LANCE

INDUSTRIES

OWNER'S MANUAL

FOR

LANCE MASSAGE TUMBLER

LT-30

LANCE INDUSTRIES, PO BOX 341, ALLENTON, WI 53002 1(800) 775-2623

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SECTIONS:

MODEL LT 30 MASSAGE TUMBLER
SPECIFICATION SHEET

CONSTRUCTION

All Stainless Steel Construction with USDA approval

PHYSICAL DIMENSIONS

Length	52"
Width	31"
Height	49"
Drum Size	30" diam. x 29" long
Approximate Weight	500#

PRODUCT CAPACITY

Gallons	85
Liters	335
Pounds	500

VACUUM PUMP SYSTEM

Pump capable of delivering 26" Hg (Mercury)
Easily Accessible Liquid Trap

DRUM SPEED

Variable Speed Drive	1 - 9 RPM

TIMER CONTROLS

Tumbler Timer	8 Hour Timer
* Tumbler Timer	80 Minute Timer
* Intermittent Timer	
On Time	Up to 99 Hr. 59 Min.
Off Time	Up to 99 Hr. 59 Min.

MOTORS

Variable Speed Motor	1/2 HP, 11.0 Amps
Vacuum Pump Motor	1/3 HP, 9.4 Amps

ELECTRICAL CONNECTIONS

115 volts, 60 cycle single phase
220 volts, 50 cycle single phase
220 volts, 60 cycle single phase
380 volts, 50 cycle single phase

(See inside cabinet of machine for electrical requirement)

* Optional Equipment

Specifications Subject to change at anytime

INSTALLATION INSTRUCTIONS

A. Unpacking

1. Carefully remove crate from the skid
2. Remove machine from skid
3. Wipe down outside of the machine
4. Clean inside of the drum (use the bolts on the end of the frame to hold the drum cover when not on the drum.)
5. Check aim of photo-eyes (see instructions in trouble-shooting section)(this is required due to vibration in shipping)

B. Checking Control Panel

1. Check inside the cabinet for the required voltage requirement for your machine. Plug the machine into the required outlet.
2. Turn the black knob on the tumbler timer to 1 hour. Press the red arm button in the center of the black knob.
3. Check photoeyes for power (The red light on the back side of the photoeye should be on. This can be see through the observation windows near each photo eye. The light on both photoeyes must be on. If they are not, wipe the face of the photo eye and the reflectors opposite them to remove all moisture. If still not on see instructions for checking aim of the photoeyes.)

C. Check Vacuum Pump Control

1. Turn the tumbler timer to zero setting (All the way counter clockwise)
2. Turn on the vacuum pump. It should run.
3. With the vacuum pump running, set the tumbler timer to one hour. Press the red arm button on the tumbler timer. The vacuum pump will stop running.

D. Check Tumbler Motor Controls

1. Set variable speed control to 20
2. Set tumbler timer to one hour
3. Press the red arm button in the center of the black knob of the tumbler timer
4. Set continuous-forward-reverse jog switch to continuous
5. Press the tumbler start button - Drum will now turn
6. Turn the variable speed control up & down Drum will speed up & slow down
7. Turn the tumbler timer to zero setting (counter clockwise) The drum will stop

E. **Check Forward & Reverse Jog** (useful for unloading the drum)

1. Set variable speed control to a slow speed setting (0-10)
2. Set tumbler timer to one hour
3. Press red arm button on the tumbler timer
4. Set continuous-forward-reverse jog switch to reverse
5. Press and hold the start button
   The drum will turn only while the start button is being held in
6. Repeat steps 4 & 5 for forward jog

OPERATING INSTRUCTIONS

A. Loading and Tumbling

1. Clean the machine drum
2. Put the gasket and drain cap on the drum drain pipe
3. Load the product into the drum
4. Place the gasket over the drum opening
5. Place the cover on the gasket
6. Make sure the gasket is under the cover all the way around by pushing it up and into the opening or by visual inspection
7. Tighten the cover by alternately tightening the knob in a diagonal pattern
8. Plug the machine into the proper voltage receptacle
9. Press the red arm button in the center of the black knob of the tumbler timer
10. Check for power to the photoeyes through observation windows (Red light should be on If they are not on wipe the photoeye face and reflector to remove moisture)
11. Set tumbler timer to zero setting (counter clockwise)
12. Turn on vacuum pump
13. Open vacuum valve on the drum (next to the drum cover) (Make sure the vacuum passage to the drum is clean and that it is to the top. Pulling vacuum with the fitting not at the top position will result in liquid being drawn into the vacuum pump. THIS WILL DAMAGE THE PUMP!)
14. Push vacuum hose onto drum fitting
15. Run vacuum pump until 15 inches of vacuum is drawn (Higher vacuum can be drawn if you want to)
16. Shut off the valve on the drum
17. Remove the hose
18. Turn off the vacuum pump
19. Set the tumbler timer to the desired time
20. Push in red start button in the center of the black knob on the tumbler timer
21. Set variable speed knob to the desired speed
22. Set the continuous-forward-reverse jog switch to continuous
23. Make sure the vacuum hose is disconnected
24. Press tumbler start button The drum will now rotate until the tumbler timer runs down to zero

* It can be stopped at any time by pressing the tumbler stop button or by breaking the beam from the photoeye to the reflector

* To restart the machine, press the tumbler start button, it will run for the time remaining on the timer

B. Unloading the Drum

a. Manual Unloading

1. Set the Continuous-Forward-Reverse Jog switch to forward
2. Set the tumbler timer to one hour
3. Press the red button on the tumbler timer
4. Press and hold the tumbler start button until the cover is facing you, at the 2 O'clock position
5. Loosen the cover knobs
6. Open the vacuum valve on the drum to release the vacuum (Loosen cover knobs first)
7. Remove the cover
8. Remove the gasket
9. Unload the drum

b. Unloading into a buggy or cart

1. Set the Continuous-Forward-Reverse Jog switch to forward
2. Set the tumbler timer to one hour
3. Press the red button on the tumbler timer
4. Press and hold the tumbler start button until the cover is facing you, at the 2 O'clock position
5. Loosen the cover knobs
6. Open the vacuum valve on the drum to release the vacuum (Loosen cover knobs first)
7. Remove the cover
8. Remove the gasket
9. Tighten the cover knobs so you don't lose them while unloading
10. Place the cart under the drum
11. Press and hold the tumbler start button until the product starts to roll out of the drum opening.
12. Release the tumbler start button when the product starts to roll out, press again if necessary
13. To reverse the drum to stop unloading, set the continuous-forward-reverse switch to reverse, Press and hold tumbler button until the product stops coming out of the drum
14. To continue unloading set the continuous-forward-reverse jog switch to forward
15. Repeat steps 11 - 13

CONTROL PANEL WITH ELECTRONIC INTERVAL TIMER AND MECHANICAL TUMBLER TIMER

CONTROL PANEL FUNCTION

TUMBLER PUSH BUTTONS

Starts and stops timers for the tumbling cycle.

VACUUM PUSH BUTTONS

Starts and stops vacuum pump.

TOTAL TIMER

Sets the total amount of time the drum will rotate. During the intermittent tumbling cycle, this timer runs only during the on period of the cycle.

INTERMITTENT TIMER

Setpoint 1 sets amount of time drum rest during off cycle.

Setpoint 2 sets amount of time drum rotates during on cycle.

SETTING THE CONTROL PANEL

Direct start continuous tumbling

1. Turn the black knob on total timer for total tumbling time (time required for the drum to rotate.)
2. Press the red arm button in the center of the black knob on the total timer.
3. Set setpoint 1 to zero time on the intermittent timer.
4. Set setpoint 2 to a time greater than was set on the total timer.
5. Press tumbler start button to begin the cycle.

Direct start intermittent tumbling

1. Turn the black knob on total timer for total tumbling time (time required for the drum to rotate.)
2. Press the red arm button in the center of the black knob on the total timer.
3. Set setpoint 1 to the amount of time you want the timer to rest during it's off cycle.
4. Set setpoint 2 to the amount of time you want the time to run during it's on cycle (the on cycle will start first.)
5. Press tumble start button to begin the cycle.

During the intermittent timing cycle the total timer will only count down when the ON cycle is timing on the intermittent timer.

Stopping the tumbler with tumbler STOP button or photo safety eye

will stop the total timer and maintain it's time. The intermittent timer will reset to the preset time.

Pressing the tumbler START button will restart the intermittent timer. The total timer will restart from where it left off.

CONTINUOUS TUMBLING

Set the tumble timer for total tumbling time (time required for the drum to rotate.)

Set setpoint 1 to zero time on the intermittent timer.

Set setpoint 2 to a time greater than was set on the tumble timer.

ENTERING SETPOINT ON TOTAL TIMER

Turn the black knob on the total timer until the pointer is set to the desired time. Press the red arm button in the middle of the black knob to set the timer. After completion of the cycle the timer resets to its set point.

INTERMITTENT TUMBLING

Set setpoint 1 for rest time.

Set setpoint 2 for tumble time.

Set tumble timer for the total tumbling time (time required for the drum to rotate.)

ENTERING AND DISPLAYING SETPOINTS: ON INTERMITTENT TIMER

When the CX100 unit is powered up for the first time, or after the battery has been cycled off and on, the digit display will show four hyphens. The unit will not operate until it has been provided with ON and OFF time setpoints, clearing the display of hyphens.

To create or change the OFF time setpoint, press the SET1 key. The setpoint, if any is displayed and the panel key pads become active. The operation of the timing function and the output loads are not affected. For setpoint changes, the SET indicator appears on the graphics panel. The setpoint is changed by pressing appropriate UP or DN key pads. Pressing a UP key increments the setpoint digit located above the key. If the key is continually depressed the digit will change every .5 second until the key is released. The display will carry to the digit on the let on the 9 to 0 transitions when using the UP keys. The display will borrow from the digits on the left on the 0 to 9 transitions when using the keys. On second and minute ranges the display will carry on the 59 to 00 transition and borrow on the 00 to 59 transition of the two least significant digits.

When the desired setpoint is displayed, touch the ENT key. The new setpoint is entered, all UP and DN keys become inoperable and "SET" disappears from the graphics panel. If a new setpoint is entered when the unit is timing, the new setpoint will be in effect upon the next reset.

To create or change the ON time setpoint press the SET2 key. The ON time setpoint is changed by pressing the UP or DN keys as noted above. When the desired setpoint is displayed, press the ENT key.

The ON and OFF setpoints may be displayed at any time without disturbing the timing cycle by pressing SET1 or SET2. The actual value is returned by pressing ENT.

KEYPAD LOCK:

A keypad "lock" is provided on the CX100 Timer to prevent unauthorized tampering. To initiate the keypad lock, press the Eagle Signal logo key for 10 seconds. To disable the lock to change setpoints. Disconnect the power cord from it's outlet. Remove the Interval Timer from it's housing, unscrew the screw on the face of the timer and lift up on the lever, slide the timer out. On the back of the timer there is a set of 7 dip switches. Switch #6 turns "on" and "off" the battery in the timer. Flip switch #6 to it's off position and then back to its on position. This will disable the lock on the timer and let you change the setpoints. Slide the timer back into it's housing, push the lever down to secure the timer in place and tighten the screw. Plug the power cord back into the outlet, you should now be able to change the setpoints.

CLEANING PRECAUTIONS

Do not clean photo-eyes and reflectors with abrasive material, this could damage the components.

Do not spray water directly at the control panel, it could damage the components. Use a damp rag to clean the control panel face.

If the knob on the timer begins to turn hard, remove the black knob by loosening the set screw on the knob. Loosen the nut under the black knob.

CLEANING YOUR MACHINE

Fill your machine so warm water goes to top of paddle. Using your standard cleaning solution, put in 1/2 to 1 cup, depending on the strength. Turn machine on and agitate for ten to fifteen minutes. When you stop the machine, make sure the drain plug is on top. Remove the plug and turn the machine on until drain is at the bottom. Remove lid and rinse. (CAUTION: Extremely hot water will cause fat to bake on walls.) Wipe off safety eyes and reflectors after cleaning.

FLUSHING VACUUM VALVE ON DRUM

Open vacuum valve and thoroughly flush with water. This must be done between loads, before pulling vacuum on the drum. If valve is not cleaned properly, food particles will be drawn into the vacuum hose.

CLEANING VACCUM HOSE

To clean food particles from the vacuum hose, remove glass jar (located inside cabinet) from the filter, and flush water through hose. Clean glass jar before replacing.

SAFETY EYES

These are installed for your protection! When the sensor beam is broken, the machine is automatically shut off.

If the machine does not want to start, it is possible either the reflector or sensor eyes are dirty or wet. If you do have a problem with the sensor, it is quickly identified by a red light located on the back of the sensor. Check for power to the photoeyes through observation window. (Red light should be on, if they are not on wipe the photoeye face and reflector to remove moisture.)

