-NPT M x 1/8" OD, STR)

MUFFLER

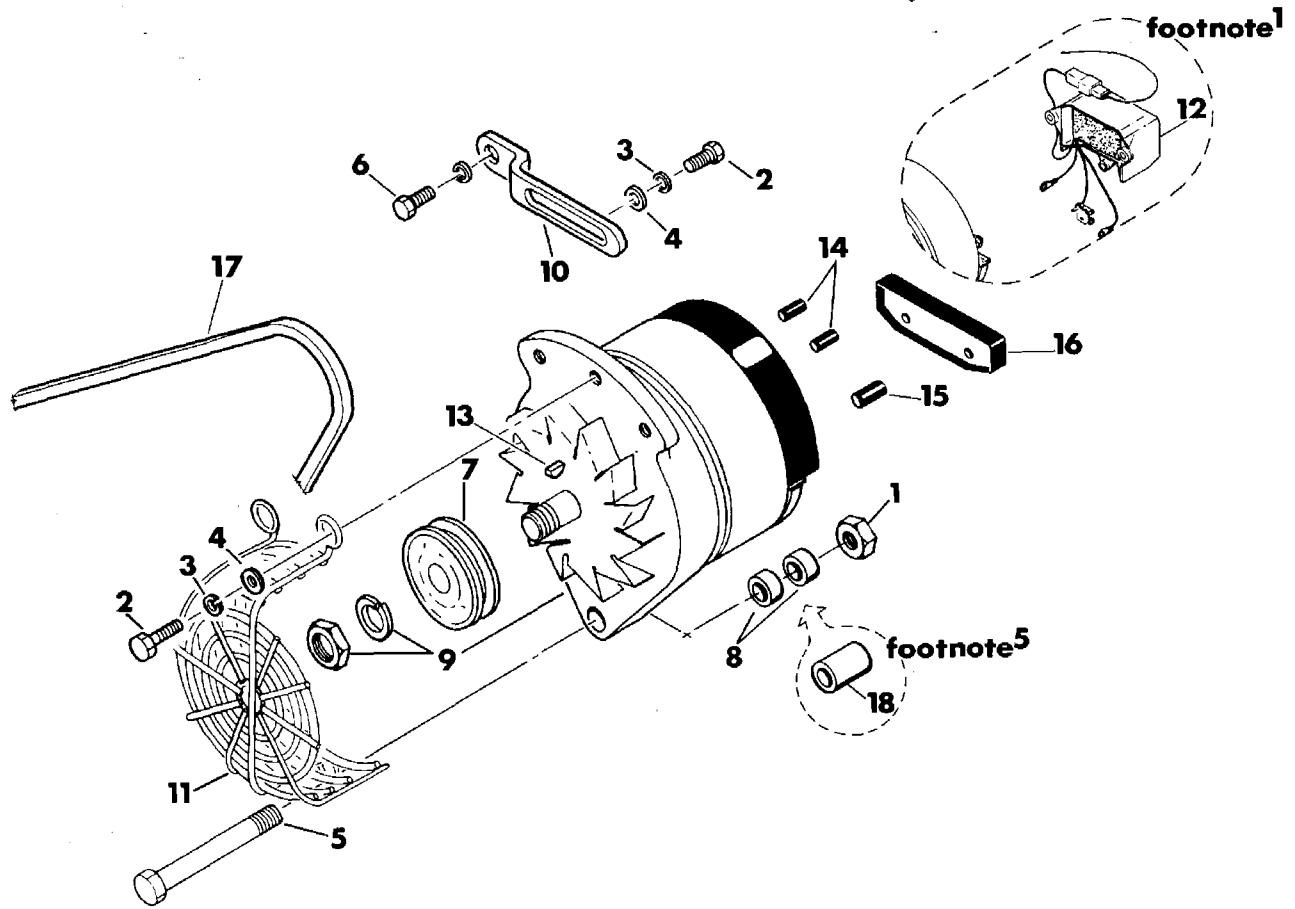


Ref. No.	Part Number	Qty.	Description
	190-277		'Vertical Muffler Conversion Kit (Incl. ref. no.'s 1, 3, 4, 6, 7, 8 and 10)
1.	105-047	2	Locknut (3/8-NC)
2.	105-089	4	Locknut (5/16-NC)—optional
3.	105-118	4	Washer (3/8")
4.	105-183	2	Bolt (3/8-NC x 2-1/2")
5.	195-910	2	U-Bolt (optional)

Ref. No.	Part Number	Qty.	Description
6.	195-960	1	Muffler
7.	195-962	1	Muffler Clamp
8.	195-967	1	Muffler Clamp
9.	195-975	1	Personnel Protector (optional)
10.	195-985	1	Exhaust Pipe
11.	301-285	2	U-Bolt Plate (optional)

'Refer to installation diagram 050-943.

ALTERNATOR DEUTZ ENGINE



Ref. No.	Part Number	Qty.	Description
1.	105-065	1	Locknut (1/2-NC)
2.	105-090	2	Bolt (5/16-NC x 3/4")
3.	105-091	2	Lock Washer (5/16")
4.	105-117	2	Washer (5/16")
5.	105-275	1	Bolt (1/2-NC x 6")
6.	105-292	1	Bolt (M8-1.25 x 75mm)
7.	170-153	1	Alternator Sheave
8.	181-538	1	Spacer Bushing (.3" LG)—early style
	105-244	2	Washer (.25" LG)—replacement
9.	215-156	1	¹ Alternator (#8AR2069F)—Incl. ref. no.'s 12 and 13
	215-161	1	² Alternator (#8EA2001FA)—Incl. ref. no.'s 13 thru 16
	215-499	1	¹ Wire (14 GA x 6")
10.	360-262	1	Belt Tightener Bracket

Ref. No.	Part Number	Qty.	Description
11.	362-138	1	Alternator Guard
12.	506-001	1	³ Regulator (#8RF2012A)
13.	506-025	1	Woodruff Key
14.	110-397	2	Cap (3/16")
15.	110-398	1	Cap (1/4")
16.	506-032	1	⁴ Regulator (#8RC2009A)
17.	170-053	1	Alternator Belt
18.	180-299	1	⁵ Spacer (.625" LG)

¹Alternator/ #8AR2069F (ref. no. 9) used regulator/ #8RF2012A (ref. no. 12). If alternator requires replacement refer to page entitled ELECTRICAL DIAGRAM.

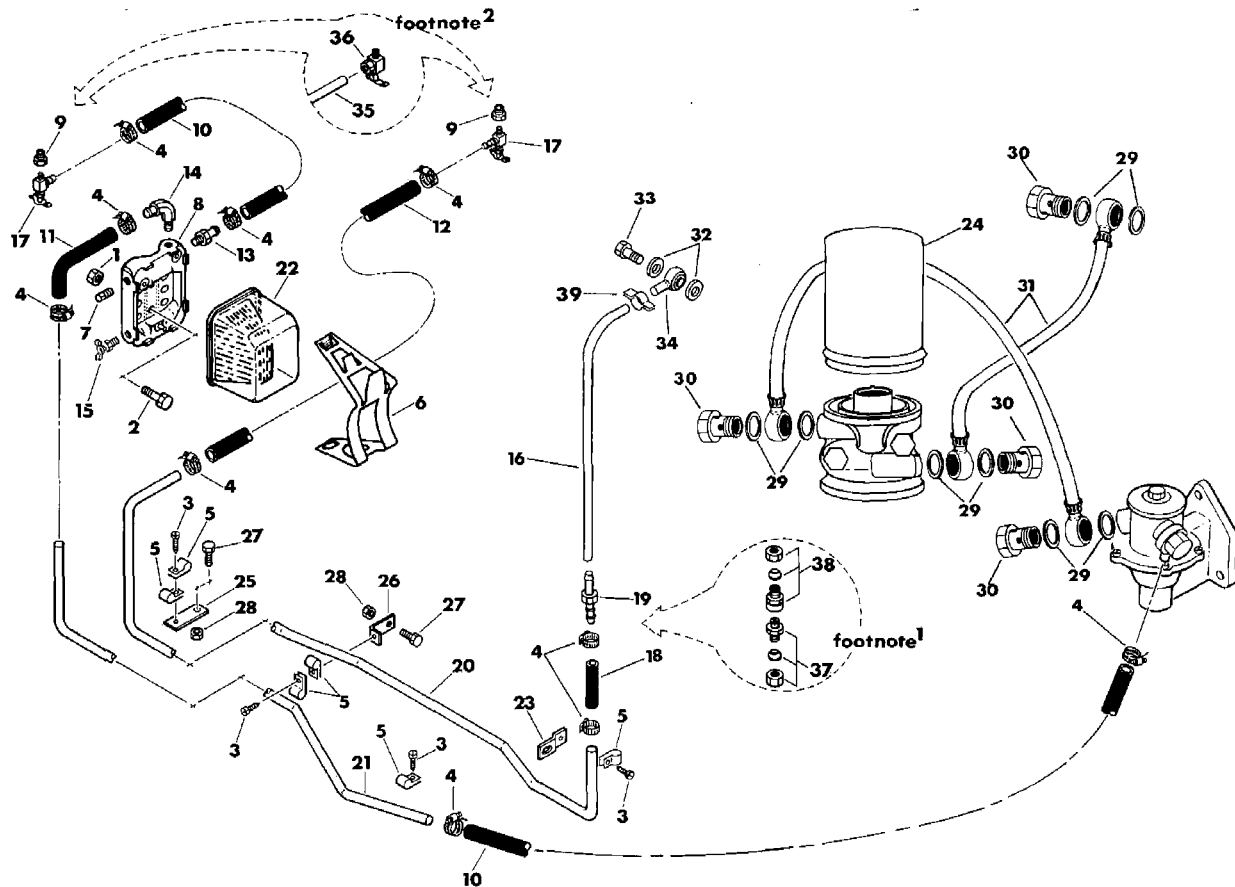
²Early series of alternator/ #8EA2001FA used regulator/ #8RF2012A (ref. no. 12), later series use regulator/ #8RC2009A (ref. no. 16). Refer to pages entitled ELECTRICAL DIAGRAM.

³Regulator/ #8RF2012A (ref. no. 12) was used with early style alternators, which are no longer available.

⁴Regulator/ #8RC2009A (ref. no. 16) is used with presently available alternator/ #8EA2001FA.

⁵Do not use this early style spacer (ref. no. 18) for replacement substitute washers (ref. no. 8).

FUEL LINE DEUTZ ENGINE



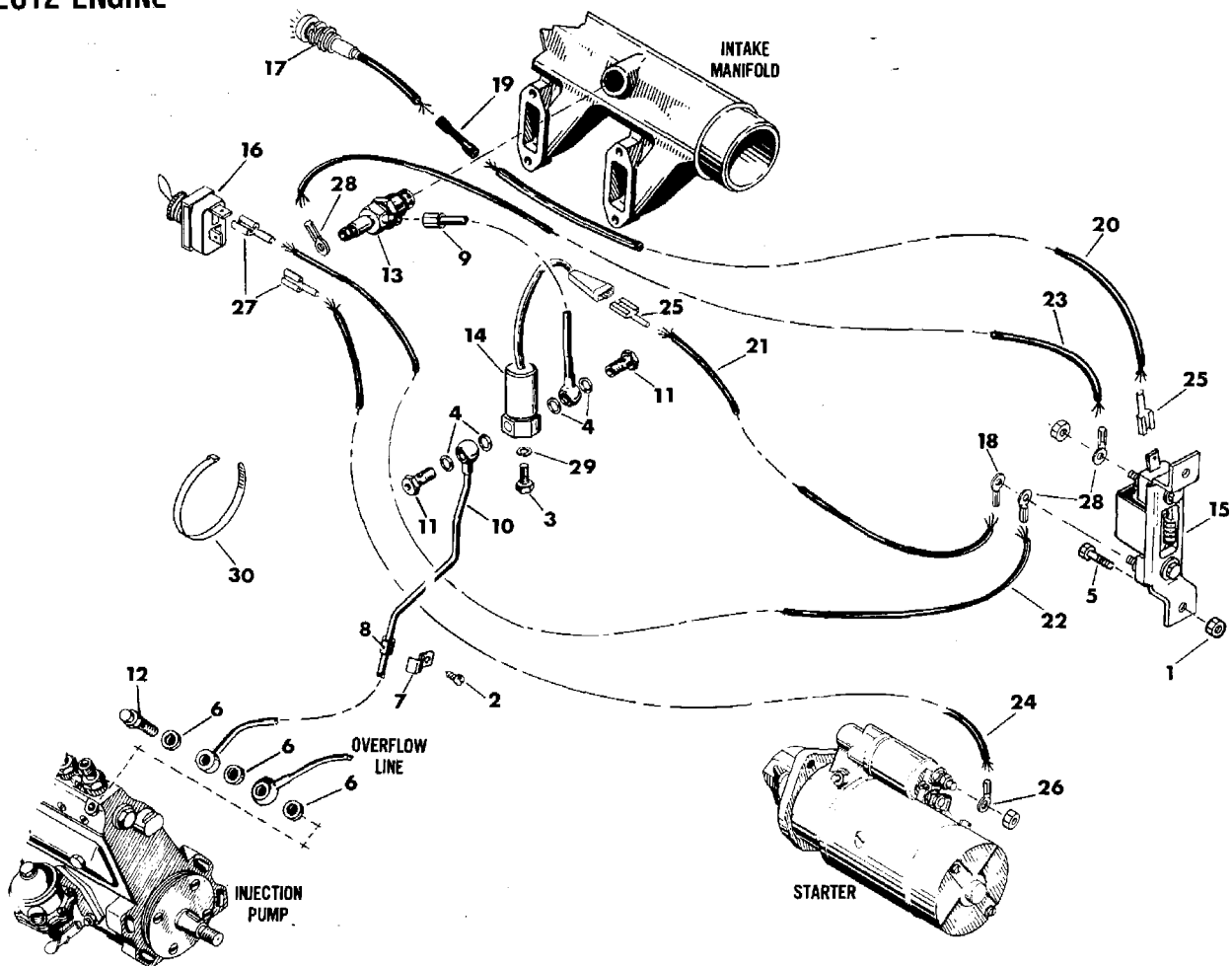
Ref. No.	Part Number	Qty.	Description
1.	105-089	2	Locknut (5/16-NC)
2.	105-160	2	Bolt (5/16-NC x 1-1/4")
3.	105-214	4	Flange Screw (No. 10-32 x 1/2")
4.	110-114	10	Clamp (19/32")
5.	110-126	1	Clamp (7/16")
	110-212	6	Clamp (5/16")
6.	110-255	1	Spring Clamp
7.	110-256	1	Plug Kit
8.	110-257	1	Separator Base
9.	115-181	2	Pipe Bushing (1/8" to 1/4")
10.	116-108	2	Fuel Hose (19/64" ID)—use 14"
11.	116-108	1	Fuel Hose (19/64" ID)—use 10"
12.	116-108	1	Fuel Hose (19/64" ID)—use 17"
13.	155-162	1	Slip-On Coupler (1/4-NPT M x 5/16" OD, STR)
14.	155-164	1	Slip-On Coupler (1/4-NPT M x 5/16" OD x 90°)
15.	110-141	1	Drain Valve
16.	156-028	1	Plastic Tubing (use 17")
17.	156-239	2	² Fuel Shutoff Valve
18.	116-108	1	¹ Hose (19/64" ID)—use 3"
19.	156-253	1	¹ Hose Coupler (3/16" OD x 5/16" OD, STR)

Ref. No.	Part Number	Qty.	Description
20.	156-367	1	Fuel Line (56" LG)
21.	156-368	1	Fuel Line (60" LG)
22.	159-009	1	Separator Element
23.	312-219	1	Bracket
24.	195-813	1	Fuel Filter Element
25.	312-243	1	Fuel Line Support
26.	312-244	1	Fuel Line Support
27.	105-342	2	Bolt (1/4-NC x 7/8")
28.	105-085	2	Locknut (1/4-NC)
29.	105-957	8	Seal Washer (9/16")
30.	156-250	4	Fuel Bolt (M14-1.5 x 26mm)
31.	195-828	2	Fuel Hose (1/2" OD x 21-3/4" LG)
32.	105-893	2	Seal Washer (M8)
33.	156-254	1	Fuel Bolt (M8-1.25 x 32mm)
34.	195-833	1	Slip-On Hose Coupler
35.	156-017		² Copper Tube (5/16" ID)—use 2"
36.	156-214		² Shut-Off Connector (5/16" T x 1/8-NPT x 90°)
37.	156-220		¹ Tube Connector (5/16" T x 1/8-NPT M, STR)
38.	156-238		¹ Tube Connector (1/4" T x 1/8-NPT M, STR)
39.	110-304	1	Clamp (1/4")

¹Hose and hose coupler (ref. no.'s 18 and 19) replace early style tube connectors (ref. no.'s 37 and 38).

²Fuel shutoff connector (ref. no. 17) replace early style connector and tube (ref. no.'s 35 and 36).

COLD START KIT DEUTZ ENGINE

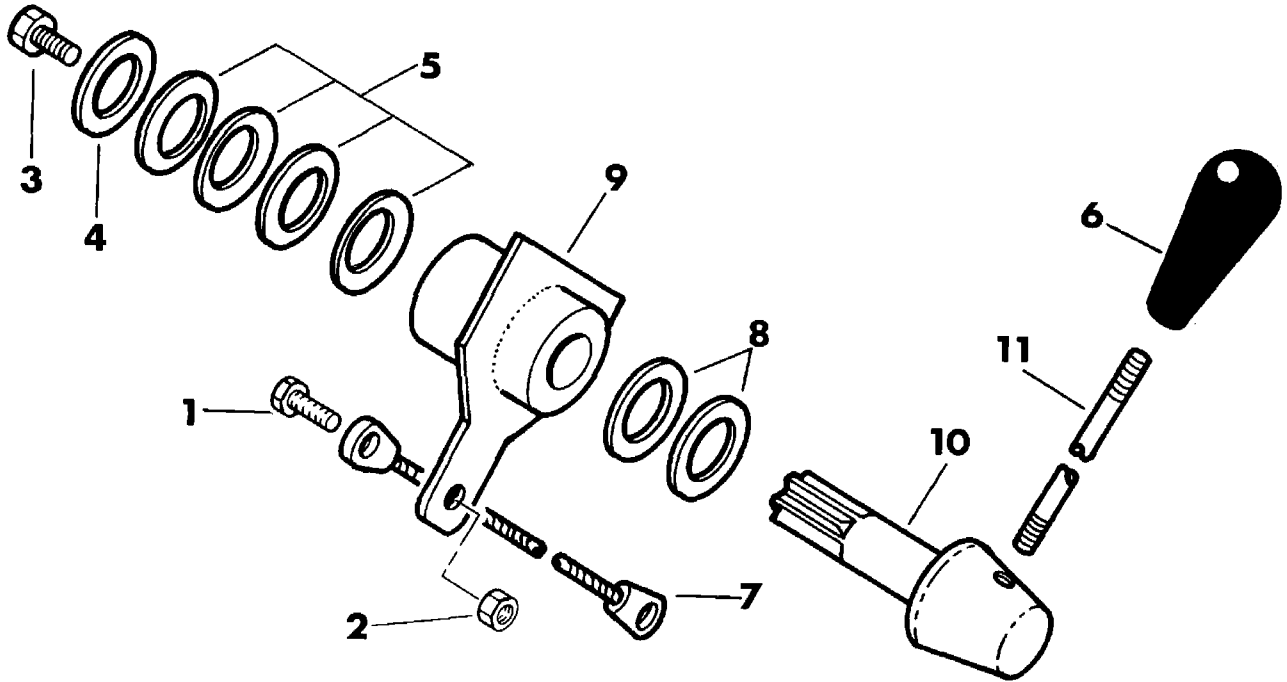


Ref. No.	Part Number	Qty.	Description
	190-377		'Cold Start Conversion Kit (Incl. ref. no.'s 1 thru 30)
1.	105-085	2	Locknut (1/4-NC)
2.	105-804	1	Flange Screw (No. 10-16 x 1/2")
3.	105-860	2	Bolt (M6-1.0 x 10mm)
4.	105-863	4	Brass Washer
5.	105-865	2	Bolt (1/4-NC x 3/4", GD 8)
6.	105-957	3	Seal Washer
7.	110-212	1	Clamp
8.	116-186	1	Grommet (3/8" OD)
9.	156-035	1	Fuel Line (1/4"T x 8-1/4" LG)
10.	156-036	1	Fuel Line (7/32"T x 25-7/8" LG)
11.	156-242	2	Fuel Bolt (M12-1.75 x 20mm)
12.	156-243	1	Fuel Bolt (M16-2.0 x 35mm)
13.	215-057	1	Heater Plug
14.	215-058	1	Fuel Solenoid
15.	215-059	1	Resistor Block
16.	215-060	1	Toggle Switch

Ref. No.	Part Number	Qty.	Description
17.	215-444	1	Green Pilot Light
	215-415		Light Kit
18.	215-476	1	Ring Terminal (3/16" x 14/16 GA)
19.	215-478	1	Butt Connector (14/16 GA)
20.	215-490	1	Wire (16 GA)—use 10"
21.	215-490	1	Wire (16 GA)—use 40"
22.	215-505	1	Wire (10 GA)—use 20"
23.	215-505	1	Wire (10 GA)—use 25"
24.	215-505	1	Wire (10 GA)—use 30"
25.	215-527	2	Female Terminal (1/4" x 14/18 GA)
26.	215-531	1	Ring Terminal (3/8" x 10/12 GA)
27.	215-573	2	Female Terminal
28.	215-592	3	Ring Terminal (3/16" x 10/12 GA)
29.	500-055	2	Lock Washer
30.	110-030	4	Cable Tie

*Refer to installation diagram 050-148.

HAND THROTTLE

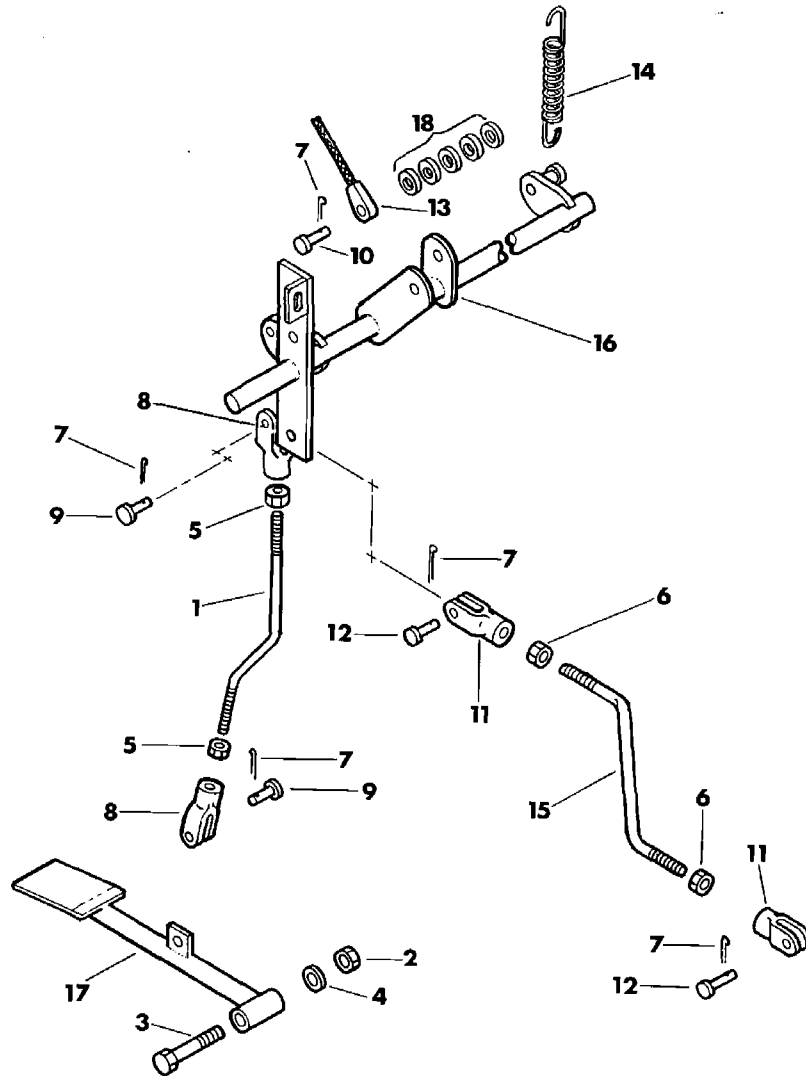


Ref. No.	Part Number	Qty.	Description
1.	105-865	1	Bolt (1/4-NC x 3/4")
2.	105-085	1	Locknut (1/4-NC)
3.	105-090	1	Bolt (5/16-NC x 3/4")
4.	105-847	1	Washer
5.	105-951	4	Spring Washer (5/8")
6.	110-051	1	'Handle (3/8-NC)
	110-321	1	'Handle (1/2-NC)
7.	110-239	1	Control Cable

Ref. No.	Part Number	Qty.	Description
8.	115-717	2	Friction Washer
9.	312-120	1	Throttle Pivot
10.	312-123	1	'Internal Throttle Pivot
11.	361-625	1	'Throttle Rod

'Early style internal throttle pivot, throttle rod and knob have 3/8-NC threads. When replacement pivot or rod has 1/2-NC threads the other part and the knob must also have 1/2-NC threads.

THROTTLE LINKAGE

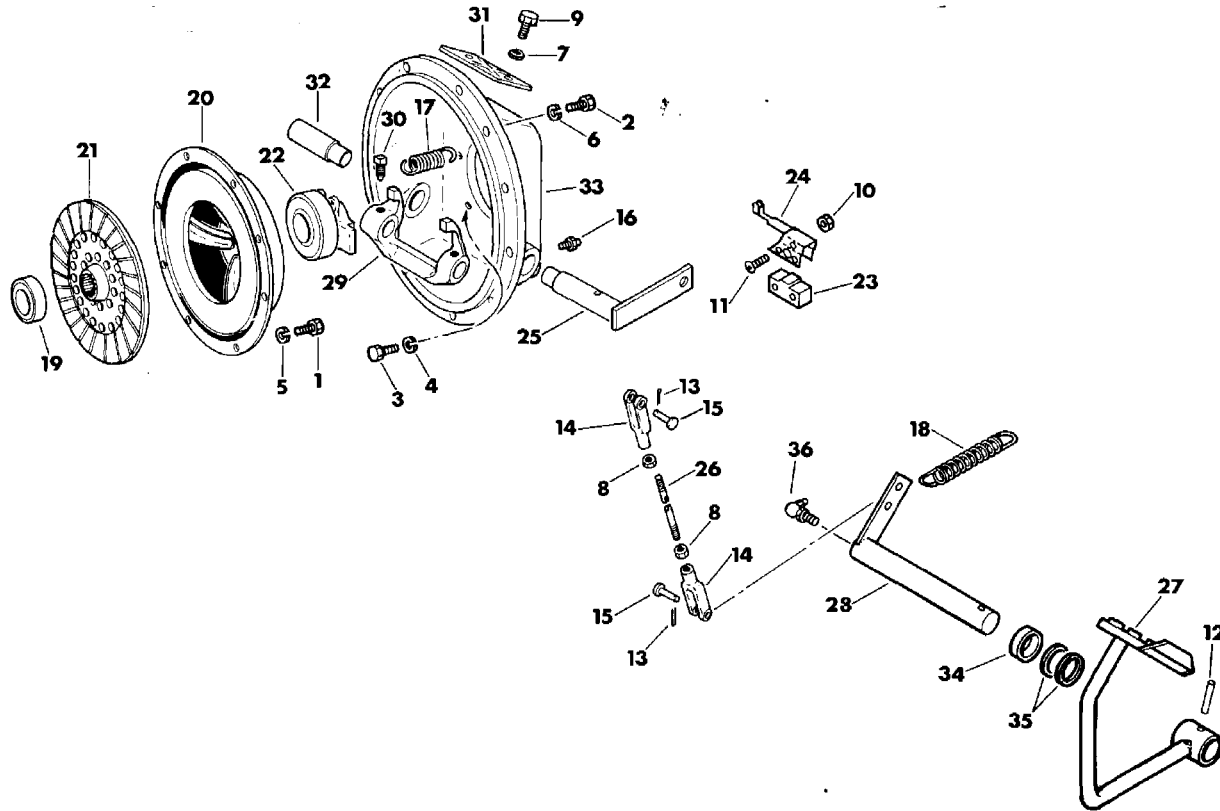


Ref. No.	Part Number	Qty.	Description
1.	361-644	1	Foot Throttle Rod
2.	105-065	1	Locknut (1/2-NC)
3.	105-067	1	Bolt (1/2-NC x 2-3/4")
4.	105-071	1	Washer (1/2")
5.	105-152	2	Nut (1/4-NF)
6.	105-213	2	Nut (5/16-NF)
7.	105-508	5	Cotter Pin (3/32" x 1")
8.	110-067	2	Clevis (1/4-NF)
9.	110-081	2	Clevis Pin (1/4" x 1-1/8" LG)
10.	110-082	1	Clevis Pin (1/4" x 7/8" LG)

Ref. No.	Part Number	Qty.	Description
11.	110-149	2	Clevis (5/16-NF)
12.	110-150	2	Clevis Pin (5/16" x 1" LG)
13.	110-239	1	Throttle Lanyard
14.	115-570	1	Extension Spring
15.	361-645	1	Throttle Rod (14-1/8" LG)
16.	361-626	1	'Bell Crank
17.	361-635	1	Foot Throttle Lever
18.	105-095	5	Washer (1/4")

'Bellcrank, with tab, is required for use of remote engine controls associated with backhoes. Replacement bellcranks will be of this design.

CLUTCH

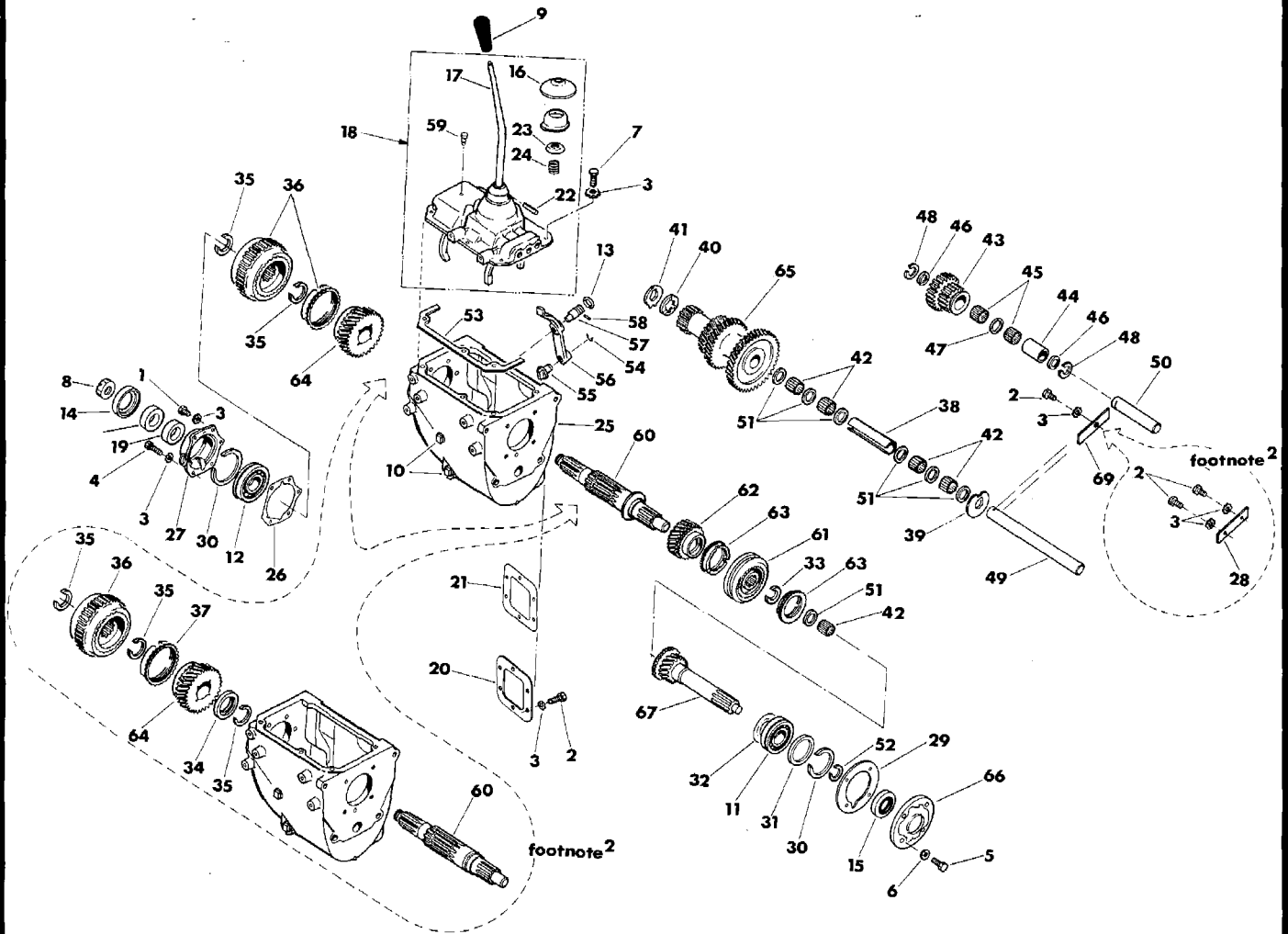


Ref. No.	Part Number	Qty.	Description
1.	105-031	8	Bolt (3/8-NC x 1")
2.	105-271	12	Bolt (M10-1.5 x 40mm)
3.	105-048	6	Bolt (1/2-NC x 1-1/2")
4.	105-070	6	Lock Washer (1/2")
5.	105-072	8	Lock Washer (3/8")
6.	105-073	12	Lock Washer (7/16")—Deutz
7.	105-091	2	Lock Washer (5/16")
8.	105-093	2	Nut (3/8-NF)
9.	105-822	2	Flange Bolt (5/16-NC x 1/2")
10.	105-215	2	Nut (No. 6-32)
11.	105-216	2	Bolt (No. 6-32 x 1-1/4", RD SLT HD)
12.	105-503	1	Roll Pin (1/4" x 2")
13.	105-509	2	Cotter Pin (1/8" x 1")
14.	110-027	2	Clevis
15.	110-053	2	Clevis Pin
16.	115-001	2	Zerk (1/8-NPT, STR)
17.	115-559	1	Extension Spring (2" LG)
18.	115-568	1	Extension Spring (3-11/16" LG)
19.	125-004	1	Pilot Bearing
20.	160-809	1	Pressure Plate

Ref. No.	Part Number	Qty.	Description
21.	160-810	1	Clutch Plate
22.	160-811	1	Throwout Bearing Carrier Bearing
23.	215-046	1	Safety Switch
24.	215-047	1	Safety Switch Bracket (Incl. ref. no.'s 10 and 11)
25.	361-474	1	Clutch Release Shaft
26.	361-540	1	Rod
27.	361-593	1	Clutch Pedal
28.	361-637	1	Clutch Pin
29.	501-180	1	Clutch Yoke
30.	501-183	2	Setscrew
31.	501-187	1	Inspection Plate
32.	501-189	1	Clutch Shaft
33.	501-465	1	Bell Housing
34.	180-121	1	Sleeve
35.	110-058	2	Machinery Bushing
36.	115-002	1	Zerk (1/8-NPT x 90°)

¹Replacement pedal pins require zerk (ref. no. 36)

TRANSMISSION



Ref. No.	Part Number	Qty.	Description
	166-014		³ Transmission (Incl. clutch housing and ref. no.'s 1 thru 8 and 10 thru 69)
1.	105-031	4	Bolt (3/8-NC x 1")
2.	105-032	7	Bolt (3/8-NC x 3/4")
3.	105-072	18	Lock Washer (3/8")
4.	105-075	1	Bolt (3/8-NC x 2")
5.	105-090	4	Bolt (5/16-NC x 3/4")
6.	105-091	4	Lock Washer (5/16")
7.	105-099	6	Bolt (3/8-NC x 7/8")

Ref. No.	Part Number	Qty.	Description
8.	105-418	1	Locknut (1-NEF, Nylok)
9.	110-241	1	Knob
10.	115-167	2	Pipe Plug (3/4-NPT, SQ M HD)
11.	125-025	1	Ball Bearing (filling)
12.	125-026	1	Ball Bearing (non-filling)
13.	155-761	1	O-Ring (-108)
14.	155-810	1	Internal Seal (2-1/8" ID)

(Continued on following page.)

TRANSMISSION (Cont'd.)

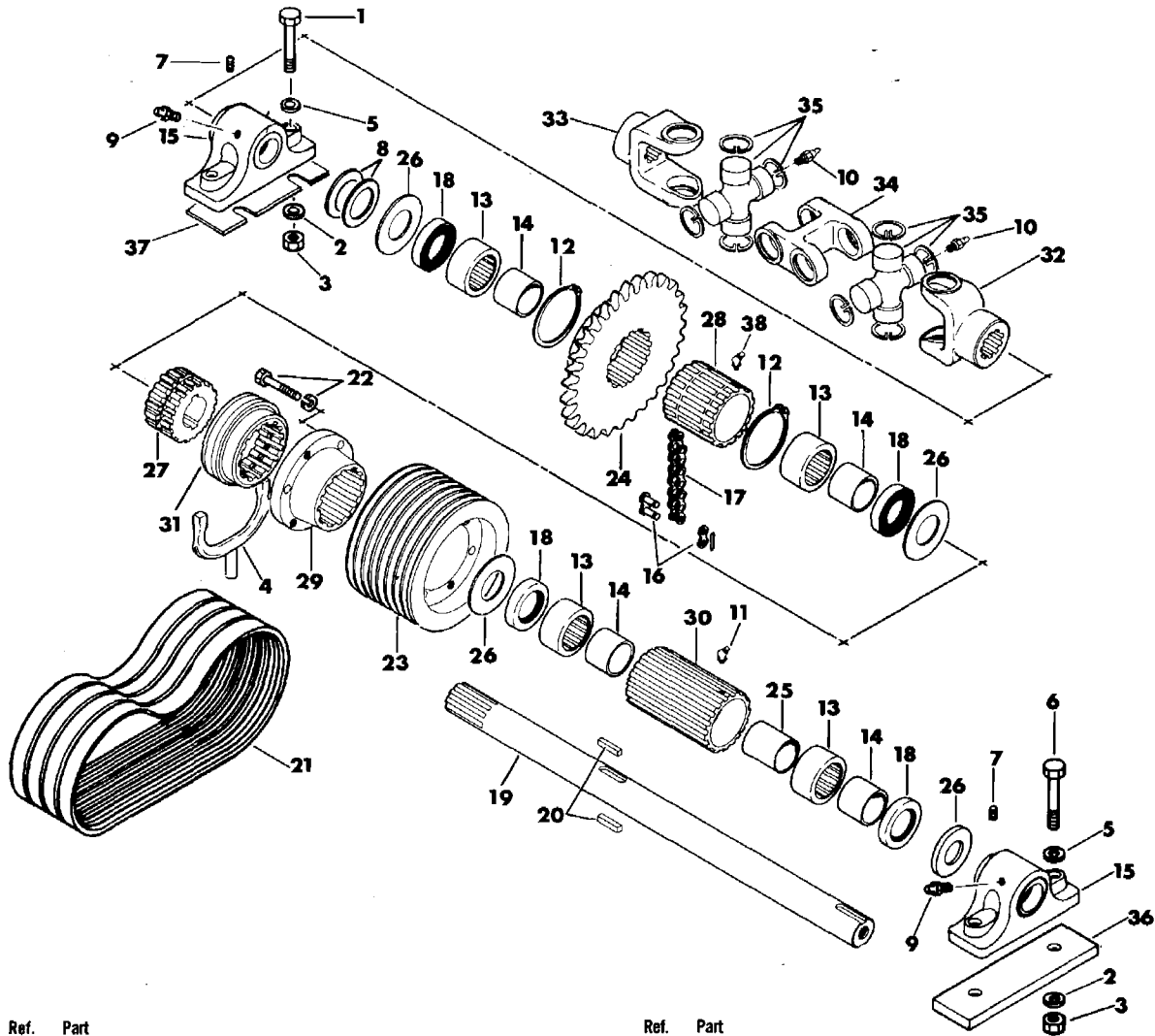
Ref. No.	Part Number	Qty.	Description	Ref. No.	Part Number	Qty.	Description
15.	155-876	1	Internal Seal (1-3/8" ID)	46.	501-454	2	Reverse Idler Thrust Washer
16.	165-011	1	Dust Cover	47.	501-455	1	Reverse Idler Roller Shim
17.	166-005	1	Shift Lever	48.	501-456	1	Reverse Idler Gear Snap Ring
18.	166-027	1	Cap Parts Assembly (Incl. ref. no.'s 16 17, 22, 23, 24 and 59)	49.	501-457	1	Countershaft
19.	180-113	1	Seal Spacer	50.	501-458	1	Reverse Idler Shaft
20.	501-043	1	Power Opening Cover	51.	501-459	7	Bearing Spacer Shim
21.	501-044	1	Gasket	52.	501-460	1	¹ Input Shaft Snap Ring (4 per set)
22.	501-091	1	Shift Lever Pin	53.	501-466	1	Transmission Cap Gasket
23.	501-094	1	Spring Seat	54.	501-467	1	Shifting Shoe Retaining Ring
24.	501-095	1	Spring	55.	501-468	1	Reverse Shifting Shoe
25.	501-426	1	³ Transmission Case	56.	501-469	1	Reverse Shifting Arm
26.	501-427	1	Rear Retainer Gasket	57.	501-470	1	Shifting Arm Pivot
27.	501-428	1	Rear Bearing Retainer	58.	501-471	1	Shifting Pin
28.	501-429	1	² Shaft Retainer	59.	501-472	1	Breather
29.	501-431	1	Front Retainer Gasket	60.	N.A.	1	² Output Shaft (with no machined shoulder)
30.	501-433	2	External Snap Ring		501-473	1	³ Output Shaft (with machined shoulder)
31.	501-434	1	Bearing Spacer Ring	61.	501-477	1	Synchronizer Unit (3/16" W shift plates)
32.	501-435	1	Transmission Oil Baffle	62.	501-478	1	Main Shaft Third Speed Gear (28 T)
33.	501-439	1	External Snap Ring	63.	501-479	2	Synchronizer Blocking Ring (27 T, 3/16" W groove)
34.	501-440	1	² Second Speed Gear Thrust Washer	64.	501-480	1	Main Shaft Second Speed Gear (36 T)
35.	501-441	2	Main Shaft Snap Ring	65.	501-481	1	Cluster Gears (37 T, 32 T, 24 T, 16 T)
36.	501-443	1	Second Speed Synchronizer	66.	501-482	1	Front Bearing Retainer
37.	501-444	1	² Synchronizer Blocking Ring		155-876		Internal Seal
38.	501-446	1	Countershaft Spacer	67.	501-483	1	Input Shaft (23 T)
39.	501-447	1	Front Countershaft Thrust Washer	68.	501-488	1	Spacer
40.	501-448	1	Rear Thrust Washer	69.	501-047	1	³ Shaft Retainer
41.	501-449	1	Countershaft Thrust Washer				
42.	501-450	5	Bearing Roller (22 per set)				
43.	501-451	1	Reverse Idler Gear				
44.	501-452	1	Reverse Idler Shaft Sleeve				
45.	501-453	2	Bearing Roller (37 per set)				

¹Select thickest snap ring from set that will fit.

