TECHNICS

TECHNICS WEST INC.

500-II

PLASMA SYSTEM

TABLE OF CONTENTS

1.0 INSTALLATION

1.1 Unpacking and Handling

1.1.1 The TECHNICS 500-II PLASMA SYSTEM is thoroughly tested and inspected and then carefully packed for shipment. A standard system is shipped in two packages: one containing the mechanical pump and the other containing the 500-II, strip chart recorder and stainless steel pump line, plus seals and clamps.

1.1.2 Both packages are clearly marked as to which side is up. These warnings must be observed as the pump is shipped charged with oil which will leak out if the pump is not kept upright.

1.1.3 Inspect both packages for signs of shipping damage. If there is evidence of rough handling or damage, return it (them) to the carrier unopened.

1.1.4 After visual inspection of the packages, carefully open them and remove the contents, exercising the care due any precision instrument. Open the 500-II chamber door and carefully remove any packing material. If there is any evidence of damage, file a damage claim, save the shipping materials and notify TECHNICS WEST Service Department.

1.2 Services Required

1.2.1 The 500-II is equipped with a six (6) foot, three prong, grounded power cord that will plug into a standard 110V, 60 Hz, 15A outlet.

1.2.2 The mechanical pump is similarly equipped and requires a similar outlet.
*NOTE: The pump and 500-II together draw more than 15 amps, so they should plug into different circuits.

1.2.3 The mechanical pump exhaust should be piped into an exhaust line and vented in a safe area.

1.2.4 The strip chart recorder may be plugged into the same outlet as the 500-II.

1.3 Installation

*NOTE: Make sure all power switches are off before plugging in either the 500-II or the mechanical pump.

1.3.1 The 500-II may be operated in almost any environment, although a dust free, low humidity, moderate temperature location is preferred. Care should be taken that the sides and rear of the unit are not obstructed in a manner that will impede the flow of cooling air.

1.3.2 The mechanical pump is normally located on the floor to the rear of the 500-II. Care should be taken in handling the pump that no foreign matter enters the pump through either its inlet or exhaust port.

1.3.3 A three (3) foot flexible stainless steel hose is used to connect the pump to the chamber. Centering rings, seals, and clamps are provided to make the connections at both ends of the tubing. Make sure all sealing surfaces are clean and unscratched. Carefully line up all components before clamping. Do not try to bend the tubing too sharply as it will collapse or rupture.

1.3.4 Plasma gases are introduced into the 500-II via fittings labeled "GAS 1" and "GAS 2" on the rear panel. These fittings accept 1/4" OD metal or plastic tubing. Gas pressures must not exceed 5 PSIG.

1.3.5 Vent or backfilling gas is introduced into the 500-II via a fitting labeled "VENT" on the rear panel. It also accepts 1/4" OD plastic or metal tubing. Vent gas pressures should not exceed 5 PSIG.

2.0 SAFETY

LETHAL VOLTAGES ARE PRESENT AT MANY PLACES IN THE 500-II. EXTREME CAUTION SHOULD BE EXERCISED WHENEVER THE COVER IS REMOVED FROM THE UNIT; MAINTENANCE AND/OR TROUBLE SHOOTING SHOULD BE ATTEMPTED ONLY BY QUALIFIED PERSONNEL.

3.0 THEORY OF OPERATION

3.1 General

The Technics 500-II Plasma System was designed to strip photoresist from wafers by surrounding them with a controlled plasma. To accomplish this in a repeatable manner, appropriate sensors, controls, and displays have been incorporated. A process may be controlled either manually, in which case the operator must initiate each successive step, or automatically, in which case the operator merely starts the process and it is thereafter controlled by sensed or programmed signals.

3.2 Major Components

Figure I is a block diagram depicting the major components of the TECHNICS 500-II Plasma System.

3.2.1 Chamber

Plasma is generated by creating AN electric fields between electrodes in an aluminum chamber that has been evacuated and then partially backfilled with oxygen. This oxygen rich plasma combines with photoresist on wafers and the resultant carbon dioxide and carbon monoxide is pumped out of the system. An 'O' ring sealed door provides access for loading and unloading. The door contains a viewport so that the process may be observed.

3.2.1 Mechanical Pump

A Leybold Heraeus D16AC 14.1 CFM mechanical pump is used to initially evacuate the chamber and then to remove the reaction products. It is charged with Fomblin oil, a perfluorinated polyether especially developed to withstand the corrosive nature of the pumped gases, and designed for use with greater than atmospheric concentrations of oxygen.

3.2.3 Systems Control Panels

Process and operating controls are conveniently located at the front of the 500-II. All but the main POWER and START/STOP switches are located behind a hinged door so that, once operating parameters are programmed, they are isolated from the operator to assure repeatable operation. (Refer to Figure II)

3.2.4 Display Panel

Significant process parameters are constantly being measured and displayed so that the operator can monitor the process. A status display indicates the condition of the system at all times. (Refer to Figure III)

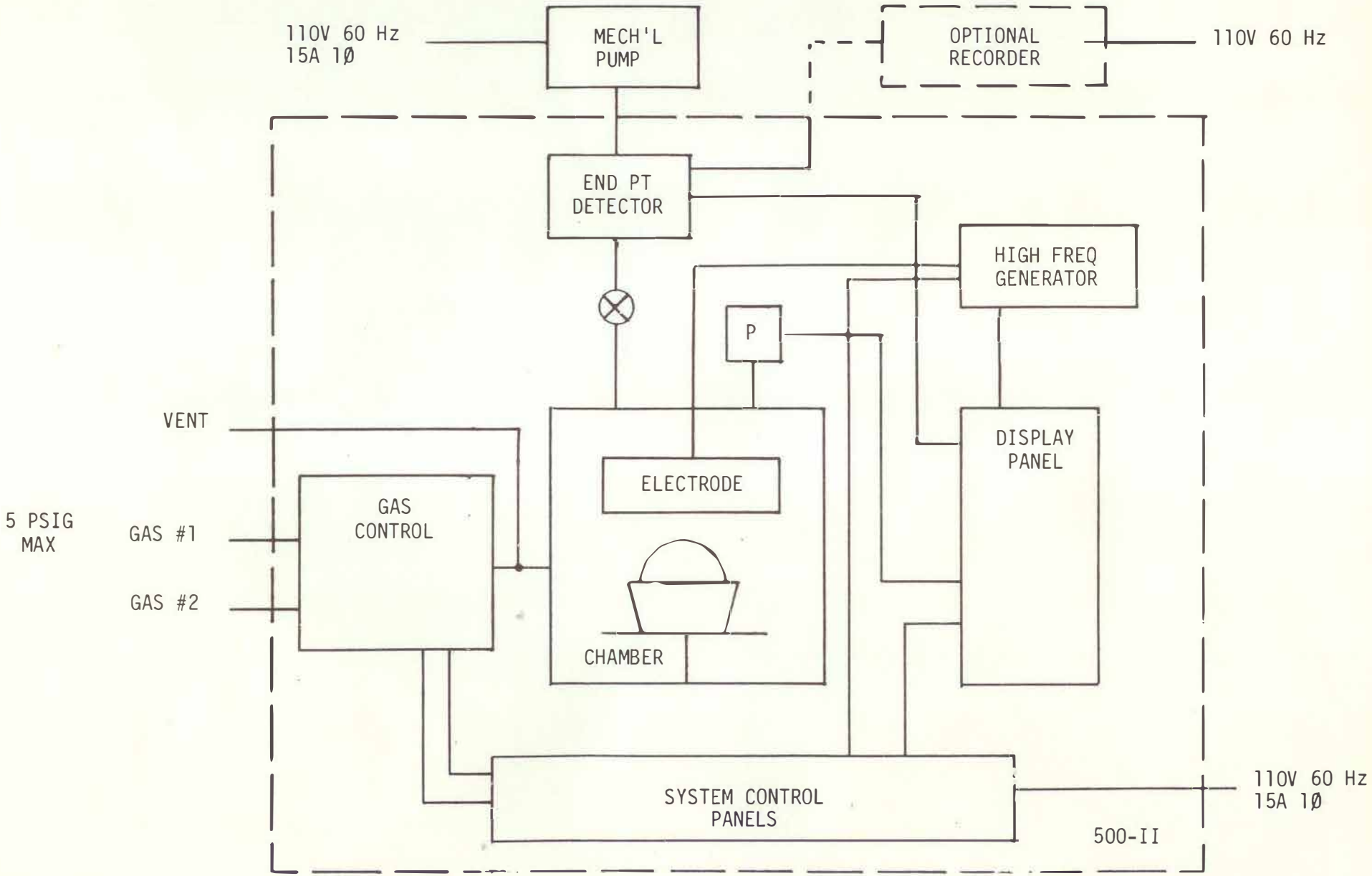
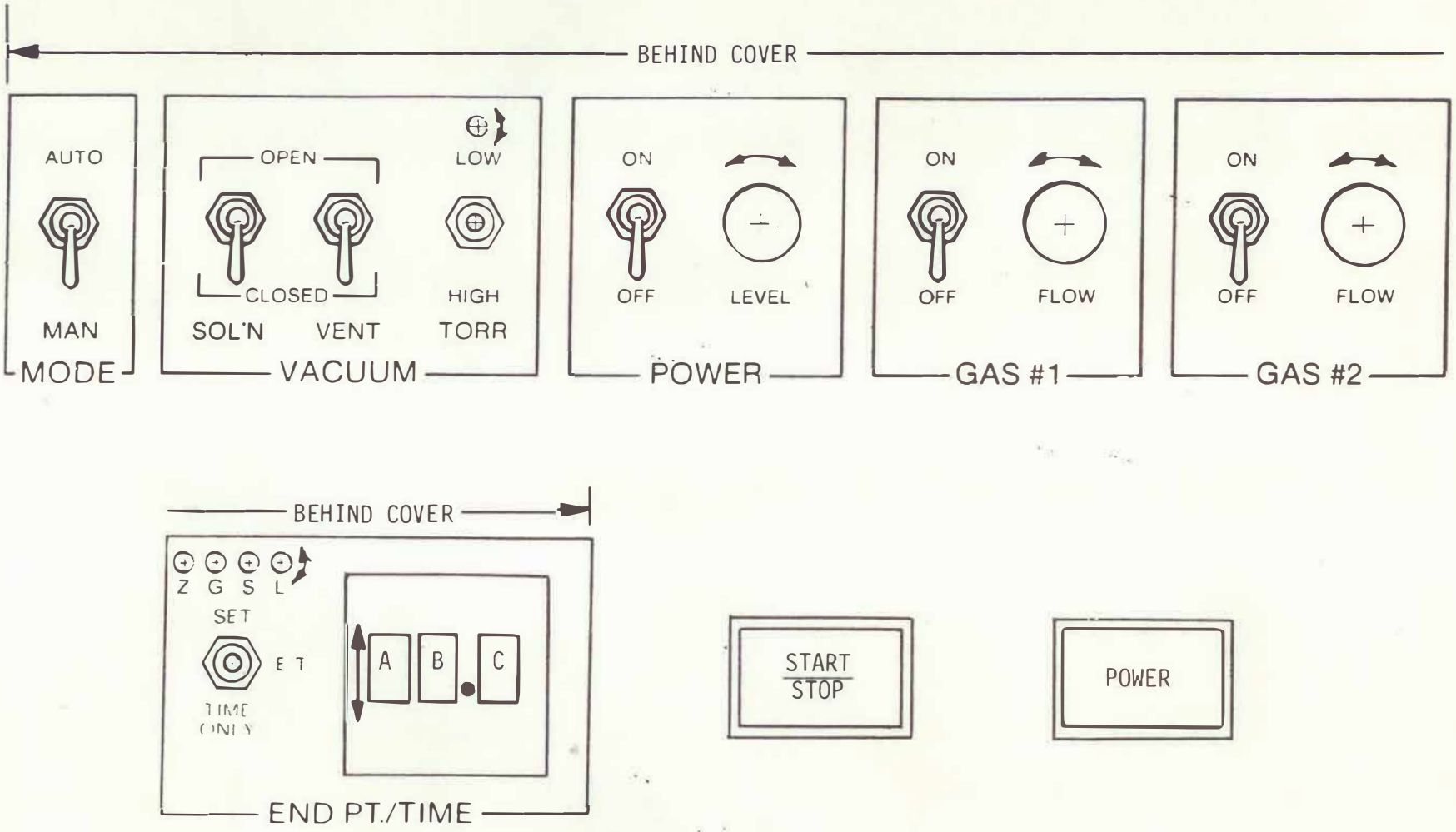
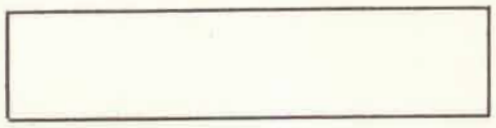


