MENDES BULLETIN

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QUILLES–BILLARD–GYMNASE–TENNIS
BOWLING–BILLIARD–GYMNASIUM–TENNIS

QUEBEC, September 1978

Gentlemen:

Your Manufacturer is very pleased to offer you the Instructions Handbook for your pinsetters Model 500.

You are invited to read it very carefully, particularly the section dealing with the maintenance of the machines.

In referring to the Instructions Handbook, you will find that it is highly recommended to use Pneumatic Oil Z-400 and original parts exclusively, so as to insure a trouble free operation.

Yours very truly,

MENDES INC.

LOUISE ROBERGE
General Director

I N S T R U C T I O N S H A N D B O O K

M E N D E S

P N E U M A T I C P I N S E T T E R

F I V E P I N

MODEL 500

For machines starting with serial number 7808-50304 and up

Manufacturer under license from Jacob J. Leidl:

Canadian patent: no. 963929

U.S. patent: no. 3778057

September 1978

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BULLETIN REFERRING TO THE

FUNCTIONING AND MAINTENANCE OF THE

"MENDES"

PINSETTER

****

It is understood that machines of any kind require a minimum of care and should operate according to standards.

You are cordially invited to read this instruction program and apply it carefully so that you may get the best out of your investment.

We also recommend you instruct your bowling lane superintendent on the functioning of the machines.

The simplicity of this pinsetter being its main characteristic, it is very easy for anyone to understand its concept.

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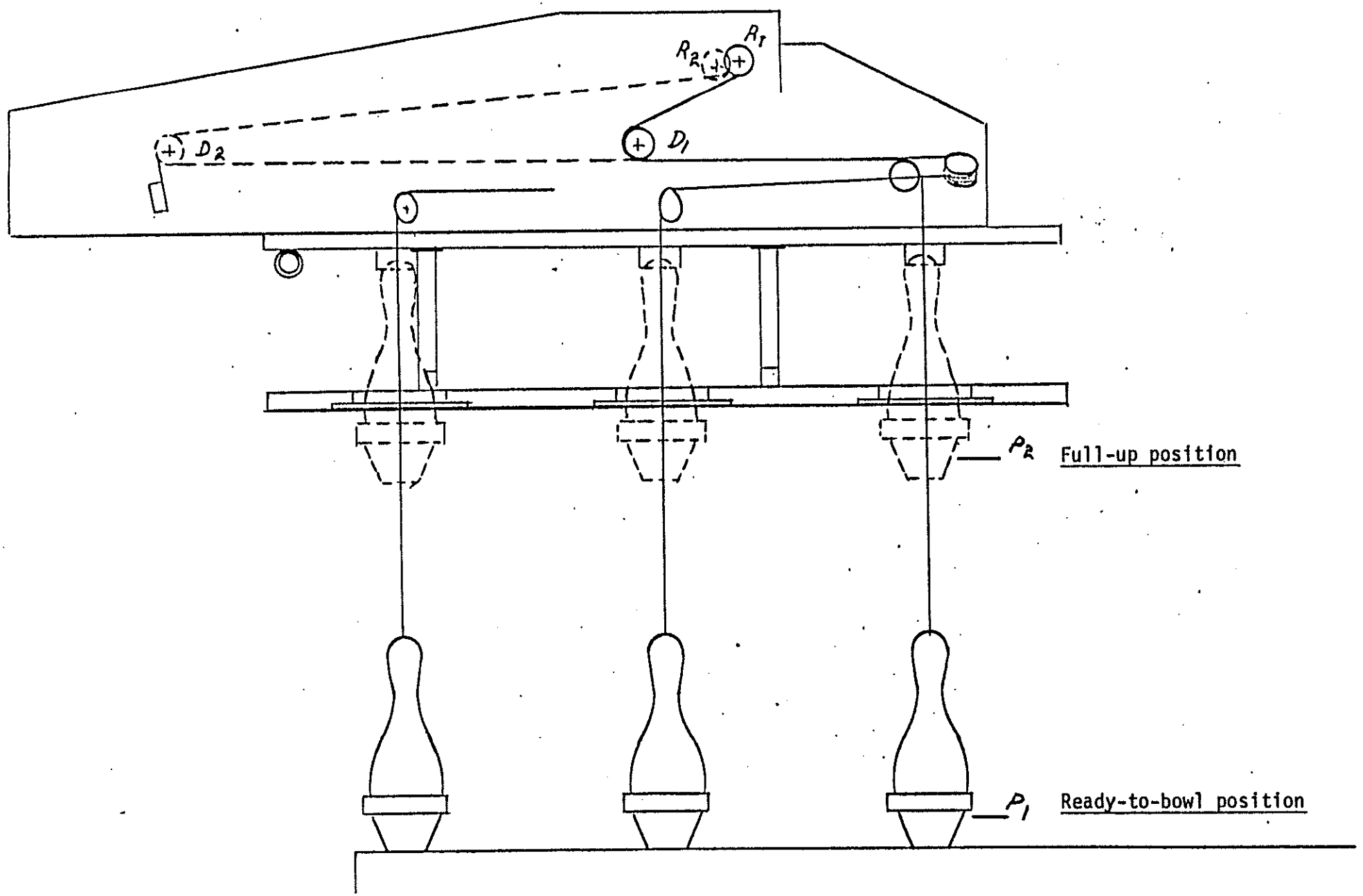
September 1978

MODEL 500



MenDes Inc.
QUÉBEC – CANADA

DESCRIPTION:
BASIC FUNCTIONS

SPÉCIFICATIONS
MODEL 500

PAR:

ÉCHELLE:
VARIABLE

DATE: 10/4/75

VER 25-08-75 | APPR:

Mfd under licence from J.J. Leidl -Pat. Pend.

PARTIE NO: MEI-35-3

1. BASIC FUNCTIONS:

The preceding page shows a simplified diagram of the 5-pinsetter. Solid lines show all main parts in the "ready-to-bowl" position, with pins on the deck. When a pin is bowled, the sensor is activated, which causes cylinders to pull sheaves on the drawbar from D-1 position to D-2 position. The drawbar continues after the pins are fully lifted, extending spring loaded cord reels to move from R-1 position to R-2 position, to ensure the pins are securely seated in their respective rubber bumpers. When the reels reach R-2 position, the drawbar contacts a spring lever which opens a reversing valve, causing cylinders to move drawbar sheaves back to D-1 position, lowering pins to deck again.

The sensor-brake assembly contains a unit which is activated by the string movement of a bowled pin. This unit trips and releases the brake unit to 'hold' position. At the end of the 'up' movement (D-2 position), another trip unit releases the brake to lock on 'sensed' strings. In this fashion, bowled pins are held in 'up' position while the remaining pins are returned to the deck. When all the pins are bowled or when the solenoid valve button is pressed, a full set of pins is automatically set on the deck.

2. BASICS OF OPERATION:

A - MECHANICAL:

- Mounting Frame:

The machine is mounted on a simple iron pipe frame. There are two types - one for fixed type of installation, the other for sliding type. All machines are supplied with the fixed type which is the standard. The sliding type allows the machine to slide forward to free the pin deck for other games.

- Cord System:

Here is the concept of the system. Whether the pinsetter is used for the games of fivepin, duckpin or tenpin, an equal number of cords of fourteen feet (14'), approximately four feet (4') as reserve cord is wound on each reel, are attached to the top of the pins. These black nylon cords of the highest quality whiten slightly when subject to wear. The whitening is therefore, an inherent characteristic of the cord as the nylon is basically a white resin braided into cord and then dyed black. The only point of wear on the cord is immediately above the top of the pin. When the cord wears, it may be merely pulled through

the pin, the worn out part cut away and the cord refastened.

In the head of the pin is a plastic insert which allows the pin to spin and roll without twisting the cord. This greatly extends cord life and ensures more accurate spotting of pins.

- Sensor System:

The sensor unit is a four component mechanical unit, consisting of petro-chemical material of the highest quality, which are:

- finger (P-3)
- link (P-5)
- hook (P-9)
- arm (P-10)

The first three are essentially interlinked with the hook engaging the forward end of the brake arm (P-10).

- Braking System:

The braking system has three main parts, a lower adjustable bar M-12, a moveable upper rubber wheel and a moveable steel quadrant. Normally the moveable wheel is held in an upper position with the cord passing freely between the wheels, when the brake is

actuated the upper wheel falls onto the lower bar with the cord between.

- Ball Lift System

The ball lift is simply an arm which picks up the ball and places it on the return rail system. It is completely automatic in its operation, the control valve bein activated when a ball falls into the ball lift receiver.

O P T I O N S

1. SLIDING FRAME ARRANGEMENT #QSF-1

   The sliding frame arrangement is built of standard iron pipe and allows the machine to slide forward to free the pin deck for other games. The sliding type is an extra and must be specified when ordering machines. Also, pits should be reworked to be able to reach the pedalboard.

2. PIN UP SWITCH #QUS

3. SERVICE SWITCH # QSS

4. MANAGER'S CONTROL PANEL #QMP

B - AIR SYSTEMS:

- Air Supply System:

  An adequate compressor supplies the air into the system with a minimum pressure never lower than 100 P.S.I. in main lines. The compressor is equipped with an air dryer to eliminate water going through the air components.

- Air Dryer and Filter:

  An air dryer Cooler type eliminates condensation and prevents in many instances water from reaching air valves.

- Main cylinder SUB-5003:

  The pins are raised and lowered by a pair of 1 1/8" bore 37" stroke, double acting pneumatic cylinders. The power is transferred to the drawbar by the cylinders.

- Function Control System:

  Components used for the control of all the different functions of the machine are:

A.	Main Valves	A-147 and A-148
B.	Part Set Valve	A-19-PS
C.	Full Set Switch	A-810-FS
D.	Delay Timer	A-101-TI
E.	Solenoid Valve	V-NS
F.	Limit or Reversing Valve	A-20-LV
G.	Pilot Valves	A-101-TI and A-102
H.	Relatch Cylinder	A-12-E
I.	Detangler Valve	A-100-DE
J.	Choke	A-79
K.	Needle Valve	A-23-SD
L.	Stabilizing Pause Valve	A-100-SP
M.	Lubricator	A-175-LA
N.	Filter Regulator	A-170
O.	Retarder	A-151
P.	Shuttle Valve	A-25

- Options:

QSS-500	Service Switch	A-155-LV
QUS-500	Pin-Up Switch	A-155-PV
QCM-500	Pilot Actuator and Actuator Switch	A-27 A-187

Now taken in turn, THEIR FUNCTIONS IN ORDER ARE:

A - MAIN VALVES A-147 and A-148

These valves actuate the main cylinder SUB-5003 back and forth.

B - PART SET VALVE A-19-PS

It is actuated when one or more pins are bowled - it sends a pressure signal to the delay timer.

C - FULL SET SWITCH A-810-FS

It is actuated only when a full set of pins is bowled - it sends a pressure signal directly to the corresponding solenoid valves.

D - DELAY TIMER A-101-TI

Its function is to delay the signal from the Part Set Valve A-19-PS. It transfers a signal to the corresponding pilot valve which is intergrated in this module. It has an adjustable screw to vary the time of the delay.

E - SOLENOID VALVE V-NS

It is actuated from the push button at the score stand or ball rack, or by the full set switch. Its function is to send a pressure signal to the pilot valve integrated in the A-102 module. It is an electrically operated valve at 24 V.A.C.

F - LIMIT OR REVERSING VALVE A-20-LV

It is actuated when the pins reach the full-up position. Its function is to cancel all signals from the pilot and solenoid valves.

G - PILOT VALVES A-101-TI and A-102

Their functions are to give a clear sharp signal to the main cylinder control valve.

H - RELATCH CYLINDER A-12-E

Its function is to relatch all the P-10 and allow a full complement of pins to be reset on the deck.

I - DETANGLER VALVE A-100-DE

This valve operates only when, in a normal delay, the limit valve has not been actuated. Its function is to untangle the strings when the drawbar is moving back and forth. It has an adjustable screw to vary the time of the delay.

J - CHOKE A-79

Its function is to delay the action of the pilot valve in order to get time to build a positive pressure on the pilot corresponding to the part set.

K - NEEDLE VALVE A-23-SD

Its function is to slow down the falling of the pins on the pindeck.

L - STABILIZING PAUSE VALVE A-100-SP

Its function is to stabilize the pins to the stabilizers. It has an adjustable screw to vary the time of the pause.

M - LUBRICATOR A-175-LA

Its function is to lubricate automatically cylinders and valves.

N - FILTER REGULATOR A-170

Its function is to control air pressure, filter the air, and remove condensation partially.

O - RETARDER A-151

Its function is to close temporarily the exhaust. This has for effect to slow down the speed of the pins when sitting on the pindeck.

P - SHUTTLE VALVE A-25

Its function is to divide the exhaust of the relatch cylinder A-12-E.

- Ball Lift System:

It is a catapult that returns the balls to the player. The operation is very simple. When a ball rolls into the catapult, the weight of the ball opens the control valve located in the basket. Allowing air to enter the cylinder, thus raising the ball to the ball return. - Its main components are:

a) Filter Regulator A-170
b) Ball Lift Cylinder A-12
c) Main Valve A-130
d) Metering Screw A-137

FUNCTION OF EACH COMPONENT

A - FILTER REGULATOR A-170

Its function is to control the air pressure in the system, filter the air, and prevent most of the water from going into the system. This filter regulator may be used for no more than two ball lifts, per filter regulator unit.

B - BALL LIFT CYLINDER A-12

The ball lift cylinder is fitted with an air cushion so that when the arm nears the bottom of its travel, it encouters the air cushion which brings the arm to a gentle stop.

C - MAIN VALVE A-130

Its function is to feed the cylinder. It is actuated by the weight of the ball in the basket.

D - METERING SCREW A-137

Its function is to slow down the descending of the catapult.

C - ELECTRICAL SYSTEM:

- Compressor:

An adequate power supply for the compressor as well as the air dryer is essential. As to the pinsetter itself, the electrical system operates at 24 volts A.C. The transformer which supplies the power for actuating the solenoid valves operates at 115 volts A.C.

- Reset Control System:

The reset push button control, at the score stand, allows the player to call for a new set.

- Pilot Light:

This is a L.E.D. light. When "on" there is a red light indicating the available current of 24 volts.

O P T I O N S

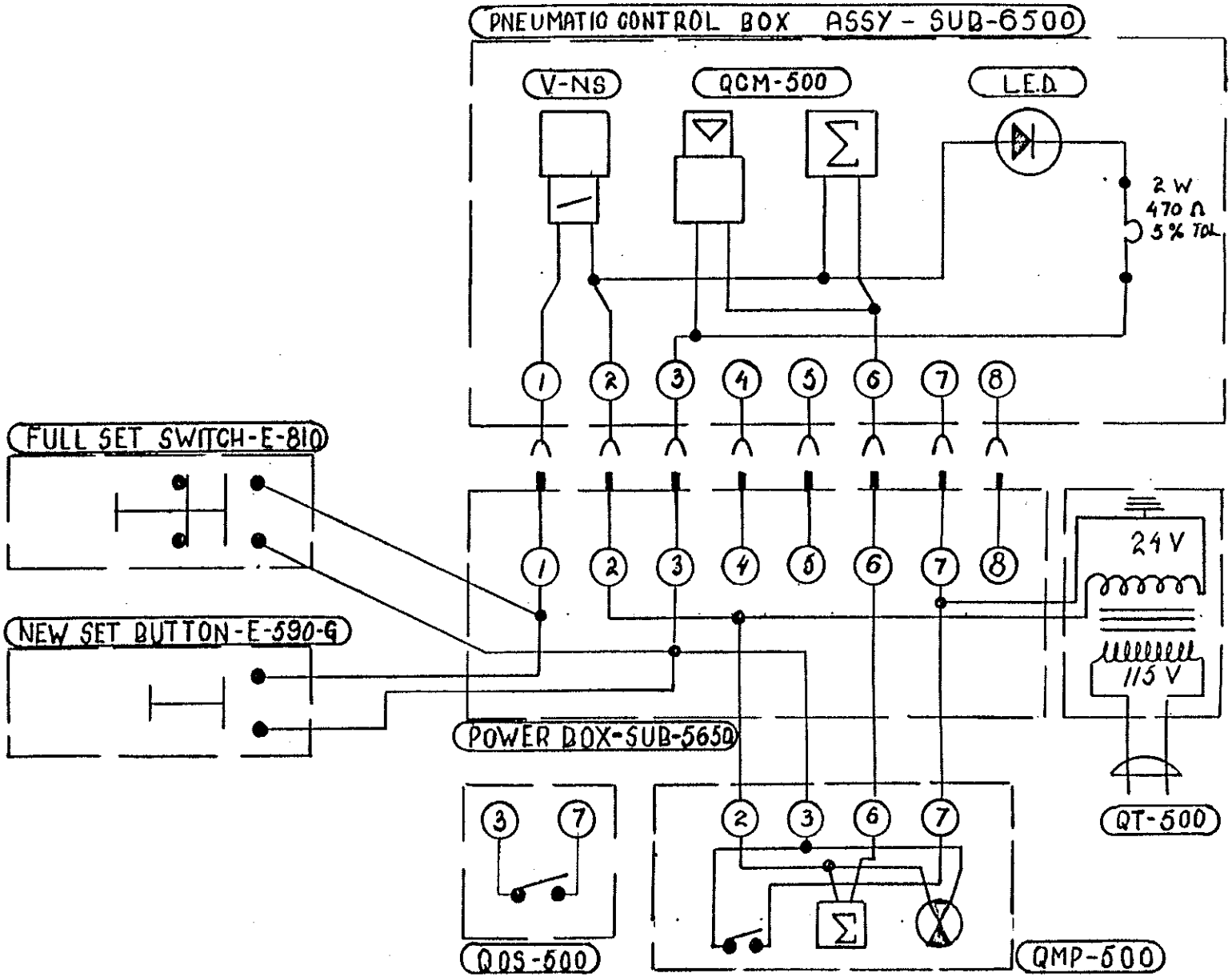
QOS-500 ON/OFF SWITCH

As an option, there may be an On/Off toggle switch at the counter control desk to operate or to stop the pinsetter.

