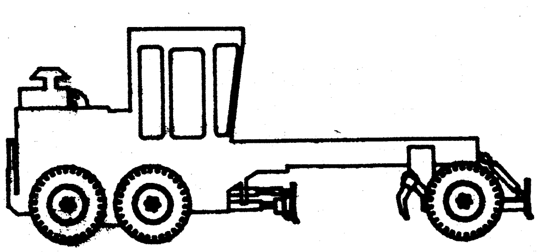
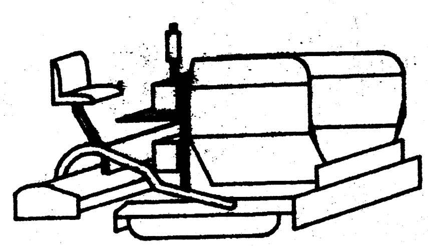
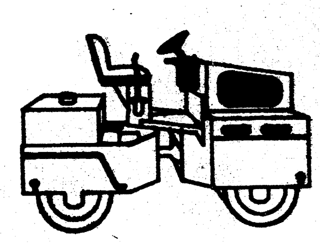
MAULDIN

BROTHERS

Greenville, South Carolina
Telephone (803) 268-6661

MAINTENANCE MANUAL
MODEL 690E
PAVER

SERVICING

General

Operating personnel must perform service checks regularly to be sure systems are in good operating condition. If abnormal conditions are detected, inform maintenance personnel immediately.

Check all systems for proper operation. Check chassis and all components for physical damage and security of all fasteners and connectors.

IMPORTANT SAFETY INFORMATION

Most accidents involving machine maintenance are caused by failure to observe basic safety rules or precautions. An accident can often be avoided by recognizing potentially hazardous situations before an accident occurs.

Read and understand all safety precautions and warnings, before operating or performing lubrication and maintenance on this machine.

WARNING: IMPROPER OPERATION, LUBRICATION OR MAINTENANCE OF THIS MACHINE CAN BE DANGEROUS AND COULD RESULT IN INJURY OR DEATH.

WARNING: DO.NOT OPERATE THIS MACHINE UNTIL YOU READ AND UNDERSTAND THE INSTRUCTIONS IN THE OPERATION SECTION OF THIS MANUAL.

WARNING: DO NOT PERFORM ANY LUBRICATION AND MAINTENANCE ON THIS MACHINE UNTIL YOU READ AND UNDERSTAND THE INSTRUCTIONS IN THE MAINTENANCE SECTION OF THIS MANUAL.

WARNING: DO NOT OPERATE BURNERS ON SCREED FOR MORE THAT TEN OR FIFTEEN MINUTES AT A TIME.

Recommended Preventive Maintenance Intervals

INTERVAL	ITEM	PROCEDURE
Initial Break-in	- AFTER FIRST 50 HOURS -	
	Change all hydraulic filters	
	Check for hydraulic leaks	
	Change engine oil and filter	
	Check for loose nuts and bolts	Tighten as necessary
	Check for excessive wear on all working parts	
Daily or 10 hours	Check hydraulic fluid level	Add as necessary
	Check oil level	Add as necessary
	Engine air cleaner system	Check service indicator and inspect
	Grease load rollers	Grease
	Grease front idler sprocket	Grease
	Check for loose bolts	Tighten as necessary
	Remove asphalt from all working surfaces	Spray down with diesel fuel and clean-off
50 hours	All 10 hour items	As above
	All bearings	Grease
	Tires (tire units only)	Check pressures
	Track system (tension, etc.)	Adjust if necessary
	All linkages	Grease
250 hours	All 100 hour items	As above
	Engine air cleaner	Replace element
	Engine crankcase	Drain and refill
	Engine oil filter	Replace
	Fuel tank	Drain water and sediment
	Hydraulic filter	Replace*
500 hours	All 250 hour items	As above
	Fuel filters	Replace
1000 hours or yearly	All 500 hour items	As above
	Hydraulic system	Drain and refill
	Engine	Adjust valves

*Change after first 50 hours service, every 250 thereafter, and replace with BP Energol HVI 46 or equal hydraulic fluid.

Fluid Capacities and Recommendations

Fluid	Capacity	Recommendation
Engine oil	Varies with engines	High quality CC/CD multi-grade lubricating oil. Above 14 deg. F use 15W40 or 20W40.
Gasoline	10 U.S. gal.	Regular, unleaded, non-alcohol blend
Diesel	10 U.S. gal.	ASTM No. 2-0 or No. 2-D climatized diesel. In extreme cold temperatures, use a winter blend.
Hydraulic	17 U.S gal.	High quality anti-wear hydraulic oil (original equipment, HVI 46 B.P. Energol).
Grease	As required	N.G.L.I. consistency #2, high temperature, anti-friction, bearing lubricating grease.

Lubrication and Service Procedures

Air Filters

IMPORTANT: Service the engine air filters only when the need is indicated by the air cleaner service indicator. Excessive service will cause premature wear.

1. Engine Element - replace

IMPORTANT: Do not attempt to clean element using an air nozzle. Do not strike element on a hard surface. Either action will damage the element.

2. Engine Safety Element

IMPORTANT: Do not remove safety element under heavy dust or blowing conditions (in the field). Even slight amounts of dust entering the engine can lead to premature wear.

a. Inspect safety element for contamination and physical damage.
b. Turn wing nut counterclockwise to remove element.

IMPORTANT: When safety element is dirty, it should be replaced. Do not attempt to clean.

<u>Battery</u>

CAUTION: BATTERY ELECTROLYTE IS A CAUSTIC ACID. KEEP IT AWAY FROM SKIN AND EYES. IF CONTACT OCCURS, FLUSH THE AFFECTED AREA WITH LOTS OF WATER.

CAUTION: DISCONNECT GROUND CABLE FROM THE NEGATIVE BATTERY POST BEFORE ATTEMPTING TO SERVICE OR REMOVE BATTERY.

1. Removal

a. Disconnect ground (negative) cable from battery (-) terminal.
b. Remove the battery retainer bracket.
c. Disconnect positive cable from battery (+) terminal.

2. Cleaning

a. Remove battery, following correct procedures.
b. Thoroughly clean terminals with a battery cleaning tool.
c. Mix a paste solution of baking soda and water and apply to battery and terminals.
d. Rinse battery and machine area near battery liberally with water.

3. Installation

a. Clean battery, following correct procedures.
b. Be certain battery area is clean and clear of debris.
c. Install battery and retainer bracket.
d. Connect positive (+) cable to terminal.

CAUTION: DO NOT CONNECT NEGATIVE (GROUND) TERMINAL FIRST. ARCING CAN OCCUR, POSSIBLY CAUSING SEVERE BURNS AND/OR BATTERY EXPLOSION.

e. Connect negative (-) terminal.

4. Charging

   a. Connect charger leads to proper battery terminals, then proceed according to charger manufacturer's instructions.

5. Storage

   a. Remove and clean battery, following correct procedures.
   b. Bring battery to full charge, following charger manufacturer's instructions.
   c. Store in a cool dry place where there is no possibility of freezing.

NOTE: Check battery every 30 days during storage and return to full charge if necessary.

Engine and Engine Filters

1. Initial Break-In

   Proper break-in procedures are a must to realize maximum engine power output and longest engine life: Engine should show noticeable power gain through the first 30 hours service. Power gain will continue until approximatel 200 hours if properly broken-in.

IMPORTANT: Do not operate engine above 3/4 throttle for the first 25 hours.

IMPORTANT: Do not "lug" engine during the break-in period.

IMPORTANT: Replace the original oil and oil filters after the first 20 hours of operation.

2. Fuel Filters

   Both fuel filters are disposable.

CAUTION: BOTH DIESEL FUEL AND GASOLINE ARE HIGHLY FLAMMABLE AND EXPLOSIVE UNDER CERTAIN CONDITIONS. DO NOT SMOKE OR ALLOW SPARKS OR OPEN FLAME WHEN HANDLING.

a. To Change:

   1. Stop engine. Wait 15 minutes for engine and surrounding parts to cool before proceeding.
   2. Unscrew and discard existing filters.
   3. Fill new filter with clean fuel.
   4. Lightly coat the seal ring with oil, then screw on filter until seal meets flange.
   5. Tighten and additional 1/2 to 3/4 turn by hand.

IMPORTANT: Do not overtighten.

b. Oil and Filter Changing:

   1. Stop engine. Wait 15 minutes or engine oil to cool before proceeding.
   2. Drain crankcase.
   3. Unscrew and discard existing filters.
   4. Fill new elements with fresh oil.
   5. Lightly coat the seal rings with oil, then screw on filters until seals meet flanges.
   6. Tighten an additional 1/2 to 3/4 turn by hand.

IMPORTANT: Do not overtighten.

7. Fill crankcase to correct level.
8. Start engine and run at low idle. Have an assistant visually check seal areas for leaks.
9. Stop engine. Wait a few minutes, then check engine oil level once again.

Hydraulic System

1. Hydraulic Fluid Change

   a. Stop engine. Allow system pressure to drop and remove filler cap.
   b. Remove suction hose and drain into appropriate container for disposal.
   c. Remove and clean hydraulic filter screen assembly.
   d. Remove hydraulic return filter. Replace filter element and reinstall.

CAUTION: DO NOT OVER APPLY SILICON GASKET MATERIAL ALLOWING SURPLUS TO ENTER HYDRAULIC SYSTEM.

   g. Replace fluid to approximately 1" from top of reservoir. Operate machine and recheck level.
   h. Check visually for oil leaks.

NOTE: Each vehicle should be thoroughly inspected after each use and during maintenance cycle for:

1. Tightness of mounting bolts and attaching hardware on bearings, couplings, frame, etc.
2. Leaks, cracks and loose electrical and fluid fittings.
3. Malfunctioning indicators or controls.
4. Worn or damaged tires, tracks or track pads.
5. Cleanliness.

TROUBLESHOOTING

1. General

Proper troubleshooting begins with an organized approach to the problem at hand. Begin with investigation of the most probable cause, following the guidelines below.

Study the problem thoroughly before taking action:

Did warning signs precede the problem? If so, what were they? What would they indicate?

Is scheduled maintenance current on all parts and systems involved?

Has similar trouble occurred before? What action was taken at that time?

Can engine be operated without further damage?

CAUTION: IF RUNNING INSPECTION MUST BE MADE, GET ASSISTANCE. OPERATOR SHOULD REMAIN ON MACHINE THROUGHOUT INSPECTION. MAKE SURE TRANSMISSION IS IN NEUTRAL POSITION.

Check the most convenient things first.

Don't begin major work before checking all other possibilities

Reconsider all known facts and clues before proceeding to more in-depth work.

Correct the basic cause.

Remember, failure of a certain part may be caused by malfunction of another part or system.

2. Use of Schematics

   This manual incorporates hydraulic schematic diagrams formatted for ease of use by maintenance and for the training of personnel.

3. Troubleshooting chart

   The troubleshooting chart lists problems which might be encountered in the operation of the vehicle. The remedies listed may direct the repairman to a possible faulty component.

WARNING: THE TROUBLESHOOTING CHART AND PROCEDURES OUTLINED IN THIS SECTION SHOULD NOT BE ATTEMPTED BY OTHER THAN EXPERIENCED MECHANICS OR PERSONNEL UNDER THE DIRECT SUPERVISION OF AN EXPERIENCED MECHANIC. FAILURE TO COMPLY MAY RESULT IN DAMAGE TO EQUIPMENT AND/OR INJURY OR DEATH TO PERSONNEL.

A. Engine

For engine troubleshooting see charts indicating faults and recommended repair procedures, refer to Manufacturer's Operation and Maintenance Manual.

If your particular problem is not covered or you are unsure of what steps to take, contact factory for assistance.

B. Transmission

1. Vehicle fails to move under power.

   Inadequate oil level in hydraulic reservoir
   Control cable broken or loose
   Inadequate oil flow through transmission suction filter

2. Vehicle moves in neutral.

   Stroke control adjustment
   Control cable damage

C. Electrical System

Engine Status	Voltmeter Reading	Indicates	To Correct
Running	13.5 - 14 Volts	Normal Condition	
Running	Less than 13.5 or more than 14 Volts	Alternator or Regulator Malfunction	Contact Dealer
Won't Start	12-12.5 Volts	Weak battery	Charge
Won't Start	Less than 12 Volts	Weak battery or Defective Cell	Charge or Replace
Stopped	Excessive current Draw	Short Circuit	Inspect System

D. Hydraulic System

Thoroughly review description of hydraulic system.

Use logical steps to determine cause of malfunction.

Identify the function or functions which require troubleshooting.

If possible, trace malfunction to source; pump, control, motor or cylinder.

Determine if pressure or volume is inadequate for function as specified:

Hydraulic System Pressures

Auxiliary circuits, Cessna pumps	2500 p.s.i.
Main circuit, Cessna pump	4500 p.s.i.

Hydraulic System Flows

Auxiliary circuits, Sunstrand pumps	10 g.p.m.
Main circuit, Sunstrand pump	30 g.p.m.

(Actual flow determined by engine r.p.m.)

Problem	Possible Cause	Correction
No Power or Inadequate Power	Worn or Malfunctioning pump or motor	Repair or replace pump or motor
	Stuck relief valve cartridge.	Repair or replace
	Low system pressure caused by worn pump.	Repair or replace pump.
Surging of hydraulic items	Air in system due to low level of oil, cavitating pump, leaky fittings, pinched hose, etc.	Correct

<u>Removal and Installation of Equipment</u>

1. Preparation

WARNING: BEFORE PERFORMING INSTALLATION OR REMOVAL PROCEDURES, THE FOLLOWING PRECAUTIONS MUST BE ADHERED TO IN ORDER TO PREVENT POSSIBLE DAMAGE TO EQUIPMENT OR INJURY OR DEATH TO PERSONNEL.

WARNING: TURN THE ENGINE OFF BY TURNING THE IGNITION SWITCH TO OFF. DISCONNECT THE BATTERY CABLES BEFORE SERVICING THE ENGINE START OR STOP CIRCUITS. DISCONNECTING BATTERY NEGATIVE GROUND BEFORE REMOVING OR CONNECTING THE POSITIVE BATTERY CABLE CAN PREVENT SHORT CIRCUITING OF THE BATTERY BY TOOLS.