FIGURE I
Ref. Para 3.2

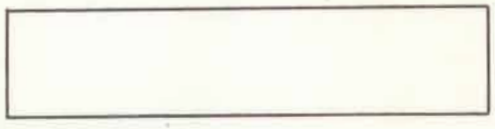


SYSTEM CONTROL PANELS

FIGURE II
Ref. Para 3.2.3

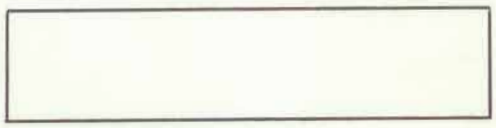


WATTS



TORR

END POINT



MINUTES

GAS #1 GAS #2 PLAS VENT VAC

AUTO MAN E.T TIME E.P. TIME

MODE PROCESS

FIGURE III

Ref. Para 3.2.4

3.2.5 Gas Control

Solenoid shut off valves in series with precise, manually adjustable mass flow control valves insure that gas is introduced at a precise and constant rate.

3.2.6 High Frequency Generator

The high frequency generator provides the voltage applied to the electrodes to initiate and sustain the plasma. It operates at approximately 30 KHz and approximately 400 volts, delivering up to 500 watts of power to the electrodes.

3.2.7 End Point Detector

Ascertaining when all the photoresist has been removed from the wafers is accomplished by creating another plasma in the exhaust line and optically measuring the intensity of the carbon dioxide emmission spectra. Once the intensity has exceeded (at the start of the process) and then fallen below (at the end of the process) a preset level and has reached a degree of constancy (slope of the intensity or time curve), the process is terminated, unless additional processing time has been programmed.

3.2.8 Strip Chart Recorder

The strip chart recorder may be attached to the rear of the 500-II, where it is fed a signal indicative of the rate of removal of photoresist, as sensed by the detector in the end point detector system. (see 3.2.7) Use of a strip chart recorder is recommended when programming the system.

4.0 OPERATING PROCEDURES

4.1 Introduction

The system control panels contain all the controls and adjustments necessary to operate the system. In general, they are functionally grouped and delineated. Figure II depicts the control panels. The measurable effect of adjustments is displayed on the display panel, as is the status of the system. Figure III depicts the display panel. The following discussions explain the purpose of each control and the evidence of its proper operation.

4.1.1 POWER

This is a push button switch that applies power throughout the 500-II, except to the mechanical pump and recorder. It becomes illuminated when the power is on. Depressing it when illuminated removes power from the unit (but not from the mechanical pump or recorder).

4.1.2 START/STOP

This is a push button switch used only in the automatic mode (see 4.1.3). Once a program has been established, depressing the START/STOP switch will cause the system to automatically cycle through the programmed process. Once the proces is complete, an audible alarm will sound until the START/STOP switch is again depressed, silencing the alarm.

4.1.3 MODE

The operator may select either AUTO (automatic) or MAN (manual) operation by placing the MODE toggle switch in the appropriate position. If manual operation is selected, the system will respond to commands initiated by other switches and controls and will remain in that status until changed by the operator. In automatic operation, all other controls and switches must be properly set, and, after the STOP/START switch has been depressed (started), the system wil automatically cycle. See 4.2.1 and Figure IV.

4.1.4 VACUUM

This set of three toggle switches control the vacuum components in the system. The SOL'N switch controls the solenoid valve between the chamber and the pump. When in the OPEN position, the pump is evacuating the chamber; when CLOSED, the pump is isolated from the chamber. The VENT switch similarly controls the vent valve. (If the MODE switch is in MAN and both SOL'N and VENT switches are in the OPEN position, vent gas will be continuously pumped through the system. This is useful if it is desired to purge the chamber after cleaning). See Figures Va and Vb.

