SAFETY, OPERATION & MAINTENANCE MANUAL

for

AARON PROCESS EQUIPMENT CO.

LAB MIXERS

Read and understand this material before operating or servicing this equipment. Failure to do so may result in serious bodily injury or death.

MANUAL #1 .001 **11/21/96**

TABLE OF CONTENTS

I. INTRODUCTION

Aaron Process is a leading manufacturer of mixing equipment. Changes in industry training and safety motivation have created a need for this manual.

This manual recognizes that the mixer is only a component of a larger plant system. The system may involve upstream and downstream equipment such as loaders, feeders, conveyors, hoppers etc. This manual shall pertain only to the mixer component. This manual should be placed in a binder with other component's manuals to form a "system's manual".

There is nothing more important than the safety aides provided throughout this manual. The Safety Alert Symbol ⚠ is used to identify topics of safety concern wherever they appear.

People experienced in the maintenance and operation of this type of equipment provide the best feedback . Aaron Process welcomes your input concerning the contents of this manual and/or suggested additions. Send your comments to:

Aaron Process Equipment Co. Inc.
P.O. Box 530
Bensenville, IL 60106
Attn: Customer Service
Manual #1.001

II. PURPOSE OF THIS MANUAL

This instruction manual is intended to familiarize operating and maintenance personnel with the operation, safety and servicing procedures associated with the Aaron Process mixer.

This manual should be kept available to operating and maintenance personnel. For additional copies at no charge, order manual #1.001

DANGER

A person who has not read and understood the operating and safety instructions is not qualified to operate this machinery.

DO NOT operate this equipment unless you understand how to use it safely.

IF YOU DO NOT UNDERSTAND ANY PORTION OF THIS MANUAL CONTACT AARON PROCESS EQUIPMENT COMPANY AT:

(630) 350-2200

CUSTOMER SERVICE DEPARTMENT

III. SAFETY ALERT SYMBOL

The symbol above is used to call your attention to instructions concerning your personal safety. Watch for this symbol. It points out important safety precautions. It means **"ATTENTION"**, be alert, your personal safety is involved. Read the message that follows the symbol and be alert to the possibility of personal injury or death.

DANGER
For the purpose of this manual and product labels, DANGER indicates death, severe personal injury or substantial damage will result if proper precautions are not taken.

WARNING
For the purpose of this manual and product labels, WARNING indicates death, severe personal injury or substantial damage can result if proper precautions are not taken.

CAUTION
For the purpose of this manual and product labels, CAUTION indicates minor personal injury or property damage can result if proper precautions are not taken.

The operation and maintenance of machinery may present hazards which can result in serious injury or death. Operating and maintaining the Aaron Process mixer is no exception.

IV. PRODUCT DESCRIPTION

Aaron Process mixers are built with quality and pride. Every effort has been taken to assure you many years of dependable service. As with all machinery, proper care and maintenance will extend the life of the mixer. Maintain proper fluid levels in the gearbox and grease bearings as suggested in the Maintenance section of this manual.

AARON PROCESS STANDARD
1 & 2 GALLON SIGMA BLADE MIXER

New Aaron Process Equipment Company quarter gallon (product level in bowl even with the top of the blade) lab mixer.

Horsepower:
2 hp direct connect gearmotor

Bowl:
Standard units are constructed of T304SS machined castings. The working segment of the drum is line bored to maintain a tolerance of .046+.015.

Mixing Blades:
Two mixing blades of sigma design in cast 304SS are machined and polished. All bearings on blade shafts are Permanently sealed ball bearings eliminating the need for periodic lubrication. The glands encompassing the blade shafts are part of the end plate and are furnished from the factory with pure braided teflon packing followed by a split bronze pusher.

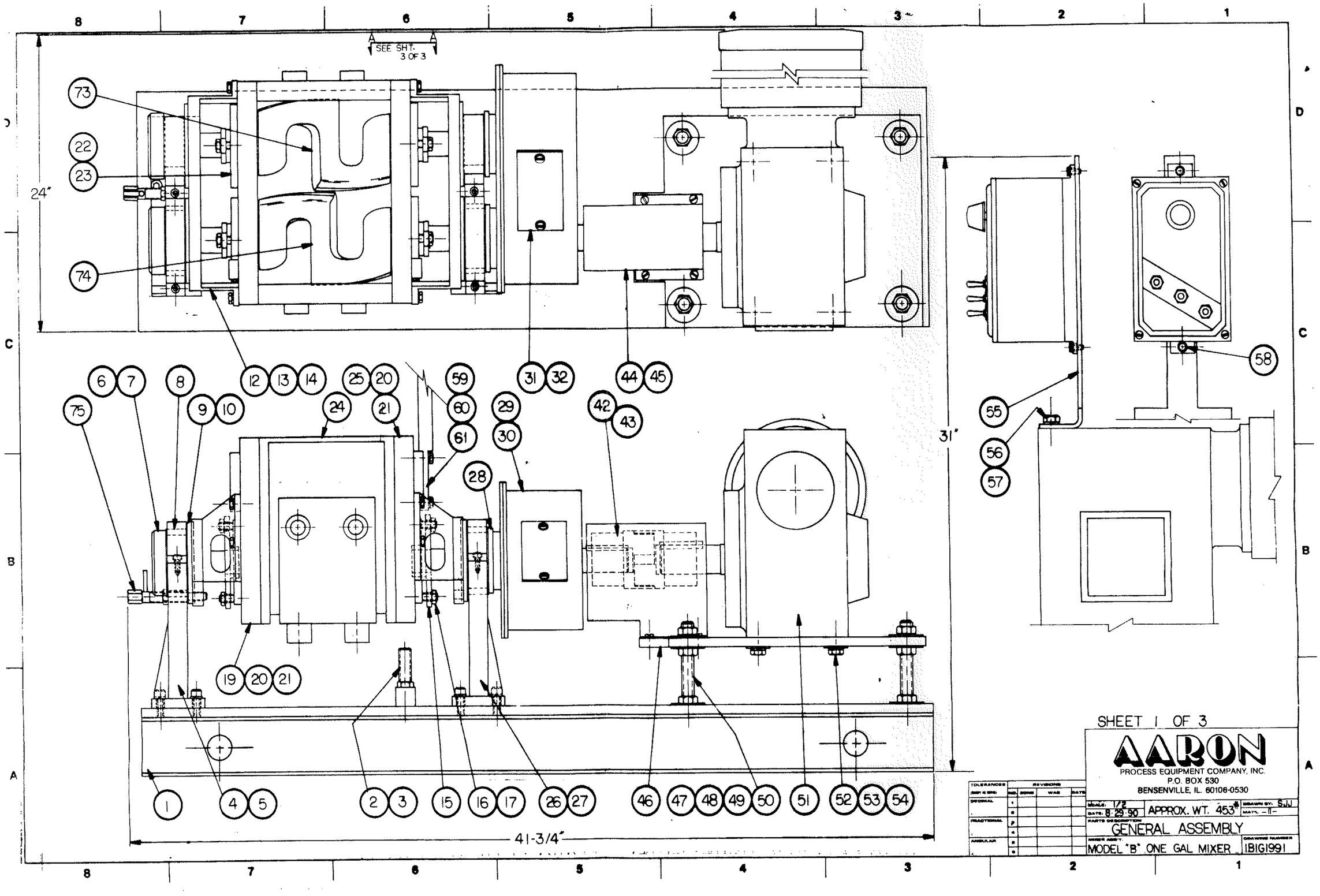
Tilting Machine:
Tilting is accomplished by manually pulling the tilt handle and pivoting the entire bowl assembly over the front bearing support stanchions. An anti-tilt spring loaded plunger is provided to prevent any accidental tilting of the unit during operation. The plunger is a device which needs to be open and closed manually during dump of product and locking unit down when returned to its original position.

Base Frame:
Fabricated of carbon steel all welded with blanchard ground top. All carbon steel parts, then primed and color coated.

Jacketing:
The jacket on the drum is rated for 100 PSI (steam, water or hot oil). Internal cross over baffle ensures positive and even distribution of heating/cooling transfer materials.

Drive:
2 hp, 90 volt DC drive motor w/AC 115V/230V 1 ph, Bronco II controller. Comes prewired with variable speed knob enabling speeds from 0-70 rpm on the front blade, start/stop switch, run/jog control and reversing capability.

Cover:
Suitable for dust and/or vacuum. Constructed of T304SS casting material, furnished with gasket, swing lock bolts and (2) 1/4" NPT bosses.



SHEET 1 OF 3

AARON
PROCESS EQUIPMENT COMPANY, INC.
P.O. BOX 530
BENSENVILLE, IL. 60106-0530

SCALE: 1/2	APPROX. WT. 453#
DATE: 8-29-90	DRAWN BY: SJJ
PARTS DESCRIPTION	MATL: -11-
GENERAL ASSEMBLY	
MIXER ASSY.	DRAWING NUMBER
MODEL "B" ONE GAL MIXER	1B1G1991

TOLERANCES (UNLESS OTHERWISE SPECIFIED)
DECIMAL
FRACTIONAL
ANGULAR

REVISIONS

NO.	ZONE	WAS	DATE
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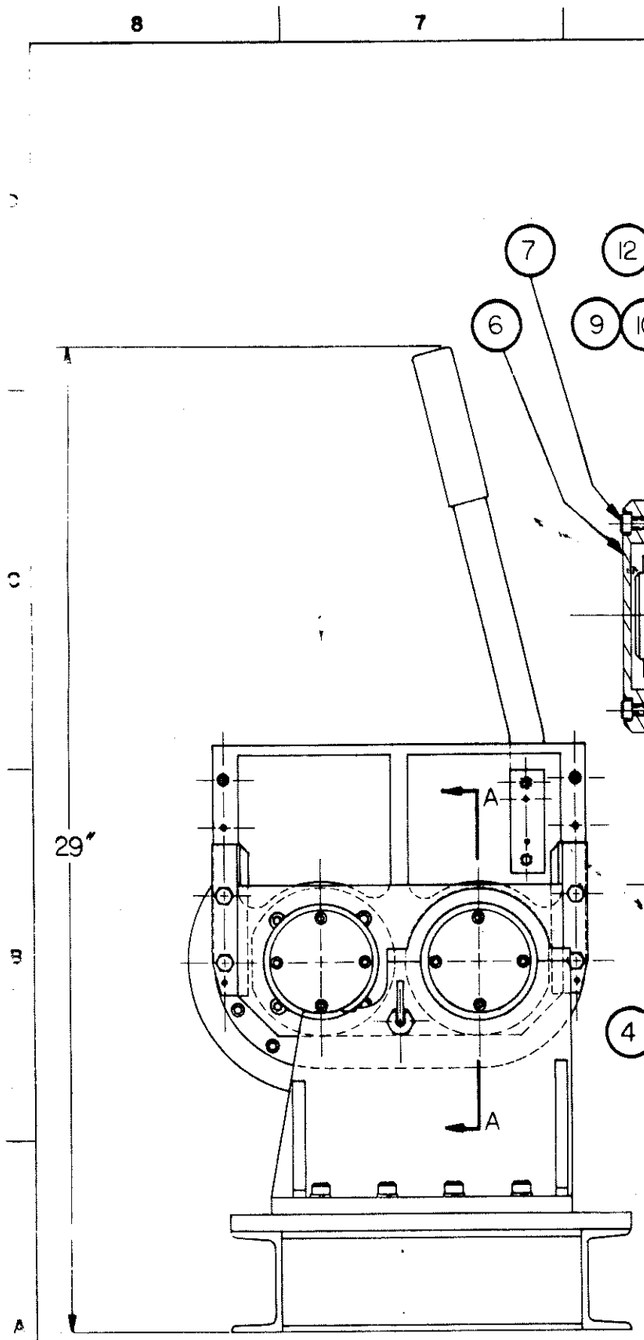
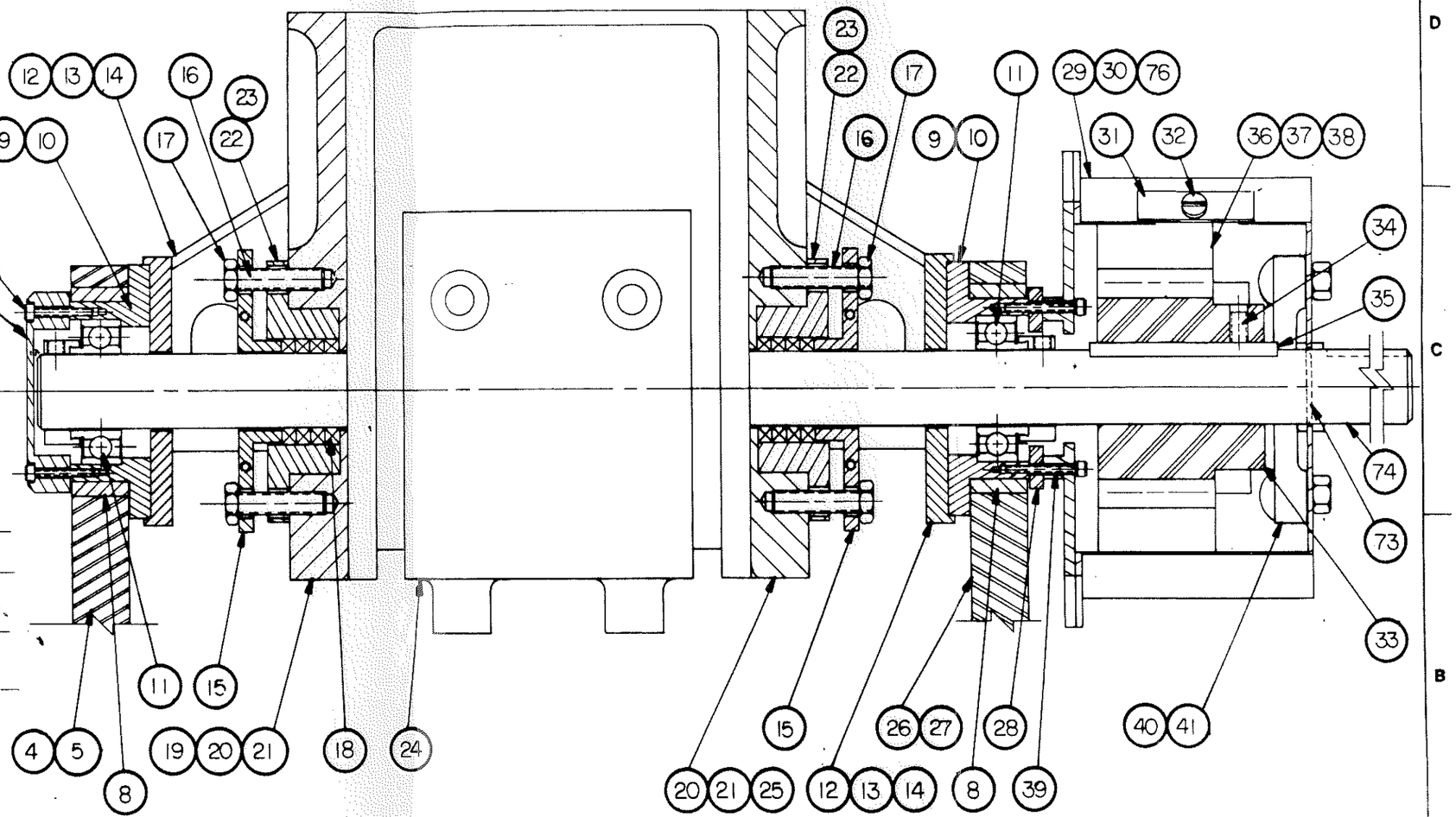
B			
C			
D			
E			
F			