2. Electrical (General)

A. Meters, Indicators and Switches Removal.

1. These devices are mounted from the front of the control panel and are secured in place by various types of retainers.
2. Disconnect battery supplying primary power to the device.
3. Disconnect and label all wires on the back of the device.
4. Remove the back side retainer from the device.
5. Remove the device.

B. Meters, Indicators and Switches Installation

1. Insert the device into the control panel space provided.

2. Check that the circuit providing primary power to the device is de-energized.

3. Install the retainer on the back side of the device.

4. Re-connect wiring to device in the same order as it was removed.

PROPANE

1. Set propane gauges at 5-7 p.s.i.

2. Light burners as soon as gas is turned on.

3. Run burners long enough to heat screed; approximately 10 to 15 minutes. DO NOT OVER HEAT!

   WARNING: EXCESS GAS ALLOWED TO ACCUMULATE BEFORE LIGHTING BURNERS MAY CAUSE AN EXPLOSION RESULTING IN PERSONAL INJURY OR DEATH.

CHAIN ADJUSTMENTS

1. Remove lower chain covers.

2. Loosen bolts on wheels slightly.

3. Loosen chain adjusters opposide drive side of wheels.

4. Using a 5/16" Allen wrench, tighten chains to approximately 3/4" slack depression. Align sprockets in turn by swapping sides of wheel.

5. After alignment is finished, tighten bolts on wheel and tighten chain adjusters opposide drive side.

6. Check chain again for 3/4" slack depression.

7. Replace chain covers.

TRACK ADJUSTMENTS AND LUBRICATION

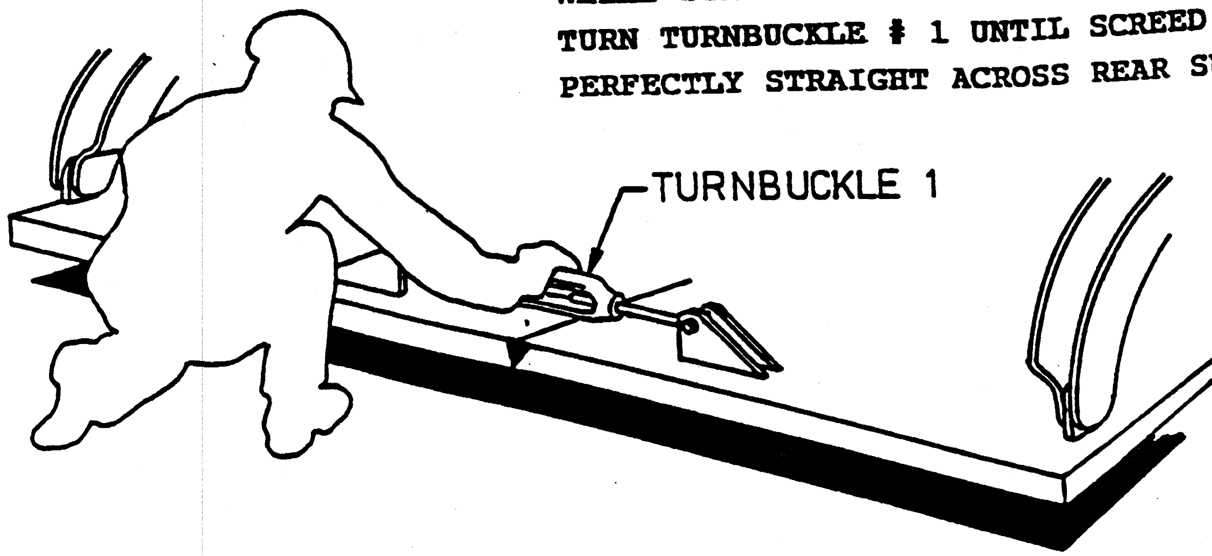
1. Load rollers and idler sprockets should be greased daily.

2. With a 1-1/2" wrench, tighten track through side access.

3. Track should be adjusted so that the top hangs level. DO NOT OVER TIGHTEN!

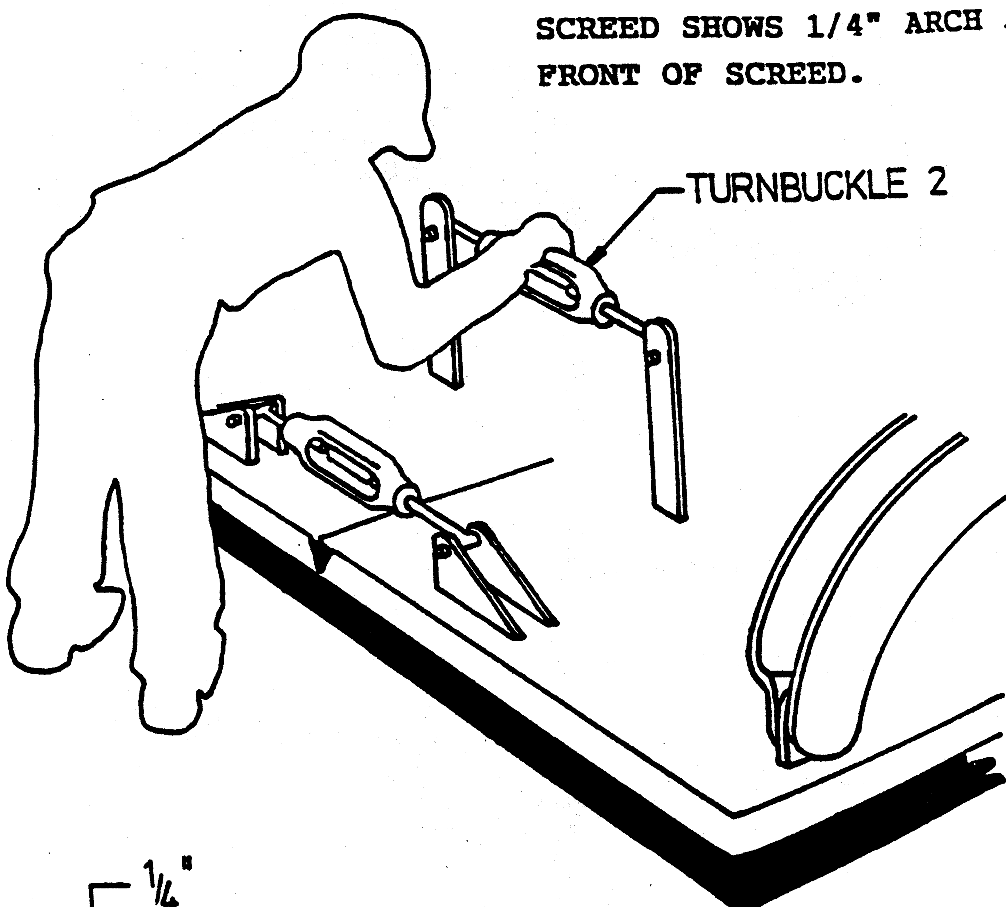
4. Check bearings annually.

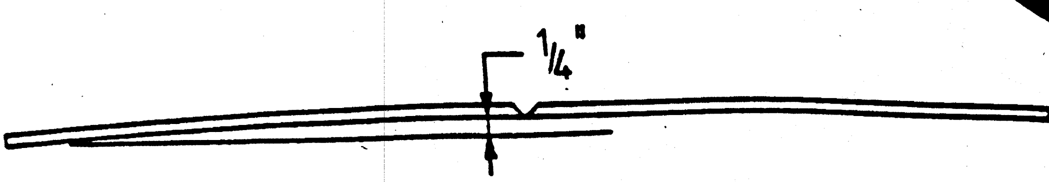
WHILE SCREED IS IN RAISED POSITION, TURN TURNBUCKLE # 1 UNTIL SCREED IS PERFECTLY STRAIGHT ACROSS REAR SURFA(



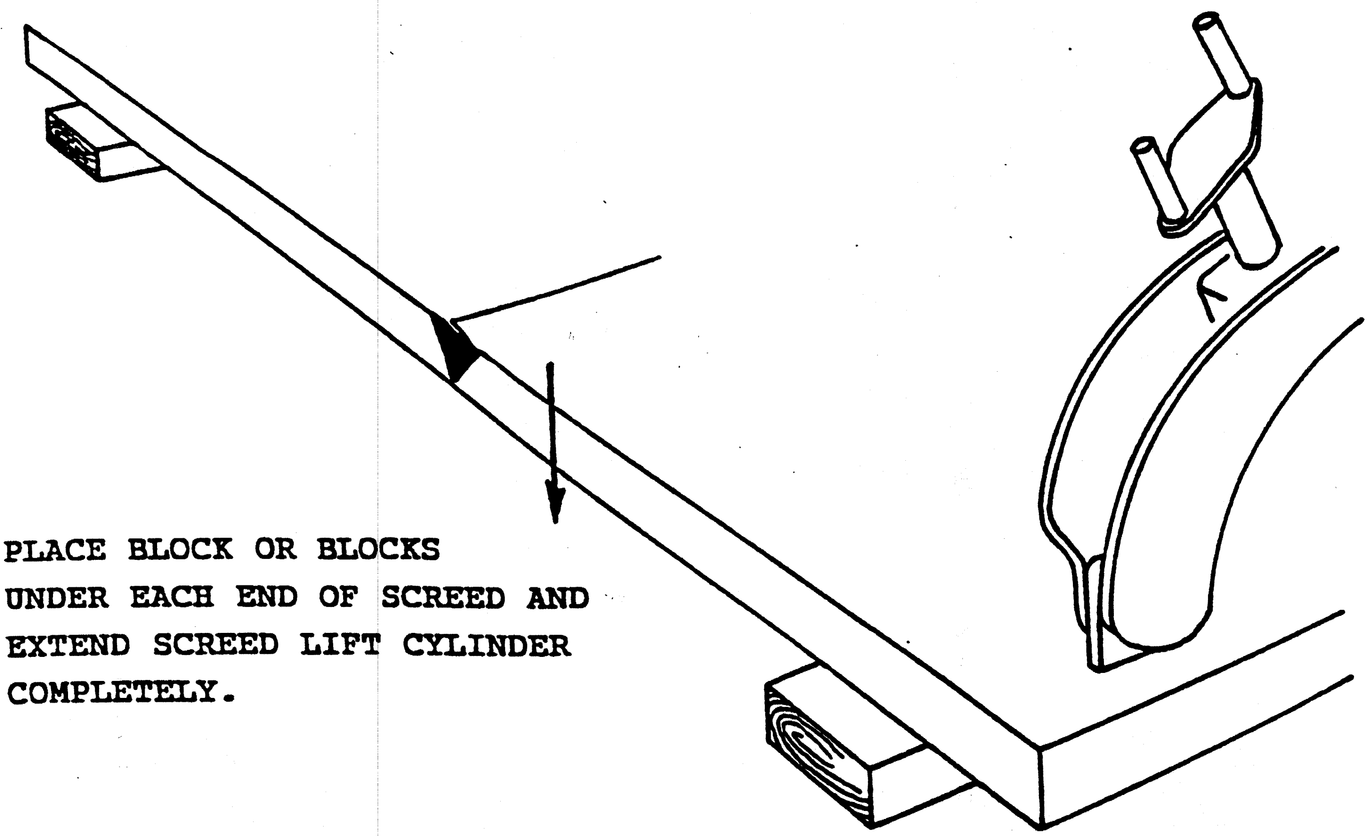
STEP 1

TURN TURNBUCKLE # 2 UNTIL SCREED SHOWS 1/4" ARCH AT FRONT OF SCREED.



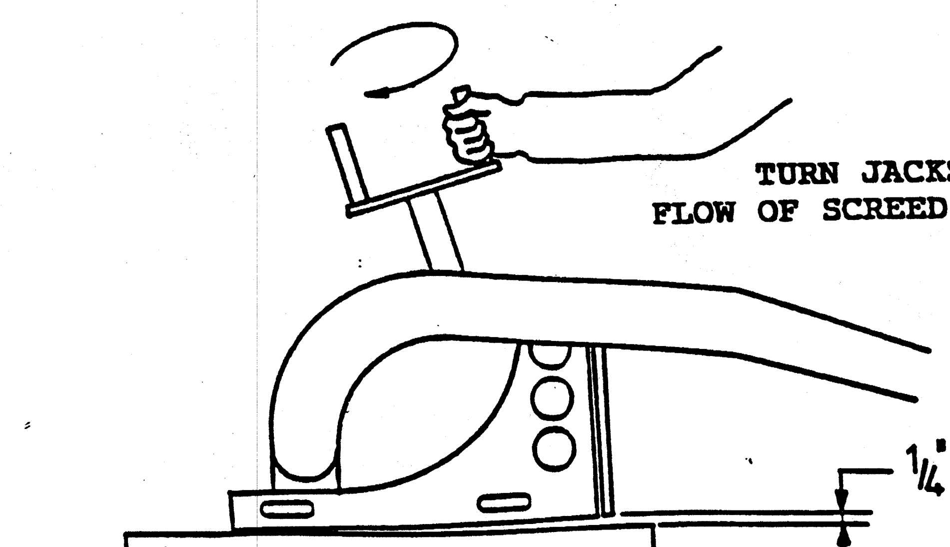


STEP 2



PLACE BLOCK OR BLOCKS
UNDER EACH END OF SCREED AND
EXTEND SCREED LIFT CYLINDER
COMPLETELY.

STEP 3



TURN JACKS CLOCKWISE UNTIL
FLOW OF SCREED IS 1/4" OFF BLOCKS.