RECOMMENDED PROCEDURES FOR TUMBLING PRODUCT

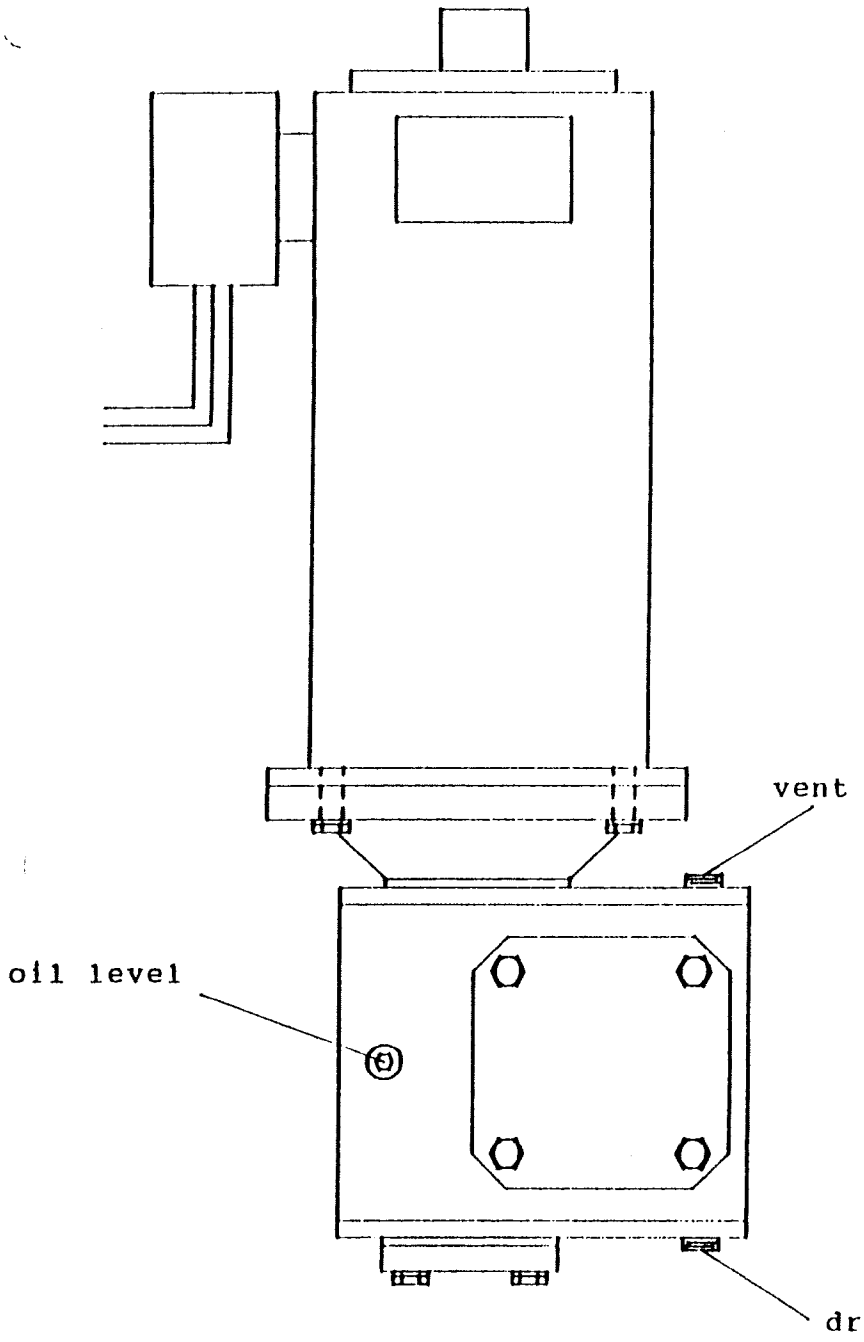
PRODUCT & INSTRUCTION	% OF BRINE GREEN WT.	TOTAL TIME	DRUM LOAD	MOTOR SPEED
Dried Beef Pump product with normal or recommended % of brine. Put product and excess purge into tumbler.	10%	3 hrs. 2.5 hrs.	1/2 or more 1/2 or less	4
Beef Jerky Get total weight of sliced product to verify % of brine to be added	10%	25 min. 15 min.	1/2 or more 1/2 or less	4
Chunked & Formed Using Ham Meat and Boston Butt parts (90%lean), run product through kidney plate on grinder. Get total weight to verify % of brine to be added. Tumble for stated period of time. Remove from tumbler. Run product through stuffer into large casing. Put into ham press and smoke under normal smoking conditions.	10%	1 hr.		7
Chicken After obtaining total weight of birds, add normal or recommended % of brine and tumble product and brine for required time.	10%	1 hr.	1/2 or more	4
Turkey Obtain total weight of birds. Pump breast, leg and wings on both sides with normal or recommended % of brine. Put product and excess purge in tumbler for recommended time. Then follow normal smoking procedures.	10%	1 hr.	1/2 or more	6

RECOMMENDED PROCEDURES FOR TUMBLING PRODUCT

PRODUCT & INSTRUCTION	% OF BRINE GREEN WT.	TOTAL TIME	DRUM LOAD	MOTOR SPEED
Bone-In Ham Pump your normal or recommended % of brine per green weight and put product and excess purge in tumbler.	15%	3.5 hrs. 3 hrs.	1/2 or more 1/2 or less	6
Boneless Ham Same process as Bone-In	15%	3 hrs. 2.5 hrs.	1/2 or more 1/2 or less	5
Bacon Obtain total weight of all product. Using your normal or recommended % of brine per green weight, put bellies and brine into tumbler	10%	3 hrs. 2.5 hrs.	1/2 or more 1/2 or less	5
Cottage Bacon Pump product with normal or recommended % of brine per green weight. Put product and excess purge into tumbler.	10%	3 hrs. 2.5 hrs	1/2 or more 1/2 or less	5
Pork Ribs Get total weight of the product to verify % of brine to be added.	10%	.5 hrs.		4
Pork Hocks Get total weight of the product to verify % of brine to be added.	15%	2 hrs. 1.5 hrs.	1/2 or more 1/2 or less	4
Beef or Pork Roast Pump roasts with normal or recommended soluble roast spice.	10%	4 hrs. 3.5 hrs.	1/2 or more 1/2 or less	4

* After tumbling put into cooking bag and bring internal temperature to 150 degrees. Product is now ready for sale.

MAINTENANCE & LUBRICATION SCHEDULE



MOTOR

BRUSHES

Periodically, the brushes should be inspected and the brush sudt blown out of the motor. If the length has been worn down 1/2" from the original length shown in renewal parts data, the brushes should be replaced. If at this time the commutator is worn or rough, the armature should be removed. The commutator should be turned in a lathe, the mica re-cut, and commutator polished. Reassemble, and seat the new brush using a brush seating stone. Be sure the rocker arm is set on the neutral mark.

LUBRICATION

This is a double sealed ball bearing motor. The bearings have been given lubrication at the factory. No lubricant need be added.

LUBRICANT

Baldor motors are pre-greases (normally with Shell Oil Company's "Dolium R"). Several eeequivalelnt greases which are compatible with the Baldor furnished grease are Chevron Oil's "SRI No.2" and Texaco Inc. "Premium RB".

GEAR BOX

MAINTENANCE

Since contamination and oxidation of the lubricating oil does not occur, we recommend changing oil every four months under Class 1 service. If service is more severe, oil changes should be made more frequently.

LUBRICATION INSTRUCTIONS

Typical recommended lubricants are listed on the bottom of the page.

NOTE: Grease pillow blocks every three months, depending on use.

TYPICAL LUBRICANTS

MANUFACTURER	50-125 F AMBIENT TEMPERATURE AGMA COMPOUND #7
American Oil Co. Cities Service Oil Co. Gulf Oil Corp. Mobil Oil Co.	American Worm Gear Oil - #5 EP Citco Compounds L-3-X Gulf Senate 145D, Gulf EP Lube or S150 Mobil Gear Oil #636
Phillips Oil Co. Standard Oil of California Sun Oil Co. Union Oil of California	Hector S-150 Philube I-LB Gear Oil #140 Chevron Gear Compound #140 Sun Gear Lube GL-4+ Sunep EP-130 Union Gear Compound #130

MAINTENANCE

WARNING: **DISCONNECT POWER BEFORE SERVICING.**

NOTE: Lock and tag power disconnect to prevent application of power.

CLEANING

Properly selected and installed electric motors are capable of operating for long periods with minimal maintenance. Periodically clean dirt accumulations from open-type motors, especially in and around vent openings, preferably by vacuuming (avoid imbedding dirt in windings). At the same time check that electrical connections are tight.

LUBRICATION

The motor is equipped with pre-lubricated ball bearings and will not require re-lubrication. Should the gears require lubrication, use type "L-Industrial 30" (American Oil Co.) grease or its equivalent. The following is a list of lubricants which can be used: Mobile UX-EP2, Philube =EP2, Gulf Crown =EP2, Alvania =EP2, or Mutifax =EP2.

IMPORTANT: COMPLETELY CLEAN THE OLD LUBRICANT FROM THE GEAR BOX BEFORE ADDING FRESH LUBRICANT. UNDER NO CIRCUMSTANCES SHOULD DIFFERENT TYPES OF LUBRICANTS BE MIXED!

LANCE IND.
PART # PHOTOAIM.LI

FIGURE "A"

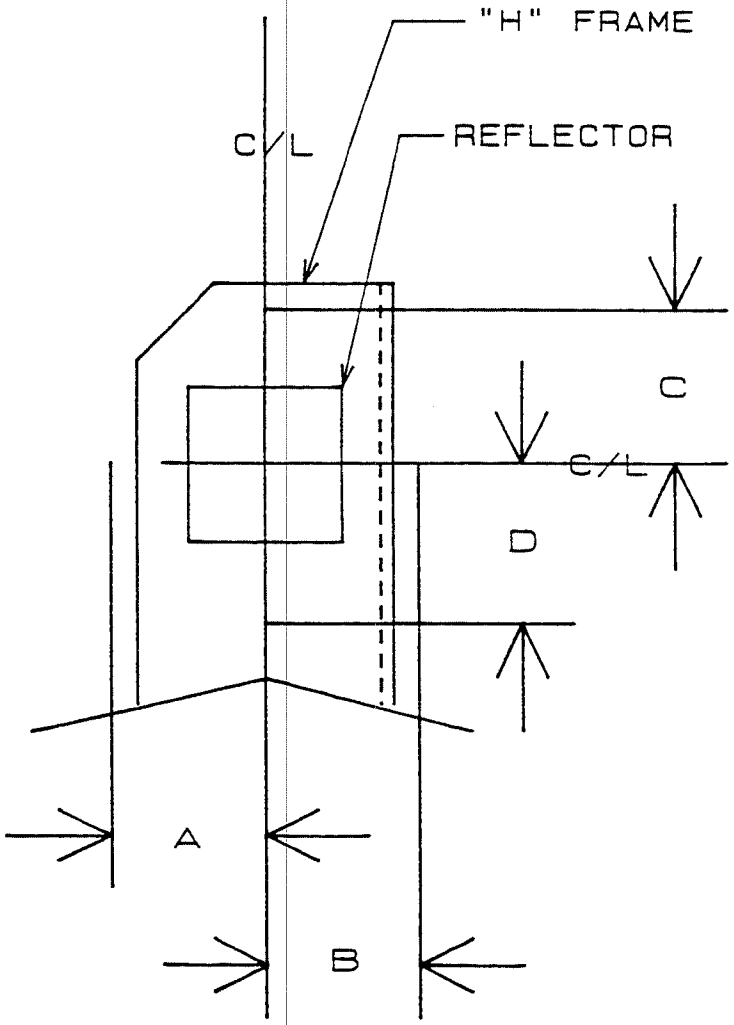
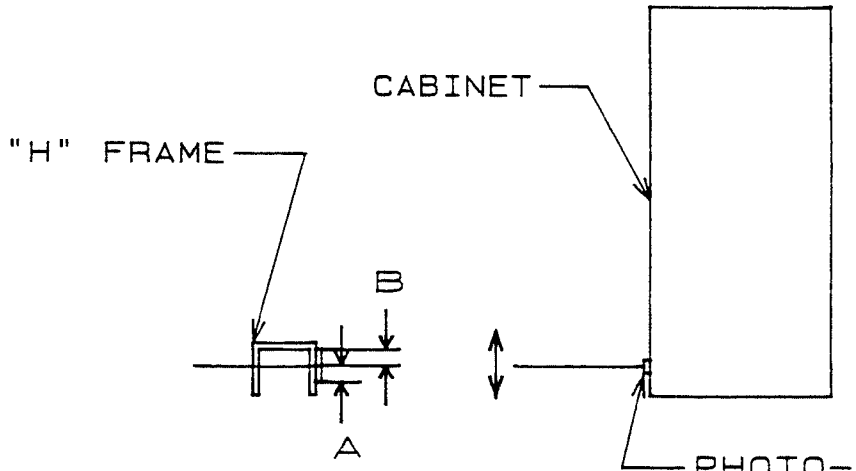
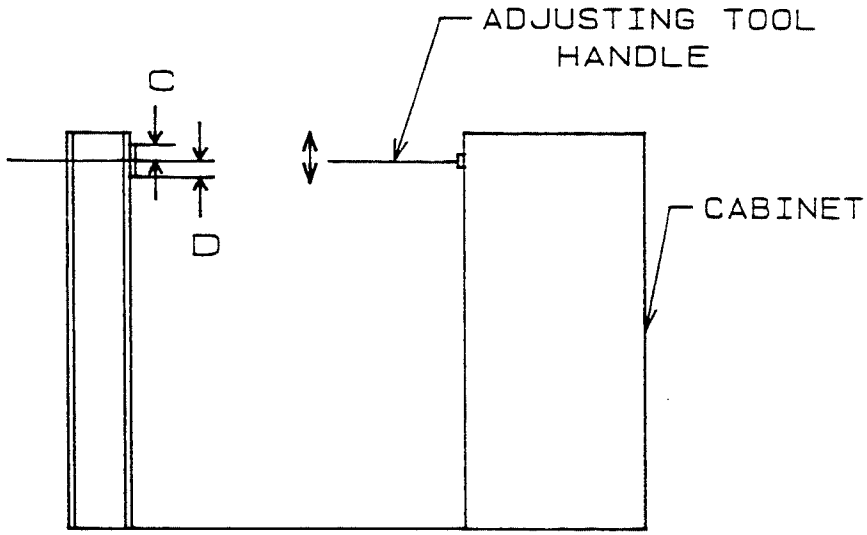


FIGURE "B"





SIDE VIEW

CHECKING THE AIM OF A PHOTO-EYE

1. Turn the black knob on the timer to 4 and press the red "arm" button in, on the timer. This will supply power to the photo-eyes which will be indicated by a red light on at the back of the timer. (If they won't come on, the photo-eye might be out of alignment.)
2. Take a piece of masking tape and cover up the reflector. Only the one reflector that is opposite of the photo-eye that you are checking.
3. Use a reflector for checking the sensing range of the photo-eye. Take this reflector and hold it over the reflector that you taped up.