SIDE VIEW
(MOTOR NOT SHOWN)



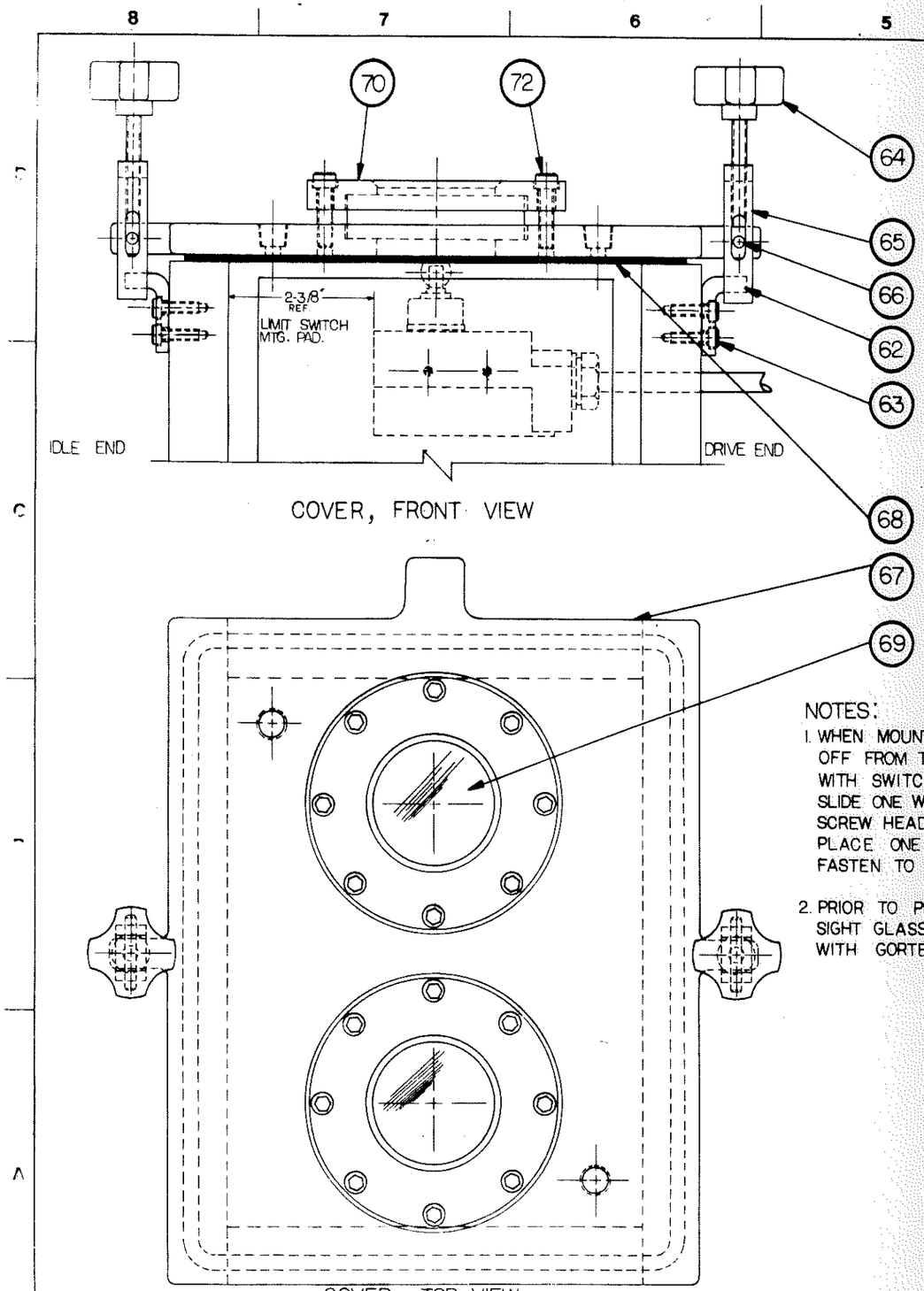
SECTION A-A

SHEET 2 OF 3

AARON
PROCESS EQUIPMENT COMPANY, INC.
P.O. BOX 530
BENSENVILLE, IL. 60106-0530

SCALE: 1/2	APPROX. WT. 453#
DATE: 8-29-90	DRAWN BY: SJV
PARTS DESCRIPTION: GENERAL ASSEMBLY	MATL: -II-
MIXER ASS'Y: MODEL "B" ONE GAL. MIXER	DRAWING NUMBER: 1B1G1991

TOLERANCES	REVISIONS			
	NO.	ZONE	WAS	DATE
DECIMAL				
FRACTIONAL				
ANGULAR				



COVER, FRONT VIEW

COVER, TOP VIEW

NOTES:

1. WHEN MOUNTING SAFETY SWITCH, 1/4" MUST BE CUT OFF FROM THREAD LENGTH ON SCREWS SUPPLIED WITH SWITCH. SWITCH TO BE MOUNTED AS FOLLOWS: SLIDE ONE WASHER FOLLOWED BY ONE O-RING TO SCREW HEAD. INSERT SCREWS THROUGH SWITCH. PLACE ONE O-RING FOLLOWED BY ONE WASHER AND FASTEN TO MOUNTING PAD ON BOWL.
2. PRIOR TO PLACING SIGHT GLASS IN COVER, LINE SIGHT GLASS HOLDER (70) AND SEAT IN COVER (67) WITH GORTEX GASKET (71).

QTY.	MATERIAL	DESCRIPTION	DET.
12	6-32x3/8	SLOTTED PAN HD.	76
1	IG170-B1	PIN, ANTI TILT	75
1	IG111-B1	BLADE, DRIVER	74
1	IG110-B1	BLADE, DRIVEN	73
16	1/4-20 x 1	S/S HX. SOC. CAP	72
40"	3/8"W.	SELF STICK GORTEX	71
2	IG163-B1	HOLDER, SIGHT GLASS	70
2	IG162-B1	GLASS, SIGHT	69
1	IG169-B1	GASKET, COVER	68
1	IG164-B1	COVER, VACUUM	67
2	3/16Ø X 1-1/4	DOWEL PIN	66
2	IG161-B1	PULL, CLAMP	65
2	IG160-B1	KNOB, CLAMP	64
4	10-24 X 1/2	HX. SOC. CAP	63
2	IG159-B1	MATE, CLAMP	62
2	3/16Ø X 1-1/4	DOWEL PIN	61
2	3/8-16 X 7/8	HX. SOC. CAP	60
1	IG115-B1	HANDLE, TILT	59
2	12-14 X 5/8	HX. WASH. HD. TAP. SCR	58
2	7/16	SPLIT WASHER	57
2	7/16-14 X 1	HEX. HD. BOLT	56
1	IG157-B1	BRACKET, CONTROL'R	55
4	7/16	SPLIT WASHER	54
4	7/16	PLAIN WASHER	53
4	7/16-14 X 1-1/4	HEX. HD. BOLT	52
1	IG158-B1	PACKAGE, DRIVE	51
4	5/8	SPLIT WASHER	50
12	5/8-11	HEX. NUT	49
12	5/8	PLAIN WASHER	48
4	5/8-11 X 5	THREADED ROD	47

QTY.	MATERIAL	DESCRIPTION	DET.
1	IG167-B1	BASE, DRIVE	46
4	8-32 X 1/2	SLOTTED PAN HD	45
1	IG166-B1	GUARD, COUPLING	44
1	1/4 x 2"	SQ. KEY	43
1	IG156-B1	COUPLING, DRIVE	42
2	3/8-16 X 1-1/4	CARRIAGE BOLT, NUT	41
1	IG168-B1	BRG., REAR BLADE SUPT.	40
8	6-32 X 1-1/4	HEX. SOC. CAP, LW	39
1	1/4 SQ X 2-5/8	KEY	38
2	5/16-18 X 1	HEX. SOC. SET SCREW	37
1	IG108	GEAR, DRIVEN	36
1	1/4 SQ X 3"	KEY	35
2	5/16-18 X 1	HEX SOC SET SCREW	34
1	IG109	GEAR, DRIVER	33
2	1/4-20 X 3/8	PAN HD. TAP. SCREW	32
1	IG155-B1	PLATE, COVER	31
1	IG112-B1B	BACK PLT., GR. GRD.	30
1	IG112-B1A	GUARD GEAR CVR.	29
2	IG152-B1	SPACER	28
8	3/8-16 X 1	HEX. SOC. CAP	27
1	IG154-B1RH	SUPPORT, UPRIGHT R.H.	26
1	IG102-B1RH	PLATE, END R.H.	25
1	IG104-B1	BOWL, MACHINED	24
16	1/4-20 X 5/8	HEX. SOC. CAP	23
4	IG101-B1	JOURNAL, END	22
6	1/4Ø X 1-1/2	DOWEL PIN	21
26	1/4-20 X 1-1/2	HEX. SOC. CAP	20
1	IG102-B1LH	PLATE, END L.H.	19
63"	1/4" SQ.	PACKING (BY CUSTOMER)	18
8	3/8-16	JAM NUT	17
8	3/8-16 X 1-3/4	THREADED ROD	16
4	IG153-B1	PUSHER COMPLETE	15
4	3/16 X 1-1/2	DOWEL PIN	14
8	5/16-18 X 7/8	HEX. HD., LW	13
2	IG103-B1	SUPPORT, BEARING	12
4	IG107-B1	BEARING	11
16	1/4-20 X 1/2	HEX. SOC. CAP.	10
4	IG150-B1	HSG., BEARING	9
2	IG151-B1	BUSHING, BRONZE	8
8	6-32 X 1	HEX. SOC. CAP.	7
2	IG100-B1	COVER BEARING	6
8	3/8-16 X 1	HEX. SOC. CAP., LW	5
1	IG154-B1LH	SUPPORT, UPRIGHT L.H.	4
1	5/8-11	HEX. NUT	3
1	5/8-11 X 4-1/2"	THREADED ROD	2
1	IG113-B1	STAND	1

AARON
PROCESS EQUIPMENT COMPANY, INC
P.O. BOX 530
BENSENVILLE, IL. 60106-0530

SCALE: 1/2	APPROX WT. 453 # DRAWN BY SJJ
DATE: 8-29-90	PARTS DESCRIPTION: GENERAL ASSEMBLY
MIXER ASSY	DRAWING NUMBER: MODEL "B" ONE GAL. MIXER 1BIG1991

TOLERANCES (UNLESS OTHERWISE SPECIFIED): DECIMAL, FRACTIONAL, ANGULAR

REVISIONS: NO. | ZONE | WAS | DATE

RECEIVING

Uncrate machinery and check for any damage. Claims for any damage done in shipment must be made by the purchaser against the transportation company.

SAFETY DEPENDS ON YOU!

Aaron Process mixers are designed and built with safety in mind. However, your overall safety can be increased by proper installation and thoughtful operation on your part. Read and observe all instructions and specific safety precautions included in this manual. Most importantly, think before you act and be careful.

In a continuing effort to insure that safety shall be of the utmost concern to all involved with our machinery, Aaron encourages any suggestions that might improve the customers understandings of our safety standards.

INSTALLATION

It is the user's responsibility to ensure safety regarding his process. Complete process safety procedures must be understood by all operators of the machine and written instructions provided, where necessary, by the owner. This mixer is only a component of an entire plant system. Any ancillary equipment to be associated with the mixer must be installed in a manner that meets or exceeds ANSI and OSHA standards. The safety and welfare of personnel operating or maintaining the unit shall be the number one concern.

NOISE

We cannot predict or give a guarantee on noise levels you will encounter under your operating conditions. The following are some factors to consider before machine installation.

A. DURATION Based on your lab test and past experience, you should have an estimated mix cycle time. In general, the longer the mix time expected, the more emphasis must be placed on noise control. Reference OSHA and EPA Noise Exposure Recommendation Tables.

B. PRODUCT The product to be processed in the machine has a very pronounced effect on the amount of noise generated. A good rule of thumb is that the more coupled horsepower required, the more noise there will be. Therefore, careful attention should be given to the product this machine was purchased for and any possible future products it is to be used on.

C. MOUNTING The machines are generally designed to be bolted to the floor for most applications. The same precautions that are used for any large machine installation must be followed, and if conditions warrant, sound and vibration dampering mounts should be used. There are many companies that specialize in machine installation and a good source of both technical advice and related hardware is usually available by consulting the local phone book under "Machinery Movers," "Millrights" or "Riggers" headings.

DISPOSITION

All conventional material/machine handling safety practices must be adopted during movement, installation, cleaning and general repair work. It shall be the employer's responsibility to place and locate the blender in his plant and provide and additional safety features which become necessary because of equipment location. It shall be the employer's responsibility to ensure that the controls for starting the machine are properly connected with safety devices and also located so that it can't be accidently started. Because the blender is a component and may associate with other equipment in the plant, it should be installed in a manner that meets or exceeds ANSI and OSHA requirements for safety in production line installation.

The machine shall be firmly secured to a level foundation with proper anchoring devices. The use of shims and grouting is acceptable. Placing this unit on an unlevel surface can cause misalignment of drive components and stress on the structural frame of the blender. (See paragraph 2C, page 9)

The mixer is furnished with rigging holes in the base on the drive and idle ends. The mixer should be slinged or chained in this area for moving of mixer. Appropriately rated nylon straps can be used. Slide A 1 1/2" dia x 24" bar through each hole in the base and lift unit at each bar.

When installation is complete: wiring, lubrication and testing of components can commence. For units with direct drive couplings, it will be necessary to realign the coupling after unit has been installed.

TOOLS

The employer must provide adequate and safe tools and equipment necessary for the installation and maintenance of these machines.

ELECTRICAL, HYDRAULICS & PNEUMATIC UTILITIES

Every electrical installation and all equipment installed, replaced, modified, repaired or rehabilitated shall comply with the provisions of the latest National Electrical Code. Use properly rated hoses, oil, fittings, etc., for the service required by the machine. The proper use, installation, location and maintenance of various hydraulic and pneumatic and mechanical components is the users responsibility.