²When replacing output shaft (ref. no. 60), that does not have machined shoulder, or associated blocking ring (ref. no. 37) refer to footnote 3.

³Present production transmission (ref. no. 60) has output shaft with machined shoulder. When using this shaft thrust washer (ref. no. 34) and associated snap ring are not required. Replacement second speed synchronizer includes blocking ring. Refer to assembly instructions 052-176.

JACKSHAFT

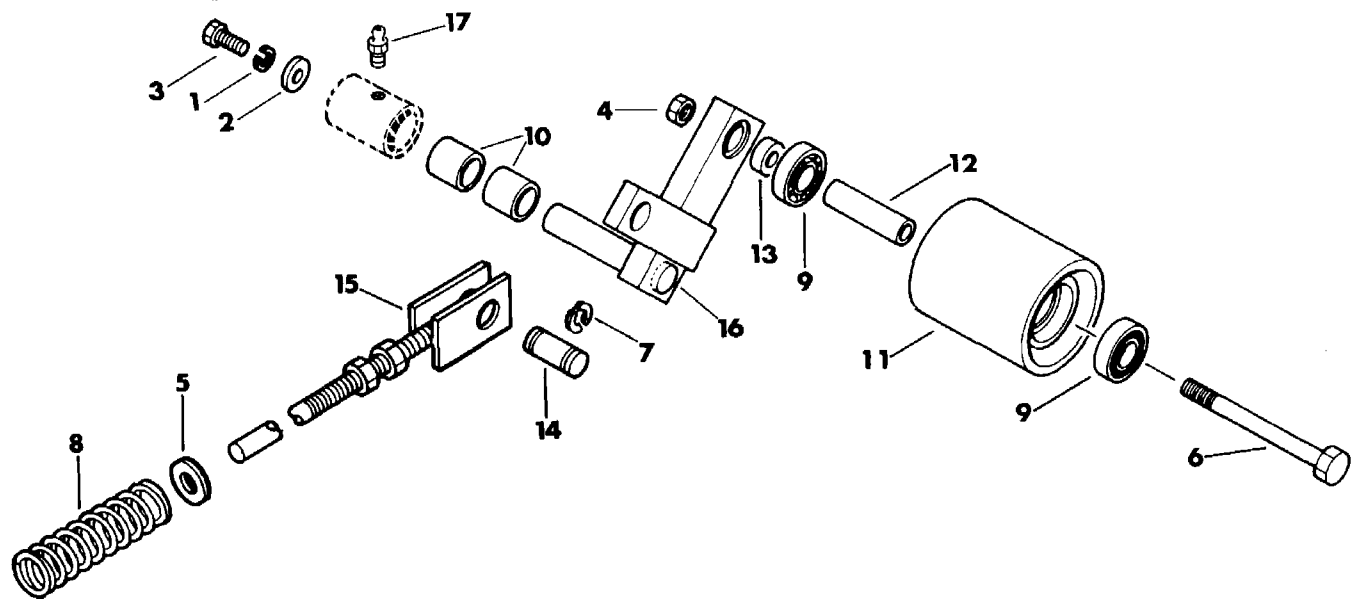


Ref. No.	Part Number	Qty.	Description
	165-486		Jackshaft Parts Assembly (Incl. ref. no.'s 7, 8, 9, 11 thru 15, 18, 19, 20, 22 thru 31 and 38)
1.	105-046	2	Bolt (7/16-NC x 2-1/4")
2.	105-059	4	Washer (7/16")
3.	105-151	4	Locknut (7/16-NC)
4.	360-940	1	Clutch Fork
5.	105-118	4	Washer (3/8")
6.	105-193	2	Bolt (7/16-NC x 3")
7.	105-701	2	Setscrew (5/16-NC x 3/8")
8.	110-056	2	Machinery Bushing
9.	115-001	2	Zerk (1/8-NPT, STR)
10.	115-003	2	Zerk (1/4-NF, STR)
11.	115-006	1	Zerk (1/4-NF x 45°)
12.	115-467	2	External Snap Ring
13.	125-212	4	Bearing
14.	125-230	4	Race
15.	125-502	2	Pillow Block Bearing (Incl. ref. no.'s 7 and 9)
16.	130-202	1	Offset Link (No. 60)
	130-223	2	Offset Link (No. 60H)
	130-203	1	Connector Link (No. 60)
	130-224	2	Connector Link (No. 60H)
	130-206	1	Roller Link (No. 60)
17.	130-218	1	Roller Chain (No. 60H-57 P)—used with standard differential
	130-219	1	Roller Chain (No. 60H-60 P)—used with heavy duty and steerable differentials

Ref. No.	Part Number	Qty.	Description
18.	155-813	4	Internal Seal
19.	165-372	1	Jackshaft (1-1/4" OD x 22-1/16" LG)
20.	165-909	2	Key (5/16" SQ x 1-1/8" LG)
21.	170-059	1	Belt Set
22.	170-107	1	Bolt Group
23.	170-109	1	Sheave
24.	175-429	1	Jackshaft Sprocket (26 T)
25.	180-075	1	Spacer
26.	180-118	4	Brass Bushing
27.	180-606	1	Clutch Hub
28.	180-607	1	Mobile Drive Hub
29.	180-608	1	Bushing (Incl. ref. no. 22)
30.	180-609	1	Sheave Collar
31.	180-620	1	Shifting Collar (early style)
	180-617	1	Shifting Collar (replacement)
32.	180-705	1	Jackshaft Yoke
33.	180-708	1	Transmission Yoke
34.	180-725	1	Double Center Yoke
35.	180-766	2	Cross and Bearing (Incl. ref. no. 10)
	180-760		Bearing Cap (w/o zerk)
	182-083		Bearing Cap (w/zerk)
36.	301-146	1	Pillow Block Spacer
37.	316-048	AR	Shim
38.	115-018	1	Zerk (1/4-NF x 65°)

¹Standard weight roller chains end with S/N 405794. See footnote 2.
²Heavy series roller chains begin with S/N 405795. Replacement chains will be heavy series.

JACKSHAFT BELT IDLER



Ref. No.	Part Number	Qty.	Description
1.	105-070	1	Lock Washer (1/2")
2.	105-071	1	Washer (1/2")
3.	105-208	1	Bolt (1/2-NC x 1-1/4")
4.	105-372	1	Locknut (3/4-NC)
5.	105-423	1	Washer
6.	105-383	1	Bolt (3/4-NC x 6", GR 8)
7.	115-503	2	External Clip Ring
8.	115-574	1	Compression Spring
9.	125-007	2	Idler Roller Bearing

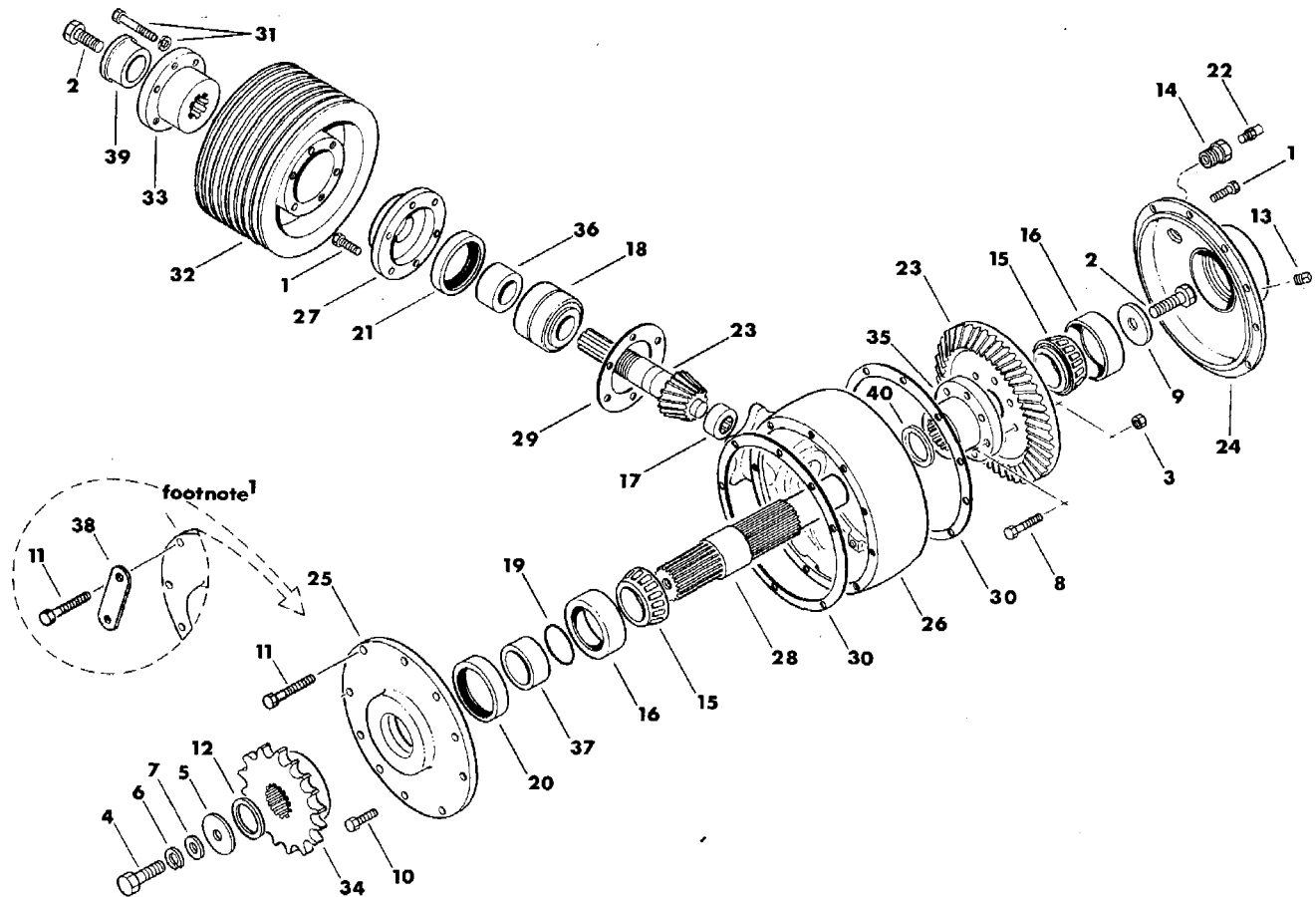
Ref. No.	Part Number	Qty.	Description
10.	125-732	2	Composition Bushing
11.	170-301	1	Belt Idler Roller
12.	180-074	1	Belt Roller Bearing Sleeve
13.	180-256	1	Spacer
14.	183-266	1	Pin
15.	361-639	1	Idler Rod
16.	361-641	1	Belt Idler Arm
17.	115-003	1	Zerk (1/4-NF, STR)

*Not on early style idler arm pivots.

RIGHT ANGLE DRIVE

(4010: Ends with S/N 410381)

(5010: Ends with S/N 500326)



Ref. No.	Part Number	Qty.	Description
	165-017		Right Angle Drive Parts Assembly (Incl. no.'s 1 thru 3, 8 thru 11, 13 thru 30, 35 thru 37 and 40)
1.	105-019	16	¹ Bolt (3/8-NF x 1")
	105-827	16	² Bolt (3/8-NC x 1-1/4")
2.	105-045	2	Bolt (1/2-NC x 1-1/4", Nylok)
3.	105-047	8	Locknut (3/8-NC)
4.	105-066	1	Bolt (1/2-NC x 1-3/4")
5.	105-057	1	Washer
6.	105-070	1	Lock Washer (1/2")
7.	105-071	1	Washer (1/2")
8.	105-075	8	Bolt (3/8-NC x 2")
9.	105-088	1	Washer
10.	105-134	2	¹ Bolt (3/8-NF x 1", Nylok)
	105-031	2	² Bolt (3/8-NC x 1")
11.	105-135	8	Bolt (3/8-NF x 1-1/2", Nylok)
	105-874	8	Bolt (3/8-NC x 1-1/2")
12.	110-054	AR	Machinery Bushing
13.	115-112	1	Pipe Plug (1/2-NPT, SQ M HD)
14.	115-127	1	Pipe Bushing (1/2" to 1/8")
15.	125-215	2	Bearing (1-11/16" ID)
16.	125-216	2	Race
17.	125-226	1	Bearing (1" ID)
18.	125-304	1	Bearing Assembly (1-1/2" ID)
	125-228		Bearing (1-1/2" ID)
19.	155-704	1	O-Ring (-224)
20.	155-810	1	Internal Seal (2-1/8" ID)
21.	155-858	1	Internal Seal (1-7/8" ID)

Ref. No.	Part Number	Qty.	Description
22.	159-003	1	Air Vent
23.	165-016	1	Ring Gear and Pinion
	165-048		Ring Gear and Pinion Assembly (Incl. ref. no.'s 15 thru 18 and 23)
24.	165-204	1	Ring Gear Cover Plate
25.	165-206	1	Right Angle Drive Cover
26.	165-210	1	¹ Ring Gear and Pinion Housing (3/8-NF)
	165-300	1	² Ring Gear and Pinion Housing (3/8-NC)
27.	165-228	1	Seal Housing Cover
28.	165-381	1	Drive Shaft (9" LG, 26 spline)
29.	165-625	AR	Pinion Cover Gasket (.015" THK)
30.	165-607	AR	Ring Gear Cover Gasket (.005" THK)
	165-609	AR	Ring Gear Cover Gasket (.015" THK)
	165-627	AR	Ring Gear Cover Gasket (.031" THK)
31.	170-107		Bolt Group
32.	170-109	1	Sheave
33.	170-207	1	Sheave Bushing (Incl. ref. no. 31)
34.	175-606	1	Right Angle Drive Sprocket (14 T)
35.	180-618	1	Ring Gear Hub
36.	181-052	1	Seal Sleeve
37.	180-056	1	Seal Spacer
38.	300-194	4	¹ Bolt Lock
39.	311-152	1	Drive Pinion Cap
40.	501-125	AR	Machinery Bushing (18 GA)

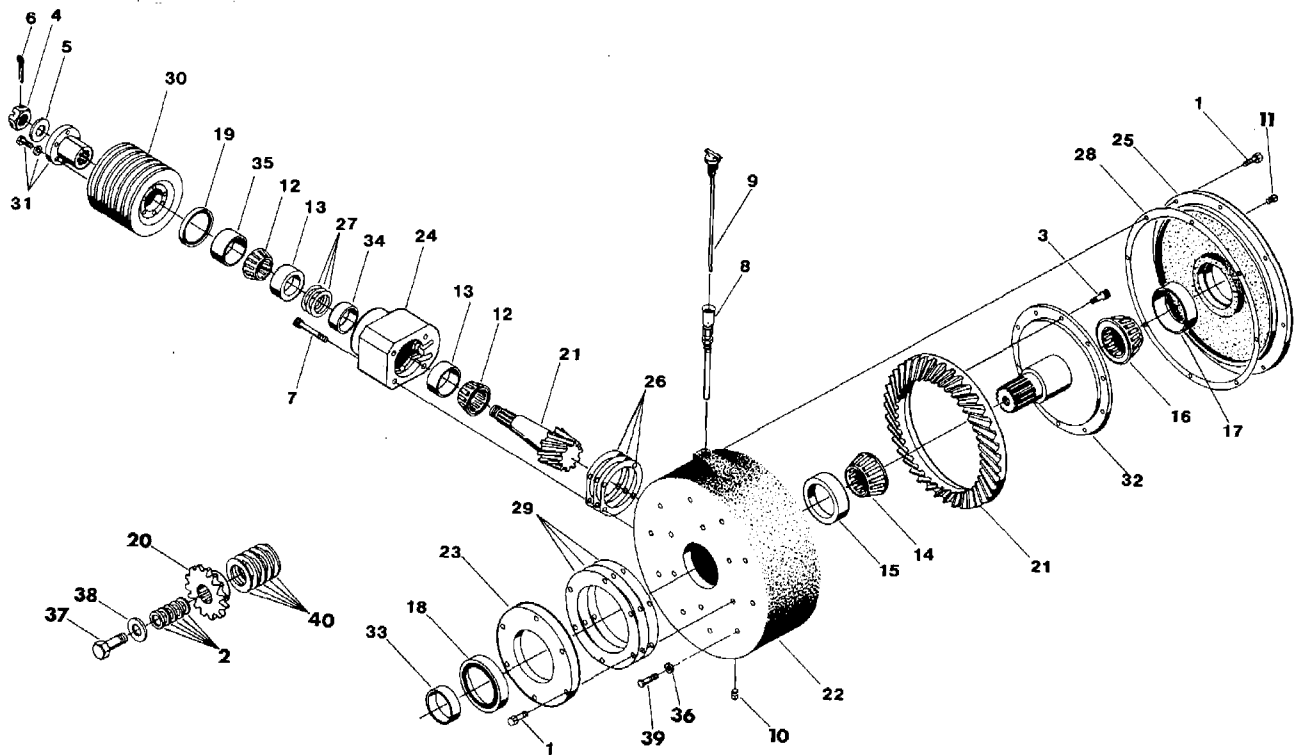
¹These parts are associated with early style housing (ref. no. 26) which used 3/8-NF bolts. When replacing this housing, order housing which uses 3/8-NC bolts and associated hardware (ref. no.'s 1, 10 and 11).

²These parts are associated with present production housing (ref. no. 26) which used 3/8-NC bolts.

RIGHT ANGLE DRIVE

(4010: Begins with S/N 410382)

(5010: Begins with S/N 500327)



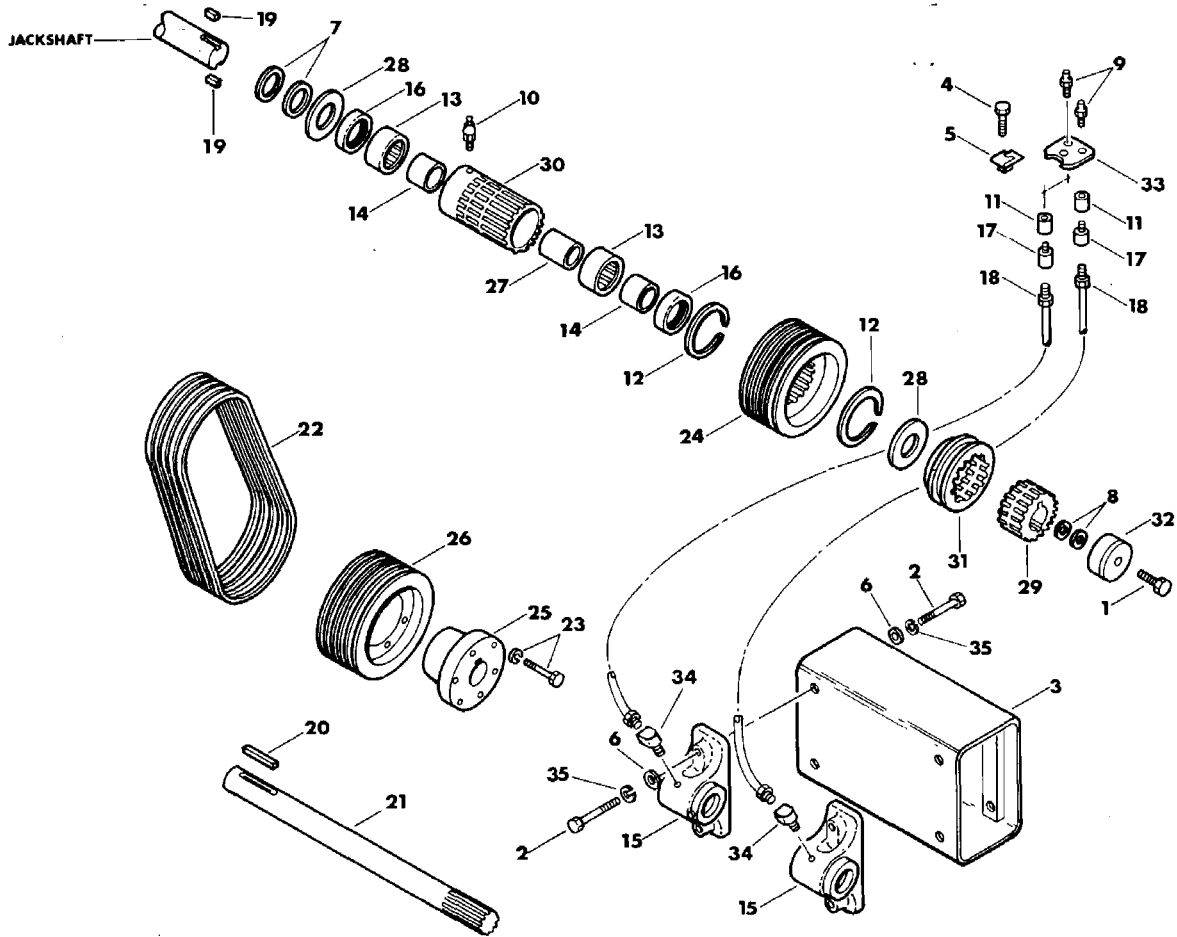
Ref. No.	Part Number	Qty.	Description
	166-044		¹ Right Angle Drive Parts Assembly (Incl. ref. no.'s 1, 3 thru 19 and 21 thru 35)
1.	105-031	14	Bolt (3/8-NC x 1")—use with Loctite
2.	110-096	AR	Machinery Bushing (1/2" ID x 7/8" OD)
3.	105-225	12	Bolt (7/16-NC x 1", SOC ALN HD)
4.	105-317	1	Slotted Jam Nut (1-NF)
5.	105-329	1	Washer (1")
6.	105-502	1	Cotter Pin (3/16" x 2")
7.	105-281	4	Bolt (3/8-NC x 2-1/2", GD 8, SOC ALN HD)—use with Loctite
8.	110-335	1	Dipstick Tube
	156-720		Tube Connector
9.	110-261	1	Dipstick
10.	115-211	1	Magnetic Pipe Plug (1/2-NPT M)
11.	115-112	1	² Pipe Plug (1/2-NPT SQ HD)
12.	125-295	2	Bearing (1-5/8" ID)
13.	125-296	2	Bearing Race (3-1/2" OD)
14.	125-310	1	Bearing Race (2-5/8" ID)
15.	125-311	1	Bearing Race (4-7/16" OD)
16.	125-352	1	Bearing (1-3/4" ID)
17.	125-353	1	Bearing Race (3-43/64" OD)
18.	155-889	1	Internal Seal (3.881" OD)
19.	155-890	1	Internal Seal (3.505" OD)
20.	175-636	1	Drive Sprocket (14 T)
21.	165-092	1	Ring Gear and Pinion
22.	165-283	1	Housing
23.	165-284	1	Adjustment Flange

Ref. No.	Part Number	Qty.	Description
24.	165-280	1	Bearing Adjustment Housing
25.	165-282	1	Right Angle Drive Cover
26.	165-671	AR	Bearing Housing Shim (.002" THK)
	165-672	AR	Bearing Housing Shim (.005" THK)
27.	165-673	AR	Bearing Shim (.005" THK)
	165-674	AR	Bearing Shim (.006" THK)
	165-675	AR	Bearing Shim (.007" THK)
	165-676	AR	Bearing Shim (.008" THK)
	165-677	AR	Bearing Shim (.010" THK)
28.	165-692	AR	Ring Gear Cover Shim (.005" THK)
	165-693	AR	Ring Gear Cover Shim (.010" THK)
29.	165-694	AR	Adjustment Flange Shim (.002" THK)
	165-695	AR	Adjustment Flange Shim (.005" THK)
30.	170-109	1	Sheave
31.	170-244	1	Sheave Bushing
	170-107		Bolt Group
32.	180-663	1	Ring Gear Output Hub
33.	181-532	1	Seal Spacer
34.	181-534	1	Bearing Spacer
35.	181-535	1	Pinion Seal Spacer
36.	105-070	8	Lock Washer (1/2")
37.	105-121	1	Bolt (1/2-NC x 1")
38.	105-241	1	Washer
39.	105-858	8	Bolt (1/2-NC x 1-1/4", GD 8)
40.	110-262	5	Machinery Bushing (2-5/8" ID x 4" OD)

¹Refer to installation diagram 050-174 for installation and repair.

²Early style covers used pipe plug (ref. no. 11).

PLOW DRIVE

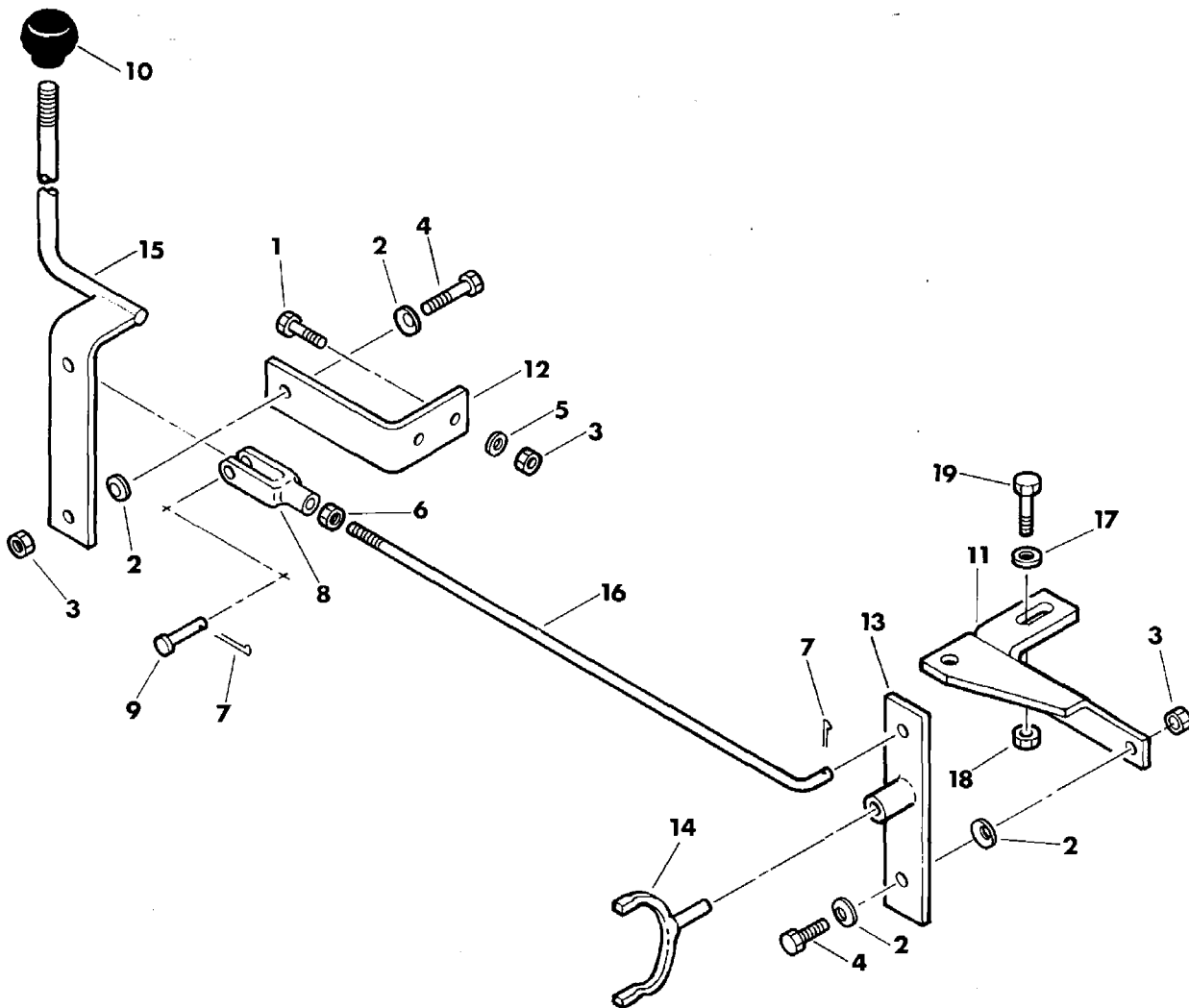


Ref. No.	Part Number	Qty.	Description
	190-359		'Rear Plow Drive Conversion Kit (Incl. ref. no.'s 1 thru 35)
1.	105-045	1	Bolt (1/2-NC x 1-1/4", Nylok)
2.	105-048	8	Bolt (1/2-NC x 1-1/2")
3.	301-487	1	Plow Bearing Mount
4.	105-090	1	Bolt (5/16-NC x 3/4")
5.	105-137	1	Clip Nut (5/16-NC)
6.	105-071	8	Washer (1/2")
7.	110-056	2	Machinery Bushing (1-1/4" ID)
8.	110-096	2	Machinery Bushing (1/2" ID)
9.	115-001	2	Zerk (1/8-NPT, STR)
10.	115-006	1	Zerk (1/4-NF x 45°)
11.	115-172	2	Pipe Collar (1/8")
12.	115-467	2	External Snap Ring
13.	125-212	2	Bearing (1-1/2" ID)
14.	125-230	2	Bearing Race (1-1/4" ID)
15.	125-502	2	Pillow Block Bearing
	105-701		Setscrew (5/16-NC x 3/8")
	115-001		Zerk (1/8-NPT, STR)
16.	155-813	2	Internal Seal
17.	156-208	4	Tube Connector (3/16" T x 1/8-NPT, STR)

Ref. No.	Part Number	Qty.	Description
18.	160-631	2	Brake Line (3/16" x 20")
19.	165-909	2	Key (5/16" SQ x 1-1/8")
20.	165-926	1	Key (5/16" SQ x 2")
21.	167-049	1	Plow Drive Shaft
22.	170-040	1	Belt Set (5 per set)
23.	170-107	1	Bolt Group
24.	170-110	1	Sheave (4.75" OD)
25.	170-134	1	Sheave Bushing (Incl. ref. no. 23)
26.	170-189	1	Sheave (6.9" OD)
27.	180-075	1	Spacer
28.	180-118	2	Brass Bushing (1-1/4" ID)
29.	180-606	1	Clutch Hub
30.	180-619	1	Sheave Clutch Hub
31.	180-620	1	Shifting Collar (early models)
	180-617	1	Shifting Collar (replacement)
32.	301-420	1	Shift Collar Stop
33.	312-133	1	Zerk Support
34.	160-686	2	Inverted Flare Elbow (3/16" T x 1/8-NPT x 90°)
35.	105-070	8	Lock Washer (1/2")

*Refer to installation diagram 050-124. Kit also includes parts shown on PLOW DRIVE SHIFT and PLOW DRIVE BELT IDLER.

PLOW DRIVE SHIFT



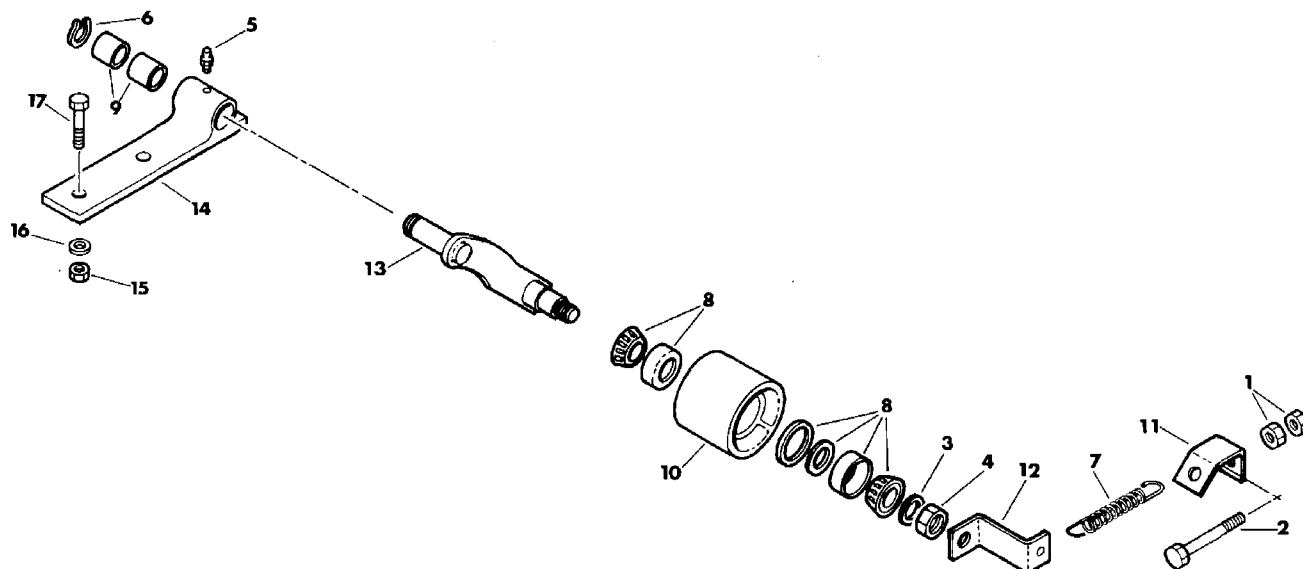
Ref. No.	Part Number	Qty.	Description
	190-359		¹ Rear Plow Drive Conversion Kit (Incl. ref. no.'s 1 thru 16)
1.	105-048	2	Bolt (1/2-NC x 1-1/2")
2.	105-058	4	Spring Washer (1/2")
3.	105-065	4	Locknut (1/2-NC)
4.	105-066	2	Bolt (1/2-NC x 1-3/4")
5.	105-071	2	Washer (1/2")
6.	105-093	1	Nut (3/8-NF)
7.	105-508	2	Cotter Pin (3/32" x 1")
8.	110-027	1	Clevis (3/8")
9.	110-053	1	Clevis Pin

Ref. No.	Part Number	Qty.	Description
10.	110-221	1	Knob (1/2-NC)
11.	312-208	1	² Shifter Mount
12.	312-217	1	Shifter Support
13.	360-787	1	Clutch Fork Mount
14.	360-940	1	Clutch Fork
15.	361-647	1	Shift Lever
16.	361-650	1	Shift Rod
17.	105-118	1	Washer (3/8")
18.	105-047	1	Locknut (3/8-NC)
19.	105-156	1	Bolt (3/8-NC x 1-1/2")

¹Refer to installation diagram 050-124. Kit includes parts shown on PLOW DRIVE and PLOW DRIVE BELT IDLER.

²This shifter mount replaces all earlier designs.

PLOW DRIVE BELT IDLER

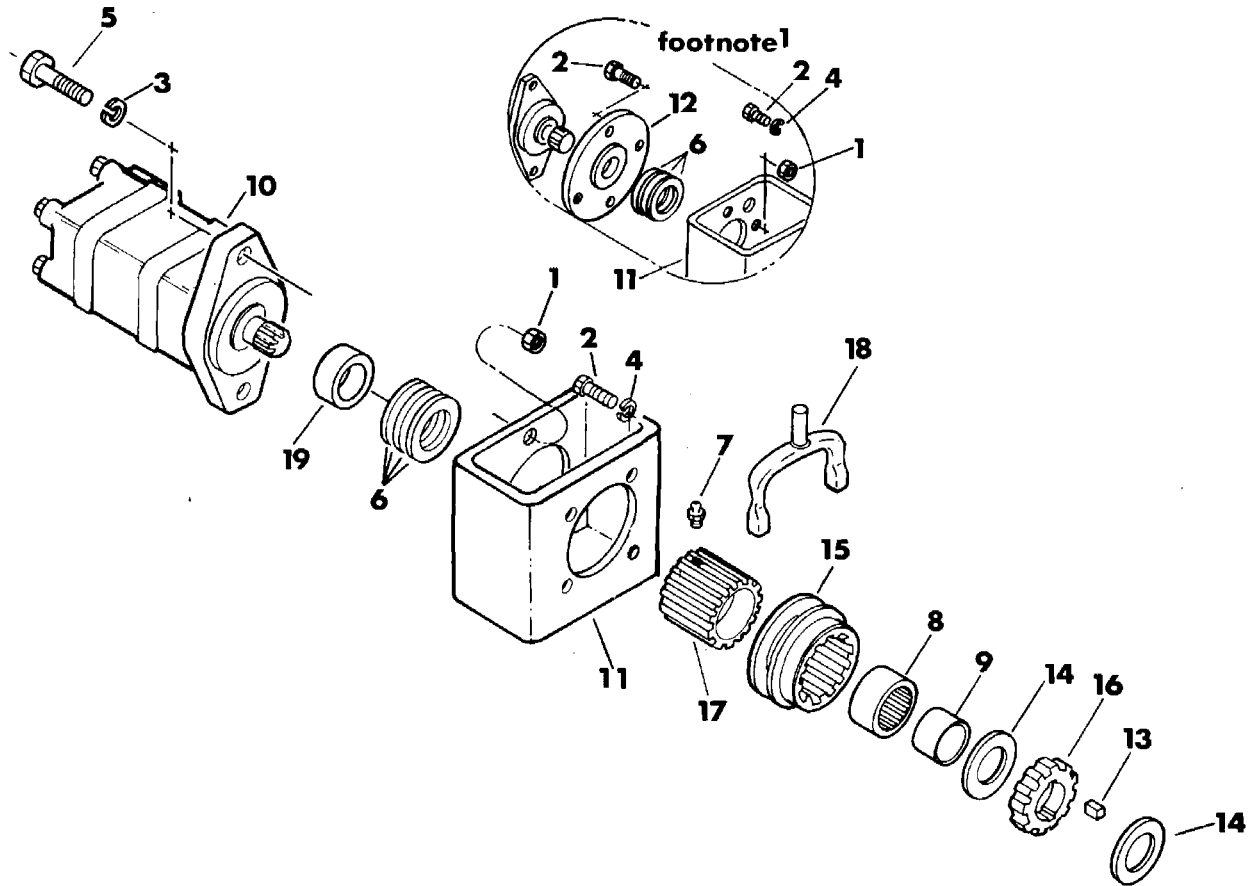


Ref. No.	Part Number	Qty.	Description
	190-359		1 Rear Plow Drive Conversion Kit (Incl. ref. no.'s 1 thru 17)
1.	105-021	2	Nut (1/2-NC)
2.	105-295	1	Bolt (1/2-NC x 5-1/2")
3.	105-355	1	Washer (3/4")
4.	105-372	1	Locknut (3/4-NC)
5.	115-003	1	Zerk (1/4-NPT, STR/SLF TAP)
6.	115-484	1	External Snap Ring
7.	115-555	1	Extension Spring
8.	125-282	1	Bearing Assembly
	125-223		Bearing
	125-224		Race

Ref. No.	Part Number	Qty.	Description
9.	125-412	2	Bronze Bushing
10.	170-312	1	Belt Idler Roller
11.	311-136	1	Spring Bracket
12.	312-218	1	Spring Tab
13.	361-638	1	Idler Arm
14.	361-653	1	Idler Support
15.	105-047	2	Locknut (3/8-NC)
16.	105-118	2	Washer (3/8")
17.	105-156	2	Bolt (3/8-NC x 1-1/2")

Refer to installation diagram 050-124. Kit includes parts shown on PLOW DRIVE SHIFT and PLOW DRIVE.