STEP 4

ldin Brothers
DWG No. 090-0093
21-Aug-90

DRIVE WHEEL FRAME ASSEMBLY

MODEL 690E

ITEM NO.	DESCRIPTION	NO. REQ'D.	PART NO.
1	FRAME	1	092-0102
2	RETAINING RING	4	050-0127
3	SHAFT - PUSH ROLLER	2	093-0038
4	BEARING ADJUSTING NUTS	16	030-0024
5	BEARING ADJUSTING BOLTS	16	030-0168
6	RETAINING RING	4	050-0126
7	HOPPER FLAP SHAFT	2	093-0039
8	LOCK WASHER	1	030-0052
9	BOLT (HOPPER CANVAS)	24	030-0064
10	WASHER	24	030-0039
11	HOPPER (LEFT REAR)	1	092-0053
12	RETAINING CHAIN	2	093-0040
13	RETAINING CHAIN	2	093-0041
14	COTTER PIN	1	030-0200
15	WASHER (LOCK)	1	030-0053
16	WASHER	1	030-0040
17	HOPPER BED SHAFT	1	092-0054
18	BOLT	2	030-0250
19	BOLT (COVER PLATE)	4	030-0122
20	CHAIN COVER (RIGHT FRONT)	1	092-0061
21	CHAIN COVER (RIGHT REAR)	1	092-0062
22	COVER PLATE	2	093-0042
23	CHAIN COVER (LEFT REAR)	1	092-0063
24	CHAIN COVER (LEFT FRONT)	1	092-0064
25	ROLLER	2	091-0006
26	HOPPER CANVAS	2	015-0081
27	HOPPER FLAP (RIGHT REAR)	1	092-0055
28	HYD. CYL. (W/2 PINS & CLIPS)	2	012-0005
29	HYD. CYLINDER (HOPPER)	2	012-0008
30	RETAINING PIN	1	012-0028
31	RETAINING CLIP	1	012-0029
32	AUGER AND EXTEN. HANDLE	1	092-0056
33	AUGER AND EXTEN. HANDLE	1	092-0057
34	HOPPER BED	1	092-0103
35	HOPPER FLAP (LEFT FRONT)	1	092-0104
36	HOPPER FLAP SHAFT	2	093-0108
37	HOPPER FLAP (RIGHT FRONT)	1	092-0105
38	NUT	4	030-0035
39	HOPPER CANVAS CLAMP	2	093-0045

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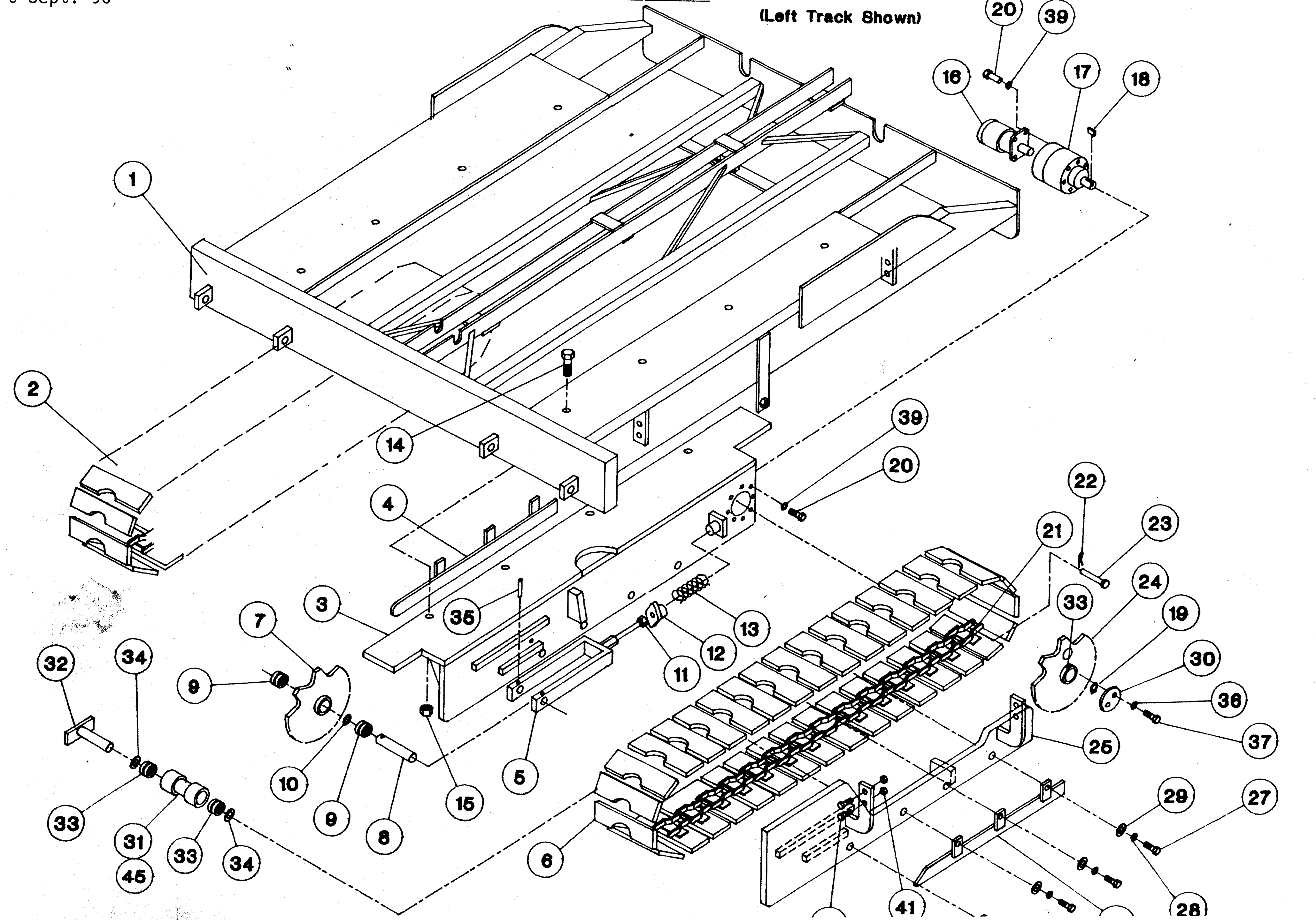
DWG. NO. 090-0094
5-Sept. 90

OPTIONAL TRACK DRIVE ASSEMBLY

MODEL 690E

(Left Track Shown)



auldin Brothers
WG NO. 090-0097
-Sept-90

WHEEL ASSEMBLY
MODEL 690E
(LEFT WHEEL ASSEMBLY SHOWN)

ITEM NO.	DESCRIPTION	NO. REQ'D.	PART NO.
1	LEFT FRONT WHEEL ASSEMBLY	1	092-0106
2	SHAFT KEY	1	093-0084
3	DRIVE SHAFT	1	093-0083
4	SPROCKET (CHAIN)	1	015-0019
5	SLIDE PLATE	4	093-0082
6	RETAINING RING	2	050-0130
7	BOLT	8	030-0091
8	SINGLE AXLE/FLANGE	1	092-0107
9	RIM WITH TIRE MOUNTED	-	023-0002
10	BOLT	8	030-0096
11	BUSHING (JACKSHAFT)	1	093-0089
12	BUSHING (JACKSHAFT)	1	093-0090
13	DUAL AXLE/FLANGE	1	092-0027
14	BOLT	1	091-0017
15	DRIVE CHAIN	1	091-0002
16	SPROCKET (CHAIN)	1	015-0016
17	DRIVE CHAIN	1	091-0018
18	SPROCKET (CHAIN)	2	015-0029
19	WASHER (LOCK)	4	030-0057
20	WASHER (FLAT)	8	030-0044
21	BOLT	4	030-0178
22	BOLT (MOUNTING)	3	030-0091
23	MOUNTING PLATE	1	093-0091
24	AXLE SHAFT KEY	1	093-0022
25	SHAFT KEY	1	093-0021
26	NUT	3	030-0007
27	SHAFT KEY	1	083-0033
28	LEFT REAR WHEEL ASSEMBLY	1	092-0026
29	DRIVE MOTOR	1	013-0012
30	SPROCKET (CHAIN)	2	015-0026
31	FLANGE BEARING	2	018-0006
32	DRIVE CHAIN	1	091-0019
33	SHAFT KEY	1	093-0085
34	NUT	16	030-0032
35	BEVEL WASHER	8	030-0050
36	PILLOW BLOCK BEARING	4	018-0004
37	RETAINING RING	1	050-0151

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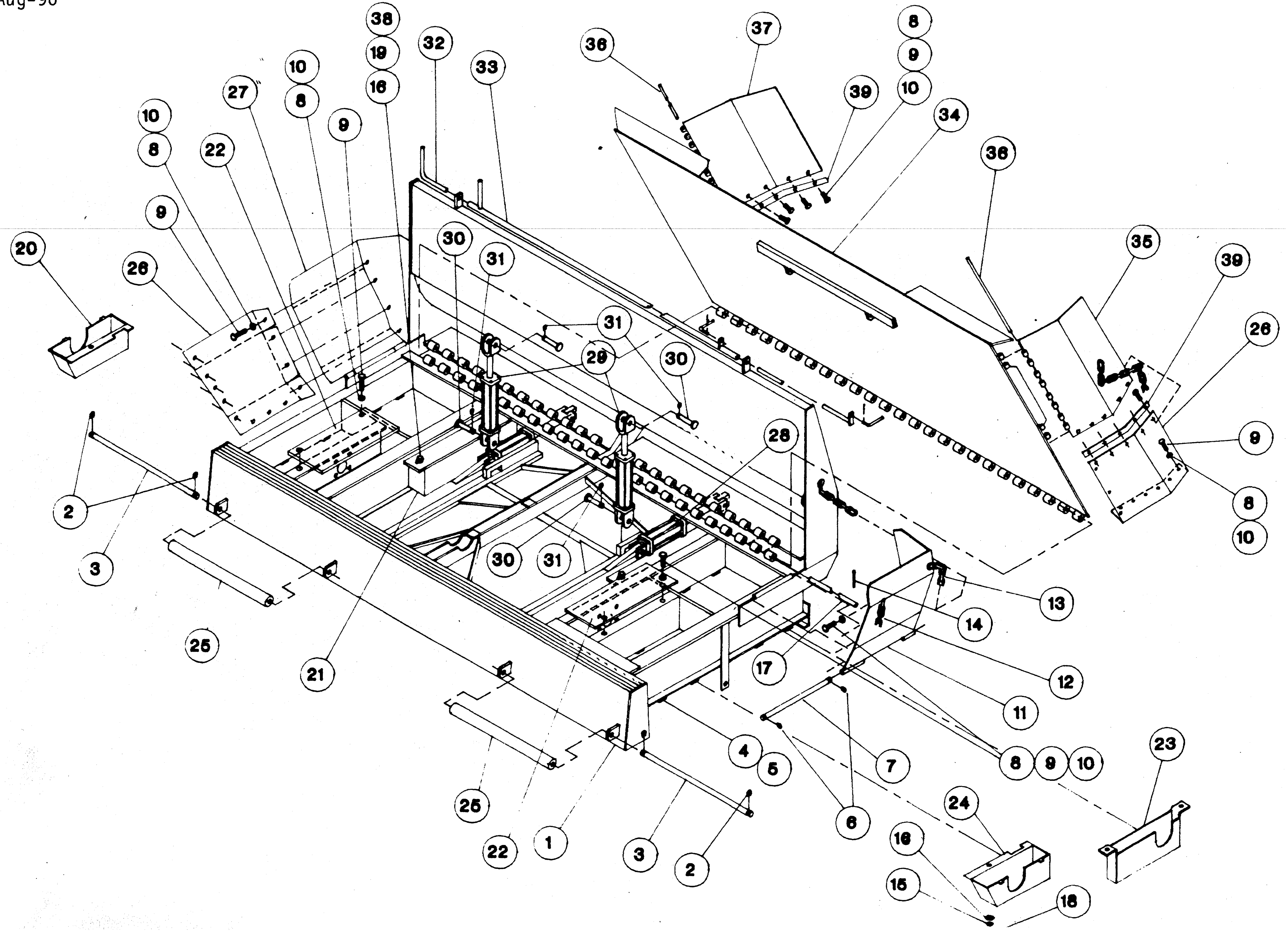
6-Aug-90

DRIVE WHEEL FRAME ASSEMBLY
MODEL 690E



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DWG. NO. 090-0095
5-Sept-90

OPTIONAL TRACK DRIVE ASSEMBLY
MODEL 690E

ITEM NO.	DESCRIPTION	NO. REQ'D.	PART NO.
1	TRACK FRAME	1	092-0111
2	TRACK ASSY. (COMPLETE)	1	092-0112
3	LEFT TRACK ASSY. FRAME	1	092-0113
4	TRACK GUIDE	1	092-0114
5	SPROCKET YOKE	1	092-0033
6	TRACK PADS	-	093-0025
7	SPROCKET IDLER	1	015-0136
8	SPROCKET SHAFT	1	093-0026
9	SPROCKET BEARING	1	018-0036
10	SPROCKET SPACER	1	093-0027
11	NUT	1	091-0004
12	YOKE SPRING MOUNT	1	092-0034
13	YOKE SPRING	1	050-0066
14	BOLT	1	030-0110
15	NUT	1	030-0034
16	HYDRAULIC MOTOR	1	013-0015
17	GEAR REDUCER	1	016-0001
18	SHAFT KEY	1	093-0019
19	RETAINING RING	1	050-0130
20	BOLT (REDUCER)	8	030-0078
21	TRACK CHAIN ONLY	1	015-0141
22	COTTER KEY (EA. LINK)	1	030-0200
23	TRACK KING PIN (EA. LINK)	1	015-0138
24	SPROCKET DRIVE	1	015-0137
25	TRACK CHASSIS - OUTSIDE LEFT	1	092-0115
26	TRACK GUIDE - LEFT	1	093-0096
27	WHEEL BOLT	4	091-0005
28	WASHER (LOCK)	4	030-0057
29	WASHER (FLAT)	4	030-0044
30	SPROCKET WASHER	8	093-0028
31	TRACK ROLLER	3	093-0029
32	TRACK ROLLER SHAFT	3	092-0037
33	TRACK ROLLER BEARING	2	018-0012
34	TRACK ROLLER SEAL	2	022-0003
35	SET SCREW	1	030-0163
36	WASHER (LOCK)	2	030-0053
37	BOLT	2	030-0066
38	BOLT	4	030-0076
39	WASHER (LOCK)	4	030-0055
40	BOLT	4	030-0033
41	NUT	4	030-0103
42	TRACK GUIDE - RIGHT	1	093-0097
43	RIGHT TRACK ASSY. FRAME	1	092-0116
44	TRACK CHASSIS OUTSIDE RIGHT	1	092-0117
45	TRACK ROLLER COMPLETE ASSEMBLY	-	091-0020