LOCATION OF SAFETY MANUAL

A copy of the manual is shipped with the unit . It shall be the owners responsibility to insure the availability of the Manual for the use of the operator. Additional copies of the Operators Safety Manual will be provided upon request.

CONTROLS

The mixer, as a component, can be installed in a number of ways. Electrical wiring installations with upstream and downstream equipment in your production line generally requires customizing.

Stringent safeguards must be taken, by the owner of this equipment, to wire the component/mixer in a manner that will meet or exceed OSHA, Local and National electrical codes. And that all ancillary equipment be compatible with controls provided on the mixer.

Experienced professional help is available by consulting your local phone book under the headings "ELECTRICAL CONTRACTOR" or "ELECTRICAL ENGINEERS". Be certain that the vendor is familiar with installation in production line procedures.

RESALE

Because of the general purpose of the various machines, they are shipped from the factory with safety devices for normal operation. These devices must be in good working order and must be included with the machine if it is resold. Some machines are purchased for specific applications and may **NOT** be suitable for other uses without some modification. It shall be the responsibility of the person rebuilding or modifying these machines to do so in accordance with all applicable existing ANSI and/or OSHA safety standards.

NON-PRESSURE VESSELS

Only machines with an ASME code plate can be subjected to pressure applications.

Your machine may be equipped with jackets for heating and cooling. Relief valves must be installed to prevent accidental pressure build up due to restricted discharge valves.

DANGER

Portions of the equipment may become hot during use. Protection to employees should be provided from surfaces over 130 degrees F. or lower than 20 degrees F.

Protection can be provided by one of the following methods.

1. Guard by distance, as with guardrails.

2. Insulation may be ordered with the equipment or installed by the owner/user to bring the surface temperature within the 130 degrees F. to 20 degrees F. range. Upon the installation of external insulation and sheathing, it is imperative that the reapplication of safety warnings and labels be done immediately. Please call Aaron Process if additional labels are required.

DANGER

Personnel must be protected from both primary exposure, i.e., the surface itself causing burns and blisters, etc., and secondary exposure, i.e., if a person touches an abnormally hot or cold surface and withdraws ("jumps back") rapidly. This may cause a fall from a platform or movement into the path of a forklift truck, etc.

the piping of the jacket shall be performed by qualified personnel experienced in the plumbing of machinery compatible with/or exceeding the requirements of the medium used for heating and cooling the vessel.

PRESSURE VESSELS

Pressure rated vessels shall follow these requirements:

Located on the machine is an ASME code plate which contains the machine serial number, ASME registration number and the allowable tank and/or jacket pressure with temperature compensation. It is the user's responsibility to supply all required relief valves, fittings, piping and safety devices to meet state, local, national and industry boiler codes. The user is responsible for complying with these codes and maintaining this equipment in a safe condition. More information on pressure vessels should be obtained from your insurance carrier, ASME Boiler Code or consulting engineering firm.

DANGER

Portions of this equipment may become hot during use. Protection to employees should be provided from surfaces over 130 degrees F. or lower than 20 degrees F.

This protection will fall into one of the following general categories.

1. Guard with distance as with guardrails.

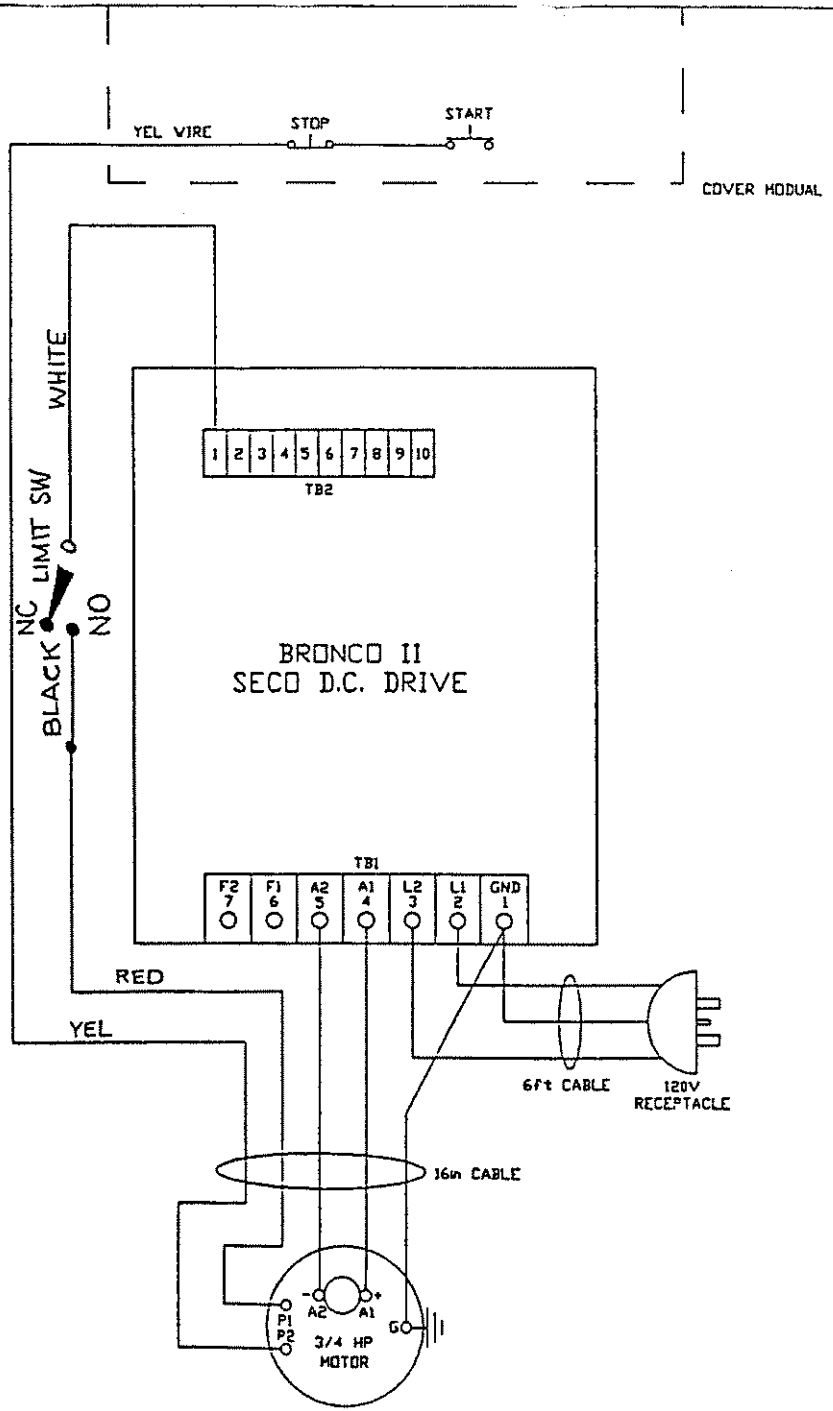
2. Insulation may be ordered with the equipment or installed by the owner/user to bring the surface temperatures within the 130 degrees F. to 20 degrees F. range. Upon completion of insulation and sheathing, it is imperative that the warning and safety labels be reapplied to the outside of the sheathing. Please call Aaron Process if additional labels are required.

DANGER

Personnel must be protected from both primary exposure, i.e., the surface itself causing burns, blisters, etc., and secondary exposure, i.e., a person touching an abnormally hot or cold surface may withdraw ("jump back") rapidly and this may cause a fall from a platform or movement into the path of a forklift truck, etc.

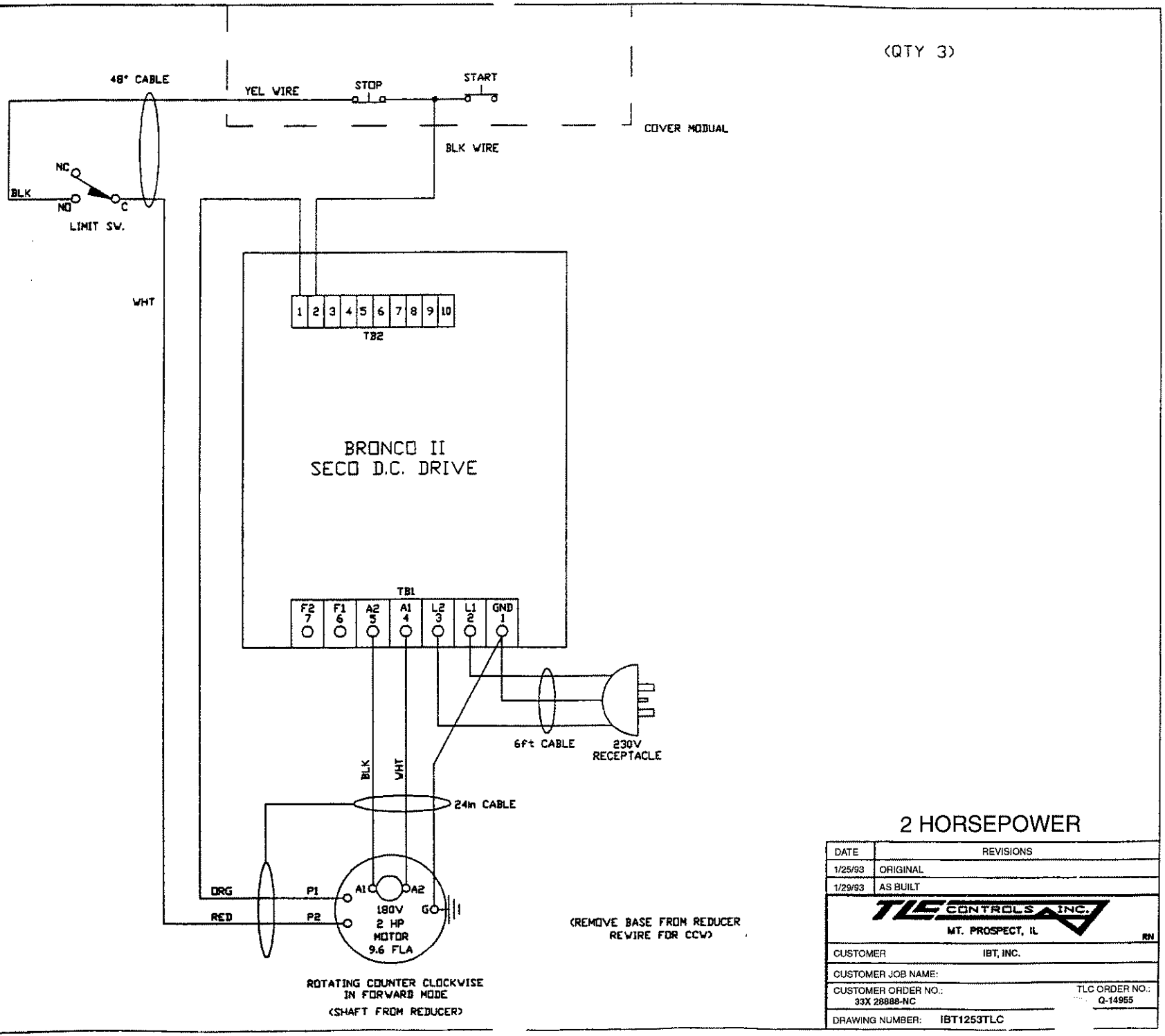
NOTE: All pressure vessels are tested for structural integrity with hydrostatic test procedures per ASME. These tests do not include any internal components such as swing arms, etc., unless this was specified on the original purchase order.

The piping of the jacket shall be performed by qualified personnel experienced in the plumbing of machinery compatible with/or exceeding the requirements of the medium used for heating and cooling the vessel.



3/4 HORSEPOWER

IBT, INC.		
8/2/92	Q10443	
P.O. #S33X 5252-NC		
		TLC8029IBT



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2 HORSEPOWER

DATE	REVISIONS
1/25/93	ORIGINAL
1/29/93	AS BUILT

TLC CONTROLS INC.
MT. PROSPECT, IL
RN

CUSTOMER	IBT, INC.
CUSTOMER JOB NAME:	
CUSTOMER ORDER NO.: 33X 28888-NC	TLC ORDER NO.: Q-14955
DRAWING NUMBER:	IBT1253TLC

GENERAL SAFETY RULES

Following are general rules for the operation of the mixer. Any deletions and/or modifications to these rules and/or equipment for specific applications are the responsibility of the user and should be carefully checked for potential hazards.

1. The Operator's Safety Manual that is furnished with the machine must be readily available. All personnel working with this equipment must be familiar with all applicable safety rules. The user of this equipment must review all safety precautions listed in this manual and be reasonable for its correctness and completeness for his particular application.

2. All guards, covers, safety switches and related safety equipment have been checked at the factory. These must be kept in good working condition and the machine is **not** to be operated without them. It is the responsibility of the user to ensure that no unsafe condition occurs because of the nature of the process, machine use or additions to or deletions from equipment furnished.

3. All maintenance work must be performed by qualified personnel.

CAUTION: Your machine may be furnished with an explosion proof motor. Any repairs to the motor must be made by a certified motor repair shop. The machine itself is **not explosion proof**, only the motor (if so equipped).

4. The electrical supply must be **locked** in the **"off"** position and the unit is in **zero mechanical state** before any maintenance is begun. If the electrical disconnect is not in a convenient location, a **"lockable"** disconnect shall be located near the machine. This is done to make the safety devices as easy as possible to use to ensure their use 100% of the time.

5.  **DANGER:** It is extremely important that the machine is completely free of hazardous materials **before entering vessel** for maintenance or other purposes. The vessel/machine should be cleaned insofar as possible with compatible detergents, solvents, etc., and washed clean with hot water wherever applicable. Consult with your supervisor or commercial supplier for recommendations. It is critical that fresh, clean air be available and that **no vapors be present** which might overcome the worker, or constitute a fire or explosion hazard. It is also **imparative** that no person enter the vessel/machine unattended. An observer shall be watching the worker **at all times.** If the worker is overcome due to lack of oxygen or from vapors, the observer will provide or obtain immediate emergency assistance.

6. Safe maintenance procedures should always be followed. Some machines have moving parts that are hidden while in operation (e.g.., blades coast to a stop). The operator must wait after switching off the machine until the machine/component has come to a dead stop before placing any tool or part of his body into any opening of the machine. He must also assure that the machine cannot be accidentally restarted by himself or other personnel. OSHA requires **locking** the main power supply in the **"OFF"** position and bringing the unit to a zero mechanicalstate. (See section titled **LOCK OUT PROCEDURE**). This requirement is in addition to the other safety requirements. Some moving parts or other hazards can be exposed during normal operation. Check to assure that no unintended motion will occur, no shock of fire hazards exist, no sharp edges are exposed and that toxic materials are not released.

OPERATIONAL SAFETY

Because the mixer is a component of an entire plant operation, safeguards must be in place prior to running the unit or when a shift change occurs.