HYDRAULIC MOTOR DRIVE



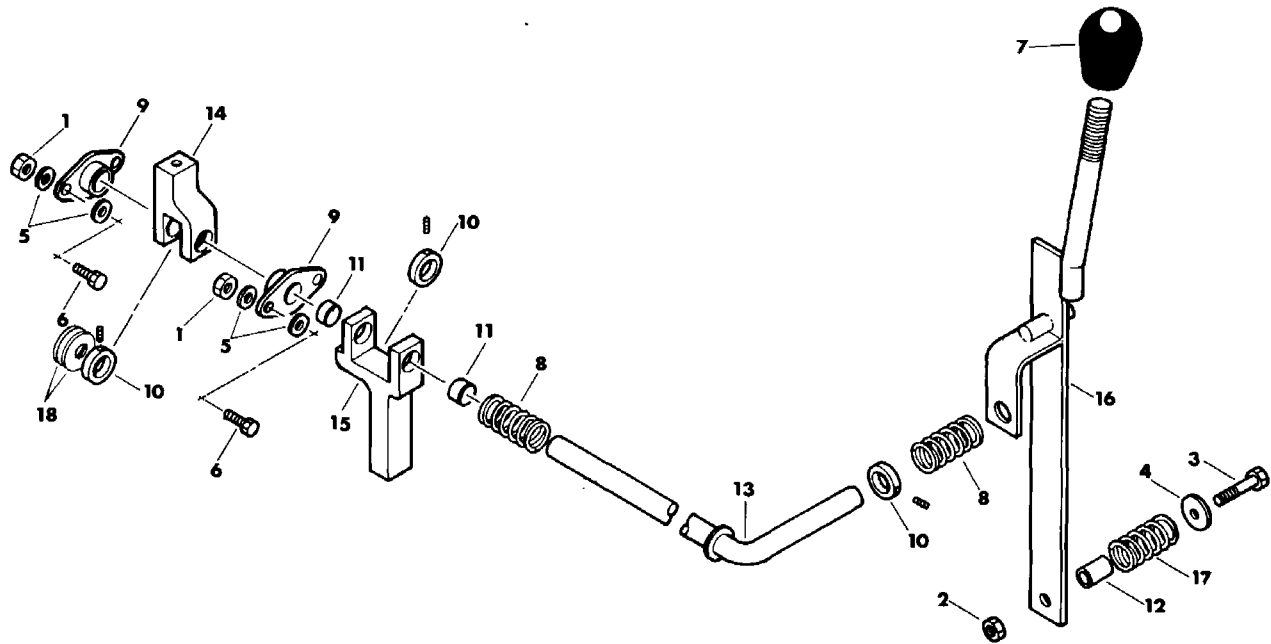
Ref. No.	Part Number	Qty.	Description
1.	105-065	2	Locknut (1/2-NC)
2.	105-052	4	Bolt (3/8-NC x 1-1/4")
3.	105-070	2	Lock Washer (1/2")
4.	105-072	4	Lock Washer (3/8")
5.	105-282	2	Bolt (1/2-NC x 1-1/4", GD 8, ALN HD)
6.	110-056	4	Machinery Bushing
7.	115-003	1	Zerk (1/4-NF, STR)
8.	125-212	1	Bearing
9.	125-234	1	Race
10.	155-567	1	Hydraulic Motor
11.	160-837	1	¹ Shift Housing
	160-874	1	² Shift Housing

Ref. No.	Part Number	Qty.	Description
12.	160-865	1	¹ Adapter Plate
13.	165-945	2	Key (5/16" SQ x 9/16" LG)
14.	180-118	2	Brass Bushing
15.	180-617	1	Shifting Collar
16.	180-623	1	Clutch Hub
17.	180-638	1	Gear Box Hub
18.	360-940	1	Clutch Fork
19.	327-042	1	² Spacer

¹Early style shift housing required adapter plate (ref. no. 12) to mount hydraulic motor.

²Present production mounts the hydraulic motor directly to the shift housing and requires spacer (ref. no. 19) inside housing.

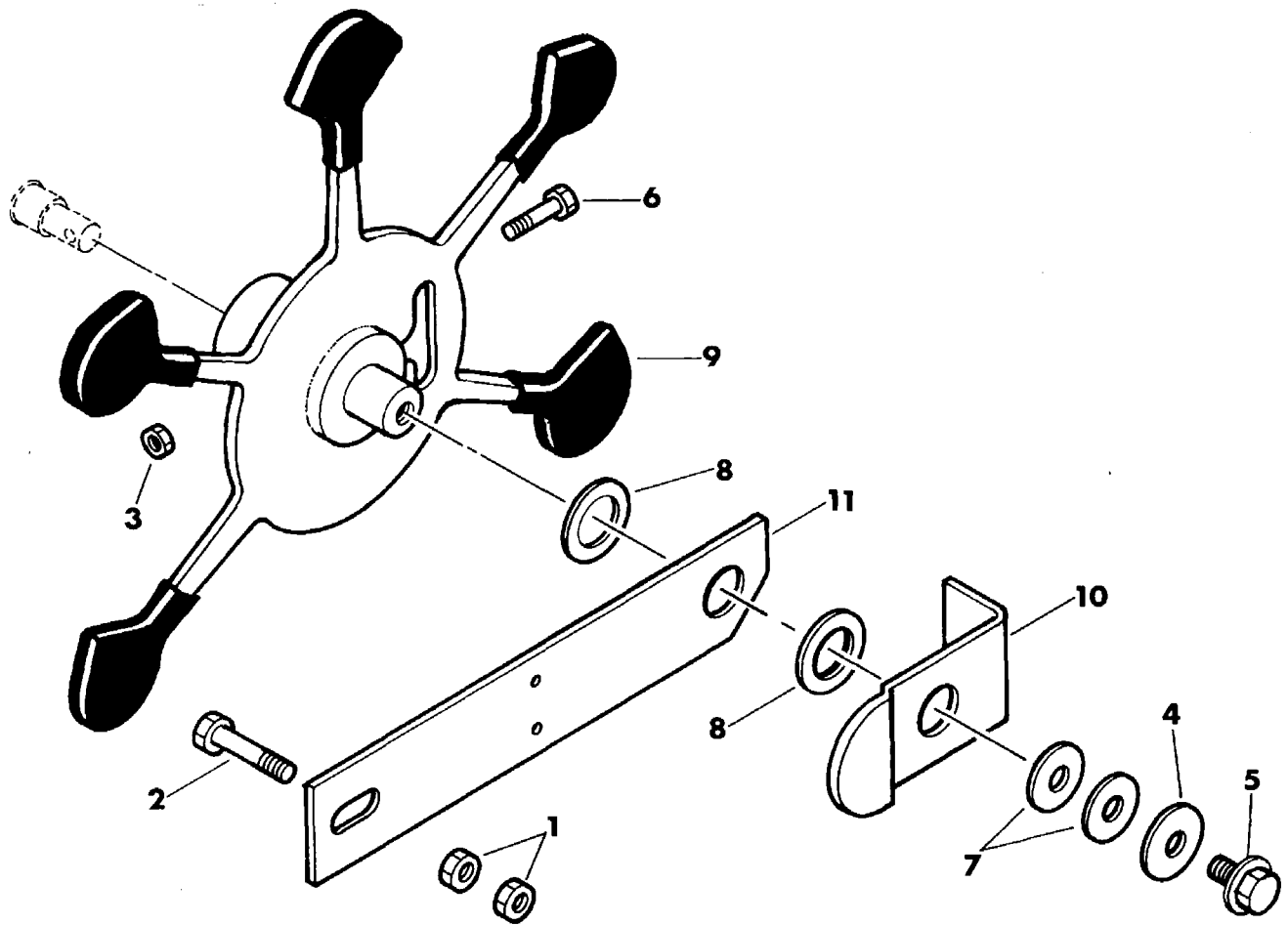
MOBILE-CROWD SHIFT



Ref. No.	Part Number	Qty.	Description
1.	105-047	4	Locknut (3/8-NC)
2.	105-065	1	Locknut (1/2-NC)
3.	105-067	1	Bolt (1/2-NC x 2-3/4")
4.	105-071	1	Washer (1/2")
5.	105-118	8	Washer (3/8")
6.	105-156	4	Bolt (3/8-NC x 1-1/2")
7.	110-022	1	Knob
8.	115-609	2	Compression Spring (2-1/2" LG)
9.	125-609	2	Flange Bearing
10.	125-710	3	Lock Collar
11.	125-731	2	Composition Bushing

Ref. No.	Part Number	Qty.	Description
12.	181-464	1	Spring Bushing
13.	312-205	1	Shifter Rod
14.	361-622	1	Rear Shifting Fork Carrier
15.	361-623	1	Front Shifting Fork Carrier (used with standard differential)
	361-624	1	Front Shifting Fork Carrier (used with heavy duty differential)
16.	361-632	1	Shift Lever
17.	115-611	1	Compression Spring
18.	110-095	4	Machinery Bushing

CROWD SPEED CONTROL



Ref. No.	Part Number	Qty.	Description
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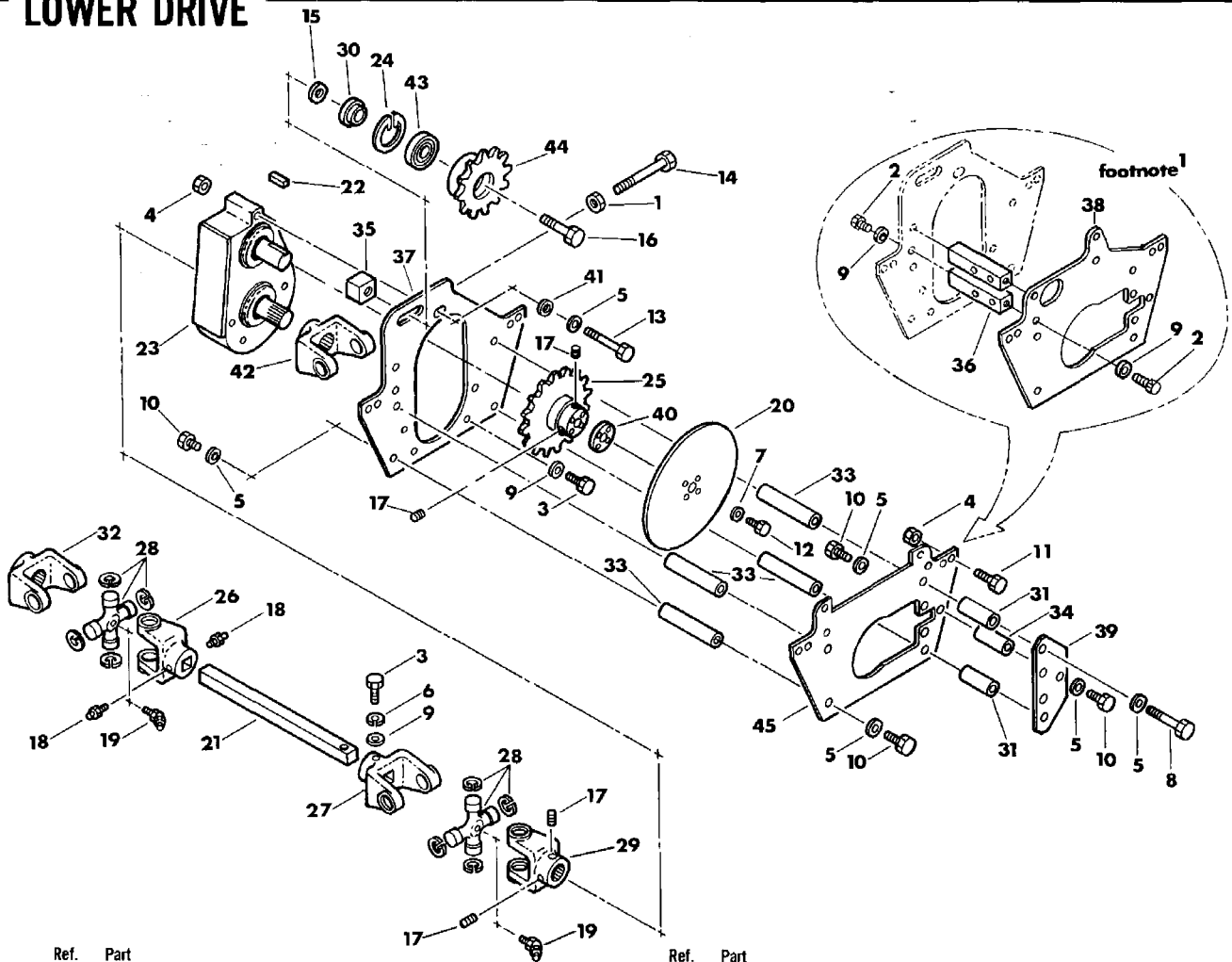
- | | | | |
|----|---------|---|-----------------------------------|
| 1. | 105-047 | 2 | Locknut (3/8-NC) |
| 2. | 105-075 | 1 | Bolt (3/8-NC x 2") |
| 3. | 105-085 | 1 | Locknut (1/4-NC) |
| 4. | 105-117 | 1 | Washer (5/16") |
| 5. | 105-822 | 1 | Flange Lock Bolt (5/16-NC x 1/2") |
| 6. | 105-198 | 1 | Bolt (1/4-NC x 1-3/4") |
| 7. | 105-951 | 2 | Spring Washer (5/8") |
| 8. | 115-717 | 2 | Friction Washer |

Ref. No.	Part Number	Qty.	Description
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- | | | | |
|-----|---------|---|---------------|
| 9. | 312-246 | 1 | Control Wheel |
| 10. | 312-224 | 1 | 'Friction Arm |
| 11. | 312-229 | 1 | 'Torque Arm |

'Friction arm, with joggle bend and .781" radius, and torque arm, with switch mounting holes, begin with S/N 6D0027. If retrofitting crowd safety switch, on units prior to S/N 6D0027, the friction arm and torque arm must be replaced with parts incorporating switch mounting features.

LOWER DRIVE



Ref. No.	Part Number	Qty.	Description
1.	105-021	1	Nut (1/2-NC)
2.	105-024	4	Bolt [3/8-NC x 3/4", Nylok]
3.	105-031	5	Bolt [3/8-NC x 1"]
4.	105-065	5	Locknut [1/2-NC]
5.	105-070	10	Lock Washer [1/2"]
6.	105-072	1	Lock Washer [3/8"]
7.	105-079	4	³ Lock Washer [1/4"]
	105-091	5	⁴ Lock Washer [5/16"]
8.	105-111	2	Bolt [1/2-NC x 4"]
9.	105-118	5	Washer [3/8"]
10.	105-121	8	Bolt [1/2-NC x 1"]
11.	105-208	4	Bolt [1/2-NC x 1-1/4"]
12.	105-865	4	³ Bolt [1/4-NC x 3/4", GR 8]
	106-009	5	⁴ Bolt [5/16-NC x 3/4", GR 8]
13.	105-250	1	Bolt [1/2-NC x 4-1/4"]
14.	105-295	1	Bolt [1/2-NC x 5-1/2"]
15.	105-359	1	Washer [5/8"]
16.	105-465	1	Bolt [5/8-NC x 3-1/4"]
17.	105-702	4	Setscrew [3/8-NC x 3/8"]
18.	115-001	2	Zerk [1/8-NPT, STR]
19.	115-010	2	Zerk [1/8-NPT x 22-1/2"]
20.	160-798	1	³ Brake Disc [4 holes]
	160-872	1	⁴ Brake Disc [5 holes]
21.	165-488	1	Drive Shaft [15-5/8" LG]
22.	165-924	1	Key [3/8" SQ x 1-3/4" LG]
23.	166-029	1	Gear Box
24.	500-228	1	Internal Snap Ring
25.	175-430	1	³ Gear Box Sprocket [No. 60, 22 T]—4 holes
	175-474	1	⁴ Gear Box Sprocket [No. 60, 22 T]—5 holes
26.	180-710	1	Front Drive Yoke

Ref. No.	Part Number	Qty.	Description
27.	180-711	1	Rear Drive Yoke
28.	180-723	2	Cross and Bearing [Incl. ref. no. 19]
	180-760		Bearing Cap
29.	180-768	1	Gear Box Yoke
30.	181-514	1	Sprocket Spacer
31.	181-515	2	² Spacer [.562" ID x 1" OD x 2-3/4" LG]
32.	182-020	1	Differential Yoke
33.	183-269	4	² Spacer Pin [1" OD x 5" LG, 1/2-NC]
34.	183-272	1	² Spacer Pin [1" OD x 2-3/4" LG, 1/2-NC]
35.	312-195	1	Adjusting Block
36.	312-196	2	¹ Parking Brake Support
37.	312-197	1	Gear Box Plate
38.	312-200	1	¹ Brake Plate
39.	312-212	1	Spring Hook
40.	312-227	1	³ Brake Disc Spacer [4 holes]
	312-276	1	⁴ Brake Disc Spacer [5 holes]
41.	105-071	1	Washer [1/2"]
42.	182-078	1	Gear Box Yoke
43.	125-030	1	Ball Bearing
44.	175-455	1	Idler Sprocket [No. 60, 15 T]
45.	312-263	1	² Brake Plate

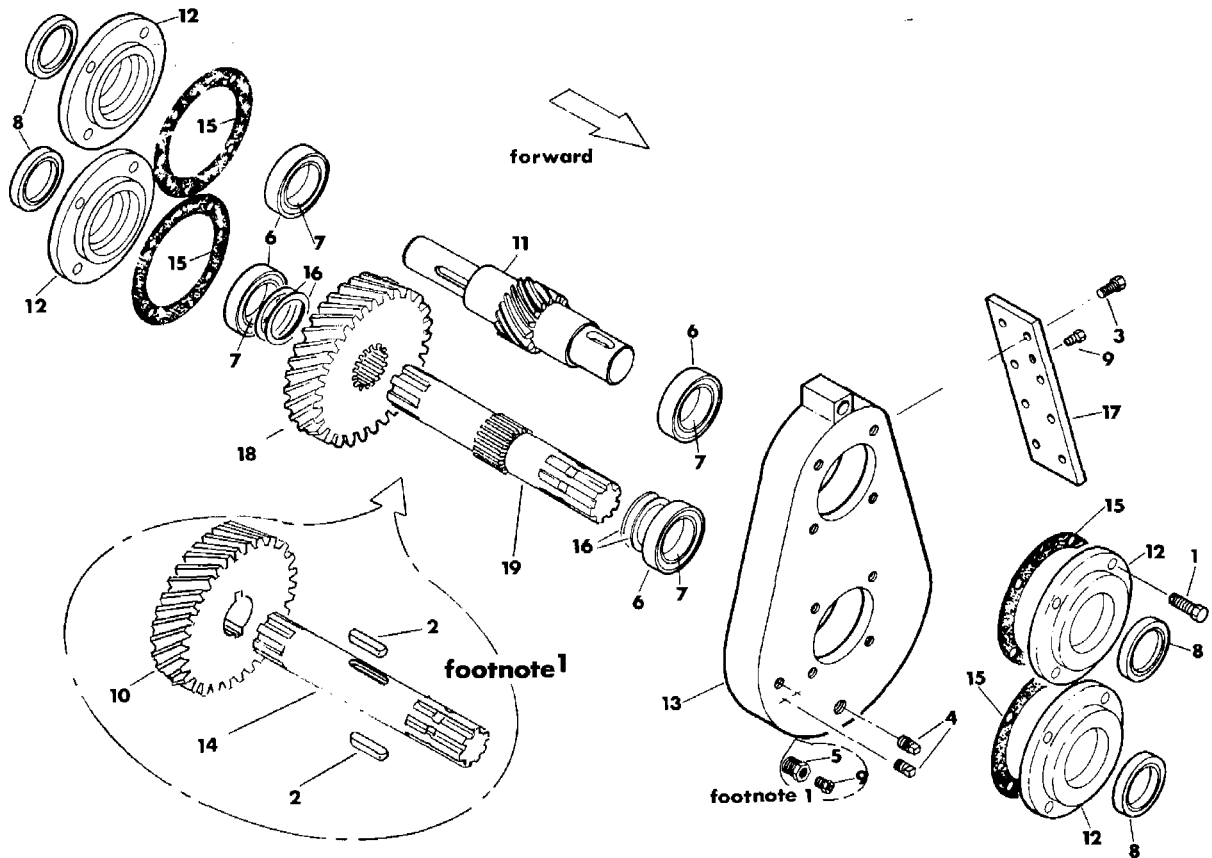
¹Ends with S/N 500190.

²Begins with S/N 500191.

³Ends with S/N 500301. If replacement of brake disc, gear box sprocket or brake disc spacer (ref. no.'s 20, 25 or 40) is required all three and hardware should be replaced. See footnote 4.

⁴Begins with S/N 500302.

GEAR BOX



Ref. No.	Part Number	Qty.	Description
	166-029		² Gear Box (Incl. ref. no.'s 1, 3, 4, 6 thru 9, 11, 12, 13 and 15 thru 19)
1.	105-031	16	Bolt (3/8-NC x 1")
2.	165-910	2	¹ Key (3/8" SQ x 1-5/16")
3.	105-174	8	Bolt (1/4-NC x 1/2")
4.	115-112	1	² Pipe Plug (1/2-NPT M, SQ M HD)
5.	115-127	1	¹ Pipe Bushing (1/2" to 1/8")
6.	125-220	4	Race
7.	125-221	4	Bearing
8.	155-811	4	Internal Seal
9.	155-912	1	² Pressure Relief Vent
10.	165-061	1	¹ Helical Gear (keyed)
11.	165-072	1	Input Gear and Shaft

Ref. No.	Part Number	Qty.	Description
12.	165-226	4	End Cap
13.	165-248	1	Housing
14.	165-334	1	¹ Output Shaft (keyed)
15.	165-616	AR	End Cap Gasket (.005" THK)
	165-653	AR	End Cap Gasket (.015" THK)
16.	165-617	4	Shim
17.	362-121	1	² Cover Plate
18.	165-087	1	² Reducer Gear (splined)
19.	167-052	1	² Output Shaft (splined)

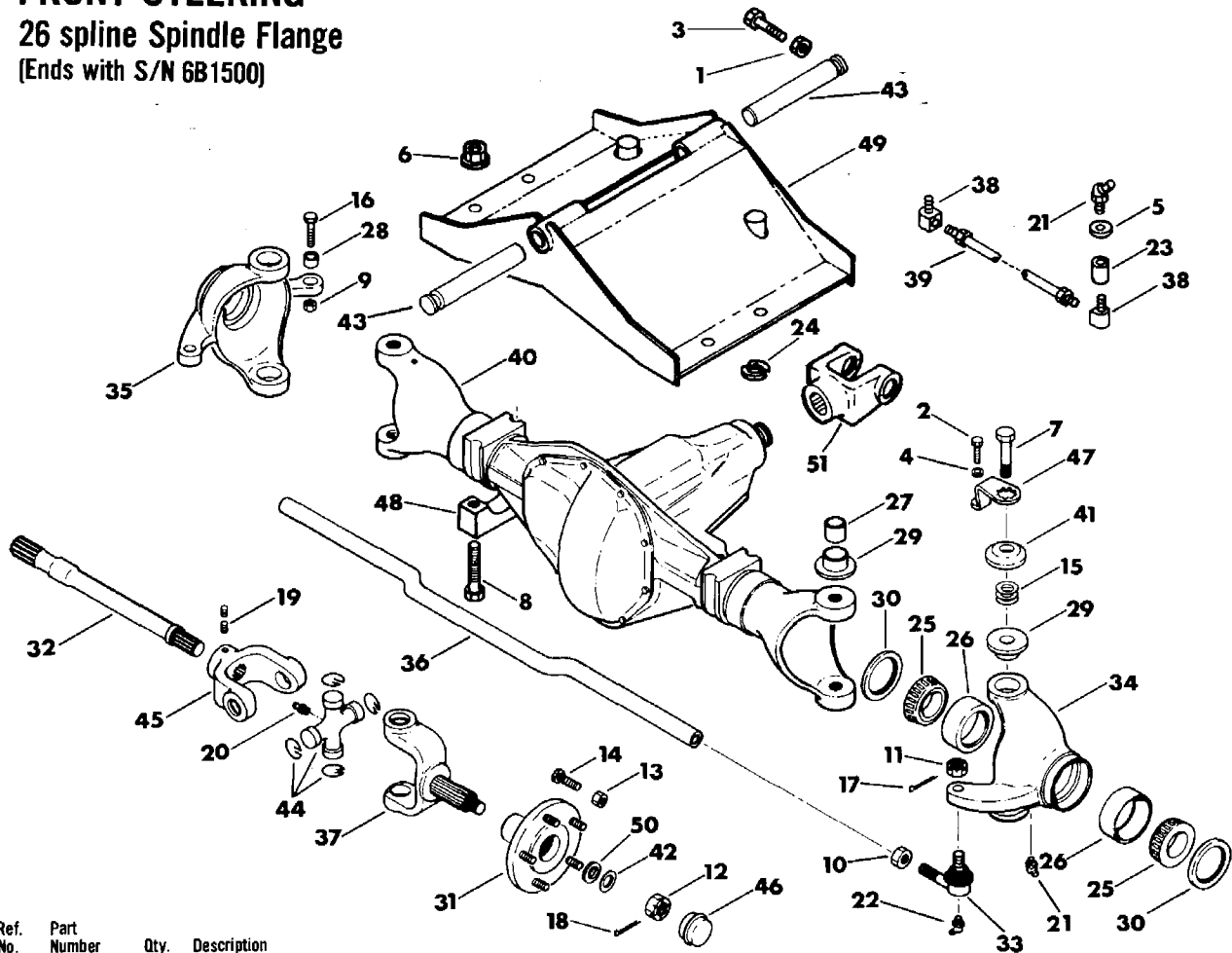
¹Early style gear boxes have keyed gear and output shaft (ref. no.'s 2, 10 and 14) relief vent mounted in lower part of housing. See footnote 2.

²Present production and replacement gear boxes have splined gear and output shaft (ref. no.'s 18 and 19) and have relief vent mounted on cover plate. Refer to assembly instructions 052-160.

FRONT STEERING

26 spline Spindle Flange

(Ends with S/N 6B1500)



Ref. Part
No. Number Qty. Description

161-015

³Front Differential and Steering Parts Assembly
(Incl. ref. no.'s 2, 4, 7, 9, 10, 11, 12, 14,
15, 17 thru 22, 25, 26, 27, 29 thru 37, 40,
41, 42, 44 thru 47, 50 and 51)

Ref. No.	Part Number	Qty.	Description
1.	105-021	2	Nut (1/2-NC)
2.	105-032	4	Bolt (3/8-NC x 3/4")
3.	105-066	2	Bolt (1/2-NC x 1-3/4")
4.	105-072	4	Lock Washer (3/8")
5.	105-118	2	Washer (3/8")
6.	105-340	4	Flange Locknut (3/4-NC)
7.	105-353	4	Bolt (3/4-NF x 2-5/8", GD 8, Nylok)
8.	105-371	4	Bolt (3/4-NC x 6-1/2")
9.	105-403	1	Jam Nut (5/8-NC)
10.	105-404	2	Jam Nut (3/4-NF)
11.	105-405	2	Castle Nut (9/16-NF)
12.	105-410	2	¹ Castle Nut (3/4-NF)
	105-349	2	² Slotted Nut (1-NF)
13.	105-424	10	Lug Nut (3/4-NF)
14.	105-426	10	Lug Bolt (3/4-NF x 1-13/16")
15.	105-451	12	Wave Spring Washer
16.	105-462	1	Bolt (5/8-NC x 2-1/4")
17.	105-509	2	Cotter Pin (1/8" x 1")
18.	105-518	2	¹ Cotter Pin (1/8" x 1-1/2")
	105-516	2	² Roll Pin (3/16" x 1-1/2")
19.	105-716	4	Setscrew (3/8-NC x 1/2")
20.	115-010	2	Zerk (1/8-NPT x 22-1/2")
21.	115-004	4	Zerk (1/8-NPT x 45")
22.	115-006	2	Zerk (1/4-NF x 45")
23.	115-172	2	Pipe Collar (1/8")
24.	115-483	1	External Clip Ring
25.	125-260	4	Bearing
26.	125-261	4	Race
27.	125-301	4	Bushing
28.	125-403	1	Bronze Bushing
29.	125-716	8	Urethane Flange Bushing
30.	155-808	4	Internal Seal

Ref. No.	Part Number	Qty.	Description
31.	160-160	2	Spindle Flange (26 spline)— Incl. ref. no. 14
32.	160-187	2	Front Axle
33.	160-306	2	Tie Rod End (Incl. ref. no.'s 11 and 17)
34.	160-318	1	Spindle Housing (left on front diff.)
35.	160-319	1	Spindle Housing (right on front diff.)
36.	160-321	1	Tie Rod
37.	160-336	2	² Spindle Shaft and Yoke (1-NS, 26 spline)
38.	160-686	4	Inverted Flare Elbow (3/16" T x 1/8-NPT x 90°)
39.	160-653	2	Brake Line (10" LG)
40.	161-007	1	³ Front Differential
41.	180-061	4	Spindle Washer
42.	180-279	2	¹ Spindle Washer (.765" ID)
	181-381	2	² Spindle Washer (1.06" ID)
43.	180-320	2	Front Axle Pivot Shaft
44.	180-724	2	Cross and Bearing (Incl. ref. no. 20)
45.	182-001	2	Axle Yoke
	182-103	2	Axle Yoke (replacement)
46.	205-671	2	Hub Cap
47.	301-151	4	Spindle Bolt Lock
	190-273		⁵ Spindle Bolt Conversion Kit (Incl. ref. no.'s 2, 4, 7, 15, 27, 29, 41 and 47)
48.	301-822	2	Saddle Clamp
49.	312-090	1	Differential Mount
50.	110-095	2	¹ Machinery Bushing
51.	182-020	1	Differential Yoke

¹Used with spindle shafts which have 3/4-NF threads. When replacing a 3/4-NF with 1-NS spindle shaft you must order shaft, roll pin, washer and nut. See footnote 2.

²Used with spindle shafts which have 1-NS threads.

³Refer to installation diagram 052-185. See footnote 4.

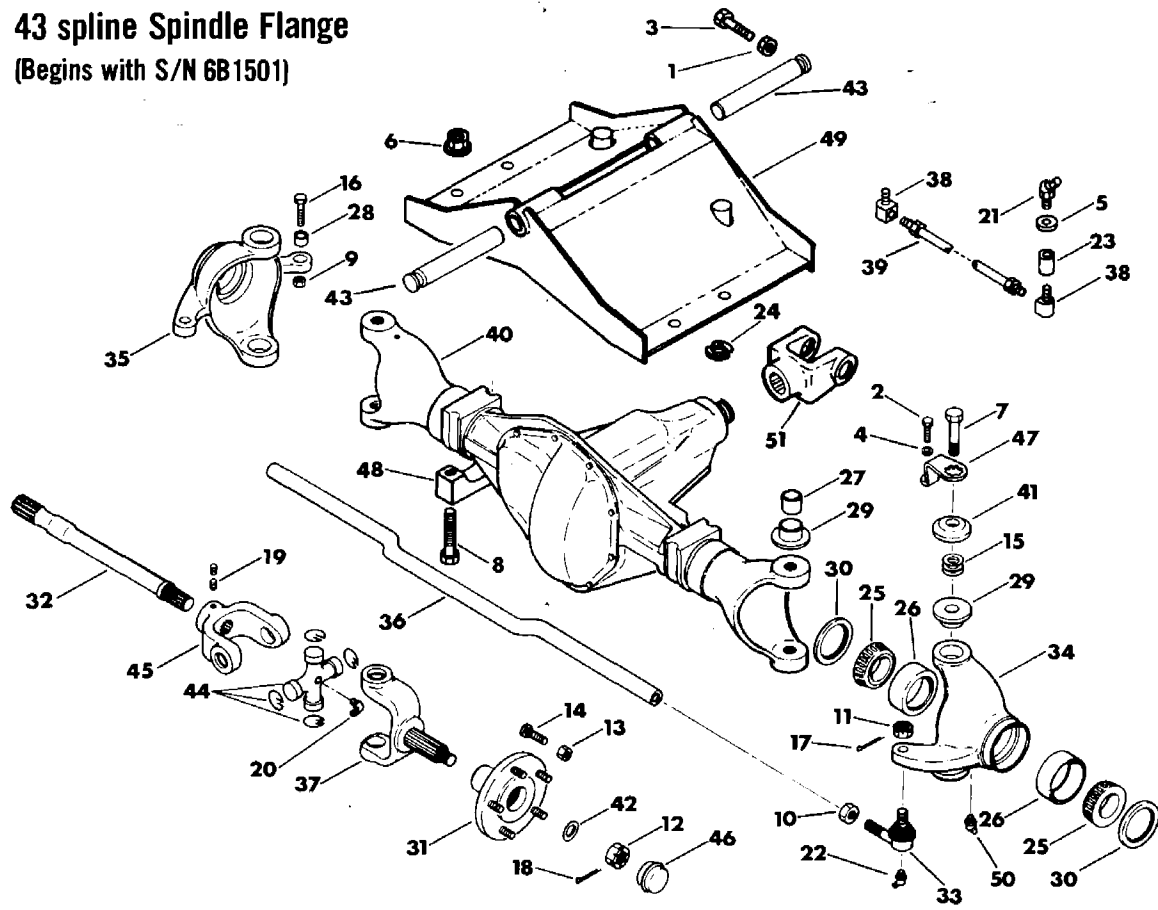
⁴For replacement assembly refer to FRONT STEERING — 43 spline Spindle Flange — (Begins with S/N 6B1501).

⁵Refer to installation diagram 050-946 to install spindle bolt kit.

FRONT STEERING

43 spline Spindle Flange

(Begins with S/N 6B1501)

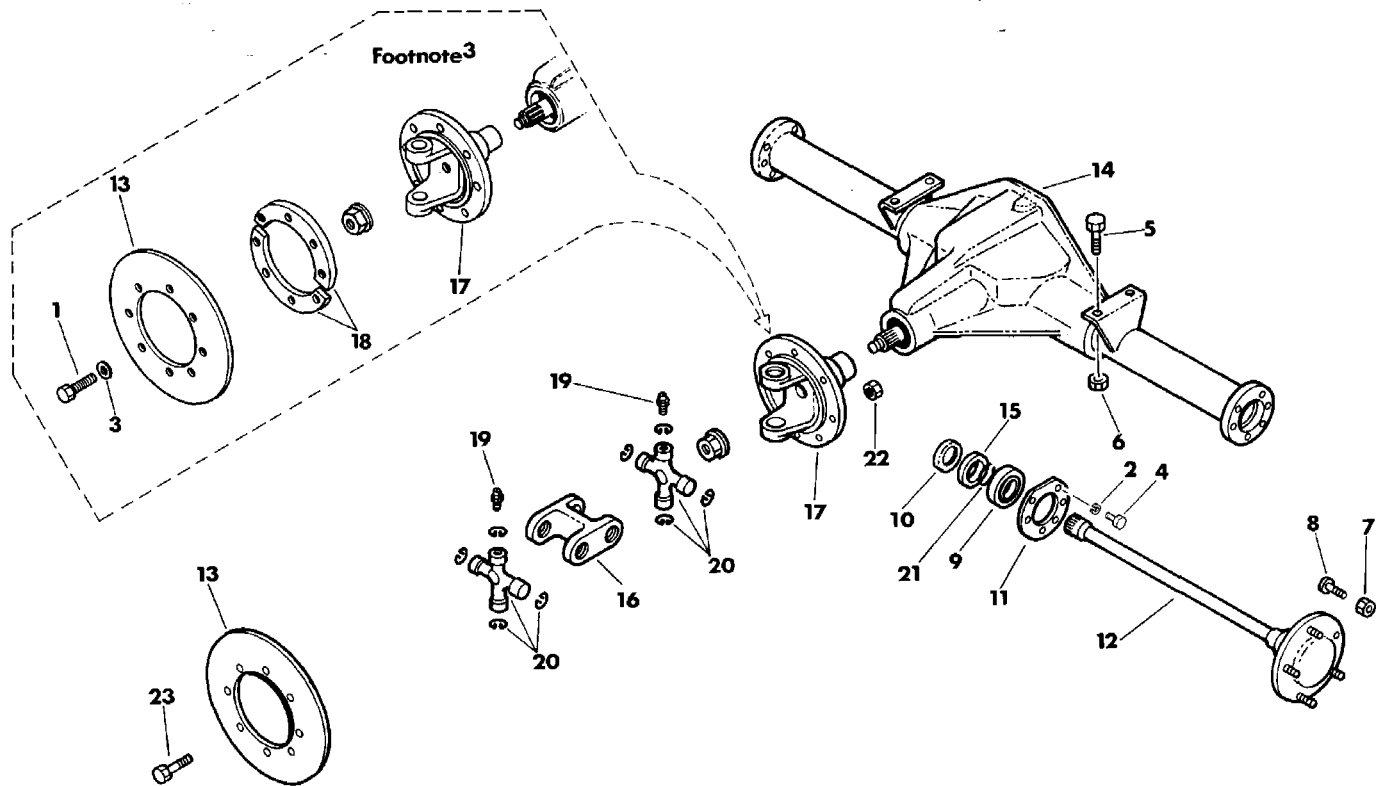


Ref. No.	Part Number	Qty.	Description	Ref. No.	Part Number	Qty.	Description
	161-058		¹ Front Differential and Steering Parts Assembly (Incl. ref. no.'s 2, 4, 7, 10, 11, 12, 14, 15, 17 thru 22, 25, 26, 27, 29 thru 37, 40, 41, 42, 44 thru 47, 50 and 51)	28.	125-403	1	Bronze Bushing
1.	105-021	2	Nut (1/2-NC)	29.	125-716	8	Urethane Flange Bushing
2.	105-032	4	Bolt (3/8-NC x 3/4")	30.	155-804	4	Internal Seal
3.	105-066	2	Bolt (1/2-NC x 1-3/4")	31.	161-057	2	Spindle Flange (43 spline)— Incl. ref. no. 14
4.	105-072	4	Lock Washer (3/8")	32.	160-187	2	Front Axle
5.	105-118	2	Washer (3/8")	33.	160-306	2	Tie Rod End (Incl. ref. no.'s 11 and 17)
6.	105-340	4	Flange Locknut (3/4-NC)	34.	160-381	1	Spindle Housing (left on front diff.)
7.	105-353	4	Bolt (3/4-NF x 2-5/8", GD 8, Nylok)	35.	160-382	1	Spindle Housing (right on front diff.)
8.	105-371	4	Bolt (3/4-NC x 6-1/2")	36.	160-321	1	Tie Rod
9.	105-403	1	Jam Nut (5/8-NC)	37.	160-386	2	Spindle Shaft and Yoke (1-NS, 43 spline)
10.	105-404	2	Jam Nut (3/4-NF)	38.	160-686	4	Inverted Flare Elbow (3/16" T x 1/8-NPT x 90°)
11.	105-405	2	Castle Nut (9/16-NF)	39.	160-653	2	Brake Line (10" LG)
12.	105-349	2	Slotted Nut (1-NF)	40.	161-007	1	¹ Front Differential
13.	105-424	10	Lug Nut (3/4-NF)	41.	180-061	4	Spindle Washer
14.	105-426	10	Lug Bolt (3/4-NF x 1-13/16")	42.	181-685	2	Spindle Washer (1")
15.	105-451	12	Wave Spring Washer	43.	180-320	2	Front Axle Pivot Shaft
16.	105-462	1	Bolt (5/8-NC x 2-1/4")	44.	182-099	2	Cross and Bearing (Incl. ref. no. 20)
17.	105-509	2	Cotter Pin (1/8" x 1")	45.	182-103	2	Axle Yoke
18.	105-516	2	Roll Pin (3/16" x 1-1/2")	46.	205-744	2	Hub Cap
19.	105-716	4	Setscrew (3/8-NC x 1/2")	47.	301-151	4	Spindle Bolt Lock
20.	115-002	2	Zerk (1/8-NPT x 90°)		190-273		² Spindle Bolt Conversion Kit (Incl. ref. no.'s 2, 4, 7, 15, 27, 29, 41 and 47)
21.	115-004	4	Zerk (1/8-NPT x 45°)	48.	301-822	2	Saddle Clamp
22.	115-005	2	Zerk (1/4-NF x 90°)	49.	312-090	1	Differential Mount
23.	115-172	2	Pipe Collar (1/8")	50.	115-006	2	Zerk (1/4-NF x 45°)
24.	115-483	1	External Clip Ring	51.	182-020	1	Differential Yoke
25.	125-367	4	Bearing				
26.	125-368	4	Race				
27.	125-301	4	Bushing				

¹Refer to installation diagram 052-185.

²Refer to installation diagram 050-946 to install spindle bolt kit.

REAR AXLE STANDARD



Ref. No.	Part Number	Qty.	Description
1.	105-031	8	³ Bolt (3/8-NC x 1")
2.	105-070	12	Lock Washer (1/2")
3.	105-072	8	³ Lock Washer (3/8")
4.	105-141	12	Bolt (1/2-NF x 1-1/4")
5.	105-320	4	Bolt (3/4-NC x 2-1/4")
6.	105-372	4	Locknut (3/4-NC)
7.	105-424	10	Lug Nut (3/4-NF)
8.	105-426	10	Lug Bolt (3/4-NF x 1-13/16")
9.	125-001	2	Ball Bearing
10.	155-856	2	Internal Seal
11.	160-066	2	Bearing Retainer
12.	160-186	2	¹ Rear Axle Parts Assembly (Incl. ref. no.'s 8, 9, 11, 12, 15 and 21)
13.	160-799	1	Brake Disc
14.	161-016	1	² Rear Differential (Incl. ref. no.'s 10 and 17)
15.	181-049	2	¹ Retainer Ring

Ref. No.	Part Number	Qty.	Description
16.	182-013	1	Double Center Yoke
17.	182-076	1	³ Differential Flange Yoke
18.	312-228	2	³ Service Brake Spacer
19.	115-001	2	Zerk (1/8-NPT, STR)
20.	182-007	2	Cross and Bearing (Incl. ref. no. 19)
	115-500		Internal Snap Ring
	180-790		Bearing Cap
21.	115-520	2	¹ External Snap Ring (1.84" ID)
22.	105-047	8	⁴ Locknut (3/8-NC)
23.	105-052	8	⁴ Bolt (3/8-NC x 1-1/4")

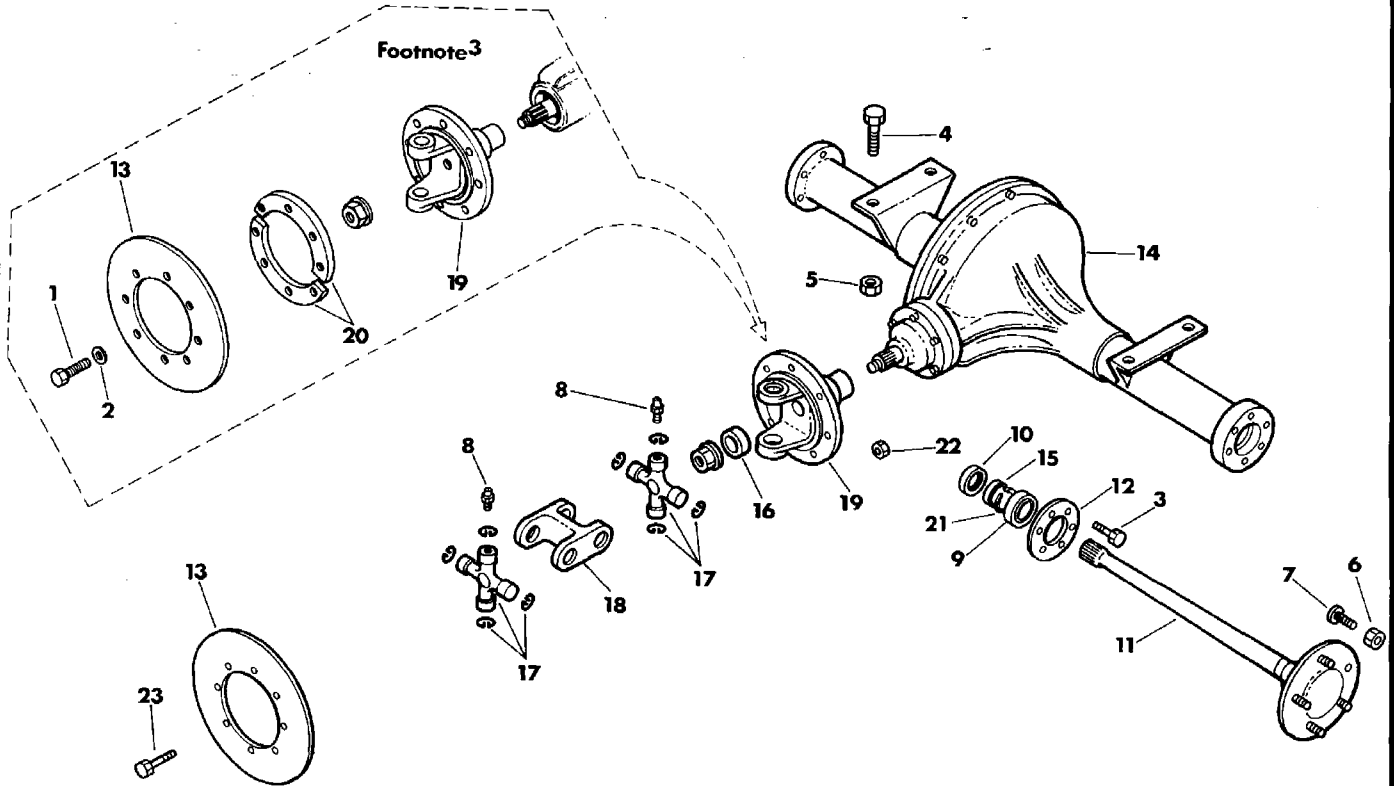
¹Axle with groove, retainer ring and snap ring (ref. no.'s 12, 15 and 21) begins with S/N 409597 on 4010 and S/N 500147 on 5010. Snap ring and grooved retainer ring are required for replacement axles with groove.