    A. Move the reflector to the left until the red light on the photo-eye goes out, measure this distance (see Figure "A"), which we will call distance "A".

    B. Move the reflector to the right until the red light on the photo-eye goes out, measure this distance (see Figure "A"), which we will call distance "B".

    C. Move the reflector up until the red light on the photo-eye goes out, measure this distance (see Figure "A"), which we will call distance "C".

    D. Move the reflector down until the red light on the photo-eye goes out, measure this distance (see Figure "A"), which we will call Distance "D".

4. Distance "A" & "B" should be about the same and "C" & "D" should be about the same. If measurement "A" & "B" are not equal and "C" & "D" are not equal the photo-eye aim needs to be adjusted (see **ADJUSTING THE AIM OF THE PHOTO-EYE**). If they are equal repeat this procedure on the second photo-eye (Model LT30 and LT60 only).

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PART # PHOTOAIM.LI

FIGURE "A"

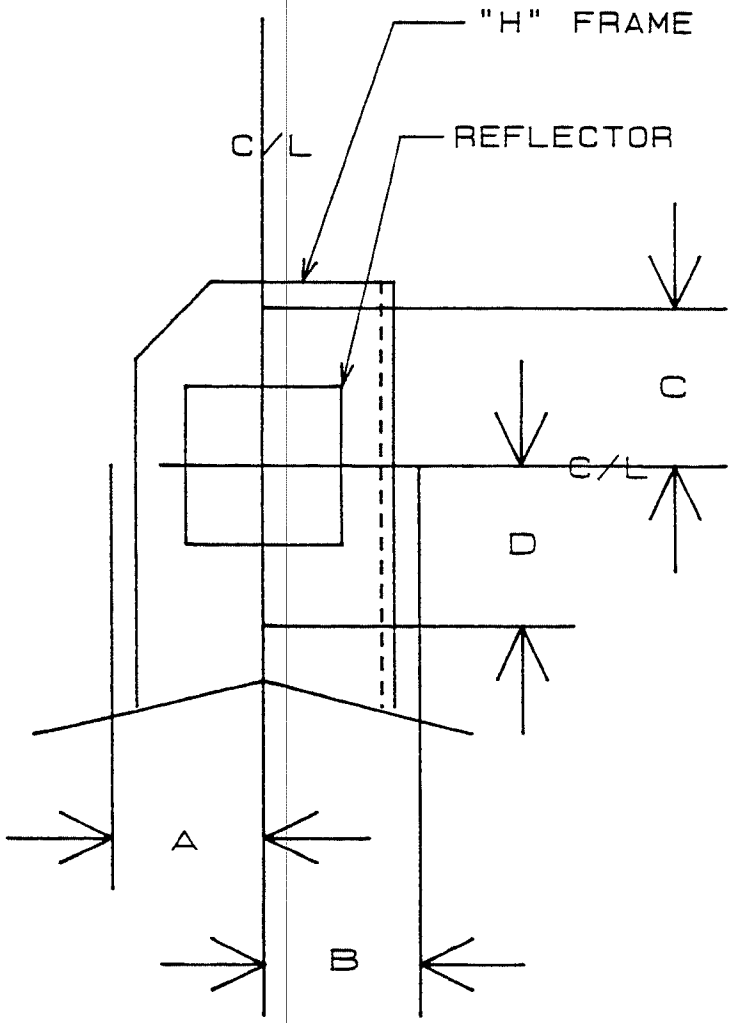
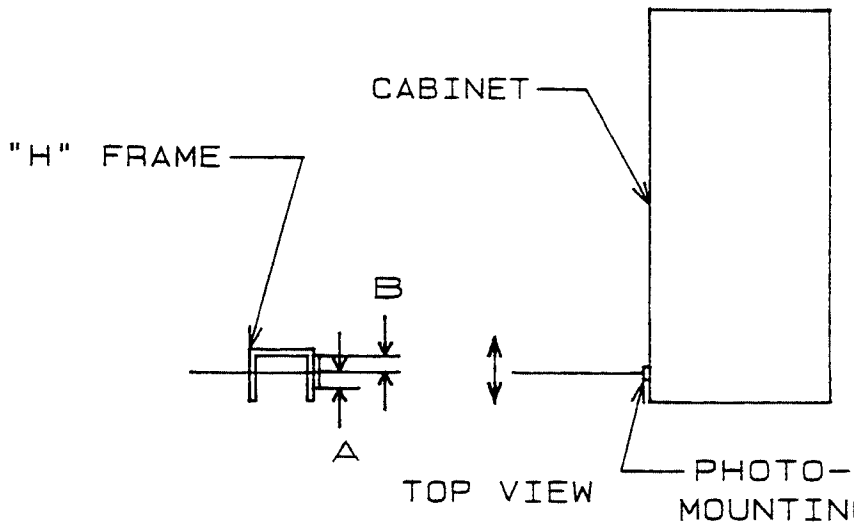
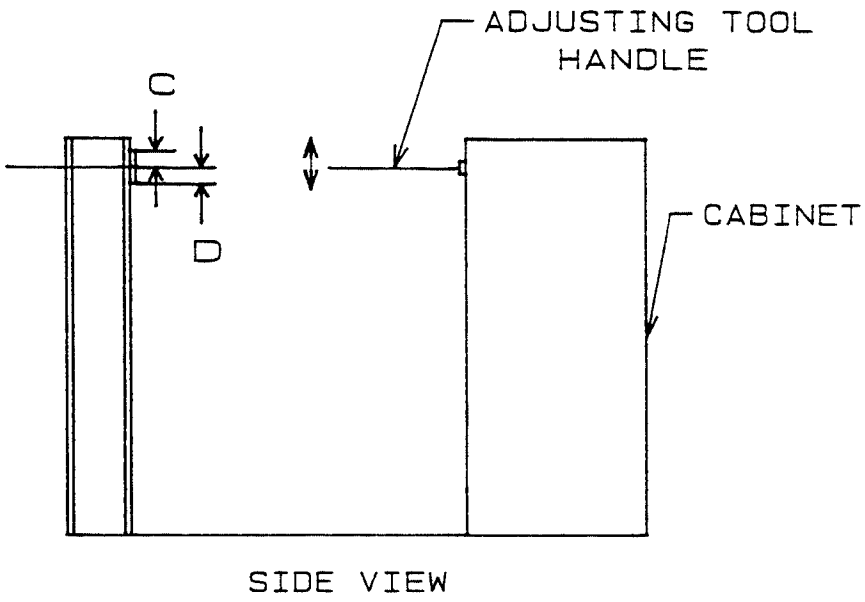


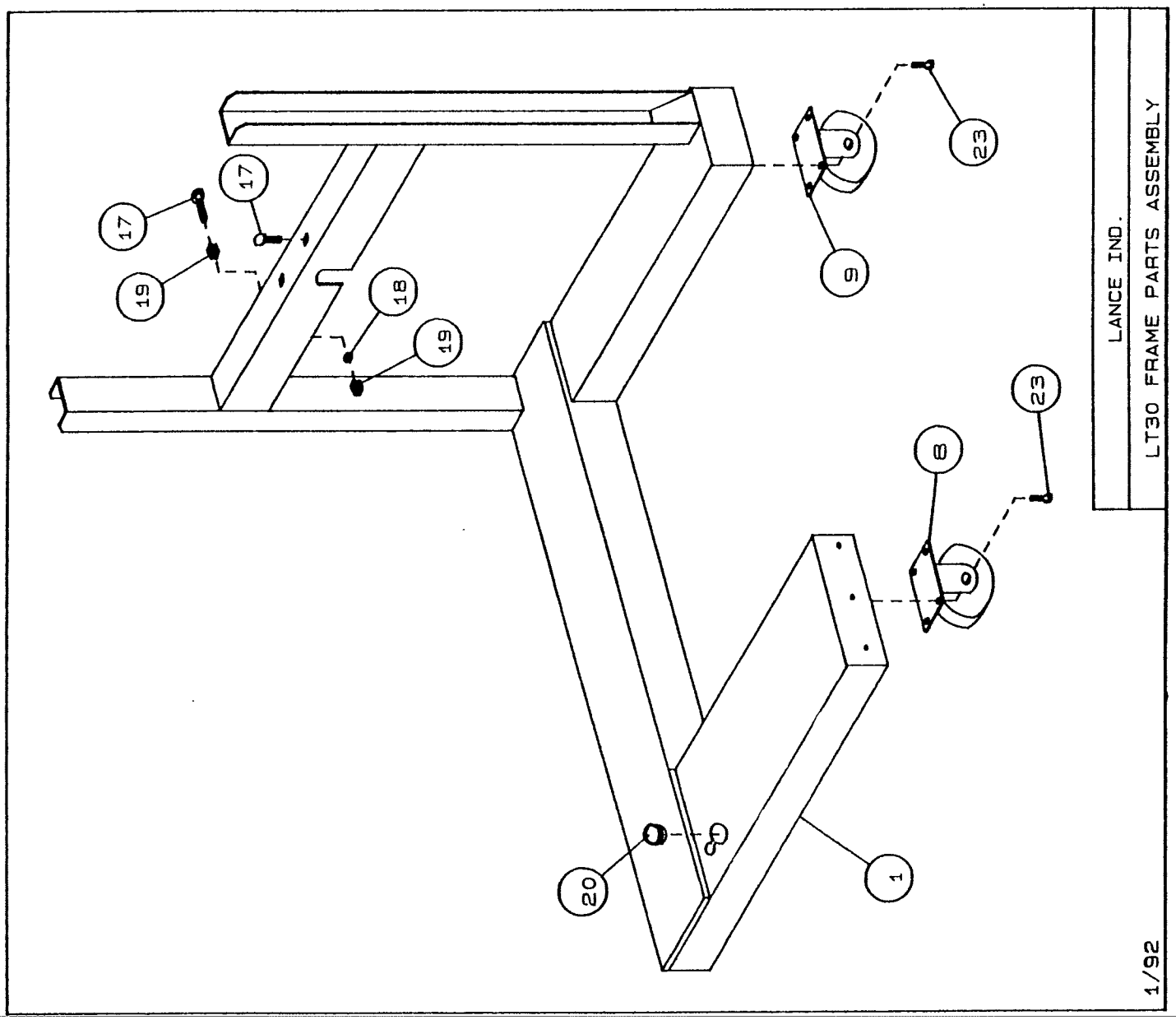
FIGURE "B"





ADJUSTING THE AIM OF A PHOTO-EYE

1. Remove side panel of cabinet.
2. Turn the black knob on the timer to 4 and press the red "arm" button in, on the timer. This will supply power to the photo-eyes which will be indicated by a red light on at the back of the timer. (If they don't come on, the photo-eye might be out of alignment.)
3. For adjusting the mounting hole on the cabinet we have sent along an Adjusting Tool.
    A. Remove the photo-eye from the cabinet.
    B. Remove one of the nuts that is threaded onto the Adjusting Tool and insert the threaded end into the hole in the cabinet (from the outside) and thread the nut back on the tool.
    C. Pull the handle of the Adjusting Tool into the direction of the smaller measurements that you recorded in step #4 (see Figure "B"). You should be able to bend the mounting hole in the cabinet, to align the photo-eye.
4. Install the photo-eye back into the cabinet.
5. Repeat instructions for **CHECKING THE AIM OF THE PHOTO-EYE.** Re-adjust again if necessary.
6. Once this is complete remove the tape from the reflector and put the side panel back on the cabinet.
7. Alignment is now complete.