1. The employer must train and instruct personnel in safe methods of operation and proper use of all safety devices provided. The employer must ensure that, by adequate supervision, correct operating procedures are being followed. The employer should set up a "CHECK OFF" list to be completed by the operator at the start of each shift, to ensure that operators are kept aware of procedures to follow in operating the equipment safety.

2. The employer must provide clearance between equipment, so movement of one operator will not interfere with the work of another. Ample room for cleaning machines, handling material, etc., must also be provided. All surrounding floors should be kept in good condition and clean.

3. The employer must provide necessary protective equipment, such as face shields, gloves, etc.

The following, minimal recommendations should be followed by the operator.

1. Become familiar with all the safety rules and labels on the unit and know their meanings. Follow any additional safety procedures outlined by your employer.

2. Check all guards, covers, limit switches and related safety equipment. Limit switches must be tested daily and during any shift changes. The machine is not to be operated without these devices in proper working condition. The limit or proximity switch is of the magnetic type, and is located on the cover. When functioning properly, the blender should be de-energized when the cover is lifted while in operation.

3. Make sure mixer is free of any foreign objects internally.

4. Make sure personnel stand clear during start up and loading.

5. Make sure the process line associated with the mixer is free and clear of any maintenance or operation personnel on other line components. (Upstream or downstream)

6.  **DANGER:** Agitator blades sweep across discharge opening and feed opening. Will immediately amputate inserted limbs.
Never insert limbs into discharge or feed inlet!

7.  **DANGER:** Drag-in hazard
Never use hoses or electrical cords near running machinery.

8.  **DANGER:** Electricals can cause explosion
Use only explosion-proof electricals in explosive environment.

9.  **DANGER:** Rotating parts will cause serious injury of death.
Do not operate without guards in place, Disconnect and lock out power before removing guards, or unplug unit from wall outlet.

10.  **DANGER:** Projectiles can cause serious eye and facial injuries.\
Never use high pressure water and air hoses for cleaning.

11.  **DANGER:** Use appropriate personal protective devices, such as, safety eyewear, non-slip shoes, hearing protection and chemical resistant clothing.

12.  **DANGER:** Portions of the equipment may become hot during use. Safeguards must be taken for protection against surfaces over 130 degrees F. or lower than 20 degrees F.

13.  **DANGER:** Use only in adequately ventilated areas or with proper masking to prevent any toxic inhalation or poor air.

MAINTENANCE SAFETY

Maintenance of this machinery includes, but is not limited to the following, and all safeguards and precautions must be taken to ensure the personal welfare and safety of all involved in performing maintenance procedures.

A. Cleaning
B. Servicing
C. Repairing
D. Troubleshooting
E. Lubricating
F. Inspecting

DANGER

Lockout power disconnect switch and allow agitator blades to come to rest before performing maintenance procedures.

Pressing the **"STOP"** button or de-energizing, will stop the equipment; however, revolving or rotating members will coast or continue movement for a period of time; **DO NOT** enter or insert any tool or portion of your body into vessel until all movement has **STOPPED**, and machine is brought to a zero mechanical state. (See page 24)

LOCKOUT PROCEDURES

This unit is a component of a larger processing system. Lockout procedures shall apply to upstream and downstream equipment to prevent any accidental starting from remote stations elsewhere in the production line while the unit is being maintained.


DANGER

All power supplies **MUST BE LOCKED** in a de-energized state, which may be accomplished by the following "lockout" procedure for plug-in machines, unplug unit from wall outlet. For hard wired units, the following must be adhered to:

PROCEDURES FOR LOCKOUT ELECTRICALS

(Machine must also be brought to a Zero Mechanical State - See page 24)

1. Only locks purchased from a reputable lock company shall be used to lock out switches. No two locks shall be the same. For identification, locks may be painted various colors to indicate types of craft to which the lock applies or differentiate shifts. Each lock shall be stamped with the employee's name or clock number.\

2. Only one key shall be issued to each maintenance man for his lock. The supervisor shall keep a master list of key and combination numbers and an extra key to each lock in his station. Under no circumstances shall the supervisor lend his own extra key, even though the workmans key may seem lost beyond recovery. The supervisor must use the extra key himself until the old lock and extra key are replaced. The old lock and extra key are to be destroyed.

3. Padlocking , "locking out", must be done at or as close to the power source as possible. "Locking out" or otherwise attempting to make **"START"** and **"STOP"** buttons inoperative **IS NOT SUFFICIENT.**

EQUIPMENT LOCKOUT PROCEDURES: (CON'T)

4. Make sure that the circuit being locked out is the correct one for the equipment to be worked on. Attempt to start the equipment after lock out has been accomplished; if equipment does not start, it has been successfully **"LOCKED OUT"**.

5. Each person working on the equipment shall place his own lock on the switch.

6. If two or more workers are working on a job, then **EACH WORKER** shall attach **HIS OWN** lock so that the controls cannot be operated until all locks have been removed. Each repairman shall be impressed with the fact that, even though someone else has already locked the controls, he will not be protected, unless he attaches his own lock.

7. If the controls are so located that only one lock can be accommodated, it is recommended that a **DOUBLE INTERLOCKING** hasp be used.

8. If a job has not been completed by the end of the shift, the workers leaving the job shall not remove their locks until the oncoming shifts workers have attached their own locks.

9. Where the controls are some distance from the operation under repair, it is recommended that tags be attached to the locks, naming the department share the work is being done and the person who is responsible for the repair work. The supervisor will then have the information he needs to control some of the hazards to adjacent departments.

10. When electrical work is being done on a piece of equipment, the lock shall be placed on the main switch. A short in the wiring or tampering with the magnetic conductors could energize the circuit.

11. Regardless of what method of "locking out" is used, effective control can be maintained only by constant supervision and by training workers in the safe procedure to be followed.

ZERO MECHANICAL STATE (ZMS)

Because of the versatility of this machine as a component, the actual connection of all electrical and associated ancillary equipment, including safety devices, is the responsibility of the user. A typical wiring diagram can be found on the following page and again in the maintenance section of this manual. A limit switch is provided on the unit and should be wired so that the lock out procedure can be achieved for maintenance or repair work.

Zero Mechanical State (ZMS): The act of shutting off and locking out the electrical power disconnect is **not sufficient** to minimize hazards during maintenance. Other potential sources of energy that may produce a mechanical hazard must also be minimized, (e.g.., turning off compressed air, lowering suspended loads, relaxing stored energy springs, relieving pressurized hydraulic fluids, etc.), and are necessary procedures to achieving ZMS.

THIS UNIT MUST BE IN A ZMS STATE PRIOR TO PERFORMING ANY MAINTENANCE PROCEDURES.

ENTERING VESSELS

Warning

Under no circumstances shall a person reach into this equipment to obtain samples, check machine function, clean or for any other reason until the machine has been locked off and all motion has ceased. Failure to observe this procedure may result in severe bodily injury or death.

Lock all power supplies off and wait for all "machine movement" to cease before placing any part of the body or object in machine openings. Each person who will enter or be in contact with this equipment must use a separate lock. Reference "Multiple Lock Use" in the Lockout/Tagout section on pages 22-24 of this manual. Failure to obey this rule can result in severe bodily injury or death.

If personnel are to go into the machine, the following rules must be adhered to:

The unit must be in Zero Mechanical State.

It is extremely important that the machine be completely free of hazardous material **BEFORE ENTERING THE VESSEL** for maintenance, cleaning or other purposes. The vessel/machine should be cleaned with a solvent and preferably washed clean with hot water wherever applicable. A source of fresh air, such as clean oil-free plant air line, can be supplied by fastening a hose into the open discharge valve. It is critical that fresh clean air be available to anyone working inside the vessel/machine and that **NO VAPORS BE PRESENT** which might overcome the worker or constitute a fire or explosion hazard. Consult the supplier of materials being processed for material safety data sheets and proper cleaning mediums.

It is **IMPERATIVE** that no person enter the vessel/machine unattended. An observer shall be outside the machine watching the worker **AT ALL TIMES** while the worker is inside. Failure to station an observer may result in a worker being overcome due to lack of oxygen or from vapors, and not receiving emergency assistance. Such a mishap could cause death.

Reference "Permit-Required Confined Spaces" 29 CFR Part 1910, Federal Register, Vol. 58, No. 9, 1/14/93, pages 4462-4563.

SAFETY LABELS

To help insure safe operation and maintenance of this equipment, all personnel working with it should be familiar with these typical warning signs and signal words defined by ANSI and OSHA.

DANGER

For the purpose of this manual and product labels, **DANGER** indicates death, severe personal injury or substantial damage will result if proper precautions are not taken.

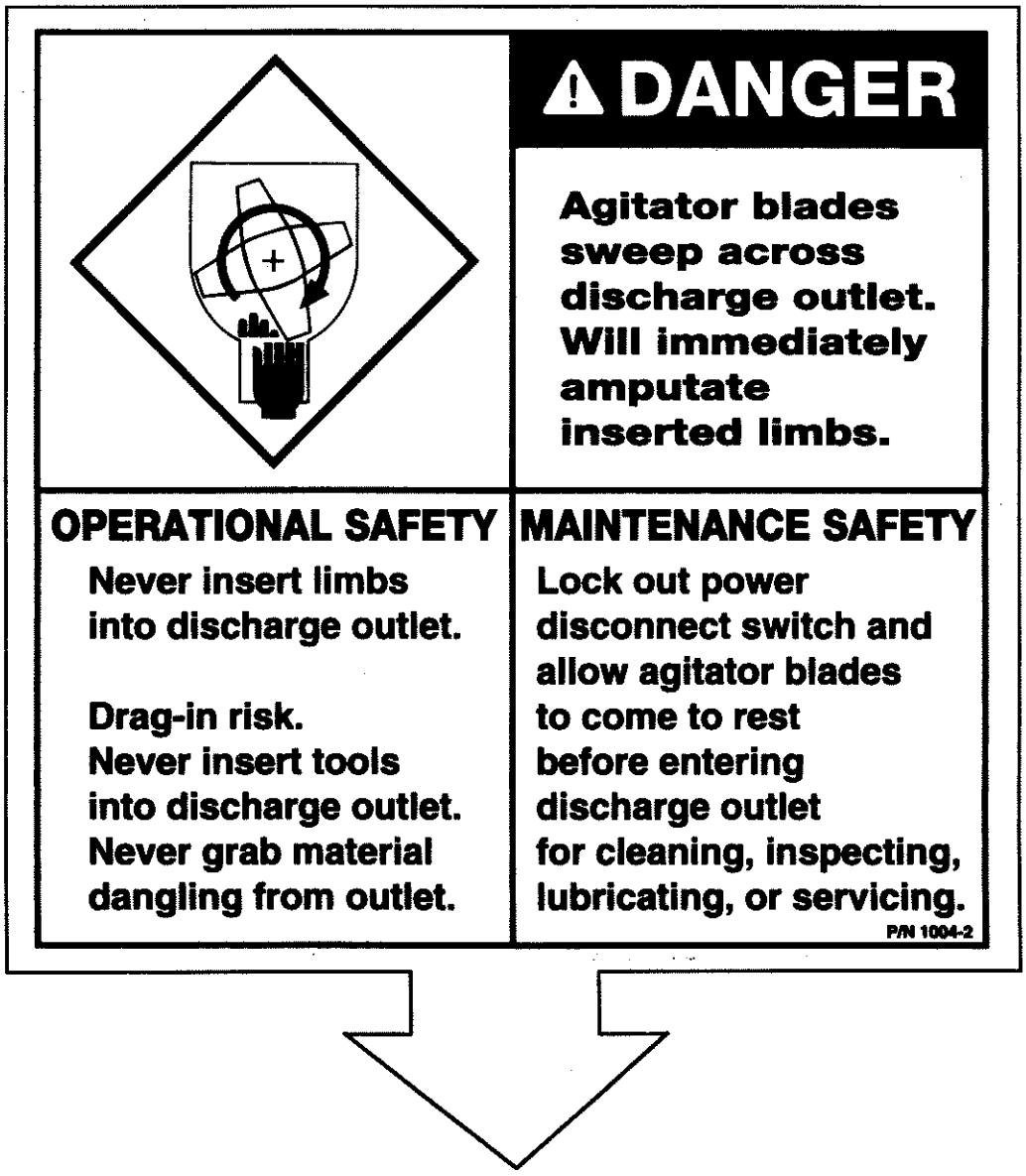
WARNING

For the purpose of this manual and product labels, **WARNING** indicates death, severe personal injury or substantial damage can result if proper precautions are not taken.

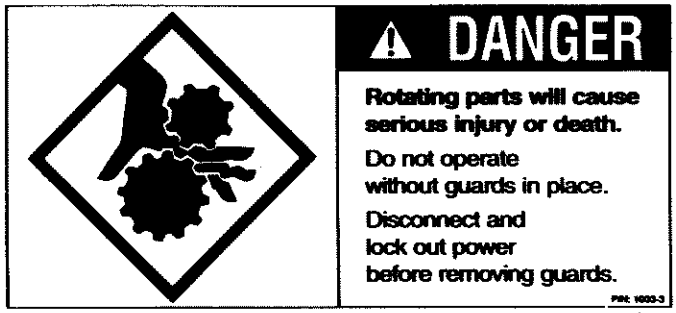
CAUTION

For the purpose of this manual and product labels, **CAUTION** indicates minor personal injury or property damage can result if proper precautions are not taken.

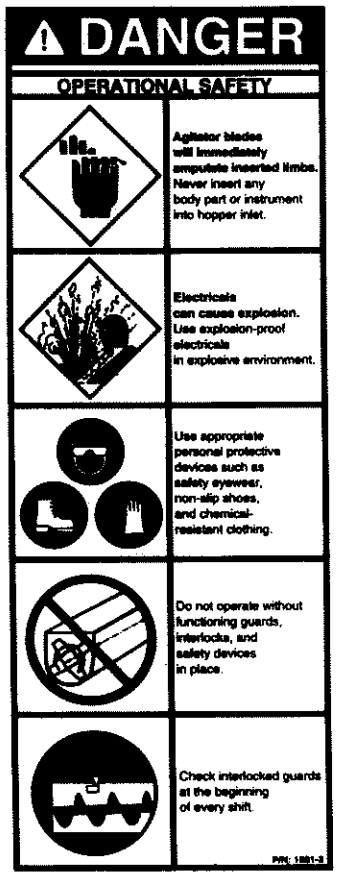
Typical labels that can be found on each blender.



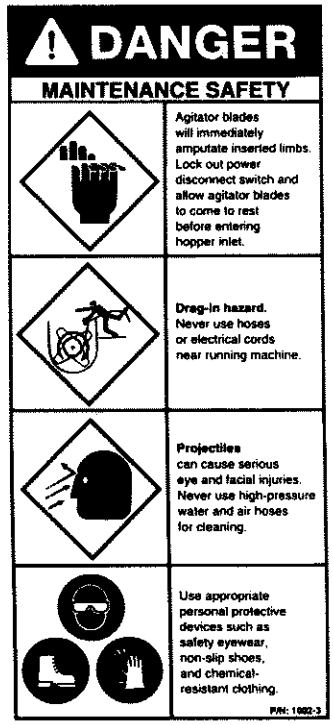
Can be found located beneath the bowl on the top base of the mixer.