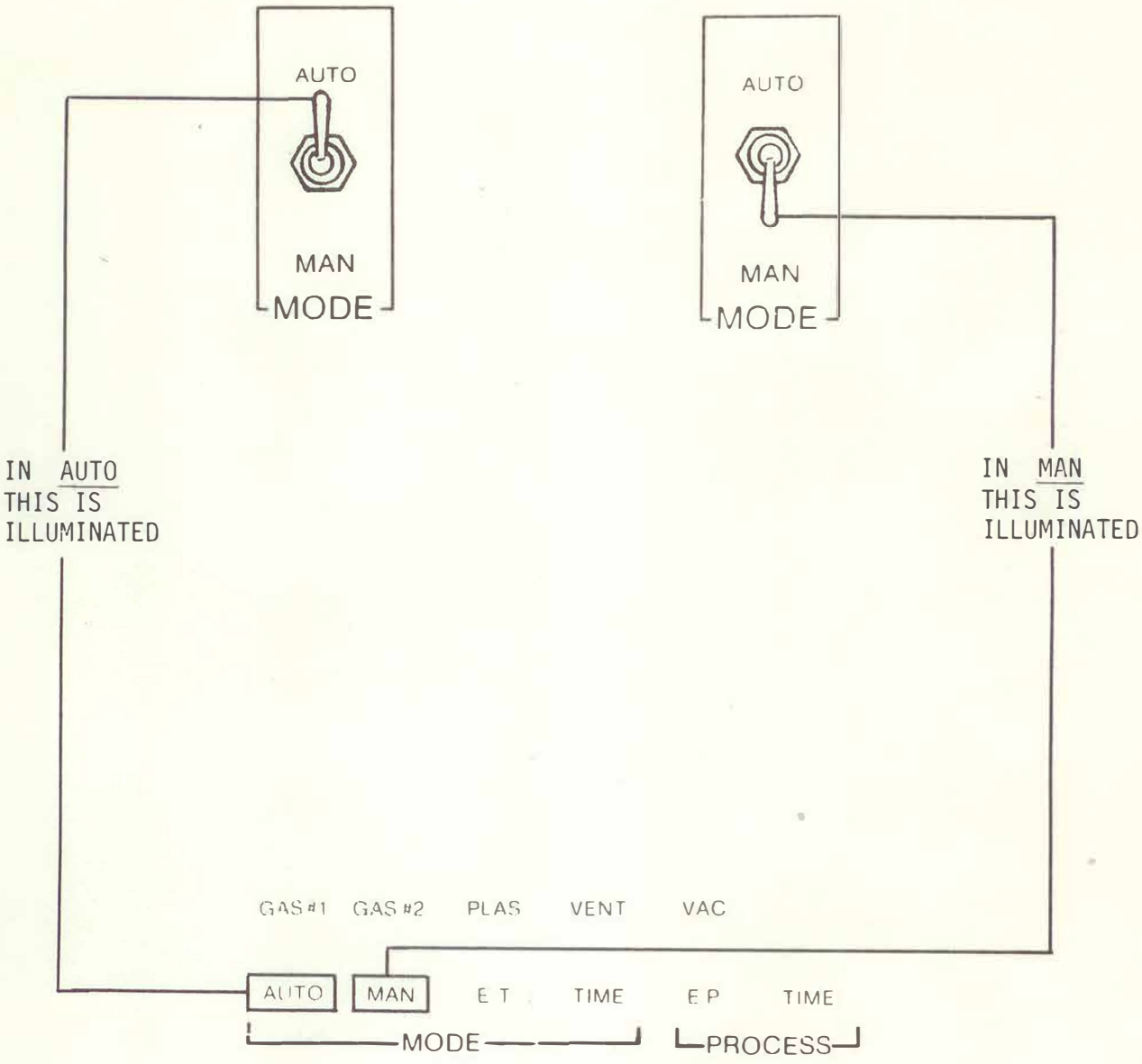


FIGURE IV

Ref. Para 4.1.3

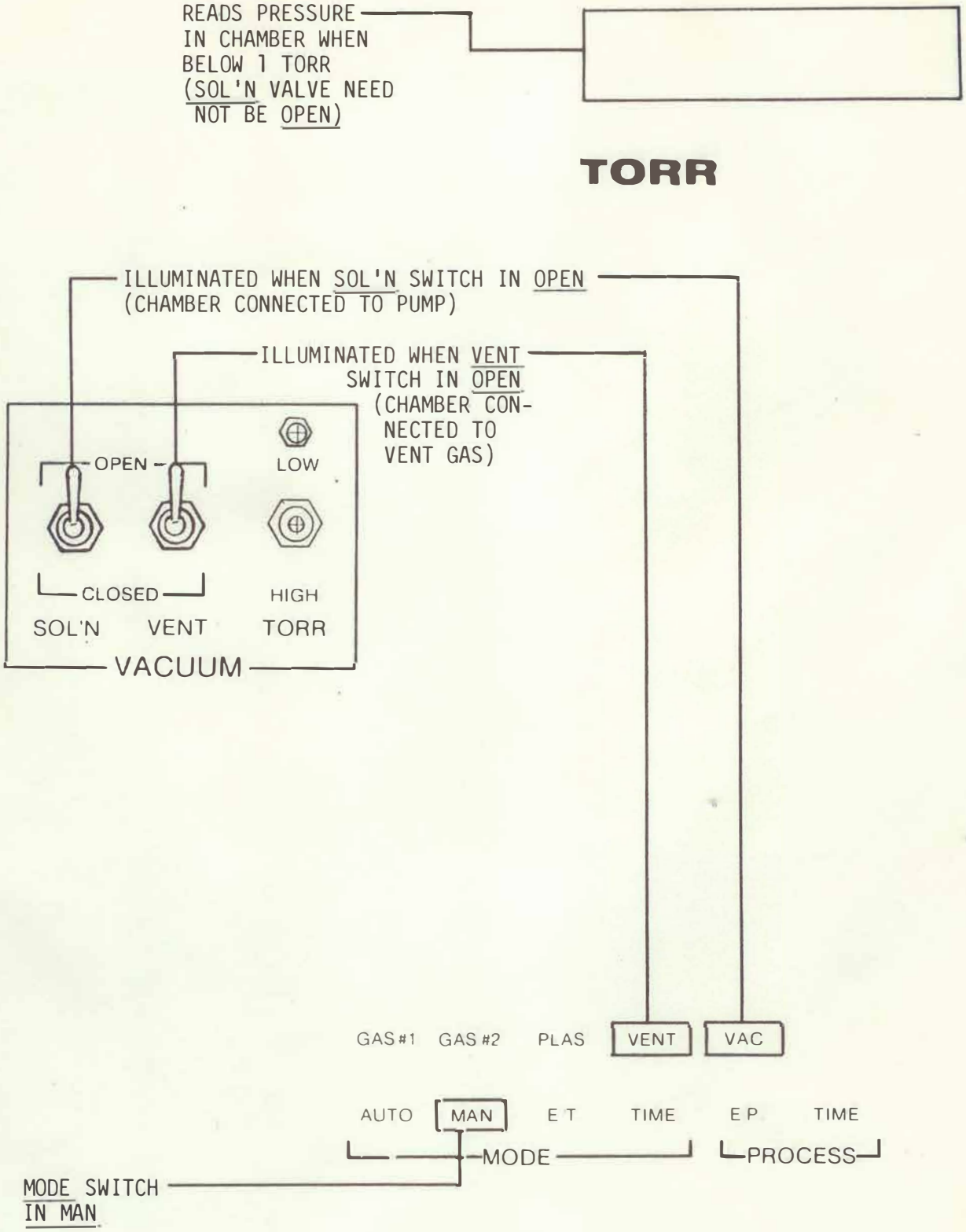


FIGURE Va

Ref. Para 4.1.4

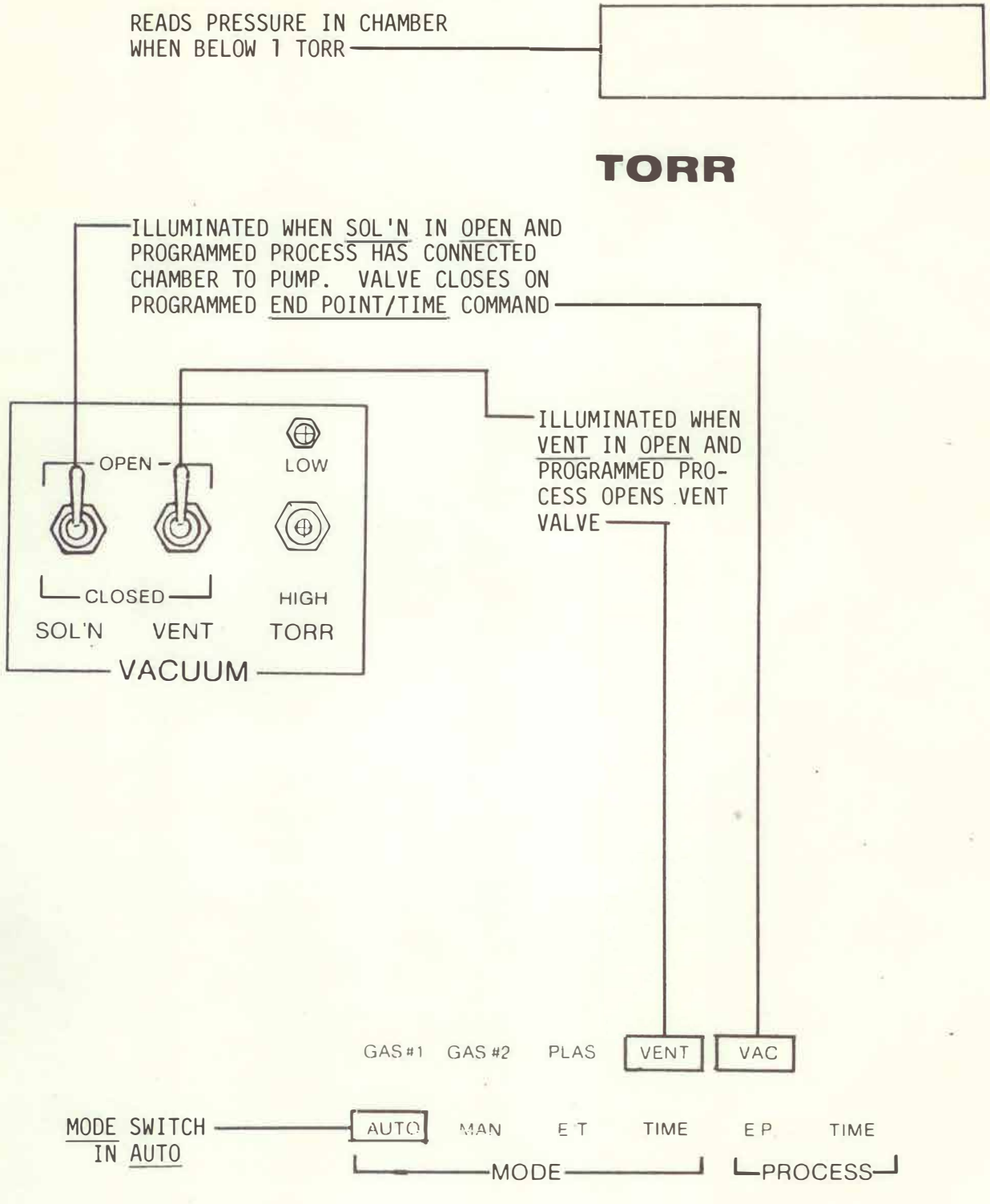


FIGURE Vb

Ref. Para 4.1.4

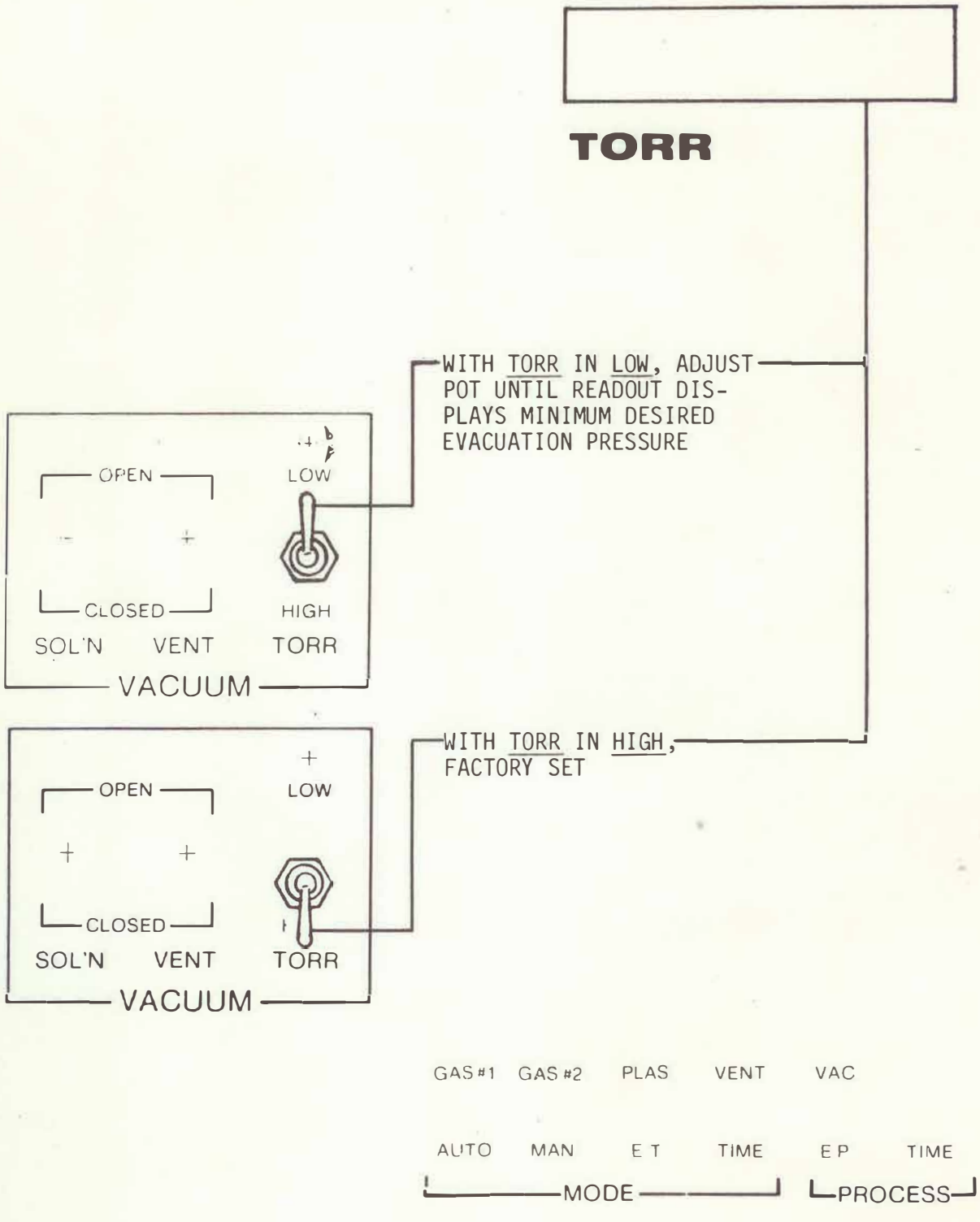


FIGURE VI

Ref. Para 4.1.4

The TORR switch is a spring loaded, three position switch that, in its center position, does not effect the system. It is used to program pressure levels for desired processes. In the LOW position, it causes the TORR display to read a pressure level that can be set by adjusting the pot right above the switch. This is the pressure to which the chamber must be evacuated, in the automatic mode, before gas #1 or gas #2 can be introduced. In the HIGH position, the factory set pressure below which plasma can be initiated is displayed in the TORR readout. See Figure VI.

4.1.5 POWER

The switch and knob in this group turn on and adjust the high frequency generator. See Figure VII.

4.1.6 GAS #1 AND GAS #2

These switches and knobs control the flow of gas into the chamber. In the ON position, a solenoid valve in that gas line opens, connecting the chamber to that gas supply. Also in the circuit is a flow controller that can be used to adjust via the FLOW knob, the flow of gas so that processing can occur at a programmable pressure. The SOL'N switch must be OPEN and the VENT switch closed to properly make this setting. See Figure VIII.

The 500-II has provision for introducing two gases concurrently, but not sequentially. The TORR readout displays the total pressure.

To ascertain the ratio of the gases, merely compare the pressure contibuted by each (by switching GAS #1 OFF and GAS #2 ON and noting the pressure, and then switching GAS #2 OFF and GAS #1 ON and noting the pressure. Similar results can be obtained by using the pressure flow curves in Figure IX).

4.1.7 END POINT/TIME

This group of controls is used to establish the conditions that must be satisfied before the process will automatically terminate. The spring loaded switch may be set in either E/T or TIME ONLY. (The SET position is used in conjunction with setting the Z,G,S, and L pots). The timer allows the operator to set times of up to 99.9 minutes as discussed below.

With the END POINT/TIME switch in the TIME ONLY position, the plasma will be turned on the length of time dialed into the timer. This time will be displayed in the MINUTES readout when the process starts and decrease to zero as the time elapses. When zero is reached, the plasma is extinguished, the chamber is isolated from the pump, the gas valve (s) close and an audible alarm sounds until the START/STOP button is depressed, at which time the vent valve will open, returning the chamber to atmosphere.