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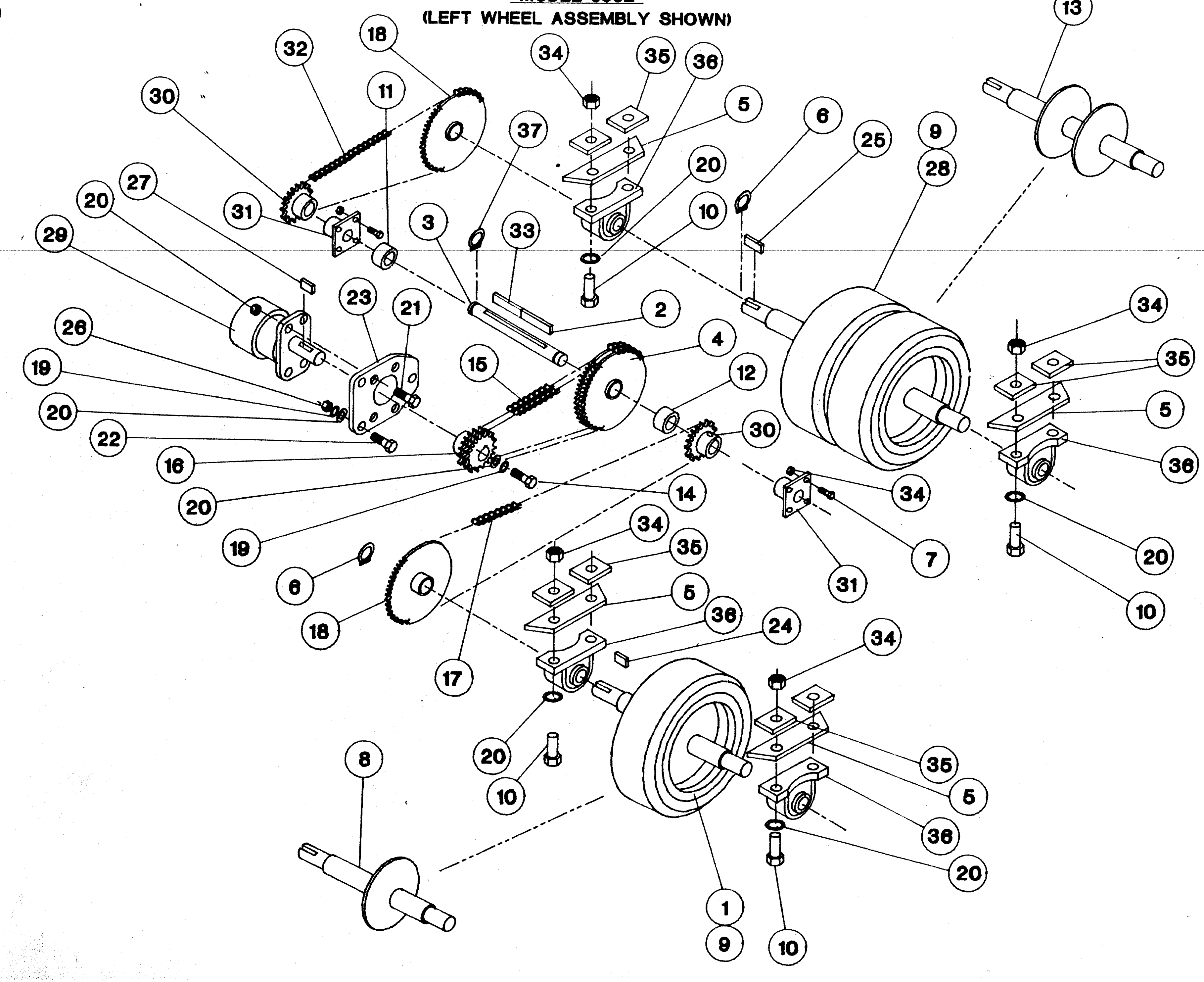
DWG NO. 090-0096
21-Aug-90

WHEEL ASSEMBLY
MODEL 690E
(LEFT WHEEL ASSEMBLY SHOWN)



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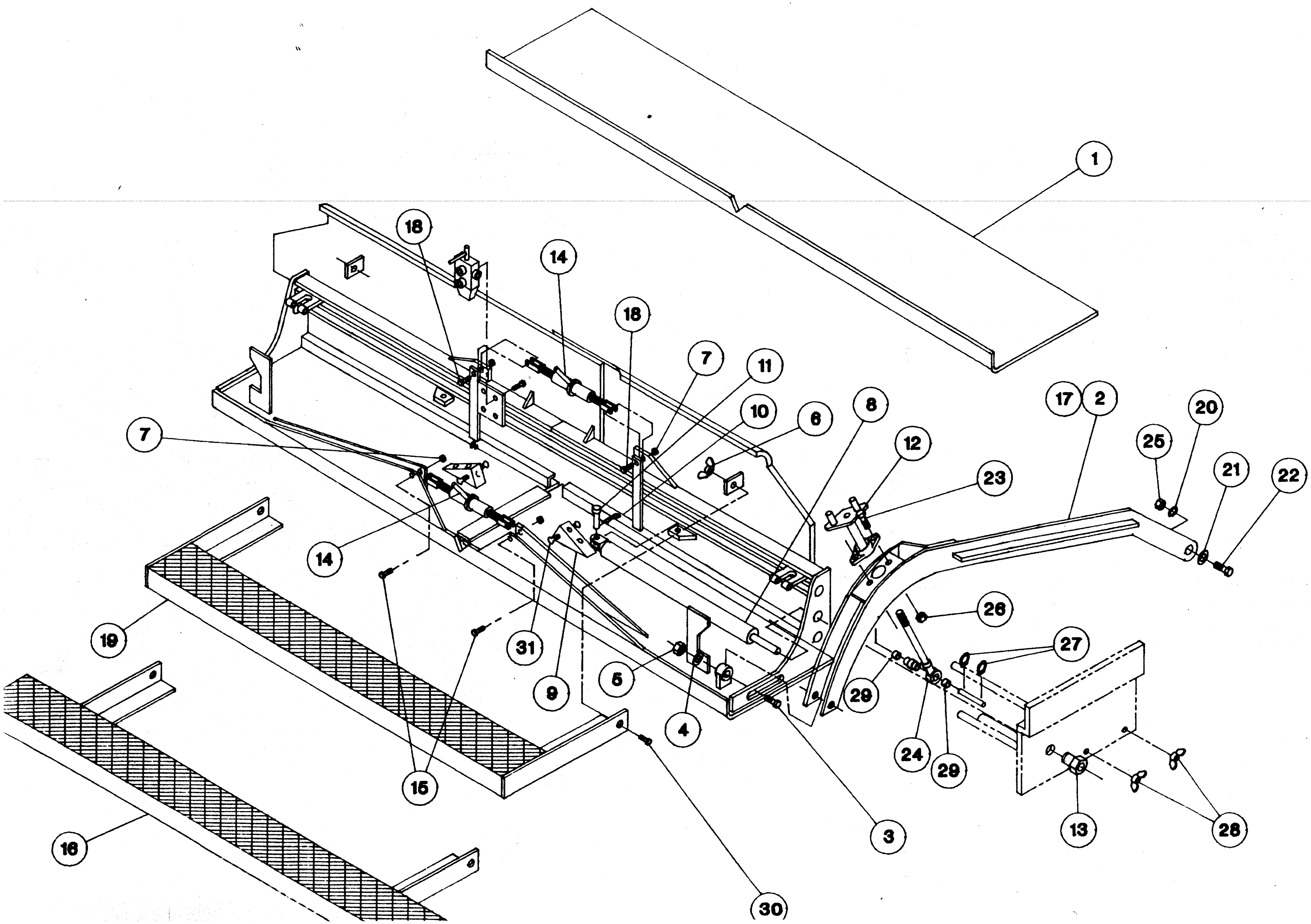
5-Sept-90

SCREED ASSEMBLY
MODEL 690E

ITEM NO.	DESCRIPTION	NO. REQ'D.	PART NO.
1	SCREED BOT. PLATE, REPLACEMENT	1	093-0030
2	SCREED ARM (R.H.)	1	092-0040
3	BOLT	1	030-0111
4	WASHER	1	030-0046
5	NUT	1	030-0034
6	WING NUT (WALKBOARD)	2	030-0018
7	NUT	4	030-0033
8	HYD. CYLINDER	1	012-0017
9	PROPANE BURNER/HOUSING	2	092-0041
10	RETAINING CLIP	1	012-0028
11	RETAINING PIN	1	012-0029
12	ADJUSTING HANDLE	1	092-0045
13	NUT	2	030-0252
14	TURNBUCKLE/RATCHET	2	050-0147
15	BOLT	2	030-0105
16	WALKBOARD (BOTTOM) 71"	1	092-0043
17	SCREED ARM (L.H.)	1	092-0047
18	BOLT	2	030-0103
19	WALKBOARD (TOP) 70"	1	092-0110
20	WASHER	1	030-0044
21	WASHER	1	030-0057
22	BOLT	1	030-0098
23	BOLT	1	030-0132
24	SCREED ADJUSTING ROD	1	092-0046
25	NUT	2	030-0032
26	NUT	1	030-0036
27	RETAINING RING	1	050-0126
28	WING NUT	1	030-0018
29	SPACER - BUSHING	2	093-0059
30	BOLT (WALKBOARD)	1	030-0077
31	THUMB BOLT (ADJUST)	1	030-0064

Mauldin Brothers
DWG NO. 090-0098
5-Sept-90

SCREED ASSEMBLY
MODEL 690E



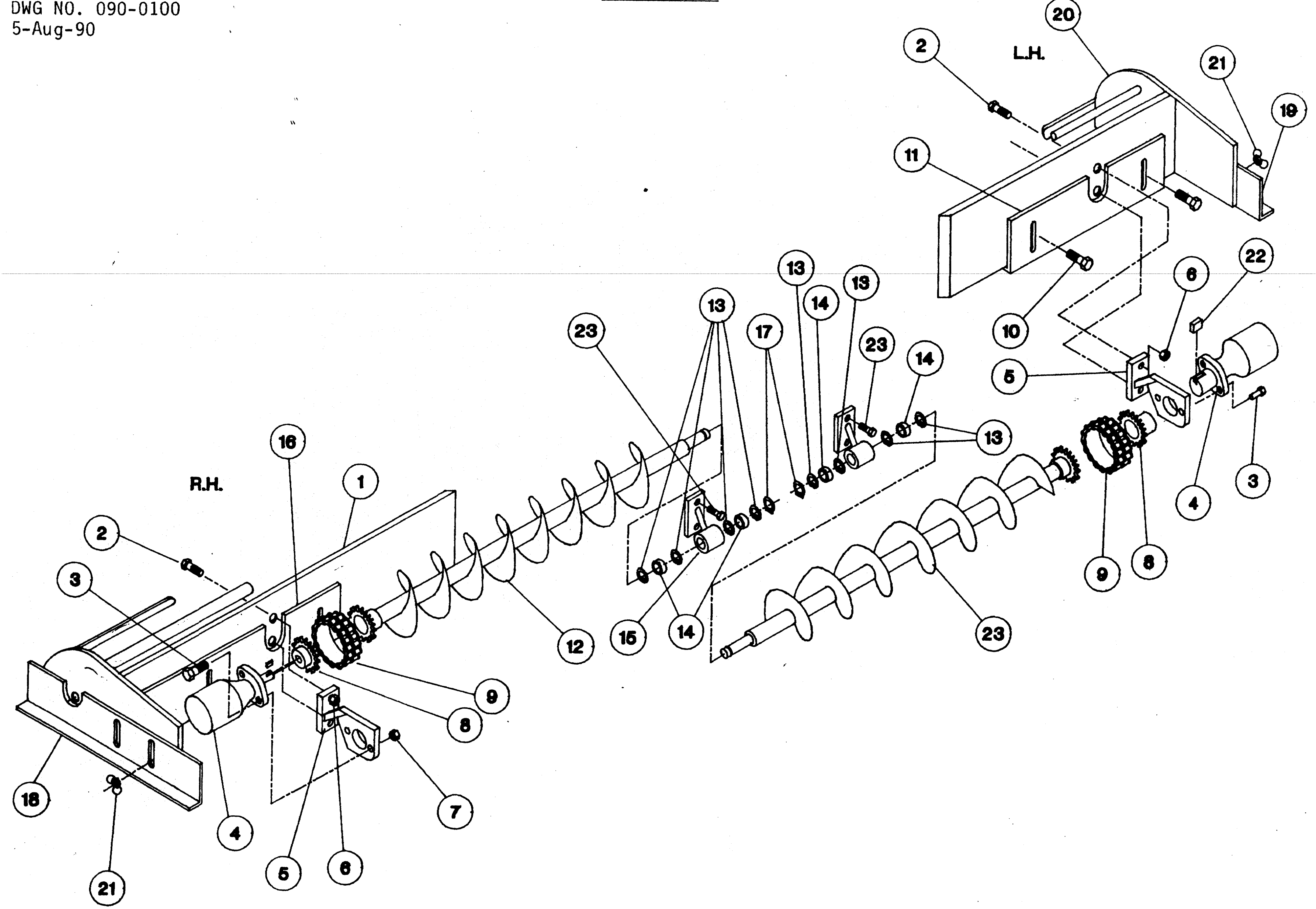
auldin Brothers
WG NO. 090-0101
-Aug-90

AUGER ASSEMBLY
MODEL 690E

ITEM NO.	DESCRIPTION	NO. REQ'D.	PART NO.
1	RIGHT AUGER FRAME	1	092-0017
2	BOLT	4	030-0224
3	BOLT	4	030-0129
4	AUGER HYD. MOTOR	2	013-0034
5	MOTOR SUPPORT	2	092-0018
6	NUT	2	030-0030
7	NUT	2	030-0036
8	COUPLING SPROCKET	1	015-0035
9	COUPLING CHAIN	1	015-0045
10	BOLT	4	030-0074
11	MAT EXTENSION L.H.	1	092-0024
12	RIGHT AUGER	1	092-0015
13	RETAINING RING	1	050-0131
14	BEARING	1	018-0011
15	BEARING SUPPORT	1	092-0019
16	MAT EXTENSION R.H.	1	092-0023
17	RETAINING RING	1	050-0126
18	SHOE EXTENSION R.H.	1	092-0022
19	SHOE EXTENSION L.H.	1	092-0021
20	LEFT AUGER FRAME	1	092-0020
21	WING NUT	4	030-0018
22	SHAFT KEY	2	030-0186
23	LEFT AUGER	1	092-0016