²Refer to installation diagram 052-185.

³Early style differential flange yoke (ref. no. 17), having 3/8-NC tapped holes for mounting brake disc with 1" long bolts (ref. no. 1) and requiring use of service brake spacer (no. 18), is no longer available. See footnote 4.

⁴Present style differential flange yoke (ref. no. 17), having untapped holes for mounting brake disc with 1-1/4" long bolts and locknut (ref. no.'s 22 and 23), requires no service brake spacer. See footnote 3.

REAR AXLE HEAVY DUTY



Ref. No.	Part Number	Qty.	Description
1.	105-031	8	³ Bolt (3/8-NC x 1")
2.	105-072	8	³ Lock Washer (3/8")
3.	105-141	12	Bolt (1/2-NF x 1-1/4")
4.	105-320	4	Bolt (3/4-NC x 2-1/4")
5.	105-372	4	Locknut (3/4-NC)
6.	105-424	10	Lug Nut (3/4-NF)
7.	105-426	10	Lug Bolt (3/4-NF x 1-13/16")
8.	115-001	2	Zerk (1/8-NPT, STR)
9.	125-024	2	Ball Bearing
10.	155-856	2	Internal Seal
11.	160-212	2	¹ Rear Axle Assembly (Incl. ref. no.'s 7, 9, 11, 12, 15 and 21)
12.	160-210	2	Bearing Retainer
13.	160-799	1	Brake Disc
14.	161-017	2	² Rear Differential (Incl. ref. no.'s 10, 16 and 19)
15.	181-049	2	¹ Retainer Ring

Ref. No.	Part Number	Qty.	Description
16.	181-397	1	Washer
17.	182-007	2	Cross and Bearing (Incl. ref. no. 8)
	115-500		Internal Snap Ring
	180-790		Bearing Cap
18.	182-013	1	Double Center Yoke
19.	182-074	1	³ Flange Yoke
20.	312-228	2	³ Service Brake Spacer
21.	115-520	2	¹ External Snap Ring
22.	105-047	8	⁴ Locknut (3/8-NC)
23.	105-052	8	⁴ Bolt (3/8-NC x 1-1/4")

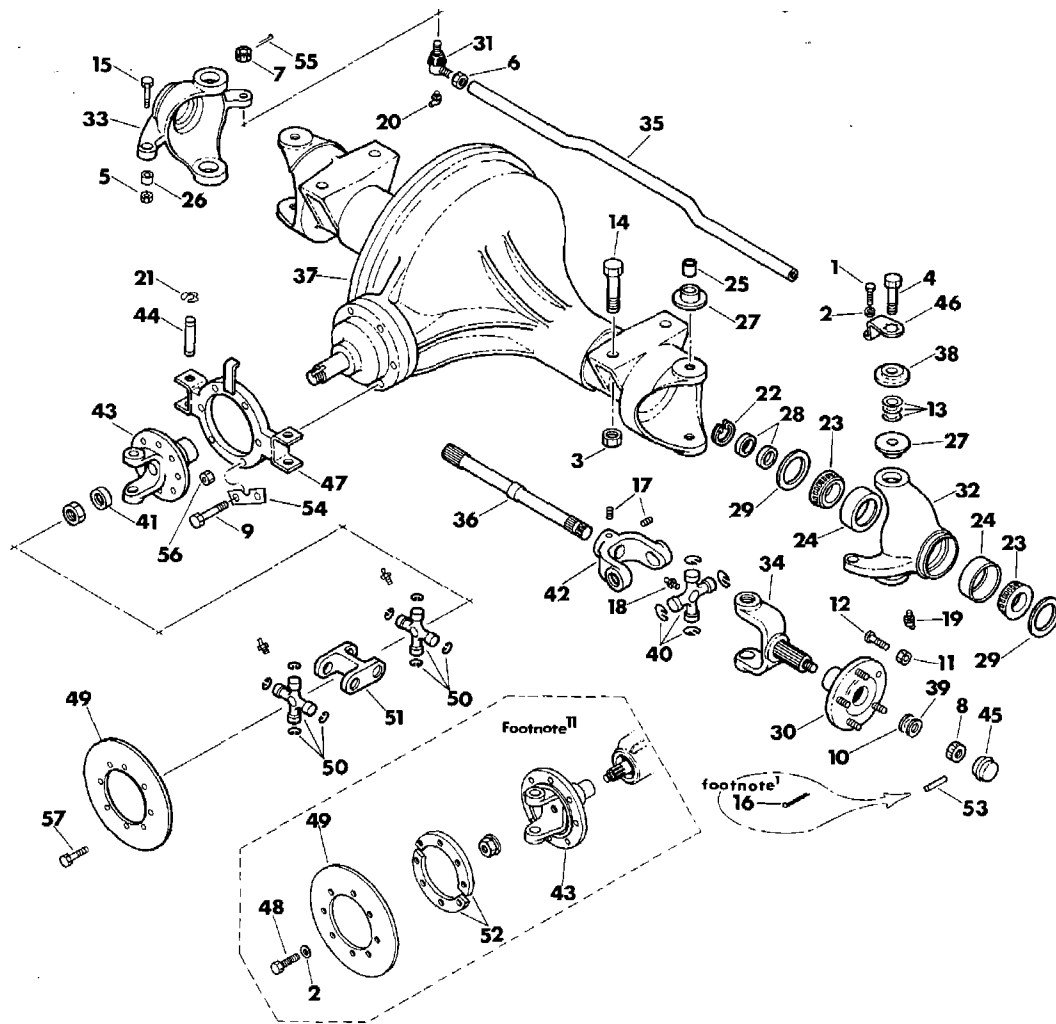
¹Axle with groove, retainer ring and snap ring (ref. no.'s 11, 15 and 21) begins with S/N 409487 on 4010 and S/N 500122 on 5010. Snap ring and grooved retainer ring are required for replacement axles with groove.

²Refer to installation diagram 052-186.

³Early style differential flange yoke (ref. no. 19), having 3/8-NC tapped holes for mounting brake disc with 1" long bolts (ref. no. 1) and requiring use of service brake spacer (no. 20), is no longer available. See footnote 4.

⁴Present style differential flange yoke (ref. no. 19), having untapped holes for mounting brake disc with 1-1/4" long bolts and locknut (ref. no.'s 22 and 23), requires no service brake spacer. See footnote 3.

REAR STEERING



Ref. No.	Part Number	Qty.	Description	Ref. No.	Part Number	Qty.	Description
	161-018		⁸ Steerable Rear Differential Assembly (Incl. ref. no.'s 1, 2, 4, 6 thru 9, 12, 13, 16 thru 20, 22 thru 25, 27 thru 43, 45, 46, 47, 53 and 54)	9.	105-415	6	Bolt (9/16-NC x 2-1/2", GD 8)
	190-361		⁹ Rear Steer Differential Conversion Kit (Incl. ref. no.'s 1 thru 9 and 11 thru 47)	10.	110-095	2	¹ Machinery Bushing
1.	105-032	4	Bolt (3/8-NC x 3/4")	11.	105-424	10	Lug Nut (3/4-NF)
2.	105-072	12	¹¹ Lock Washer (3/8")	12.	105-426	10	Lug Bolt (3/4-NF x 1-13/16")
3.	105-340	4	Flange Locknut (3/4-NC)	13.	105-451	12	Wave Spring Washer
4.	105-353	4	Bolt (3/4-NF x 2-5/8", GD 8, Nylok)	14.	105-452	4	Bolt (3/4-NC x 2")
5.	105-403	2	Jam Nut (5/8-NC)	15.	105-462	2	Bolt (5/8-NC x 2-1/4")
6.	105-404	2	Jam Nut (3/4-NF)	16.	105-509		¹ Cotter Pin (1/8" x 1")
7.	105-405		Castle Nut (9/16-NC)	17.	105-716	4	Setscrew (3/8-NC x 1/2")
8.	105-410	2	¹ Castle Nut (3/4-NF-16)	18.	115-003	2	³ Zerk (1/4-NF, STR)
	105-349	2	² Slotted Nut (1-NF-14)		115-002	2	⁴ Zerk (1/8-NPT x 90°)
				19.	115-004	2	Zerk (1/8-NPT x 45°)

(Continued on following page.)

REAR STEERING (Cont'd.)

Ref. No.	Part Number	Qty.	Description
20.	115-006	2	Zerk (1/4-NF x 45 ^o)
21.	115-483	4	External Klip Ring
22.	115-515	2	Internal Snap Ring
23.	125-260	4	³ Bearing (2.25" ID)
	125-367	4	⁴ Bearing (2.5" ID)
24.	125-261	4	³ Race (3.8125" OD)
	125-368	4	⁴ Race (4.33" OD)
25.	125-301	4	Bushing (1" OD)
26.	125-403	2	Bronze Bushing (.625" ID)
27.	125-716	8	Urethane Flange Bushing (1" ID)
28.	155-806	4	Internal Seal (1.75" ID x 2.5" OD)
29.	155-808	4	³ Internal Seal (3" ID x 4" OD)
	155-804	4	⁴ Internal Seal (3.25" ID x 4.5" OD)
30.	160-160	2	³ Spindle Flange (1.57" ID w/26 spline)— Incl. ref. no. 12
	160-251	2	⁴ Spindle Flange (1.75" ID w/43 spline)— Incl. ref. no. 12
	161-057	2	⁷ Spindle Flange (1.75" ID w/43 spline)— Incl. ref. no. 12
31.	160-306	2	Tie Rod End (Incl. ref. no.'s 7 and 55)
32.	160-319	1	³ Spindle Housing (left on rear diff.)
	160-382	1	⁴ Spindle Housing (left on rear diff.)
33.	160-318	1	³ Spindle Housing (right on rear diff.)
	160-381	1	⁴ Spindle Housing (right on rear diff.)
34.	N.A.	2	¹ Spindle Shaft and Yoke (3/4-NF, 26 spline)
	160-336	2	⁵ Spindle Shaft and Yoke (1-NS, 26 spline)
	160-384	2	⁴ Spindle Shaft and Yoke (1-NS, 43 spline)
	160-386	2	⁷ Spindle Shaft and Yoke (1-NS, 43 spline)
35.	160-366	1	Tie Rod
36.	161-006	2	Rear Axle (1.75" OD, 16 & 35 spline)
	161-045	2	Rear Axle (1.823" OD, 16 & 43 spline)
37.	161-010	1	Rear Differential (Incl. ref. no. 22)
38.	180-061	4	Spindle Washer
39.	180-279	2	¹ Washer (.765" ID)
	181-381	2	² Washer (1" ID x 1-7/8" OD)—early style
	181-685	2	² Washer (1" ID x 2.25" OD)
40.	180-724	2	³ Cross and Bearing (Incl. ref. no. 18)
	182-099	2	⁴ Cross and Bearing (Incl. ref. no. 18)
41.	181-397	1	Pinion Yoke Washer
42.	182-103	2	³ Axle Yoke (35 spline)
	182-100	2	⁴ Axle Yoke (43 spline)

Ref. No.	Part Number	Qty.	Description
43.	182-074	1	¹¹ Flange Yoke (10 spline)
44.	183-264	2	Pin (1-1/4" OD x 4.37" LG)
45.	205-671	2	Hub Cap (for 1.98" ID bore)—early style
	205-744	2	Hub Cap (for 3.15" ID bore)
46.	301-151	4	Spindle Bolt Lock
	190-273		¹⁰ Spindle Bolt Conversion Kit (Incl. ref. no.'s 1, 2, 4, 13, 25, 27, 38 and 46)
47.	312-081	1	Rear Steer Cylinder Mount
48.	105-031	8	¹¹ Bolt (3/8-NC x 1")
49.	160-799	1	Brake Disc
50.	182-007	2	Cross and Bearing
	115-001		Zerk (1/8-NPT, STR)
	115-500		Internal Snap Ring
	180-790		Bearing Cap (greasable)
51.	182-013	1	Double Center Yoke
52.	312-228	2	¹¹ Service Brake Spacer
53.	105-516	2	² Roll Pin (3/16" x 1-1/2")
54.	311-350	3	Bolt Lock
55.	105-518		Cotter Pin (1/8" x 1-1/2")
56.	105-047	8	¹² Locknut (3/8-NC)
57.	105-052	8	¹² Bolt (3/8-NC x 1-1/4")

¹Used with spindle shafts which have 3/4-NF threads. When replacing a 3/4-NF with 1-NS spindle shaft you must order new shaft, roll pin, washer and nut. See footnotes 2 and 5.

²Used with spindle shaft and yoke which has 1-NS threads.

³Used with spindle shaft and yoke which has either 3/4-NF or 1-NS threads and axles with 35 spline on yoke side.

⁴Used with spindle shaft and yokes which have 1-NS threads and axles with 43 spline on yoke side. See footnote 6.

⁵Spindle shaft and yoke which has 1-NS threads and is used with axle with 35 spline on yoke side.

⁶This spindle shaft has 2.69" LG splines that run all the way to the yoke. This flange has a splined .75" ID that is 2.69" LG. If replacing this style shaft with shaft which has 1.66" LG splines you must also order new style spindle flange. See footnote 7.

⁷This spindle shaft has 1.66" LG splines that do not extend to the yoke. This flange has a splined .75" ID that is 1.74" LG.

⁸Refer to assembly instructions 052-186.

⁹Converts from Dana to Rockwell differentials. Additional kit parts may be found on REAR STEERING HYDRAULICS and HYDRAULIC CONTROL VALVE. Refer to installation diagram 050-127.

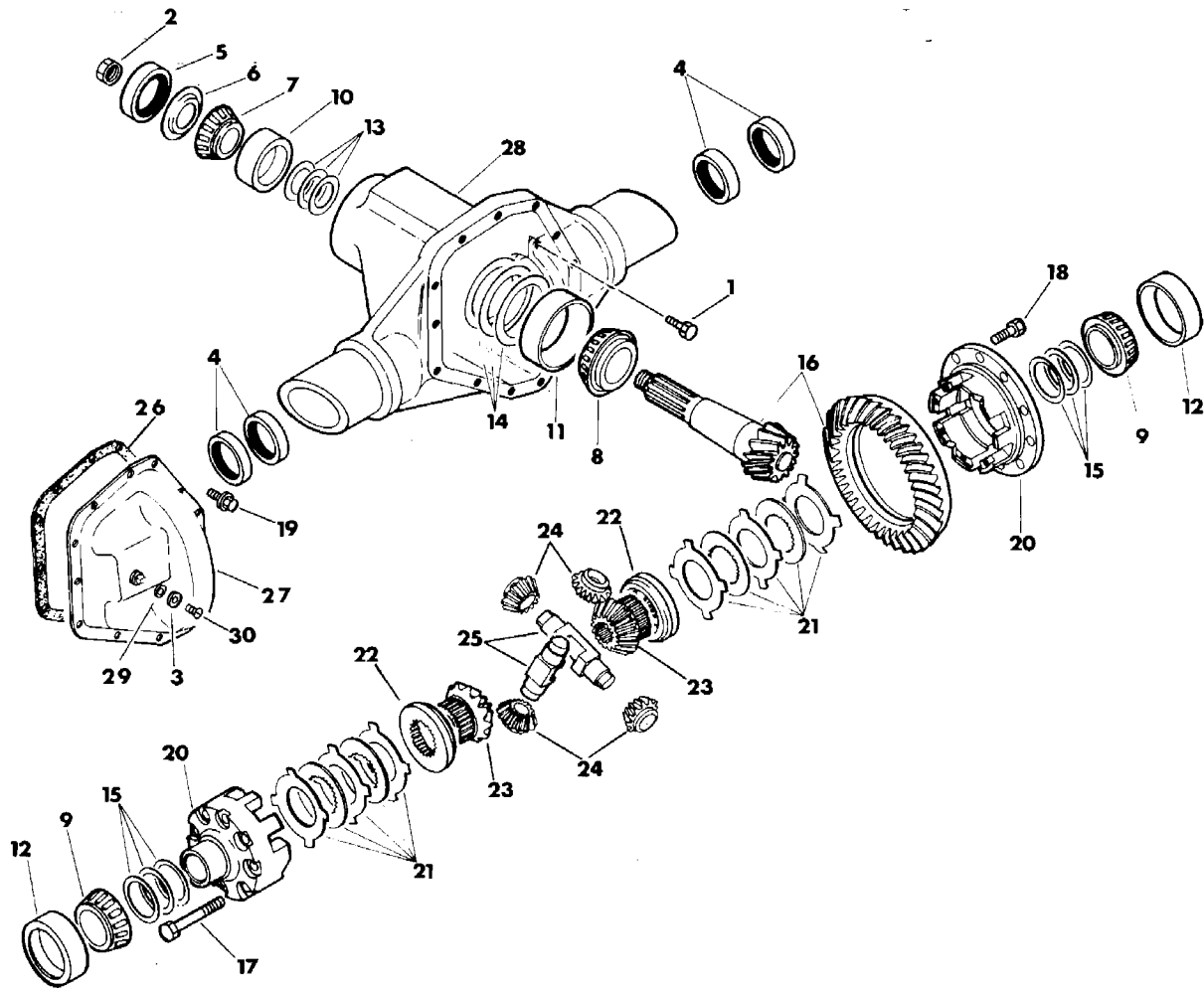
¹⁰Refer to installation diagram 050-946 to install spindle bolt kit.

¹¹Early style differential flange yoke (ref. no. 43), having 3/8-NC tapped holes for mounting brake disc with 1" long bolts (ref. no. 48) and requiring use of service brake spacer (no. 52), is no longer available. See footnote 12.

¹²Present style differential flange yoke (ref. no. 43), having untapped holes for mounting brake disc with 1-1/4" long bolts and locknut (ref. no.'s 56 and 57), requires no service brake spacer. See footnote 3.

DIFFERENTIAL

FRONT and STANDARD REAR



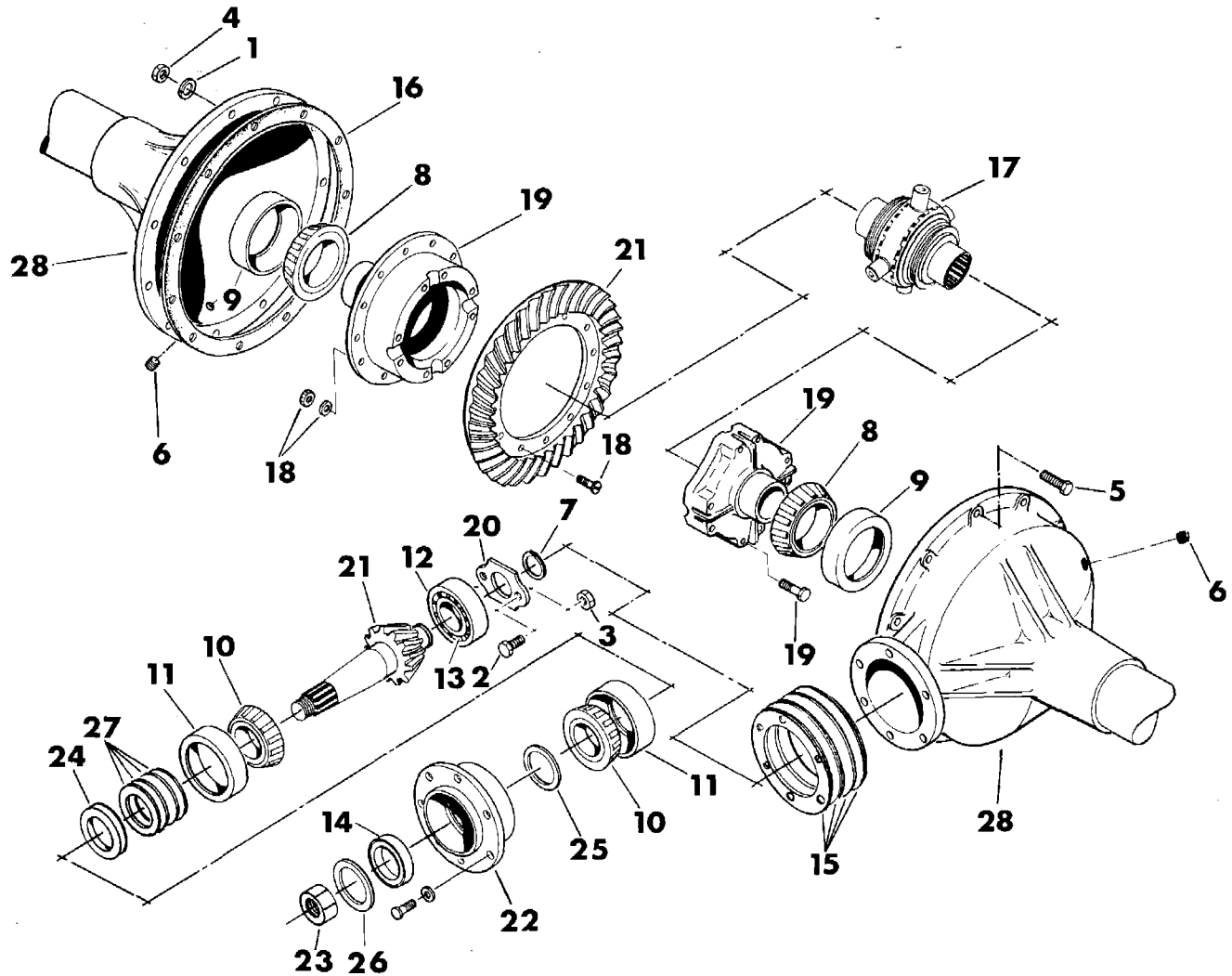
Ref. No.	Part Number	Qty.	Description
1.	105-002	4	Bolt (1/2-NC x 2-1/4")
2.	105-362	1	Flange Nut (7/8-NF)
3.	105-284	1	Washer (3/16")
4.	155-807	4	Internal Seal (1.5" ID)
5.	155-853	1	Internal Seal (1-7/8" ID)
6.	501-149	1	Pinion Oil Slinger
7.	125-285	1	Bearing (1.25" ID)
8.	125-287	1	Bearing (1.75" ID)
9.	125-260	2	Bearing (2.25" ID)
10.	125-286	1	Race (2.87" OD)
11.	125-288	1	Race (4.125" OD)
12.	125-284	2	Race (3.81" OD)
13.	501-163	AR	Shim (1.265" ID x 1.63" OD x .003" THK)
	501-164	AR	Shim (1.265" ID x 1.63" OD x .005" THK)
	501-165	AR	Shim (1.265" ID x 1.63" OD x .010" THK)
	501-166	AR	Shim (1.265" ID x 1.63" OD x .030" THK)
14.	501-309	AR	Shim (3.66" ID x 4.113" OD x .003" THK)
	501-310	AR	Shim (3.66" ID x 4.113" OD x .005" THK)
	501-311	AR	Shim (3.66" ID x 4.113" OD x .010" THK)
15.	501-142	AR	Shim (2.3437" ID x 2.9375" OD x .003" THK)
	501-143	AR	Shim (2.3437" ID x 2.9375" OD x .005" THK)
	501-144	AR	Shim (2.3437" ID x 2.9375" OD x .010" THK)
	501-145	AR	Shim (2.3437" ID x 2.9375" OD x .032" THK)

Ref. No.	Part Number	Qty.	Description
16.	501-272 501-631	1	Ring Gear and Pinion (Incl. ref. no. 2)
		1	Ring Gear and Pinion (Incl. ref. no.'s 2, 16 and 18 thru 26)
17.	501-329	8	Flange Bolt (7/16-NC x 3-1/2")
	501-501	8	Cone Lock (order separately)
18.	501-150	12	Bolt (1/2-NF x 1-1/8")
19.	501-153	10	Flange Lock Bolt (3/8-NC x 5/8")
20.	501-273	1	Differential Case (Incl. ref. no. 17)
	501-259	1	Differential Case Assembly (Incl. ref. no.'s 17 and 20 thru 25)
21.	501-282	1	Clutch Pack (4 discs and 6 plates)
22.	501-324	2	Axle Gear Ring
23.	501-330	2	Axle Gear
24.	501-316	4	Pinion Gear
25.	501-317	2	Pinion Shaft
26.	165-613	1	Cover Gasket
27.	501-287	1	Differential Cover
28.	161-094	1	Differential Housing (Incl. ref. no.'s 1, 3, 4, 19, 26, 27, 29 and 30)—front
29.	155-751	1	Neoprene Washer
30.	105-173	1	Bolt (1/4-NC x 3/8", RD SLT HD)

NOTE: Refer to assembly instructions 052-185.

DIFFERENTIAL

HEAVY DUTY and STEERABLE REAR

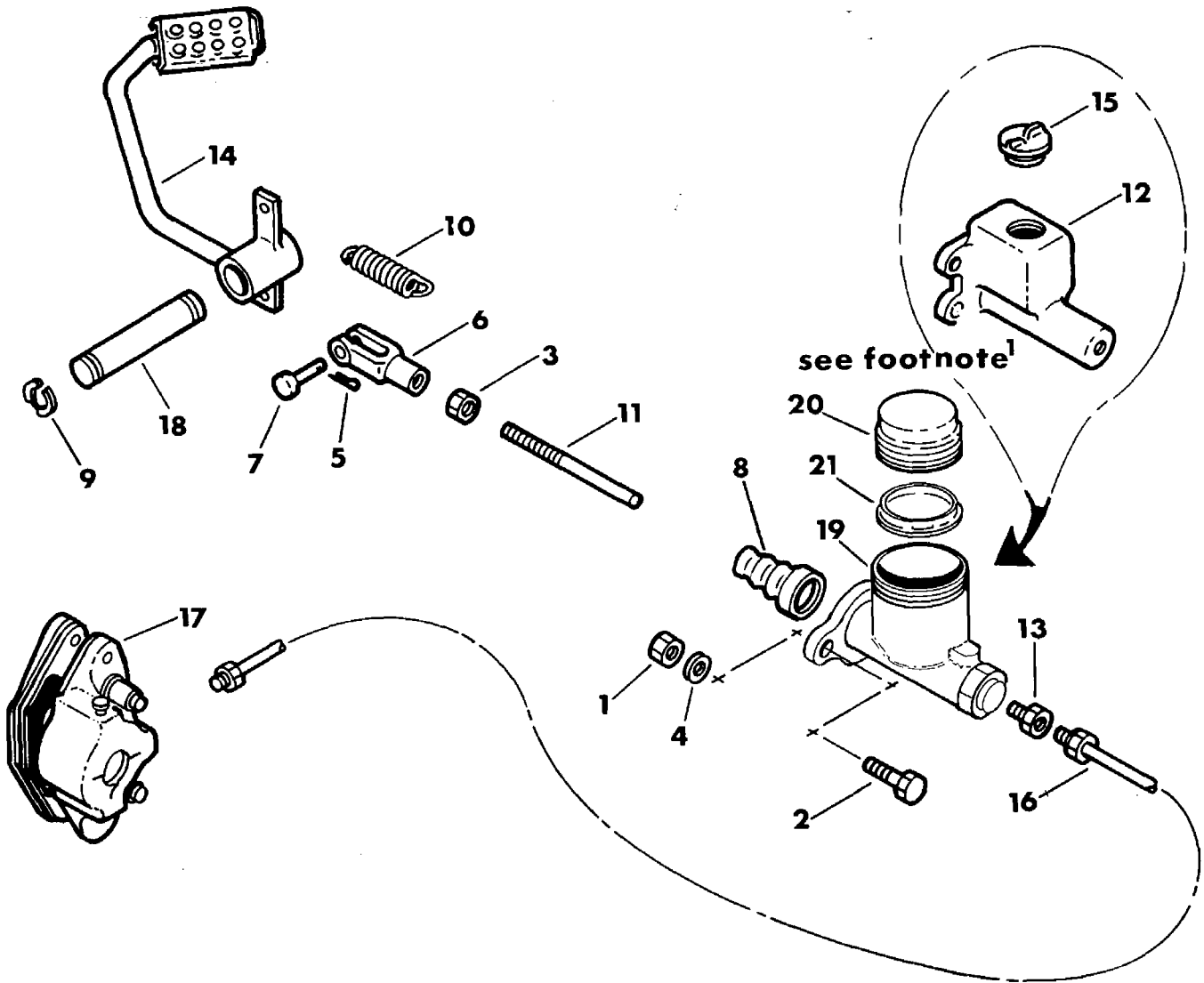


Ref. No.	Part Number	Qty.	Description
1.	105-073	11	Lock Washer (7/16")
2.	105-818	2	Bolt (1/4-NC x 1-1/2")
3.	105-085	2	Locknut (1/4-NC)
4.	105-120	11	Nut (7/16-NF)
5.	105-203	11	Bolt (7/16-NF x 2")
6.	115-167	2	Pipe Plug (3/4-NPT, SQ M HD)
7.	115-494	1	External Snap Ring
8.	125-310	2	Bearing [2.62" ID]
9.	125-311	2	Bearing Race [4.43" OD]
10.	125-317	2	Bearing [1.75" ID]
11.	125-296	2	Race [3.5" OD]
12.	125-315	1	Bearing [2.44" OD]
13.	125-316	1	Bearing Race [.939" ID]
14.	155-850	1	Internal Seal
15.	165-663	AR	Bearing Cage Shim [.003" THK]
	165-664	AR	Bearing Cage Shim [.006" THK]
	165-665	AR	Bearing Cage Shim [.010" THK]
	165-666	AR	Bearing Cage Shim [.015" THK]

Ref. No.	Part Number	Qty.	Description
16.	165-629	1	Housing Gasket
17.	501-401	1	No-Spin Differential Parts Assembly
18.	501-411	1	Bolt Kit
19.	501-412	1	Differential Case Assembly
	105-076		Bolt (1/2-NC x 3")
20.	501-413	1	Bearing Retainer
21.	501-416	1	Ring Gear and Pinion [Incl. ref. no.'s 7, 13 and 23]
22.	501-417	1	Pinion Bearing Cage
23.	105-418	1	Locknut (1-NEF, Nylok)
24.	501-418	1	Pinion Bearing Spacer
25.	105-929	1	Retainer Washer [2.38" OD]
26.	105-930	1	Pinion Shaft Washer [1-13/16" OD]
27.	165-662	1	Shim Kit
28.	161-097	1	Differential Housing

NOTE: Refer to installation diagram 052-186.

BRAKE SYSTEM



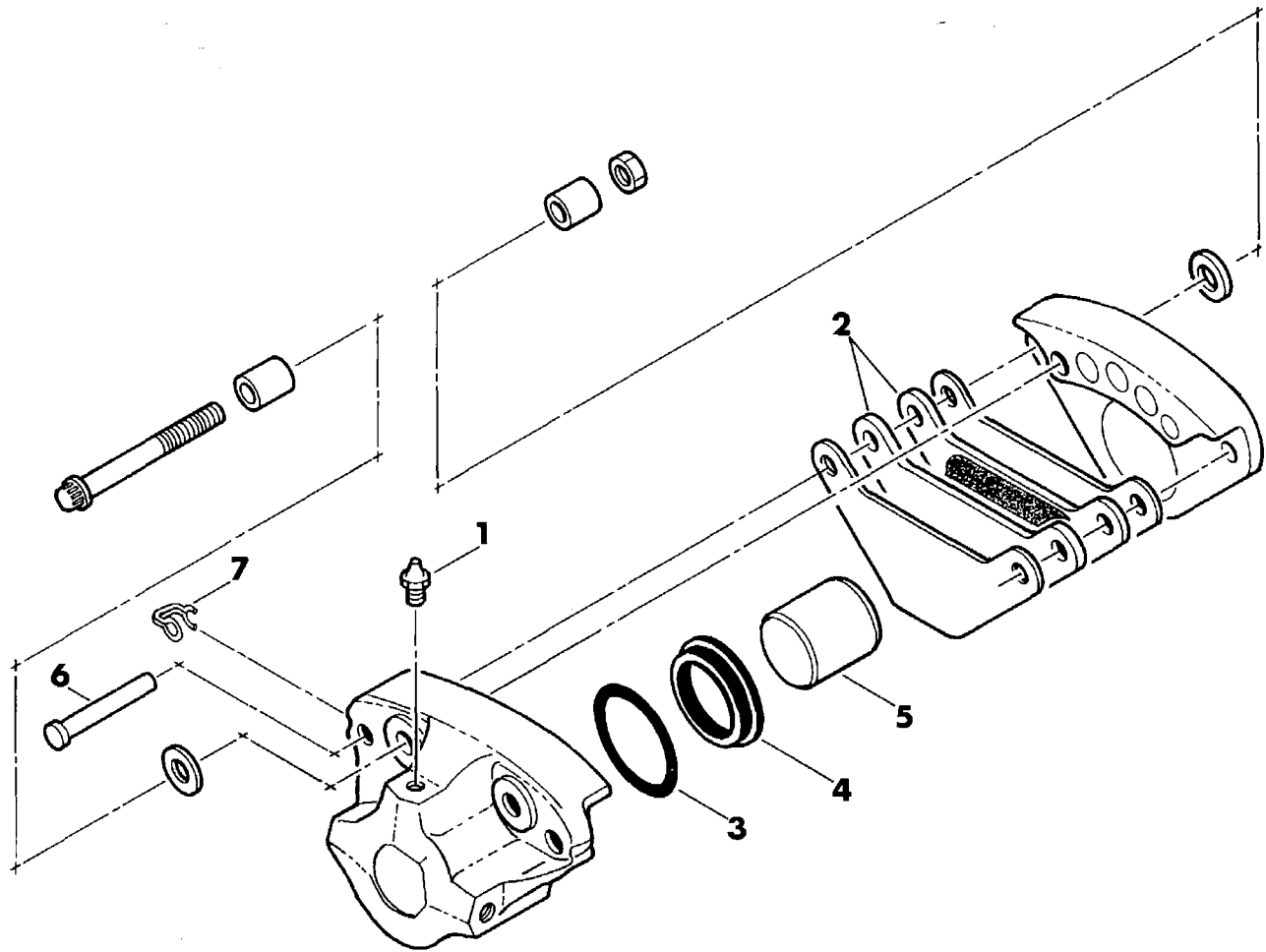
Ref. No.	Part Number	Qty.	Description
1.	105-047	2	Locknut (3/8-NC)
2.	105-052	2	Bolt (3/8-NC x 1-1/4")
3.	105-093	1	Nut (3/8-NF)
4.	105-118	2	Washer (3/8")
5.	105-509	1	Cotter Pin (1/8" x 1")
6.	110-027	1	Clevis
7.	110-053	1	Clevis Pin
8.	115-329	1	Dust Cover
9.	115-499	2	External Clip Ring
10.	115-556	1	Extension Spring
11.	160-774	1	Master Cylinder Rod
12.	160-627	1	¹ Master Cylinder (Incl. ref. no.'s 8 and 15)
	190-111		Seal Repair Kit (Incl. ref. no. 8)

Ref. No.	Part Number	Qty.	Description
13.	160-656	1	Adapter Fitting
14.	361-596	1	Brake Pedal
15.	160-680	1	Filler Cap
16.	160-711	1	Brake Line (3/16" x 24")
17.	160-766	1	Brake Caliper
18.	183-268	1	Pedal Pin
19.	160-660	2	² Master Cylinder (Incl. ref. no.'s 20 and 21)
	190-124		Seal Repair Kit
20.	163-005		Cylinder Cap
21.	163-006		Cap Liner

¹Ends with S/N 409323 on 4010 and S/N 500051 on 5010. Replace this style master cylinder (ref. no. 12) with master cylinder (ref. no. 19).

²Begins with S/N 409324 on 4010 and S/N 500052 on 5010.