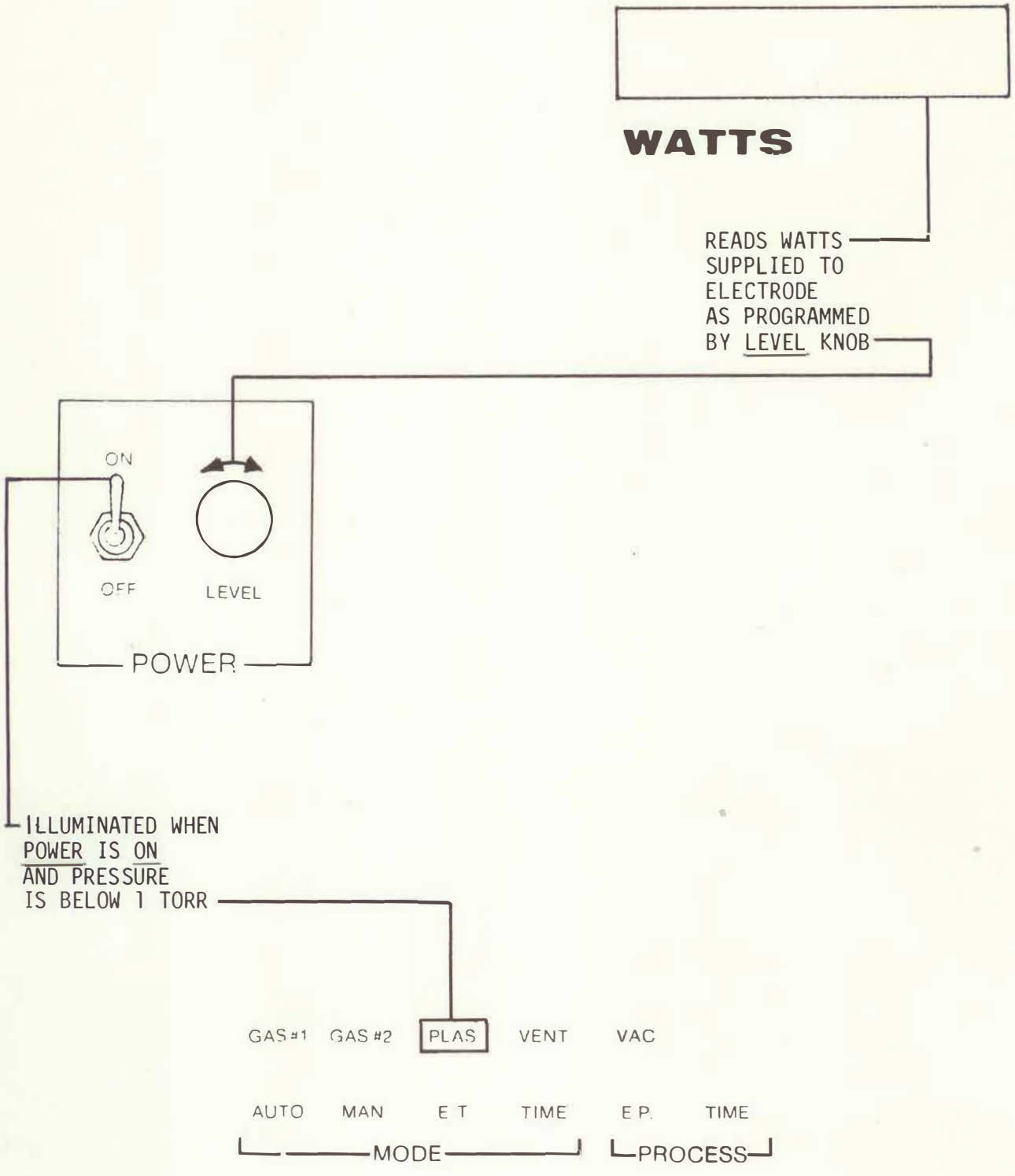


FIGURE VII

Ref. Para 4.1.5

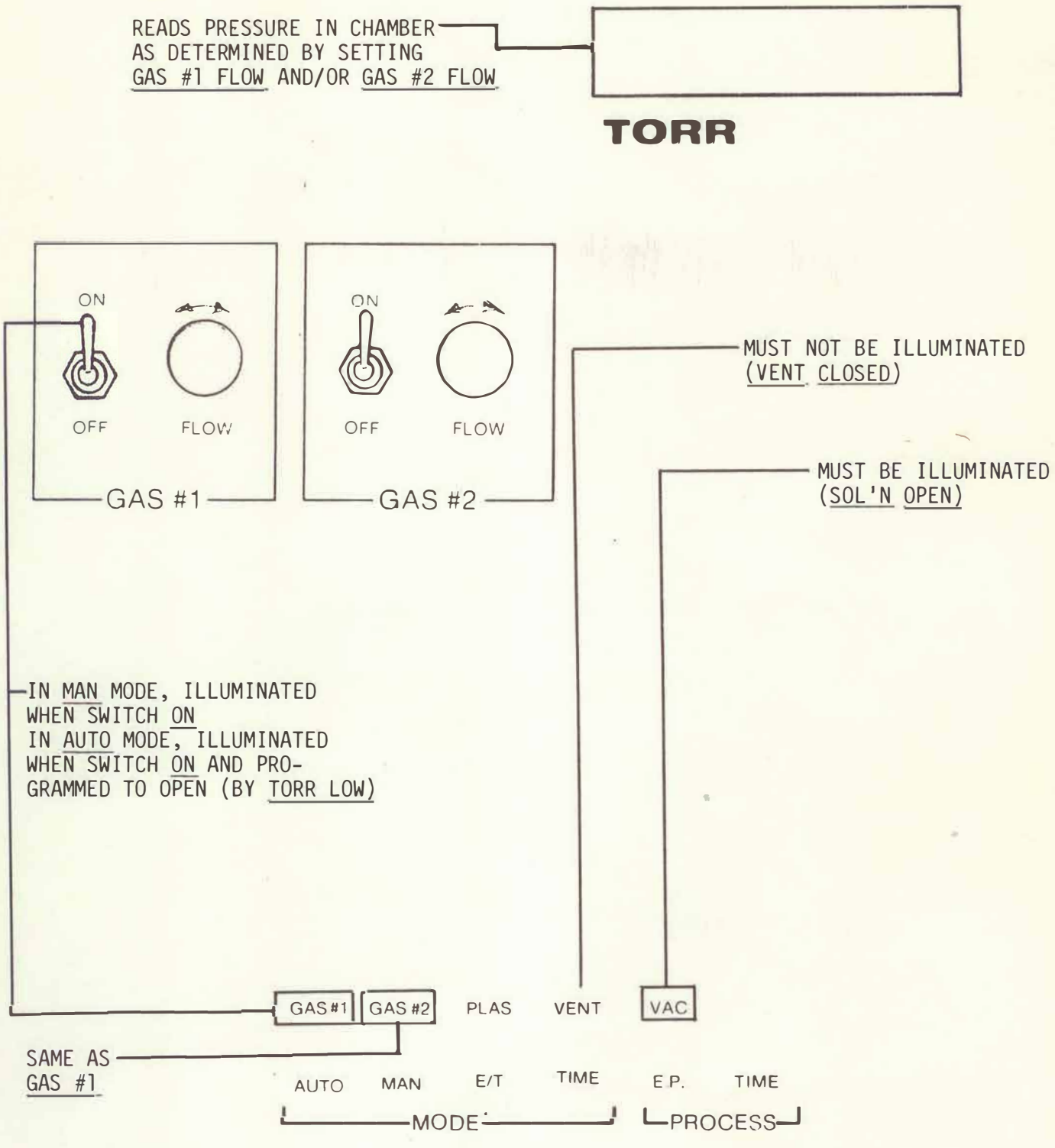


FIGURE VIII
Ref. Para 4.1.6

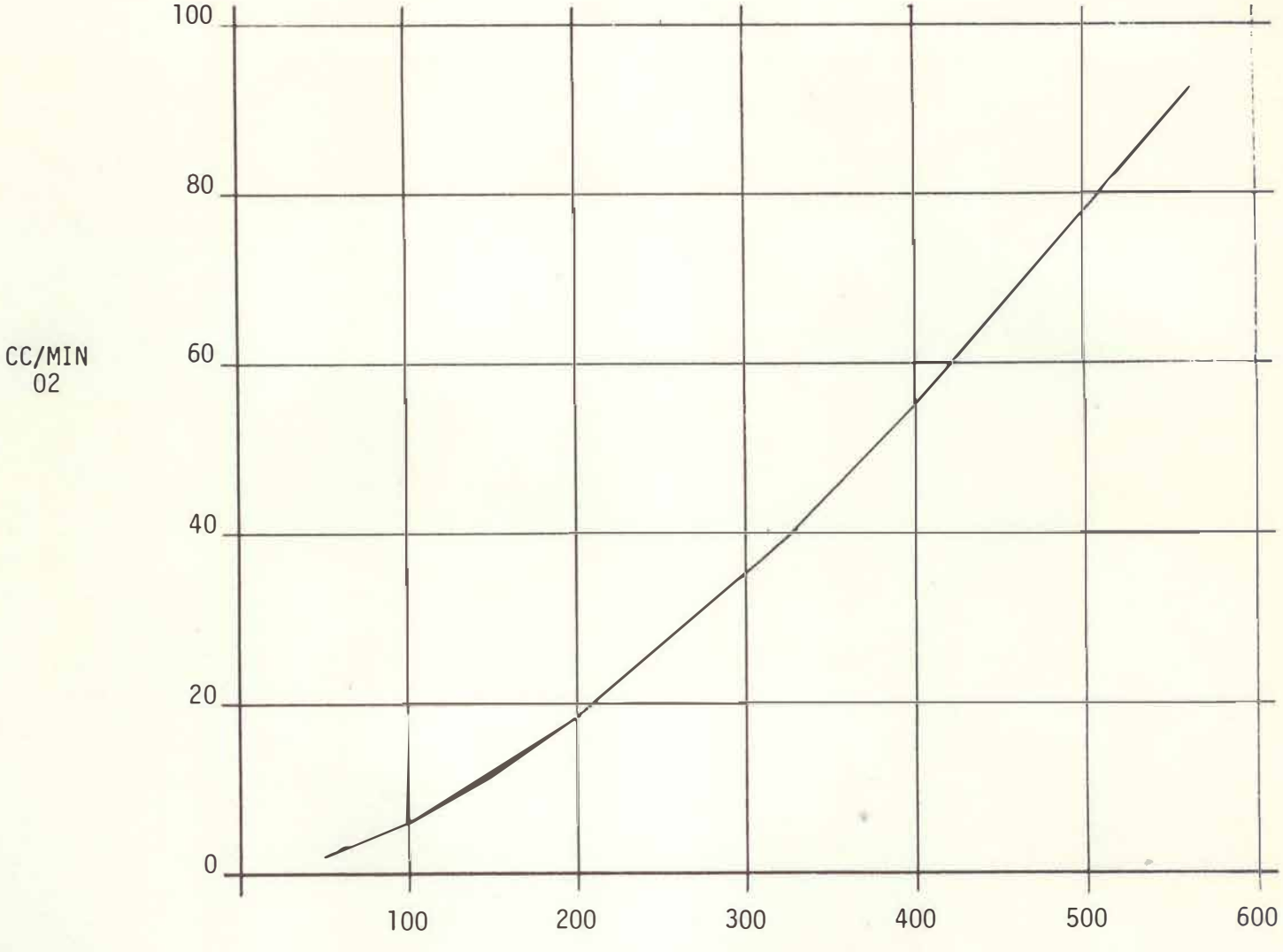


FIGURE IX

Ref. Para 4.1.6

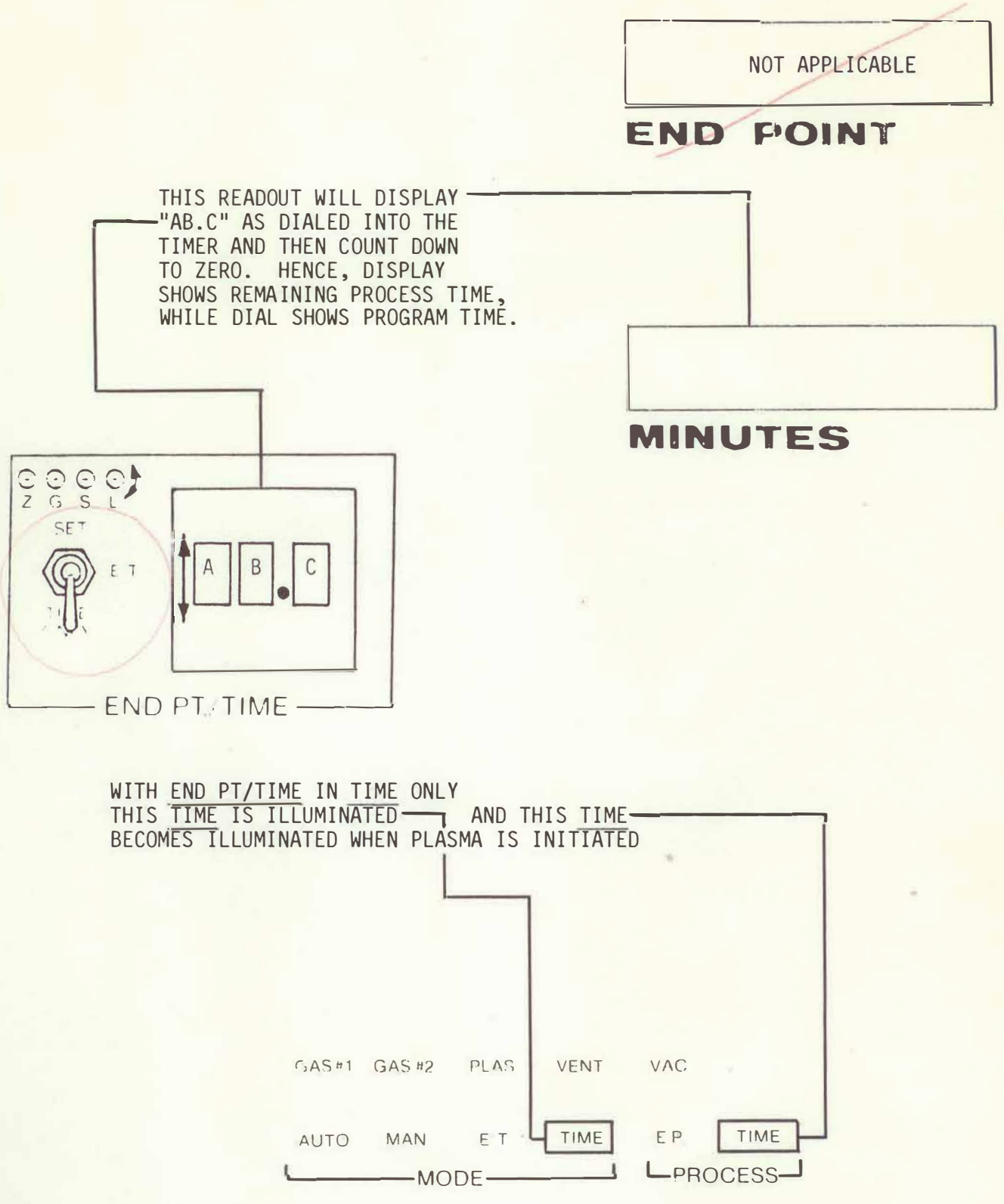


FIGURE Xa

Ref. Para 4.1

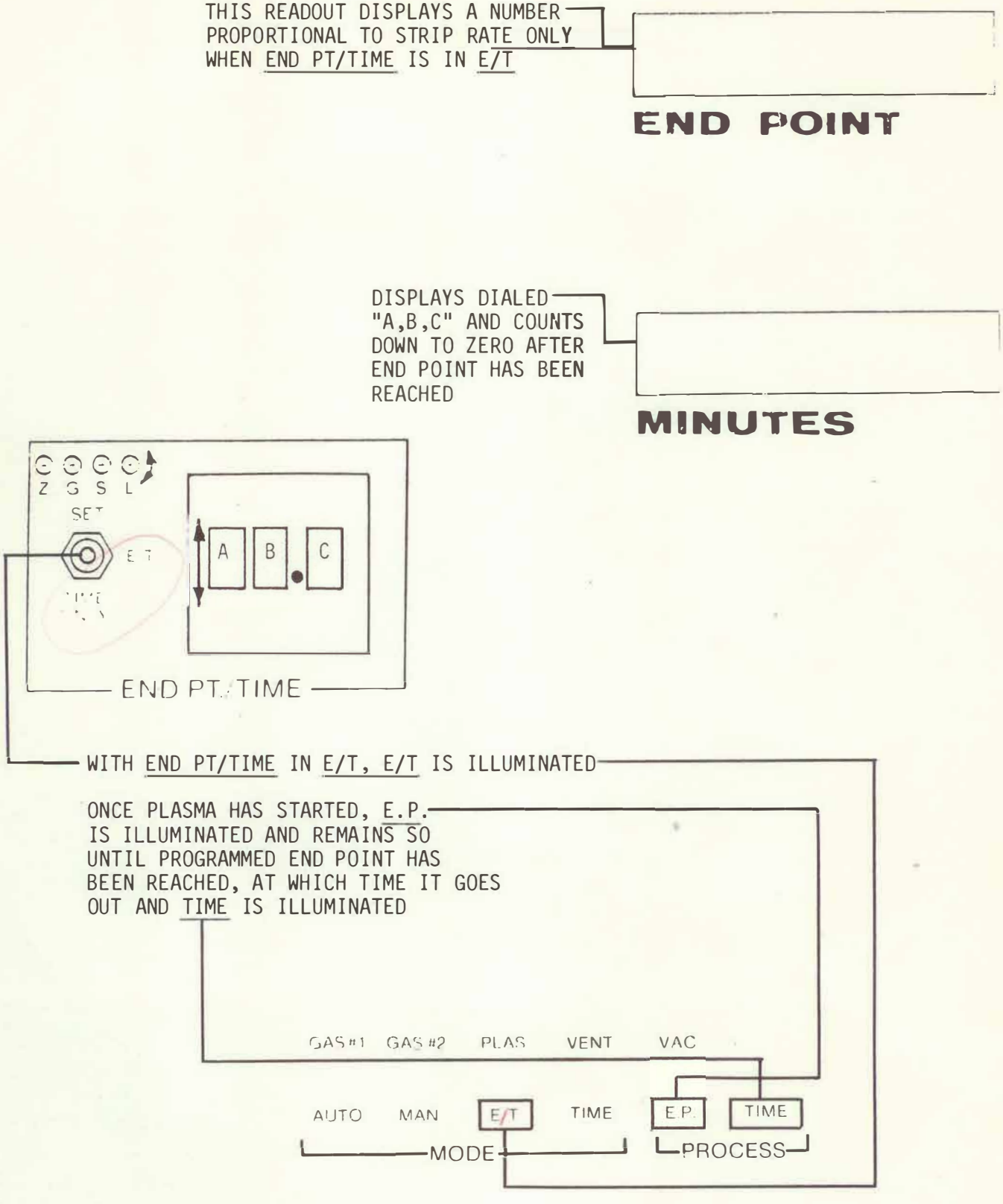


FIGURE Xb

Ref. Para 4.1.6

With the END POINT/TIME switch in the E/T position, the plasma will be turned on shortly after the TORR LOW point has been reached and plasma gas flow initiated and continue until all programmed end point settings have been reached and the dialed time has elapsed, only now the dialed time commences on satisfaction of the end point settings. After the dialed time has elapsed, the same sequence of events occurs as when the END POINT/TIME switch is in the TIME ONLY position. For programming the end point, see figures Xa and Xb.

4.2 INTERNAL ADJUSTMENTS

All internal adjustments have been factory set.

4.3 PROGRAMMING THE 500-II

4.3.1 PRELIMINARY

a) Start the mechanical pump and allow it to warm up for at least ten minutes. Fomblin oil is quite viscous and may cause the pump integral overload switch to trip, in which case, wait a few seconds, and try again. The vacuum (SOL'N) valve should be open, as should the chamber door. (To reduce pump load during warm up)

b) After warm-up: Put the switches and controls on the 500-II in the positions listed below: (Ref: Figure II)

POWER:	OFF
START/STOP:	N/A
MODE:	MANUAL
VACUUM:	SOL'N - CLOSED
	VENT - CLOSED
TORR:	CENTERED
POWER:	OFF
LEVEL:	FULLY CCW
GAS #1 AND GAS #2:	OFF
FLOW:	FULLY CW (DO NOT OVERTIGHTEN)
END POINT/TIME:	TIME ONLY
	TIMER 00.0

c) Turn on the unit by depressing the POWER switch which should become illuminated.

d) Make sure the chamber is free of debris.

e) Close the door and put the SOL'N switch in the OPEN position. The TORR display should soon read a rapidly decreasing pressure that should bottom out at about 25 microns or .025 TORR.

f) Put the TORR switch in the HIGH position. The TORR readout should read .9 to 1.1 indicating that interlocks are properly set.

g) Release the TORR switch. The system should now be ready for programming.

4.3.2 PROGRAMMING THE AUTO-TIME ONLY MODE

AFTER COMPLETING THE PROCEDURE IN 4.3.1