Can be found affixed to the guard for the drive.



Can be found located on the controller.



Can be found located on the controller.

SAFETY FIRST

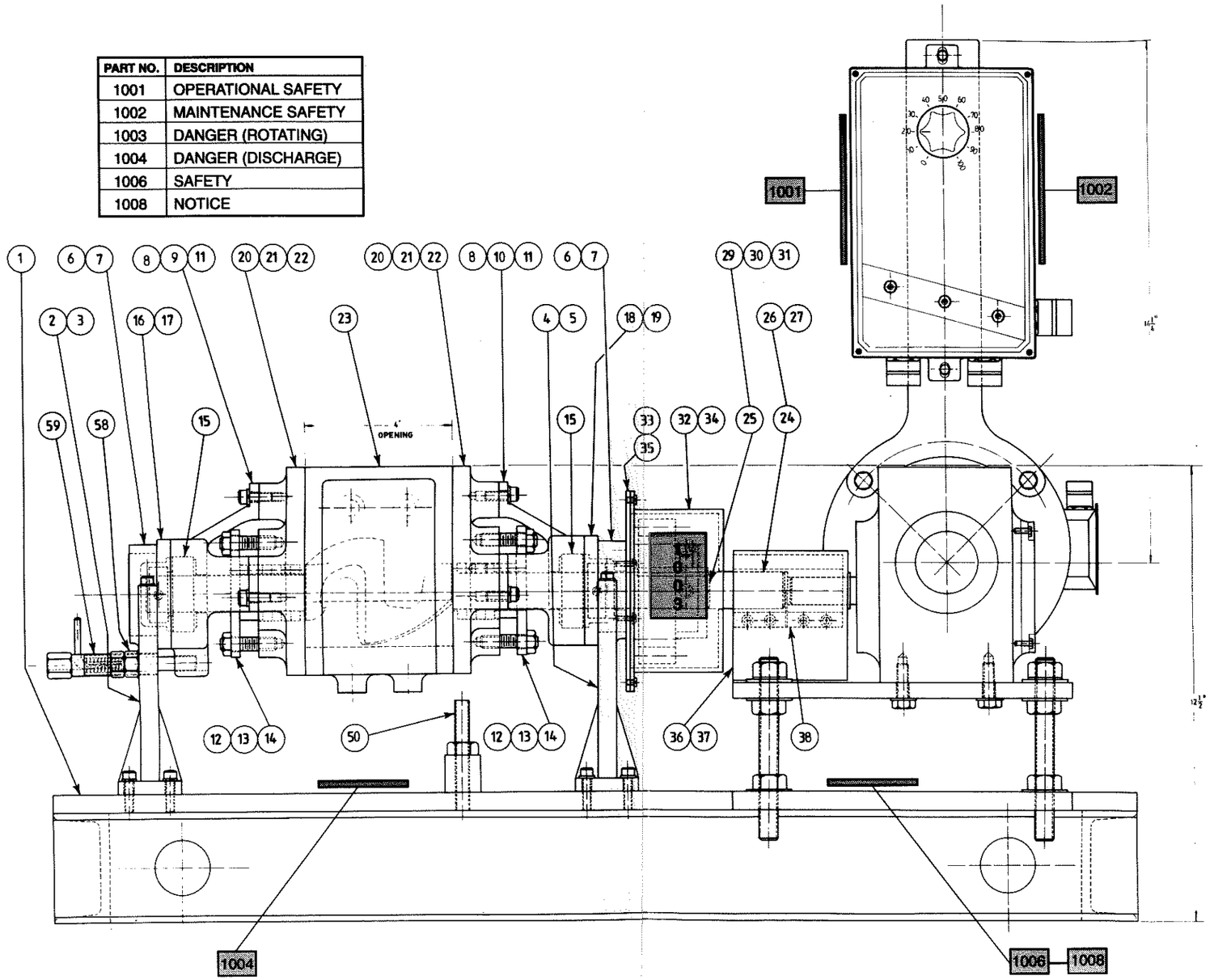
Be aware of safe operational procedures prior to operation. Read and understand all instructions in the manual supplied with this machinery. Most of all stay alert and be careful. P/N 1006-3

NOTICE

Check and maintain proper oil level in gearbox to prevent premature wear. Grease and maintain bearings on a periodic basis. Consult operators manual for proper maintenance procedures. P/N 1008-3

Both informational labels can be found on the front face of the base of the mixer.

PART NO.	DESCRIPTION
1001	OPERATIONAL SAFETY
1002	MAINTENANCE SAFETY
1003	DANGER (ROTATING)
1004	DANGER (DISCHARGE)
1006	SAFETY
1008	NOTICE



AARON
PROCESS EQUIPMENT COMPANY, INC.
P O BOX 530
BENSENVILLE, IL 60106-0530

DRIVE w/ VARIABLE SPEED CONTROLLER
1 & 2 GAL. DBL.ARM MIXER GA14G1989V

MIXER OPERATION

For operation and technical information on the DC controller, consult the "Component Manuals" section of this manual.

Prior to start-up:

1. Make Sure the unit is unplugged.

2. Remove the top cover and look inside. Make certain that no foreign objects are present.

3. Replace the cover and inspect the mixer for any apparent damage.

4. Locate the mixer in an uncluttered area.

5. Plug the unit into an appropriately rated electrical socket.

6. Rotate the variable speed knob to **"O"**. Then position the run/jog toggle switch to **"Run"**.

7. Now, position the forward/reverse switch to **"Forward"**.

The unit can now be operated.

Turn the unit on.

The speed of the blades can now be varied by rotating the speed knob in the clockwise direction.

FEEDING PRODUCT - Once the unit is operating satisfactorily, product can be introduced into the mixer. Switch the unit off and remove the top cover. Make certain all rotating parts have come to a complete stop. Product can then be entered into the machine. When loaded, replace the cover and lock it down. **(NOTE!! Prior to start-up with product, make certain the anti-tilt pin is in its locked position. This will prevent accidental tilting of the bowl by the torque created between the product and the blades.)**

START-UP WITH PRODUCT - When the cover is secured and the anti-tilt pin is locked in, the unit is ready for start-up. Turn the control knob to the "O" position. The directional switch should be flipped to **"Forward"** and the jog switch to **"Run"**. The unit can now be turned on. Slowly turn the control knob until the desired blade speed is achieved.

For more viscous products that might stall the motor during start-up, it is advisable to turn the unit off. Switch to the **"Jog"** mode. Turn the control knob to its highest setting and jog the unit several times to break up any larger pieces of product in the bowl. When this is completed, the unit can be returned to the **"Run"** mode.

NOTE!! - During **"Jogging"** there is a slight delay from when the **"Jog"** switch is activated and when the motor actually turns. To jog the motor, the **"Run/Jog"** switch must be in **"Jog"** and the **"On/Off"** switch turned **"On"**. The motor will run as long as the **"Jog"** button is depressed. When the **"Jog"** button is released, the motor is deactivated.

DISCHARGE OF PRODUCTS - Discharge of product is accomplished by means of rotating the bowl over the front bearing journals.

To discharge the product, turn the unit off. Place the directional switch to the **"Reverse"** position and place the unit in the **"Jog"** mode. Turn the unit on an jog the motor several times. This will push the product up above the blades. When this is completed, turn the unit off, remove the top cover, pull the anti-tilt pin handle and pull on the bowl handle to tilt the bowl and dump the product. If a scraper is needed to remove additional product, unplug the unit from its electrical outlet and lock the outlet closed.

Reverse all of the above procedures to make the unit ready for another batch.

MAINTENANCE

A typical wiring diagram follows on page 35 & 35a. It is important that safeguards be taken to assure the safety of the operator. A few recommendations are as follows.

1. A power disconnect switch with lockout capability should be within line of sight and preferably on the machine.

2. Interlocks must be wired at 110V. Interlocks need reset capability at 110V or less.

3. Interlocks furnished on unit are not explosion proof. Refer to National and Local electrical codes for explosion proof requirements.

4. Provide an emergency stop button on the control panel.

5. Controls should be located at the operators station and close to the motor.

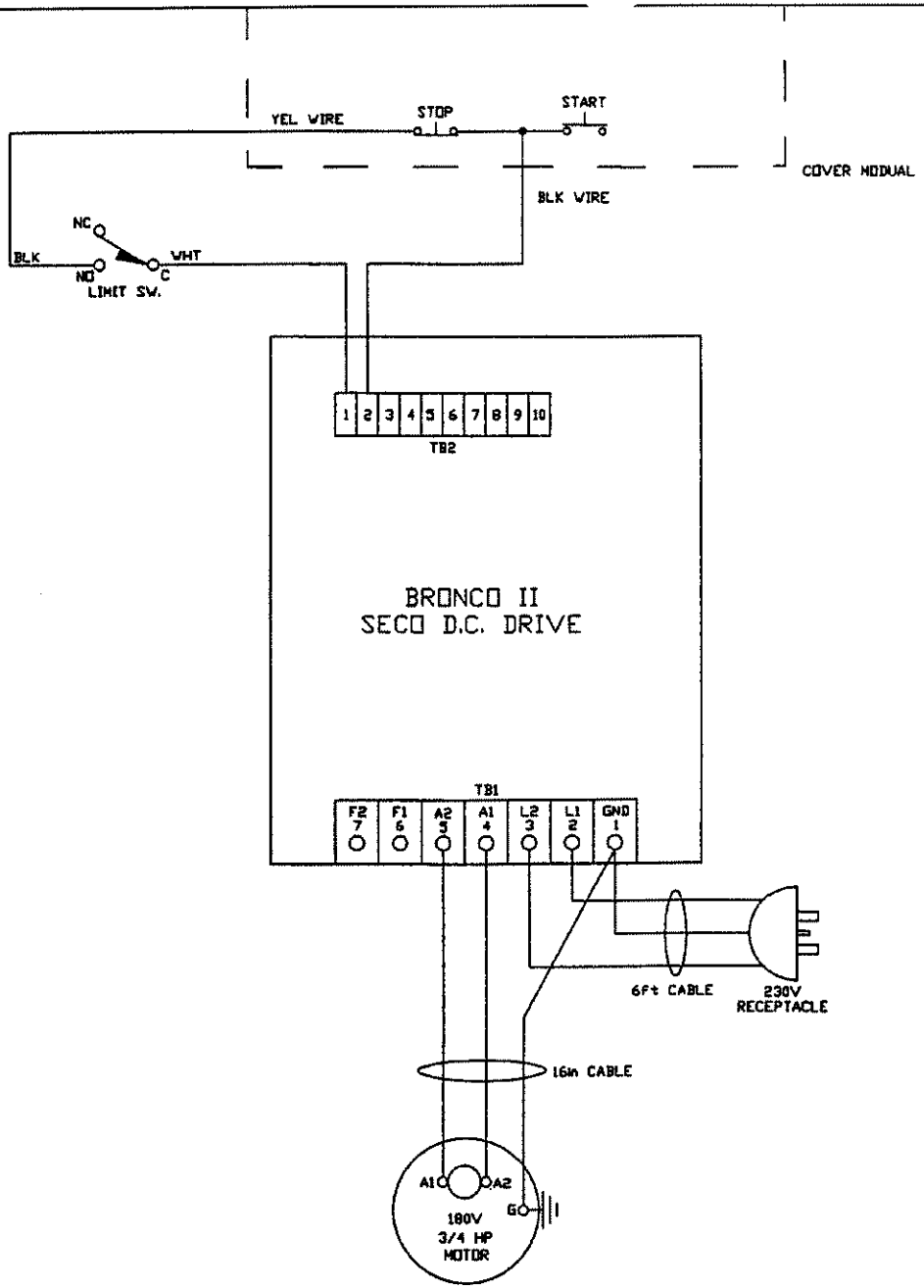
6. All controls are to be clearly labeled and comply with the National Electrical Code.

⚠ DANGER

7. Because the mixer is only a component of a complete processing system, the wiring must not be limited to only the mixer. Any other components, (e.g.: upstream and downstream equipment), associated with the blender must be wired in conjunction with each other so that if one part of the line is down, it will be impossible to energize other components within the line. This would eliminate the hazard of serious injury or death to personnel performing maintenance or repair procedures on the line.

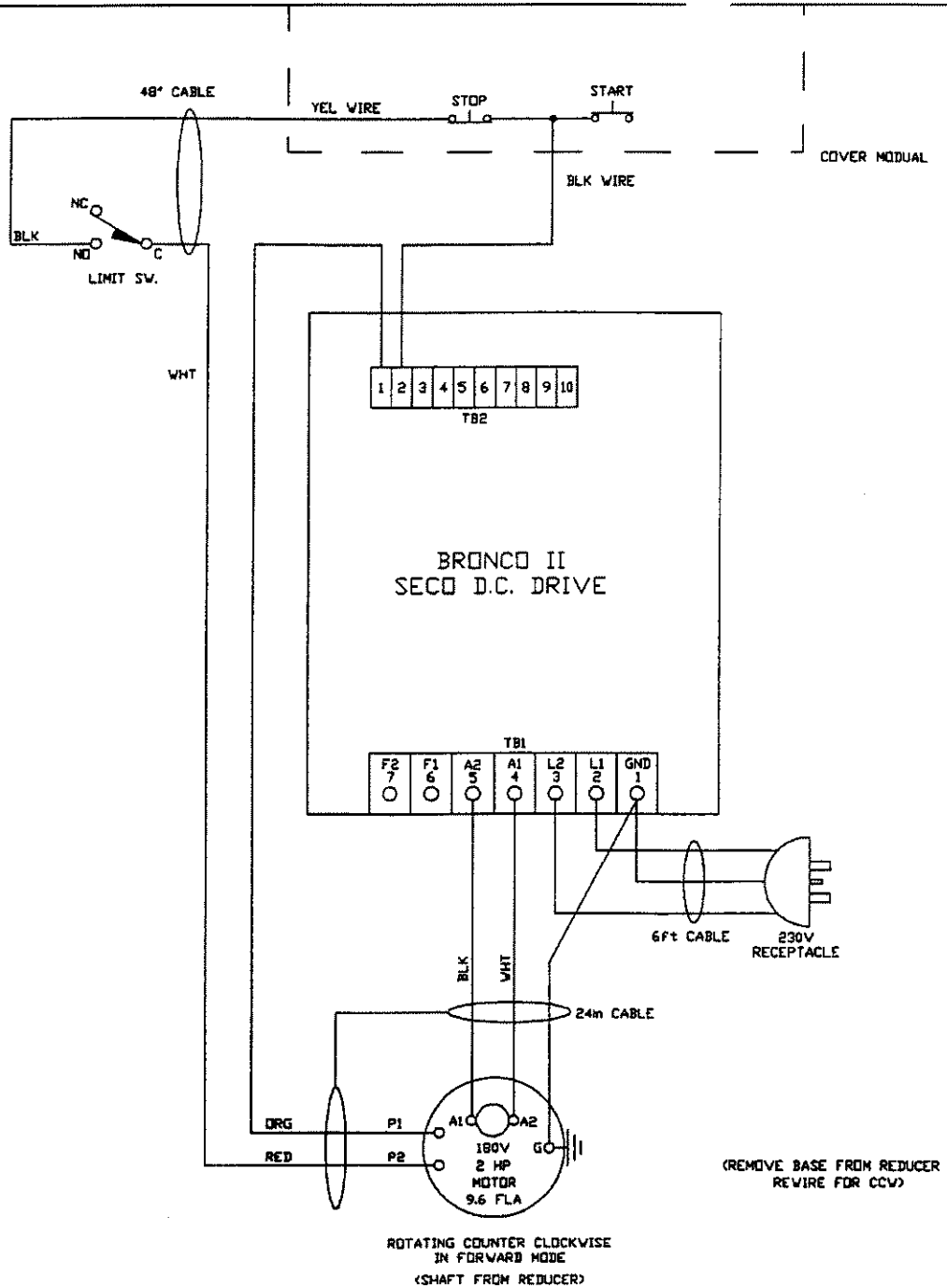
⚠ DANGER

8. Mixers with external heating or cooling shells (jackets) are subject to extreme temperatures. Prior to performing any maintenance procedures, be sure that temperatures are within tolerable working limits. Failure to do so may result in severe burns to parts of the body that may come in conflict with very hot or very cold surfaces.