LANCE IND.
LT30 FRAME PARTS ASSEMBLY
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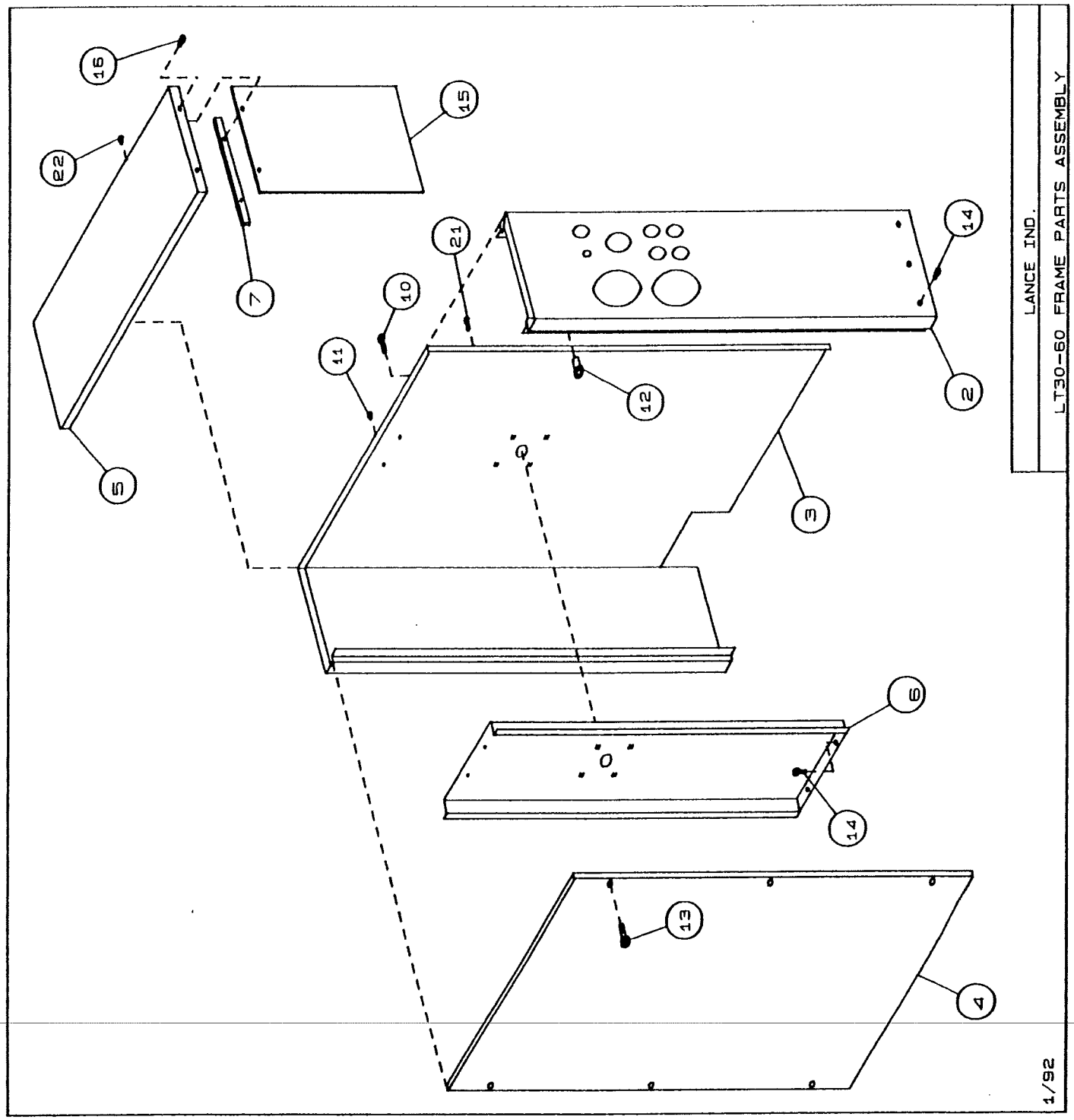
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LT30-60 FRAME PARTS ASSEMBLY
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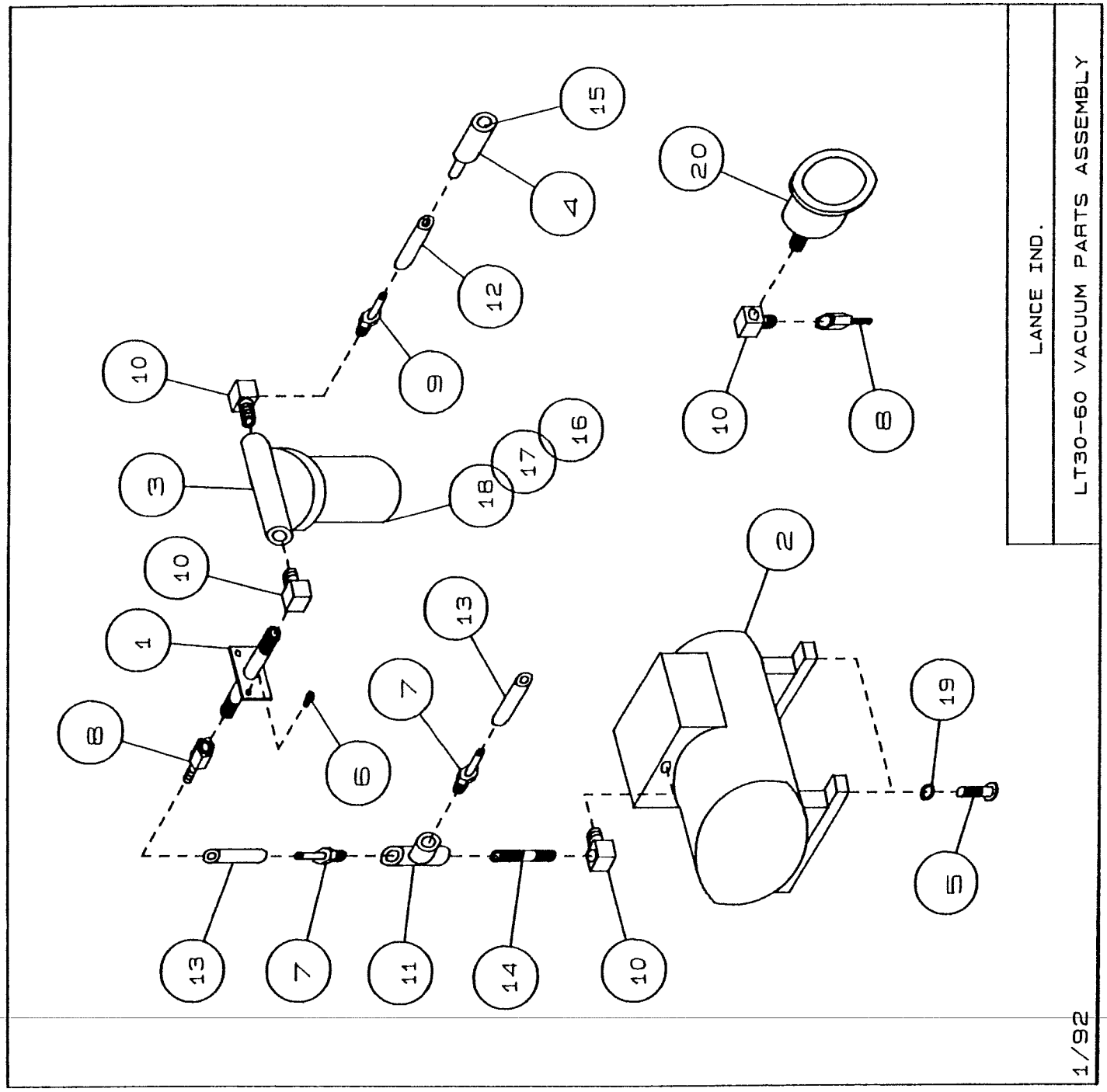
LT30 FRAME PARTS ASSEMBLY

31x52 UNIT

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	LT30FW	MAIN FRAME	1
2	1012	FACE PANEL	1
3	1013	BACK	1
4	1014	SIDE PANEL	1
5	1015	TOP COVER	1
6	1024	DRUM SUPPORT	1
7	1039	MOUNTING BAR	1
8@	CS4W890	RIGID CASTER	2
9@	CS4W887	SWIVEL CASTER	2
10	BOS0AB240125	3/8-16x1 1/4" CARR BOLT SS	4
11	BOS0AU160050	10-24x1/2" PH RHMS SS	2
12	RNA2520A080	RIVNUT	6
13	BOS0AU200125	1/4-20x1 1/4" PH RHMS SS	6
14	BOS0AU200050	1/4-20x1/2" PH RHMS SS	11
15	PL75-011DX-02	VINYL STRIP	1
16	BOS0BF700062	10-32x5/8" PH TH HD MS SS	2
17	BOS0AB280150	1/2-13x1 1/2" CARR BOLT SS	4
18	WASGI050	1/2" STD. LOCK WASHER SS	2
19	NUSOEA28	1/2-13 HEX NUT SS	4
20	SB2210	SNAP BUSHING	1
21	BOS0AU160100	10-24x1" PH RHMS SS	3
22	BOS0AU140037	8-32x3/8" PH RHMS SS	8
23	BOS0AA240075	3/8-16x3/4" HHCS SS	16

@ SEE CHANGE LIST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LT30-60 VACUUM PARTS ASSEMBLY
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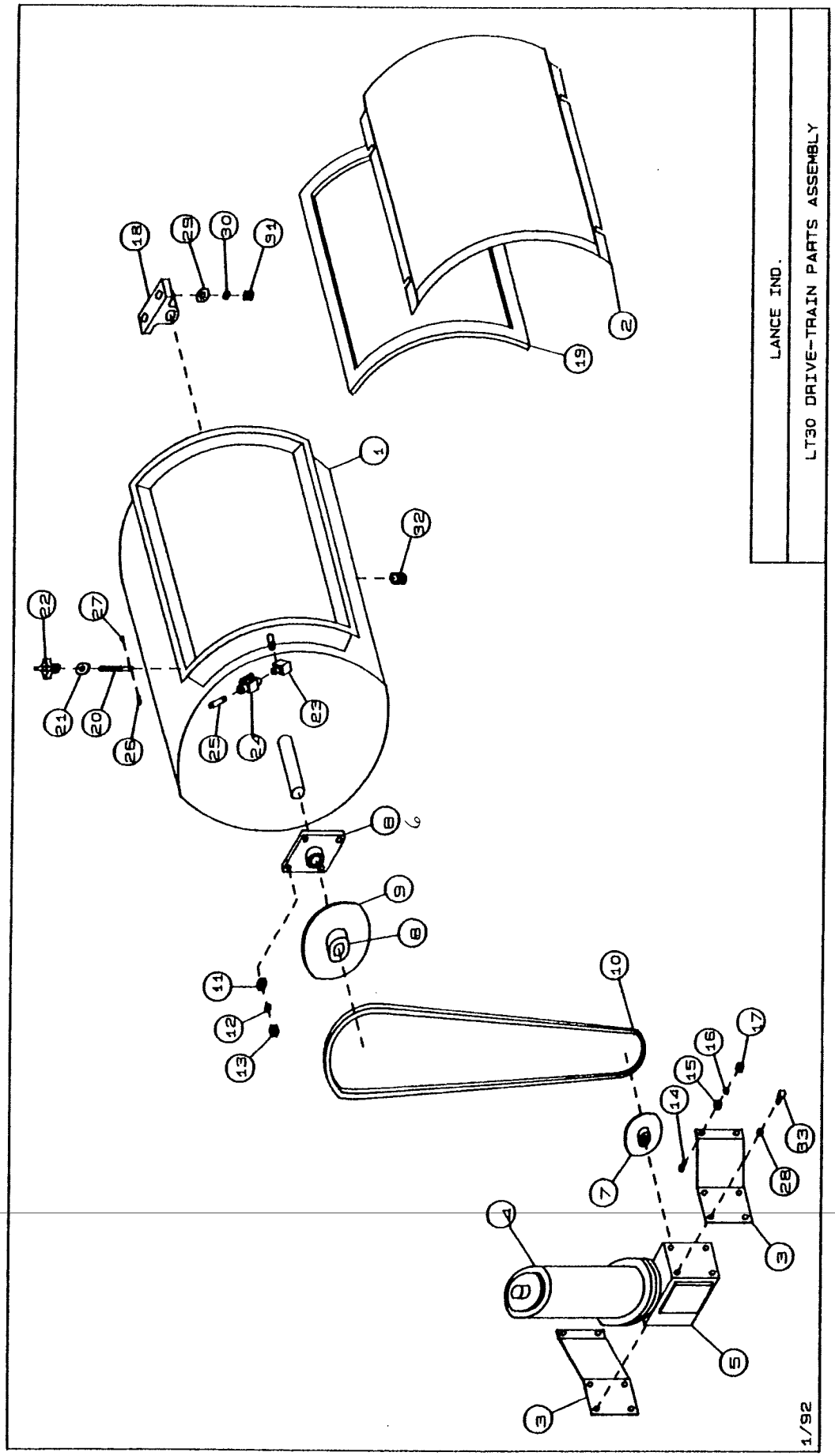
LT30 VACUUM PARTS ASSEMBLY

31x52 UNIT

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	1036TW	TRAP BRACKET	1
2@	VU5Z351	VACUUM PUMP	1
3@	VTAA672K	BALL TRAP	1
4	0002-49	VACUUM PLUG	1
5	BOS0AA200100	1/4-20x1 HHCS SS	4
6	BOS0AU160050	10-24x1/2" PH RHMS SS	3
7	HN5372K12	MALE HOSE NIPPLE	2
8	HN5346K42	FEMALE HOSE NIPPLE	2
9	HN5346K18	MALE HOSE NIPPLE	1
10	EL116SC	90 STREET ELBOW	4
11	TEE101C	TEE	1
12	HS26-705AM	3/8" HOSE	3'
13	HS26-702AM	1/4" HOSE	7'
14	PNS025B0150	PIPE NIPPLE	1
15	OR946K26	O-RING	1
*16	VTAJ554	TRAP BALL	1
*17	VTAJ473	TRAP FUNNEL	1
18@	VTAE274	TRAP JAR	1
19	WASGI025	1/4" STD LOCK WASHER SS	4
20	GATSUGE	VACUUM GAUGE	1