Mauldin Brothers
DWG NO. 090-0100
5-Aug-90

MODEL 690E



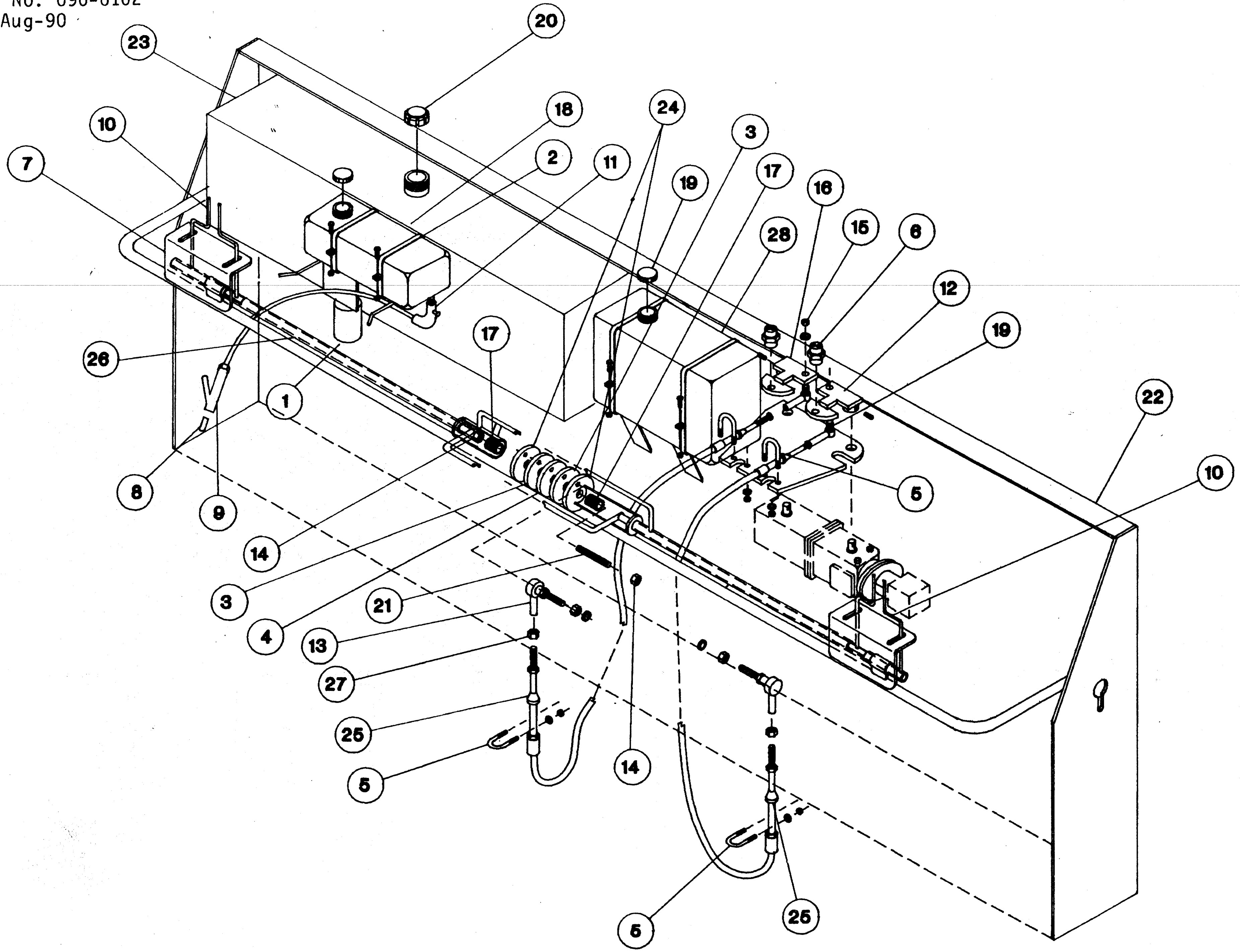
Mauldin Brothers
DWG NO. 090-0103
4-Sept-90

STEERING ASSEMBLY
MODEL 690E

ITEM NO.	DESCRIPTION	NO. REQ'D.	PART NO.
1	PUMP - WASH	1	011-0082
2	TANK BAND	4	083-0007
3	TENSION DISC (LEATHER)	2	050-0075
4	TENSION DISC (METAL)	1	093-0062
5	"U" CLAMP	4	030-0206
6	NEUTRAL SWITCH	2	020-0002
7	STEERING CONTROL LEVER GUIDE	2	093-0061
8	TIP	1	050-0103
9	SPRAY NOZZLE	1	050-0051
10	STEERING CONTROL LEVER	4	093-0060
11	ELBOW FITTING	2	019-0016
12	SLOSH PLATE LEVER (R.H.)	1	092-0079
13	ROD END	4	030-0237
14	NUT	2	030-0013
15	NUT	2	030-0235
16	SLOSH PLATE LEVER (L.H.)	1	092-0080
17	SPRING	2	050-0005
18	WASH DOWN TANK	1	050-0027
19	GAS CAP	2	050-0028
20	HYDRAULIC TANK CAP	1	050-0123
21	THREADED ROD	1	093-0063
22	FRAME BACK	1	092-0078
23	HYDRAULIC RESEVOIR	1	092-0002
24	STEERING TENSION DISC	2	092-0081
25	STEERING CABLE	2	050-0008
26	STEERING CONTROL ASSY.	1	091-0012
27	NUT	4	030-0010
28	GAS TANK	1	050-0150

)WG NO. 090-0102
.3-Aug-90

MODEL 690E



Mauldin Brothers
DWG NO. 090-0105
24-Aug-90

MAIN HYDRAULIC PUMP DIAGRAM

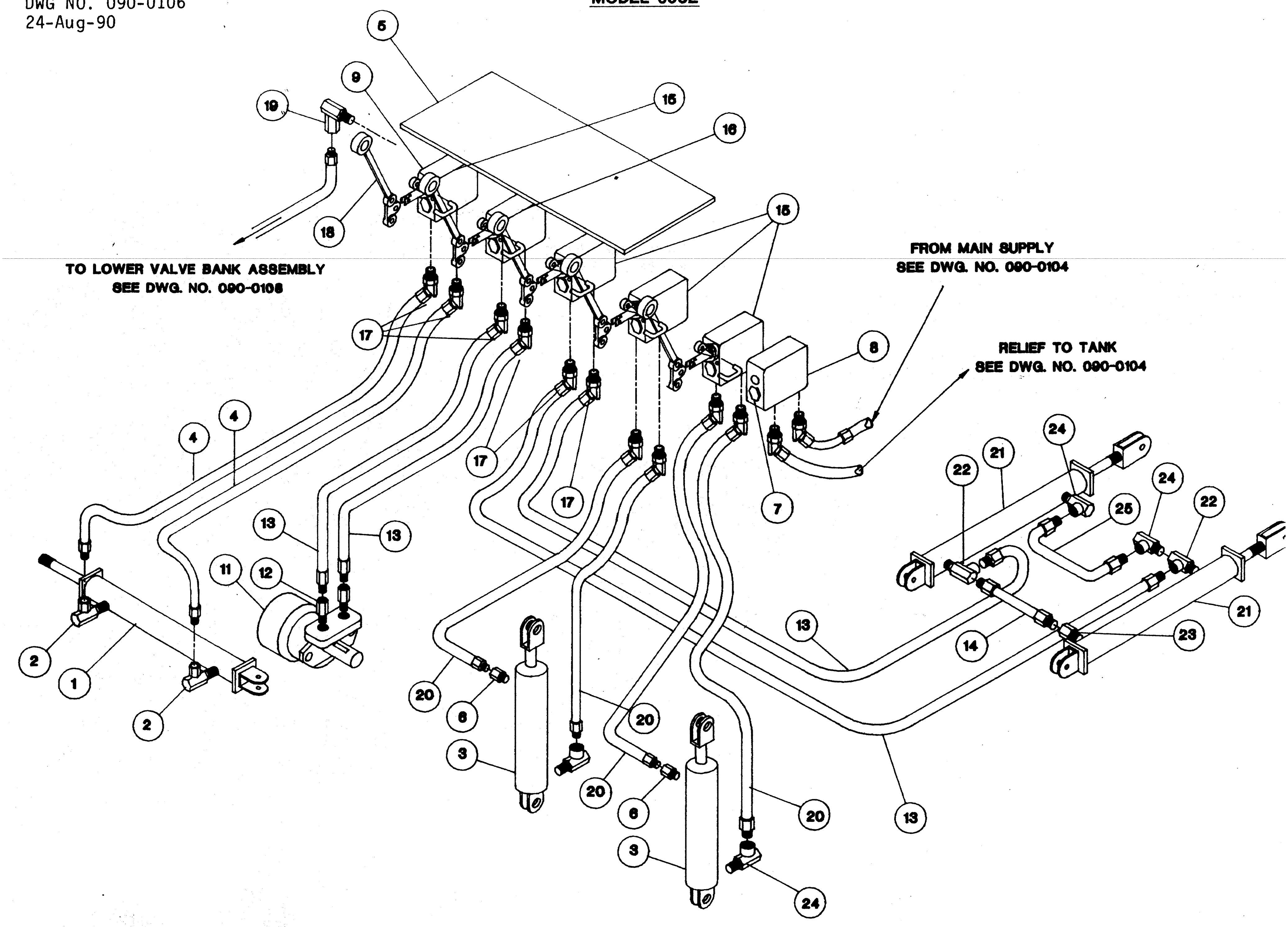
MODEL 690E

ITEM NO.	DESCRIPTION	NO. REQ'D.	PART NO.
1	MAIN HYD. PUMP	1	011-0047
2	HYD. HOSE SIZE - 86" 1/2" HOSE	4	014-0064
3	HYD. HOSE SIZE - 30" 3/4" HOSE	1	014-0071
4	HYD. HOSE SIZE - 70" 1/2" HOSE	1	014-0062
5	HYD. HOSE SIZE - 24" 1/2" HOSE	2	014-0049
6	HYD. HOSE SIZE - 30" 3/8" HOSE	1	014-0020
7	CHECK VALVE	1	017-0030
8	BUSHING	1	019-0039
9	HYDRAULIC OIL CAP	1	050-0123
10	RESERVOIR SCREEN ADAPTOR	1	092-0067
11	RESERVOIR SCREEN	1	021-0008
12	WASH DOWN TANK CAP	1	050-0028
13	HYDRAULIC FITTING	1	014-0210
14	HYDRAULIC FITTING	4	014-0229
15	HYDRAULIC MOTOR	2	013-0012
16	FILTER	2	021-0004
17	FILTER ELEMENT	1	021-0004
18	HYDRAULIC FITTING	1	019-0023

NOTE:
DEPENDING ON SPECIFIC HYDRAULIC COMPONENT MANUFACTURER, FITTING SIZES MAY VARY. PLEASE CHECK YOUR FITTING SIZES BEFORE