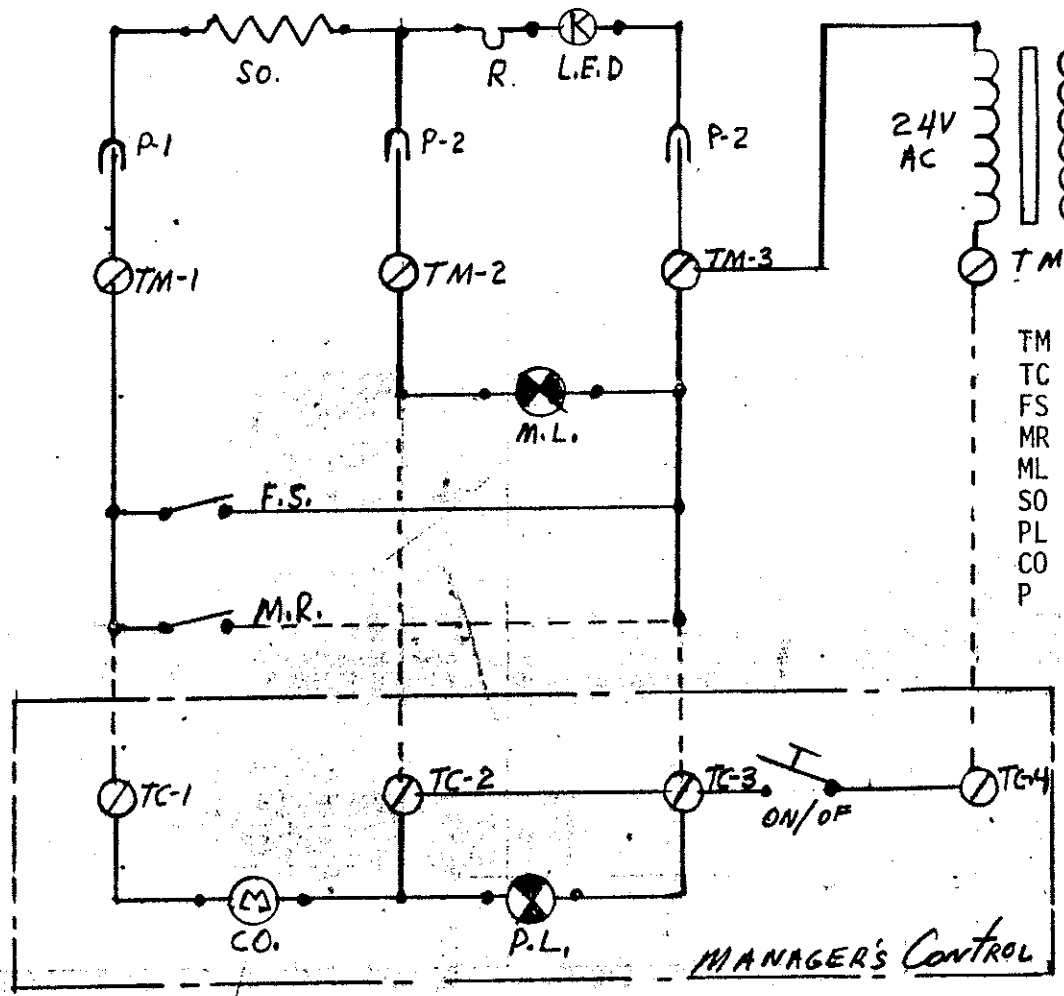
QMP-500 MANAGER'S CONTROL PANEL

The Manager's control panel box consists of:

a) one On/Off switch
b) one pilot light
c) one cycle counter with reset which is located at the manager's counter.



MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: Wiring diagram	SPÉCIFICATIONS Model 500	PAR:	ÉCHELLE: NIL
VER: 25.08.78 APPR:	Mfd under licence from J.J. Leidl Pat. Per		DATE: 3/2/75	PARTIE NO: EL-35-1



TM - Machine jonction box terminal
TC - Manager's control terminal
FS - Full set
MR - Manual reset
ML - Maskingunit light
SO - Solenoid
PL - Pilot light
CO - Counter
P - Plug amphenol

MENDES Québec Canada

DESCRIPTION :
Wiring Diagram
machine and manager's control.

VÉR. : YM | APPR. : MM | DATE : 85-09

SPÉCIFICATIONS
MODEL - 500

PAR : YM

ÉCHELLE :

PARTIE No.
EL-35-2

3. ADJUSTMENTS:

A - PRELIMINARIES:

Before proceeding with any adjustments, please make sure that:

a) Manager's Control is "on". (Option).

b) Proper pressure feeds the machine at least 100 P.S.I. The standard gauge on the compressor will tell you.

c) Proper electricity will reach the solenoid valves.

d) Compressed air pressure is adjusted at 80 P.S.I. when coming into each and every machine.

e) Proper pressure for the ball lifts.

B - FUNDAMENTALS:

Never forget your pinsetter is a string machine. - Its good operation is related to the proper length of the string. All the mechanism of the machine is being adjusted according to the right length of the string. - Any variation in the length of the cord caused by humidity or stretching is sufficient to trouble the system.

The Quality Control Department of the manufacturer took very good care to ship you a machine that was

a) completely adjusted
b) field tested
c) checked before shipment
(ref. sheet control)

C - BASIC ADJUSTMENTS:

(a) Opening of valves.
(b) Adjustment of strings.
(c) Adjustment of delay timer.
(d) Adjustment of untangling device.
(e) Adjustment of the full-up position.
(f) Adjustment of the retarder.
(g) Adjustment of the speed (Down).

(a) Opening of valves:

Make sure A-101-TI and A-100-SP are not completely closed.

(b) Adjustment of strings:

See adjustment on drawings MEA-35-1
MEA-35-2

(c) Delay Timer:

It is essential to operate the pinsetter with a minimum delay of three (3) seconds between the falling of the first pin until

the machine starts into its cycle. This delay allows the machine to register the fallen pins before starting a new cycle.

You increase or reduce the delay by turning the adjustment screw of the module A-101-TI. If you do not reach three (3) seconds, just turn the adjusting screw very lightly. Wait till the machine makes a complete cycle - count again and repeat the procedure till you reach stipulated seconds.

IMPORTANT

In view of checking the delay, touch only one cord and start counting the seconds before the machine starts into its cycle.

(d) Untangling device:

Your machine is equipped with an untangling device. It requires the proper adjustment to get the best of it:

a- Knot two cords

b- Adjust detangler valve A-100-DE so the machine pauses during four (4) seconds before the drawbar moves back and forth. To increase

or decrease pausing time, turn the screw accordingly.

(e) Full-up position:

The A-100-SP valve prolongs or reduces time for the full-up position of the pins to the stabilizers before they set on the deck. Adjust the valve to reach a minimum pause of one second.

The A-100-SP provides an adjustment whereby pins can be held in full-up position for a short interval to allow them to stabilize in centering rings before being lowered to deck and ensures accurate spotting of pins.

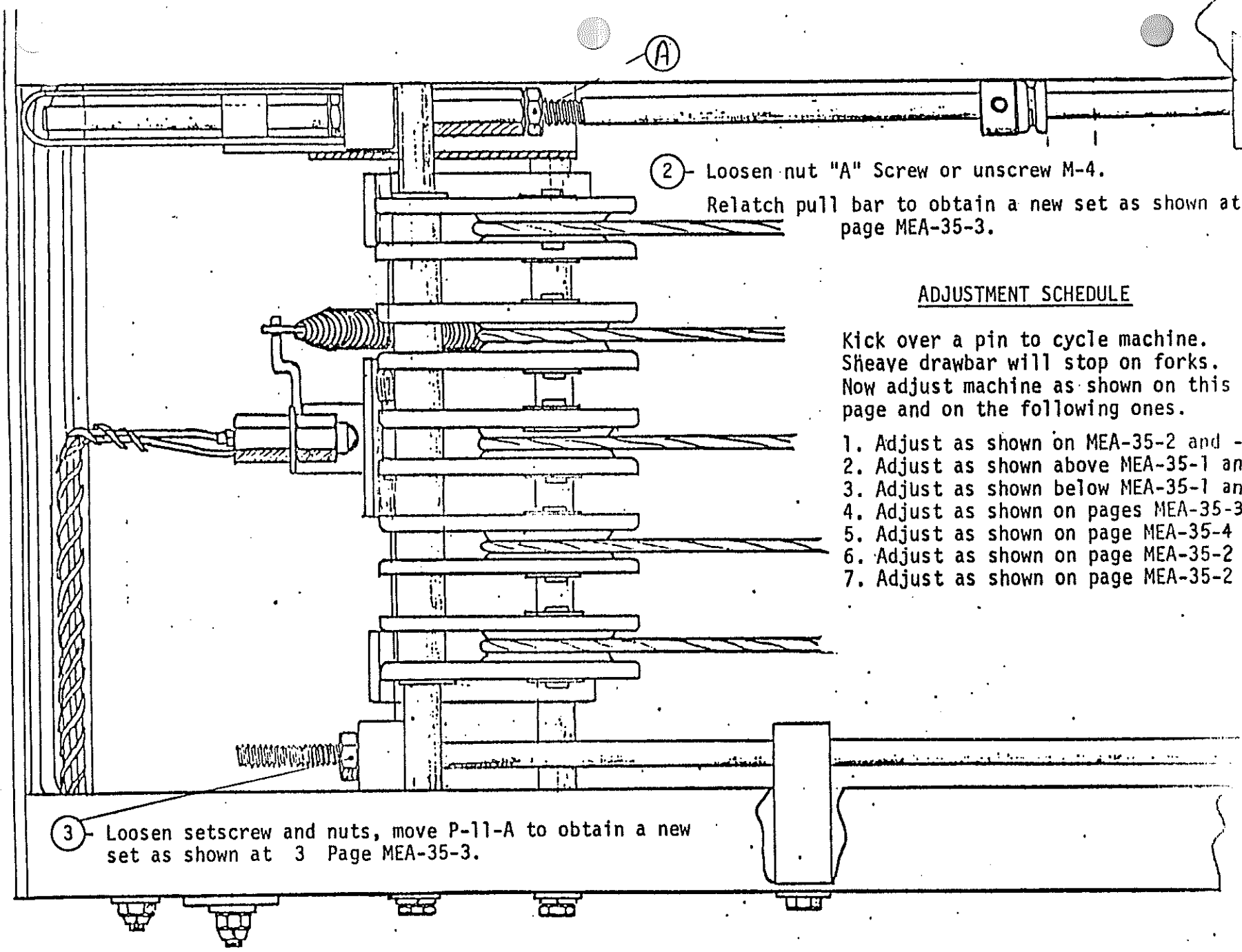
(f) Adjustment of the retarder:

To prevent the pins from falling too heavily on the pin deck, a pause has been built in. This is the flow control valve A-23-SD which controls rate of this pause. - Just close or open this valve to adjust the speed with which pins set on deck.

To raise or lower the setting point of the pins, just move the adjustment of the retarder valve bracket M-501-A towards the front or the rear of the pinsetter.

(g) Speed adjustment:

There is no adjustment for the ascending of the pins. - The full-up position requires .750 to 1 second. - The slow - down of the pins is controlled by the needle valve A-23-SD.
Time required for this operation including adjustment of the retarder should be 2.5 seconds.



(2)- Loosen nut "A" Screw or unscrew M-4.

Relatch pull bar to obtain a new set as shown at page MEA-35-3.

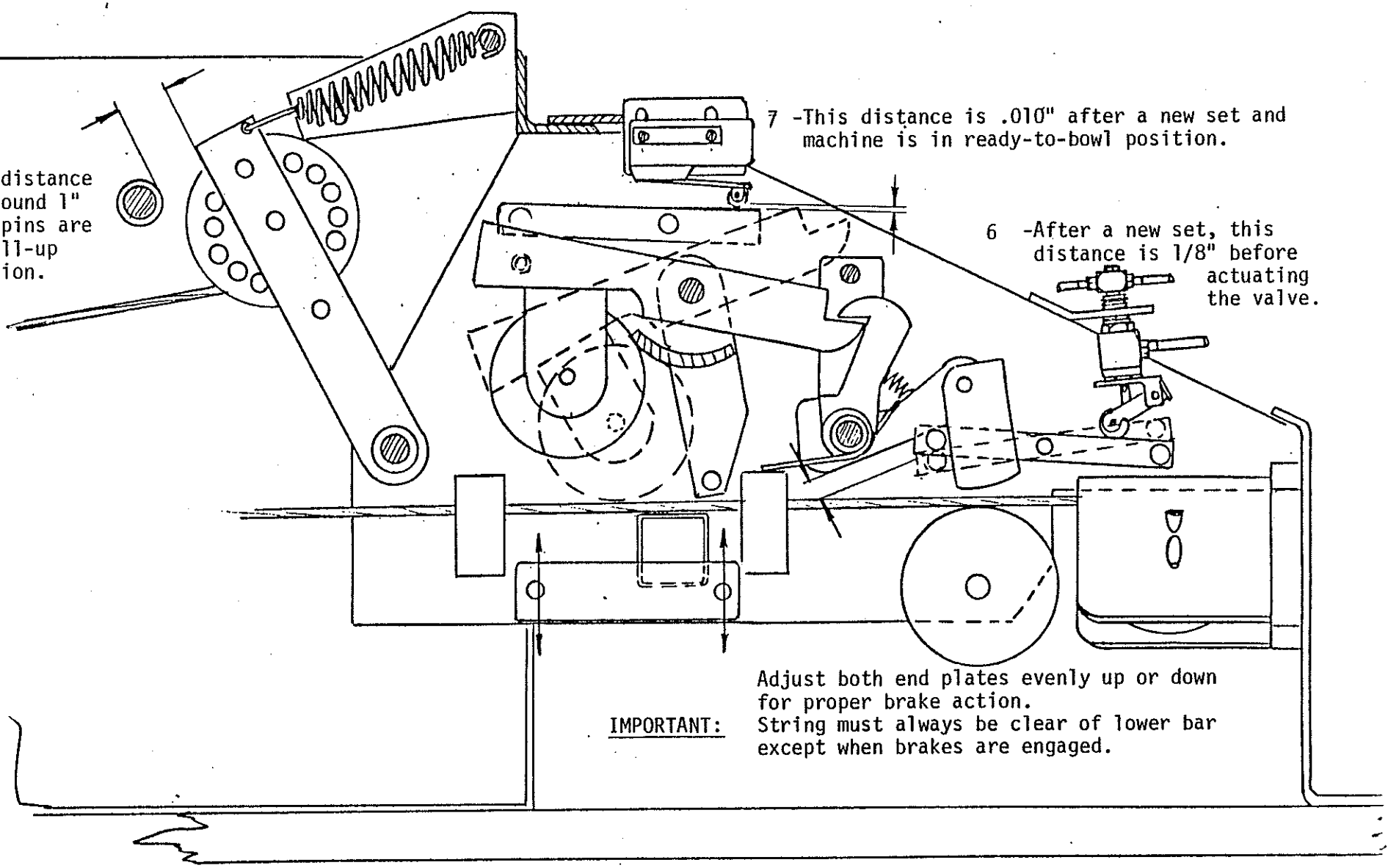
ADJUSTMENT SCHEDULE

Kick over a pin to cycle machine.
Sheave drawbar will stop on forks.
Now adjust machine as shown on this page and on the following ones.