BRAKE CALIPER

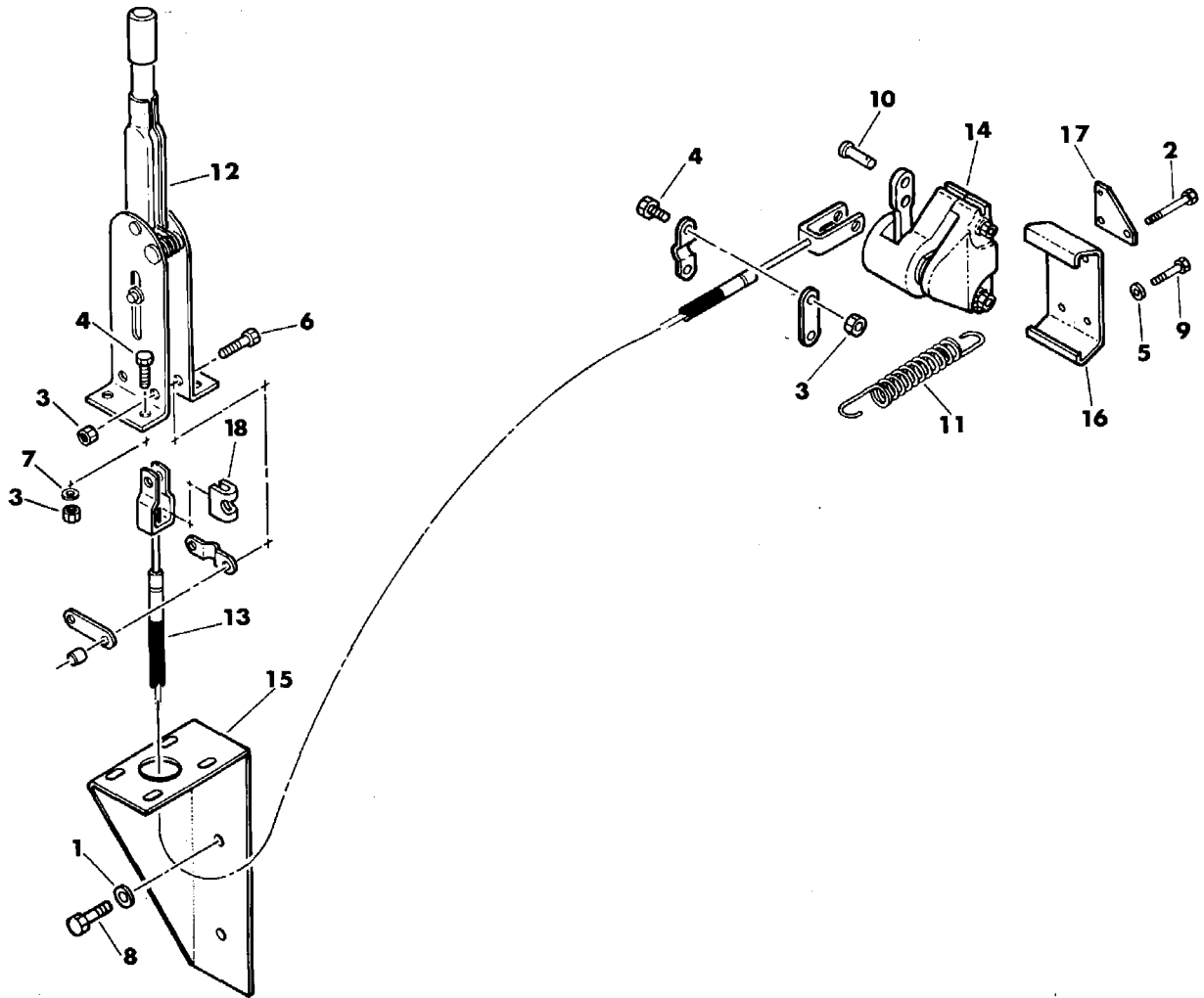


Ref. No.	Part Number	Qty.	Description
	160-766		Brake Caliper (Incl. ref. no.'s 1 thru 7)
1.	160-665	2	Bleeder Valve
2.	505-072	1	Brake Pad (pair)
3.	505-082	1	O-Ring
4.	505-081	1	Dust Boot
5.	505-080	1	Piston
6.	505-068	2	Pad Pin
7.	505-069	2	Cup Spring

PARKING BRAKE

(4010: Ends with S/N 409826)

(5010: Ends with S/N 500191)



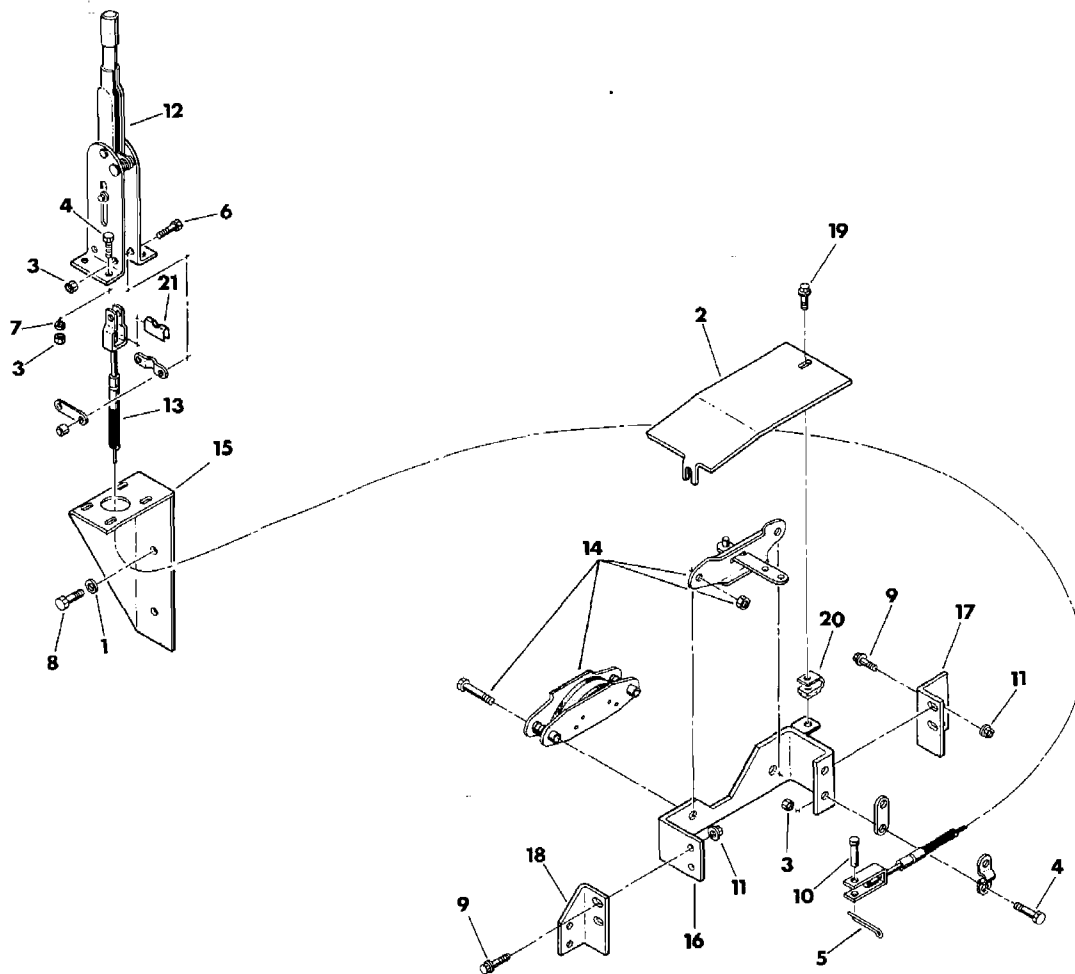
Ref. No.	Part Number	Qty.	Description
1.	105-070	2	Lock Washer (1/2")
2.	105-856	2	Bolt (1/4-NC x 1-1/4")
3.	105-089	8	Locknut (5/16-NC)
4.	105-094	6	Bolt (5/16-NC x 1")
5.	105-079	4	Lock Washer (1/4")
6.	105-109	2	Bolt (5/16-NC x 1-1/2")
7.	105-117	4	Washer (5/16")
8.	105-121	2	Bolt (1/2-NC x 1")
9.	105-197	2	Bolt (1/4-NC x 1")
10.	110-082	1	Clevis Pin (1/4" x 7/8")
11.	115-613	1	Extension Spring

Ref. No.	Part Number	Qty.	Description
12.	160-744	1	Parking Brake Lever
13.	160-745	1	Brake Cable (incl. ref. no. 18)
	160-775	1	Control Cable
14.	160-800	1	Brake Caliper
	505-087		Friction Pad (pair)
15.	301-811	1	Parking Brake Bracket
16.	312-215	1	Brake Caliper Mount
17.	312-216	1	Spring Hook
18.	311-149	1	Cable Spacer

PARKING BRAKE

(4010: Begins with S/N 409827)

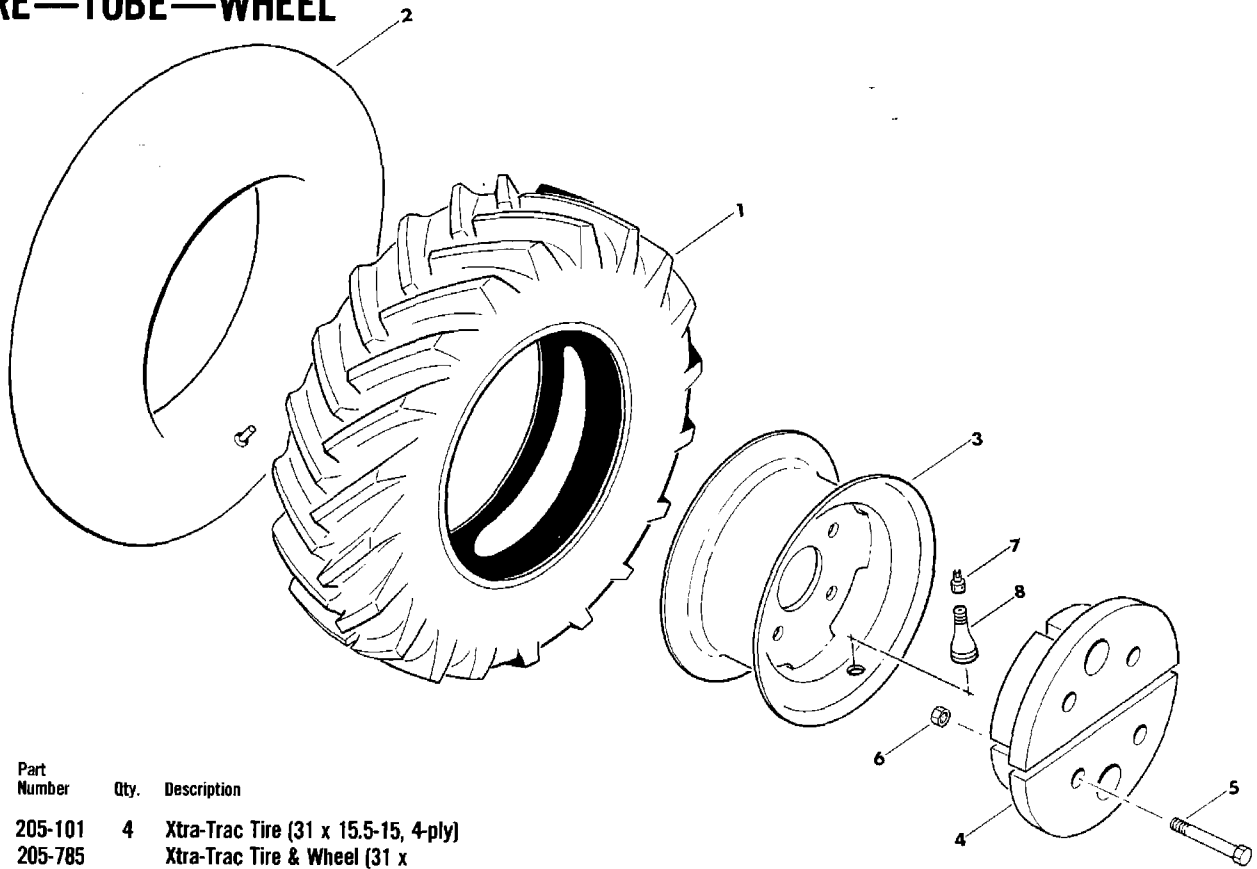
(5010: Begins with S/N 500192)



Ref. No.	Part Number	Qty.	Description
1.	105-070	2	Lock Washer (1/2")
2.	312-268	1	Grease Shield
3.	105-089	8	Locknut (5/16-NC)
4.	105-094	6	Bolt (5/16-NC x 1")
5.	105-530	1	Cotter Pin (1/16" x 3/4")
6.	105-109	2	Bolt (5/16-NC x 1-1/2")
7.	105-117	4	Washer (5/16")
8.	105-121	2	Bolt (1/2-NC x 1")
9.	105-826	4	Flange Lock Bolt (3/8-NC x 1")
10.	110-082	1	Clevis Pin (1/4" x 7/8")
11.	105-834	4	Flange Lock Nut (3/8-NC)

Ref. No.	Part Number	Qty.	Description
12.	160-744	1	Parking Brake Lever
13.	160-745	1	Brake Control Cable (Incl. ref. no. 21)
14.	163-017	1	Brake Caliper
15.	301-811	1	Parking Brake Bracket
16.	312-266	1	Brake Mount Plate
17.	312-265	1	Right Brake Mount Bracket
18.	312-264	1	Left Brake Mount Bracket
19.	105-822	1	Flange Lock Bolt (5/16-NC x 1/2")
20.	105-137	1	Clip Nut (5/16-NC)
21.	311-149	1	Cable Spacer

TIRE—TUBE—WHEEL



Ref. No.	Part Number	Qty.	Description
1.	205-101 205-785	4	Xtra-Trac Tire (31 x 15.5-15, 4-ply) Xtra-Trac Tire & Wheel (31 x 15.5-15, 4-ply)—Incl. ref. no.'s 1, 2, 3 and 7
	205-825		Xtra-Trac Tire & Wheel (31 x 15.5-15, 4-ply)—Incl. tyrfil and ref. no.'s 1, 3, 7 and 8
	205-102 205-794	4	Super Terra Grip Tire (29 x 12.5-15, 4-ply) Super Terra Grip Tire & Wheel (29 x 12.5-15, 4-ply)—Incl. ref. no.'s 1, 3, 7 and 8
	205-824		Super Terra Grip Tire & Wheel (29 x 12.5-15, 4-ply)—Incl. tyrfil and ref. no.'s 1, 3, 7 and 8
	205-815		Super Terra Grip Tire & Wheel (29 x 12.5-15, 4-ply)—Incl. ref. no.'s 1, 2, 3 and 7
	205-108	4	Super Terra Grip Tire (31 x 15.5-15, 4-ply)
	205-786		Super Terra Grip Tire & Wheel (31 x 15.5-15, 4-ply)—Incl. ref. no.'s 1, 2, 3 and 7
	205-826		Super Terra Grip Tire & Wheel (31 x 15.5-15, 4-ply)—Incl. tyrfil and ref. no.'s 1, 3, 7 and 8
	205-109	4	Super Terra Grip Tire (31 x 15.5-15, 8-ply)
	205-787		Super Terra Grip Tire & Wheel (31 x 15.5-15, 8-ply)—Incl. ref. no.'s 1, 2 and 3
	205-827		Super Terra Grip Tire & Wheel (31 x 15.5-15, 8-ply)—Incl. tyrfil and ref. no.'s 1, 3, 7 and 8
	205-127	4	Bar Lug Tire (33.3 x 12.5-15, 8-ply)
	205-814		Power Implement Tire & Wheel (33.3 x 12.5-15, 8-ply)—Incl. ref. no.'s 1, 3, 7 and 8
	205-828		Power Implement Tire & Wheel (33.3 x 12.5-15, 8-ply)—Incl. tyrfil and ref. no.'s 1, 3, 7 and 8

Ref. No.	Part Number	Qty.	Description
2.	205-156	4	Tube (27 x 8.5-15)— Incl. ref. no. 7
	205-160	4	Tube (31 x 15.5-15)— Incl. ref. no. 7
3.	205-251	4	Wheel (8" WD x 15" DIA)
	205-255	4	Wheel (13" WD x 15" DIA)
	205-286	4	Wheel (10" WD x 15" DIA)
4.	375-059	8	Wheel Weight Casting (2 per wheel)
5.	105-371	16	Bolt (3/4-NC x 6-1/2")—for wheels with 8" WD rims
	105-480	16	Bolt (3/4-NC x 8")—for wheels with 10" WD rims
	105-441	16	Bolt (3/4-NC x 12")—for wheels with 14" WD rims
	105-974	16	Bolt (3/4-NC x 11")—for wheels with 13" WD rims
6.	105-340	16	Flange Locknut (3/4-NC)
7.	205-165	4	Valve Cap
8.	205-161	4	Valve Stem (Incl. ref. no. 7)

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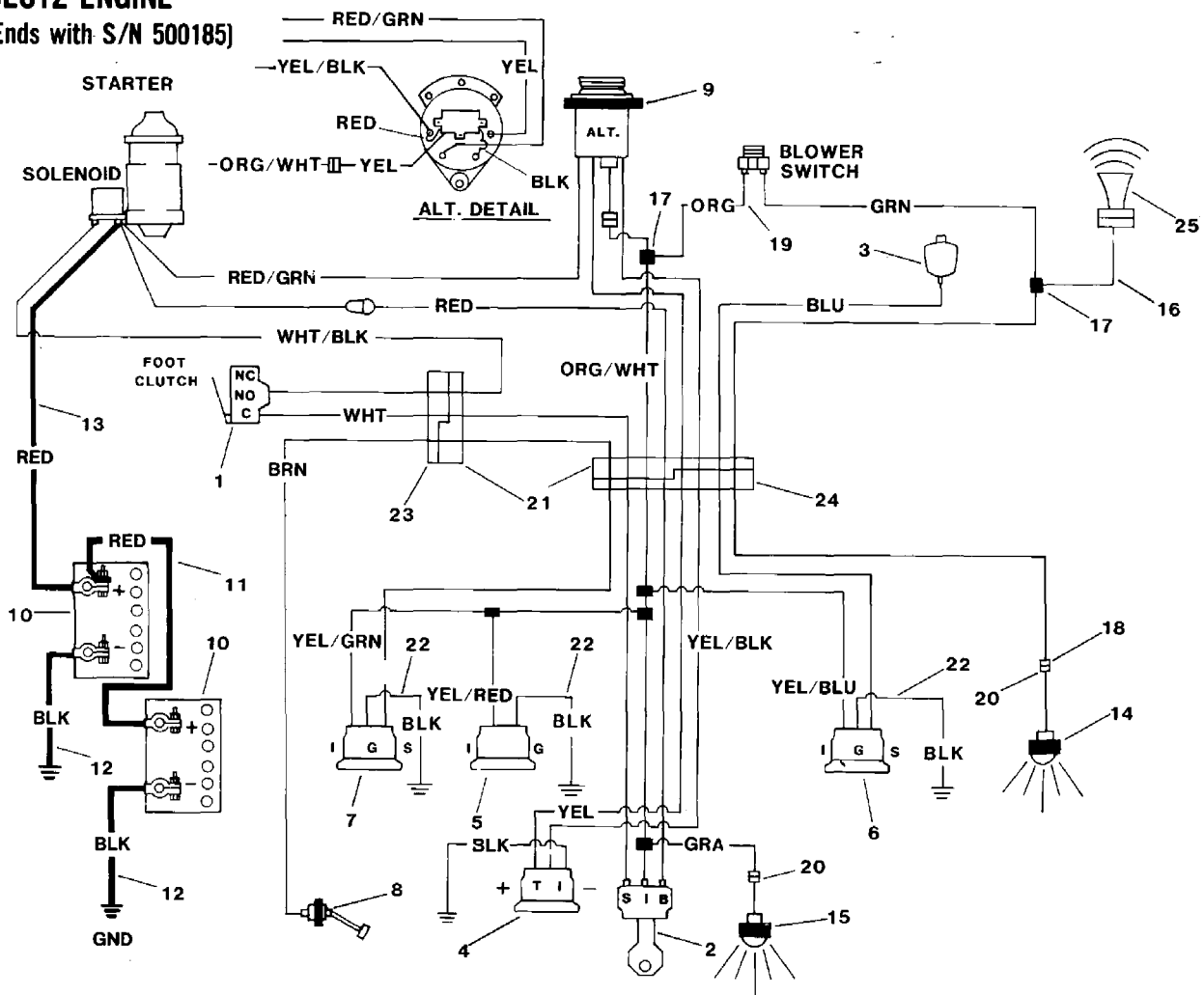
205-173	AR	Tyrfil (140 LBS/29 x 12.5-15, 225 LBS/33.3 x 12.5L-15, 245 LBS/15.5-15 tire)
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¹For early style tires with 14" WD rims.
NOTE: Refer to general specification 052-195 for recommended tire pressures.

ELECTRICAL DIAGRAM

DEUTZ ENGINE

(Ends with S/N 500185)



Ref. No.	Part Number	Qty.	Description
1.	215-046	1	Safety Switch
2.	215-051	1	Ignition Switch
	105-909		Jam Nut
	215-052		Keys (pair)
3.	215-113	1	Oil Sender
4.	215-118	1	Tachometer
5.	215-129	1	Voltmeter
6.	215-131	1	Oil Gauge
7.	215-133	1	Fuel Gauge
8.	215-139	1	Fuel Sender
9.	215-156	1	² Alternator (#8AR2069F)
	506-001	1	Regulator (#8RF2012A)
10.	215-261	2	Battery (12V/490AMP)
11.	215-303	1	Battery Cable (10" LG)
12.	215-306	2	Battery Cable (30" LG)
13.	215-321	1	Battery Cable (60" LG)
	116-193		Terminal Cover
14.	215-443	1	Red Pilot Light
15.	215-445	1	Amber Pilot Light
16.	215-467	1	Wire (16 GA x 14")
17.	215-477	2	Quick Connector (16 GA)
18.	215-527	1	Female Terminal (1/4")
19.	215-564	1	Wire (16 GA x 18")

Ref. No.	Part Number	Qty.	Description
20.	215-584	2	Male Terminal (1/4")
21.	215-602	1	¹ Engine Harness
	215-056		Fuse (30 AMP)
	215-620		Fuse Holder
Harness Hardware:			
	105-865	2	Bolt (1/4-NC x 3/4", GD 8)
	105-085	2	Locknut (1/4-NC)
	110-057	2	Clamp
22.	215-617	3	Wire (16 GA x 10")
23.	215-625	1	Frame Harness
24.	215-627	1	Console Harness
25.	306-601	1	Horn
Horn Hardware:			
	105-003	1	Flange Locknut (5/16-NC)
	105-823	1	Flange Lock Bolt (5/16-NC x 3/4")

Not Shown:
215-415 Light Kit (optional)

¹For replacement of engine harness refer to ELECTRICAL DIAGRAM — DEUTZ ENGINE — (S/N 500186 thru S/N 6D0026).

²For replacement of alternator refer to ELECTRICAL DIAGRAM — DEUTZ ENGINE — (Begins with S/N 6D0027).

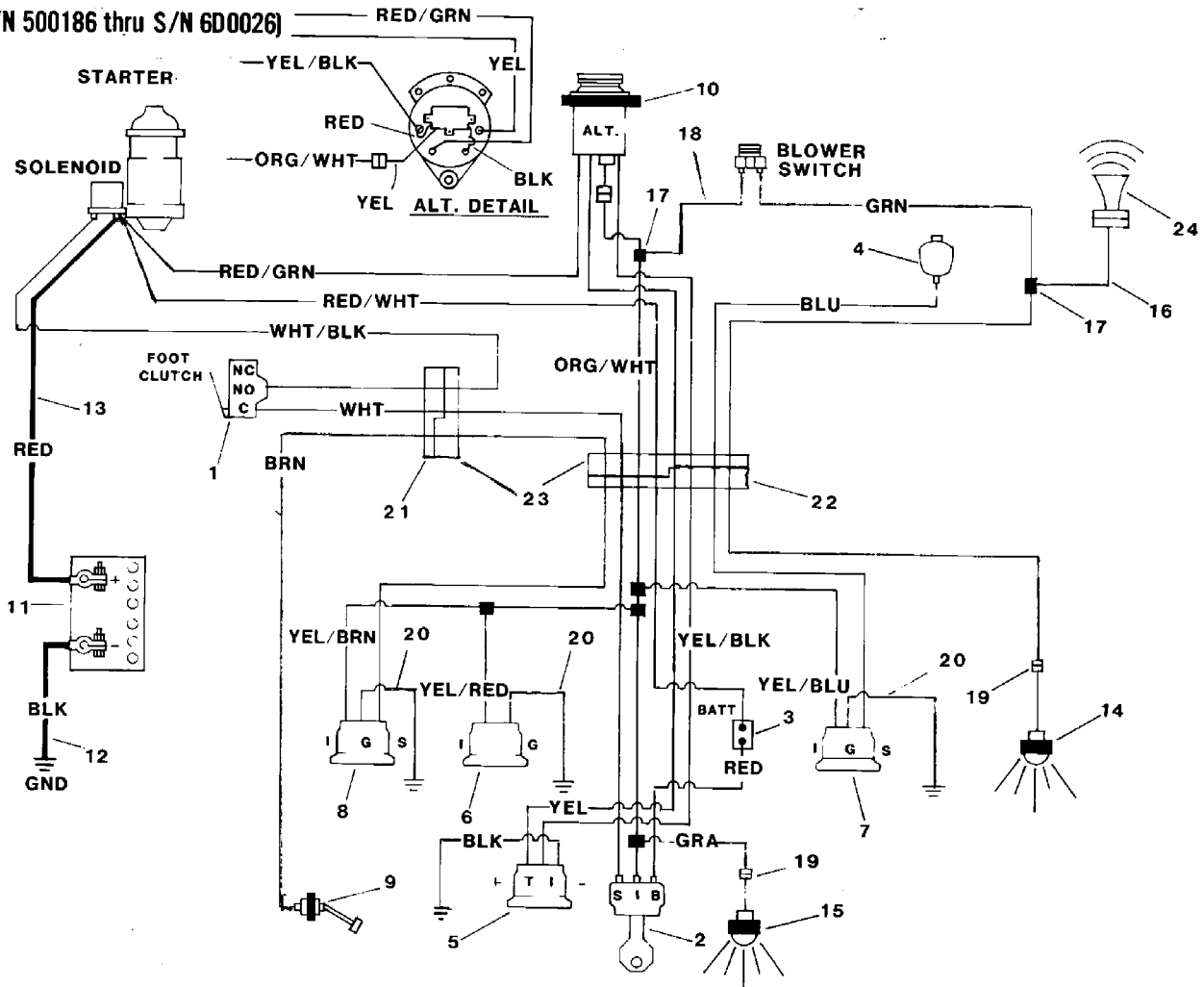
NOTE: YEL/GRN wire in harness is not used.

^{*}Electrical Schematic 050-846.

ELECTRICAL DIAGRAM

DEUTZ ENGINE

(S/N 500186 thru S/N 6D0026)



Ref. No.	Part Number	Qty.	Description
1.	215-046	1	Safety Switch
2.	215-051	1	Ignition Switch
	105-909		Jam Nut
	215-052		Keys (pair)
3.	215-065	1	Circuit Breaker

—Breaker Hardware:

	105-185	2	Bolt (No. 10-24 x 1/2", RD SLT HD)
	105-811	2	Locknut (No. 10-24)

4.	215-113	1	Oil Sender
5.	215-118	1	Tachometer
6.	215-129	1	Voltmeter
7.	215-131	1	Oil Gauge
8.	215-133	1	Fuel Gauge
9.	215-139	1	Fuel Sender
10.	215-156	1	Alternator (#8AR2069F)
	506-001	1	Regulator (#8RF2012A)
11.	215-255	1	Battery (12V/570AMP)
12.	215-306	1	Battery Cable (30" LG)
13.	215-321	1	Battery Cable (60" LG)
	116-193		Terminal Cover
14.	215-443	1	Red Pilot Light
15.	215-445	1	Amber Pilot Light

Ref. No.	Part Number	Qty.	Description
16.	215-467	1	Wire (16 GA x 14")
17.	215-477	2	Quick Connector (16 GA)
18.	215-564	1	Wire (16 GA x 18")
19.	215-584	2	Male Terminal (1/4")
20.	215-617	3	Wire (16 GA x 10")
21.	215-625	1	Frame Harness
22.	215-627	1	Console Harness
23.	215-684	1	Engine Harness

—Harness Hardware:

	105-865	2	Bolt (1/4-NC x 3/4", GD 8)
	105-085	2	Locknut (1/4-NC)
	110-057	2	Clamp

24. 306-601 1 Horn

—Horn Hardware:

	105-003	1	Flange Locknut (5/16-NC)
	105-823	1	Flange Lock Bolt (5/16-NC x 3/4")

Not Shown:

	215-415		Light Kit (optional)
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¹Circuit breaker, hardware and engine harness (ref. no.'s 3 and 23) replaces engine harness with fuse.

²For replacement of alternator (ref. no. 10) refer to ELECTRICAL DIAGRAM — DEUTZ ENGINE — (Begins with S/N 6D0027).

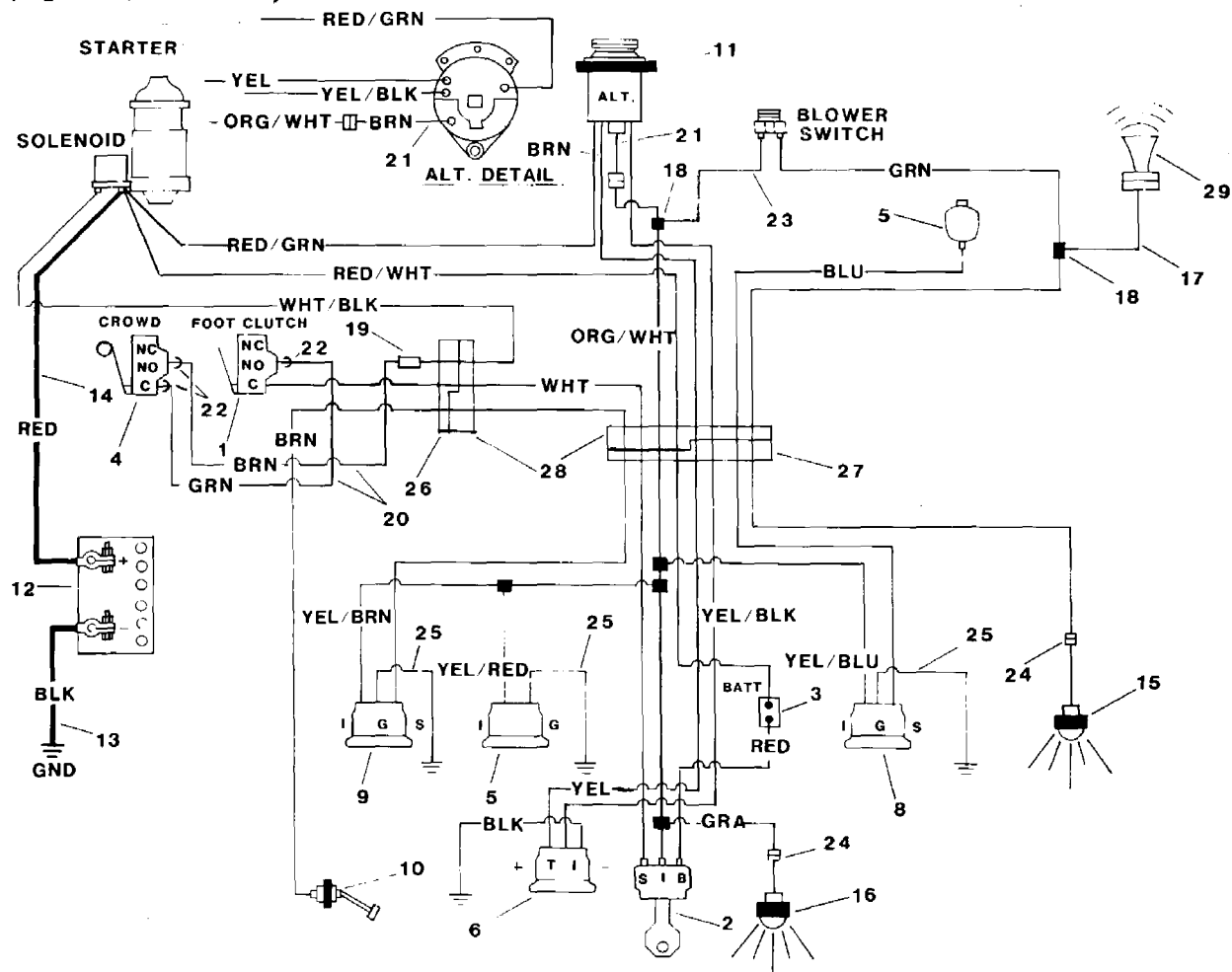
NOTE: YEL/GRN wire in harness is not used.

* Electrical Schematic 050-846

ELECTRICAL DIAGRAM

DEUTZ ENGINE

(Begins with S/N 6D0027)



Ref. No.	Part Number	Qty.	Description
1.	215-046	1	Safety Switch (foot clutch)
2.	215-051	1	Ignition Switch
	105-909		Jam Nut
	215-052		Keys (pair)
3.	215-065		Circuit Breaker
—Breaker Hardware:			
	105-185	2	Bolt (No. 10-24 x 1/2", RD SLT HD)
	105-811	2	Locknut (No. 10-24)
4.	215-087	1	Safety Switch (crowd)
5.	215-113	1	Oil Sender
6.	215-118	1	Tachometer
7.	215-129	1	Voltmeter
8.	215-131	1	Oil Gauge
9.	215-133	1	Fuel Gauge
10.	215-139	1	Fuel Sender
11.	215-161	1	Alternator (#8EA2001FA)
	506-001		Regulator (#8RF2012A)
	506-032		Regulator (#8RC2009A)
12.	215-255	1	Battery (12V/570AMP)
13.	215-306	1	Battery Cable (30" LG)
14.	215-321	1	Battery Cable (60" LG)
	116-193		Terminal Cover
15.	215-443	1	Red Pilot Light
16.	215-445	1	Amber Pilot Light
17.	215-467	1	Wire (16 GA x 14")

Ref. No.	Part Number	Qty.	Description
18.	215-477	2	Quick Connector (16 GA)
19.	215-478	1	Butt Connector (16 GA)
20.	215-492	1	2-Wire (14 GA)—use 66"
21.	215-499	1	Wire (14 GA x 6")
22.	215-530	3	Spade Terminal (No. 10)
23.	215-564	1	Wire (16 GA x 18")
24.	215-584	2	Male Terminal (1/4")
25.	215-617	3	Wire (16 GA x 10")
26.	215-625	1	Frame Harness
27.	215-627	1	Console Harness
28.	215-684	1	Engine Harness
—Harness Hardware:			
	105-865	2	Bolt (1/4-NC x 3/4", GD 8)
	105-085	2	Locknut (1/4-NC)
	110-057	2	Clamp
29.	306-601	1	Horn
—Horn Hardware:			
	105-003	1	Flange Locknut (5/16-NC)
	105-823	1	Flange Lock Bolt (5/16-NC x 3/4")

Not Shown:

215-415 Light Kit (optional)

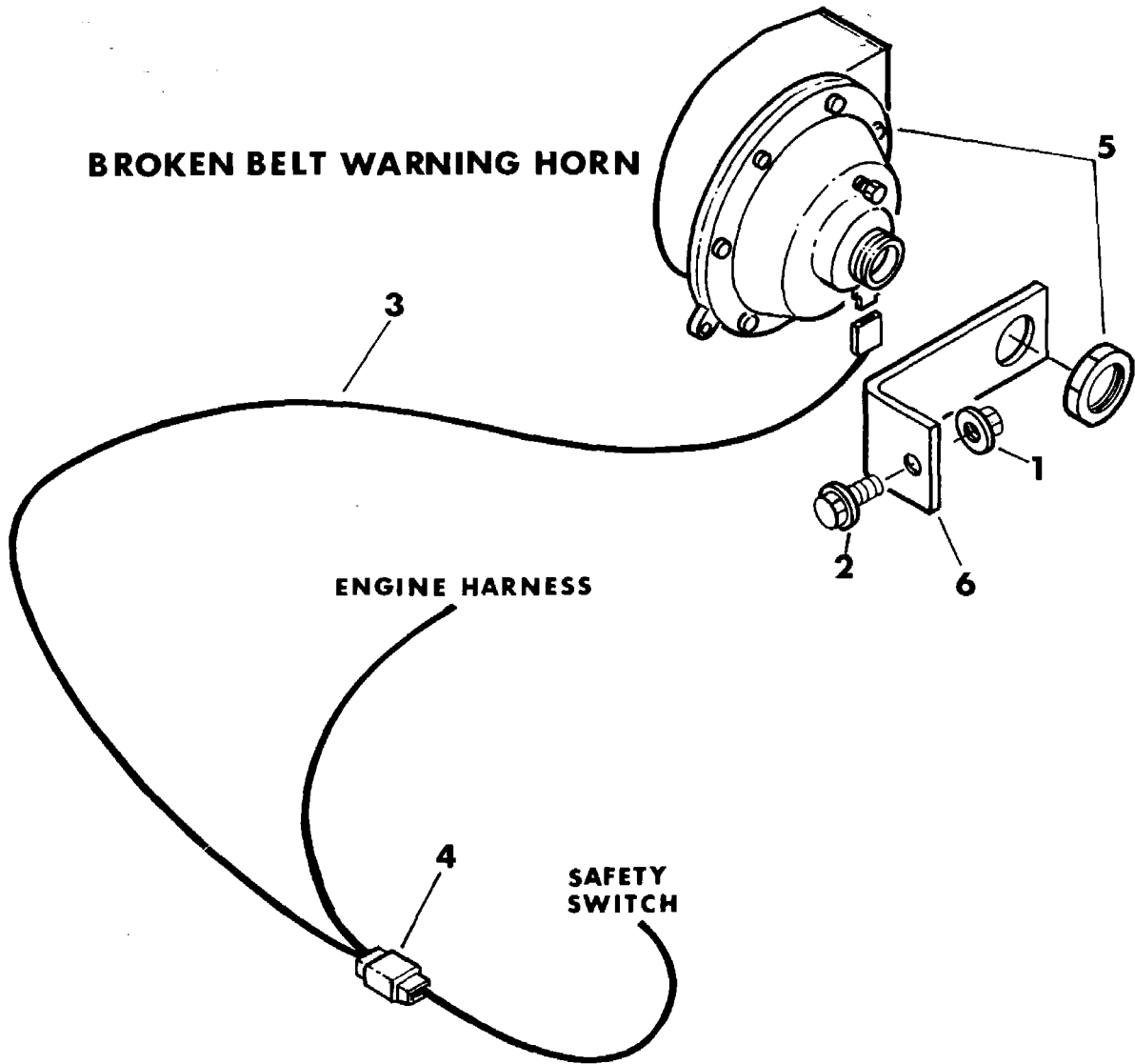
*When replacing alternators that had regulator/ #8RF2012A with alternators using regulator/ #8RC2009A you must also use 6" wire (ref. no. 21).

NOTE: YEL/GRN wire in harness is not used.

* Electrical Schematic 050-846

HORN KIT

BROKEN BELT WARNING HORN



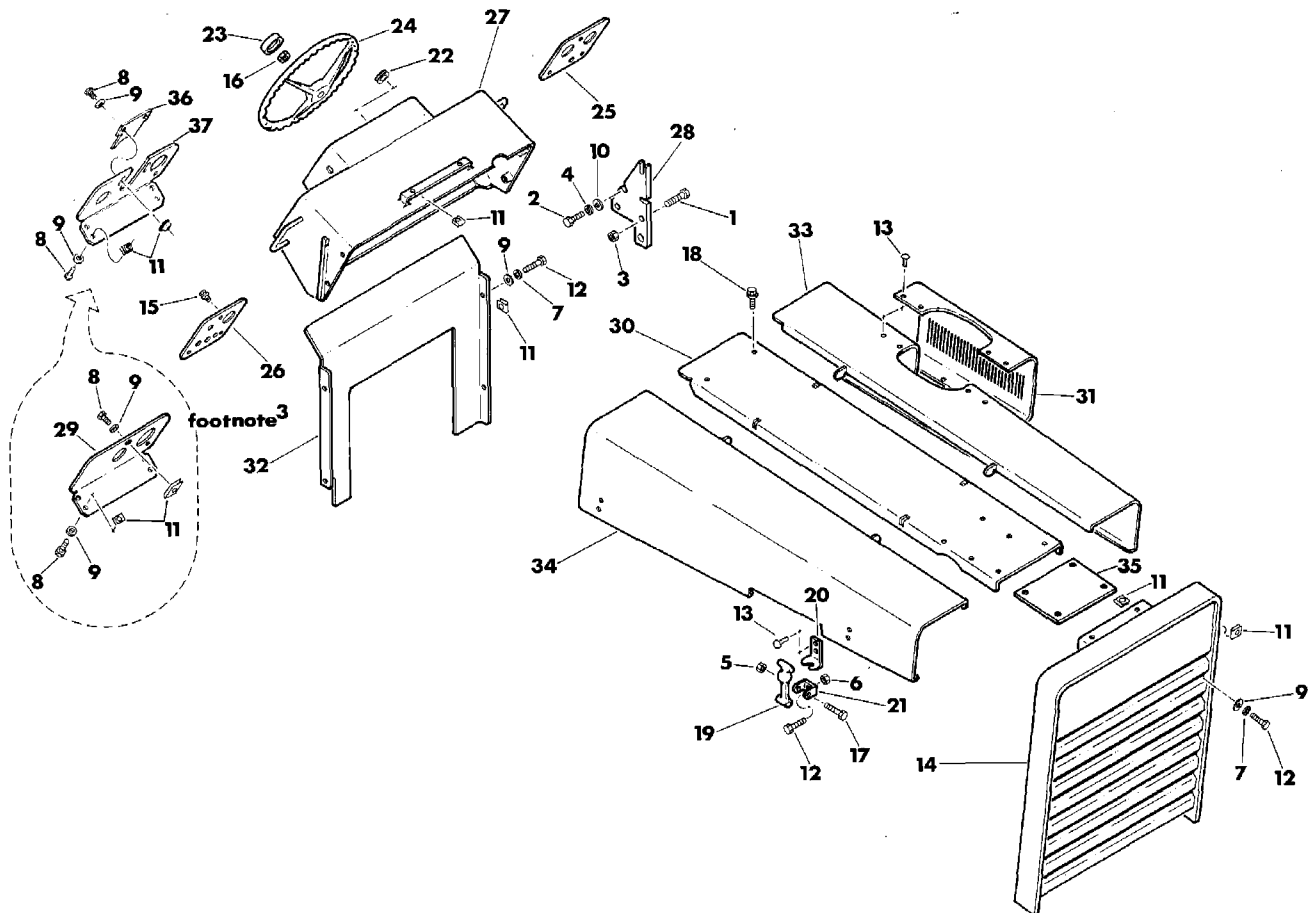
Ref. No.	Part Number	Qty.	Description
	190-307		'Horn Conversion Kit (Incl. ref. no.'s 1 thru 6)
1.	105-003	1	Flange Locknut (5/16-NC)
2.	105-823	1	Flange Lock Bolt (5/16-NC x 3/4")
3.	215-467	1	Wire (16 GA x 14")
4.	215-477	1	Quick Connector (14 & 16 GA)

Ref. No.	Part Number	Qty.	Description
5.	306-601	1	² Horn (Incl. nut)
6.	363-015	1	² Horn Bracket (1/8" THK)

¹Not all parts included in this kit are used in this application. Refer to installation diagram 050-936.

²Horn bracket (ref. no. 6) should be used in place of bracket that comes with horn.