Mauldin Brothers
DWG NO. 090-0106
24-Aug-90

UPPER VALVE BANK ASSEMBLY
MODEL 690E



Mauldin Brothers
DWG NO. 090-0109
23-Aug-90

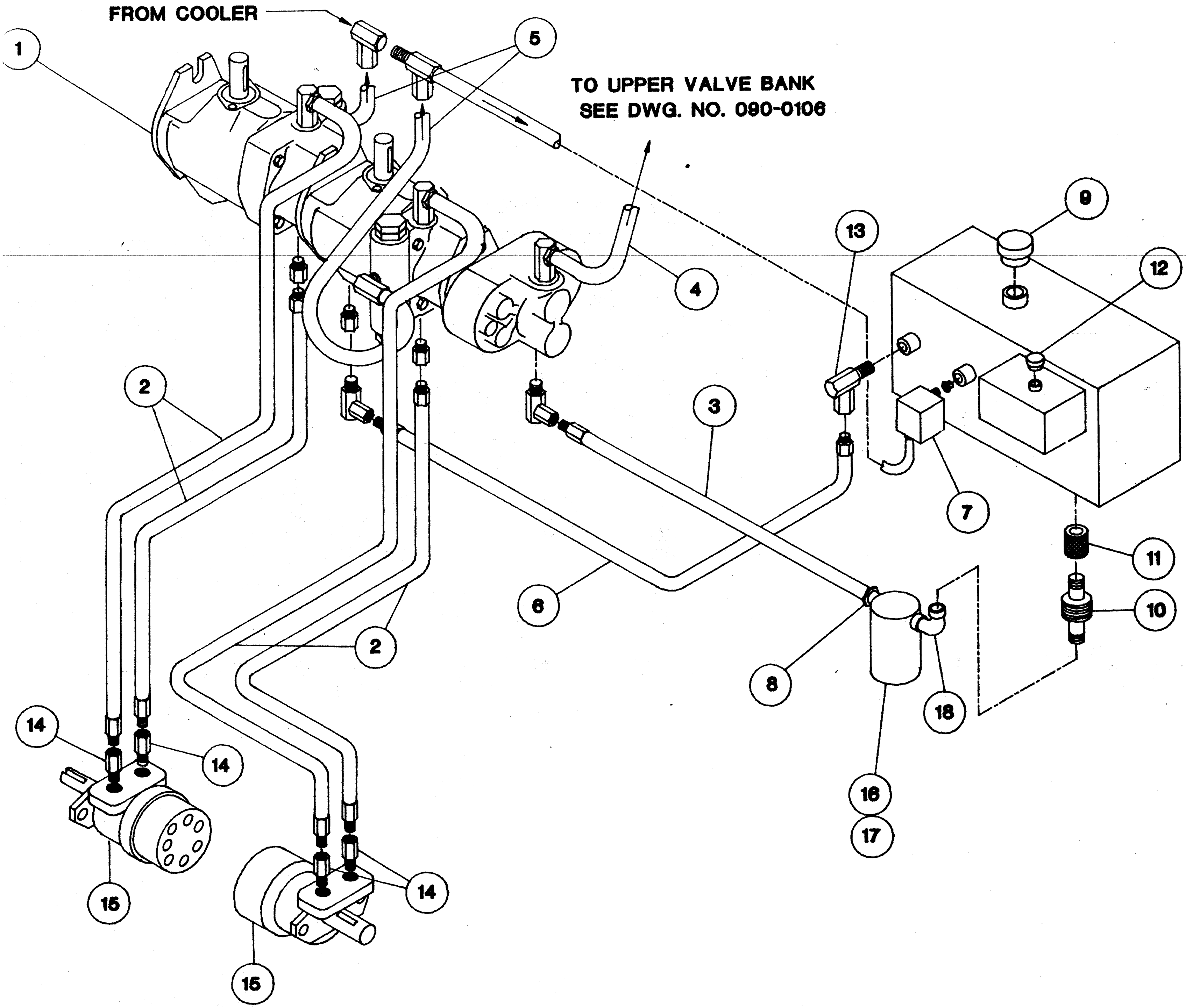
LOWER VALVE BANK ASSEMBLY
MODEL 690E

ITEM NO.	DESCRIPTION	NO. REQ'D.	PART NO.
1	MOUNTING PLATE	1	093-0092
2	HYDRAULIC VALVE (DETENT)	1	017-0056
3	HYDRAULIC VALVE (SPRING CENTER)	2	017-0057
4	VALVE LINKAGE	2	093-0093
5	NUT	4	030-0001
6	HYDRAULIC FITTING	2	014-0210
7	BUSHING	2	019-0034
8	HYDRAULIC MOTOR	1	013-0034
9	VALVE CAP (INLET)	1	017-0061
10	HYD. HOSE SIZE - 25" 1/4" HOSE	2	014-0304
11	HYD. HOSE SIZE - 160" 3/8" HOSE	1	014-0093
12	NUT	1	030-0001
13	VALVE HANDLE	3	017-0060
14	HYDRAULIC FITTING	2	014-0226
15	HYDRAULIC CHECK VALVE	1	017-0021
16	CLOSE NIPPLE	1	019-0003
17	BOLT	1	030-0132
18	VALVE CAP (OUTLET)	1	017-0063
19	HYDRAULIC FITTING (SPECIAL)	1	093-0050
20	HYD. HOSE SIZE - 114" 3/8" HOSE	2	014-0088
21	WASHER	2	030-0042
22	HYD. HOSE SIZE - 70" 3/8" HOSE	2	014-0039
23	HYDRAULIC CYLINDER	1	012-0021
24	BOLT	4	030-0062
25	HYDRAULIC ELBOW FITTING	1	019-0018
26	HYDRAULIC FITTING	2	014-0218
27	NUT	1	030-0036
28	LIFT CHAIN	2	093-0040

NOTE:
DEPENDING ON SPECIFIC HYDRAULIC COMPONENT MANUFACTURER, FITTING SIZES MAY VARY. PLEASE CHECK YOUR FITTING SIZES BEFORE ORDERING REPLACEMENTS.

Mauldin Brothers
DWG NO. 090-0104

MAIN HYDRAULIC PUMP DIAGRAM
MODEL 690E



Mauldin Brothers
DWG NO. 090-0107
24-Aug-90

UPPER VALVE BANK ASSEMBLY

MODEL 690E

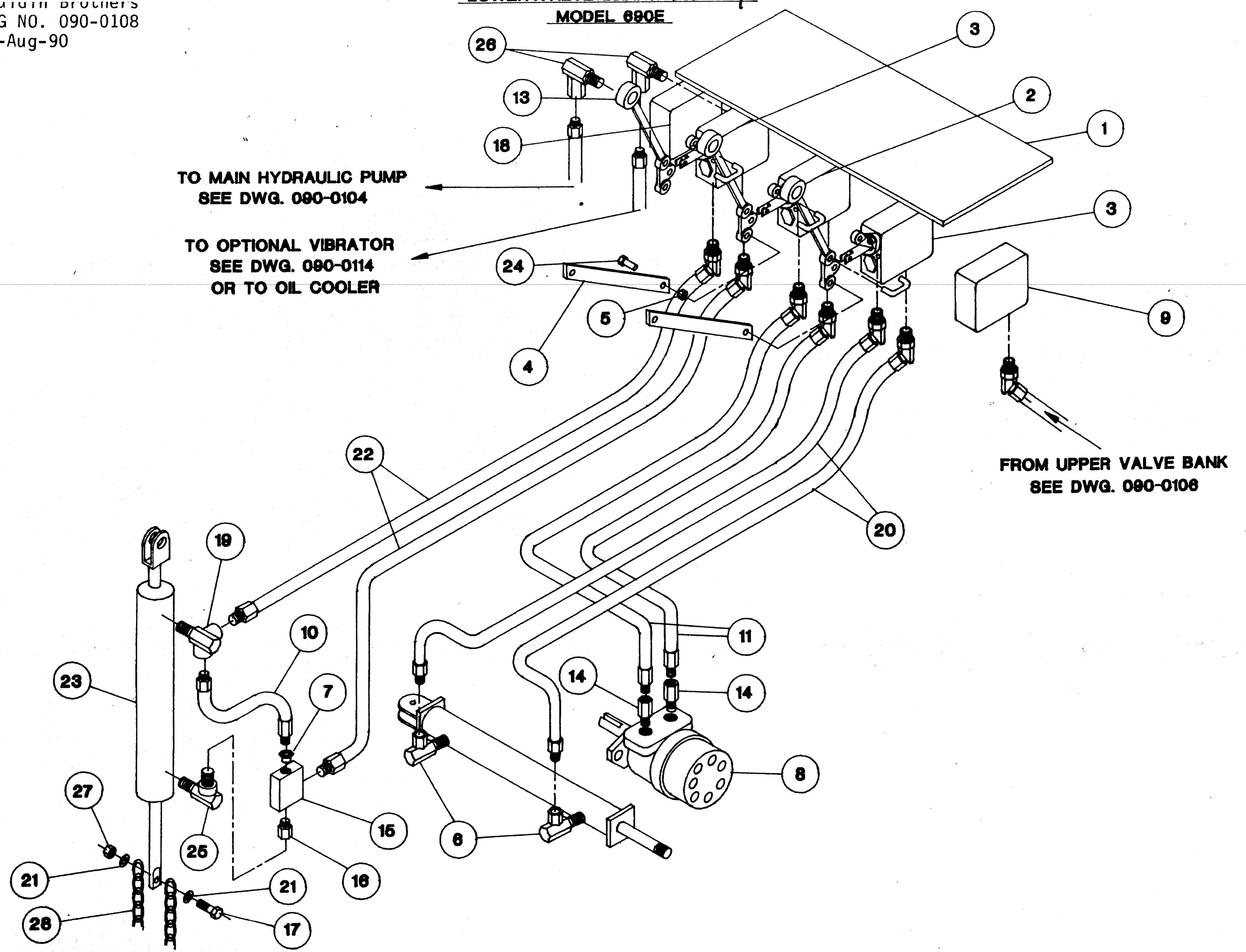
ITEM NO.	DESCRIPTION	NO. REQ'D.	PART NO.
1	HYDRAULIC CYLINDER	1	012-0017
2	HYDRAULIC FITTING	2	014-0210
3	HYDRAULIC CYLINDER	2	012-0019
4	HYD. HOSE SIZE - 70" 3/8" HOSE	2	014-0034
5	MOUNTING PLATE	1	093-0094
6	HYDRAULIC FITTING	2	014-0216
7	HYDRAULIC RELIEF	2	017-0059
8	VALVE INLET CAP	1	017-0061
9	VALVE OUTLET CAP	1	017-0062
10	NUT	2	030-0010
11	AUGER MOTOR	1	013-0034
12	HYDRAULIC FITTING	4	014-0226
13	HYD. HOSE SIZE - 108" 3/8" HOSE	2	014-0086
14	HYD. HOSE SIZE - 20" 3/8" HOSE	1	014-0017
15	HYDRAULIC VALVE (SPRING)	4	017-0057
16	HYDRAULIC VALVE (DETENT)	1	017-0056
17	HYDRAULIC FITTING	10	014-0209
18	VALVE HANDLE	5	017-0060
19	HYDRAULIC FITTING	2	014-0218
20	HYDRAULIC HOSE 78" 3/8" HOSE	4	014-0042
21	HYDRAULIC CYLINDER (HOPPER)	2	012-0022
22	HYDRAULIC FITTING	1	014-0015
23	HYDRAULIC FITTING	1	014-0213
24	HYDRAULIC FITTING	3	014-0215
25	HYD. HOSE SIZE - 43" 3/8" HOSE	1	014-0029

NOTE:
DEPENDING ON SPECIFIC HYDRAULIC COMPONENT MANUFACTURER, FITTING SIZES MAY VARY. PLEASE CHECK YOUR FITTING SIZES BEFORE ORDERING REPLACEMENTS.

Mauldin Brothers
DWG NO. 090-0108
23-Aug-90

Lower Valve Bank Assembly

MODEL 690E



Mauldin Brothers
DWG NO. 090-0111
24 Aug-90

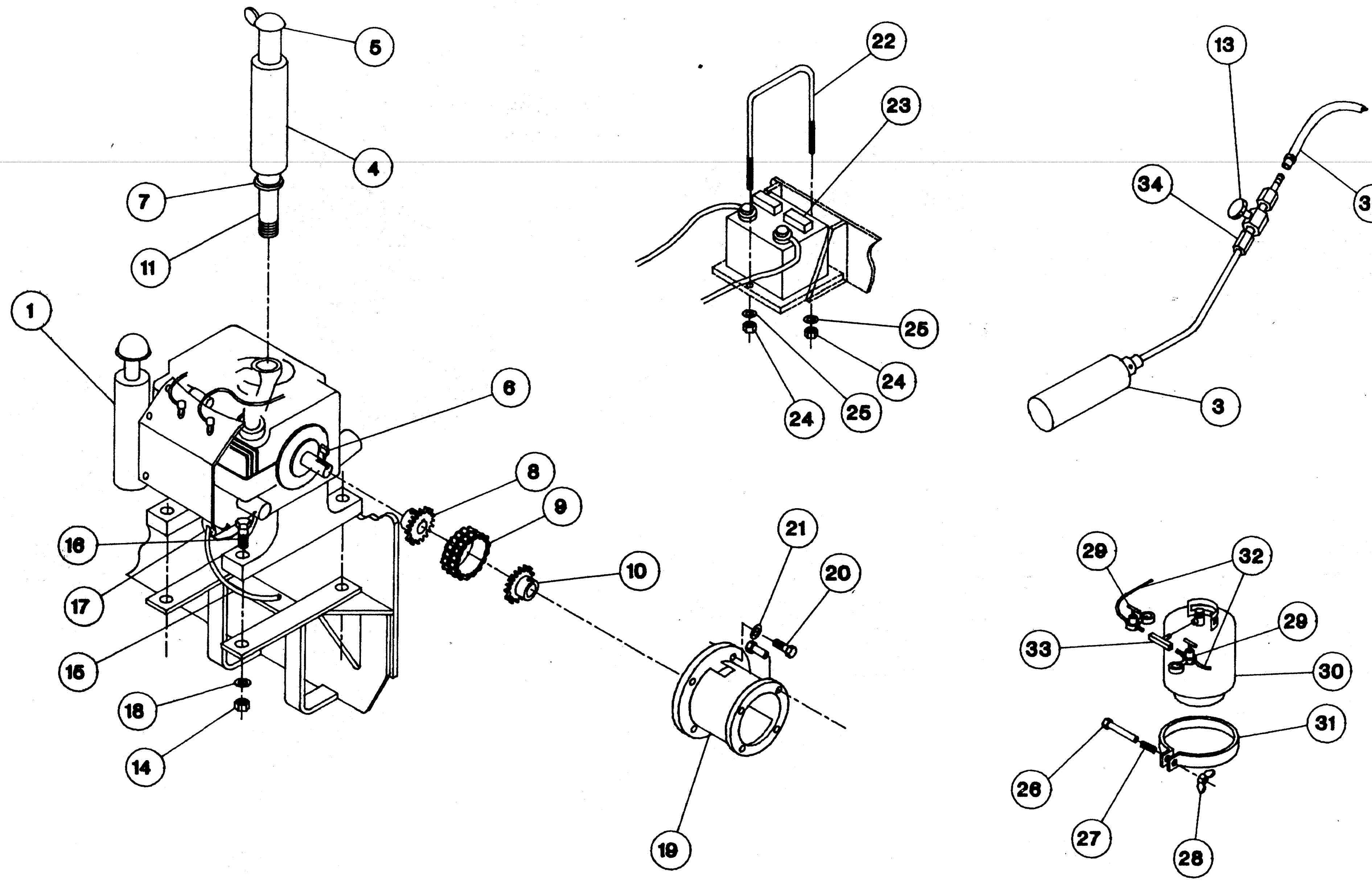
ENGINE ASSEMBLY
MODEL 690E

ITEM NO.	DESCRIPTION	NO. REQ'D.	PART NO.
1	ENGINE	1	010-0018
2	GAS LINE	1	093-0047
3	BURNER TIP	1	092-0109
4	MUFFLER	1	050-0106
5	MUFFLER CAP	1	050-0046
6	SHAFT KEY	1	093-0022
7	MUFFLER CLAMP	1	050-0001
8	COUPLING SPROCKET	1	015-0037
9	COUPLING CHAIN	1	015-0045
10	COUPLING SPROCKET	1	015-0041
11	MUFFLER PIPE	1	019-0051
12	OIL FILTER	1	021-0036
13	PROPANE VALVE	1	019-0052
14	BOLT	1	030-0030
15	WIRING HARNESS	1	091-0010
16	BOLT	1	030-0077
17	STARTER	1	010-0075
18	FLAT WASHER	1	030-0042
19	PUMP AND ENGINE MOUNT	1	093-0095
20	BOLT	1	030-0071
21	LOCK WASHER	1	030-0054
22	BATTERY ROD	1	093-0046
23	BATTERY	1	050-0021
24	NUT	2	030-0001
25	WASHER	2	030-0038
26	BOLT	1	030-0085
27	SPRING	1	050-0005
28	WING NUT	1	030-0018
29	AIR GAUGE AND REGULATOR	2	050-0049
30	L.P.G. TANK	1	050-0039
31	TANK MOUNT	1	092-0065
32	PROPANE HOSE	2	093-0048
33	"T" FITTING	1	050-0050
34	FITTING, PROPANE HOSE	2	014-0263
35	HOSE CLAMP	2	015-0087