3/4 HORSEPOWER

IBT, INC.		
2/5/90	Q11264	
P.O. #533X 6211-NC		
		IBT2050TLC



2 HORSEPOWER

DATE	REVISIONS
1/25/93	ORIGINAL
1/28/93	AS BUILT

TLC CONTROLS INC.
MT. PROSPECT, IL
RN

CUSTOMER	IBT, INC.
CUSTOMER JOB NAME:	
CUSTOMER ORDER NO.: 33X 28888-NC	TLC ORDER NO.: Q-14955
DRAWING NUMBER: IBT1253TLC	

RECOMMENDED TORQUE FOR SCREWS AND BOLTS

Table 1

SET SCREWS				MTG. BOLTS	
SET SCREW SIZE	HEX KEY ACROSS FLATS	STANDARD BALL BEARING INSERT	CORROSION RESISTANT STAINLESS STEEL	BOLT SIZE	RECOMMENDED TORQUE
(IN)	(IN)	MIN-MAX (IN/LBS)	(IN/LBS)	(IN)	(IN/LBS)
#10	3/32	28-33	25	3/8-16	240
1/4	1/8	66-80	60	1/2-13	600
5/16	5/32	126-156	117	5/8-11	1200
3/8	3/16	228-275	206	3/4-10	2100
				7/8-9	2040
(MM)	(MM)	MIN-MAX (N-M0	(N-M)	(MM)	(N-M)
M5	2.5	3.2-3.7	2.8	M10	29
M6	3	6.2-7.7	5.8	M12	50
M8	4	17.8-13.4	13.4	M16	124
M10	5	26-31	23	M20	238
				M22	322

LUBRICATION

High Speed Operation - In the higher speed ranges, too much grease will cause overheating. The amount of grease that the bearing will take for a particular high speed application can only be determined by experience. If excess grease in the bearing causes overheating, it will be necessary to remove grease at the factory and is ready to run. When establishing a relubrication schedule, note that a small amount of grease at frequent intervals is preferable to a large amount at infrequent intervals.

LUBRICATION GUIDE: USE A No 2 LITHIUM BASE GREASE OR EQUAL

HOURS RUN PER DAY	SUGGESTED LUBRICATION PERIOD IN WEEKS BASED ON RPM						
	1-250	251-500	501-750	751-1000	1001-1500	2011-2500	2501-3000
8	12	12	10	7	5	3	2
16	12	7	5	4	2	1	1
24	10	5	3	2	1	1	1

⚠ DANGER

Because of the possible danger to person(s) or property from accidents which may result from the improper use of products, it is important that correct procedures be followed. Products must be used in accordance with the engineering information specified in the catalog. Proper installation, maintenance and operation procedures must be observed. The instructions in the installation manuals must be followed. Inspections should be made as necessary to assure safe operation under prevailing conditions. Proper guards and other suitable safety devices or procedures as may be desirable or as may be specified in safety codes should be provided, and are neither provided by Reliance Electrical Industrial Company. This unit and its associated equipment must be installed, adjusted and maintained by qualified personnel who are familiar with the construction and operation of all equipment in the system and the potential hazards involved. When risk to persons or property may be involved, a holding device must be an integral part of the driven equipment beyond the speed reducer output shaft.

CLEANING OF MIXER

⚠ DANGER

Lock out all power sources prior to performing any maintenance procedures. Failure to obey this warning can result in severe bodily injury or death. Refer to the Lockout/ Tagout procedures in the safety section of this manual.

Once the unit has been properly disabled, the cover can be removed for cleaning. A mild detergent and warm water is acceptable for most applications.

The mixer should, however, be cleaned with materials compatible with the product being processed.

The employer/owner is responsible for cleaning to be performed in a manner meeting the National Sanitation Foundation Standards.

The gland assemblies, can now also be removed from the unit and cleaned.

Care should be taken when using water or liquids around the drive and bearings. Water entering these components can be hazardous (motor shorting, rusting of internal gears and bearings and/or bearing seizure can occur). When cleaning is completed, reassemble the unit making sure all fasteners are tight and the unit is empty. Power can then be restored to the mixer.

PACKING INSTRUCTIONS

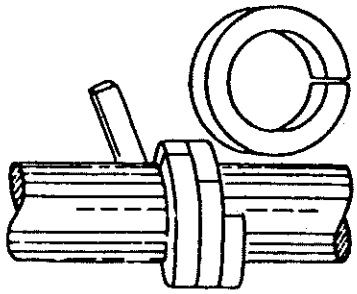
DANGER

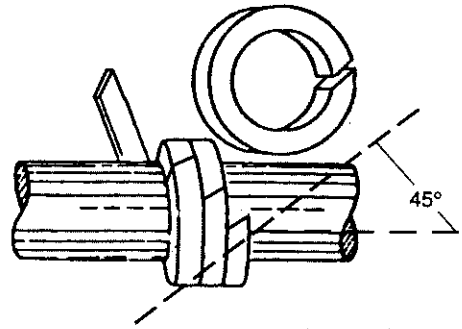
Prior to performing any maintenance procedures, make sure all power has been "locked out" as described in Section 2 of this manual. Failure to do so may result in serious injury or death.

This unit is supplied, at the factory, with packing material as a courtesy which may not be comparable with the product being processed. The packing supplied is a braided lubricated teflon. Packing should be replaced by owner with proper packing material.

PACKING GLAND INSTRUCTIONS

DIV. ARECO, INCORPORATED
735 E. GREEN STREET P.O. BOX 80 BENSENVILLE, IL 60106
Phone: (708) 350-2200 • Fax: (708) 350-9047





The following standard packing instructions would apply to all glands including the Aaron Gland.

1. USE THE CORRECT CROSS SECTION OF PACKING OR DIE - FORMED RINGS. To determine the correct packing size, measure the diameter of the shaft (inside the stuffing box area if possible) and then measure the diameter of the stuffing box (to give the O.D. of the ring). Subtract the I.D. measurement from the O.D. measurement and divide by two. The result is the required size.

CUT...DON'T WIND

2. WHEN USING CORAL OR SPIRAL PACKING, ALWAYS CUT THE PACKING INTO SEPARATE RINGS. Never wind a coil of packing into a stuffing box. Rings can be cut with butt (square), bias or diagonal joints, depending on the method used for cutting. The following illustration shows these methods of preparing bulk packing. The best way to cut packing rings is to cut them on a mandrel with the same diameter as the shaft in the stuffing box area. If there is no shaft wear, rings can be cut on the shaft outside the stuffing box.

Hold the packing tightly on the mandrel, but do not stretch excessively. Cut the ring and insert it into the stuffing box, making certain it fits the packing space properly. Each additional ring can be cut in the same manner, of the first ring can be used as a master from which the balance of the rings are cut.

If the butt cut rings are cut on a flat surface, be certain that the side of the master rings, and not the O.D. or I.D. surface, is laid on the rings to be cut. This is necessary so that the end of the rings can be reproduced.

When cutting diagonal joints, use a maple mitre board so that each successive ring can be cut at the correct single.

It is necessary that the rings be cut to the correct size. Otherwise, service life is reduced. This is where die-cut rings are of great advantage, as they give you the exact size ring for the I.D. of the shaft and the O.D. at the stuffing box. There is no waste due to incorrectly cut rings.

3. INSTALL ONE RING AT A TIME. Make sure it is clean, and has not picked up any dirt in handling. If desired, lubricate the shaft and the inside of the stuffing box.

Seat rings firmly. Joints of successive rings should be staggered and kept at least 90º apart. Each individual ring should be firmly seated with a tamping tool. When enough rings have been individually seated so that the nose of the gland will reach them. Individual tamping should be supplemented by the gland.

4. AFTER THE LACT RING IS INSTALLED, take up bolts finger tight or slightly snugged up. Do not jam the packing into place by excessive gland loading. Start machine and take up bolts until leakage is decreased to a tolerable minimum. Make sure gland bolts are taken up evenly.

SPEED REDUCER INFORMATION

To ensure maximum life and years of dependable service from the reducer, proper lubrication and levels must be maintained.

Consult the manufacturers manual on the specific model reducer in the component section of the manual for oil volumes and lubrication recommendations.

Oil levels should be checked daily for the first 30 days of operation. After 30 days, the reducer must be drained and replenished with fresh oil. Use a high grade petroleum base, rust and oxidation inhibited (R & O) gear oil.

Oil levels can then be checked weekly and changed every 2500 hours or every 6 months, whichever occurs first.

SPARE PARTS LIST

Depending on the frequency of use, components of this blender can wear. (Normal wear and tear.) The following is a list of recommended spare parts that should be maintained in your parts room and replenished when used.

2 - Split pushers

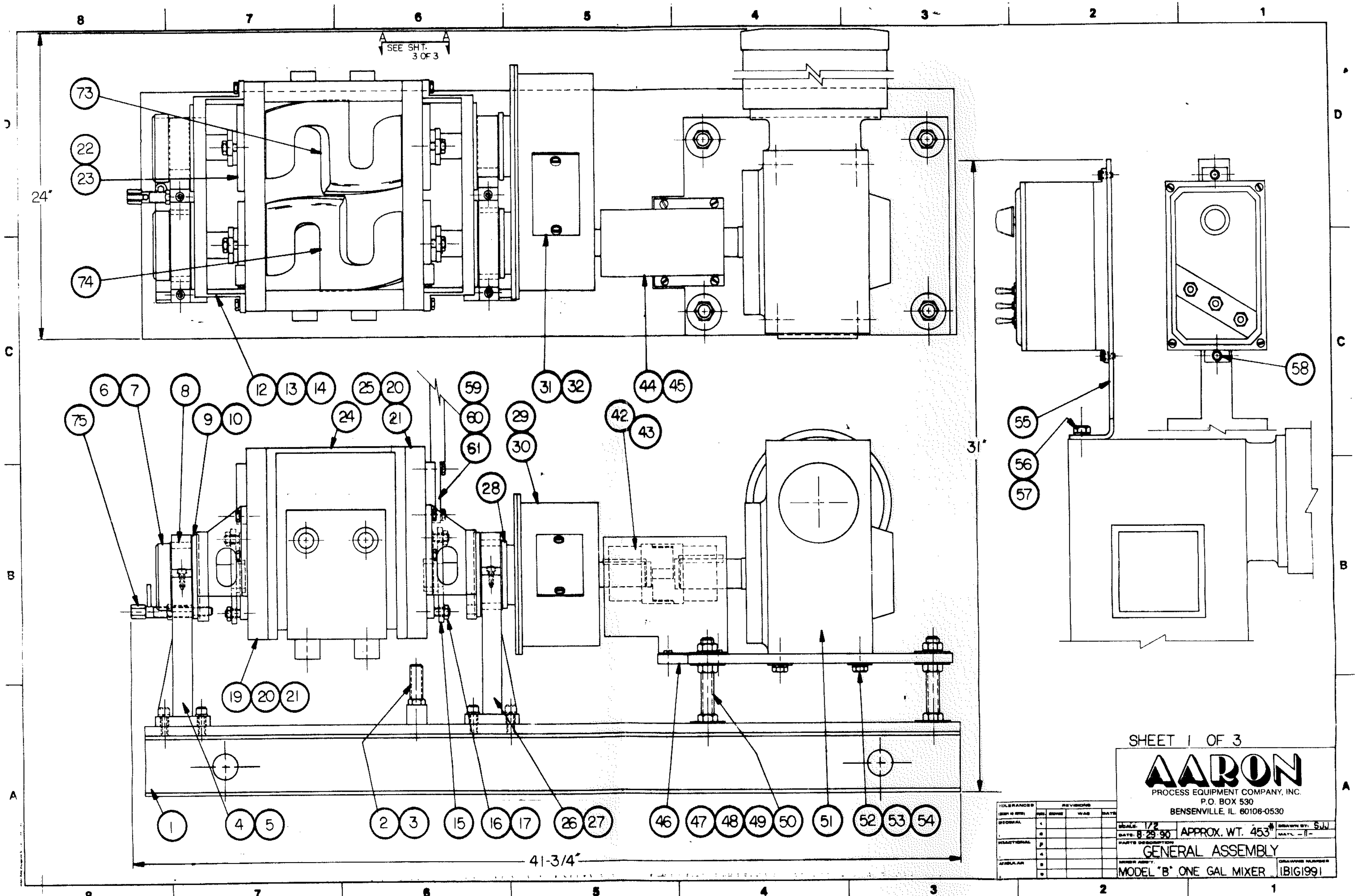
2 - Support bearings

NOTE:

Split poly back plate and gland housings require the customer to drill out mounting holes by transferring the existing holes to the replacement parts.