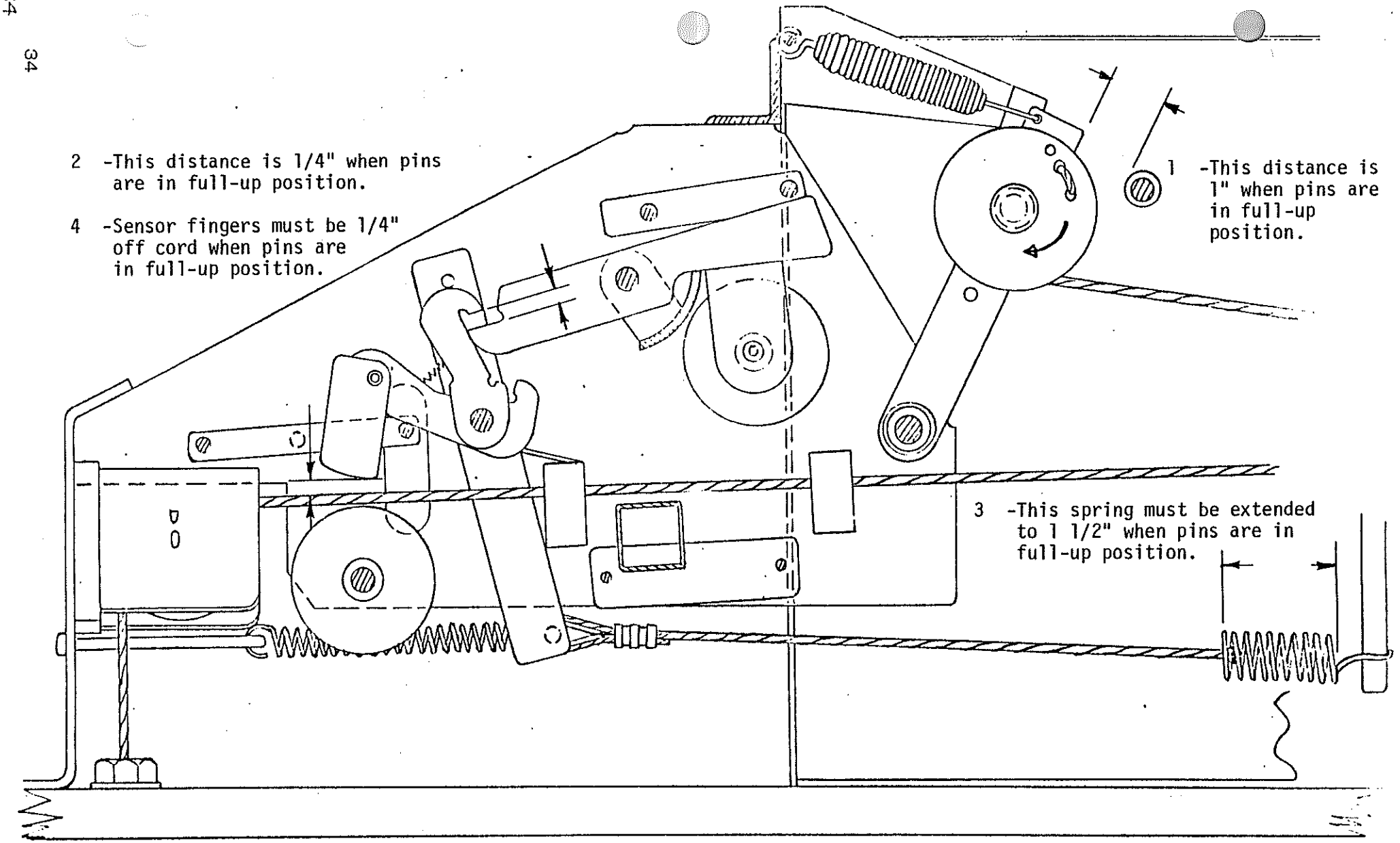
1. Adjust as shown on MEA-35-2 and -3
2. Adjust as shown above MEA-35-1 and -3
3. Adjust as shown below MEA-35-1 and -3
4. Adjust as shown on pages MEA-35-3 and-4
5. Adjust as shown on page MEA-35-4
6. Adjust as shown on page MEA-35-2
7. Adjust as shown on page MEA-35-2 and -4

(3)- Loosen setscrew and nuts, move P-11-A to obtain a new set as shown at 3 Page MEA-35-3.

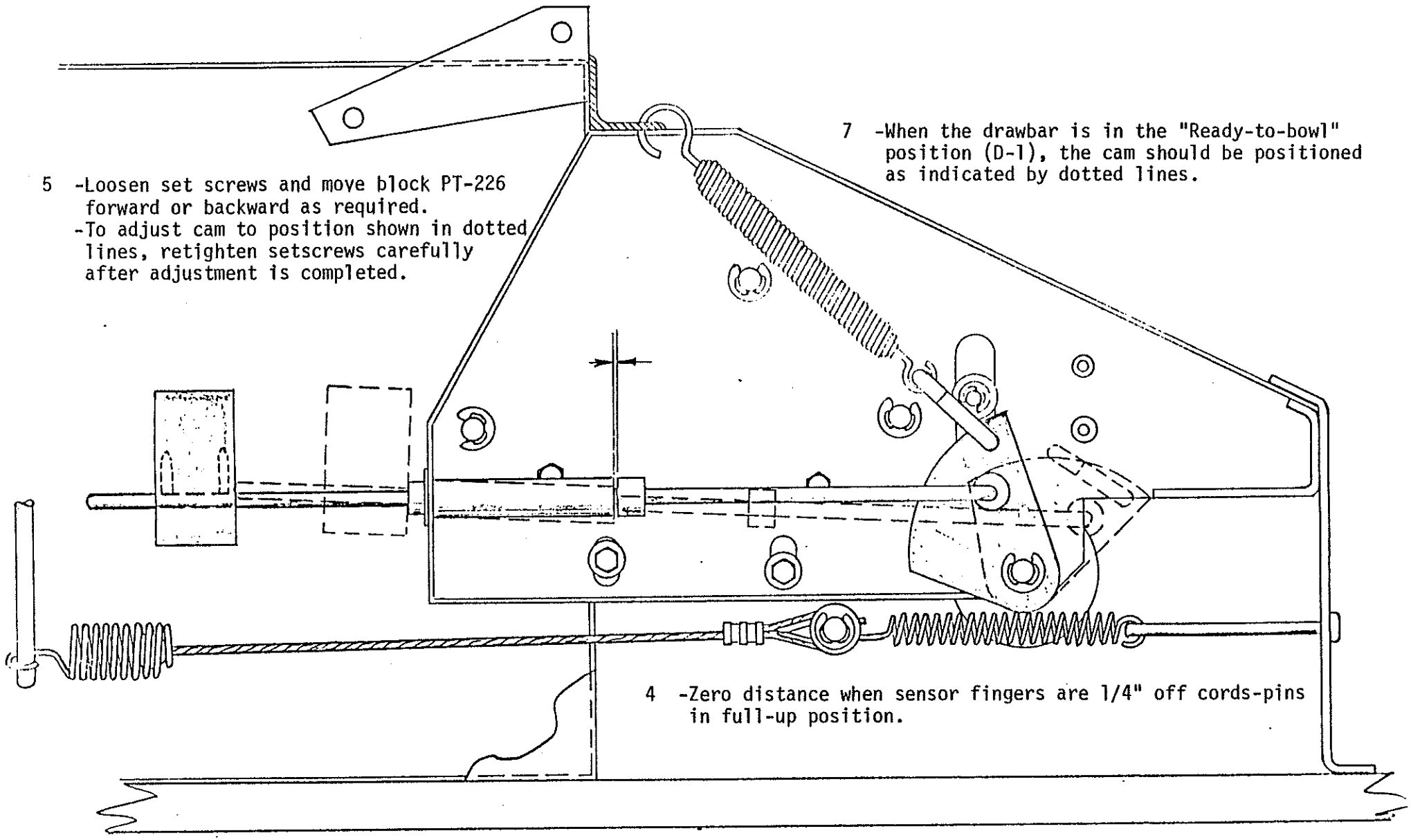
MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: MECHANICAL ADJUSTMENT LOWER FRONT SECTION VIEW	SPÉCIFICATIONS MODEL 500	PAR:	ÉCHELLE: VARIABLE
VER: 75-08-25 APPR: TM	Mfd under licence from J.J.Leidl - Pat. Pend		DATE: 17/6/75	PARTIE NO: MEA-35-1



MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: MECHANICAL ADJUSTMENTS	SPÉCIFICATIONS MODEL 500	PAR:	ÉCHELLE: VARIABLE
VER:	APPR:	Mfd under Licence from J.J. Leidl Pat. Pend.	DATE: 17/6/13	PARTIE NO: MEA-35-2



MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: MECHANICAL ADJUSTMENTS	SPÉCIFICATIONS MODEL 500	PAR: cas	ÉCHELLE: VARIABLE
VER: 08-1978 APPR:			DATE: 24/11/78	PARTIE NO: MEA-35-2

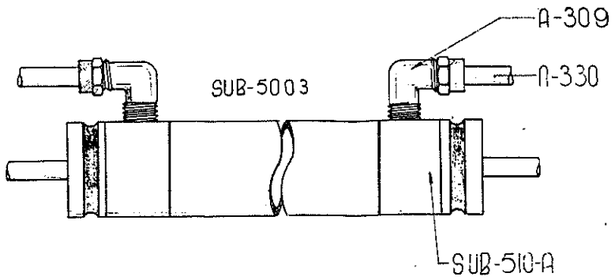


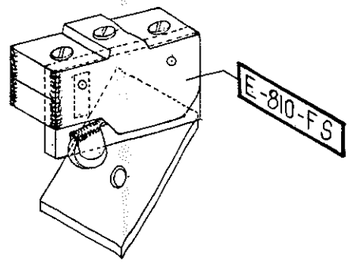
5 -Loosen set screws and move block PT-226 forward or backward as required.
-To adjust cam to position shown in dotted lines, retighten setscrews carefully after adjustment is completed.

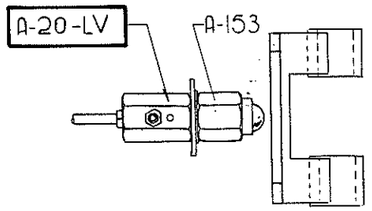
7 -When the drawbar is in the "Ready-to-bowl" position (D-1), the cam should be positioned as indicated by dotted lines.

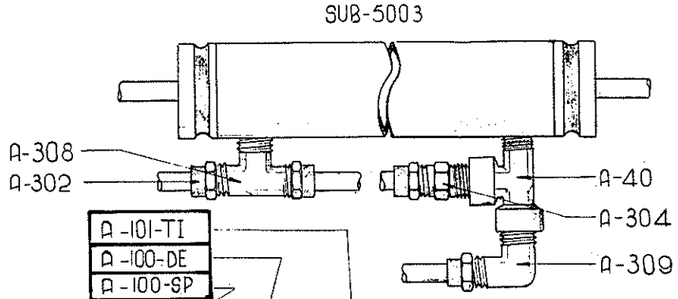
4 -Zero distance when sensor fingers are 1/4" off cords-pins in full-up position.

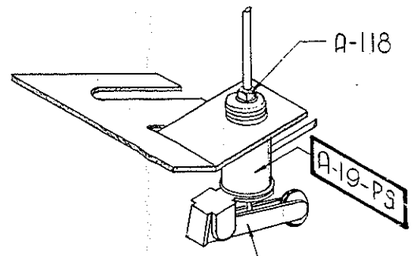
MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: MECHANICAL ADJUSTMENTS	SPÉCIFICATIONS MODEL 500	PAR:	ÉCHELLE: VARIABLE
08-1978 APPR:	Mfd under license from J.J. Leidl - Pat.Pend.		DATE: 31/5/77	PARTIE NO: MEA-35-4











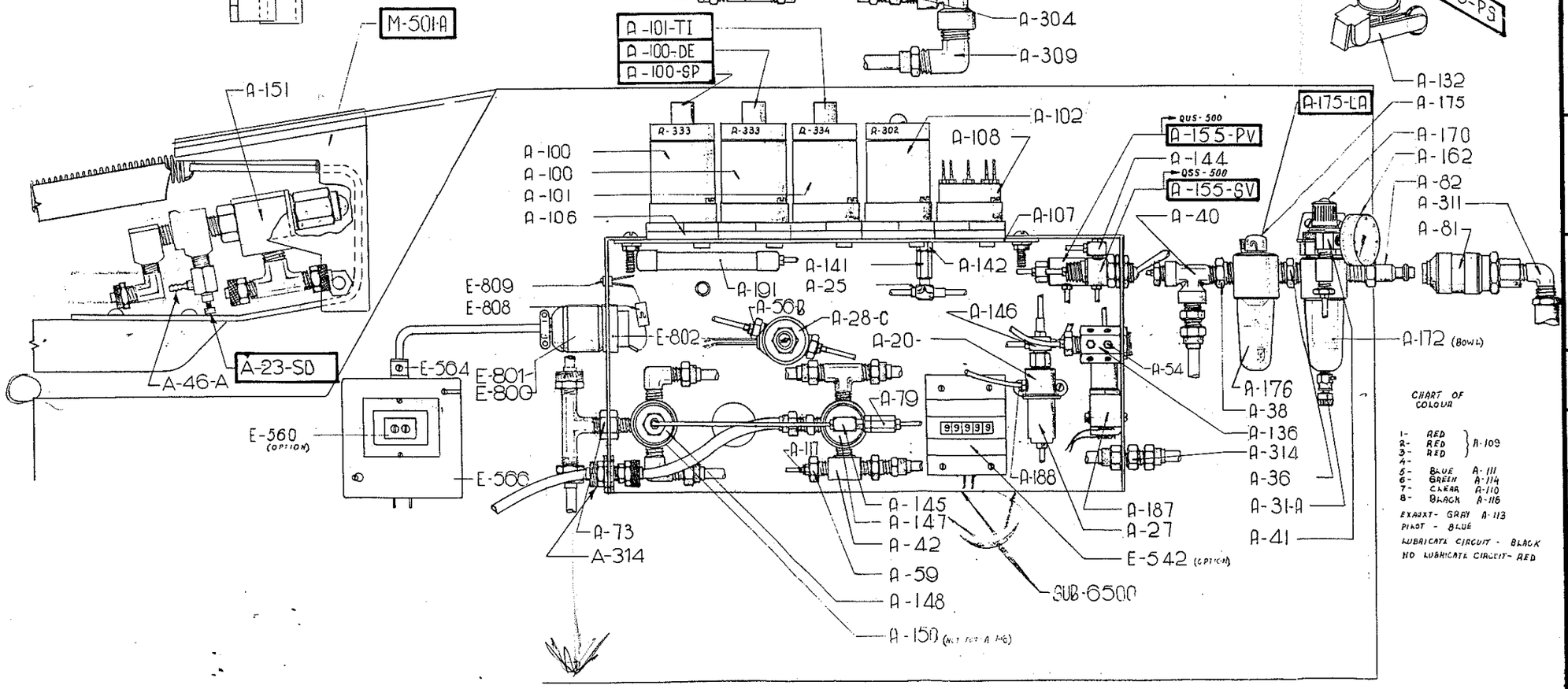


CHART OF COLOUR

1-	RED	A-109
2-	RED	
3-	RED	
4-		
5-	BLUE	A-111
6-	GREEN	A-114
7-	CAMA	A-110
8-	BLACK	A-116

EXHAUST - GRAY A-113
PILOT - BLUE
LUBRICATE CIRCUIT - BLACK
NO LUBRICATE CIRCUIT - RED

FAIT PARTIE DU
AUTOMATIC PINSETTER
PLANTEUR AUTOMATIQUE

REVISION

18/8/75	

SCEAU

APP

215 CARON
QUEBEC

Men Dès INC.