ITEM NO.	DESCRIPTION	NO. REQ'D.	PART NO.
	35 H.P. ISUZU OPTION		
1	ENGINE	1	010-0076
	OIL FILTER	1	021-0052
	FUEL FILTER	1	021-0053
	35 H.P. DEUTZ OPTION		
1	ENGINE	1	010-0020
	OIL FILTER	1	021-0034
	FUEL FILTER	1	021-0031

Mauldin Brothers
DWG NO. 090-0110
8-Aug-90

ENGINE ASSEMBLY
MODEL 690E



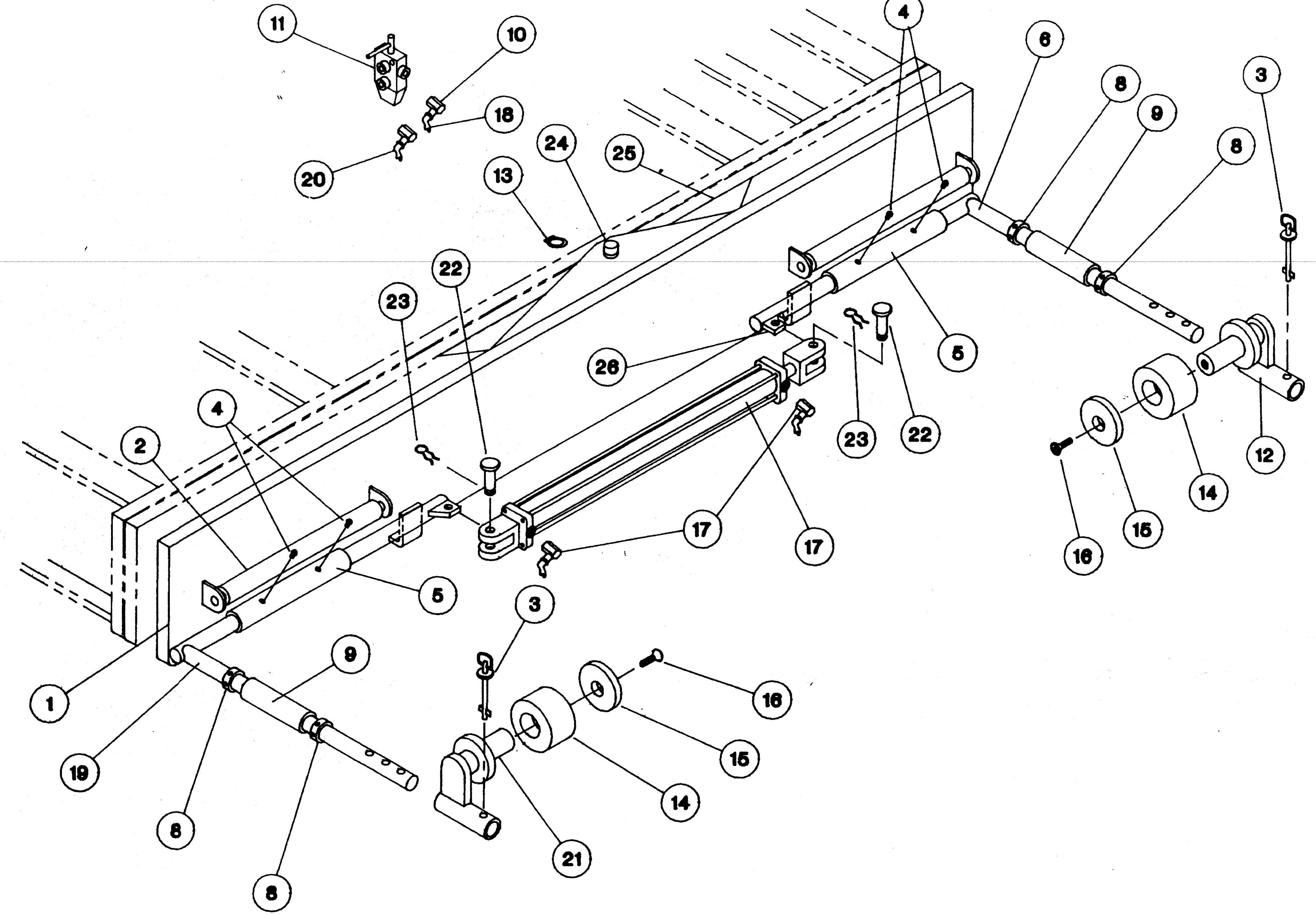
Mauldin Brothers
DWG NO. 090-0113
4-Sept-90

OPTIONAL IN WHEEL HITCH ASSEMBLY
MODEL 690E

ITEM NO.	DESCRIPTION	NO. REQ'D.	PART NO.
1	WHEEL HITCH FRAME	1	092-0068
2	ROLLER WITH BEARING	2	091-0006
3	PIN	2	030-0251
4	GREASE FITTING	4	030-0183
5	SLEEVE	2	093-0056
6	HITCH ARM L.H.	1	092-0069
7	ADAPTOR FITTING	2	014-0210
8	COLLAR	4	091-0007
9	SIDE ROLLER	2	091-0008
10	ADAPTOR FITTING	2	014-0209
11	VALVE - SPRING CENTERED	1	017-0004
12	ADJ. END WHEEL ROLLER MOUNT	1	092-0070
13	RETAINING RING	2	050-0026
14	ROLLER - RIM	2	091-0009
15	WASHER - RETAINER	2	093-0057
16	BOLT	2	030-0248
17	HYDRAULIC CYLINDER	1	012-0017
18	HYD. HOSE SIZE - 136" 3/8" HOSE	1	014-0090
19	HITCH ARM R.H.	1	092-0071
20	HYD. HOSE SIZE - 150" 3/8" HOSE	1	014-0091
21	ADJ. END WHEEL ROLLER MOUNT	1	092-0072
22	RETAINING PIN	2	012-0028
23	RETAINING CLIP	2	012-0029
24	PIN - WHEEL HITCH ASSY MOUNT	1	093-0058
25	HITCH MOUNT PLATE	2	093-0036
26	CYLINDER MOUNT BLOCK	2	093-0033

Mauldin Brothers
DWG NO. 090-0112
4-Sept-90

MODEL 690E



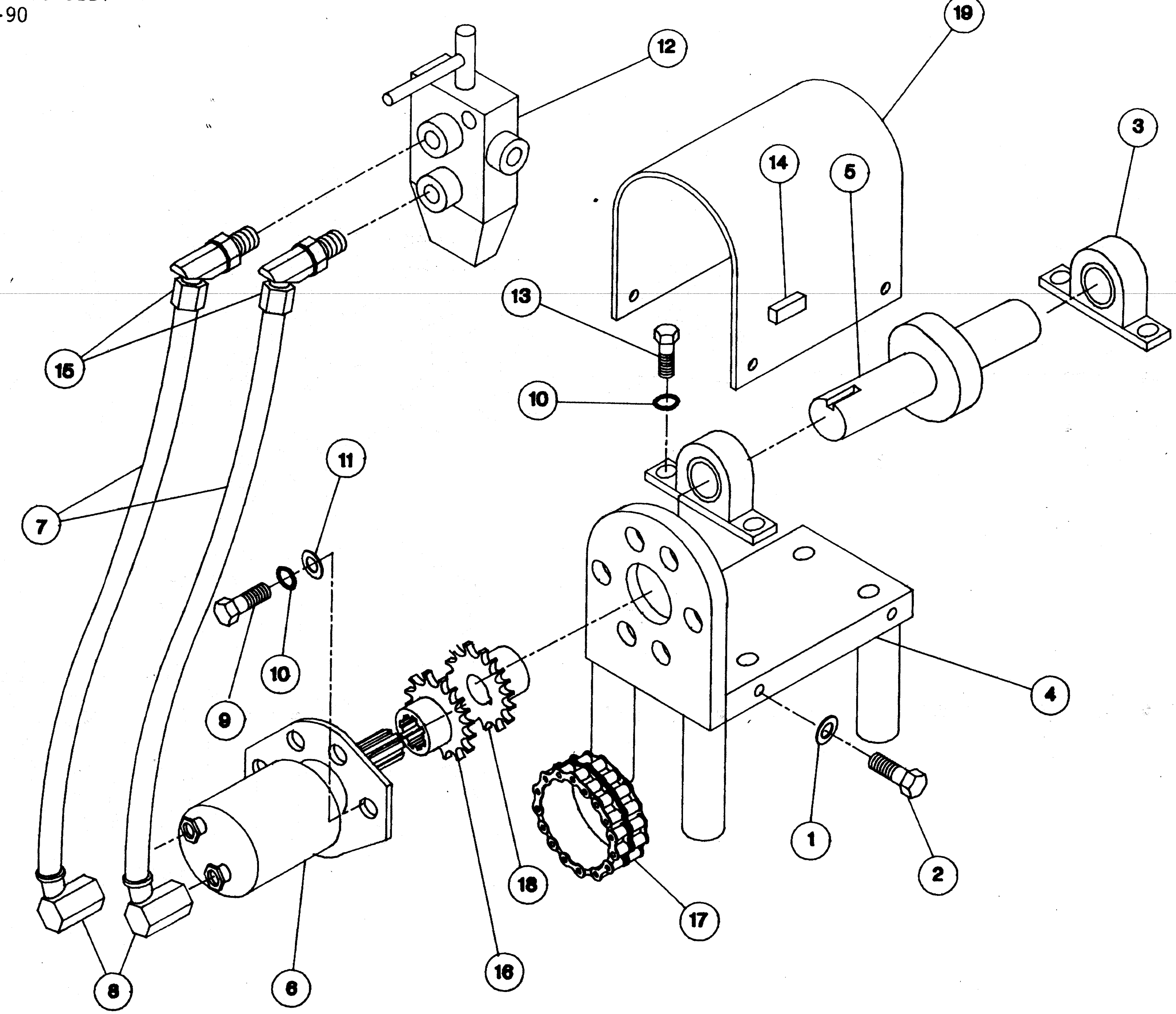
Mauldin Brothers
DWG NO. 090-0115
4-Sept-90

VIBRATOR ASSEMBLY
MODEL 690E

ITEM NO.	DESCRIPTION	NO. REQ'D.	PART NO.
1	WASHER	2	030-0052
2	BOLT	2	030-0064
3	PILLOW BLOCK BEARING	1	018-0002
4	VIBRATOR FRAME	1	092-0119
5	VIBRATOR SHAFT	1	092-0074
6	HYDRAULIC MOTOR	1	013-0007
7	HYDRAULIC HOSE	2	014-0016
8	HYDRAULIC FITTING	2	014-0227
9	BOLT	6	030-0066
10	LOCKWASHER	6	030-0053
11	FLAT WASHER	6	030-0040
12	HYDRAULIC VALVE	1	017-0006
13	BOLT	1	030-0250
14	VIBRATOR SHAFT KEY	1	083-0014
15	HYDRAULIC FITTING	2	014-0210
16	SPROCKET	1	~~015-0[illegible]~~ 015-0119
17	CHAIN	1	015-0044
18	SPROCKET	1	015-0033
19	COVER	1	093-0098