HOOD—GRILLE—CONSOLE

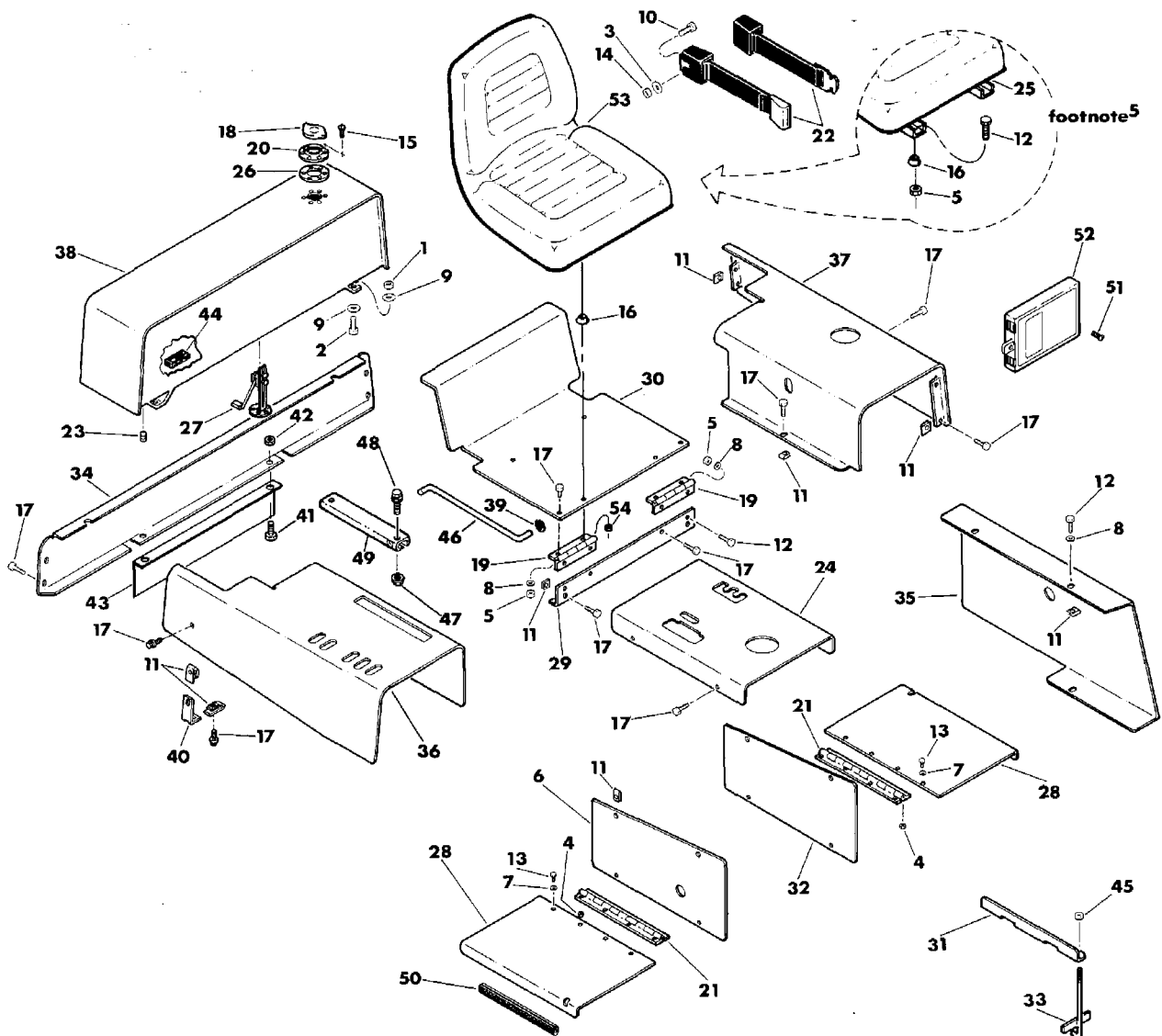


Ref. No.	Part Number	Qty.	Description
1.	105-048	4	Bolt (1/2-NC x 1-1/2")
2.	105-052	4	Bolt (3/8-NC x 1-1/4")
3.	105-065	4	Locknut (1/2-NC)
4.	105-072	4	Lock Washer (3/8")
5.	105-085	4	Locknut (1/4-NC)
6.	105-089	4	Locknut (5/16-NC)
7.	105-091	8	Lock Washer (5/16")—10/Wisc.
8.	105-094	6	Bolt (5/16-NC x 1")
9.	105-117	14	Washer (5/16")
10.	105-118	4	Washer (3/8")
11.	105-841	8	Clip Nut (5/16-NC)
12.	105-160	12	Bolt (5/16-NC x 1-1/4")
13.	110-253	8	Pop Rivet
14.	362-253	1	Grille
15.	105-214	6	Flange Screw (No. 10-32 x 1/2")
16.	105-361	1	Jam Nut (3/16-NEF)
17.	105-818	4	Bolt (1/4-NC x 1-1/2")
18.	105-823	4	Flange Lock Bolt (5/16-NC x 3/4")
19.	110-222	4	Hood Latch
20.	110-223	4	Hood Latch Bracket
21.	110-224	4	Anchor Bracket
22.	115-355	1	Grommet
23.	160-323	1	Steering Wheel Cap
24.	160-338	1	Steering Wheel
25.	312-107	1	Left Console Panel (Perkins and Deutz)
26.	312-112	1	Right Console Panel (Deutz)
	312-113	1	Right Console Panel (Deutz)

Ref. No.	Part Number	Qty.	Description
27.	312-116	1	Console
28.	312-211	2	Console Support
29.	312-131	2	³ Center Dash Panel
30.	312-140	1	⁵ Center Hood (single piece)
	312-141	1	⁵ Center Hood (use with plate)
31.	312-152	1	Hood Cover
	312-270	1	⁴ Hood Cover
32.	312-153	1	Kick Panel
33.	312-156	1	Left Hood
	312-271	1	⁴ Left Hood
34.	312-158	1	Right Hood
	312-261	1	² Right Hood
35.	312-142	1	⁵ Center Hood Plate
36.	312-272	2	³ Center Dash Bracket
37.	312-273	1	³ Center Dash Panel

¹These panels are used when tractor is equipped with an AutoCrowd control.
²This style of hood is used with remote engine controls associated with backhoes.
³Single piece center dash panel (ref. no. 29) is replaced by bracket and panel (ref. no.'s 36 and 37).
⁴This left hood and hood cover are used with spark arresting mufflers — "Telecom".
⁵Single piece hood (ref. no. 30) is replaced by center hood and plate (ref. no.'s 30 and 35).

FUEL TANK—SEAT—COVERS



Ref. No.	Part Number	Qty.	Description
1.	105-047	4	Locknut (3/8-NC)
2.	105-052	4	Bolt (3/8-NC x 1-1/4")
3.	105-059	2	² Washer (7/16")
	105-073	2	³ Lock Washer (7/16")
4.	105-085	16	Locknut (1/4-NC)
5.	105-092	10	Nut (5/16-NC)
6.	362-252	1	Right Transmission Panel
7.	105-095	16	Washer (1/4")
8.	105-091	13	Lock Washer (5/16")
9.	105-118	8	Washer (3/8")

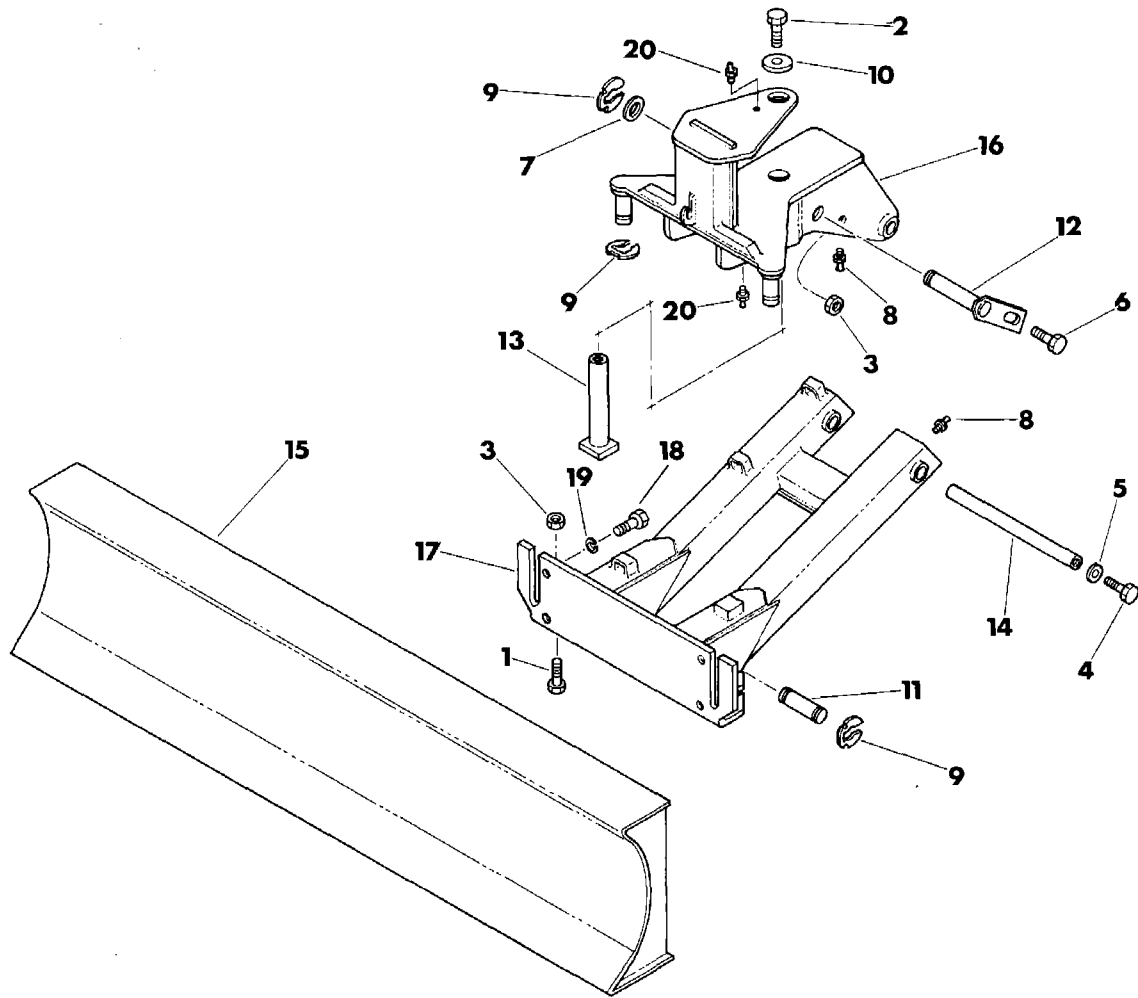
Ref. No.	Part Number	Qty.	Description
10.	105-132	2	² Bolt (7/16-NC x 1-1/2")
	105-187	2	³ Bolt (7/16-NF x 1-1/4")
11.	105-841	26	Clip Nut (5/16-NC)
12.	105-160	9	⁴ Bolt (5/16-NC x 1-1/4")
13.	105-174	16	Bolt (1/4-NC x 1/2")
14.	105-151	2	² Locknut (7/16-NC)
	105-120	2	³ Locknut (7/16-NF)
15.	105-214	6	Flange Screw (No. 10-32 x 1/2")
16.	105-267	4	Cup Washer (5/16")
17.	105-823	27	Flange Lock Bolt (5/16-NC x 3/4")

(Continued on following page.)

FUEL TANK—SEAT—COVERS (Cont'd.)

Ref. No.	Part Number	Qty.	Description	Ref. No.	Part Number	Qty.	Description
18.	110-010	1	Fuel Cap	37.	312-193	1	Left Fender
19.	110-043	2	Hinge	38.	360-796	1	Fuel Tank
20.	110-132	1	Filler Neck	39.	115-477	1	External Grip Ring
21.	110-218	2	Step Lid Hinge	40.	312-275	1	Fender Mount Bracket
22.	110-258	1	Seat Belt Kit	41.	105-031	2	Bolt (3/8-NC x 1")
23.	115-153	1	Pipe Plug (1/4")	42.	105-047	2	Locknut (3/8-NC x 1")
24.	362-251	1	Transmission Cover	43.	312-253	1	Rear Panel Extension
25.	115-418	1	⁵ Seat	44.	110-130	1	Magnet
26.	165-626	1	Filler Neck Gasket	45.	105-152	2	Nut (1/4-NF)
27.	215-139	1	Fuel Sender	46.	300-832	1	Prop Bar
	105-214		Flange Screw (No. 10-32 x 1/2")	47.	105-832	2	¹ Flange Locknut (1/4-NC)
	165-704		Gasket	48.	105-836	2	¹ Flange Lock Bolt (1/4-NC x 1/2")
	506-021		Nut (No. 10-32)	49.	300-787	1	¹ Rod Guide
28.	301-514	2	Battery Box Cover Plate	50.	115-686	2	Grommet Edging (use 12")
29.	312-125	1	Seat Support	51.	110-253	3	Pop Rivet
30.	312-128	1	¹ Seat Panel	52.	250-622	1	Manual Compartment
31.	312-135	1	Battery Strap (for two batteries)	53.	115-421	1	⁶ Seat
	312-136	1	Battery Strap (for single battery)	54.	105-092	4	⁶ Nut (5/16-NC)
32.	362-250	1	Left Transmission Panel				¹ When replacing seat panel, which has welded rod guide, order seat panel, rod guide and hardware (ref. no.'s 30 and 47 thru 49).
33.	312-149	2	Battery Hold Down				² Early style seat belt hardware.
34.	312-151	1	Rear Panel				³ Present production seat belt hardware.
35.	312-174	1	Right Angle Drive Cover				⁴ This bolt is used when slides on seats do not have studs.
36.	312-186	1	Right Fender (for 6 spool hydraulic control valve)				⁵ Early style seat (ref. no. 25) has no provision for operator presence switch. See footnote 6.
	312-191	1	Right Fender (for 8 spool hydraulic control valve)				⁶ Present production seat (ref. no. 53) has mounting holes for operator presence switch and studs which use nut (ref. no. 54).

BACKFILL BLADE



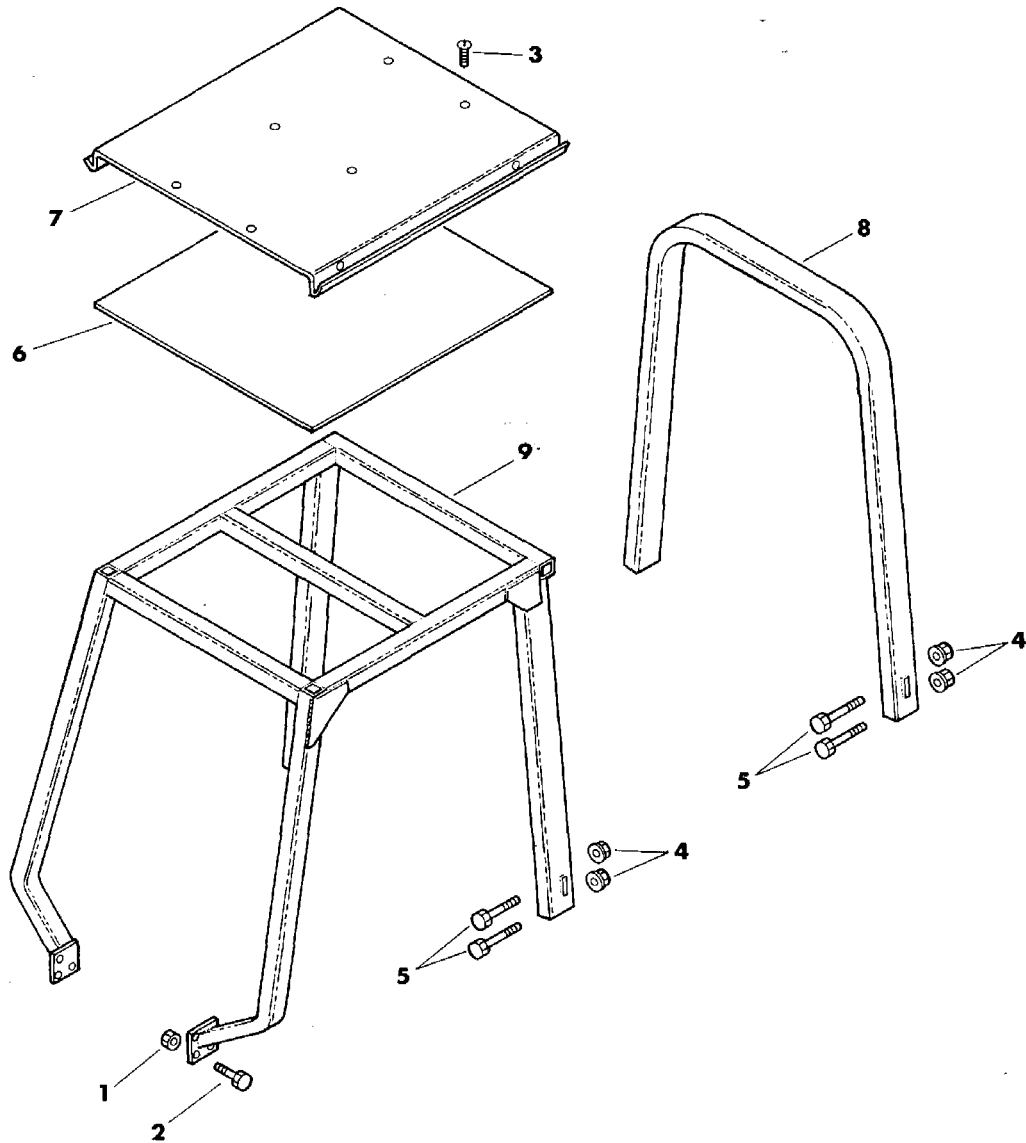
Ref. No.	Part Number	Qty.	Description
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1.	105-320	2	Bolt (3/4-NC x 2-1/4")
2.	105-369	1	Bolt (3/4-NF x 1-3/4", Nylok)
3.	105-372	3	Locknut (3/4-NC)
4.	105-452	2	Bolt (3/4-NC x 2")
5.	105-460	2	Washer (3/4")
6.	105-499	1	Bolt (3/4-NC x 1-3/4")
7.	110-003	AR	Machinery Bushing
8.	115-009	3	Zerk (1/4-NF, STR, XLG)
9.	115-483	5	External Clip Ring
10.	180-064	1	Washer Spacer
11.	183-139	1	Cylinder Rod Pin

Ref. No.	Part Number	Qty.	Description
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12.	183-236	1	Cylinder Pin
13.	183-238	1	Swing Pin
14.	183-240	1	Pivot Pin
15.	301-119	1	Backfill Blade
	302-613	1	'72" Tilt Backfill Blade
16.	301-785	1	Backfill Swing
17.	301-797	1	Backfill Lift Arm
18.	105-048	4	'Bolt (1/2-NC x 1-1/2")
19.	105-070	4	'Lock Washer (1/2")
20.	115-009	2	Zerk (1/4-NF, STR, XLG)—early style
	115-001	2	Zerk (1/8-NPT, STR)

¹These parts are used with 72" tilt backfill blade.

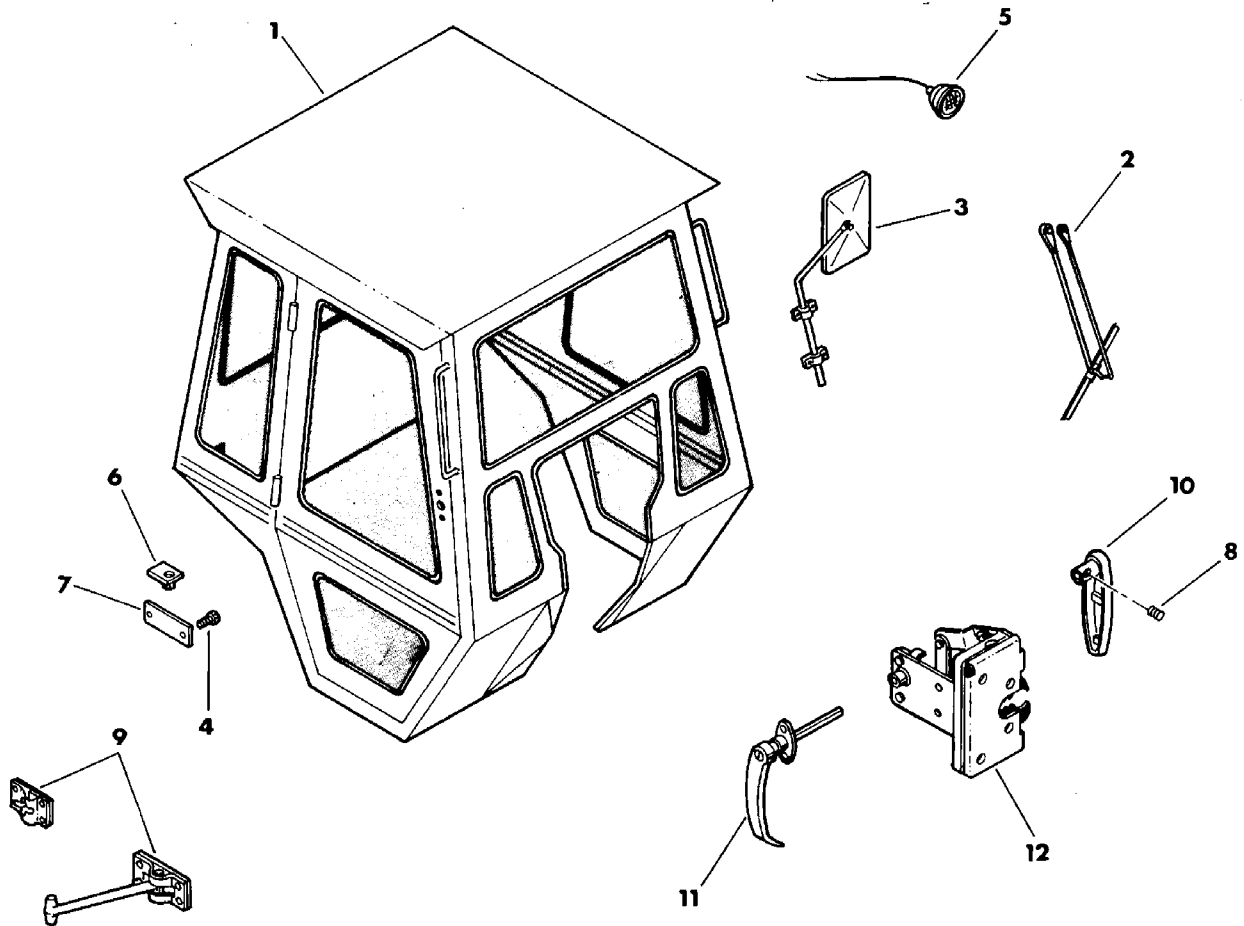


Ref. No.	Part Number	Qty.	Description
	190-357		12-Post R.O.P.S. Conversion Kit (Incl. ref. no.'s 4, 5 and 8)
	190-358		24-Post R.O.P.S. Conversion Kit (Incl. ref. no.'s 1 thru 7 and 9)
1.	105-065	6	Locknut (1/2-NC)
2.	105-066	6	Bolt (1/2-NC x 1-3/4")
3.	105-221	10	Screw (No. 14 x 1-1/2")
4.	105-340	4	Flange Locknut (3/4-NC)

Ref. No.	Part Number	Qty.	Description
5.	105-383	4	Bolt (3/4-NC x 6", GD 8)
6.	116-157	1	Headliner Insulation
7.	306-136	1	R.O.P.S. Top
8.	306-172	1	Two Post R.O.P.S. Frame
9.	306-174	1	Four Post R.O.P.S. Frame

¹Refer to installation diagram 050-095.
²Refer to installation diagram 050-134.

CAB



Ref. No.	Part Number	Qty.	Description
1.	100-243		⁶ Cab (Incl. ref. no.'s 4, 6 7 and 8 thru 12)
2.	100-245	1	¹ Electric Windshield Wiper
	100-246	1	² Manual Windshield Wiper
	100-248	1	⁴ Windshield Washer
3.	100-247	AR	³ Rear View Mirror
4.	105-214	2	Screw (No. 10-32 x 1/2")
5.	215-426	AR	⁵ Working Light (round)
	217-007	AR	⁵ Working Light (rectangular)
6.	105-165	1	Weld Nut (3/8-NC)
	105-826	1	Flange Lock Bolt (3/8-NC x 1")
7.	308-234	1	Tab
8.	105-712		Setscrew (1/4-NC x 1/4")
9.	502-024	2	Door Holder

Ref. No.	Part Number	Qty.	Description
10.	502-029	2	Inside Door Handle (Incl. ref. no. 8)
11.	502-030	2	Outside Door Handle
	502-013		Keys
12.	502-032	1	Right Door Latch
	502-031	1	Left Door Latch (not shown)

Not Shown:

215-068	Toggle Switch
502-028	Cab Blower

¹Mounts in holes over front windshield.

²Mounts in holes under front windshield.

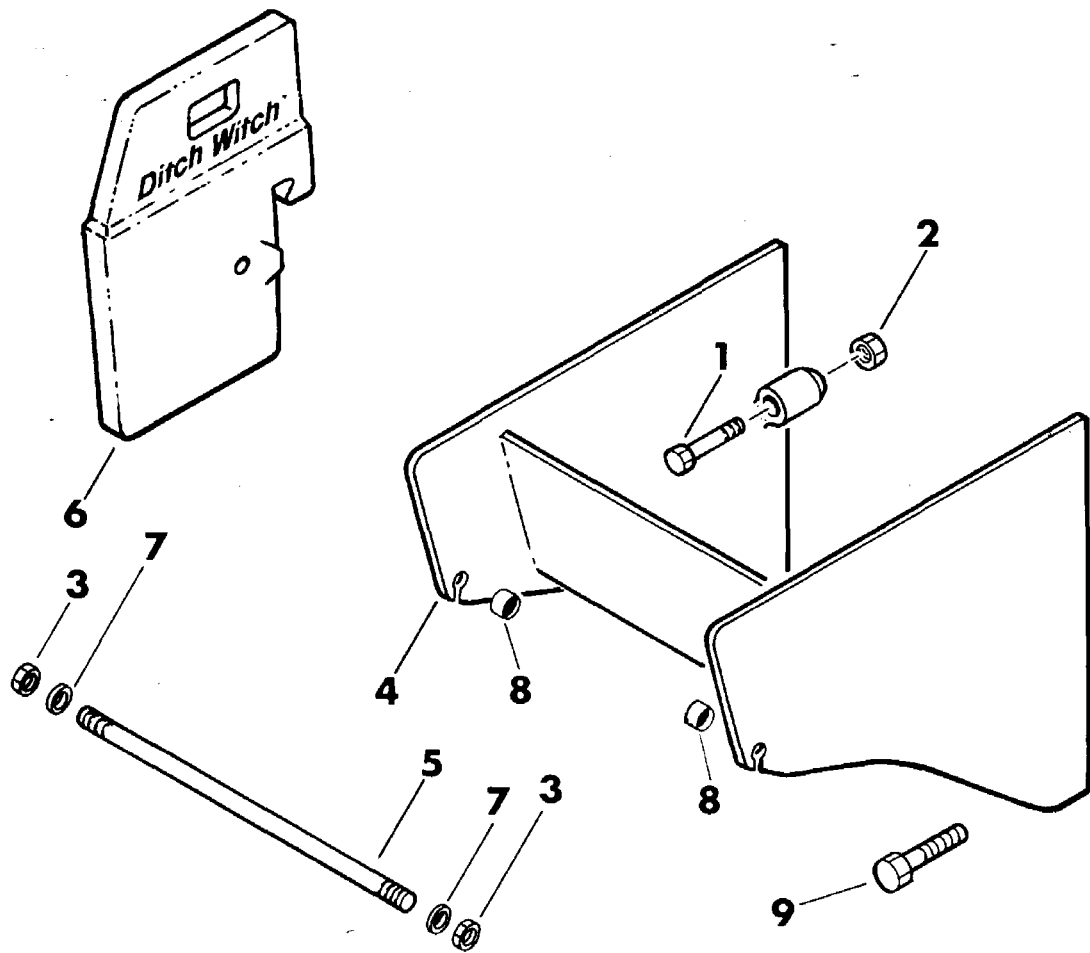
³Mounts on either side of cab.

⁴Switch operates both washer and electric wiper.

⁵Mounts on any front or rear corner of cab. Front and rear lights require separate switch.

⁶Refer to installation diagram 050-109.

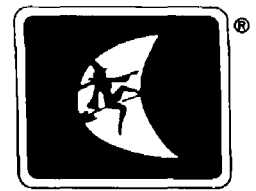
FRONT COUNTERWEIGHT



Ref. No.	Part Number	Qty.	Description
	100-260		Counterweight Mount Kit (Incl. ref. no.'s 1 thru 5, 7, 8 and 9)
1.	105-347	2	1 Bolt (7/8-NC x 7")—used on 3.5" LG upper mounting bosses
	105-479	2	1 Bolt (7/8-NC x 8-1/2")—used on 5.13" LG upper mounting bosses
2.	105-348	4	Nut (7/8-NC)
3.	105-351	2	Nut (3/4-NC)
4.	302-550	1	1 Counterweight Frame

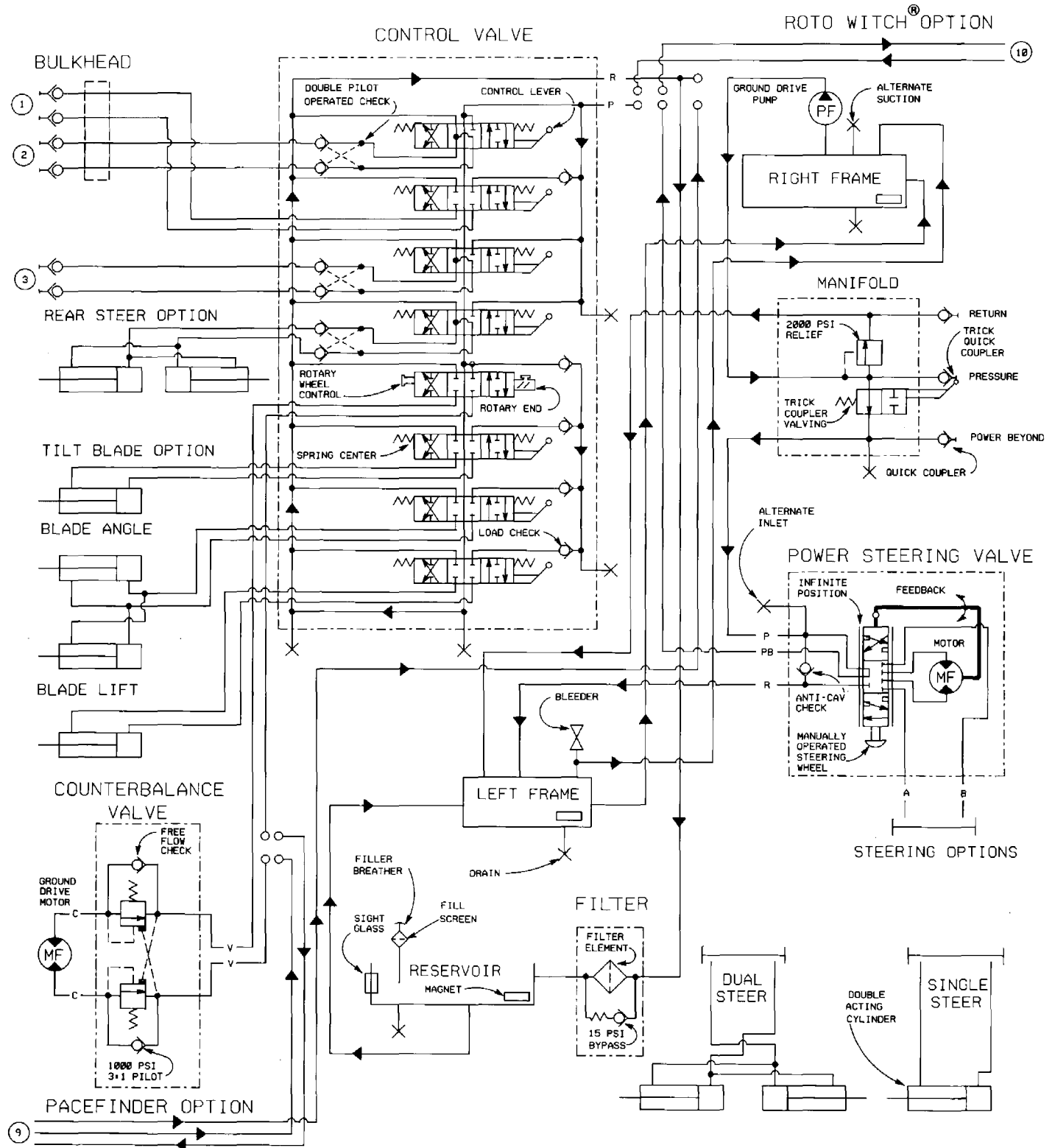
Ref. No.	Part Number	Qty.	Description
5.	302-549	1	Weight Mount Rod
6.	375-080	15	Weight Casting (100 LB)
7.	105-384	2	Washer (3/4")—early style
	105-422	2	Washer (3/4")
8.	181-398	2	Spacer
9.	105-347	2	1 Bolt (7/8-NC x 7")—used on 3.5" LG lower mounting bosses

¹Early style counterweight frames had upper mounting bosses that were 3.5" LG and used 7" bolt. Present production frames have 5.13" LG bosses and require 8-1/2" LG bolts.



HYDRAULIC SCHEMATIC

For Models 4010 And 5010



NOTE: Reference numbers refer to connections on attachment hydraulic schematics.

SPECIFICATIONS

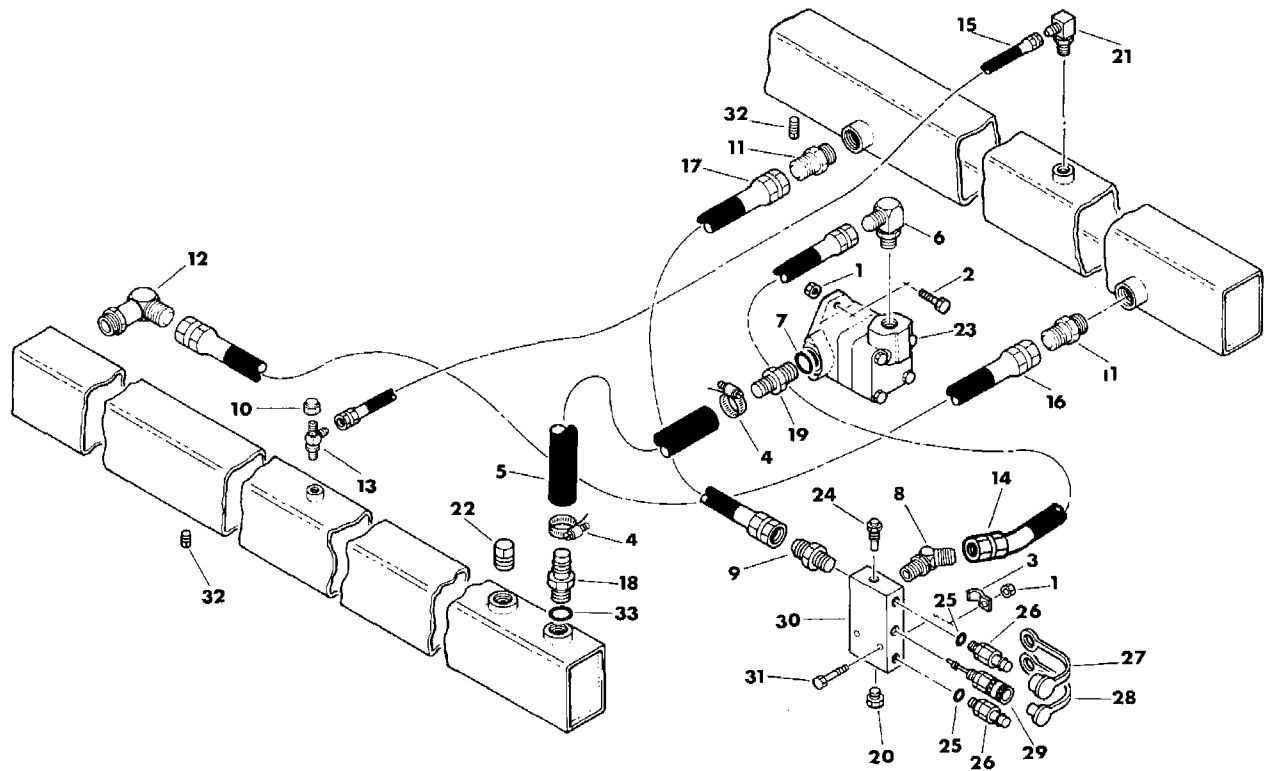
ENGINE		PUMP				MOTOR	
MFG (No Load)	RPM	TYPE	RPM	GPM	DISPLACEMENT	TYPE	DISPLACEMENT
Continental (Gas)	2550	Ground Drive	2550	13.1	1.19 in. ³	Ground Drive Steering	18.7 in. ³ 7.42 in. ³
Deutz (Diesel)	2550	Ground Drive	2550	13.2	1.20 in. ³	Ground Drive Steering	18.7 in. ³ 7.42 in. ³
Perkins (Diesel)	2550	Ground Drive	2550	15.3	1.39 in. ³	Ground Drive Steering	18.7 in. ³ 7.42 in. ³
Wisconsin (Gas)	2550	Ground Drive	2550	13.2	1.20 in. ³	Ground Drive Steering	18.7 in. ³ 7.42 in. ³

PUMP HYDRAULICS

DEUTZ ENGINE—w/13 spline pump

(4010: Ends with S/N 409945)

(5010: Ends with S/N 500218)



Ref. No.	Part Number	Qty.	Description
1.	105-047	4	Locknut (3/8-NC)
2.	105-052	2	Bolt (3/8-NC x 1-1/4")
3.	110-097	1	Clamp (1/2")
4.	110-250	2	Clamp (1-1/4" to 2-1/8")
5.	116-080	1	Suction Hose (1-1/4" ID)—use 13"
6.	154-014	1	Adapter Connector (1-1/16-JIC M x 1-1/16- SAE M x 90°)
	155-709		O-Ring (-912)
7.	155-748	1	O-Ring (-916)
8.	154-047	1	Adapter Connector (1-1/16- SAE M x 1-1/16-JIC M x 45°)
	155-709		O-Ring (-912)

Ref. No.	Part Number	Qty.	Description
9.	154-037	1	Adapter Connector (1-1/16- SAE M x 1-5/16-JIC M, STR)
	155-709		O-Ring (-912)
10.	154-085	1	Cap (7/16-JIC FM)
11.	154-099	2	Adapter Connector (1-5/16- JIC M x 1-5/16- SAE M, STR)
	155-748		O-Ring (-916)

(Continued on following page.)

PUMP HYDRAULICS (Cont'd.)

DEUTZ ENGINE—w/13 spline pump

(4010: Ends with S/N 409945)

(5010: Ends with S/N 500218)

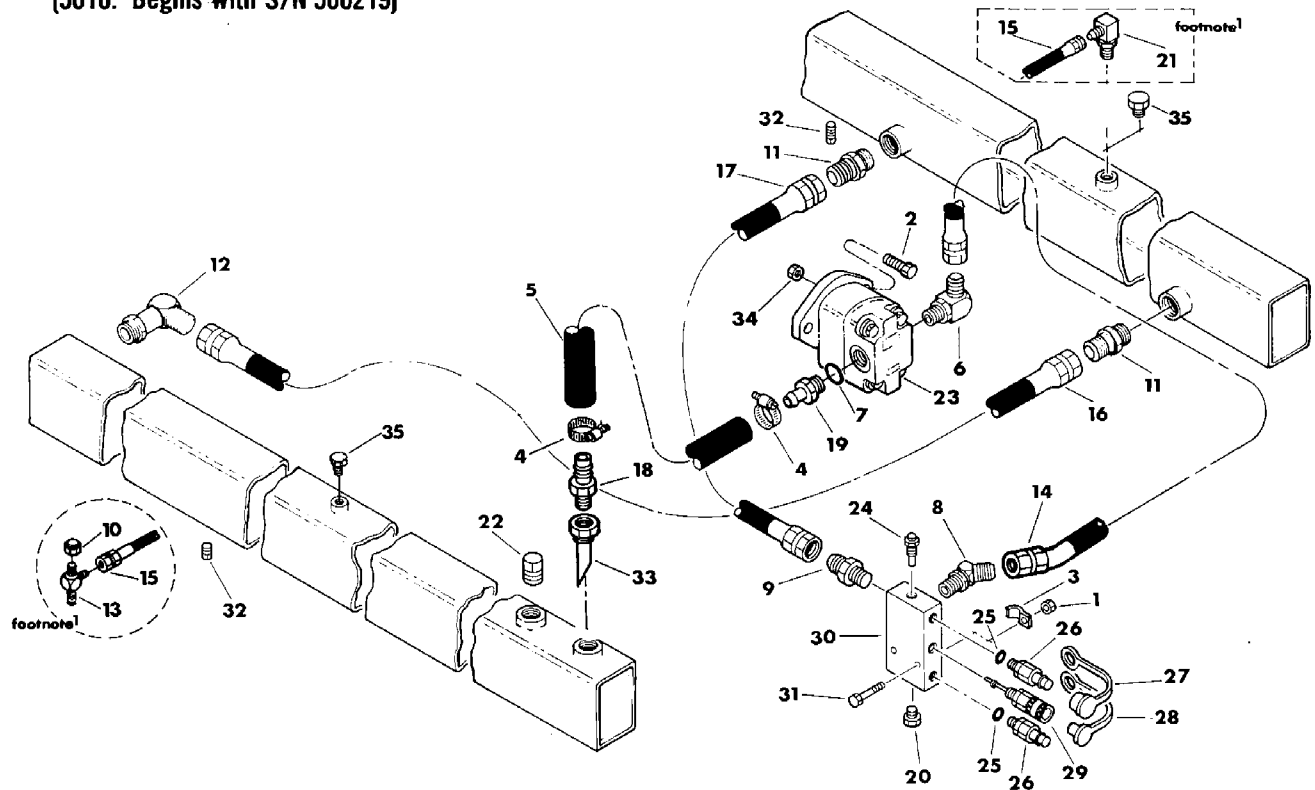
Ref. No.	Part Number	Qty.	Description	Ref. No.	Part Number	Qty.	Description
12.	154-100	1	Adapter Connector (1-5/16-JIC M x 1-5/16- SAE M x 90°)	22.	155-144	1	Plug (1-5/8- SAE M)
	155-748		O-Ring (-916)		155-702		O-Ring (-920)
13.	154-129	1	'Run Tee (7/16-JIC M x 7/16- JIC M x 7/16- SAE M)	23.	155-537	1	Hydraulic Pump
	155-760		O-Ring (-904)	24.	155-630	1	Relief Cartridge (2000 PSI)
14.	154-560	1	Hose (1-1/16-JIC FM x 18", 2250 PSI)	25.	155-709	2	O-Ring (-912)
15.	154-565	1	Hose (7/16-JIC FM x 23-1/2", 2750 PSI)	26.	155-933	2	Quick Coupler Adapter (1-1/16- SAE M)
16.	154-568	1	Hose (1-5/16-JIC FM x 43", 2000 PSI)		155-709		O-Ring (-912)
17.	154-569	1	Hose (1-5/16-JIC FM x 37-1/2", 2000 PSI)	27.	155-935	2	Dust Cap
18.	155-004	1	Slip-On Coupler (1-5/8- SAE M x 1-1/4" OD, STR)	28.	155-936	1	Dust Plug
	155-702		O-Ring (-920)	29.	155-958	1	Trick Quick Coupler (1-1/16- SAE M)
19.	155-047	1	Slip-On Coupler (1-5/16- SAE M x 1-1/4" OD, STR)	30.	155-959	1	Hydraulic Manifold
	155-748		O-Ring (-916)	31.	500-003	2	Bolt (3/8-NC x 2-3/4")
20.	155-074	1	Plug (3/4- SAE M)	32.	500-302	2	Plug (1-1/16- SAE M)
	155-706		O-Ring (-908)		155-709		O-Ring (-912)
21.	155-091	1	'Adapter Connector (7/16-JIC M x 7/16- SAE M x 90°)	33.	155-702	1	O-Ring (-920)
	155-760		O-Ring (-904)				

PUMP HYDRAULICS

DEUTZ ENGINE—w/9 spline pump

(4010: Begins with S/N 409946)

(5010: Begins with S/N 500219)



Ref. No.	Part Number	Qty.	Description
1.	105-047	2	Locknut (3/8-NC)
2.	105-128	2	Bolt (7/16-NC x 1-1/4")
3.	110-097	1	Clamp (1/2")
4.	110-250	2	Clamp (1-1/4" to 2-1/8")
5.	116-080	13"	Suction Hose (1-1/4" ID)
6.	154-049	1	Adapter Connector (1-1/16-JIC M x 7/8- SAE M x 90°)
	155-707		O-Ring (-910)
7.	155-709	1	O-Ring (-912)
8.	154-047	1	Adapter Connector (1-1/16- SAE M x 1-1/16-JIC M x 45°)
	155-709		O-Ring (-912)

Ref. No.	Part Number	Qty.	Description
9.	154-037	1	Adapter Connector (1-1/16- SAE M x 1-5/16-JIC M, STR)
	155-709		O-Ring (-912)
10.	154-085	1	Cap (7/16-JIC FM)
11.	154-099	2	Adapter Connector (1-5/16- JIC M x 1-5/16- SAE M, STR)
	155-748		O-Ring (-916)

(Continued on following page.)