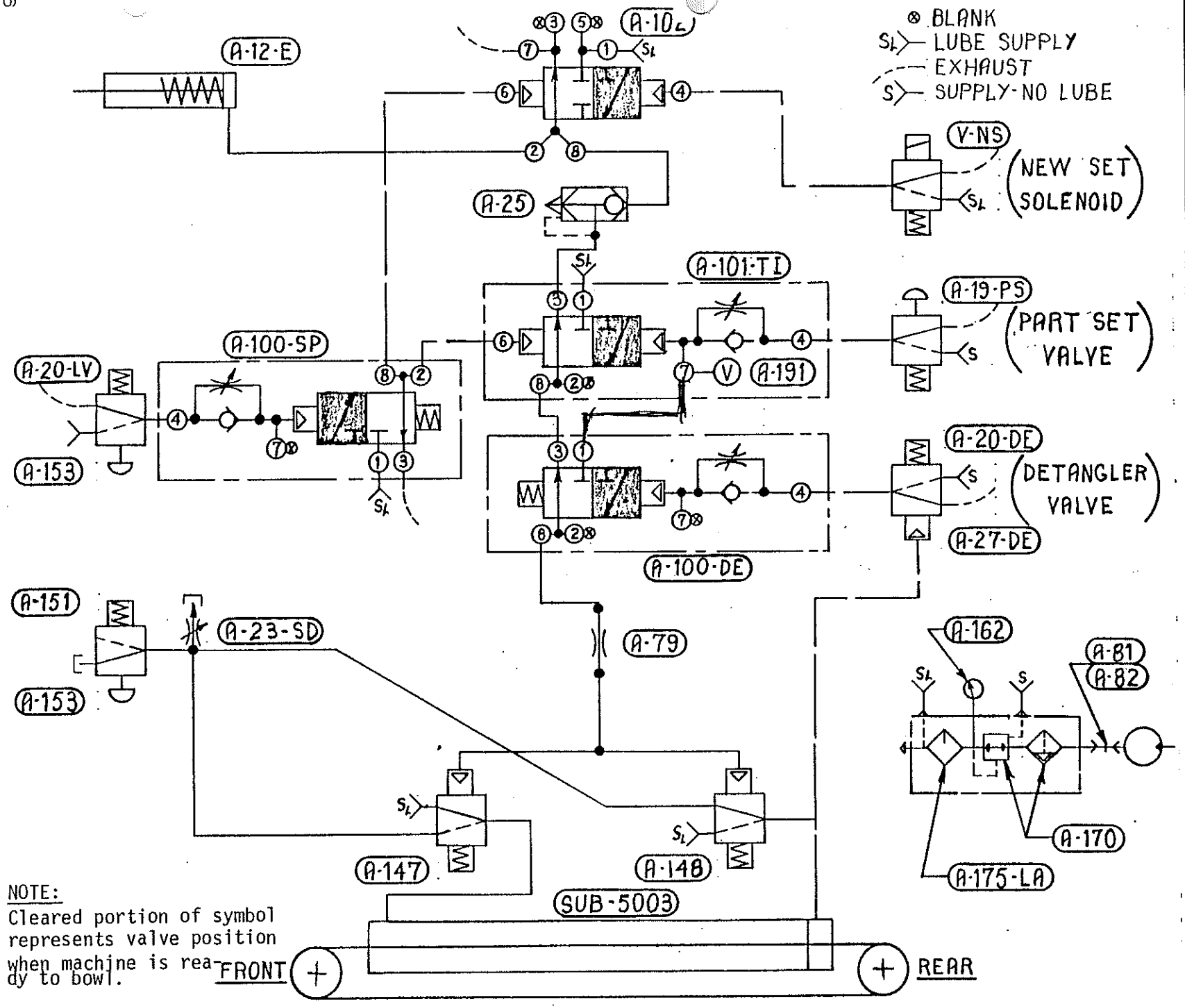
MODELE
500

DOSSIER	DATE
	17-1-75
DES. PAR	ECHELLE
	VARIABLE

NOM DU DESSIN
AIR COMPONENTS & ADJUSTMENT
COMPOSANTES A AIR ET AJUSTEMENTS

NO DU DESSIN
PNA-35-1

MANUFACTURED UNDER LICENCE FROM J.J. LEIDL PATENT PENDING



NOTE:
Cleared portion of symbol represents valve position when machine is ready to bowl.

AUTOMATIC PNEUMATIC PINSETTER

REVISION

APP

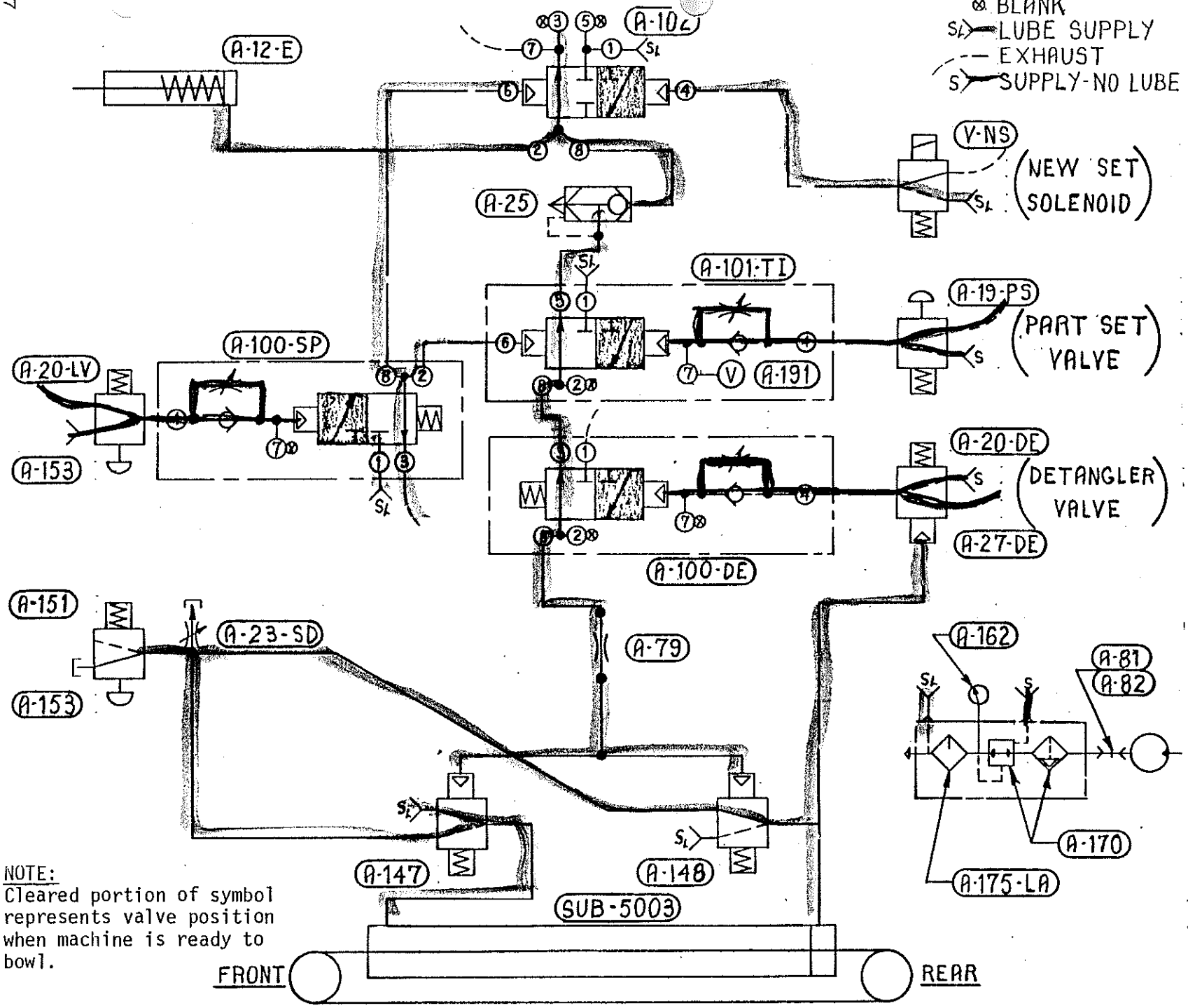
MENDES INC.
215 CARON QUEBEC

FILE	DATE
	27/2/75
DRAWN BY	SCALE
CAS	—

DRAWING NAME
SCHEMATIC DRAWING

DRAWING NUMBER
PN-35-2

MODEL NUMBER
500



NOTE:
Cleared portion of symbol represents valve position when machine is ready to bowl.

AUTOMATIC PNEUMATIC PINSETTER

REVISION

APP

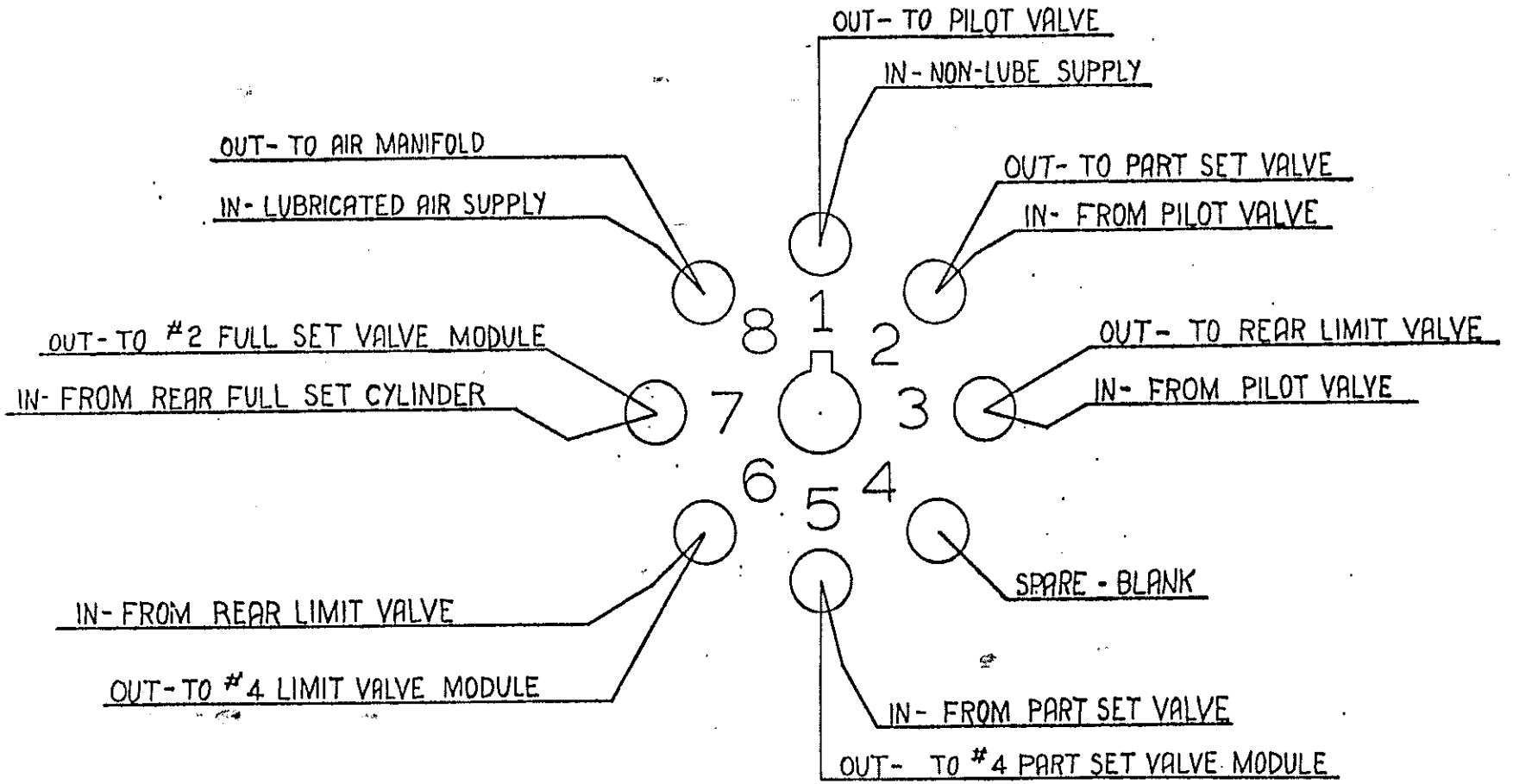
MENDES INC.
215 CARON QUEBEC

FILE	DATE
	27/2/75
DRAWN BY	SCALE
CAS	—

DRAWING NAME
SCHEMATIC DRAWING

DRAWING NUMBER
PN-35-3

MODEL NUMBER
500



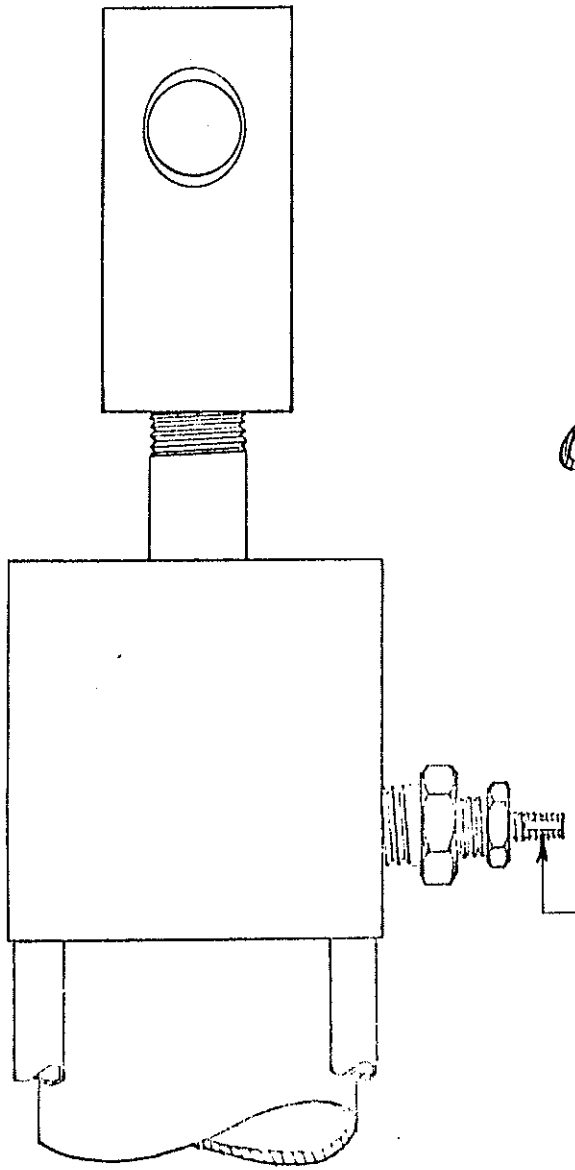
MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: DETAILED HOSE CONNECTOR A-108	SPÉCIFICATIONS MODEL 500	PAR: C. Brickett	ÉCHELLE:
			DATE: 15-09-76	
DES 08-1978 APPR	Mfd under licence from J.J. Leidl - Pat. pend.		PARTIE NO: PNA-35-4	

4. ADJUSTMENTS: BALL LIFT

a) Air pressure at about 50 lbs.
Pressure should be set so that arm lifts smoothly to deposit ball into ball receiver with no violent motion.