When ordering, please specify:

1. Company name
2. Serial number of blender

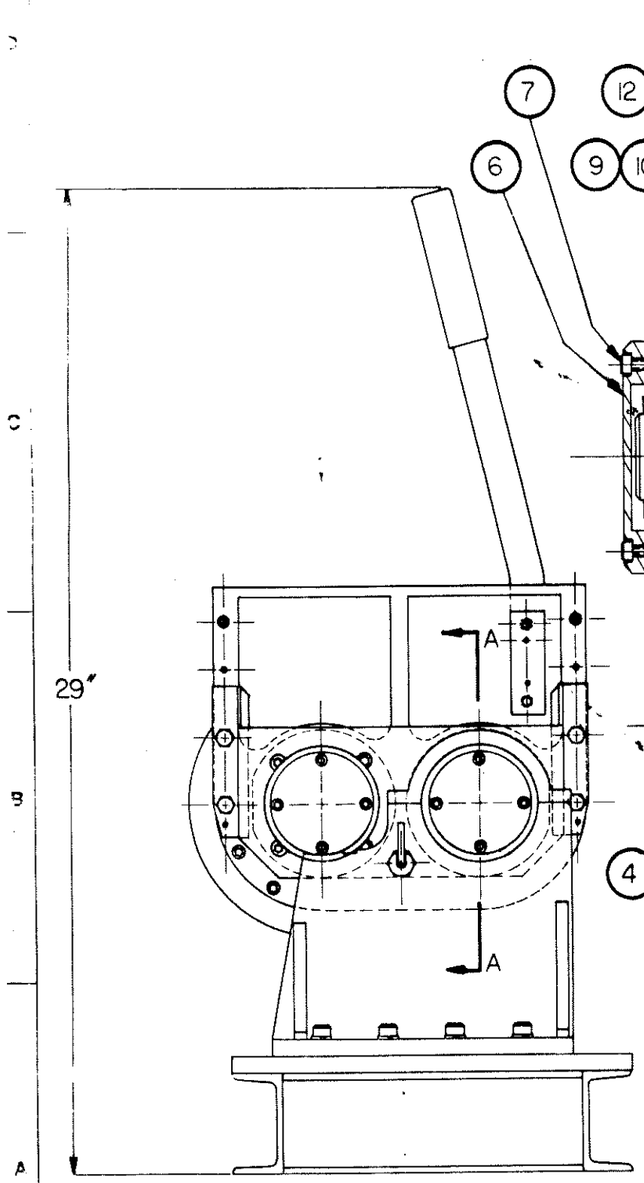


SHEET 1 OF 3

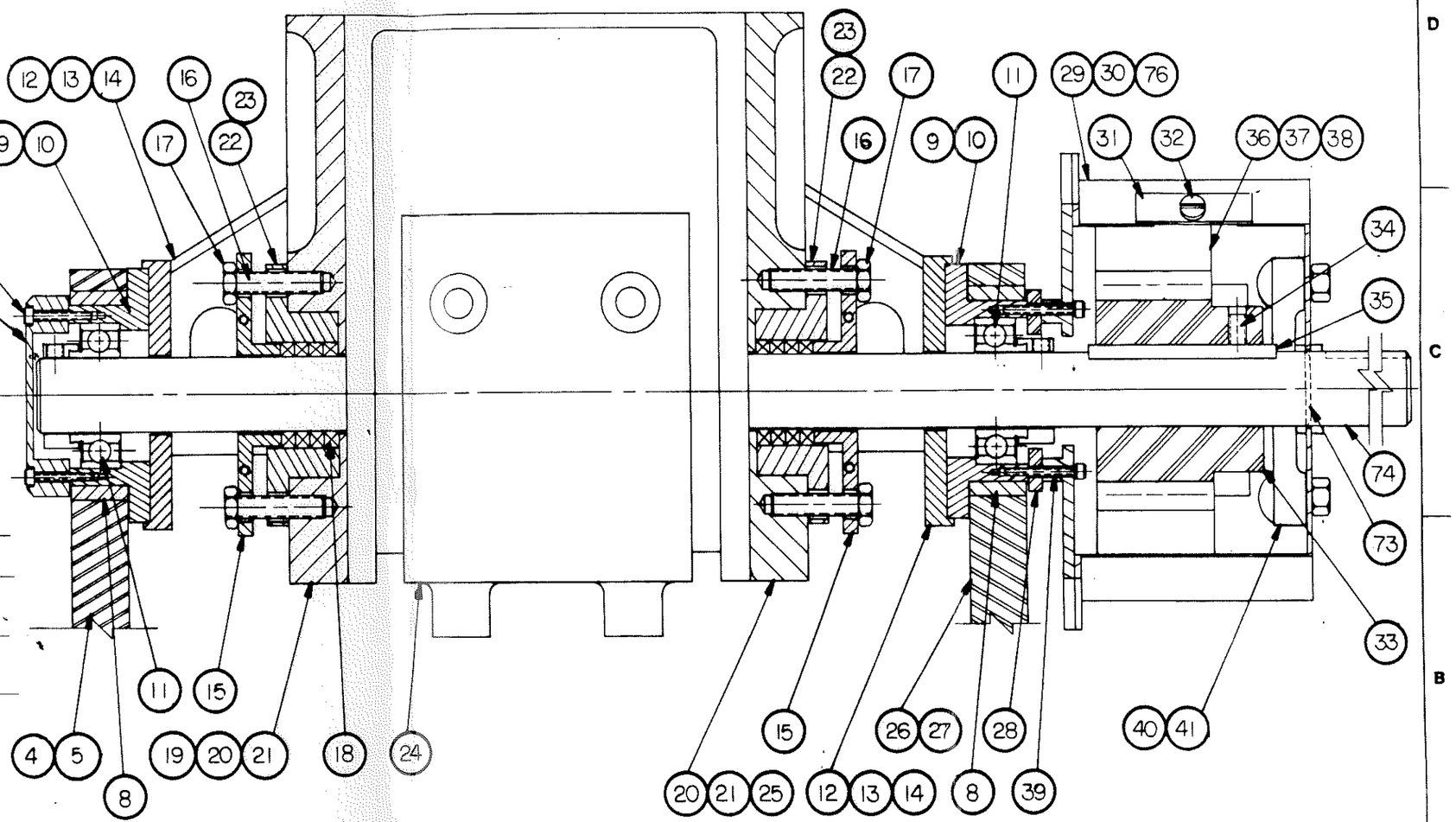
AARON
PROCESS EQUIPMENT COMPANY, INC.
P.O. BOX 530
BENSENVILLE, IL. 60106-0530

TOLERANCES	REVISIONS			
(EXCEPT AS NOTED)	NO.	ZONE	WAS	DATE
DECIMAL	1			
	2			
FRACTIONAL	3			
	4			
ANGULAR	5			
	6			

SCALE: 1/2	APPROX. WT. 453#	DRAWN BY: SJJ
DATE: 8-29-90		MAT'L: -II-
PARTS DESCRIPTION: GENERAL ASSEMBLY		
MAJOR ASS'Y: MODEL "B" ONE GAL MIXER		DRAWING NUMBER: IBIGI991



SIDE VIEW
(MOTOR NOT SHOWN)



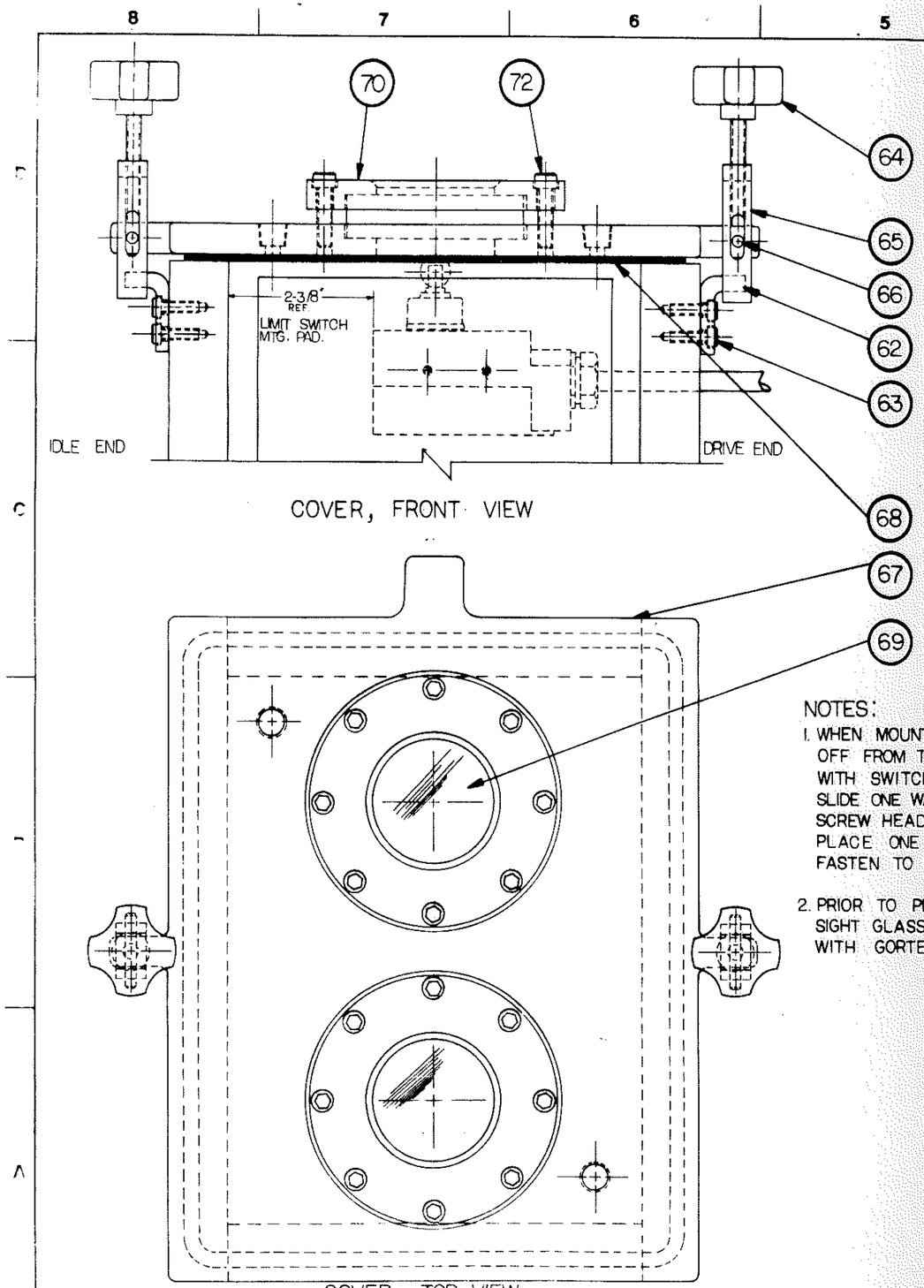
SECTION A-A

SHEET 2 OF 3

AARON
PROCESS EQUIPMENT COMPANY, INC.
P.O. BOX 530
BENSENVILLE, IL. 60106-0530

SCALE: 1/2	APPROX. WT. 463#
DATE: 8-29-90	DRAWN BY: SJV
PARTS DESCRIPTION	GENERAL ASSEMBLY
MIXER ASSY	MODEL "B" ONE GAL. MIXER
DRAWING NUMBER	1B1G1991

TOLERANCES	REVISIONS			
	NO.	ZONE	WAS	DATE
DECIMAL				
FRACTIONAL				
ANGULAR				



COVER, FRONT VIEW

COVER, TOP VIEW

NOTES:

1. WHEN MOUNTING SAFETY SWITCH, 1/4" MUST BE CUT OFF FROM THREAD LENGTH ON SCREWS SUPPLIED WITH SWITCH. SWITCH TO BE MOUNTED AS FOLLOWS: SLIDE ONE WASHER FOLLOWED BY ONE O-RING TO SCREW HEAD. INSERT SCREWS THROUGH SWITCH. PLACE ONE O-RING FOLLOWED BY ONE WASHER AND FASTEN TO MOUNTING PAD ON BOWL.

2. PRIOR TO PLACING SIGHT GLASS IN COVER, LINE SIGHT GLASS HOLDER (70) AND SEAT IN COVER (67) WITH GORTEX GASKET (71).

QTY.	MATERIAL	DESCRIPTION	DET.
12	6-32x3/8	SLOTTED PAN HD.	76
1	IG170-B1	PIN, ANTI TILT	75
1	IG111-B1	BLADE, DRIVER	74
1	IG110-B1	BLADE, DRIVEN	73
16	1/4-20 x 1	S/S HX. SOC. CAP	72
40"	3/8"W.	SELF STICK GORTEX	71
2	IG163-B1	HOLDER, SIGHT GLASS	70
2	IG162-B1	GLASS, SIGHT	69
1	IG169-B1	GASKET, COVER	68
1	IG164-B1	COVER, VACUUM	67
2	3/16Ø X 1-1/4	DOWEL PIN	66
2	IG161-B1	PULL, CLAMP	65
2	IG160-B1	KNOB, CLAMP	64
4	10-24 X 1/2	HX. SOC. CAP	63
2	IG159-B1	MATE, CLAMP	62
2	3/16Ø X 1-1/4	DOWEL PIN	61
2	3/8-16 X 7/8	HX. SOC. CAP	60
1	IG115-B1	HANDLE, TILT	59
2	12-14 X 5/8	HX. WASH. HD. TAP. SCR	58
2	7/16	SPLIT WASHER	57
2	7/16-14 X 1	HEX. HD. BOLT	56
1	IG157-B1	BRACKET, CONTROL'R	55
4	7/16	SPLIT WASHER	54
4	7/16	PLAIN WASHER	53
4	7/16-14 X 1-1/4	HEX. HD. BOLT	52
1	IG158-B1	PACKAGE, DRIVE	51
4	5/8	SPLIT WASHER	50
12	5/8-11	HEX. NUT	49
12	5/8	PLAIN WASHER	48
4	5/8-11 X 5	THREADED ROD	47

QTY.	MATERIAL	DESCRIPTION	DET.
1	IG167-B1	BASE, DRIVE	46
4	8-32 x 1/2	SLOTTED PAN HD	45
1	IG166-B1	GUARD, COUPLING	44
1	1/4 x 2"	SQ. KEY	43
1	IG156-B1	COUPLING, DRIVE	42
2	3/8-16 X 1-1/4	CARRIAGE BOLT, NUT	41
1	IG168-B1	BRG, REAR BLADE SUPT.	40
8	6-32 X 1-1/4	HEX. SOC. CAP, LW	39
1	1/4 SQ X 2-5/8	KEY	38
2	5/16-18 X 1	HEX. SOC. SET SCREW	37
1	IG108	GEAR, DRIVEN	36
1	1/4 SQ X 3"	KEY	35
2	5/16-18 X 1	HEX SOC SET SCREW	34
1	IG109	GEAR, DRIVER	33
2	1/4-20 X 3/8	PAN HD. TAP. SCREW	32
1	IG155-B1	PLATE, COVER	31
1	IG112-B1B	BACK PLT., GR. GRD.	30
1	IG112-B1A	GUARD GEAR CVR.	29
2	IG152-B1	SPACER	28
8	3/8-16 X 1	HEX. SOC. CAP	27
1	IG154-B1RH	SUPPORT, UPRIGHT R.H.	26
1	IG102-B1RH	PLATE, END R.H.	25
1	IG104-B1	BOWL, MACHINED	24
16	1/4-20 X 5/8	HEX. SOC. CAP	23
4	IG101-B1	JOURNAL, END	22
6	1/4Ø X 1-1/2	DOWEL PIN	21
26	1/4-20 X 1-1/2	HEX. SOC. CAP	20
1	IG102-B1LH	PLATE, END L.H.	19
63"	1/4" SQ	PACKING (BY CUSTOMER)	18
8	3/8-16	JAM NUT	17
8	3/8-16 X 1-3/4	THREADED ROD	16
4	IG153-B1	PUSHER COMPLETE	15
4	3/16 X 1-1/2	DOWEL PIN	14
8	5/16-18 X 7/8	HEX. HD., LW	13
2	IG103-B1	SUPPORT, BEARING	12
4	IG107-B1	BEARING	11
16	1/4-20 X 1/2	HEX. SOC. CAP.	10
4	IG150-B1	HSG., BEARING	9
2	IG151-B1	BUSHING, BRONZE	8
8	6-32 X 1	HEX. SOC. CAP	7
2	IG100-B1	COVER BEARING	6
8	3/8-16 X 1	HEX. SOC. CAP, LW	5
1	IG154-B1LH	SUPPORT, UPRIGHT L.H.	4
1	5/8-11	HEX. NUT	3
1	5/8-11 X 4-1/2"	THREADED ROD	2
1	IG113-B1	STAND	1

AARON
PROCESS EQUIPMENT COMPANY, INC
P.O. BOX 530
BENSENVILLE, IL 60106-0530

SCALE: 1/2 APPROX WT. 453 # DRAWN BY SJV
DATE: 8-29-90
PARTS DESCRIPTION: GENERAL ASSEMBLY
MIXER ASSY: MODEL "B" ONE GAL. MIXER
DRAWING NUMBER: IBIG1991

AARON PROCESS EQUIPMENT COMPANY
MECHANICAL WARRANTY

Seller warrants to the original Purchaser that the equipment will be free from mechanical defects in material and workmanship for a period of one (1) year from the date of shipment. The warranty shall not extend to any person or entity besides the original Purchaser.