* NOT SHOWN
@ SEE CHANGE LIST


LANCE IND.
LT30 DRIVE-TRAIN PARTS ASSEMBLY
1/92

LT30 DRIVE-TRAIN PARTS ASSEMBLY

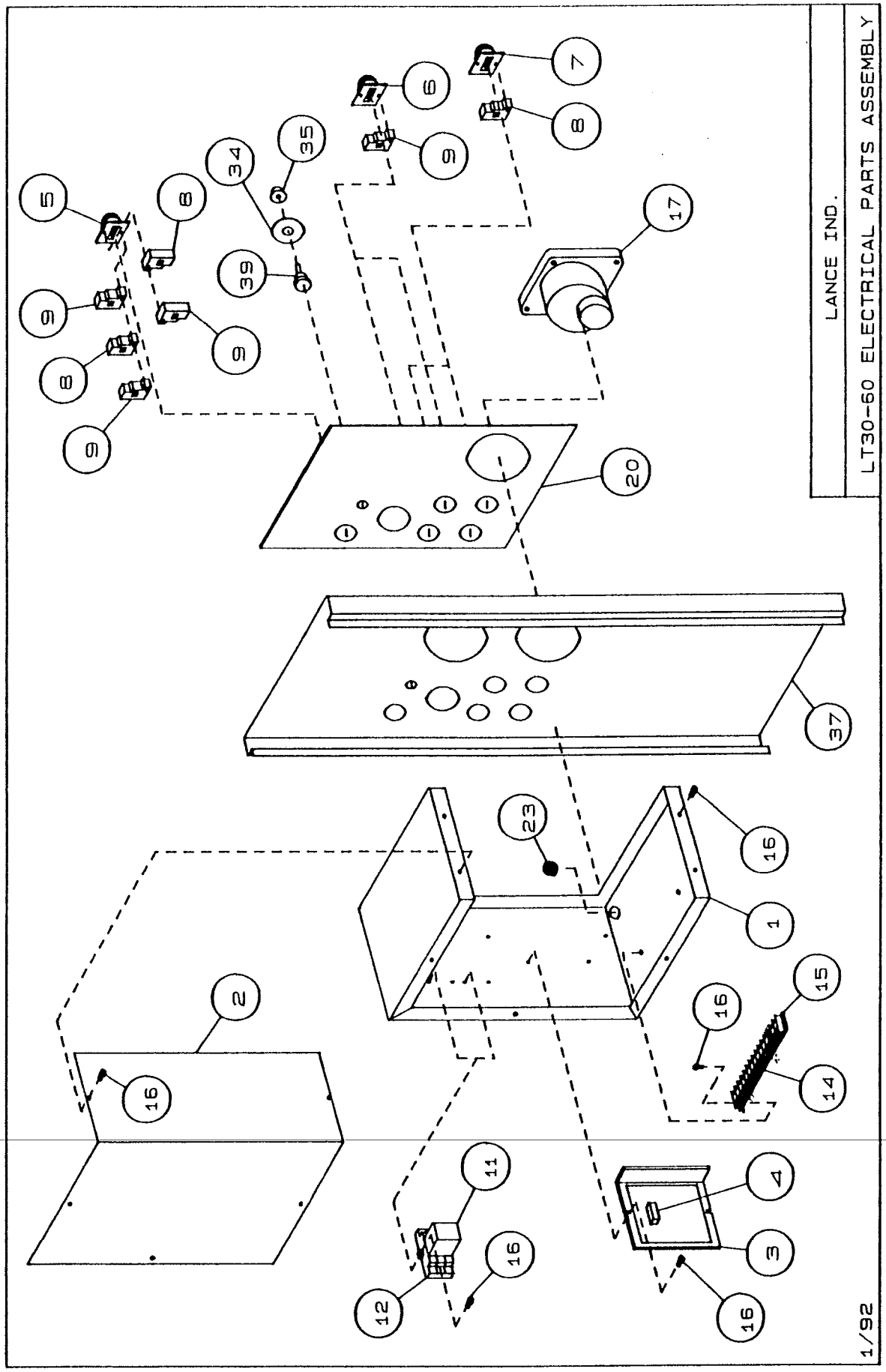
31x52 UNIT

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	LT30DW	DRUM	1
2	LT30CW	COVER	1
3	1030	MOTOR MOUNT BRACKET	2
4@	MO098000	MOTOR (LEESON)	1
5	GB175BQ040562	GEAR BOX	1
6	PBHCFS207-23-1-7/16	FLANGE BEARING	1
7	SP40B12-7/8	SPROCKET	1
8	BUSDS-1-7/16	BUSHING	1
9	SP40SDS60 SP40SDS48	SPROCKET(for 60 cycle machines) SPROCKET(for 50 cycle machines)	1 1
10	RC4006000	#40 ROLLER CHAIN	6'
11	WASGA037	3/8" STD FLAT WASHER SS	4
12	WASGI037	3/8" STD LOCK WASHER SS	4
13	NUSOEA24	3/8-16 HEX NUT SS	4
14	BOS0AB220075	5/16-18x3/4" CARR BOLT SS	4
15	WASGA031	5/16" STD FLAT WASHER SS	4
16	WASGI031	5/16" STD LOCK WASHER SS	4
17	NUSOEA22	5/16-18 HEX NUT SS	4
18	PBUCP207-23-1-7/16	PILLOW BLOCK BEARING	1
19@	GALT153060	GASKET	1
20	0002-43	COVER BOLT	4
21	WASGA050	COVER WASHER	4
22	PK5993K33	COVER KNOB	4

@ SEE CHANGE LIST

REF. NO.	PART NO.	DESCRIPTION	QTY.
23	EL116SC	90 DEG. STREET ELBOW	1
24	PV4886K56	BRASS VALVE	1
25	600-56	PIPE NIPPLE	1
26	BOS0BF700062	10-32x5/8" PH TH HD MS SS	4
27	NUSOEN17	10-32 ACORN NUT SS	4
28	WASGI025	1/4" STD LOCKWASHER SS	8
29	WASGA050	1/2" STD FLAT WASHER SS	2
30	WASGI050	1/2" STD LOCK WASHER SS	2
31	NUSOEA28	1/2-13 HEX NUT SS	2
32@	PC63745T81	END CAP	1
33	BOSOAA200100	1/4-20x1" HHCS SS	8
*34@	----------	ROCKERARM ASS'Y	2
*35@	----------	BRUSH HOLDER	2
*36@	BP900116.02	BRUSH (LEESON)	2
*37@	BP900115.01	BRUSH SPRING (LEESON)	2
38	PW1041	PLASTIC WASHER	4

* NOT SHOWN
@ SEE CHANGE LIST


LANCE IND.
LT30-60 ELECTRICAL PARTS ASSEMBLY
1/92

LT30 ELECTRICAL PARTS ASSEMBLY

31x52 UNIT

REF. NO.	PART NO.	DESCRIPTION	QTY.
1	1016	ELECTRICAL BOX	1
2	1018	ELECTRICAL BOX COVER	1
3	BCBC141	CONTROLLER	1
4@	BCBR0015	HP RESISTOR	1
5@	SW6P340	SELECTOR SWITCH	1
6	PB2A918	PUSH BUTTON - RED	2
7	PB2A917	PUSH BUTTON - GREEN	2
8	CB2A932	CONTACT BLOCK - GREEN	4
9	CB2A933	CONTACT BLOCK - RED	5
11@	RL2XC20	RELAY	2
12@		SOCKET	2
13	PEATC-7253AR2X3ASX	PHOTOELECTRIC EYE	2
14	TE2A691	TERMINAL SECTION	15
15	TE2A696	END SECTION	1
16	BOS0AU140037	8-32x3/8" PH RHMS SS	17
17	TM191-11A6 TM191-11A5	TIMER (for 60 cycle machines) TIMER (for 50 cycle machines)	1 1
20	BPLT30FP	BLUE PANEL	1
*21	SR1200	5/8" STRAIN RELIEF	3
*22	SR1157	1/2" STRAIN RELIEF	2
23	GM9600K22	GROMMET	1
*24	WI1W661	16/3 WIRE	6'

* NOT SHOWN
@ SEE CHANGE LIST

REF. NO.	PART NO.	DESCRIPTION	QTY.
*25	CR3453	CORD RESTRAINT	1
*26	CT3500	NYLON CABLE TIES	10
*27	CL3608	CABLE HOLDER	6
*28	CT3503	NYLON CABLE TIES	10
*29	CN4X290	SPLICE CONNECTOR	3
*30	CN534-0550	1/4" - 90 CONNECTOR	4
*31	CN4X308	RING CONNECTOR	5
*32	BOS0CA120037	6-32x3/8" PH PAN HD MS SS	4
*33	NUSOEN12	6-32 ACORN NUT SS	4
34	SD875-8035	SPEED DIAL	1
35	SK753-2352	SPEED KNOB	1
*36	CS2W687	POWER CORD 12 FT. LG.	1
37	1012	FACE PANEL	1
*38@	00001812300	REFLECTOR	2
39	SPBC-148	5K SPEED POTENTIOMETER	1
40	FHHTB-36I	FUSE HOLDER	2
41	FU6F019	GGC12- 12 AMP FUSE	1
42	FU6F046	GAB8 - 8 AMP FUSE	1
*43	--------	TRANSFORMER (220 & 380 volt units only) (see tag on transformer for part #)	1
*44	TM31910241	TIMER KNOB ASSEMBLY	1
*45	TM17020112	TIMER WINDOW	1
*46	TM17020083	TIMER COVER	1
*47	TM15001971	TIMER KNOB SHAFT	1

* NOT SHOWN
@ SEE CHANGE LIST

LANCE PARTS CHANGE LIST - LT30

DELETED OR OLD PART NO.		NEW PART NO.
DESCRIPTION	PART NO.	
RIGID CASTER	CS4X785	CS4W890
SWIVEL CASTER	CS4X783	CS4W887
VACUUM PUMP	VU5Z350	VU5Z351
MOTOR	MOCDP-3320	MO098000
GASKET	GA251A	GALT153060
END CAP	PCN-800D (YELLOW)	PC63745T81 (BLACK)
ROCKERARM ASS'Y	33RK5000	----------
BRUSH HOLDER	BP4009A01	----------
BRUSH	BP5011T01	BP900116.02
BRUSH SPRING	BP5012A04	BP900115.01
RELAY	RL2XC37 (KUP-11A18-120)	RL2XC20
SOCKET	SO4A161	----------
SWITCH	SW2A922	SW6P340
POWER CORD	CS6W687	CS2W687
HP RESISTOR	BCBR0035	BCBR0025
BALL TRAP	VTAA672D	VTAA672K
TRAP JAR	VTAA125A	VTAE274
REFLECTOR	00001812400	00001812300
FLANGE BEARING	PBFB220-1-1/4	PBHCFS207-23-1-7/16
PILLOW BLOCK BEARING	PBPB251-1-1/4	PBUCP207-23-1-7/16
BUSHING	BUSDS1-1/4S	BUSDS-1-7/16

THOMAS INDUSTRIES INC.

POWER AIR DIVISION
1419 Illinois Avenue, Sheboygan, WI 53082
(414) 457-4891

MODEL NUMBERS:
807CK60 807CM60 807CP60

Read and understand the following information and instructions included with this product before using. This information is for your safety and to prevent damage to this product.

⚠ CAUTION: To reduce risk of electrical shock . . .

1. Do not disassemble. Disassembly or attempted repairs if accomplished incorrectly can create electrical shock hazard. Refer servicing to qualified service agencies only.
2. If this plug is supplied with a three pronged plug, connect unit to a properly grounded outlet only.

⚠ WARNING: To reduce risk of electrocution . . .

1. This product should never be left unattended when plugged in.
2. Always unplug this product immediately after using and store in dry place.
3. Do not use this product in or near area where it can fall or be pulled into water or other liquids.
4. Do not reach for this product if it has fallen into liquid. Unplug immediately.
5. Never operate this product outdoors in the rain or in a wet area.

⚠ DANGER: To reduce risk of explosion or fire . . .

1. Do not use this product in or near explosive atmospheres or where aerosol (spray) products are being used.
2. Do not pump anything other than atmospheric air.
3. Do not pump combustible liquids or vapors with this product or use in or near an area where flammable or explosive liquids or vapors may exist.
4. Do not use this product near flames.

⚠ CAUTION: To prevent injury . . .

1. Close supervision is necessary when this product is used near children or invalids. Never allow children to operate the unit.
2. Never operate this product if it has a damaged cord or plug. If it is not working properly. If it has been dropped or damaged. Or if it has fallen into water, return the product to a service center for examination and repair.
3. Keep the cord away from heated surfaces.
4. Never block any air openings (inlet) of this product or place it on a soft surface where the openings may be blocked. Keep all air openings free of lint, dirt and other foreign objects.
5. Never use while sleeping or drowsy.
6. Never drop or insert fingers or any other object into any openings.
7. Do not operate this product where oxygen is being administered.
8. This unit may be thermally protected and can automatically restart when the protector resets. Always disconnect power source before servicing.
9. Wear safety glasses or goggles when operating this product.
10. Use only in well ventilated areas.
11. Do not use any tools or attachments without first determining maximum air pressure for that tool or attachment.
12. Never point any air nozzle or air sprayer toward another person or any part of the body.
13. All electrical products generate heat. To avoid serious burns never touch unit during or immediately after operation.

Failure to observe the above safety precautions could result in severe bodily injury, including death in extreme cases.

SAVE THESE INSTRUCTIONS

Warning: Power Air compressors are precision-made, and carefully assembled and wired. Therefore do not disassemble or attempt to repair these products. Only qualified personnel should perform repair service.