a) Put the TORR switch in the LOW position and adjust the pot immediately above it to read the pressure at which you wish processing to start (.100 is typical).

b) Release the TORR switch.

NOT WITH TOXIC GASES YOU DON'T

c) Turn GAS #1 (and/or GAS #2 ON) and adjust the flow/s until the desired processing pressure is displayed in the TORR readout. (See 4.1.6 if 2 gases are used) (~~.200~~ .175 is typical). (~15cc/m O_2)

d) Turn POWER toggle switch ON and adjust the LEVEL control to the desired level as indicated in the WATTS readout. (TEST LEVEL @ 450w)

TURN OFF POWER TOGGLE SW AND GAS SWITCHES.

e) Dial in the desired process time on the END POINT/TIME timer.

f) Put the SOL'N switch in the CLOSED position.

g) Put the VENT switch in the OPEN position and allow the chamber to come up to atmosphere.

h) Put MODE switch in AUTO.

i) Put SOL'N switch in OPEN; POWER TOGGLE ON, GAS ON

j) Close door over controls.

The system is now programmed.

4.3.3 SEQUENCE OF EVENTS AUTO/TIME ONLY MODE

The following is a sequence of events that the system will go through. The displays that will appear are tabulated in figure XI.

a) Load wafers and close door.

b) Push START/STOP switch.

c) Process pressure (.100 TORR) is reached and gas #1 (and gas #2 if used) is introduced.

d) Pressure rises to .200 Torr, time delay elapses and plasma is initiated and MINUTES start counting down from 10.0.

e) 9.9 minutes elapse

f) 0.1 more minutes elapse, alarm sounds, power and gas flow terminate

g) Push STOP/START switch

	EVENT	a	b	c	d	e	f	g	h	i
	POWER	Lit	Lit	Lit	Lit	Lit	Lit	Lit	Lit	Lit
	STOP/START	-	-	-	-	-	Lit	-		
	WATTS	000	000	000	300	300	000	000		
	TORR	1.	①	.100	.200	.200	1.	1.		
	END PT	③	③	③	③	③	③	③		
	MINUTES	00.0	00.0	00.0	10.0	.1	0.00	0.00		
MODE	GAS #1	-	-	Lit	Lit	Lit	-	-		
MODE	GAS #2	-	-	②	②	②	-	-		
MODE	AUTO	ON	ON	ON	ON	ON	ON	ON		
MODE	MAN	-	-	-	-	-	-	-		
MODE	PLAS	-	-	-	ON	ON	-	-		
MODE	VENT	ON	-	-	-	-	-	ON		
MODE	E/T	-	-	-	-	-	-	-		
MODE	TIME (MODE)	ON	ON	ON	ON	ON	ON	ON		
PROCESS	VAC	-	Lit	Lit	Lit	Lit	Lit	-		
PROCESS	E.P.	-	-	-	-	-	-	-		
PROCESS	TIME(PROCESS)	-	-	-	Lit	Lit	Lit	-		
	ALARM	-	-	-	-	-	ON	-		

① PRESSURE WILL START DROPPING AFTER A FEW MINUTES
② WILL BE LIT IF 2 GASES USED
③ WILL NOT BE ZERO BUT DISPLAY WILL BE MEANINGLESS

FIGURE XI
Ref. Para 4.3.3

Vent valve opens and chamber vents to atmosphere.