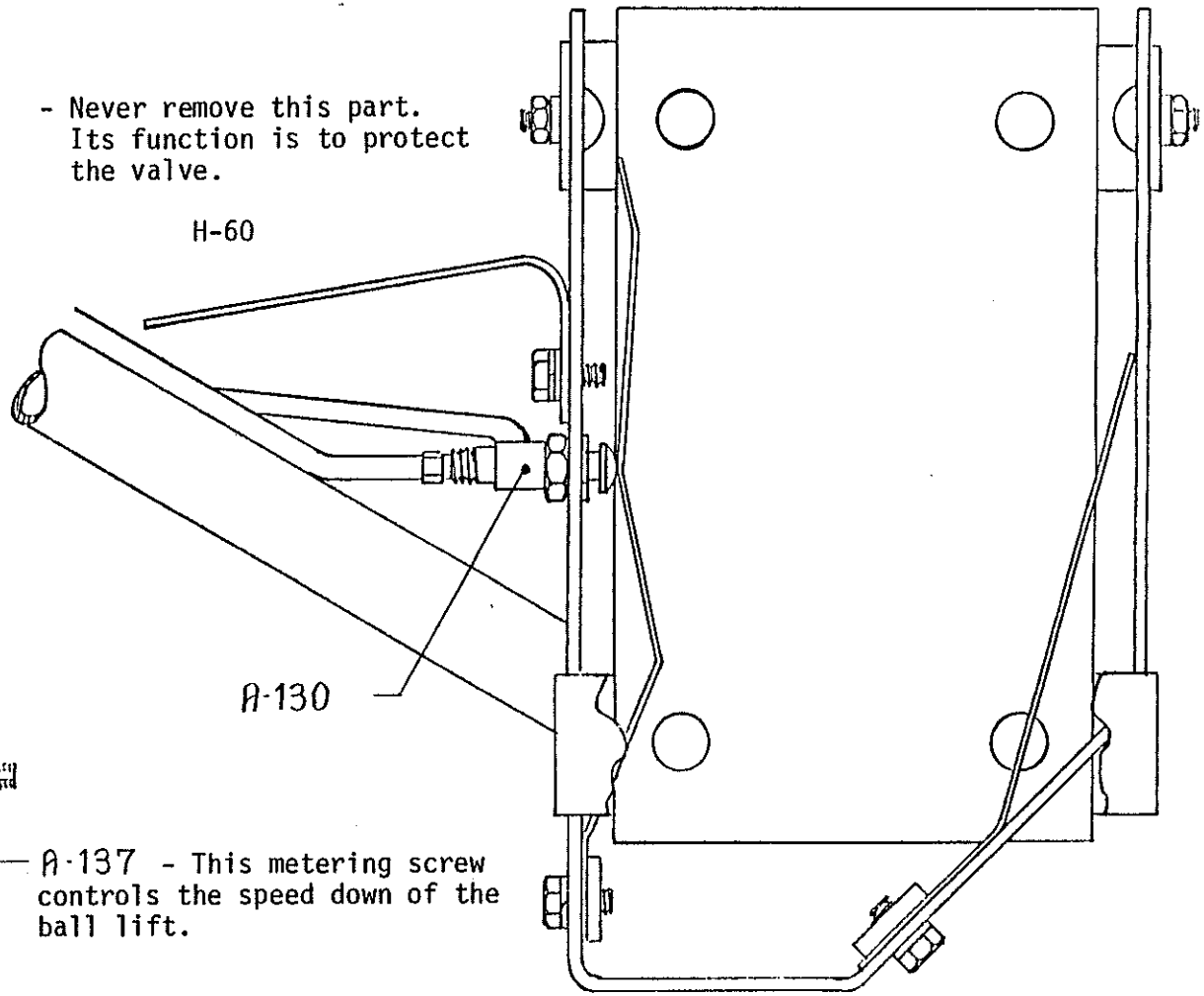
b) The slowing down speed of the catapult is controlled by the "metering" screw A-137 located on the top of cylinder A-12. See drawing MEA-25-1.

c) Refer to the drawing for the adjustments.



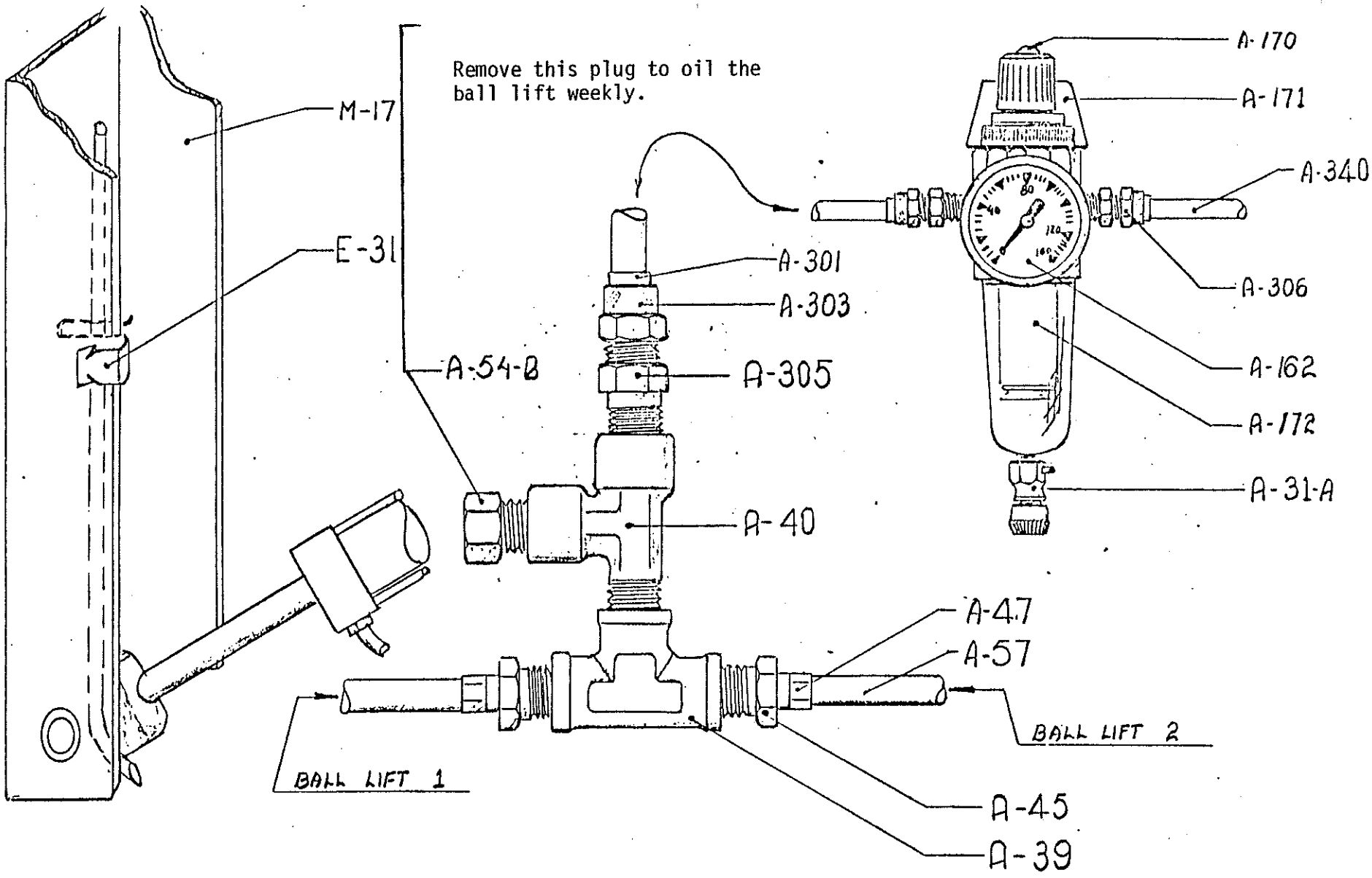
- Never remove this part. Its function is to protect the valve.

H-60



A-137 - This metering screw controls the speed down of the ball lift.

MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: BALL LIFT	SPÉCIFICATIONS MODEL 500	PAR: CAS	ÉCHELLE: ½" = 1"
VER: 0-11/2 APPR:	Mfd under license from J.J. Leidl - Pat.Pend		DATE: 5/12/77	PARTIE NO: MEA-25-1



MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: AIR LANE ASSEMBLY	SPÉCIFICATIONS MODEL 500	PAR: ÉCHELLE: VARIABLE
VER: APPR:	Mfd. under licence from J.J. Leidl Pat. Pend.		DATE: 10/11/75 PARTIE NO: MEI-35-4

5. PREVENTIVE MAINTENANCE

Maintenance of this machine may be grouped into three classifications:

- Mechanical maintenance
- Proper lubrication
- Cleanliness and good housekeeping.

A - Mechanical maintenance:

Pin string: - With any normally busy house, pin strings should be inspected daily and if showing evidence of wearing off, should be shortened and refastened and the string tension readjusted to compensate for the shortened string. If a proper program of string maintenance and inspection is set up, never will a string break during normal play. Put very simply, there is no excuse for strings breaking in play other than careless string maintenance.

VIBRO INSULATORS AND BASE PLATE SPACER BOLTS

These are subject to continual violent shock and vibration. They should be checked frequently for tightness.

MOISTURE DRAINS

Amount of play and atmospheric conditions dictate the amount of moisture entering into the system.

Your machine is equipped with a refrigerated Air Dryer which eliminates automatically all moisture. All filter bowls and drain legs should be checked weekly. At no time should water be allowed to reach bottom of filter element of machine filter bowls.
It is also very important to drain daily the moisture from the compressor. Always prevent water from entering into the machine.

LUBRICATION:

Proper lubrication is essential to a smooth running trouble free machine and also for preventing its wearing out. Here again, the quantity of play dictates how often and how much lubricant should be used.

CAUTION:

Use only recommended pneumatic oil No. Z-400. Many modern lubricating oils, except pneumatic oil - contain additives which can affect the rubber parts of the pneumatic components and cause serious problems.

MAIN CYLINDERS INTERNAL LUBRICATION:

Use only oil Z-400 to lubricate your main cylinders. For automatic oiler adjustment consult drawing PNA-35-2.

MAIN CYLINDER CABLE

Once a week, wipe off any dirt from cylinder cables and oil entire length of both ends lightly with pneumatic oil Z-400.

BALL LIFT CYLINDER

Once a week, remove plug A-54-B on the main air line feeding a pair of elevators, add ten (10) drops of pneumatic oil Z-400 and replace the plug.

MECHANICAL LUBRICATION

Every moving part should be properly lubricated with Z-400 pneumatic oil only.

AIR EXHAUST MUFFLERS AND FILTER ELEMENTS

Filter element on pressure regulator in timer exhaust mufflers on main valve, retarder valve and rear limit valve will become partially clogged. These can be cleaned by washing in a solvent such as "Varsol". We recommend that they be replaced when solvent cleaning is no longer effective.

CLEANLINESS AND GOOD HOUSEKEEPING

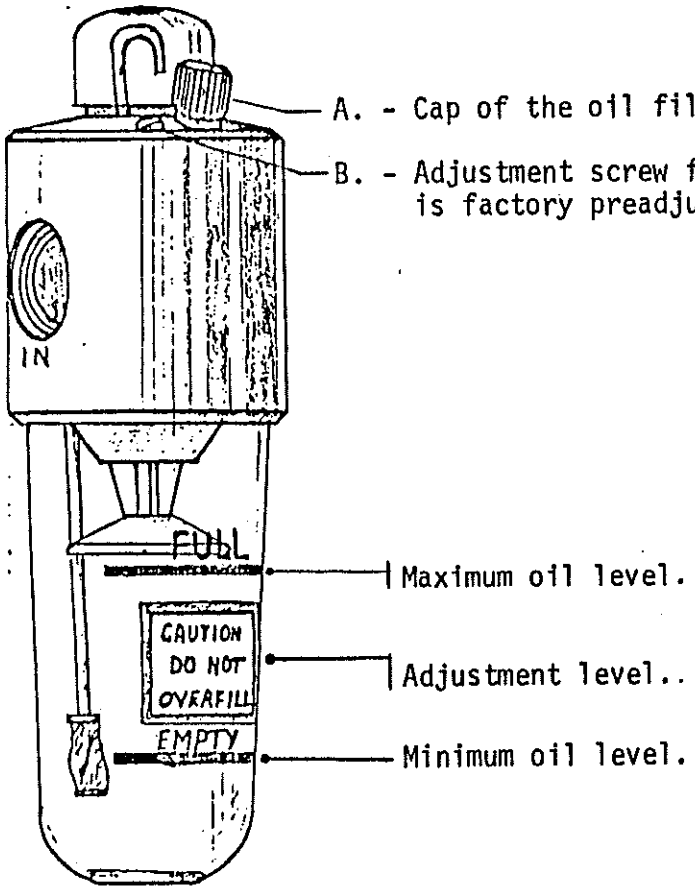
Machines must be kept free of dirt, dust and excess of oil. A clean machine is a well cared for machine, and will give good service, and

troublefree operation.

OIL REMOVAL FILTER

When operating with an oil removal filter on the main air line, which is a highly recommended device to be installed, the filter unit of this device should be changed when a pressure drop becomes apparent (approximately 10 lbs drop in pressure).

CAUTION: Disconnect "quick disconnect" to fill the auto-lubricator.



A. - Cap of the oil filler.

B. - Adjustment screw for oil debit (This adjustment is factory preadjusted).

Maximum oil level.

Adjustment level..

Minimum oil level.

NOTE: A. - Oil must be at the "adjustment level" as shown on the plan.

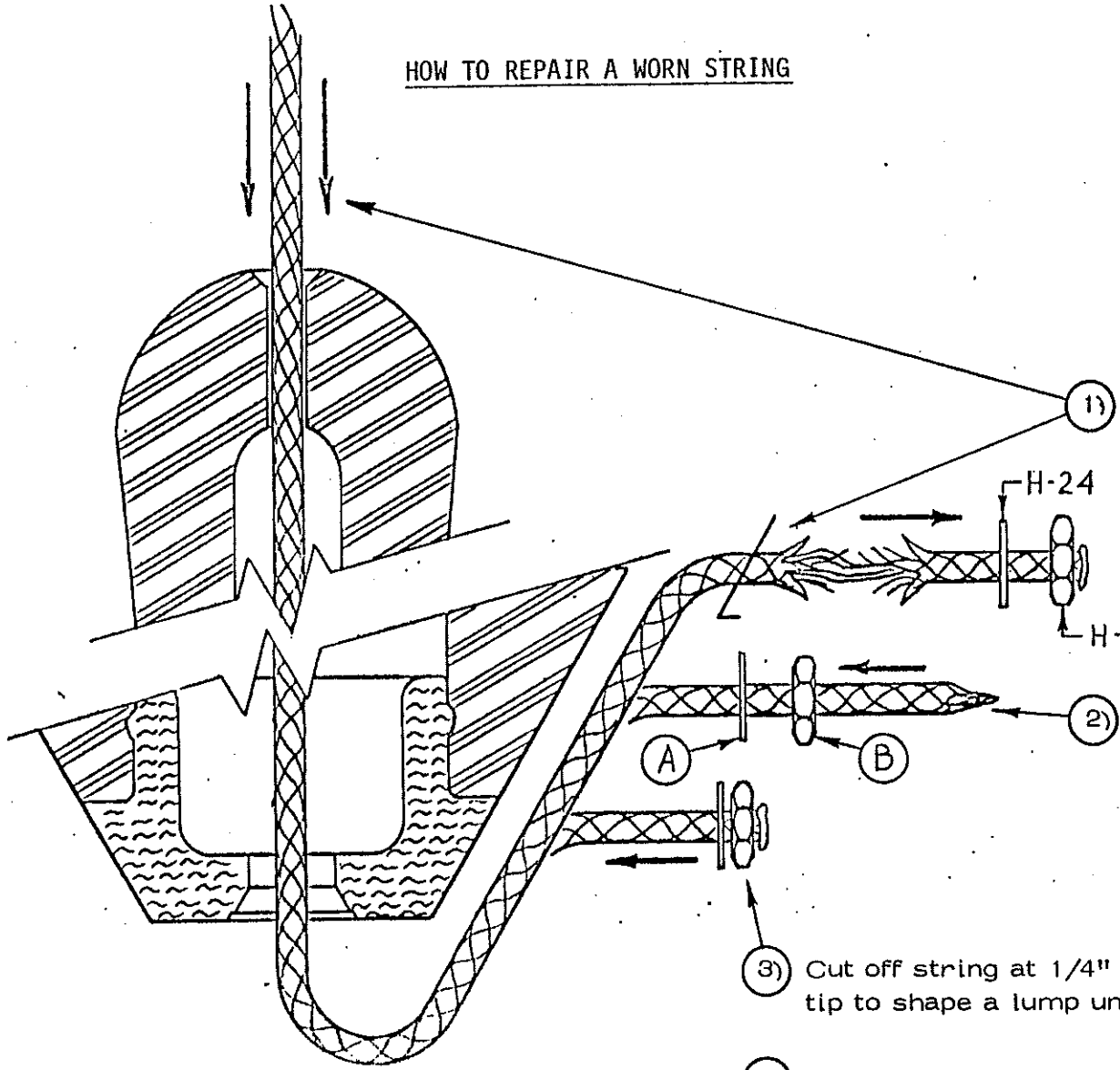
B. - After the excess of oil being through the circuit (after around 15 cycles), with a screwdriver, turn the adjustment until you get one drop of oil per 5 or 6 cycles.

Since the temperature has an effect on the oil viscosity, this adjustment must be done when the ambient temperature in the bowling area is at its lowest.

OIL QUALITY: Always use pneumatic oil (Z-400 - MenDes)

MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: AUTO-LUBRICATOR ADJUSTMENT	SPÉCIFICATIONS MODEL 500	PAR:	ÉCHELLE: 1 ÷ 1
FR 28-09-76 APPR:	Mfd. under licence from J.J. Leidl Pat. Pend.	TECHNICAL DATA :	DATE: 1/4/77	PNA-35-2

HOW TO REPAIR A WORN STRING



1) Slide the string down through the pin and cut the worn out section.

2) Burn the string tip – Replace washer "A" and swage firmly a new nut "B" on the string.

3) Cut off string at 1/4" from swaged nut. Burn the string tip to shape a lump under the nut.

4) Slide the pin along the string and check if it turns freely.

MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: CORD MAINTENANCE	SPÉCIFICATIONS SUPER FIVE	PAR:	ÉCHELLE: 1" = 1"
VER: 1.2	APPR: 08-1978		DATE: 8/2/78	PARTIE NO: MEI-35-1

HOW TO REPAIR A WORN STRING

- Pull swivel plug "A" and pull string well thru pin (fig. II)

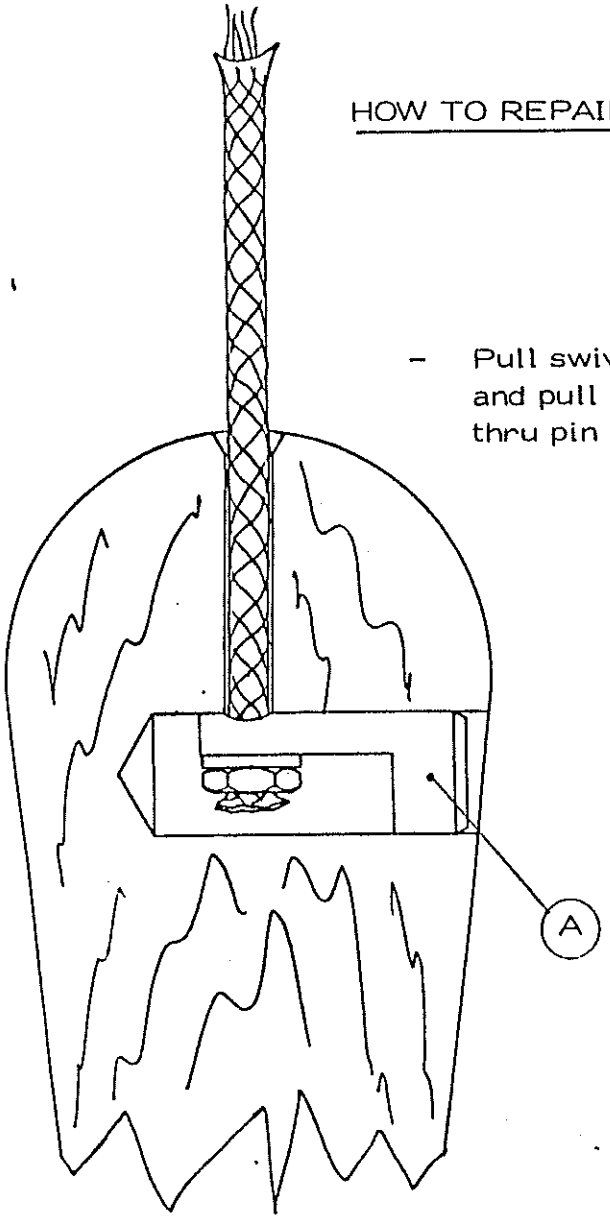


FIGURE I

- Slide swivel plug and washer a few inches in past worn section of string. Now burn melt string and sheathe together at least 1" long as shown below.

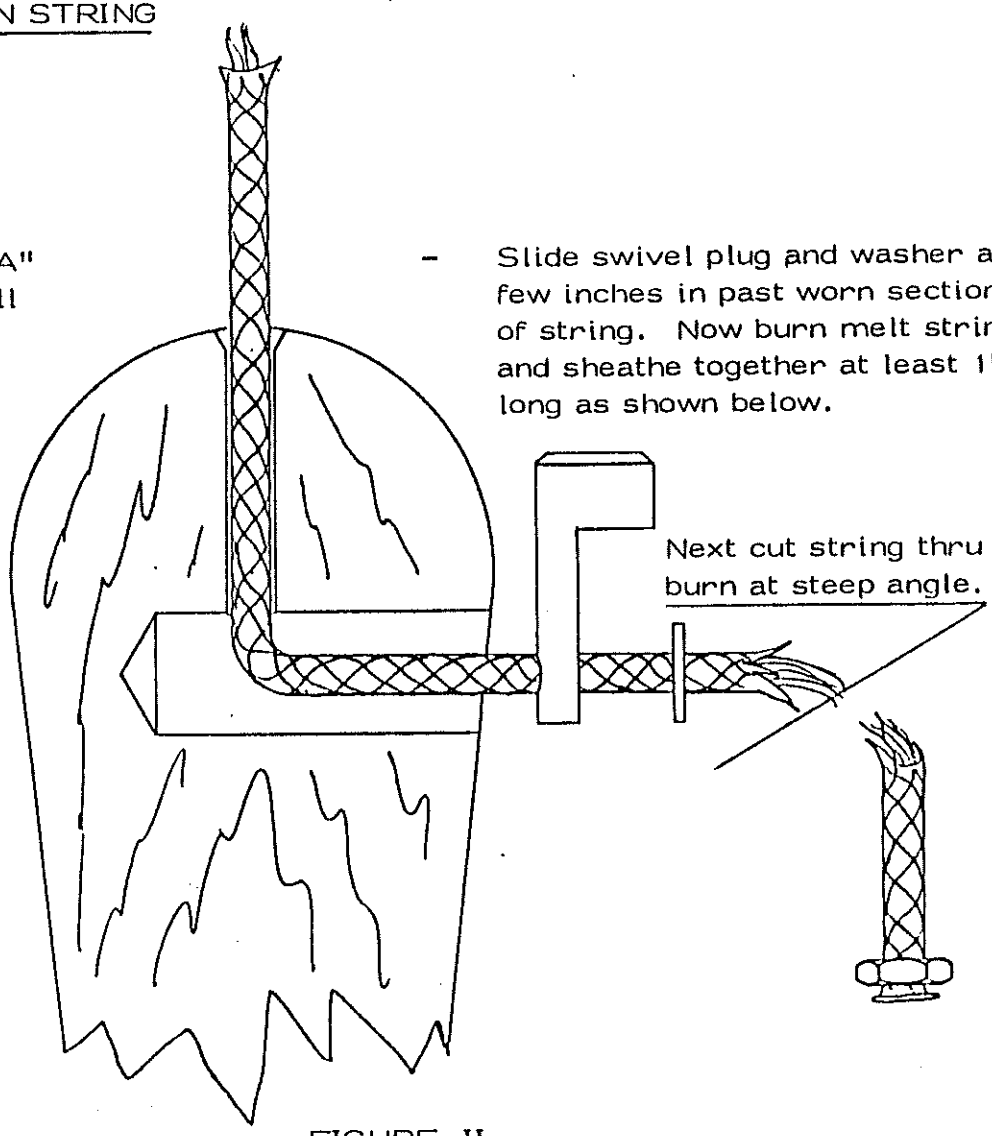
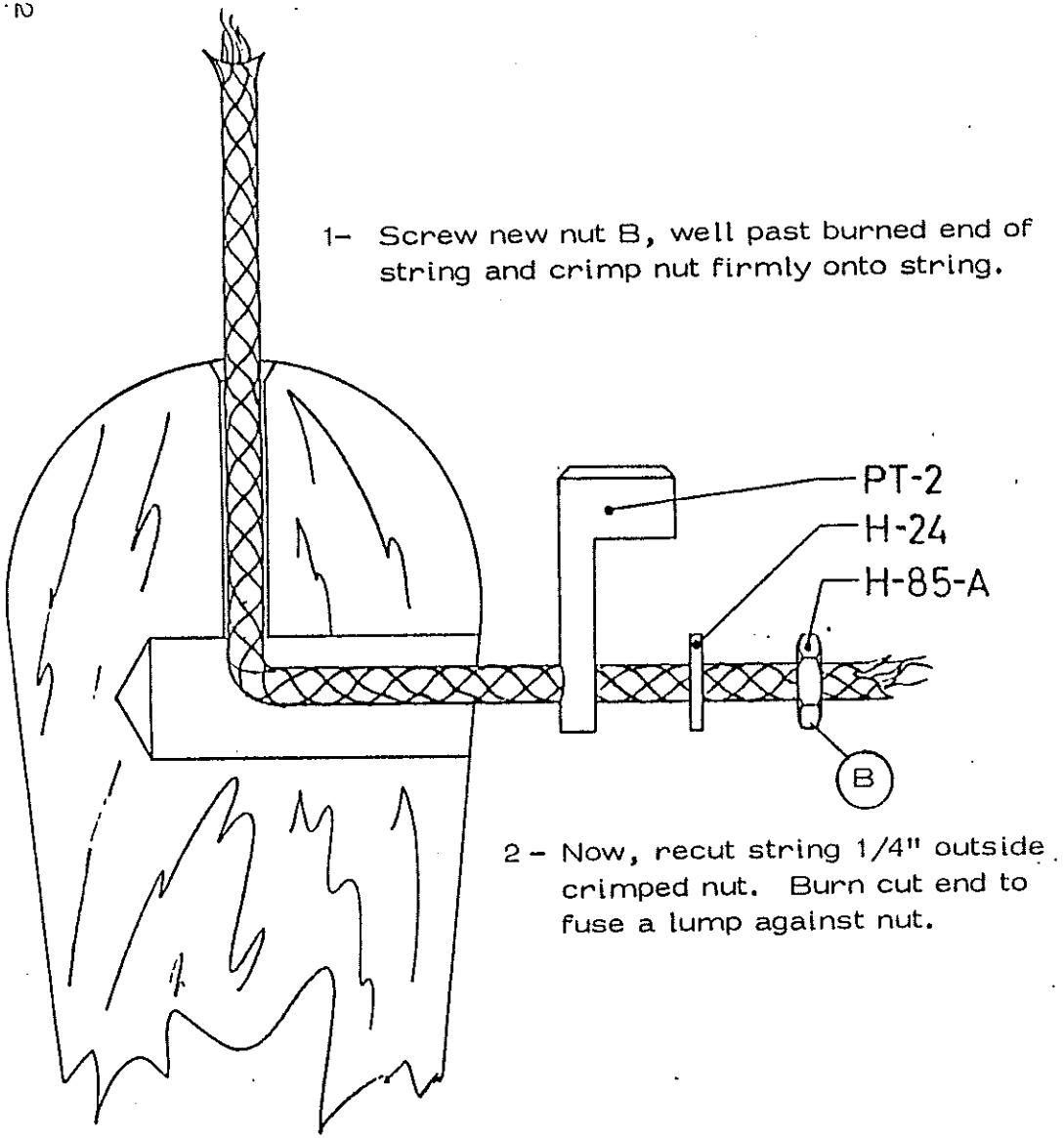


FIGURE II

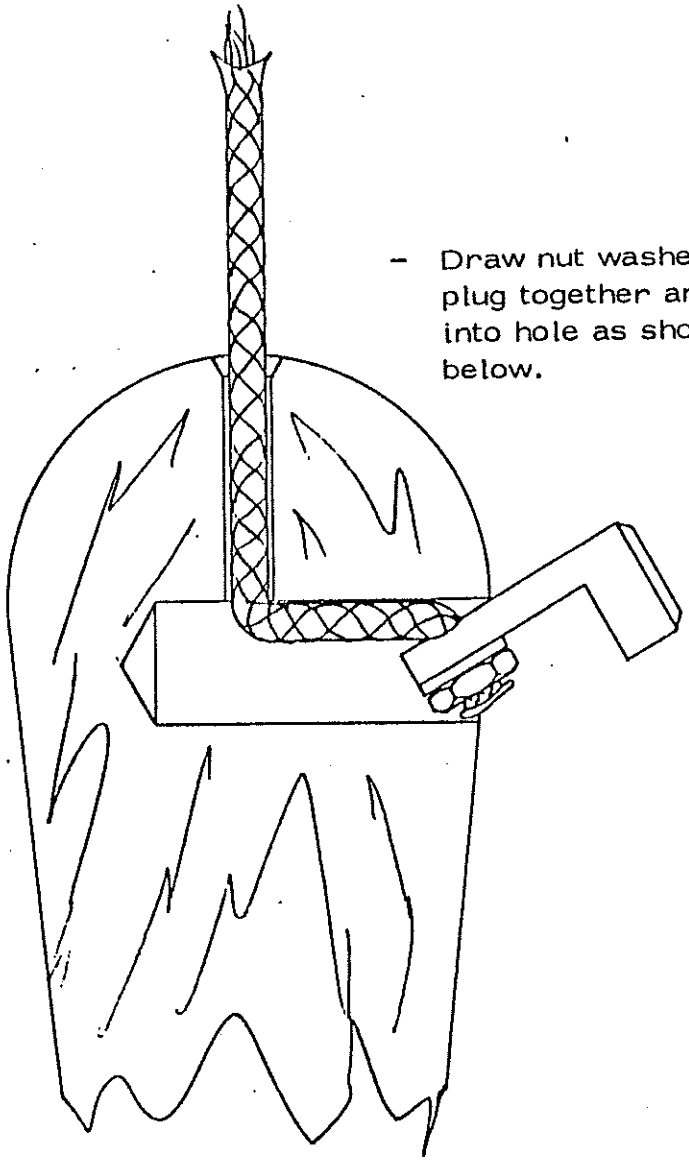
MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: CORD MAINTENANCE I	SPÉCIFICATIONS MODELS 100-CP-C5 and 500	PAR:	ÉCHELLE: 1"≈1"
08-1978 APPR.	Mfd under licence from J.J. Leidl – Pat. pend.		DATE: 18/11/76	PARTIE NO: MEI-35-2

1- Screw new nut B, well past burned end of string and crimp nut firmly onto string.

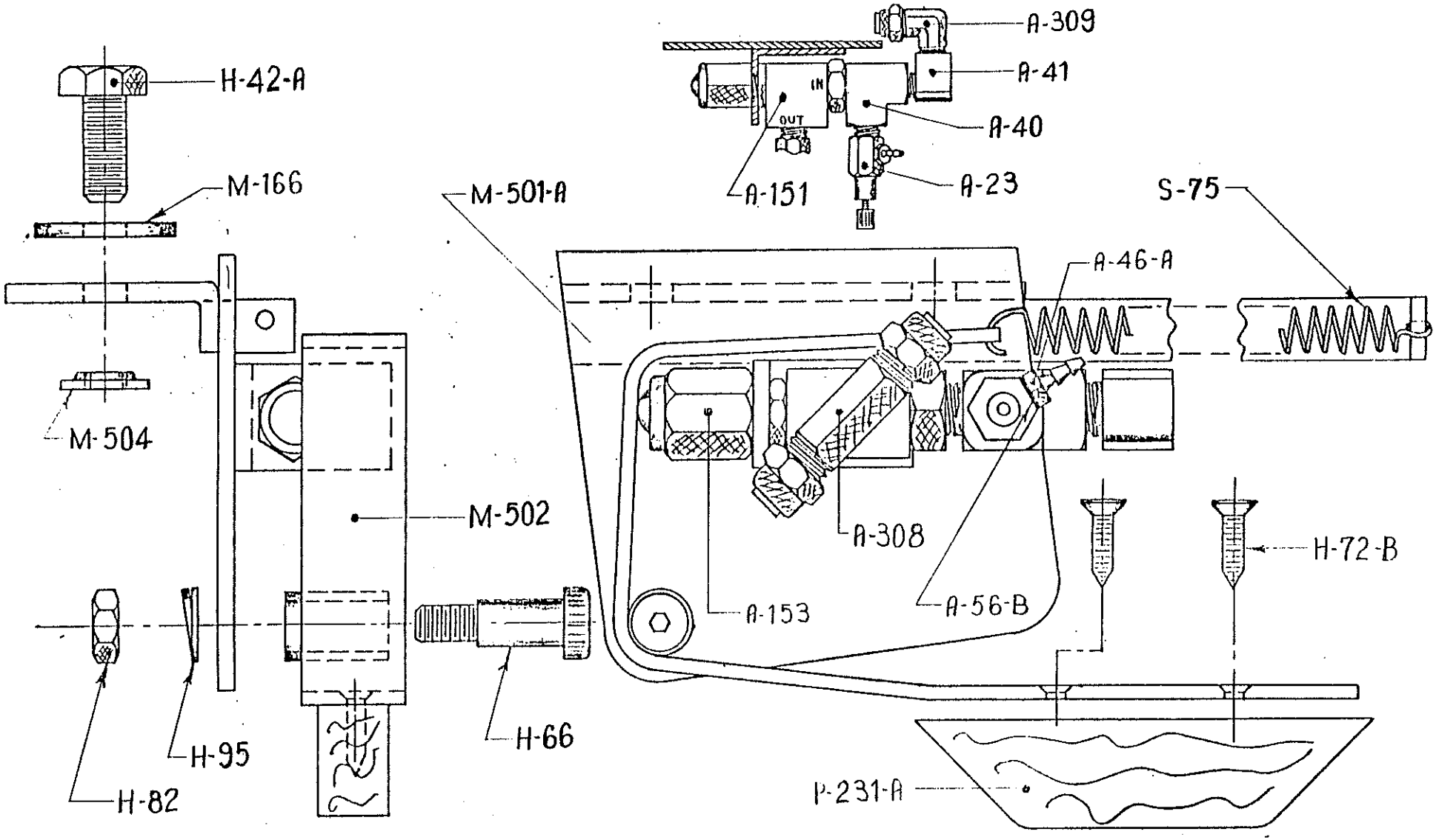


2 - Now, recut string 1/4" outside crimped nut. Burn cut end to fuse a lump against nut.