The Purchaser's remedy under this warranty shall be limited to repair or replacement of the defective part(s) or component(s). The seller will make such repair or replacement only if written notice to the alleged defect is received by the Seller within one (1) year from the date of shipment. The Seller will have sole discretion as to whether repairs are to be made on site or at Seller's facility. In the latter case, the Purchaser shall be responsible for all costs of transporting the equipment to and from the Seller's facility.

The Seller shall have no responsibility for damages caused by:

(1) Ordinary wear and tear, erosion, corrosion, acts of God;
(2) Unintended use, misuse, abuse or improper handling, operation, maintenance, or storage by the Purchaser or any third party; or
(3) Inability of the Seller or its subcontractors or suppliers to make timely delivery because of acts of God, labor troubles, intervention of any civil military authority, insurrection, revolution, material(s) shortages, delays by suppliers or any other cause beyond its reasonable control.

Equipment, parts or accessories manufactured by others carry the warranty (if any) of the manufacturer only. Any warranties or claims which differ from the Seller's warranty as set forth above are unauthorized by the Seller and become the Warranty solely of the party making them, unless specifically authorized in writing by the Seller.

The limited warranty provided herein is in lieu of, and the Seller specifically disclaims and excludes, all other warranties Seller specifically disclaims and excludes, all other warranties of any kind or nature whatsoever, direct or indirect, express of implied, including, but not limited to, warranties as to suitability, productivity, durability, fitness for particular purpose or use, merchantability, condition, or any other matter with respect to the equipment, whether manufactured by the Seller or a third party. The Seller shall not be liable to the Purchaser for any loss, damage or expense of any kind or nature (including, but not limited to, special, consequential or incidental damages or loss of profits) arising out of the failure of the equipment to perform in accordance with the specifications set forth in this Agreement, caused directly of indirectly by the equipment, whether manufactured by the Seller or a third party, or by the use of maintenance thereof, or by the repairs, service or adjustments thereto or any delay in service or loss of use thereof, or for any loss of business or related damage whatsoever and howsoever caused, whether alleged in contract, warranty, tort (including negligence) or otherwise. Except as specifically modified by the Mechanical Warranty, Aaron's standard terms and conditions apply.

MAIL TODAY!

AARON
PROCESS EQUIPMENT COMPANY

LAB MIXER
OWNER'S REGISTRATION CARD

TO ESTABLISH YOUR WARRANTY WITH AARON PROCESS EQUIPMENT COMPANY
PLEASE SIGN BELOW AND MAIL THIS CARD:

SIZE (Gallon): _____ SERIAL #: _____ SHIP DATE: _____

COMPANY NAME: _____

OWNERS NAME: _____

ADDRESS: _____

CITY: _____ STATE: _____ ZIP _____

WE HAVE RECEIVED THE MACHINE AND REQUIRED MAINTENANCE/OPERATING MANUAL(S). WE HAVE READ AND UNDERSTAND THE SAFETY PORTION OF THIS MANUAL.

NAME: _____ TITLE: _____ DATE: _____

TERMS AND CONDITIONS

1. COMPLETE AGREEMENT: Acceptance of purchaser's order is subject to the terms and conditions contained herein. This document constitutes the full and final agreement of the parties and is not to be modified or amended by any prior or contemporaneous agreement, whether written or oral. No modification of this agreement shall be in effect unless in writing signed by the parties, and no modification shall be effected by the acknowledgment or acceptance of purchase order forms containing different terms or conditions.

2. TERMS OF PAYMENT: Subject to your acceptance of this proposal within ten (10) days from the date hereof, the purchase price for the goods sold shall be as shown herein, F.O.B., our plant, unless otherwise agreed to in writing by the parties. Purchaser's acceptance of this proposal, however, shall not result in a contract of sale until approved by a duly authorized representative of the Seller. The purchase price shall he payable in United States currency in accordance with the terms outlined in this proposal. All invoices rendered in accordance with the agreed terms which are not paid within 30 days shall be subject to interest at the rate of 1.5% per month from the date of the invoice until it is paid. Installation and field service, not specifically covered in the purchase price, will be furnished at a charge of $500 per day, plus an additional charge for living expenses on the job site, and for transportation to and from the installation; all such charges shall be payable within 30 days after the services are rendered.

3. WARRANTIES:

A. With respect to the parts sold separately under this contract, the Seller hereby warrants such parts against any and all mechanical defects for a period of 90 days from the date of sale. With respect to items which are New, the Seller hereby warrants the work it h... ...er on such items against any and all mechanical defects for a period of twelve months from the date of shipment. With respect to any such reconditioned items, the Seller will also assign and transfer to the Purchaser, to the extent possible and to the extent they are it... ..., an and all warranties provided by the original equipment manufacturers of component parts of such items. No waiver, alteration or modification of the foregoing warranty shall be valid, unless made in writing and signed by a duly authorized employee of the Seller.

B. Apart from the warranties set forth above, which extend only to the Purchaser, THE SELLER MAKES NO OTHER REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY OR FITNES FOR A PARTICULAR PURPOSE OR ANY OTHER MATTER WITH RESPECT TO THE GOODS SOLD. In no event shall the Seller be responsible for incidental, special or consequential damages, shipping costs, or lost profits, relating to the goods, whether alleged in contrac warranty, tort (including negligence) or otherwise.

C. The warranties set forth in part A above are subject to the following conditions:

(1) The goods must have been transported, installed, operated, and maintained properly. Failure to do so will void the warranty. (2) The defects were not, in the Seller's opinion, caused by accident, misuse, abuse, neglect, deterioration due to erosion, corrosion or by chemica action. (3) The Purchaser notifies the Seller of the alleged defect in writing, promptly after the Purchaser learns, or should learn, of such defect. (4) The warranty is limited to repair or replacement of the defective part. (5) The seller will have sole discretion whether the good in question must be returned intact to the Seller's plant, freight prepaid and securely packed to avoid damage, for repair or replacement of the defective part(s). (6) Notwithstanding any other provision of these terms and conditions, components or parts not manufactured b the Seller are warranted only to the extent of the manufacturer's original warranty.

D. Any description and/or specifications with respect to items offered for sale are not warranted by the Seller to be accurate or complete. The description is solely for the purpose of offering the item for sale. The Seller shall not be responsible for the consequences, of the Purchaser' failure to inspect the goods for any inaccuracies, insufficiencies or omissions in such descriptions and/or specifications.

E. The employees or representatives of the Seller are not authorized to make any statements or representations as to the quality, character, size, condition, quantity, etc., of the items offered for sale inconsistent with these conditions of sale or the terms on the front hereof Any such statements made will not be binding on the Seller or be grounds for any subsequent claim.

F. "The equipment offered herein has been designed to conform to the requirements of the Federal Occupational Safety and Health Act of 1970 (OSHA) as we presently understand those requirements; but due to the varying interpretations of those requirements and the varyin conditions of use of this equipment, no guarantee of compliance with the act or any other act or government regulation is expressed or implied".

4. DELIVERY: Based on past experience, the Seller expects to make final shipment in a reasonable amount of time after the contract approval date or after receipt at the Seller's office of approved drawings where required, whichever shall be later. In the event delivery o the equipment is extended at your request, (a) we may, at our option, require a progress payment payable within thirty (30) days of invoice on the basis of the above purchase price and the percentage of completion of the equipment at the date of such extension, (b) any equipmen held for you shall be at your risk, and (c) The purchase price shall be adjusted to our prices in effect at the time shipment of the equipment is made.

5. CANCELLATION: The Purchaser's acceptance of this proposal creates a contract with the Seller which thereafter can be terminated or cancelled only upon the Purchaser's written request and the Seller's written consent thereto, subject to such conditions as the Seller ma reasonably require. Normally, and in the absence of special circumstances, the Seller's consent to such a cancellation will be contingent upon the Purchaser's agreement to pay a cancellation charge equal to the cost of the percentage of completion of the order (as estimate by the Seller) or 25% of the list price of the equipment included in the order, whichever is greater, plus any cancellation charges which may be charged back to the Seller on items which the Seller may have ordered to complete the Purchaser's order.

6. RETURNED MATERIAL: Materials or equipment are not to be returned to the Seller without first obtaining the written permission of the Seller. All such returned material must be in the same condition as it was when delivered. Materials and/or equipment accepted by th Seller for credit are subject to a minimum service charge of 25% plus all transportation charges. Materials or equipment built to order are not subject to return for credit under any circumstances. Any materials or equipment authorized for return must be securely packed to reac the Seller without damage.

7. INDEMNIFICATION: A. The Purchaser expressly agrees as a condition of its purchase of the goods that it will indemnify and hold harmless the Seller, its agents, servants and employees, from any and all claims that may hereafter at any time be asserted by any subsequer owner, purchaser or user of the goods or by any third party arising from any purported defect(s) in the goods or by reason of the use of the goods. Such indemnification shall include, but not be limited to, attorneys' fees and/or legal expenses relating to such claims. The Purchas agrees to assume all responsibility in connection with the goods upon delivery thereof to the Purchaser or to a common carrier, whichever occurs first.

B. Except for claims covered by the express warranty set forth above, the Purchaser shall indemnify and hold harmless the Seller, its agents, servants and its employees, from and against any and all losses, expenses, demands, and claims made against the Seller, its agents servants and its employees by the Purchaser, any agent, servant or employee of the Purchaser, any subsequent Purchaser, any agent, servant or employee of a subsequent Purchaser, any lessor or lessee, or any other person because of injury or illness or alleged injury o illness (including death) or damage, actual or alleged, whether by the sole negligence of the Seller, the current negligence of the Seller with the Purchaser, any agent, servant, or employee of the Purchaser, any subsequent purchaser, any agent, servant or employee of an subsequent purchaser, any lessor or lessee, any agent, servant or employee of any lessor or lessee, or any other person, arising out of, resulting from, or in any way connected with, the operation, maintenance, possession, use, transportation or disposition of the goods, includin that caused by hazardous chemicals or other hazardous materials on or in them, or of the possession, operation, maintenance, transportation, use or disposition of the goods by subsequent purchasers, lessors, owners, lessees or any other person, including that caused b hazardous chemicals or other hazardous materials on or in the goods. Such indemnification includes, but is not limited to, all attorney's fees and legal expenses relating to such claims. The Purchaser agrees to defend at its own expense any suit, action or cause of action brough against the Seller, its agents, servants or employees based on any such alleged injury, illness or damage, and to pay all damages awarded therein.

8. FORCE MAJEURE: Deliveries may be suspended in case of act of God, war, sabotage, accidents, riots, fire, explosion, flood, strike, lockout, injunction, inability to obtain fuel, power, raw materials, labor, containers or transportation facilities, breakage of machinery or apparatus national defense requirements, or any cause beyond the control of the Purchaser preventing the shipment, acceptance, or consumption of a shipment of goods. Such deliveries so suspended shall be cancelled without liability, but the contract shall otherwise remain ...ted

9. ASSIGNMENT: The Purchaser may not assign its rights or delegate its performance in whole or in part hereunder without the prior written consent of the Seller, and any attempted assignment or delegation without such consent shall be void.

10. GOVERNING LAW: The agreement between the parties and all causes of action relating to it are governed and construed by the law of the State of Illinois. The parties agree that venue for any claim or controversy arising from or relating to this agreement or performanc or breach thereof shall be exclusively laid and limited to the State Circuit of the Eighteenth Judicial District of Du Page County, Illinois.

11. TAXES: All taxes relating to the goods and their sale are the responsibility of the Purchaser, including but not limited to sales taxes and personal property taxes. The Purchaser shall indemnify the Seller against any and all claims relating to the payment of such taxes. Such indemnification shall include, but not be limited to, attorney's fees and other legal expenses relating to such claims.

12. DAMAGES: Seller's liability with respect to Goods sold to Purchaser shall be limited to refunding payment made or cancelling the invoice - whichever shall apply. In no event shall Seller be liable for: incidental, special or consequential damages, lost profits, or any expense including but not limited to shipping cost.

13. SEVERABILITY: If any one or more of the terms and conditions set forth herein is determined to be invalid or unenforceable, such determination shall not affect the validity or enforceability of the remaining terms and conditions. Waiver by the Seller of a breach of an one of the terms and conditions shall not be construed as a waiver of any other breach.

14. In the event any party institutes legal proceedings to enforce their respective rights arising out of this agreement, the prevailing party shall be entitled to the award of attorneys fees and court costs, plus cost of executing, enforcing and/or collecting any judgments at tri and appellate levels.

NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES

BUSINESS REPLY MAIL
FIRST CLASS MAIL PERMIT No. 265 • BENSENVILLE, IL 60106

POSTAGE WILL BE PAID BY ADDRESSEE

AARON PROCESS EQUIPMENT COMPANY
P.O. BOX 530
BENSENVILLE, IL 60106-9630