The cycle is now completed. The door may be opened and wafers removed.

4.3.4 PROGRAMMING THE END POINT DETECTOR

4.3.4.1 INTRODUCTION

The heart of the end point detector is a sensor sensitive to the emmission spectra of carbon dioxide. Its output is proportional to the amount of carbon dioxide in the plasma it is observing. The manner in which this output is modified and utilized determines the termination process.

As wafers are stripped, the concentration of carbon dioxide in the plasma will first increase and then decrease until only undetectable amounts remain. A theoretical plot of detector output would look like Figure XIIa. In reality, particularly if many wafers are being stripped, the curve is more apt to look like Figure XIIb. The irregularities in this curve can cause sensing circuitry to deduce the process is complete before it actually is. Therefore, the sensor output circuitry must preclude being fooled by spurious signals.

In order for the end point detector to deduce that the process is in fact complete, two conditions must be satisfied.

a) The signal must have first exceeded and then fallen below a preset level.

b) The rate at which the signal is falling (the slope of the amplitude-time curve) must be below a preset level.

If both these conditions are met, the end point detector will direct the 500-II to proceed to the next programmed step.

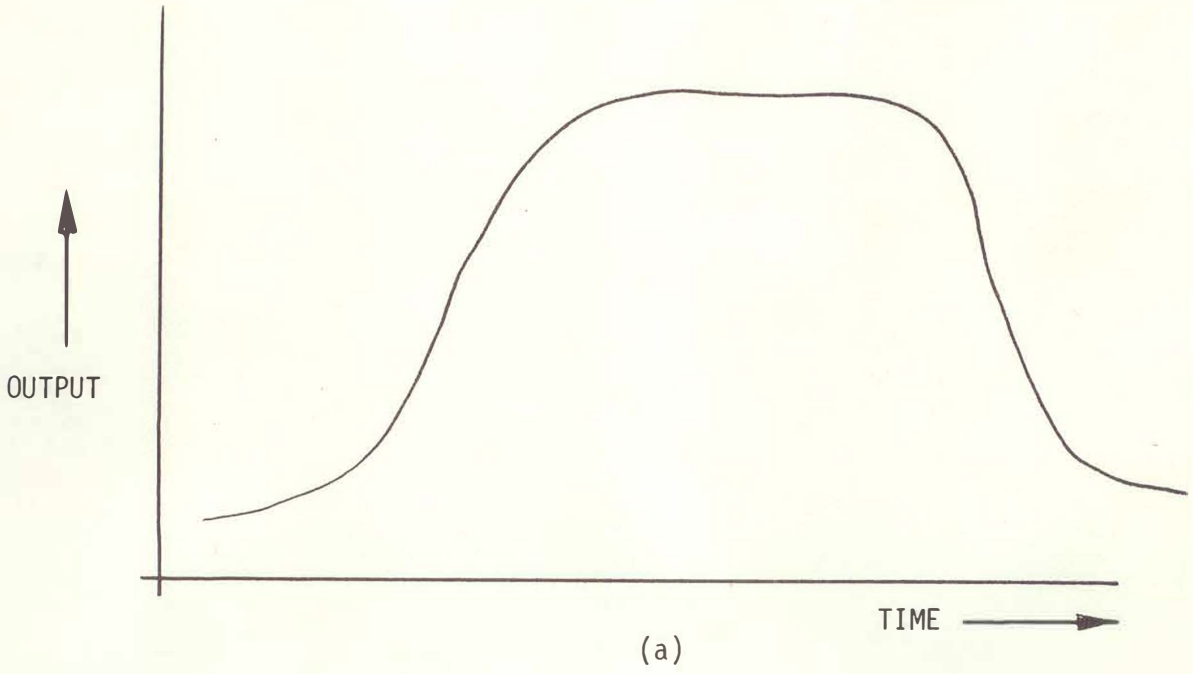
Two other factors must be considered-what is the background detector signal and what is the maximum signal it will generate? The first of these factors is handled by presetting a zero level. The second can only be handled by stripping a typical batch of wafers and adjusting the gain to a desirable level.

All four of these adjustments are easily set via the Z,G,S, and L pots located above the SET-E/T-TIME ONLY switch. A strip chart recorder is required to properly adjust these parameters.

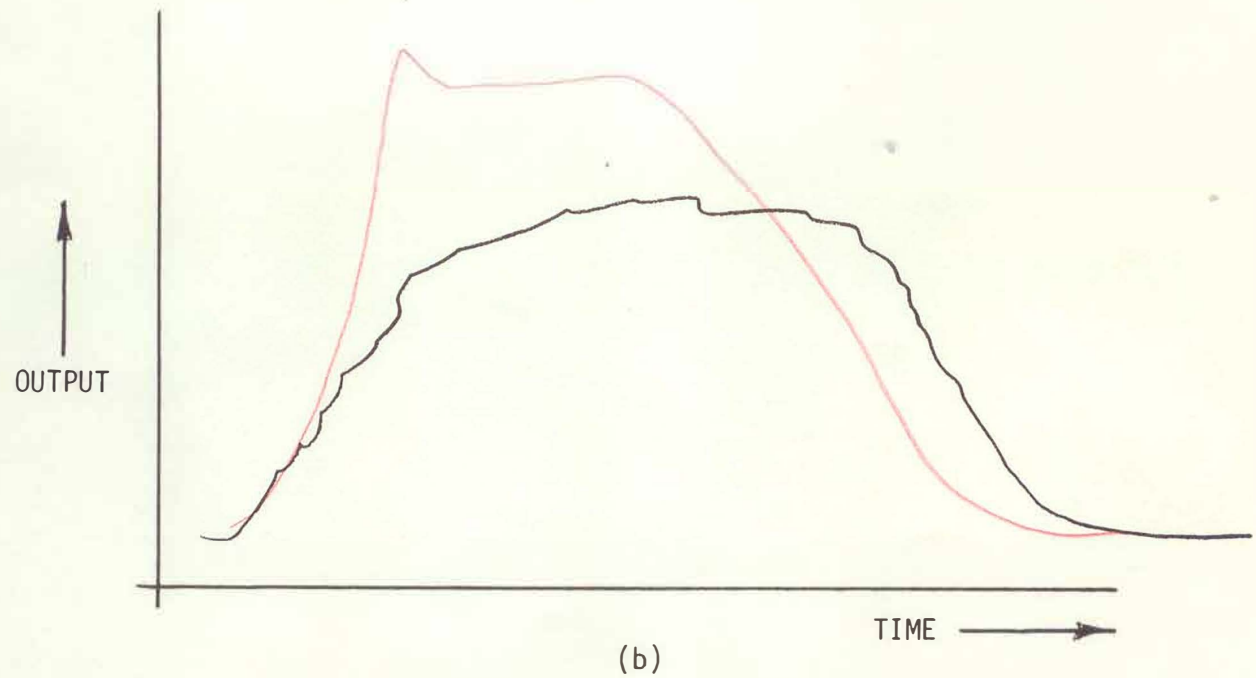
After end point has been detected, stripping can be continued for a preset time. This is accomplished by dialing in the desired time on the END POINT/TIME timer.

4.3.4.2 PRELIMINARY

a) Repeat all steps outlined in 4.3.1 a) through b) except put the END POINT/TIME switch in the E/T position.



(a)



(b)

FIGURE II

Ref. Para 4.3.4.1

b) Repeat all steps outlined in 4.3.2 a) through j) except dial in 90.0 on the END POINT/TIME timer.

c) Connect the strip chart recorder to the rear of unit, using the cable provided. Set the INPUT switch to 1 volt full scale deflection and the chart speed to 1 cm/min. Adjust the ZERO knob so the pen lines up with the right hand side of the chart paper. The ATTN knob should be in the fully CCW detented position. Refer to the enclosed instruction manual as required.

d) Vent the chamber to atmospheric pressure.

e) Put the POWER ~~toggle~~ SET switch in the OFF position.

4.3.4.3 PROGRAMMING PROCEDURE

NOTE: Programming circuits respond slowly and interact with one another. Hence, calibration must be done slowly and carefully.

a) Load a boat containing a few (3-6) typical wafers into the chamber. Close the door.

b) Depress the START/STOP switch.

Allow the chamber to be pumped down to the set point pressure and the gas stabilization delay period to elapse before proceeding.

c) Once the ~~E/P~~ E/T indicator illuminates, hold the END POINT/TIME switch in the SET position and, using a jeweler's screwdriver, adjust the "L" trimpot for a reading of 200 on the END POINT front panel meter. This should concurrently cause a 20% deflection on the strip chart recorder.

d) Return the END POINT/TIME switch to the E/T position.

e) Adjust the Z trimpot for a reading between 95 and 105 on the END POINT meter. There are significant time delays in this circuitry; do not proceed until a steady reading has been observed. (MIN 2 MINUTES)

NOTE: In the above steps, no plasma will be initiated. Also, the E/P light may go out, the TIME light come on, and the 90.0 minutes start decreasing.

f) Turn the POWER switch on and adjust the power level to 450 watts. Allow a minute or two for the load to attain its maximum ashing rate. The END POINT meter reading should be increasing.

g) Adjust the G trimpot so the END POINT meter reads between 700 and 800.

h) Turn the POWER switch to "OFF" and allow the meter to stabilize to a new reading. Re-adjust the ZERO trimpot for a meter indication of 95 to 105.