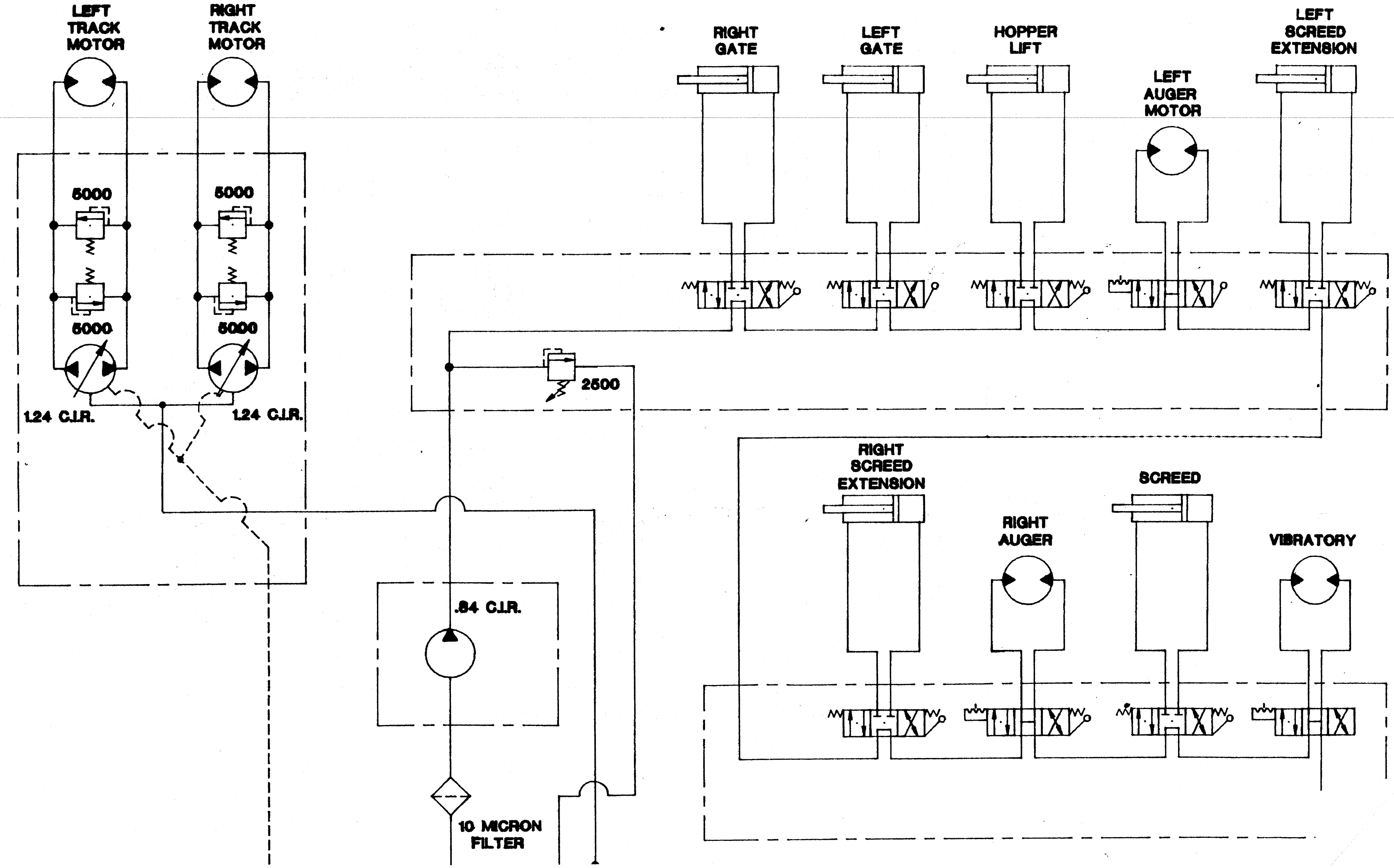
Mauldin Brothers
DWG NO. 090-0114
4-Sept-90

MODEL 690E



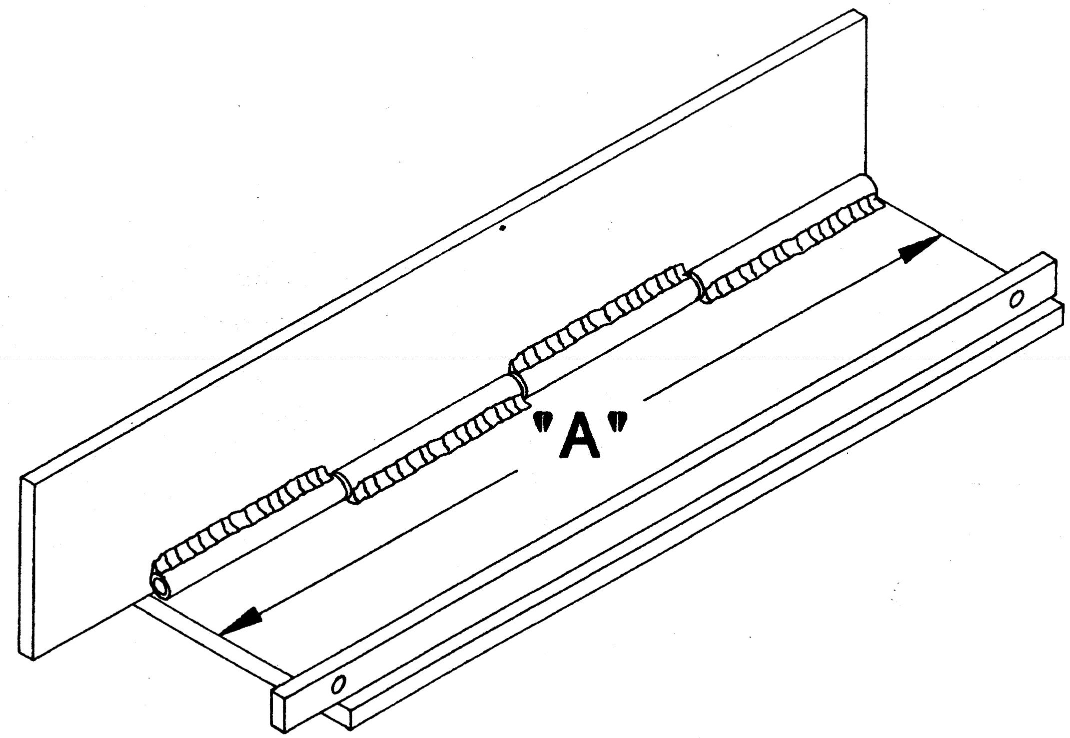
Mauldin Brothers
DWG NO. 090-0118
23-Aug-90

HYDRAULIC SCHEMATIC DIAGRAM
MODEL 690E



Mauldin Brothers
DWG NO. 090-0119
29-Aug-90

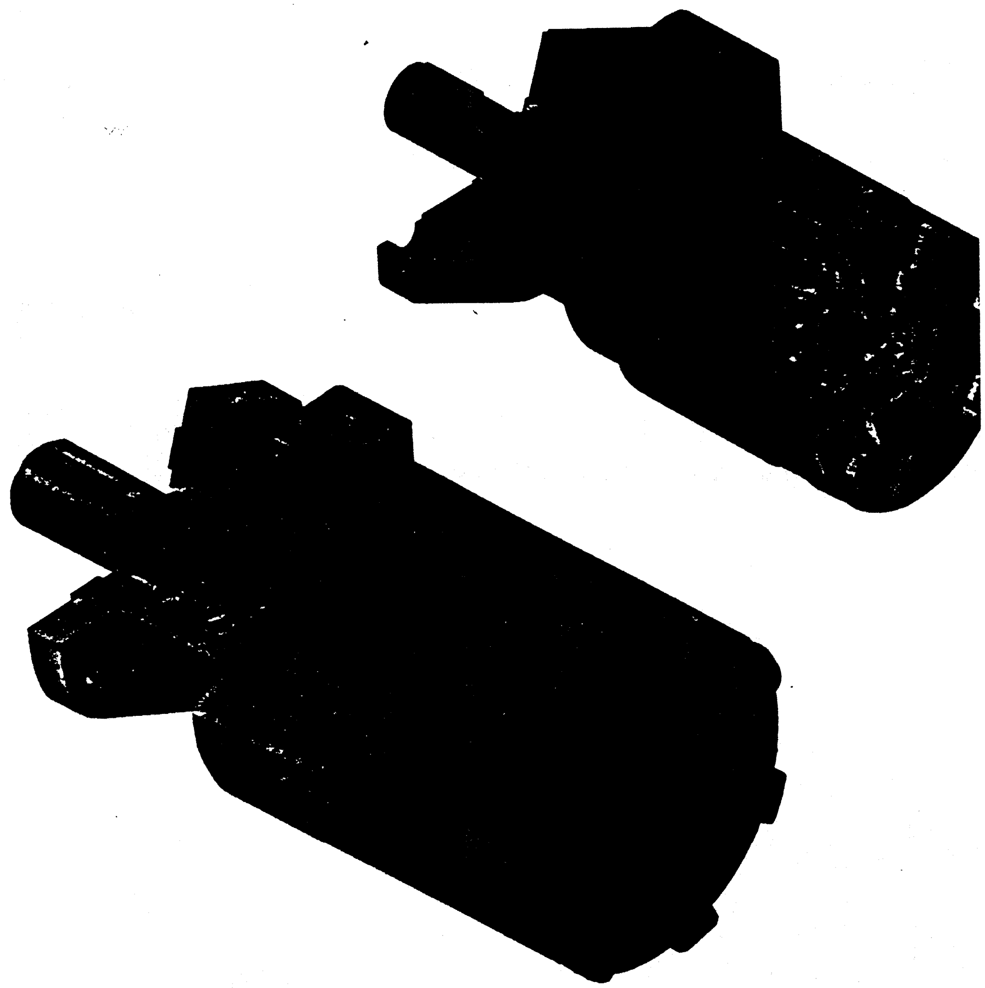
Optional Cut off Plates
MODEL 690E



DIMENSION "A"	RIGHT HAND PART NUMBER	LEFT HAND PART NUMBER
12"	092-0082	092-0083
18"	092-0084	092-0085
24"	092-0086	092-0087
36"	092-0088	092-0089

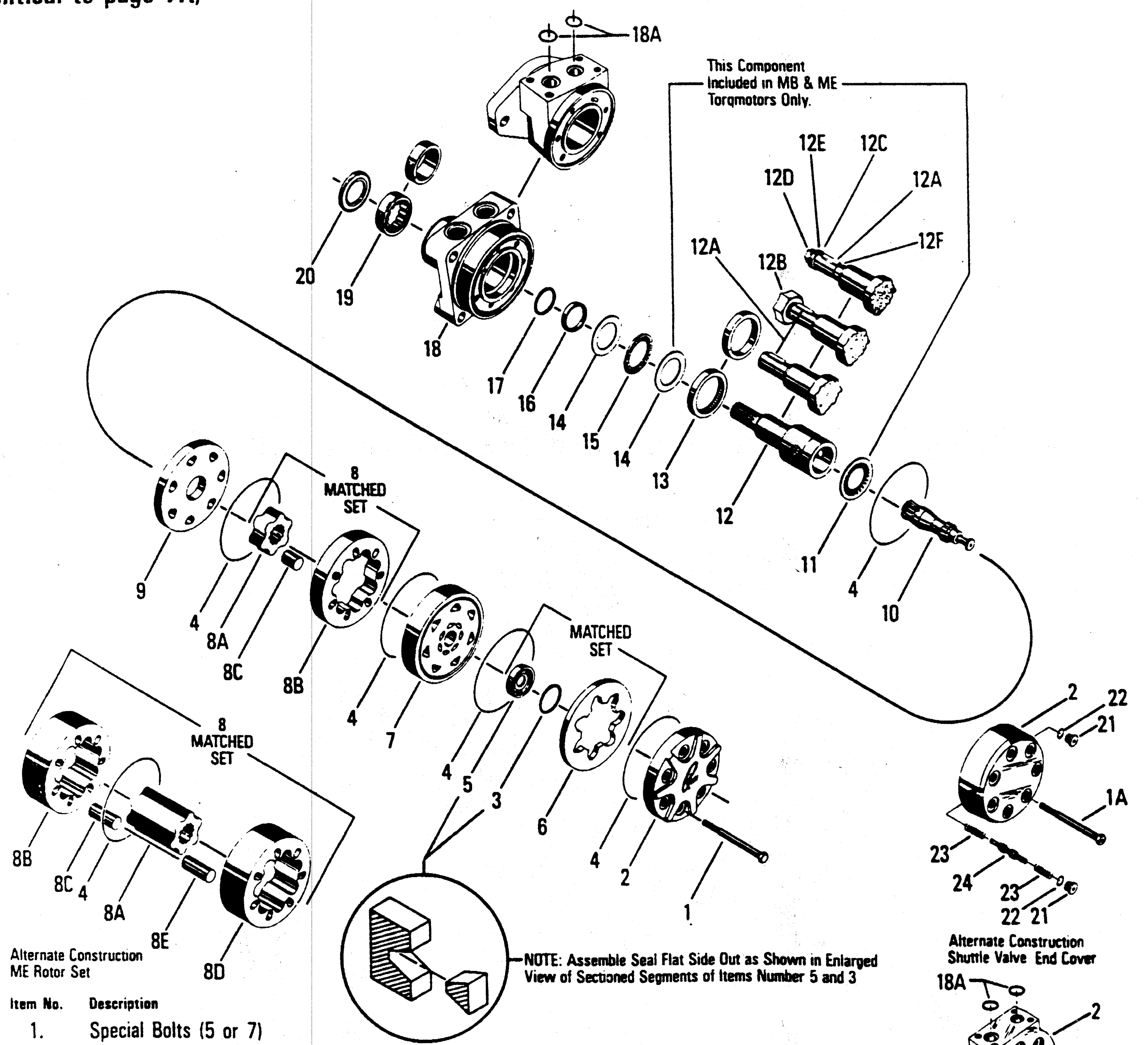
Torqmotor™

MG, [redacted] Series Service Procedure



Ross Gear Division

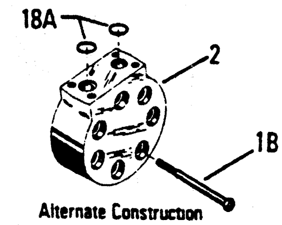
Torqmotor™ Exploded Assembly View—Typical
(Identical to page 7A)



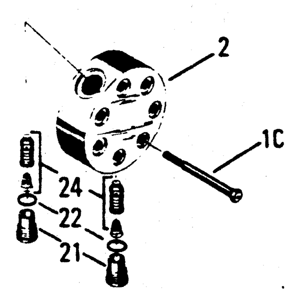
Alternate Construction ME Rotor Set

Alternate Construction Shuttle Valve End Cover

Item No.	Description
1.	Special Bolts (5 or 7)
1A.	Special Bolts (7)
1B.	Special Bolts (7)
1C.	Special Bolts (7)
2.	End Cover
3.	Seal Ring-Commutator
4.	Seal Ring (5)
5.	Commutator
6.	Commutator Ring
7.	Manifold
8.	Rotor Set
8A.	Rotor
8B.	Stator or Stator Half
8C.	Vane (7)
8D.	Stator Half
8E.	Vane (7)
9.	Wear Plate
10.	Drive Link
11.	Thrust Bearing
12.	Coupling Shaft
12A.	Key
12B.	Nut
12C.	Washer
12D.	Bolt
12E.	Lockwasher
12F.	Retaining Ring
13.	Bearing/Bushing, Inner
14.	Thrust Washer
15.	Thrust Bearing
16.	Seal
17.	Backup Washer
18.	Housing
18A.	O-Ring (2)
19.	Bearing/Bushing, Outer
20.	Dirt & Water Seal
21.	Plug (2)
22.	O-Ring (2)
23.	Spring
24.	Valve (Shuttle or Relief)



Alternate Construction Manifold Port End Cover



Alternate Construction Relief Valve End Cover