IMPORTANT NOTICE TO PURCHASER: WARRANTY AND EXCLUSIVE REMEDIES

Power Air's finished OEM products, when properly installed and under normal conditions of use, are warranted by Power Air to be free from defects in material and workmanship at time of shipment. Warranty claims regarding OEM limited products must be asserted within 13 months (the "warranty period") from date of manufacture encoded on the product (unless otherwise agreed in writing or specified in a Power Air OEM Quotation). The customer's exclusive remedy against Power Air, for a warranty claim or otherwise, shall be limited to repair or replacement of the subject OEM finished product if it is shown to have been defective in material and workmanship at time of shipment, and then only if the claim is asserted during the warranty period. Power Air's maximum liability under this exclusive remedy shall never exceed the cost of the subject product and Power Air reserves the right, at its sole discretion, to refund the purchase price in lieu of repair or replacement. Except for such warranty and exclusive remedy as stated (and except for the express warranty of title) POWER AIR DISCLAIMS ALL OTHER WARRANTIES WITH RESPECT TO ITS OEM FINISHED PRODUCTS, WHETHER IMPLIED, AND SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. IN NO EVENT SHALL POWER AIR BE LIABLE TO CUSTOMER OR THIRD PARTIES IN WARRANTY, CONTRACT, NEGLIGENCE, STRICT LIABILITY, OR OTHERWISE, FOR ANY DAMAGES, WHETHER INCIDENTAL OR CONSEQUENTIAL, WHICH ARE ALLEGED TO HAVE BEEN CAUSED BY ONE OR MORE OF OUR PRODUCTS, BEYOND THE COST TO THE CUSTOMER OF THE SUBJECT PRODUCT OR PRODUCTS, THE EXCLUSIVE REMEDY FOR ANY CLAIM HAVING BEEN LIMITED TO REPAIR OR REPLACEMENT AS AFORESAID.

Because Power Air's OEM warranties and remedies extend only to our direct customers, the customer is not authorized to extend warranties on our behalf to anyone. Unauthorized extensions of warranties by the customer shall remain customer's responsibility.

CUSTOMER IS RESPONSIBLE FOR DETERMINING THE SUITABILITY OF OUR PRODUCTS FOR CUSTOMER'S USE OR RESALE, OR FOR INCORPORATING THEM INTO OBJECTS OR FOR APPLICATIONS WHICH CUSTOMER DESIGNS, ASSEMBLES, CONSTRUCTS OR MANUFACTURES

Part No. 636428 Rev. H 2/93

The dependable air line.™

PARTS LIST AND DRAWING

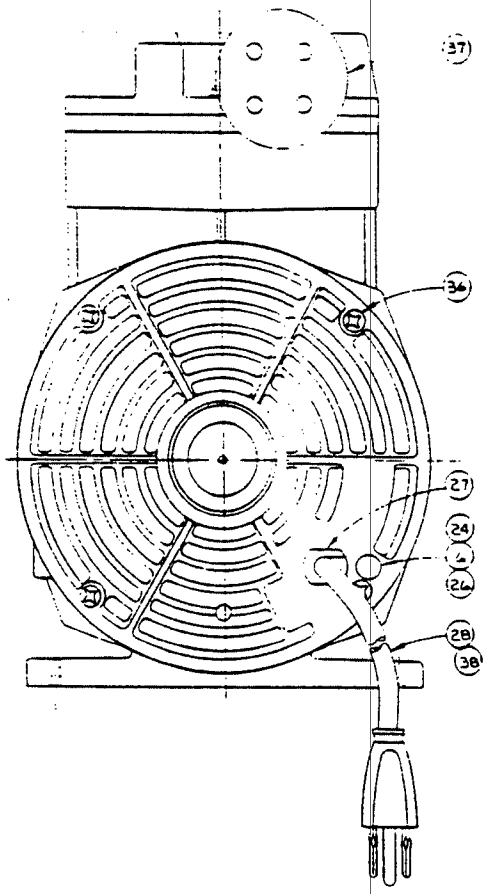
No.	Part No.	Description	Qty.
1	663190	Shaft, Rotor & Bearing Assembly	1
2	607583	Connecting Rod Assembly	1
3	645889	Eccentric & Bearing Assembly	1
4	656075	Valve Plate Assembly	1
5	605047	Flag Terminal - Stator	3
6	605018	Terminal Screw - Ground	1
7	614490	Front Cover Assembly	1
9	602228	Relay Switch	1
9	608414	Stator 115 - 60 Hz	1
10	604128	Lead Wire - Relay to Line	1
11	617425	Motor End Cap	1
12	615527	Spacer - Bearing	1
13	615619	Piston Sleeve	1
14	615600	Tubing - Stator Leads	1

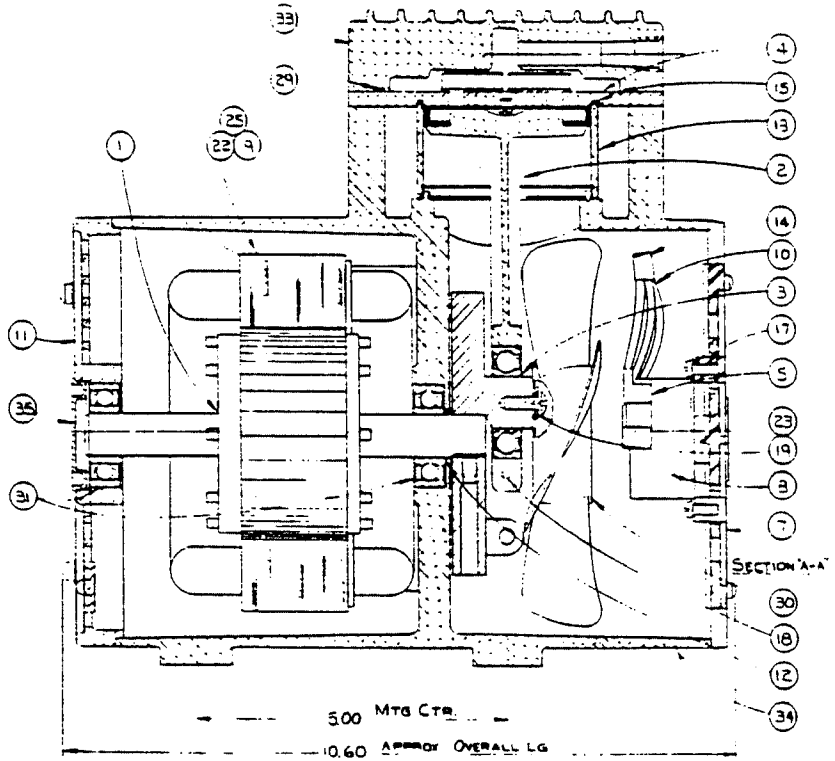
No.	Part No.	Description	Qty.
15	623541	"O" Ring Sleeve	1
16	625436	Screw - Head	6
17	625245	Screw - Relay Switch	2
18	625114	Cap Screw - Connecting Rod	1
19	625354	Screw - Fan	1
20	625448	Screw - Front Cover	4
21	626014	Washer - M.E.C.	4
22	625107	Screw - Stator	4
23	626309	Washer - Fan	1
24	626328	Terminal Nut - Ground	2
25	626509	Lockwasher - Stator Screw & Fan	5
26	626329	Terminal Washer - Ground	2
27	633222	Strain Relief	1
28	633328	Cord	1

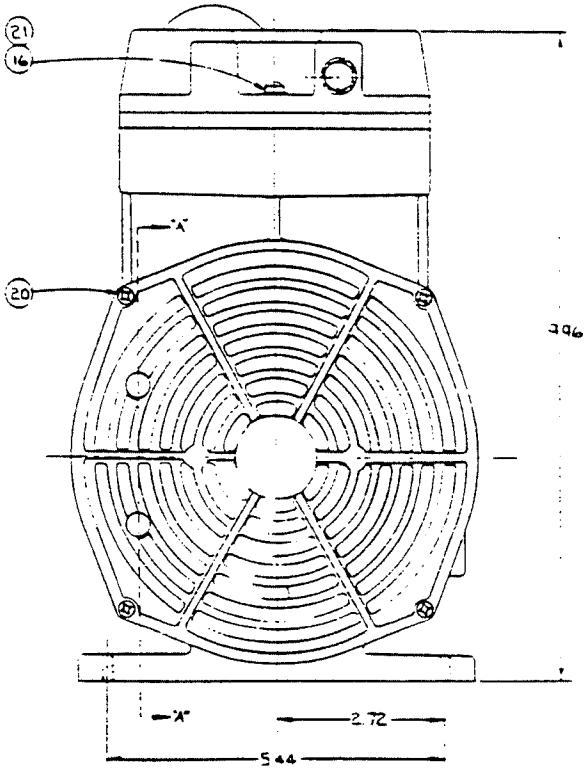
No.	Part No.	Description	Qty.
29	633654	"O" Ring Gasket - Head	1
30	633718	Fan	1
31	646101	Ball Bearing	2
33	660828	Head	1
34	661430-504	Housing	1
35	614551	Bearing Cover	1
36	625251	Screw - M.E.C.	4
37	660587	Filter Assembly	1
38	607034	Insulated Connector	2
39	631519	Loctite #290	A/R
40	636168	TyRap Tie (Not Shown)	2
41	631510	Loctite #242	A/R
42	638127	Plug (Snap-in) (Not Shown)	1

Model 807CP60		
Delete	Description	Add
602228	Relay Switch	602251
608413	Stator	608333
663190	Shaft, Rotor, Bearing Assembly	663194

Model 807CK60			
Key	Add	Description	Delete
1	663289	Shaft, Rotor & Brg. Ass'y.	663190
7	614770	Front Cover Ass'y.	614490
9	608668	Stator	608414
33	661218	Head	660828
36	625357	Screw - Stator	625107







INDUSTRIAL DRIVES

WORM GEAR REDUCER

INSTALLATION and MAINTENANCE MANUAL

STERLING
ELECTRIC, INC.

HEADQUARTERS
16752 Armstrong Avenue, Irvine, CA 92714
(800) 654-6220 FAX (714) 474-0543

BRANCH
7973 Allison Avenue, Indianapolis, IN 46268
(800) 866-7973 FAX (317) 872-0907

STERLING ELECTRIC MOTORS
799 Rennie Street, Hamilton, Ontario, Canada L8H 7L4
(416) 547-2345 FAX (416) 547-2381

WARNING

Improper installation or operation of the gearmotor may cause injury to personnel or gearmotor failure. Read all of the operating instructions. Motor must be installed and grounded per local and national electrical codes.

To reduce potential of electrical shock, disconnect all power sources before initiating any maintenance or repairs. Keep fingers and foreign objects away from ventilation and other openings. Keep air passages clear.

A. Installation

1. General

The Reducer or Gearmotor should be mounted on a flat surface on the machine or foundation, securely bolted down and accurately aligned. Shims under the mounting base should be used when required to provide a level mounting surface.

2. Solid Shaft Mounting

The output shaft should be connected to the load by flexible coupling, sprocket and chain, sheave and V-Belt or pinion. Check to insure proper alignment and tension of all loads. If sprocket, sheave or pinion is used, mount as close to gear housing as possible to minimize bearing load and shaft deflection. Overhung load must be checked to make certain it does not exceed published capacity.

3. Hollow Shaft Mounting

The torque arm of the shaft-mounted worm reducer must not be mounted too rigidly. If the torque arm is held down without any flexibility, shaft eccentricity, which is usually present, can seriously overload the bearings of the gearmotor. The flexible grommet provided with all torque arms must be retained, or some other suitable means provided to allow the torque arm to be mounted with some flexibility. The torque arm should be in tension (based on direction of rotation).

B. Run-In Period

1. The maximum efficiency of worm reducers is obtained after a "Run-In" period. The length of time required will depend on the load applied and will be two to four hours at rated load and considerably longer at light loads. Overloading will not decrease the "Run-In" time but may cause severe wear. During "Run-In" higher than normal motor currents, higher than normal temperature and lower efficiency and output torque can be expected.

C. Lubrication

CAUTION:

All WORM REDUCERS are shipped without oil — **FILL BEFORE OPERATING** or if storing for more than 6 months.

1. Worm Gear Reducer oil must be used to obtain satisfactory gear and worm operating life. Select the proper type of oil from the recommended lubricant chart depending on expected ambient temperature.

a. For Ambient temperatures below 15°F or above 100°F, refer to Factory for recommendations.

b. Worm Gear Reducer oils and compounds in accordance with AGMA specifications are commercially available from all major oil companies.

2. Before placing in operation, make certain that the solid plugs located in the highest position on the gear housing are replaced with the vented breather plug supplied with the unit. If the mounting position is changed from the position ordered, consult the oil level and mounting positions chart to obtain proper oil level.

3. Drain and refill oil after first 100 hours of operation. Under normal operating conditions change oil every 2,000 hours of operation or every 6 months thereafter, whichever occurs first.

4. The maximum input HP rating as shown in the published Rating Tables is based on a stabilized oil bath temperature not exceeding 200°F for normal ambients. Higher oil bath temperatures or continued operation in excess of rated input HP will tend to shorten the useful life of a lubricant. For high ambient temperatures in excess of 100°F, special lubricants or derating of the Gearmotor may be required. Consult the Factory or Local Office with complete application engineering data if this occurs.

D. Maintenance

1. This gear reducer was accurately adjusted and tested at the factory. Care must be taken when the gearcase is disassembled and reassembled. This should be done by an authorized service station as damage to internal parts may result if adjusted improperly. Frequent oil level inspection with the unit not running, (preferably when warm) should be made by removing the proper oil level plug to see that the oil level is being maintained. If low (without replacing oil level plug) add lubricant through one of the upper openings until it comes out of the oil level hole.