NOTE: It may be necessary to ~~go between~~ REPEAT adjustments 3 and 4 a few times to correctly adjust the meter. This is due to inter-action of the controls. The Z trimpot is always adjusted without a plasma, and the G trimpot <u>with</u> a plasma <u>and</u> while the wafers are at their maximum ashing rate.

i) Turn the "S" (slope) trimpot fully counter-clockwise.

j) Depress the START/STOP pushbutton, and set the thumbwheel switch to 00.0 minutes. Make sure that the POWER switch is on.

k) When the chamber is fully vented to atmosphere, unload the wafers, and re-load the chamber with the same number of photoresisted wafers. Close the chamber door and depress the START/STOP pushbutton.

l) Allow the system to go through the complete automatic cycle, taking periodic readings of the END POINT meter, or observing the strip chart recorder. This will determine if the END POINT DETECTOR is properly set up for the wafers being stripped.

m) It may take a few loads of wafers to optimize the trimpot settings, but any further adjustments should be unnecessary provided the operating parameters (gas, pressure and power) don't change.

n) The slope may be adjusted to allow "end-point" to be reached at another part of the ashing process. The slope is the change in meter reading per unit time and is adjustable over a range of 10 to 150 counts/minute.

Once the END POINT DETECTOR has been set up initially, further adjustments are normally not necessary unless some process changes are made or the detection, slope, etc., is to be optimized.

Load size variations usually won't affect the trimpot settings, although the meter and recorder may go off their scales during the peak of the ashing cycle. Any information on the meter or recorder during this time is not important for the proper operation of the END POINT DETECTOR.

<u>4.3.5 SEQUENCE OF EVENTS IN THE E/T MODE</u>
(Refer to Figure XIII)

a) Set all process parameters, load wafers and close the chamber door (assume 5 minutes on time).

b) Depress START/STOP switch.

c) Process pressure (.100 torr) is reached and GAS #1 (and GAS #2 if used) is introduced.

d) Pressure rises, then falls to .200 torr, time delay elapses, and plasma is initiated.

e) Stripping occurs and approaches completion.

f) Stripping completed to extent that END POINT meter reads less than 200 and slope of curve is flatter than programmed level.

END POINT "control" terminates and TIME "control" begins as indicated by status lights.

g) 4.9 minutes later

h) 0.1 minutes later, alarm sounds

i) Depress START/STOP switch and system vents

	EVENT	a	b	c	d	e	f	g	h	i
	POWER	Lit	Lit	Lit	Lit	Lit	Lit	Lit	Lit	Lit
	STOP/START	-	-	-	-	-	-	-	Lit	-
	WATTS	0	0	0	450	450	450	450	0	0
	TORR	1.	①	.100	.200	.200	.200	.200	.200	1.
	END PT	③	③	③	④	⑤	⑥	⑦	⑦	③
	MINUTES	00.0	00.0	5.0	5.0	5.0	5.0	0.1	0.0	0.0
MODE	GAS #1	-	-	Lit	Lit	Lit	Lit	Lit	-	-
MODE	GAS #2	-	-	②	②	②	②	②		
MODE	AUTO	Lit	Lit	Lit	Lit	Lit	Lit	Lit	Lit	Lit
MODE	MAN	-	-	-	-	-	-	-	-	-
MODE	PLAS	-	-	-	Lit	Lit	Lit	Lit	-	-
MODE	VENT	Lit	-	-	-	-	-	-	-	Lit
MODE	E/T	Lit	Lit	Lit	Lit	Lit	Lit	Lit	Lit	Lit
MODE	TIME (MODE)	-	-	-	-	-	-	-	-	-
PROCESS	VAC	-	Lit	Lit	Lit	Lit	Lit	Lit	Lit	-
PROCESS	E.P.	-	-	Lit	Lit	Lit	-	-	-	-
PROCESS	TIME	-	-	-	-	-	Lit	Lit	Lit	-
	ALARM	-	-	-	-	-	-	-	ON	-

①, ②, & ③ SAME AS FIGURE XI
④WILL START TO INCREASE ⑤WILL REACH MAXIMUM AND START TO DECREASE ⑥STRIPPING ALMOST COMPLETE, READING IS LESS THAN 200 ⑦READING IS ESSENTIALLY CONSTANT.

FIGURE XIII
Ref. Para 4.3.5

5.0 PREVENTIVE MAINTENANCE

5.1 The 500-II

No routine maintenance of the 500-II is required. Periodic cleaning of the chamber interior is suggested.

5.2 The Mechanical Pump

Refer to the manufacturer's manual included at the back of this manual.

This pump is factory charged with Fomblin Y25/5 oil which is a non-hydrocarbon base and is designed specifically for safe oxygen service applicatons.

NOTE: DO NOT add any type of standard pump oils. The presence of hydrocarbon oils in oxygen concentrations greater than atmosphere may present an explosive hazard to equipment and personnel.

Technics' 500-II Plasma System.

Automatic photoresist stripping made simple.

Technics'500-II Photoresist Stripper Specifications.

Chamber:
Aluminum construction, full width aluminum with 3" diameter quartz viewport and UV filter.

Capacity:
50 3-inch, 50 4-inch or 25 5-inch wafers.

Electrodes:
Internal planar, aluminum construction.

Power Supply:
500 watt, 30KHz; solid state, ~~microprocessor-controlled~~ with vacuum interlocks.

Process Control:
Fully automatic operation, ~~microprocessor-controlled~~ with status displays and manual override.

Vacuum Pump:
14 CFM, direct-drive, two-stage mechanical pump supplied with oil for oxygen service.

Gases:
Dual gas inlets and controls; select gas 1, gas 2, or both.

Input Power:

System:	110 volts, 10 A, 50/60 Hz
Mechanical Pump:	110 volts, 15 A, 50/60 Hz (specify)

Dimensions:

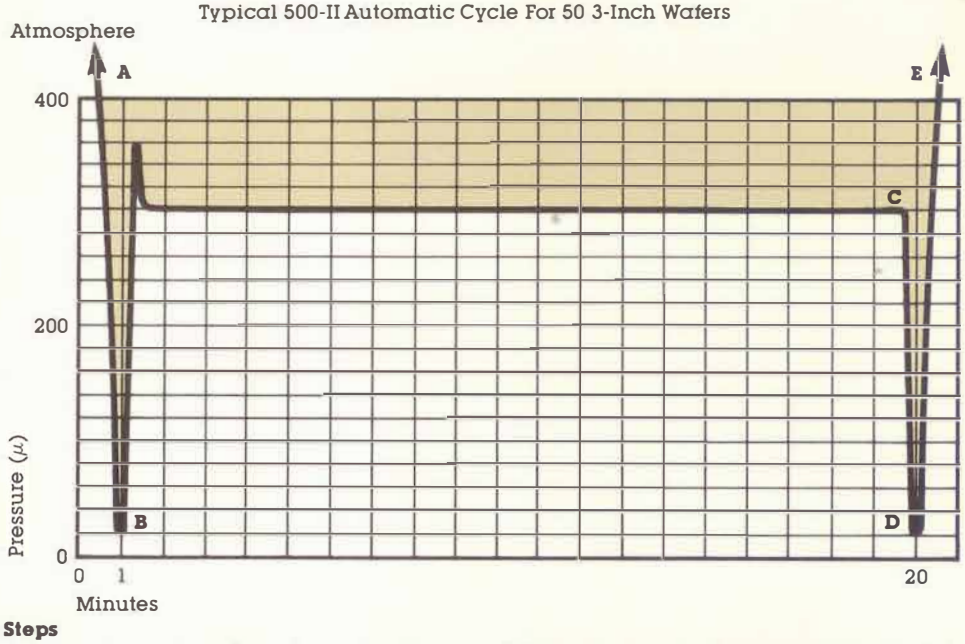
Height: 15"	(38 cm)
Width: 17-1/4"	(43.5 cm)
Depth: 21"	(53 cm)

Shipping Wt:
220 lbs. (100 Kilos)

IT'S TECHNICS

No one expected our new photoresist stripper to look this beautiful or to be this sophisticated. After you've seen our 500-II perform, you'll know why Technics brings a whole new beauty to photoresist stripping. For a demonstration or more information, call us today.

Typical 500-II Automatic Cycle For 50 3-Inch Wafers



Steps

A. Operator loads wafers, closes chamber, and presses start/stop button. The operator is now free to perform other work.
B. After pump down to pre-set pressure, gas is introduced, RF power is turned on, and process cycle begins.
C. When processing is complete (endpoint and/or time), gas and RF power are turned off and the alarm sounds.
D. Operator presses start/stop button and system vents.
E. Operator unloads completed wafers.

TECHNICS

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Features	Technics 500-II	Branson/ IPC 3000	Tegal 415	LFE PDS-501
Fifty 4-in. wafer capacity	Yes	Yes	Yes	Yes
One-button operation	Yes	Yes	Yes	Yes
Aluminum chamber	Yes	No	Yes	No
Tuning	Not Required	Set auto-matically	Set auto-matically	Manual
Vacuum pump	Standard 14.1-cfm corrosive series	Optional	Standard	Optional
Oxygen service pump fluid	Standard Fomblin* Y25-5	Optional	Optional	Optional
Endpoint detector	Standard	Optional	Standard	Optional
Strip chart recorder	Standard	Optional	Standard	Optional
Generator power	500 W	500 W	300 W	500 W
Solid-state electronics	All	Partial	Partial	Partial
Digital displays	All	None	Some	None
Size (in.)	15x17x21	21x33x24	24x24x17	32x34x33

Data supplied by manufacturers.
* Fomblin is a registered trademark of Montedison USA, Inc.

Look what happens when you compare photoresist strippers.

Looking at some photoresist strippers, you'd think that the manufacturers never considered what you need. The features that you consider essential, they make extra. Or leave out altogether.

But not Technics. We put in everything you could ask for — maybe more. And because we started with all the right features, we were able to make our 500-II photoresist stripper one tight little package (15 x 17 x 21 inches) at one tight little price ($20,500). You save money — and valuable clean-room floor space.

You can see for yourself. The Technics 500-II photoresist stripper offers you the most system — at the best price.

We'll give you the complete details. Call or write today.

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