PUMP HYDRAULICS (Cont'd.)

DEUTZ ENGINE—w/9 spline pump

(4010: Begins with S/N 409946)

(5010: Begins with S/N 500219)

Ref. No.	Part Number	Qty.	Description
12.	154-100	1	Adapter Connector (1-5/16-JIC M x 1-5/16- SAE M x 90°)
	155-748		O-Ring (-916)
13.	154-129	1	¹ Run Tee (7/16-JIC M x 7/16- SAE M)
	155-760		O-Ring (-904)
14.	154-570	1	Hose (1-1/16-JIC FM x 28", 2250 PSI)
15.	154-565	1	¹ Hose (7/16-JIC FM x 23-1/2", 2750 PSI)
16.	154-568	1	Hose (1-5/16-JIC FM x 43", 2000 PSI)
17.	154-569	1	Hose (1-5/16-JIC FM x 37-1/2", 2000 PSI)
18.	155-004	1	Slip-On Coupler (1-5/8- SAE M x 1-1/4" OD, STR)
	155-702		O-Ring (-920)
19.	155-045	1	³ Slip-On Coupler (1-1/16- SAE M x 1-1/4" OD, STR)—less o-ring
	155-047	1	⁴ Slip-On Coupler (1-5/16- SAE M x 1-1/4" OD, STR)
	155-748		O-Ring (-916)
20.	155-074	1	Plug (3/4- SAE M)
	155-706		O-Ring (-908)
21.	155-091	1	¹ Adapter Connector (7/16- JIC M x 7/16- SAE M x 90°)
	155-760		O-Ring (-904)
22.	155-144	1	¹ Plug (1-5/8- SAE M)
	155-702		O-Ring (-920)
	155-177	1	² Plug (1-7/8- SAE M)
	157-001		O-Ring (-924)
23.	155-545	1	³ Hydraulic Pump (9 spline)
	500-463		Seal Repair Kit
	158-305	1	⁴ Hydraulic Pump (9 spline)
	500-470		Seal Repair Kit
24.	155-630	1	Relief Cartridge (2000 PSI)
25.	155-709	2	O-Ring (-912)

Ref. No.	Part Number	Qty.	Description
26.	155-933	2	Quick Coupler Adapter (1-1/16- SAE M)
	155-709		O-Ring (-912)
27.	155-935	2	Dust Cap
28.	155-936	1	Dust Plug
29.	155-958	1	Trick Quick Coupler (1-1/16- SAE M)
30.	155-959	1	Hydraulic Manifold
31.	500-003	2	Bolt (3/8-NC x 2-3/4")
32.	500-302	2	Plug (1-1/16- SAE M)
	155-709		O-Ring (-912)
33.	150-964	1	² Suction Tube (1-7/8- SAE M x 1-5/8- SAE FM)
	157-001		O-Ring (-924)
34.	105-151	2	Locknut (7/16- NC)
35.	155-125	2	² Plug (7/16- SAE M)
	155-760		O-Ring (-904)

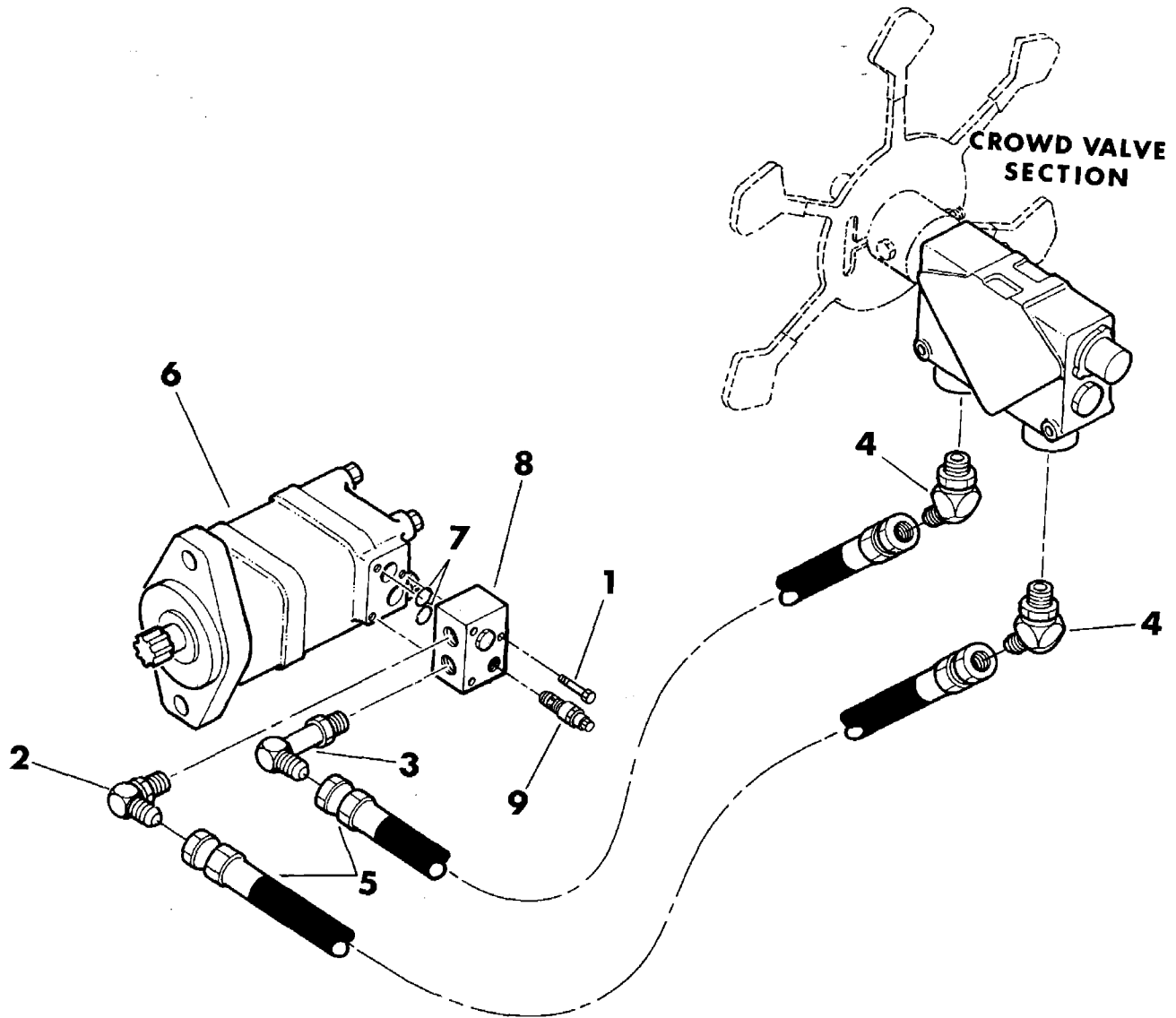
¹Early style tube bleeding system using single cap.

²Tube bleeding system using two plugs.

³S/N 409946 thru S/N 6B1551 on 4010 and S/N 500219 thru S/N 6B1551 on 5010. Parts associated with 9 spline Rexroth hydraulic pumps which are no longer available. See footnote 4.

⁴Begins with S/N 6B1552 on 4010 and 5010. Parts associated with 9 spline Cessna hydraulic pumps. When replacing pumps (Rexroth to Cessna), a new slip-on coupler (ref. no. 19) and u-joint (see DEUTZ ENGINE) must be used.

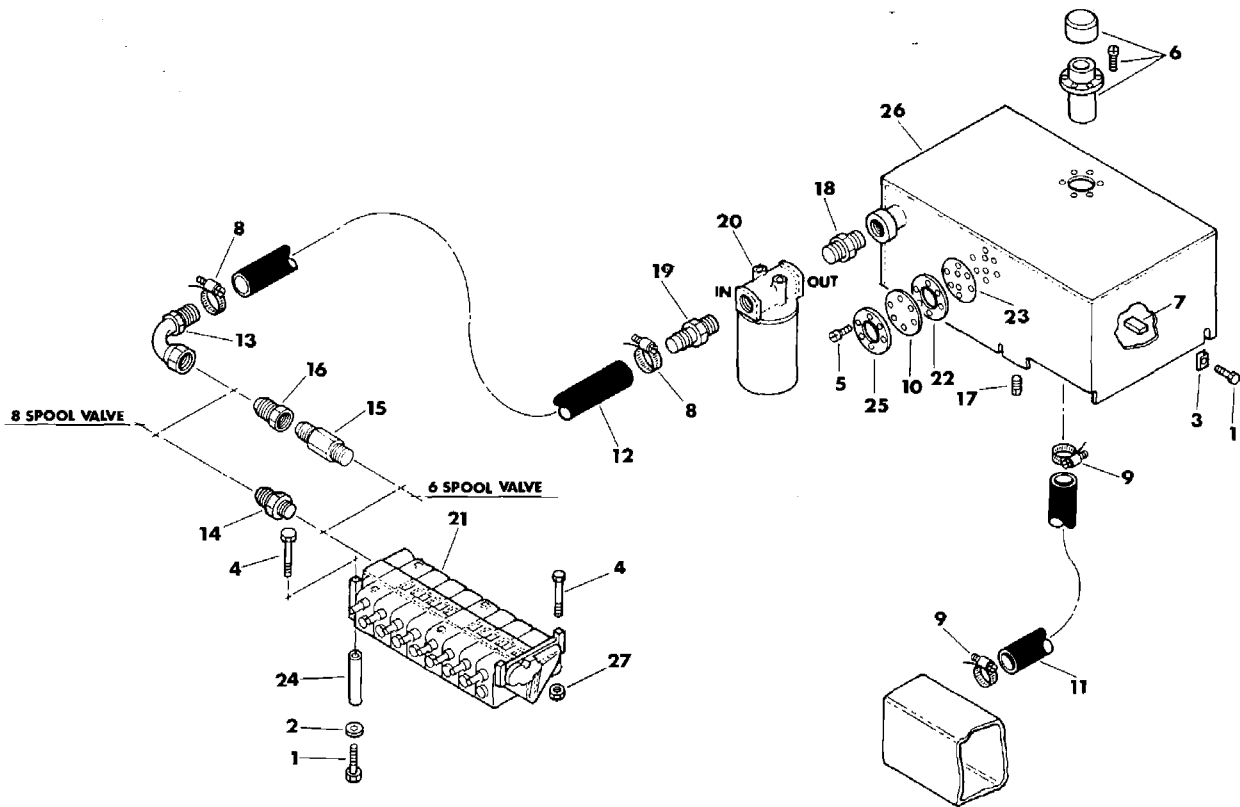
HYDRAULIC MOTOR HYDRAULICS



Ref. No.	Part Number	Qty.	Description
1.	105-281	3	Bolt (3/8-NC x 2-1/2", GD 8, ALN SOC HD)
2.	154-074	1	Adapter Connector (3/4-JIC M x 3/4-SAE M x 90°)
	155-706		O-Ring (-908)
3.	154-096	1	Adapter Connector (3/4-JIC M x 3/4-SAE M x 90°, XLG)
	155-706		O-Ring (-908)
4.	154-127	2	Adapter Connector (7/8-SAE M x 3/4-JIC M x 45°)
	155-707		O-Ring (-910)

Ref. No.	Part Number	Qty.	Description
5.	154-567	2	Hose (3/4-JIC FM x 45", 2000 PSI)
6.	155-567	1	Hydraulic Motor
7.	155-776	2	O-Ring (2-117)
8.	155-981	1	Counterbalance Manifold (Incl. ref. no. 7)
9.	500-372	2	Counterbalance Cartridge Kit
	500-373		Seal Repair Kit

FILTER, RESERVOIR and CONTROL VALVE HYDRAULICS



Ref. No.	Part Number	Qty.	Description
1.	105-094	4	Bolt (5/16-NC x 1")
2.	105-117	1	Washer (5/16")
3.	105-137	3	Clip Nut (5/16-NC)
4.	105-178	3	Bolt (5/16-NC x 2-1/2")
5.	105-184	6	Screw (No. 10-24 x 3/4")
6.	110-008	1	Filler Breather
	165-626		Gasket
	105-214		Flange Screw (No. 10-32 x 1/2")
7.	110-130	1	Magnet
8.	110-213	2	Clamp (1-3/8")—early models
	110-353	2	Clamp (3/4" to 1-1/2")
9.	110-250	2	Clamp (1-1/4" to 2-1/8")
10.	115-691	1	Oil Level Window
11.	116-047	1	Suction Hose (1-1/2" ID)—use 25"
12.	116-094	1	Hose (1" ID)—use 20"
13.	154-002	1	Slip-On Coupler (1-5/16-JIC FM x 1" OD x 90°)
14.	154-037	1	Adapter Connector (1-1/16-SAE M x 1-5/16-JIC M, STR)
	155-709		O-Ring (-912)
15.	154-130	1	Adapter Connector (1-1/16-SAE M x 1-1/16-JIC M, STR, XLG)
	155-709		O-Ring (-912)
16.	154-131	1	Adapter Bushing (1-1/16-JIC FM x 1-5/16-JIC M, STR)
17.	155-074	1	Plug (3/4-SAE M)
	155-706		O-Ring (-908)

Ref. No.	Part Number	Qty.	Description
18.	155-152	1	Adapter Connector (1-1/16-SAE M x 1-1/16-SAE M, STR)
	155-709		O-Ring (-912)
19.	155-161	1	Slip-On Coupler (1-1/16-SAE M x 1" OD, STR)
	155-709		O-Ring (-912)
20.	155-930	1	Hydraulic Oil Filter
	155-910		Filter Element
21.	158-508	1	Hydraulic Control Valve (6 spool)
	190-362		6 Spool Hydraulic Control Valve Conversion Kit
	158-509	1	Hydraulic Control Valve (8 spool)
	190-363		8 Spool Hydraulic Control Valve Conversion Kit
22.	165-626	1	Filler Neck Gasket
23.	165-668	1	Sight Glass Gasket
24.	183-267	1	Valve Support Rod
25.	304-275	1	Reinforcing Ring
26.	360-800	1	Hydraulic Tank
27.	105-089	2	Locknut (5/16-NC)
28.	116-218	1	Sight Glass
29.	360-849	1	Reflector
30.	115-320	1	Grommet
31.	105-244	1	Washer (6 spool)

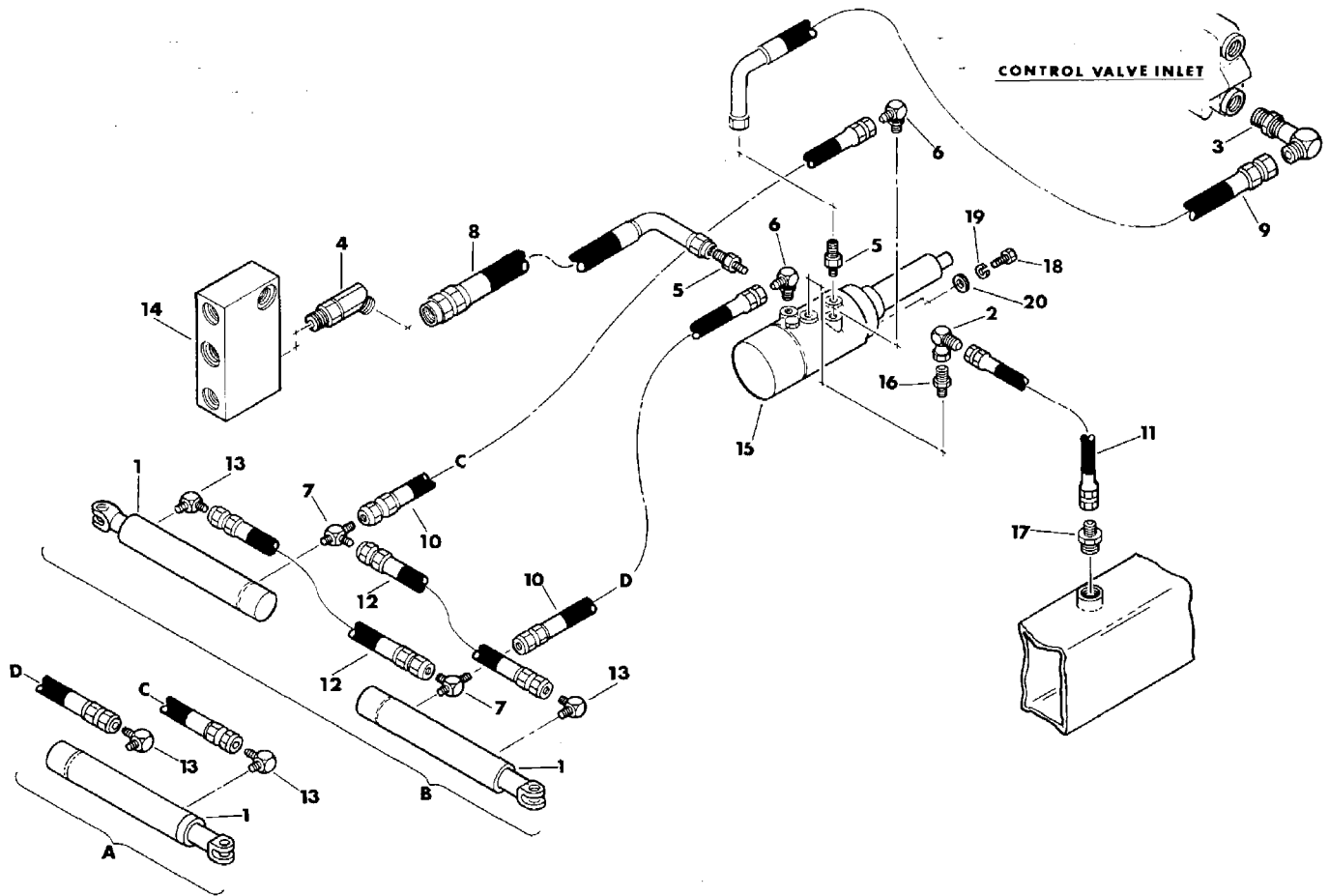
¹Early style fluid sight glass.

²Present style fluid sight glass.

³Converts from 8 spool to 6 spool control valve.

⁴Converts from 6 spool to 8 spool control valve.

FRONT STEERING HYDRAULICS

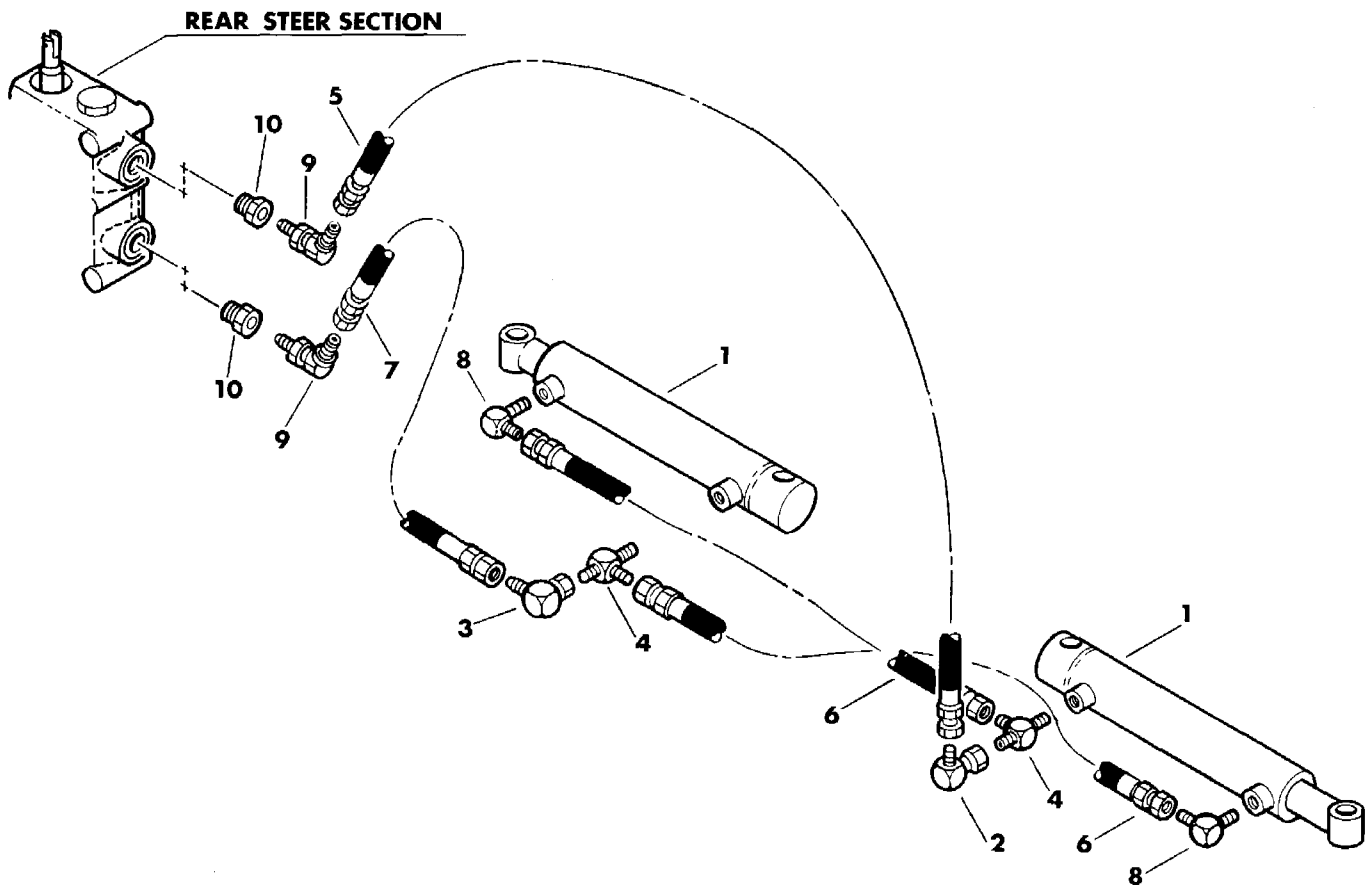


Ref. No.	Part Number	Qty.	Description
1.	150-117		Steering Cylinder (1/STD, 2/dual)
2.	154-111	1	Adapter Union (3/4-JIC M x 3/4-JIC FM x 90°)
3.	154-030	1	Adapter Connector (1-1/16-JIC M x 1-1/16-SAE M x 90°, XL)
	155-709		O-Ring (-912)
4.	154-047	1	Adapter Connector (1-1/16-JIC M x 1-1/16-SAE M x 45°)
	155-709		O-Ring (-912)
5.	154-050	2	Adapter Connector (7/8-JIC M x 9/16-SAE M, STR)
	155-705		O-Ring (-906)
6.	154-055	2	Adapter Connector (7/16-JIC M x 9/16-SAE M x 90°)
	155-705		O-Ring (-906)
7.	154-129	2	Run Tee (7/16-JIC M x 7/16-JIC M x 7/16-SAE M)
	155-760		O-Ring (-904)
8.	154-526	1	Hose (7/8-JIC FM x 90° x 1-1/16-JIC FM, STR x 42-1/2", 2750 PSI)
9.	154-527	1	Hose (7/8-JIC FM x 90° x 1-1/16-JIC FM, STR x 42-1/2", 2750 PSI)

Ref. No.	Part Number	Qty.	Description
10.	154-536	2	Hose (7/16-JIC FM x 50", 2750 PSI)
11.	154-562	1	Hose (3/4-JIC FM x 37-1/2", 2000 PSI)
12.	154-546	2	Hose (7/16-JIC FM x 28", 5000 PSI)
13.	155-091	2	Adapter Connector (7/16-JIC M x 7/16-SAE M x 90°)
	155-760		O-Ring (-904)
14.	155-595	1	Hydraulic Manifold
15.	158-506	1	Power Steering Valve
16.	154-004	1	Adapter Connector (3/4-JIC M x 9/16-SAE M, STR)
	155-705		O-Ring (-906)
17.	154-006	1	Adapter Connector (3/4-JIC M x 1-1/16-SAE M, STR)
	155-709		O-Ring (-912)
18.	105-090	3	Bolt (5/16-NC x 3/4")
19.	105-091	3	Lock Washer (5/16")
20.	105-117	3	Washer (5/16")

Notes:
 A. Denotation "A" shows single cylinder steering. Hoses "C" and "D" route to steering motor as shown in dual cylinder steering.
 B. Denotation "B" shows dual cylinder steering.

REAR STEERING HYDRAULICS

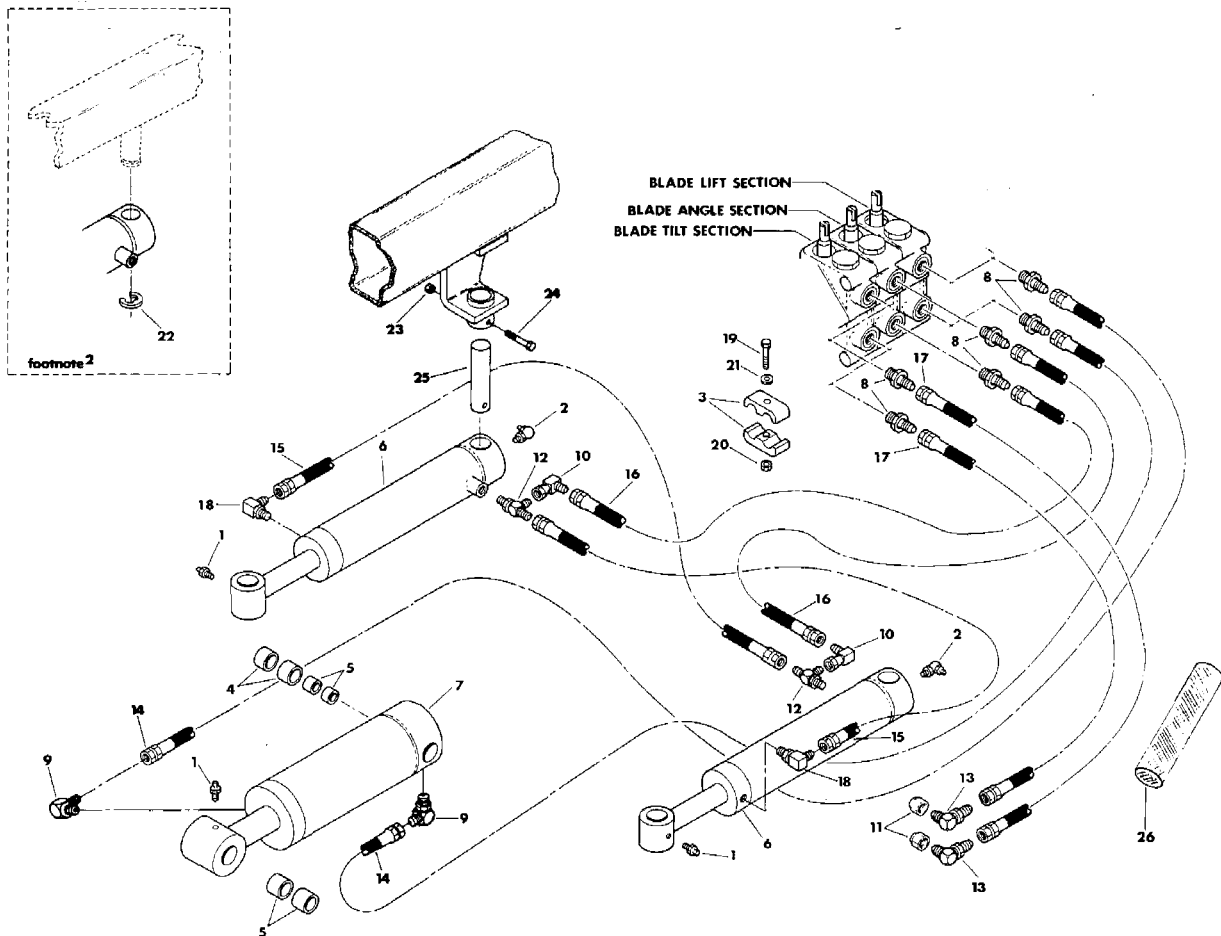


Ref. No.	Part Number	Qty.	Description
	190-361		'Rear Steer Differential Conversion Kit (Incl. ref. no.'s 1 thru 8)
1.	150-118	2	Rear Steering Cylinder
2.	154-066	1	Adapter Union (7/16-JIC FM x 7/16-JIC M x 90°)
3.	154-123	1	Ad.justable Elbow (7/16-JIC FM x 7/16-JIC M x 45°)—early models
	154-066	1	Adapter Union (7/16-JIC FM x 7/16-JIC M x 90°)
4.	154-129	2	Run Tee (7/16-JIC M x 7/16-JIC M x 7/16- SAE M)
	155-760		O-Ring (-904)
5.	154-536	1	Hose (7/16-JIC FM x 50", 2750 PSI)
6.	154-573	2	Hose (7/16-JIC FM x 28", 2750 PSI)

Ref. No.	Part Number	Qty.	Description
7.	154-572	1	Hose (7/16-JIC FM x 68", 2750 PSI)
8.	154-119	2	Adapter Connector (7/16-JIC M x 7/16- SAE M x 90°, w/orifice)
	155-760		O-Ring (-904)
9.	155-132	2	Adapter Connector (7/16- SAE M x 7/16-JIC M x 45°)
	155-760		O-Ring (-904)
10.	155-156	2	Adapter Bushing (3/4- SAE M x 7/16- SAE FM)
	155-706		O-Ring (-908)

'Converts machines from Dana to Rockwell differentials. Additional kit parts may be found on REAR STEERING and HYDRAULIC CONTROL VALVE pages. Refer to installation diagram 050-127.

BACKFILL BLADE HYDRAULICS

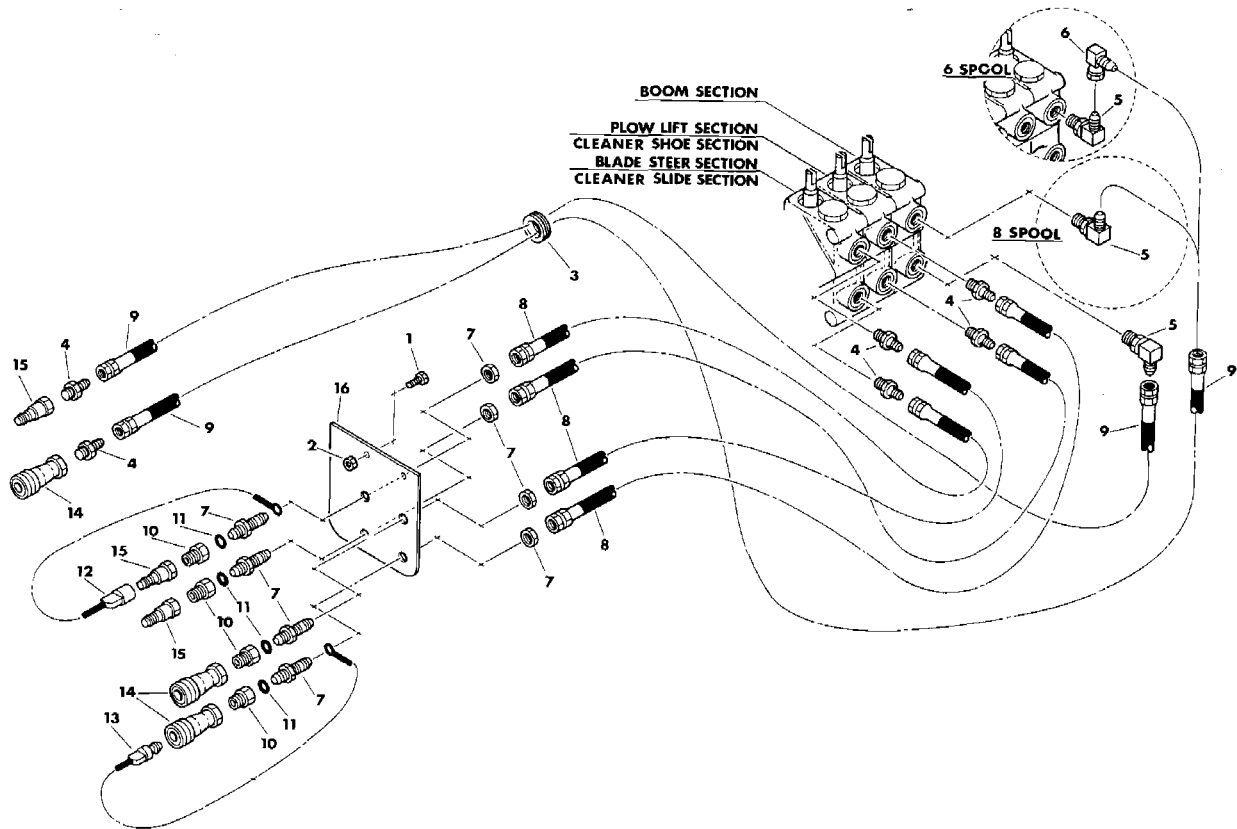


Ref. No.	Part Number	Qty.	Description
1.	115-003	3	Zerk (1/4-NF, STR)
2.	115-005	2	Zerk (1/4-NF x 90°)
3.	110-195	6	Clamp
4.	125-713	2	Clevite Bushing (1" LG)
5.	125-714	4	Clevite Bushing (3/4" LG)
6.	150-115	2	Blade Angle Cylinder
7.	150-116	1	Blade Lift Cylinder
8.	154-015	6	Adapter Connector (7/16-JIC M x 3/4- SAE M, STR)
	155-706		O-Ring (-908)
9.	154-055	2	Adapter Connector (7/16-JIC M x 9/16- SAE M x 90°)
	155-705		O-Ring (-906)
10.	154-066	2	Adapter Union (7/16-JIC M x 7/16- JIC FM x 90°)
11.	154-085	2	Cap (7/16-JIC FM)
12.	154-129	2	Run Tee (7/16-JIC M x 7/16- JIC M x 7/16- SAE M)
	155-760		O-Ring (-904)
13.	154-132	2	Adapter Connector (7/16-JIC M x 7/16- JIC M x 90°)
	105-920		Jam Nut
14.	154-551	2	Hose (7/16-JIC FM x 118", 2750 PSI)

Ref. No.	Part Number	Qty.	Description
15.	154-573	2	Hose (7/16-JIC FM x 28", 2750 PSI)
16.	154-574	2	Hose (7/16-JIC FM x 100", 2750 PSI)
17.	154-578	2	Hose (7/16-JIC FM x 90", 2750 PSI)
18.	155-091	2	Adapter Connector (7/16-JIC M x 7/16- SAE M x 90°)
	155-760		O-Ring (-904)
19.	105-033	3	Bolt (5/16-NC x 2")
20.	105-089	3	Locknut (5/16-NC)
21.	105-117	3	Washer (5/16")
22.	115-483	2	External Clip Ring
23.	105-047	2	Locknut (3/8-NC)
24.	105-183	2	Bolt (3/8-NC x 2-1/2")
25.	183-475	2	Pin (1.25" OD x 5.5" LG)
	190-410		Cylinder Pin Mount Conversion Kit (Incl. mounts and ref. no.'s 23 thru 25)
26.	115-732	1	Abrasion Sleeve (use 20")

¹Blade lift cylinders, with the fitting coming down out of the head, should have the head rotated 90° (as shown) to reduce possibility of damage during back dragging.
²Ends with S/N 6C0839. Frame has welded on angle pins. See footnote 4.
³Begins with S/N 6C0840. Uses bolt in angle pins. See footnote 4.
⁴To convert machines to bolt in cylinder pins order conversion kit and refer to installation diagram 050-060.

ATTACHMENT HYDRAULICS

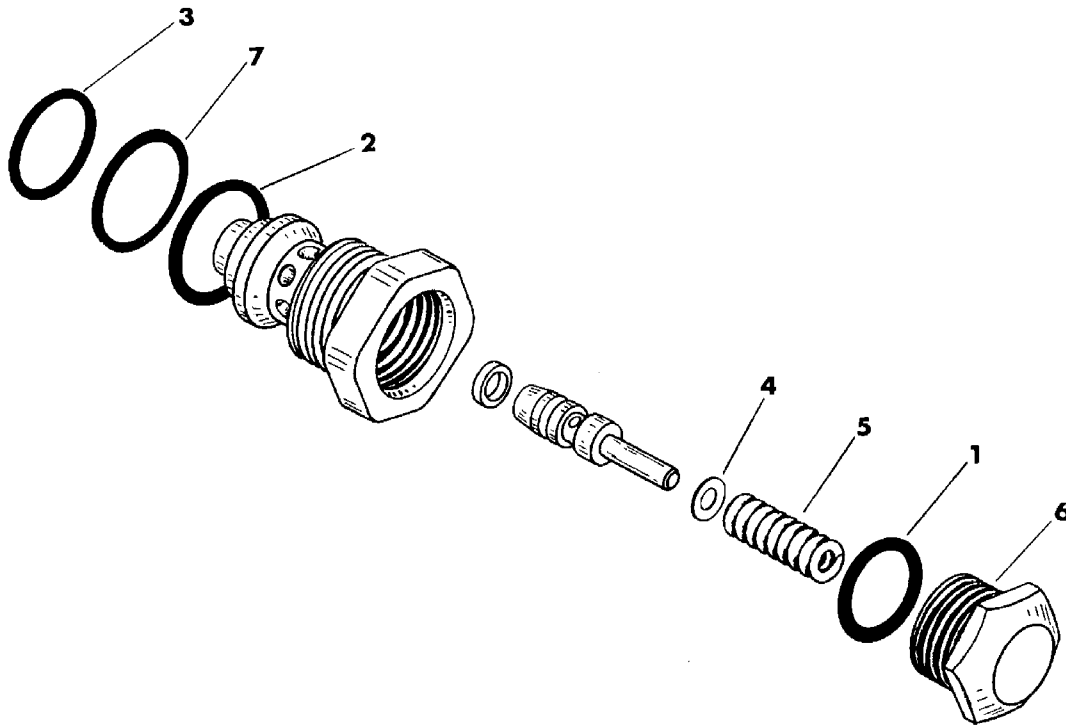


Ref. No.	Part Number	Qty.	Description
1.	105-032	2	Bolt (3/8-NC x 3/4")
2.	105-047	2	Locknut (3/8-NC)
3.	115-320	1	Grommet
4.	154-016	6	Slip-On Coupler (9/16-JIC M x 3/4-SAE M, STR)
	155-706		O-Ring (-908)
5.	154-028	2	Adapter Connector (9/16-JIC M x 3/4-SAE M x 90°)
	155-706		O-Ring (-908)
6.	154-044	1	Adapter Union (9/16-JIC M x 9/16-JIC FM x 90°)
7.	154-064	2	Adapter Connector (9/16-JIC M x 9/16-JIC M, STR)
	105-431		Jam Nut (9/16-NF)
8.	154-505	4	Hose (9/16-JIC FM x 16", 4000 PSI)

Ref. No.	Part Number	Qty.	Description
9.	154-517	2	Hose (9/16-JIC FM x 40", 4000 PSI)
10.	155-163	4	Adapter Bushing (3/4-SAE M x 9/16-SAE FM)
	155-706		O-Ring (-908)
11.	155-706	4	O-Ring (-908)
12.	155-919	2	Dust Cap
	155-935	2	Dust Cap
13.	155-920	2	Dust Plug
	155-936	2	Dust Plug
14.	155-989	3	Quick Coupler Body (3/4-SAE FM)
	190-127		1'Seal Repair Kit
15.	155-990	3	Quick Coupler Adapter (3/4-SAE FM)
	190-127		1'Seal Repair Kit
16.	312-226	1	Bulkhead Panel

¹Refer to installation diagram 050-034.