E. Service Factor

CAUTION

1. Load conditions must be in accordance with accepted NEMA and AGMA standards.

F. Long-Term Storage (6 Months Up)

1. Units must be stored indoors, in a dry, warm temperature.
2. Completely fill the unit with oil.
3. Rotate the input shaft so that the output shaft rotates at least one revolution per month.
4. Completely cover the input and output shaft with grease.
5. At the time of start up, drain the storage oil, install the breather, and fill to the proper oil level with the correct lubricant for the operating condition.

G. Warranty (Limited)

1. The warranty will cover all of the parts in the gearmotor or reducer unit for 12 months from the date of shipment.
2. The warranty is only for parts and labor. In no event shall our liability exceed the original price of the unit, nor does it cover cost of on site repair, installation, or freight.
3. Contact the service department for a complete explanation as to the full warranty policies and conditions of sale.

All dimensions, designs and specifications are subject to change without notice.

Notes:

1. The above lubricants are specially compounded for use in worm gear units; some contain non-corrosive, extreme pressure additives. DO NOT USE lubricants that are compounded with sulphur and/or chlorine which are corrosive to bronze worm gears.
2. The lubricant used should have a pour point of at least 10°F lower than the lowest ambient temperature in which the unit will operate.
3. Extreme pressure (EP) Worm Gear Lubricants, in some cases contain materials that are considered toxic. Care should be taken to avoid the use of these lubricants where they can result in harmful effects. If in doubt, consult your local Lubricant Supplier.

WORM GEAR REDUCERS

LUBRICATION INSTRUCTIONS

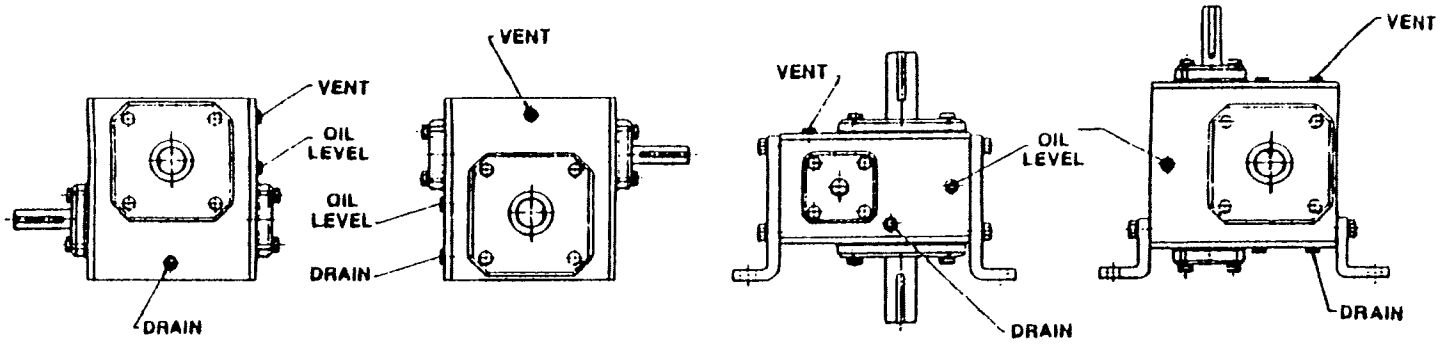
LUBRICATION

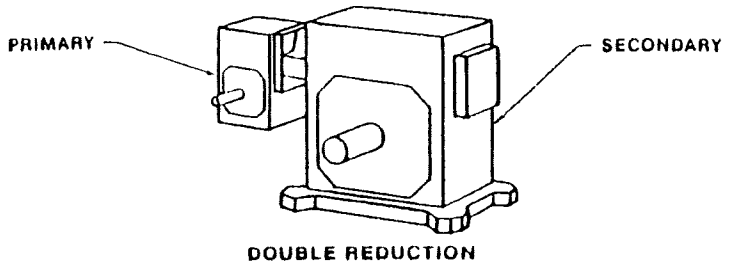
Manufacturer	15° to 60°F Ambient Temperature AGMA Compounded No. 7	50° to 125°F Ambient Temperature AGMA Compounded No. 8
Amoco Oil Co.	Worm Gear Oil	Cylinder Oil #680
Chevron USA, Inc.	Cylinder Oil #460X	Cylinder Oil #680X
Exxon Co. USA	Cylesstic TK-460	Cylesstic TK-680
Gulf Oil Co.	Senate 460	Senate 680D
Mobil Oil Corp.	600W Super	Extra Hecla Super
Shell Oil Co.	Valvata Oil J460	Valvata Oil J680
Sun Oil Co.	Gear Oil 7C	Gear Oil 8C
Texaco	Honor Cylinder Oil	650T Cylinder Oil
Union Oil Co. of California	Steaval A	Worm Gear Lube 140

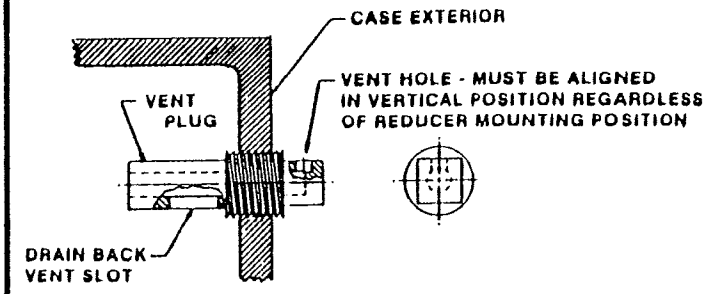
NOTE: For temperature ranges not shown and synthetic lubrication, contact factory.

VENT PLUG LOCATION

WARNING: THIS REDUCER WAS SHIPPED FROM FACTORY WITHOUT OIL. BEFORE RUNNING OR FILLING WITH OIL, REPLACE SOLID PIPE PLUG WITH VENT PLUG. FOR DOUBLE WORM REDUCERS, BOTH PRIMARY AND SECONDARY UNITS MUST BE VENTED. SEE BELOW FOR VENT LOCATIONS.







OIL CAPACITIES (oz.)

MOUNTING POSITION	UNIT SIZE														
	100	133	154	176	206	238	262	300	325	425	525	600	700	800	1000
WORM OVER	3	5	10	15	21	25	45	55	73	135	200	310	563	768	1152
WORM UNDER	4	7	14	18	25	30	49	61	89	127	216	330	525	822	1280
VERTICAL OUTPUT	4	6	13	16	23	26	46	58	74	120	216	320	332	460	640
"J" MOUNT	3	7	12	16	24	25	47	60	75	126	216	325	585	800	1200

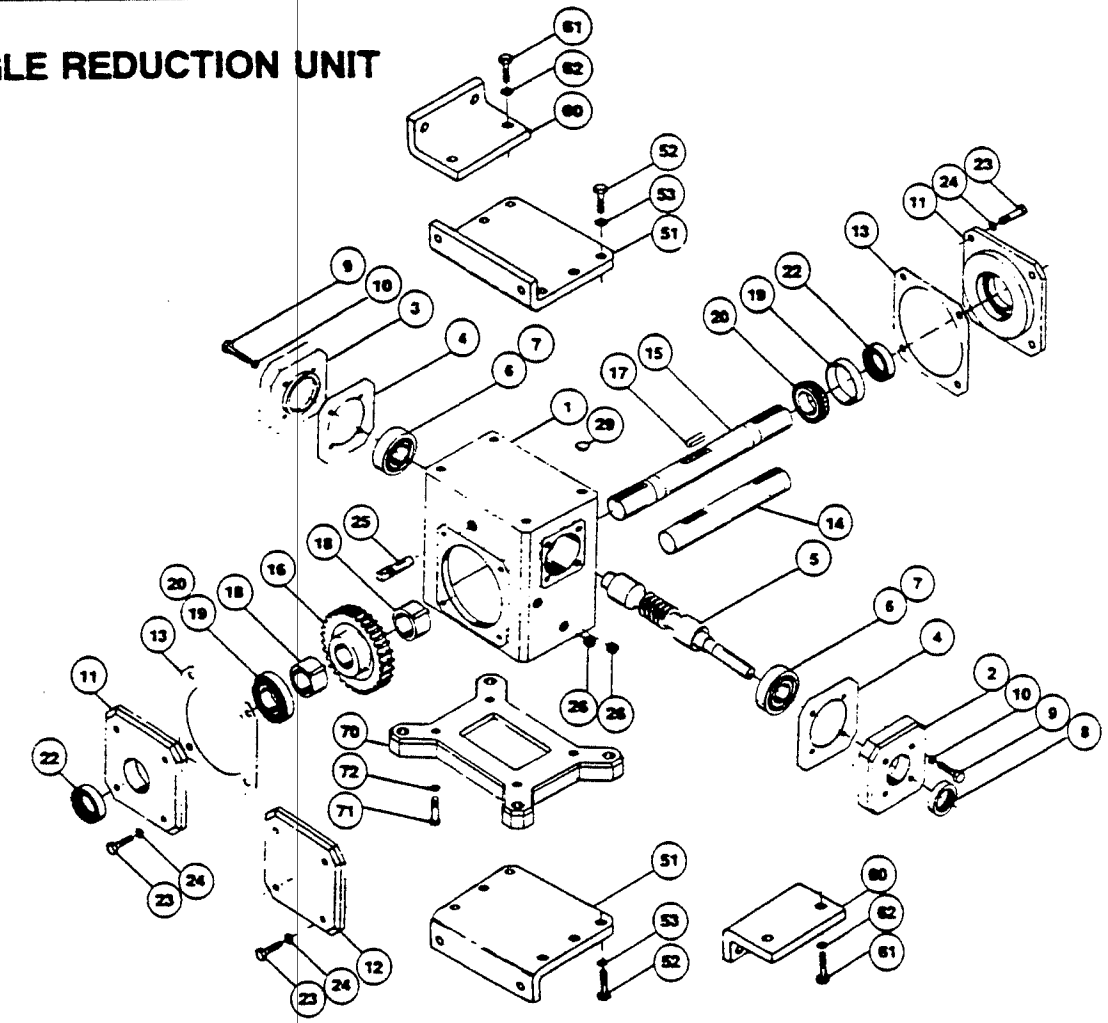
PARTS LIST—SINGLE REDUCTION

Item No.	Description	Qty.
1	Gear Housing	(1)
2	Input Cover (Seal)	(1)
3	Input Cover (Bearing)	(1)
4	Input Cover Gaskets	(as req'd)
5	Input Shaft	(1)
6	Input Bearing (Cup)	(2)
7	Input Bearing (Cone)	(2)
8	Input Oil Seal	(1)
9	Hex Head Capscrew	(8)
10	Lock Washer	(8)
11	Output Cover (Seal)	(1)
12	Output Cover (Bearing)	(1)
13	Output Cover Gaskets	(as req'd)
14	Single Output Shaft	(1)
15	Double Output Shaft	(1)
16	Worm Gear	(1)
17	Gear Key	(1)
18	Gear Spacer	(2)
19	Output Bearing (Cup)	(2)
20	Output Bearing (Cone)	(2)
22	Output Oil Seal	(1)
23	Hex Head Capscrew	(8)*
24	Lock Washer	(8)*
25	Vent Plug	(1)
26	Pipe Plug	(2)
29	Protective Plug	(4)
	Fan Unit	
40	Slotted Hex Head Capscrew	(4)
41	Plain Flat Washer	(4)
42	Fan Bracket	(4)
43	Oil Seal	(1)
44	Hex Head Capscrew	(1)
45	Lock Washer	(1)
46	Fan	(1)
47	Fan Cover	(1)
	Vertical Risers Unit	
51	High and Low Riser Bracket	(2)
52	Hex Head Capscrew	(8)
53	Lock Washer	(8)
	"J" Mount Unit	
60	"J" Mount Bracket	(2)
61	Hex Head Capscrew	(4)
62	Lock Washer	(4)
	Horizontal Base Unit	
70	Horizontal Base	(1)
71	Hex Head Capscrew	(4)
72	Lock Washer	(4)

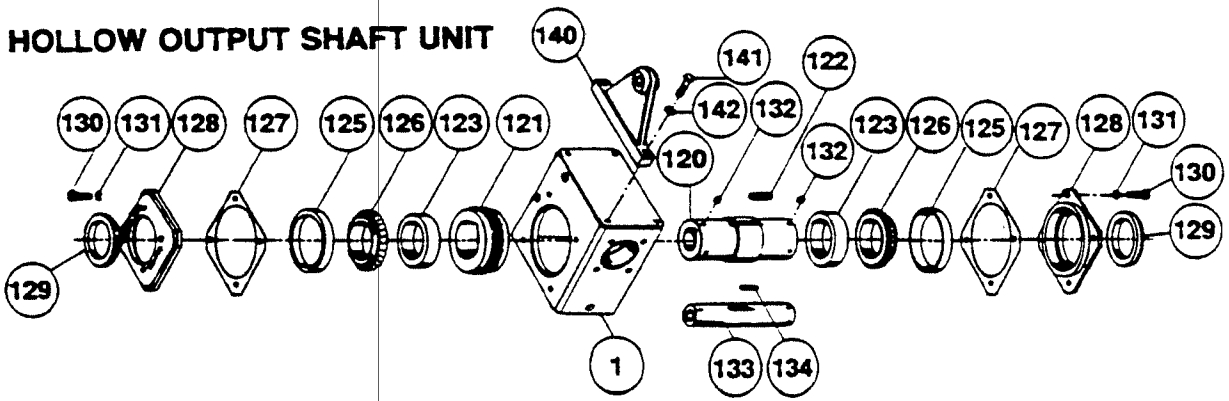
* 425 Unit has (10) and 525 Unit has (16)