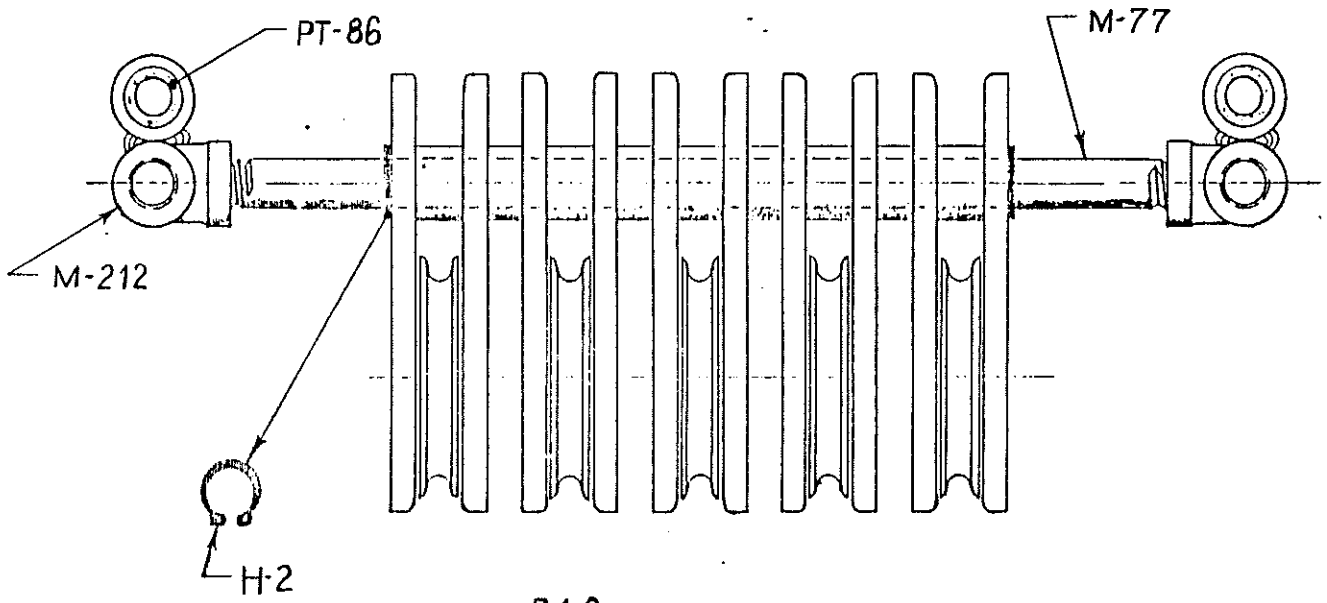
- Draw nut washer and plug together and insert into hole as shown below.

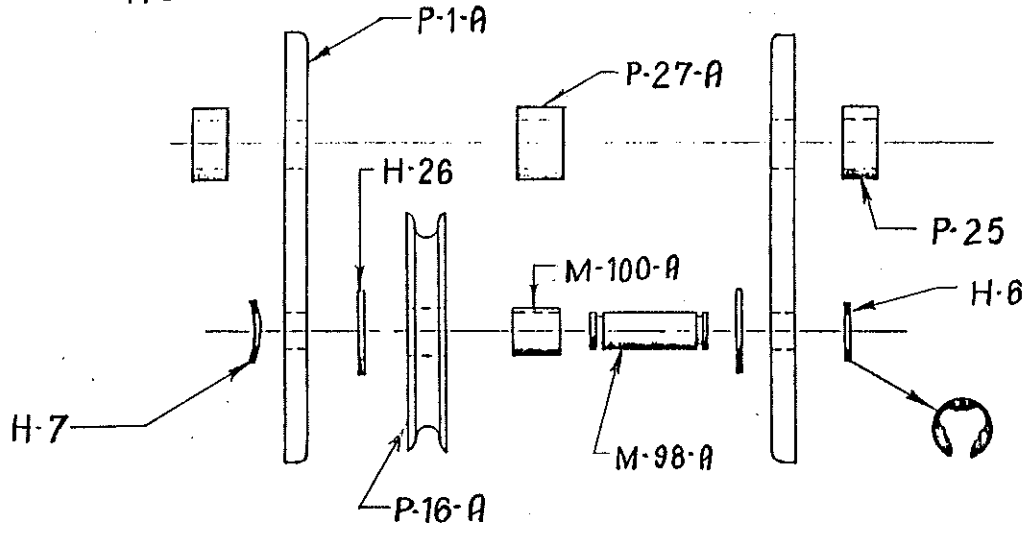


MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: CORD MAINTENANCE II	SPÉCIFICATIONS MODELS 100-CP-C5 and 500	PAR: ab	ÉCHELLE: 1" ≈ 1"
08-1978 APPR:	Mfd under licence from J.J. Leidl – pat. pend.		DATE: 19/11/76	PARTIE NO: MEI-35-2

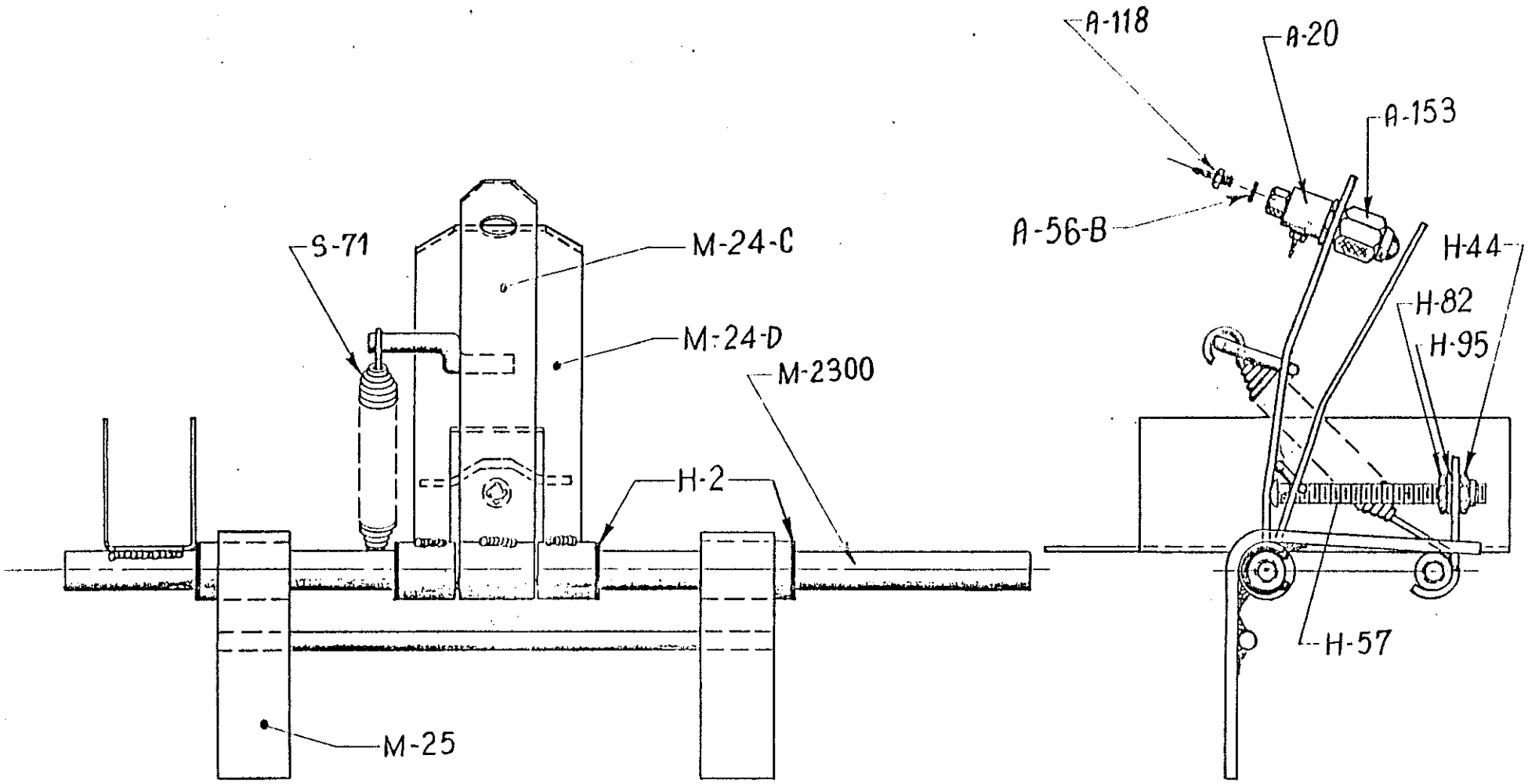


MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: RETARDER VALVE ASSEMBLY	SPÉCIFICATIONS MODEL : 500	PAR: CRS	ÉCHELLE: VARIABLE
APPR:			DATE: 20/12/76	SUB
			PARTIE NO:	0501

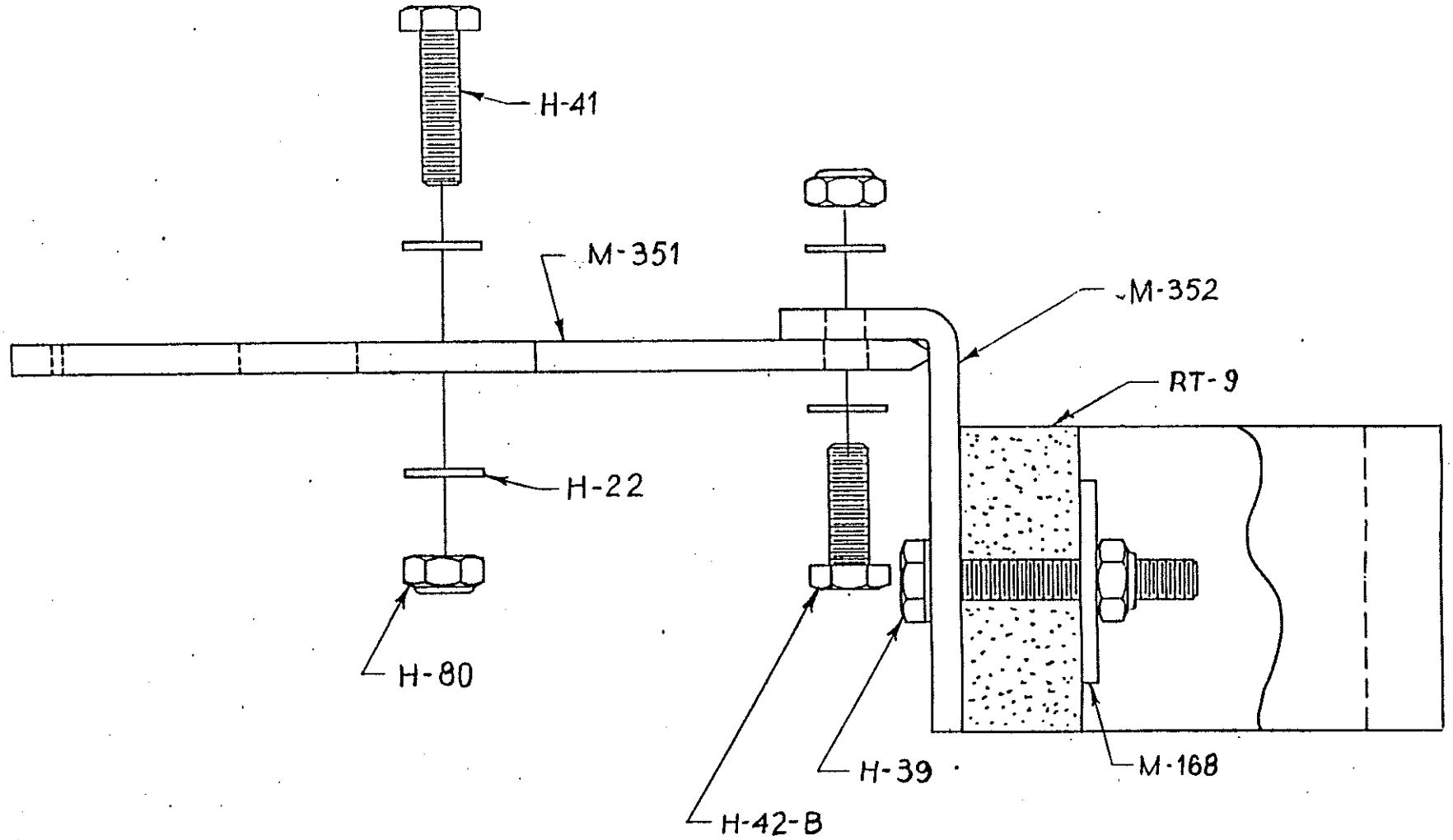




MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: DRAWBAR ASSEMBLY	SPÉCIFICATIONS MOYEL - 500	PAR:	ÉCHELLE VARIABLE
APPR:			DATE 21/12/76	SUB
			PARTIE NO: 2120	



MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: LIMIT VALVE ASSEMBLY	SPÉCIFICATIONS MODEL : 500	PAR: cab	ÉCHELLE: VARIABLE
			DATE: 21/12/76	SUB
09-1778 APPR:			PARTIE NO:	2300



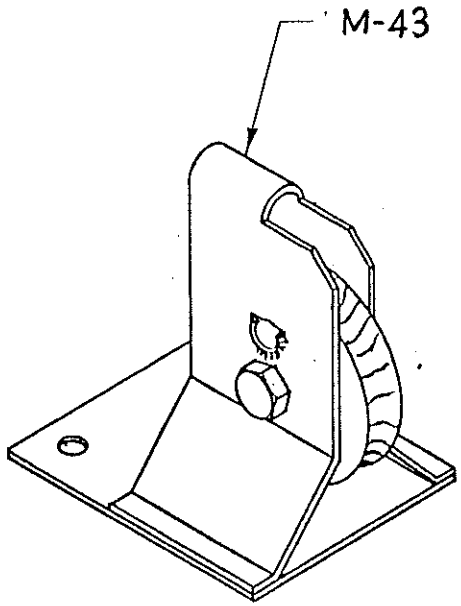
MenDes Inc.
QUÉBEC – CANADA

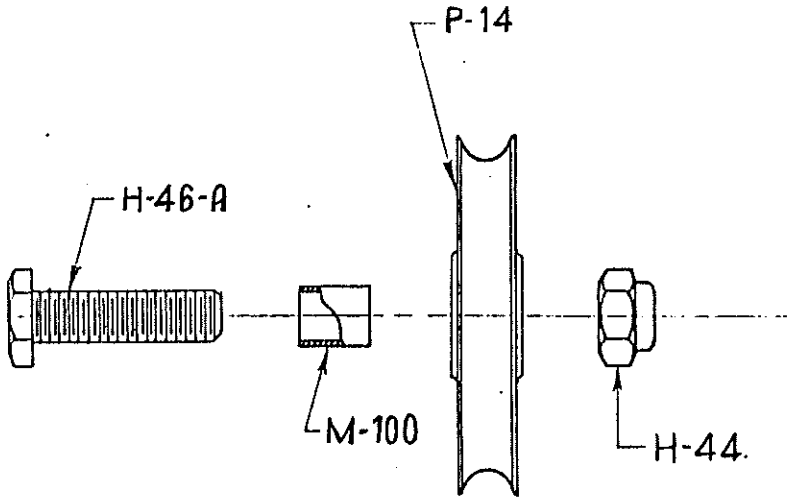
DESCRIPTION: B.L. BUMPER ASSEMBLY

SPÉCIFICATIONS
MODEL: DUCKPIN & FIVEPIN

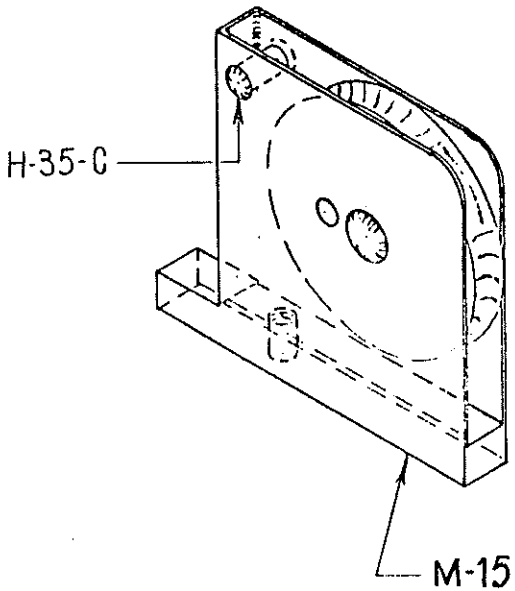
PAR: CCS
DATE: 23/2/77
ÉCHELLE: 3/4 = 1"
SUB
PARTIE NO: 3510