RELIEF CARTRIDGE

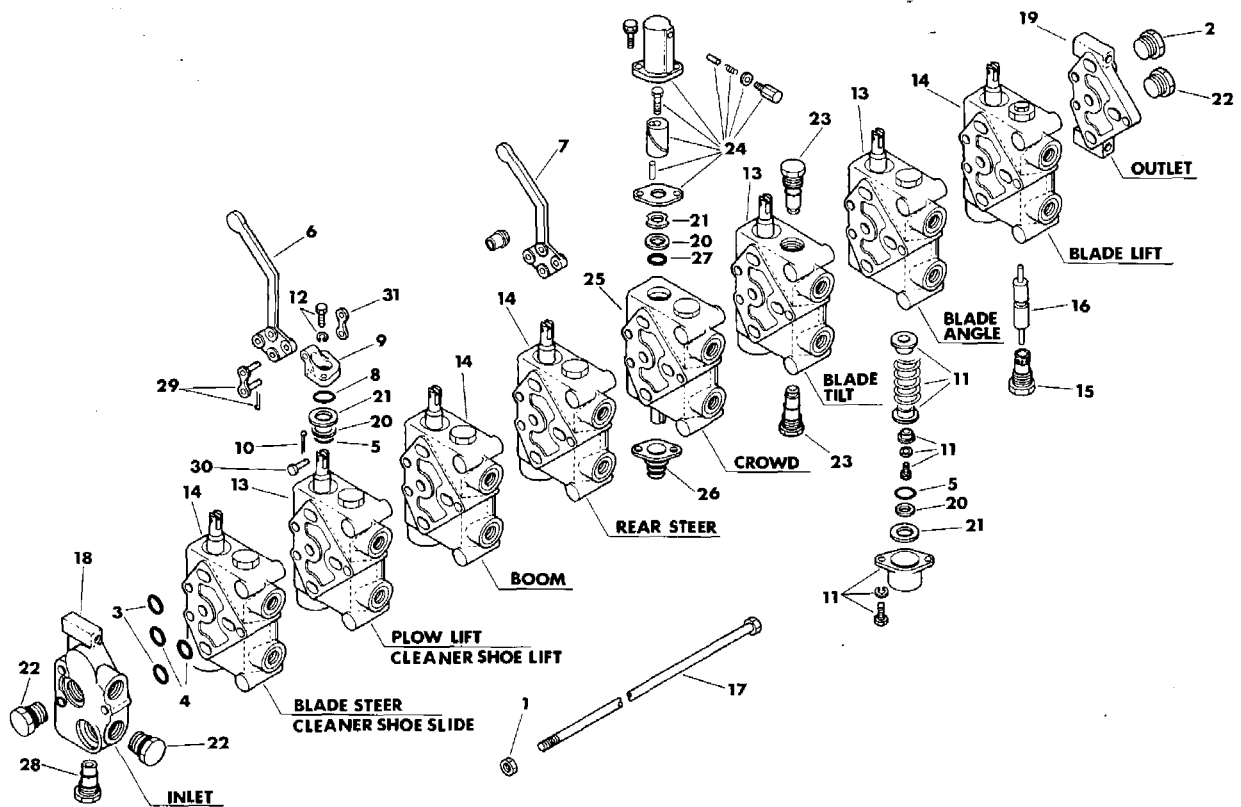


Ref. No.	Part Number	Qty.	Description
	155-630		'Relief Cartridge (2000 PSI)— Incl. ref. no.'s 1 thru 7
1.	155-707	1	O-Ring (-910)
2.	155-749	1	O-Ring (-023)
3.	155-750	1	O-Ring (-022)

Ref. No.	Part Number	Qty.	Description
4.	500-025	AR	Shim (.010" THK)
5.	500-318	1	Compression Spring
6.	500-408	1	Cap (2000 PSI)
7.	157-508	1	Backup Ring (-022)

'Refer to installation diagram 050-139 for replacement procedures.

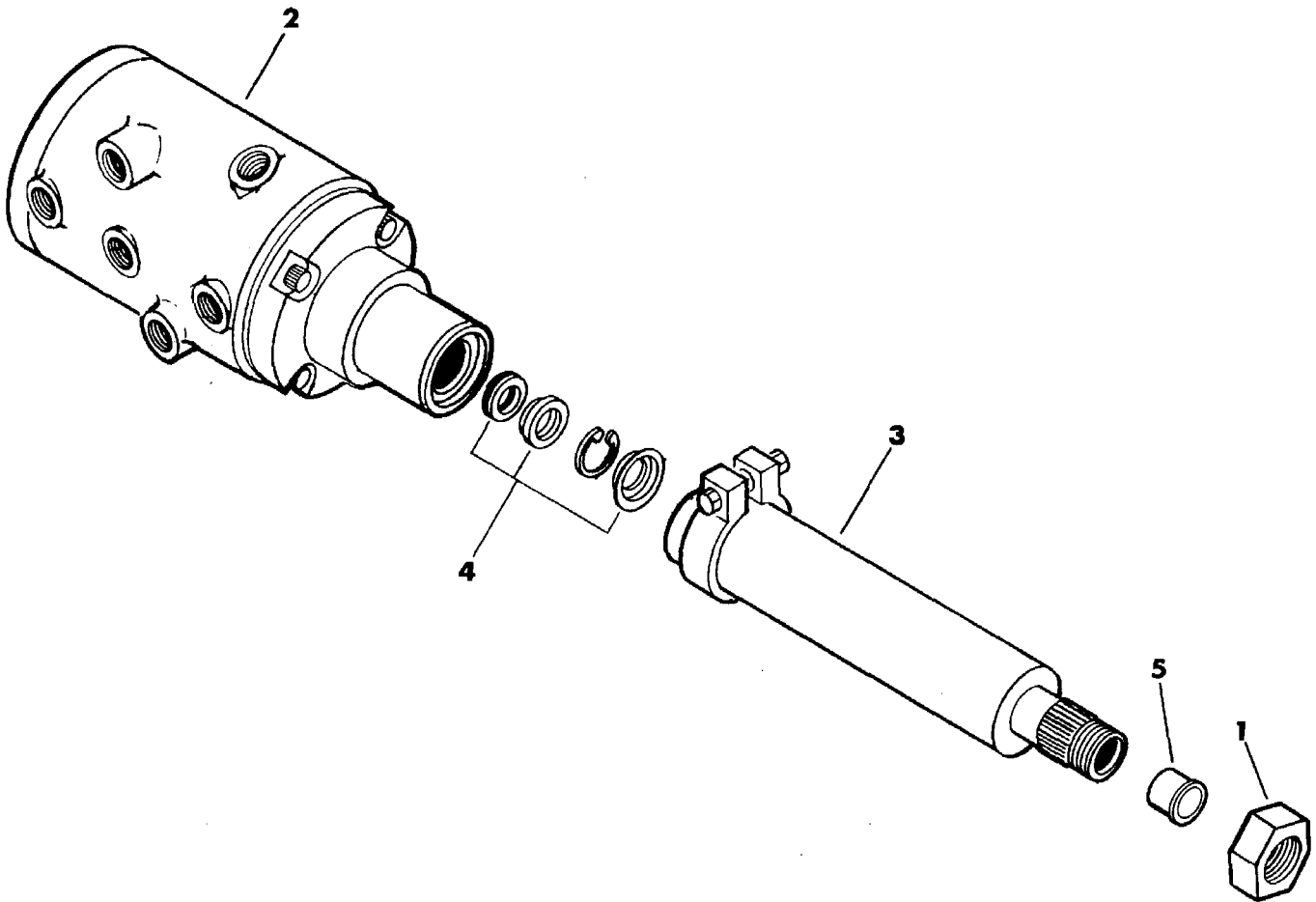
HYDRAULIC CONTROL VALVE



Ref. No.	Part Number	Qty.	Description	Ref. No.	Part Number	Qty.	Description
	158-508		Hydraulic Control Valve (6 spool)—Incl. ref. no.'s 1 thru 5 and 8 thru 31	15.	500-243		Pilot Check Kit (6/6 spool, 8/8 spool)
	158-509		Hydraulic Control Valve (8 spool)—Incl. ref. no.'s 1 thru 5 and 8 thru 31	16.	500-249		Double Piston (3/6 spool, 4/8 spool)
1.	105-093	3	Nut (3/8-NF)	17.	500-267	3	Bolt (3/8-NF x 13")—6 spool
2.	155-160	1	Plug (1-3/16- <i>SAE M</i>)	500-404	3	Bolt (3/8-NF x 16-1/2")—8 spool	
	155-747		O-Ring (-914)	18.	500-296	1	Inlet Cover
3.	155-757		O-Ring (-021)—14/6 spool, 18/8 spool	19.	500-298	1	Outlet Cover (Incl. ref. no.'s 3 and 4)
4.	155-758		O-Ring (-019)—14/6 spool, 18/8 spool	20.	500-299		Backup (-210)—2/spool
5.	155-759		O-Ring (-210)—10/6 spool, 14/8 spool	21.	500-300		Seal Retainer (2/spool)
6.	361-614		Lever (7-21/32" LG)—4/6 spool, 6/8 spool	22.	500-302	3	Plug (1-1/16- <i>SAE M</i>)
7.	361-662	1	Lever (6-5/8" LG)—rear steering		155-709		O-Ring (-912)
8.	500-026		Wiper Seal (5/6 spool, 7/8 spool)	23.	500-321		Load Check Plug (4/6 spool, 6/8 spool)
9.	500-027		Lever Bracket (5/6 spool, 7/8 spool)	24.	500-383	1	Rotary Spool Positioner (Incl. ref. no. 12)
10.	105-530		Cotter Pin (1/16" x 3/4")—5/6 spool, 7/8 spool	25.	500-385	1	Valve Section (Incl. ref. no.'s 3, 4, 5, 8, 20, 21, 24, 26 and 27)
11.	500-190		Standard Spool Positioner Kit (5/6 spool, 7/8 spool)—Incl. ref. no. 12	26.	500-386	1	Spool Protective Boot
	500-191		Compression Spring	27.	N.A.	1	Spool O-Ring
12.	500-192		Bolt (w/washer)—10/6 spool, 14/8 spool	28.	500-380	1	No Relief Plug Kit
13.	500-221		Valve Section (Incl. ref. no.'s 3, 4, 5, 8, 9, 11, 20 and 21)—2/6 spool, 3/8 spool		155-749		Body O-Ring (-023)
14.	500-222		Valve Section (Incl. ref. no.'s 3, 4, 5, 8, 9, 11, 15, 16, 20 and 21)—3/6 spool, 4/8 spool	29.	500-419		Connector Link (5/6 spool, 7/8 spool)
				105-530			Cotter Pin (1/16" x 3/4")
				110-082			Clevis Pin (1/4")—5/6 spool, 7/8 spool

NOTE: Parts shown in this illustration are replacement parts and may not have the same physical configuration as the original valve.

POWER STEERING VALVE

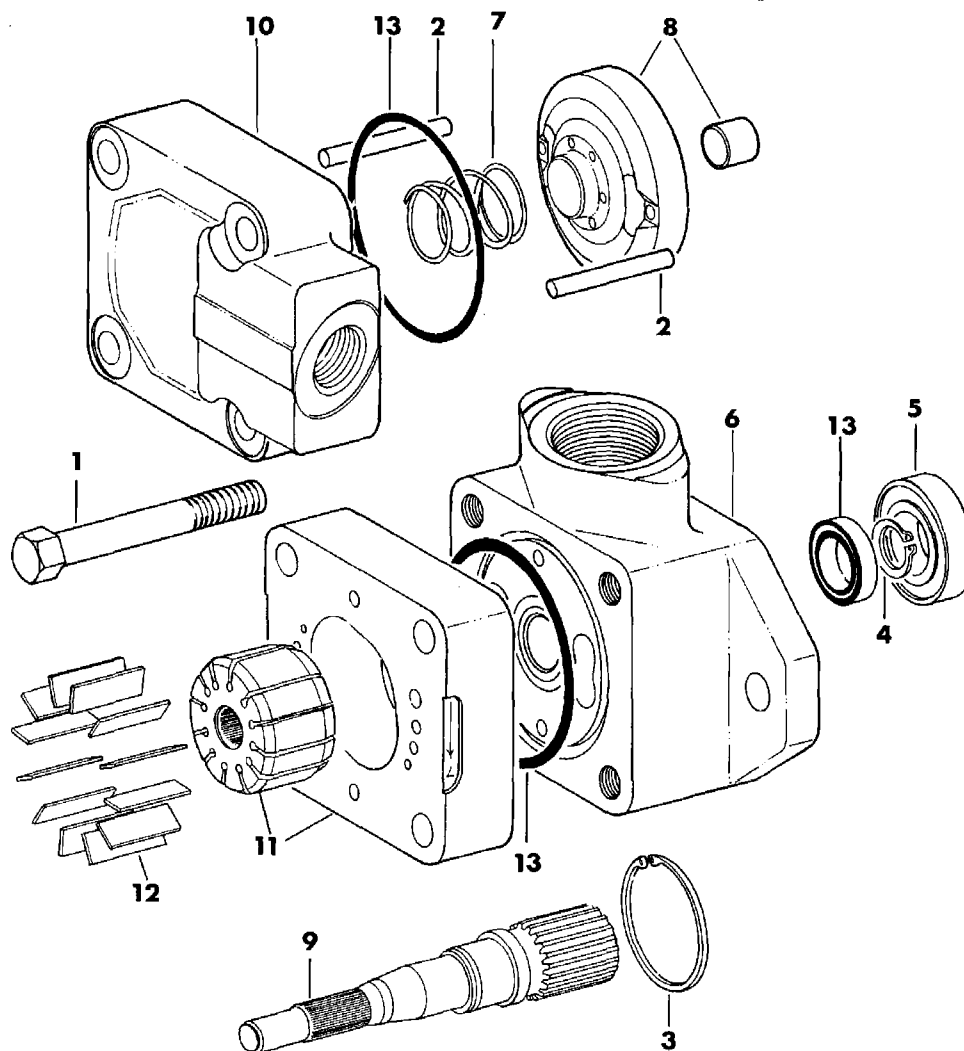


Ref. No.	Part Number	Qty.	Description
	158-506		Power Steering Valve (Incl. ref. no.'s 1 thru 5)
1.	105-361	1	Jam Nut (13/16-NEF)
2.	158-507	1	Orbitrol Valve (Incl. ref. no. 4)
	155-790		O-Ring (-032)—for upper cover
3.	155-696	1	Orbitrol Column (Incl. ref. no. 3 and 5)
4.	500-424	1	Seal Repair Kit
5.	500-459		Seal

HYDRAULIC PUMP

DEUTZ ENGINE

(13 spline)



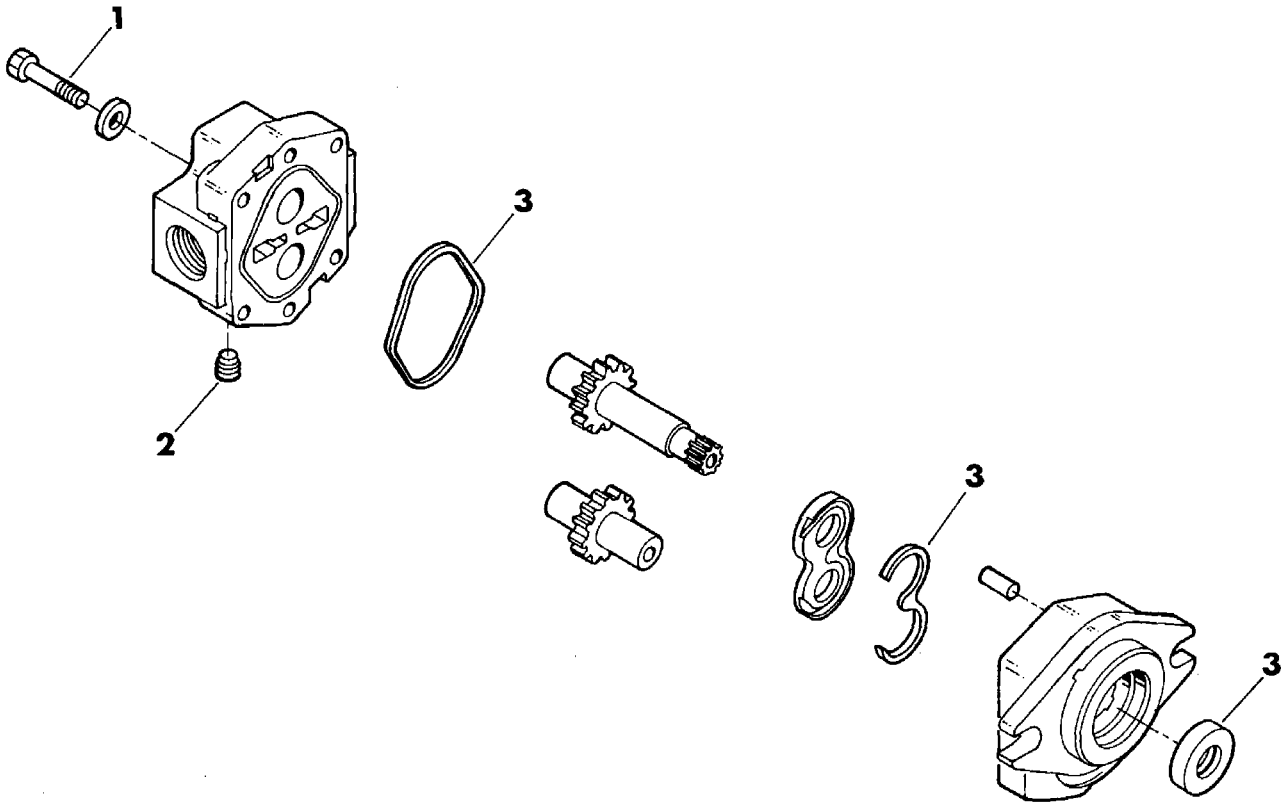
Ref. No.	Part Number	Qty.	Description
	155-537		Hydraulic Pump (Incl. ref. no.'s 1 thru 13)
1.	500-226	4	Bolt (3/8-NC x 3", GD 8)
2.	500-227	2	Dowel Pin
3.	500-228	1	Internal Snap Ring
4.	500-229	1	External Snap Ring
5.	500-230	1	Bearing
	125-030	1	Bearing (all replacements)
6.	500-234	1	Body

Ref. No.	Part Number	Qty.	Description
7.	500-235	1	Compression Spring
8.	500-236	1	Pressure Plate (Incl. bushing)
9.	500-237	1	Shaft
10.	500-238	1	Cover
11.	500-392		Cartridge Kit (Incl. o-rings and ref. no. 12)
12.	500-240		Vane Kit
13.	500-241		Seal Kit (Incl. seal and o-rings)

HYDRAULIC PUMP

DEUTZ

(9 spline Rexroth)



Ref. No.	Part Number	Qty.	Description
	155-545		Hydraulic Pump (Incl. ref. no.'s 1 thru 3)
1.	105-286	2	Bolt (3/8-NC x 1-3/4", GD 8)
2.	115-178	1	Pipe Plug (3/8-NPT, ALN FM HD)
3.	500-417	1	¹ Seal Repair Kit
	500-463	1	² Seal Repair Kit

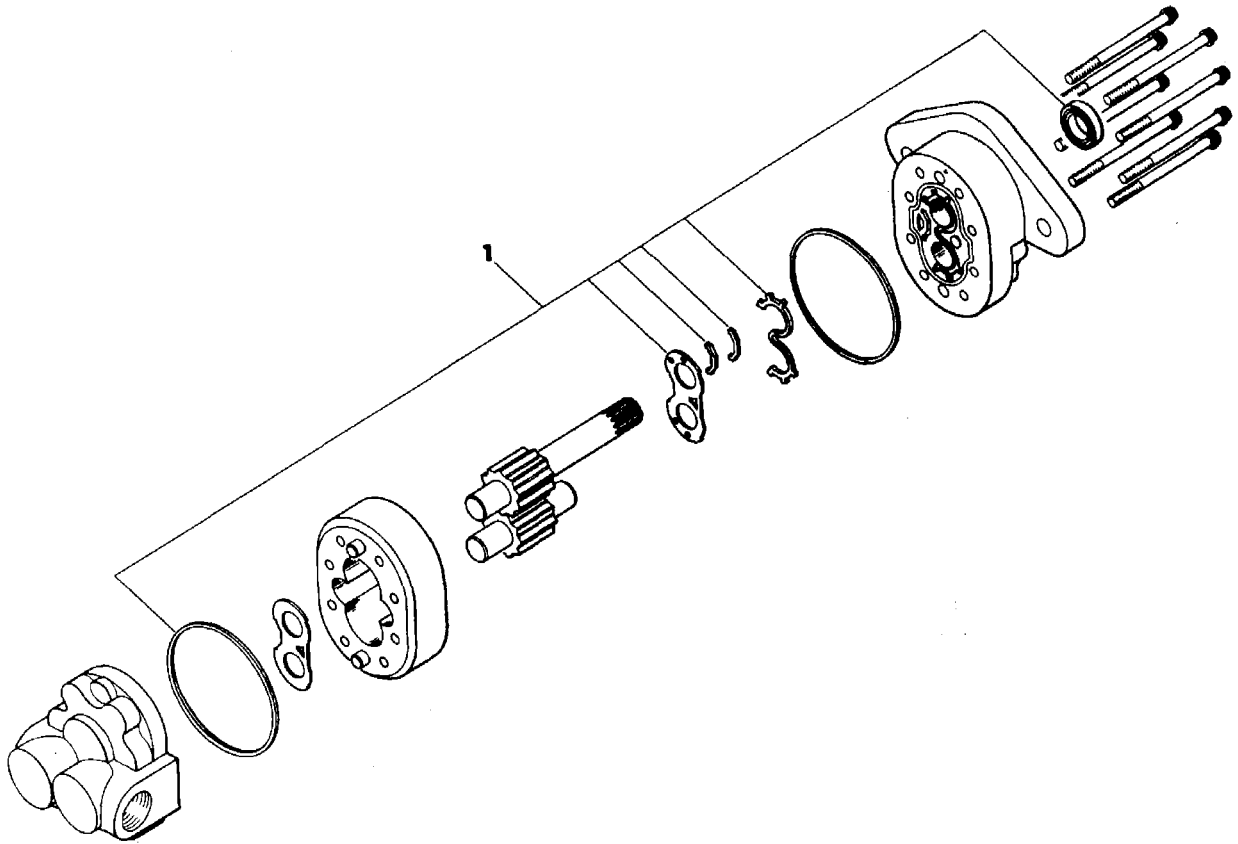
¹Seal kit used on pumps manufactured prior to 1973. See footnote 3.

²Seal kit used on pumps manufactured beginning in 1973. See footnote 3.

³Year of manufacture is stamped on pump housing casting

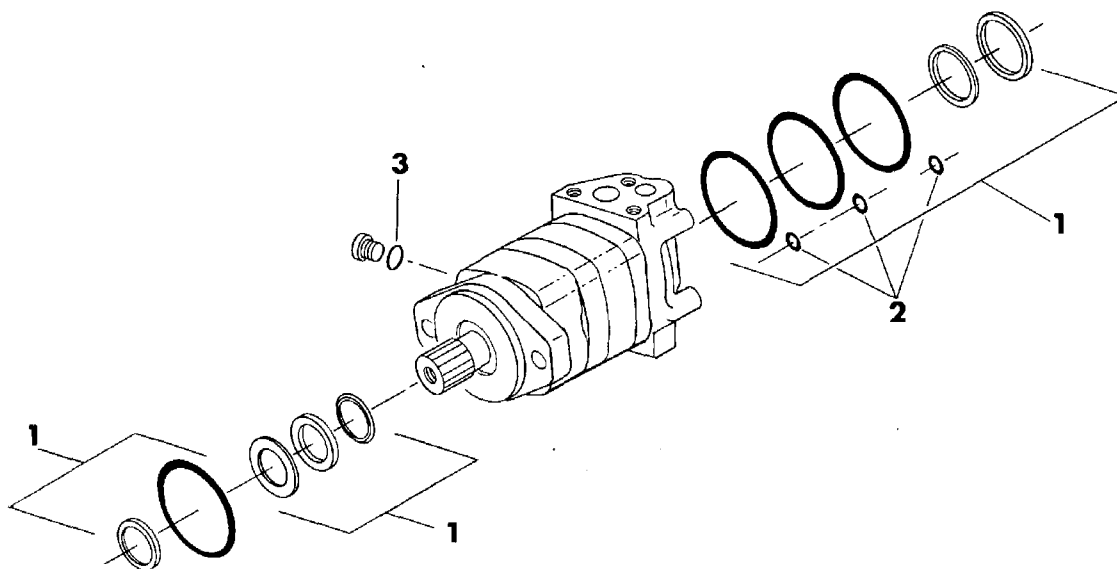
HYDRAULIC PUMP

CESSNA
(9 spline)



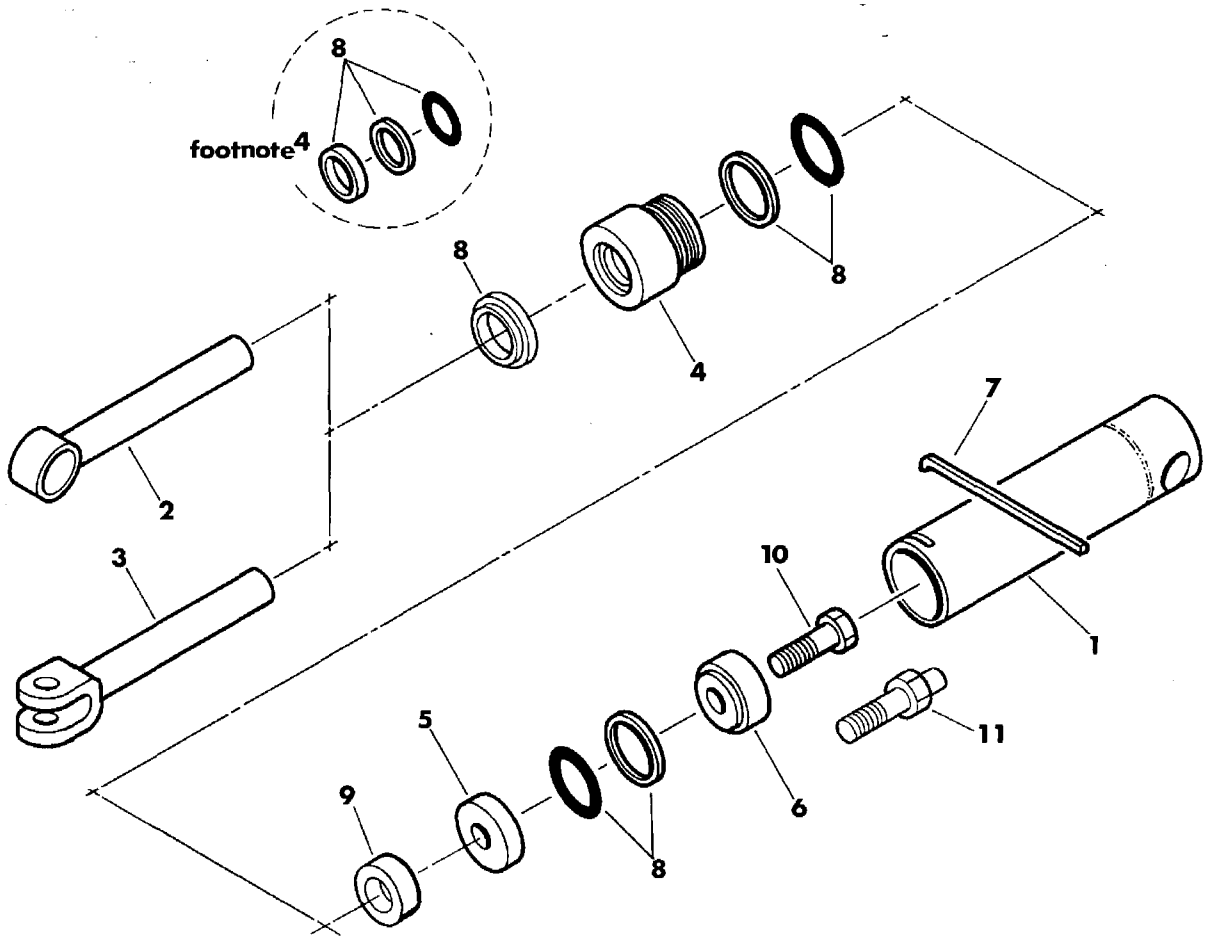
Ref. No.	Part Number	Qty.	Description
	158-305		Hydraulic Pump (Incl. ref. no. 1)
1.	500-470	1	Seal Repair Kit

HYDRAULIC MOTOR



Ref. No.	Part Number	Qty.	Description
	155-567		Hydraulic Motor (Incl. ref. no.'s 1 thru 3)
1.	500-347	1	Hydraulic Motor Seal Repair Kit (Incl. ref. no.'s 2 and 3)
2.	155-771	3	O-Ring (-011)
3.	155-760	1	O-Ring (-904)

BACKFILL BLADE ANGLE and STEERING CYLINDERS



Ref. No.	Part Number	Qty.	Description
	150-115		Blade Angle Cylinder (2" ID)—Incl. ref. no.'s 1, 2 and 4 thru 8
	150-117		Front Steering Cylinder (2" ID)—Incl. ref. no.'s 1 and 3 thru 8
	150-118		Rear Steering Cylinder (2" ID)—Incl. ref. no.'s 1, 3 thru 9 and 11
1.	150-229	1	Cylinder Barrel (blade angle)
	150-231	1	Cylinder Barrel (steering)
2.	150-316	1	Cylinder Rod (blade angle)
3.	150-315	1	Cylinder Rod (steering)
4.	150-842	1	⁴ Cylinder Head (.208" THK groove)
	150-798	1	⁵ Cylinder Head (.28" THK groove)
5.	150-904	1	Smooth Piston (2" OD)
6.	150-906	1	Grooved Piston (2" OD)
7.	150-912	1	Lock Ring (for 2" ID)
8.	190-101		² Seal Repair Kit (for 2" ID)—Incl. ref. no. 10
	190-158		³ Seal Repair Kit (for 2" ID)—Incl. ref. no. 10

Ref. No.	Part Number	Qty.	Description
9.	180-153	1	Spacer (rear steer)
10.	105-353	1	Bolt (Incl. with kits)
11.	105-459	1	¹ Bolt (w/stop)—rear steering

Not Shown:

259-100 Rod U-Seal Installer

¹This bolt must be ordered separately and used in place of bolt in kit on rear steering cylinder.

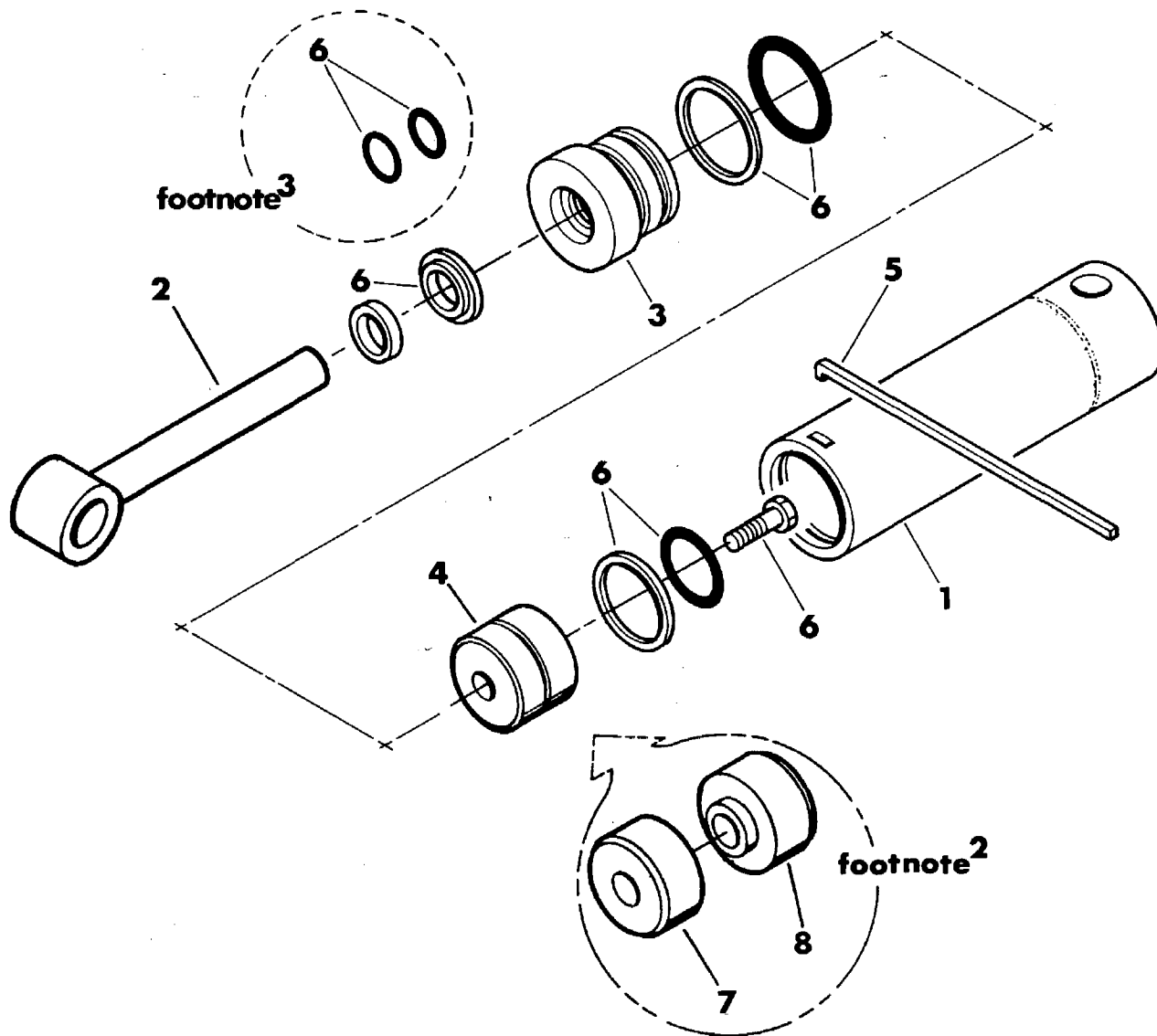
²This seal kit is no longer available, use kit listed below [See footnote 3].

³Use rod o-ring and backup combination for cylinder heads with .208" THK internal groove. Use rod u-seal for heads with .28" THK internal groove. Refer to installation diagram 050-023 and piston replacement diagram 052-144.

⁴Cylinder heads, which had .208" THK internal groove and used rod o-ring and backup combination, are no longer available. If replacement is required order head with .28" THK internal groove and use u-seal from kit [See footnote 3].

⁵Cylinder heads, which have .28" THK internal groove and use rod u-seal, are used for replacement of all previous cylinder heads [See footnote 3].

BACKFILL BLADE LIFT CYLINDER



Ref. No.	Part Number	Qty.	Description
	150-116		Blade Lift Cylinder (3" ID)—Incl. ref. no.'s 1 thru 6
1.	150-230	1	Cylinder Barrel
2.	150-365	1	Cylinder Rod
3.	150-843	1	⁴ Cylinder Head (.208" THK groove)
	150-799	1	⁵ Cylinder Head (.28" THK groove)
4.	150-952	1	¹ Piston (3" OD)
5.	150-911	1	Lock Ring (for 3" ID)
6.	190-102		² Seal Repair Kit (for 3" ID)
	190-159		³ Seal Repair Kit (for 3" ID)
7.	150-905	1	¹ Smooth Piston (3" OD)
8.	150-907	1	¹ Grooved Piston (3" OD)

Ref. No.	Part Number	Qty.	Description
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Not Shown:

	259-065		⁶ Piston Ring Compressor
	259-066		⁶ Piston Ring Guide
	259-100		Rod U-Seal Installer

¹Single piece piston body (ref. no. 4) replaces two piece pistons (ref. no.'s 7 and 8).

²This seal kit is no longer available, use kit listed below (See footnote 3).

³Use rod o-ring and backup combination for cylinder heads with .208" THK internal groove. Use rod u-seal for heads with .28" THK internal groove. Refer to installation diagram 050-D24 and piston replacement diagram 052-144.

⁴Cylinder heads, which had .208" THK internal groove and used rod o-ring and backup combination, are no longer available. If replacement is required order head with .28" THK internal groove and use u-seal from kit (See footnote 3).

⁵Cylinder heads, which have .28" THK internal groove and use rod u-seal, are used for replacement of all previous cylinder heads (See footnote 3).

⁶Refer to Item 1 of Technical Bits dated 2-27-86 for instructions on use of piston ring tools.

PRODUCT LIMITED WARRANTY

Products are warranted for * 90 days from date of delivery of any new Product to original purchaser. CMW will provide free replacement parts to original purchaser for any Product which has a defect in material or workmanship. Replacement parts are warranted for 90 days from date of delivery of any such replacement part to original purchaser. Any part of a Product subject to ground contact is warranted only for defects in material or workmanship and only for the period of operational life of such part, which period shall not in any event exceed the 90 day limited warranty above. Defects will be determined by an inspection of the Product or part by CMW or its authorized dealer. Original purchaser of the Product must present Product or part to CMW or its authorized dealer for inspection within 30 days of the date of failure. CMW will provide the location of its inspection facilities or its nearest authorized dealer upon inquiry. CMW reserves the right to supply remanufactured replacement parts as it deems appropriate.

***180 days for Ditch Witch DR52, DR65, and DP195.**

EXCLUSIONS FROM PRODUCT AND MAJOR COMPONENT LIMITED WARRANTY

SPECIFICALLY EXCLUDED FROM PRODUCT AND MAJOR COMPONENT LIMITED WARRANTY ARE:

Transportation and labor charges related to repair, replacement, or inspection of Products, Major Components, or parts.

All incidental or consequential damages.

All defects, damages, or injuries caused by misuse, abuse, improper installation, alteration, neglect or uses other than those for which Products were intended.

All defects, damages, or injuries caused by improper training, operation, or servicing of Products in a manner inconsistent with manufacturer's recommendations.

All engines and engine accessories (these are covered by original manufacturer's warranty).

Tires, belts, and other parts which may be subject to another manufacturer's warranty (such warranty will be available to purchaser).

ALL IMPLIED WARRANTIES NOT EXPRESSLY STATED HEREIN, INCLUDING ANY WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE AND MERCHANTABILITY.

IF THE PRODUCTS ARE PURCHASED FOR COMMERCIAL PURPOSES AS DEFINED BY THE UNIFORM COMMERCIAL CODE, THEN THERE ARE NO WARRANTIES WHICH EXTEND BEYOND THE FACE HEREOF AND THERE ARE NO IMPLIED WARRANTIES OF ANY KIND WHICH EXTEND TO A COMMERCIAL BUYER. ALL OTHER PROVISIONS OF THIS LIMITED WARRANTY APPLY INCLUDING THE DUTIES IMPOSED.

Ditch Witch Products have been tested to deliver acceptable performance in most conditions. This does not imply they will deliver acceptable performance in all conditions. Therefore, to assure suitability, Products should be operated under anticipated working conditions prior to purchase.

This limited warranty applies to original purchasers only. Some states do not allow exclusion or limitation of incidental or consequential damages, so above limitation or exclusion may not apply. Further, some states do not allow exclusion of or limitation of how long an implied warranty lasts, so above limitation may not apply. This limited warranty gives original purchaser specific legal rights and the original purchaser may also have other rights which vary from state to state.

For information regarding this limited warranty, contact CMW's Technical Administration Department, P.O. Box 66, Perry, OK 73077-0066, or contact your local Ditch Witch dealer.

WARRANTY SUPPORT

SERIAL NUMBER RECORD

Record the serial number and date of purchase of your equipment in the space provided. Specify equipment serial number and part number to expedite processing of parts orders.

Date of Purchase: _____

Serial Number: _____

Model Number: _____

WARRANTY SUPPORT PROCEDURE

Notify your dealer immediately of any malfunction or failure of Ditch Witch equipment.

Always give model, serial number and approximate date of your equipment purchase.

Return damaged parts to dealer for inspection and warranty consideration.

Order genuine Ditch Witch replacement or repair parts from your authorized Ditch Witch dealer. Use of another manufacturer's parts may void Warranty Support consideration.

Ditch Witch® EQUIPMENT AND REPLACEMENT PARTS LIMITED WARRANTY POLICY

Effective 01/01/91

The following Major Component Limited Warranty covers only the serial numbered products ("Products") as listed that are manufactured and distributed by Charles Machine Works, Inc. ("CMW") Replacement parts, serial numbered Products, and non-major components listed under Major Component Limited Warranty are covered under Product Limited Warranty.

MAJOR COMPONENT LIMITED WARRANTY

Major Components of these Products and their attachments are warranted for a period of 1000 hours of use or one year, whichever occurs first, beginning on date of delivery of any such new Product to original purchaser.

Models 1010, 100SX, 1620, 2020, 520, and 255SX

Equipment and attachments for:

2310, 3500, 4500, 5110, 5020, 7520, 8020, Earth Augers, Jet Trac Guided Boring System, True Trac Guided Boring System, Pierce Airrow Tools, P40, P80, Trailers, Power Pacs, Subsite Surface Transmitters & Receivers

Major Components are defined as:

Subsite Surface Transmitters and Receivers.

Differentials and parts contained within.

Mechanical Transmissions.

Drive gear boxes and parts contained within.

Hydraulic, hydrostatic, and fluid pumps, motors and components that control or protect pumps and motors.

Auxiliary hydraulic control valves and electrical components used for controlling hydraulic components.

Hydraulic cylinders and components excluding repair kits.

Batteries, alternators, instruments, gauges, and protection components for electrical systems.

CMW will provide free replacement parts to original purchaser for any part of Major Components which has a defect in material or workmanship within warranty period. Defects will be determined by an inspection of Major Component or part by CMW or its authorized dealer. Original purchaser of the Product containing a Major Component must present Major Component or part to CMW or its authorized dealer for inspection within 30 days of the date Major Component or part fails. CMW will provide the location of its inspection facilities or its nearest authorized dealer upon inquiry. CMW reserves the right to supply remanufactured replacement parts as it deems appropriate.

**A Note To
Ditch Witch**

Equipment Owners:

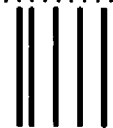
If your equipment was purchased through a Ditch Witch dealer, there is no need to read further.

However, if you purchased from any other source, please fill out the form on the reverse side and return it to us.

This will enable you to receive updates on this equipment as well as information on new products of interest.

Thanks for using Ditch Witch equipment!

(Please Fold Along This Line And Seal At Bottom With Tape)



**NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES**



BUSINESS REPLY MAIL
FIRST CLASS PERMIT NO. 23 PERRY, OKLAHOMA

POSTAGE WILL BE PAID BY

The Charles Machine Works, Inc.
P.O. Box 66
Perry, Oklahoma 73077-9989



Ditch Witch® Registration Card

Please Type Or Print All Information

Purchaser's Company Name

Attention

Street Address or P.O. Box

City County

State Zip Nation

()

Phone Number With Area Code

Machine Model Serial Number

Attachments Serial Number

Attachments Serial Number

Attachments Serial Number

Name of Ditch Witch Dealership

Your Signature

Thanks!

The Charles Machine Works, Inc.
Box 66
Perry, OK 73077-9989