Item No.	Description	Qty.
	Long Motor Flange Unit	
80	'C' Face Motor Flange	(1)
81	Hex Head Capscrew	(4)
82	Lock Washer	(4)
	Quill Motor Flange Unit	
90	Quill Input Shaft	(1)
91	Retaining Ring (Shaft)	(1)
92	Input Bearing (Cup)	(2)
93	Input Bearing (Cone)	(2)
94	Retaining Ring (Housing)	(1)
95	Quill Motor Flange	(1)
96	Oil Seal	(1)
97	Hex Head Capscrew	(4)
98	Lock Washer	(4)
	Output Flange Unit	
110	Output Flange (Hollow)	(1)
111	Output Flange (Solid)	(1)
112	Output Cover (Ground Face)	(1)
113	Hex Head Capscrew	(4)
114	Lock Washer	(4)
	Hollow Output Shaft Unit	
120	Hollow Output Shaft	(1)
121	Worm Gear (Hollow)	(1)
122	Worm Gear Key	(1)
123	Worm Gear Spacer	(2)
125	Output Shaft Bearing (Cup)	(2)
126	Output Shaft Bearing (Cone)	(2)
127	Output Gaskets	(as req'd)
128	Output Cover	(2)
129	Output Oil Seal	(2)
130	Hex Head Capscrew	(8)
131	Lock Washer	(8)
132	Set Screw	(6)
133	Shaft Bushing	(1)
134	Bushing Kit	(1)
140	Torque Bracket	(1)
141	Hex Head Capscrew	(8)
142	Lock Washer	(8)
	Coupling Kits	
190	Coupling Sleeve	(1)
191	Coupling Gear	(1)
192	Coupling Gear	(1)
193	Setscrew	(1)
194	Setscrew	(1)
195	Key	(1)
196	Key	(1)

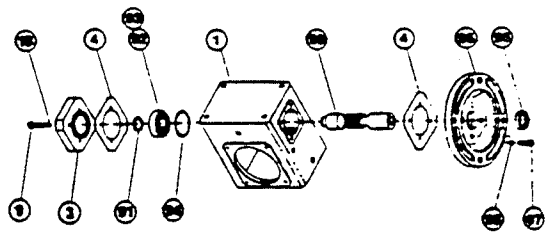
SINGLE REDUCTION UNIT



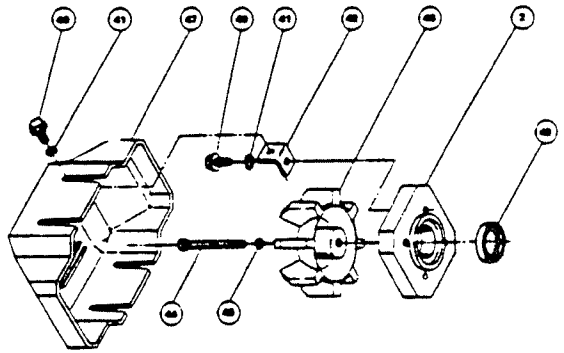
HOLLOW OUTPUT SHAFT UNIT



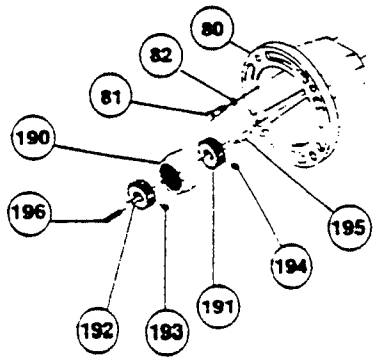
QUILL MOTOR FLANGE UNIT

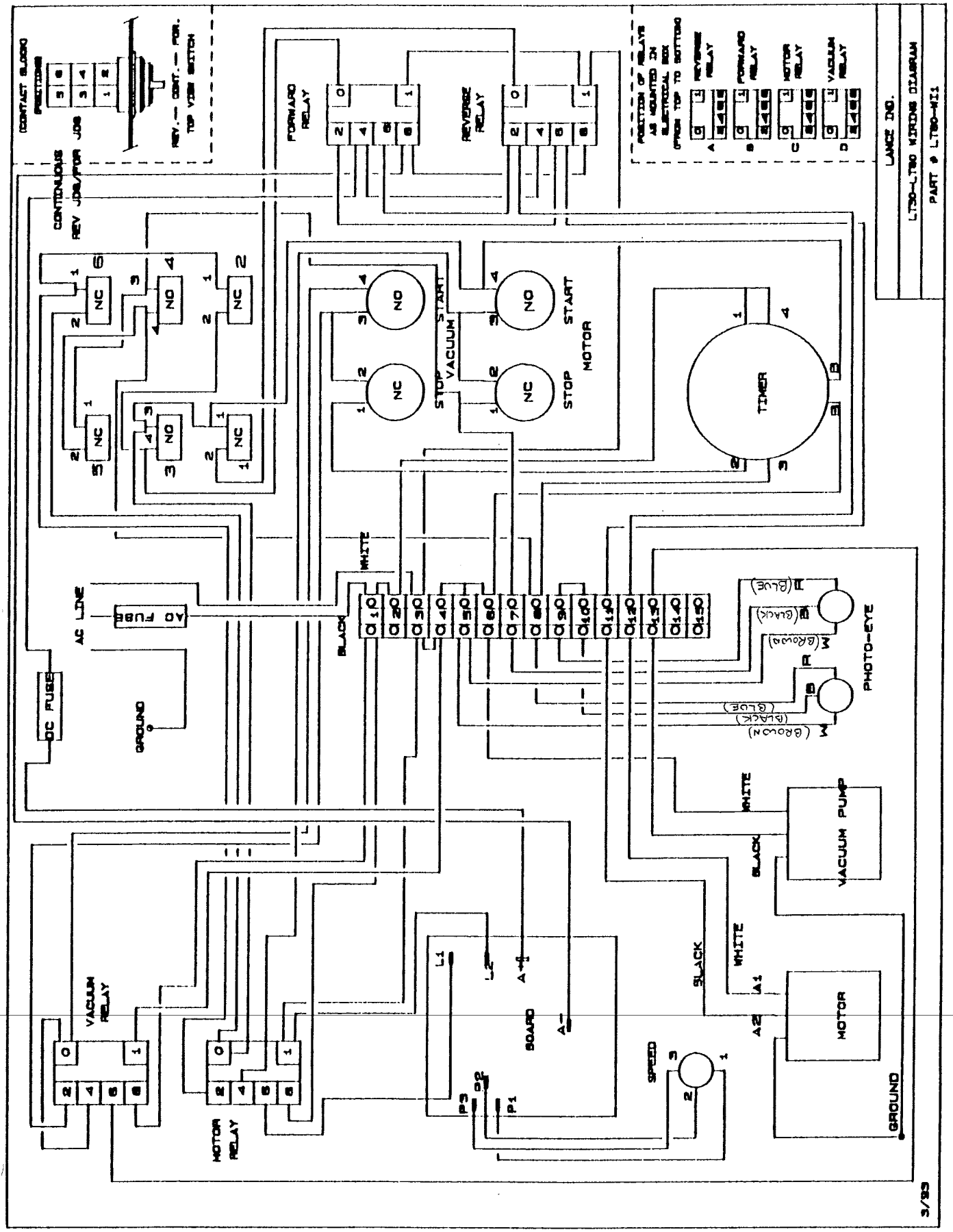


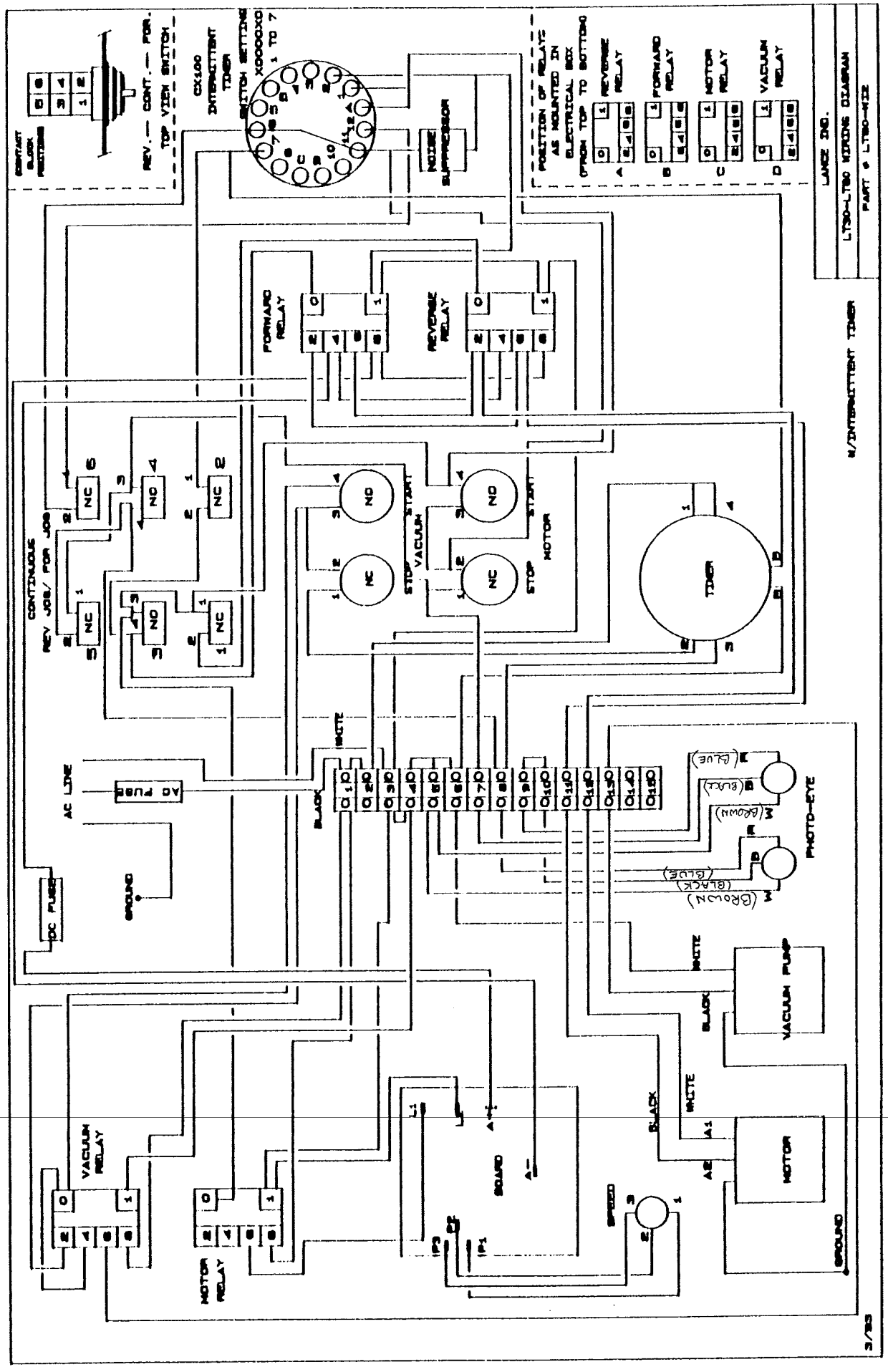
FAN UNIT
For Models 325, 425 and 525 Only.



LONG MOTOR FLANGE AND COUPLING KIT




LANCE INC.
L750-L780 WIRING DIAGRAM
PART # LT80-W11
CONTACT BLOCK POSITIONS
REV. — CONT. — FOR. TOP VIEW SHOWN
CONTINUOUS REV JOG/FOR JOG
FORWARD RELAY
REVERSE RELAY
POSITION OF RELAYS AS MOUNTED IN ELECTRICAL BOX (FROM TOP TO BOTTOM)
REVERSE RELAY
FORWARD RELAY
MOTOR RELAY
VACUUM RELAY
A
B
C
D
NC
NO
STOP VACUUM START
STOP MOTOR START
TIMER
AC LINE
10 FUSE
DC FUSE
GROUND
WHITE
BLACK
PHOTO-EYE
VACUUM PUMP
MOTOR
SPEED
BOARD
L1
L2
A+
A−
P3
P2
P1
A1
A2
VACUUM RELAY
MOTOR RELAY
3/93


LANCE INC.
LT90-LT80 WIRING DIAGRAM
PART # LT80-402
REV. — CONT. — FOR.
TOP VIEW SWITCH
CONTACT BLOCK POSITIONS
CX100 INTERMITTENT TIMER
SWITCH SETTING X0000XX0 1 TO 7
NOISE SUPPRESSOR
POSITION OF RELAYS AS MOUNTED IN ELECTRICAL BOX (FROM TOP TO BOTTOM)
REVERSE RELAY
FORWARD RELAY
MOTOR RELAY
VACUUM RELAY
A
B
C
D
FORWARD RELAY
REVERSE RELAY
CONTINUOUS
REV JOG/ FOR JOG
NC
NO
STOP
START
VACUUM
MOTOR
TIMER
AC LINE
AC FUSE
DC FUSE
GROUND
WHITE
BLACK
PHOTO-EYE
(BROWN)
(BLACK)
(BLUE)
VACUUM PUMP
MOTOR
SPEED
BOARD
L1
L2
A1
A2
IP1
IP2
IP3
VACUUM RELAY
MOTOR RELAY
N/INTERMITTENT TIMER
3/93