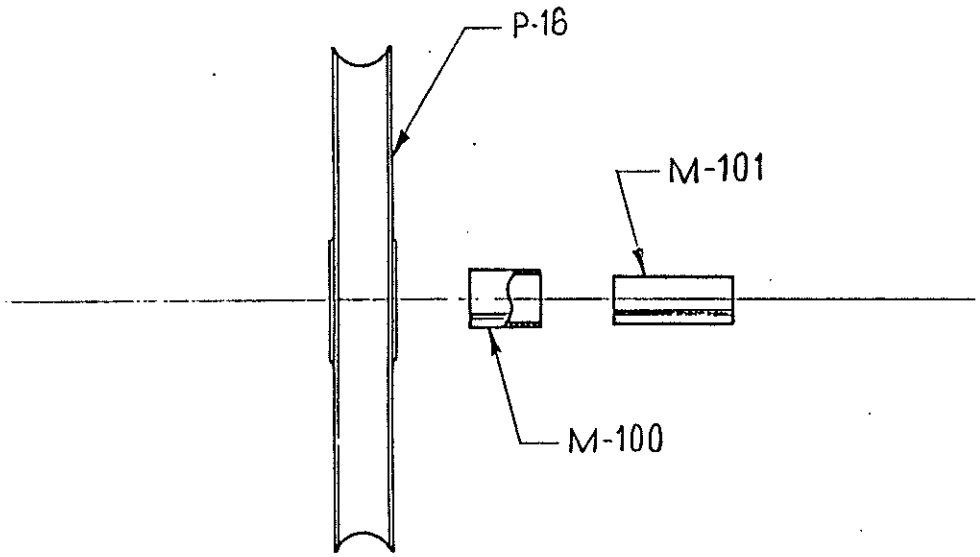
VER 05-1778 APPR:



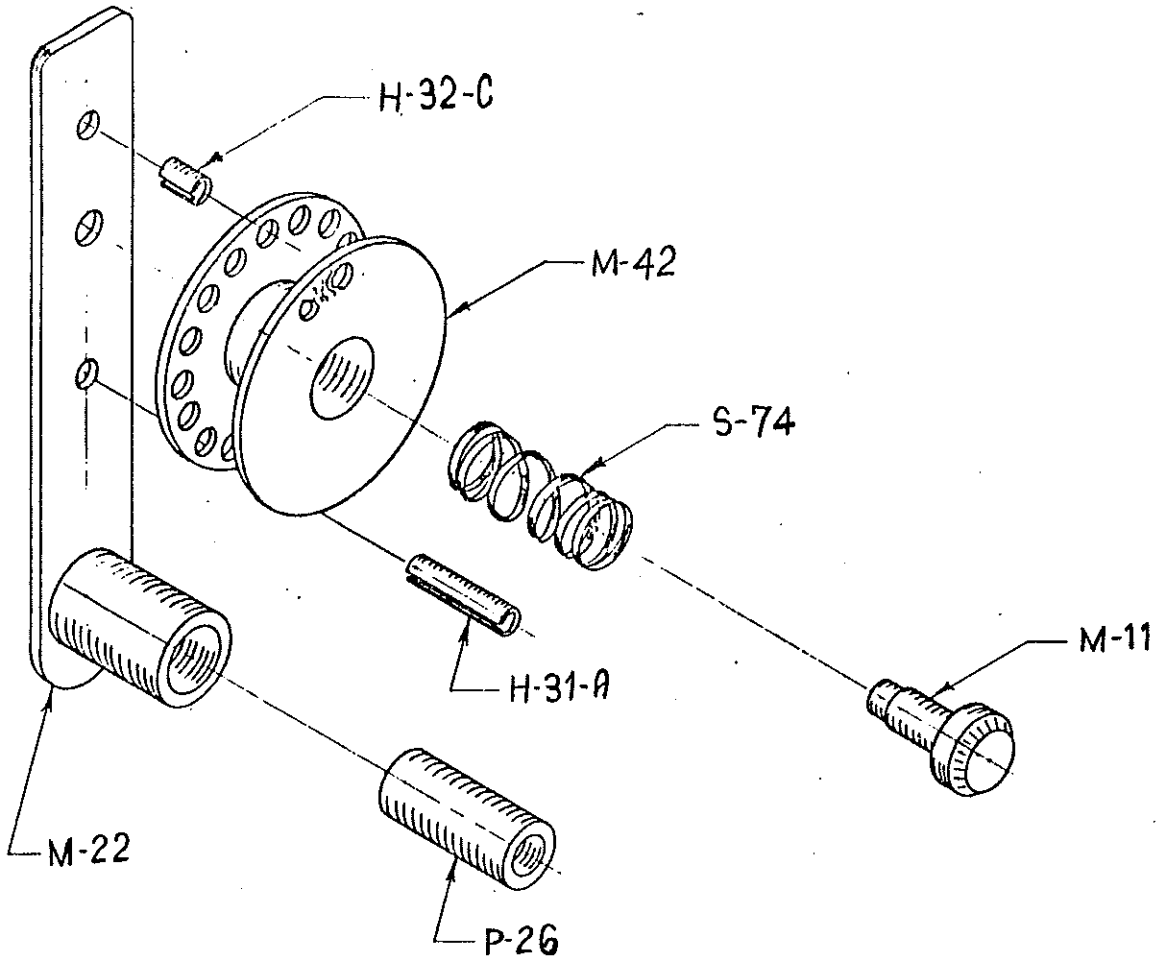


MenDes Inc. QUÉBEC – CANADA VER: 0 - 11-77 APPR: [illegible]	DESCRIPTION: BUMPER SHEAVE ASSEMBLY B.W.	SPÉCIFICATIONS MODEL : 100-CP-C5, 200, 201, 901 500	PAR: cdb DATE: 10/2/77	ÉCHELLE VARIABLE SUB PARTIE NO: 5008





MenDes Inc. QUÉBEC – CANADA VER: APPR:	DESCRIPTION: SENSOR SHEAVE ASSEMBLY B.W.	SPÉCIFICATIONS MODEL : 100, 500	PAR: cas DATE: 10/2/77	ÉCHELLE: VARIABLE SUB PARTIE NO: 5009



MenDes Inc.
QUÉBEC – CANADA

DESCRIPTION: REEL ARM ASSEMBLY

SPÉCIFICATIONS
ALL MODEL

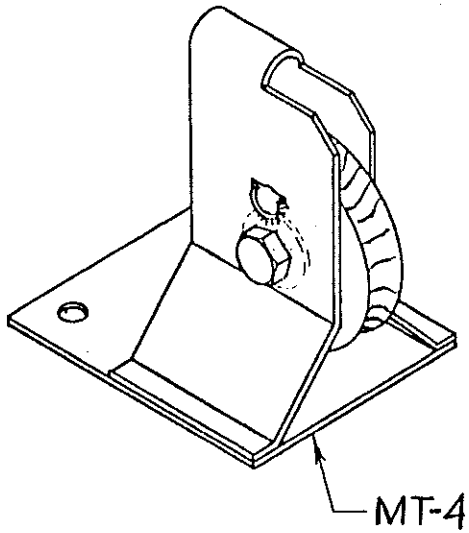
PAR: CAS

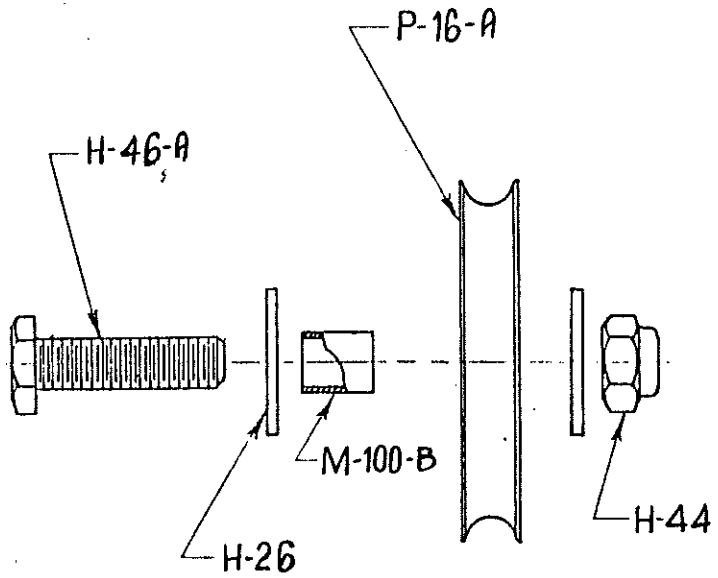
ÉCHELLE: 1/2 = 1"

DATE: 11/2/77

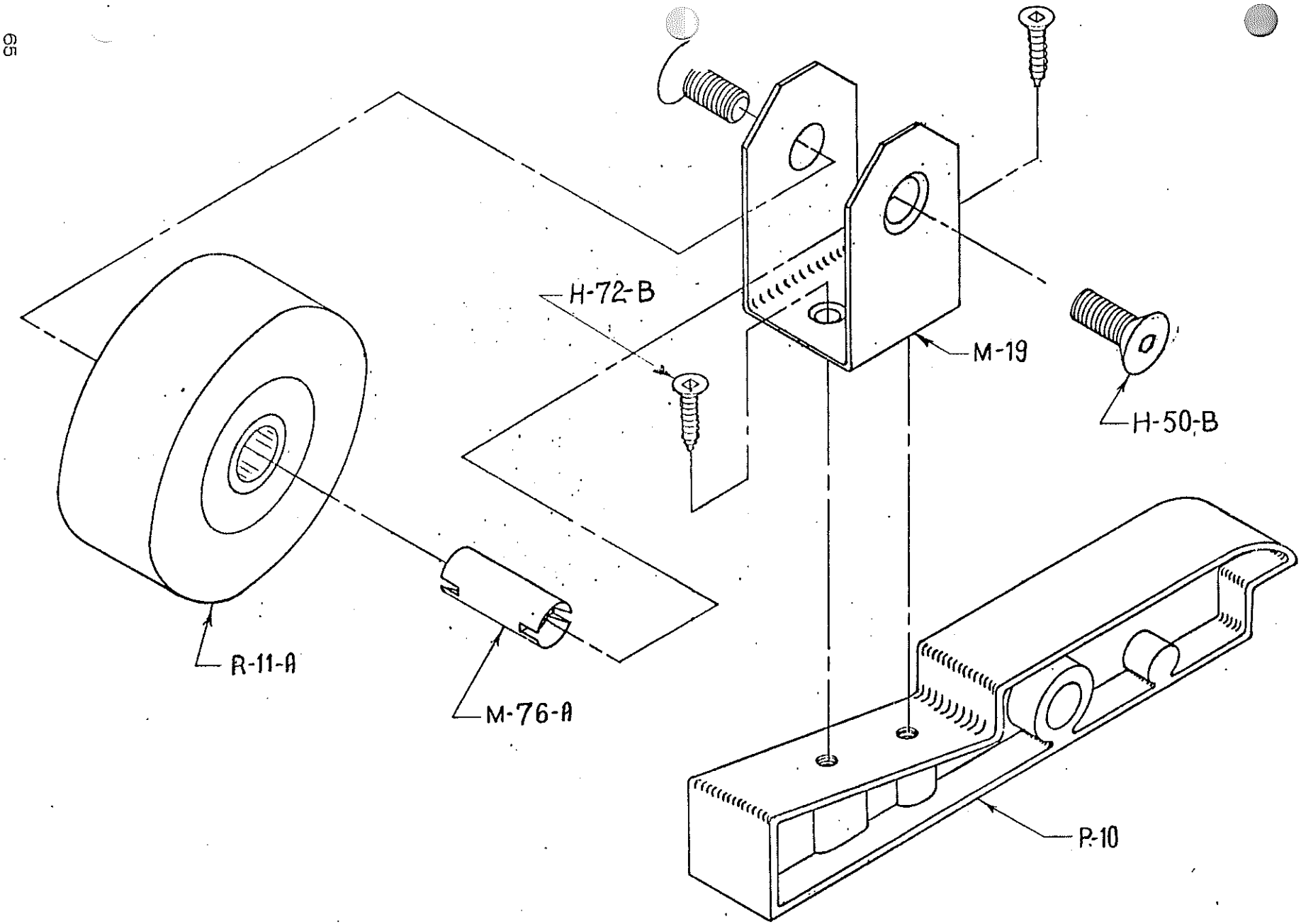
SUB

PARTIE NO: 5011

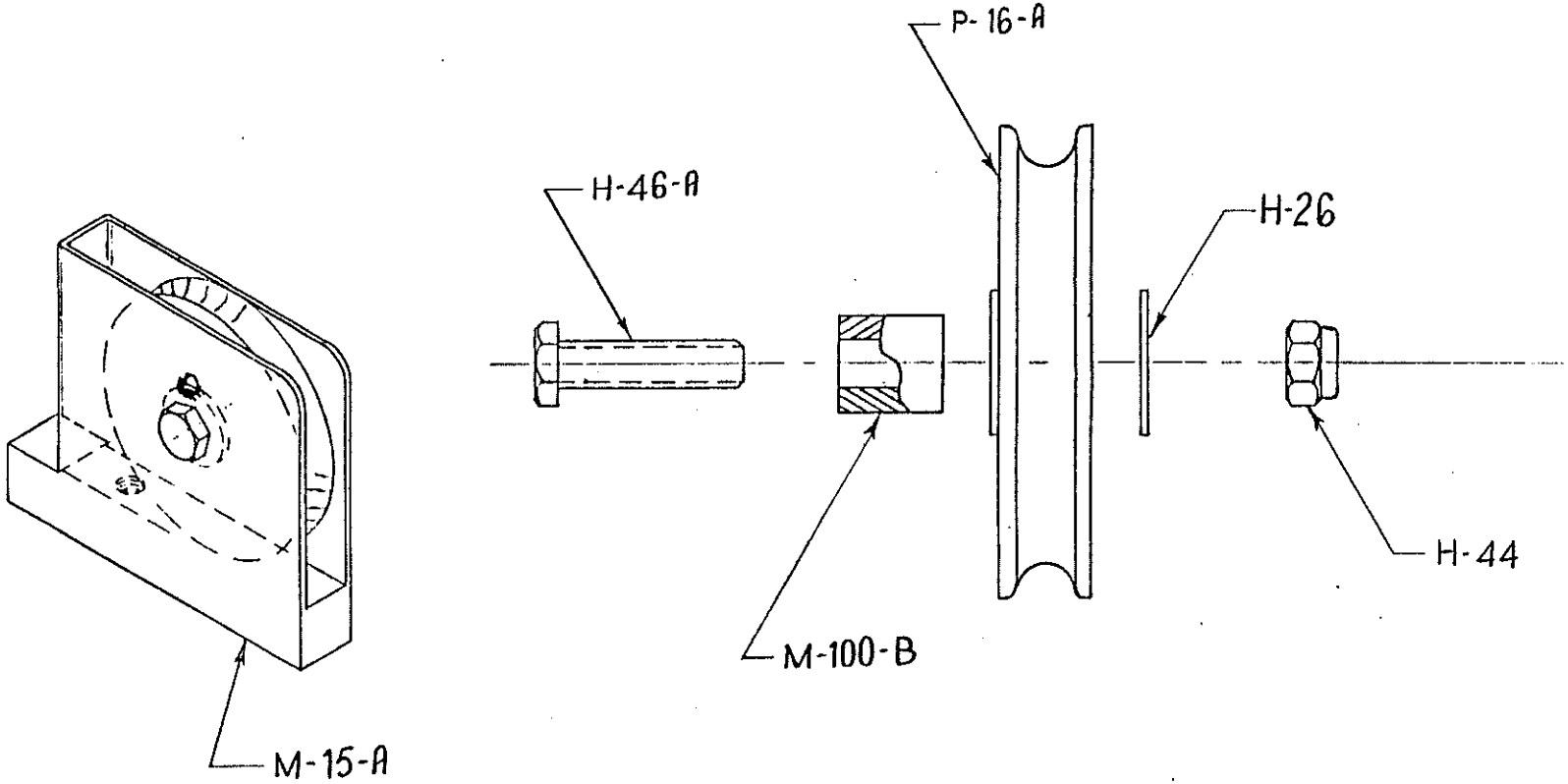




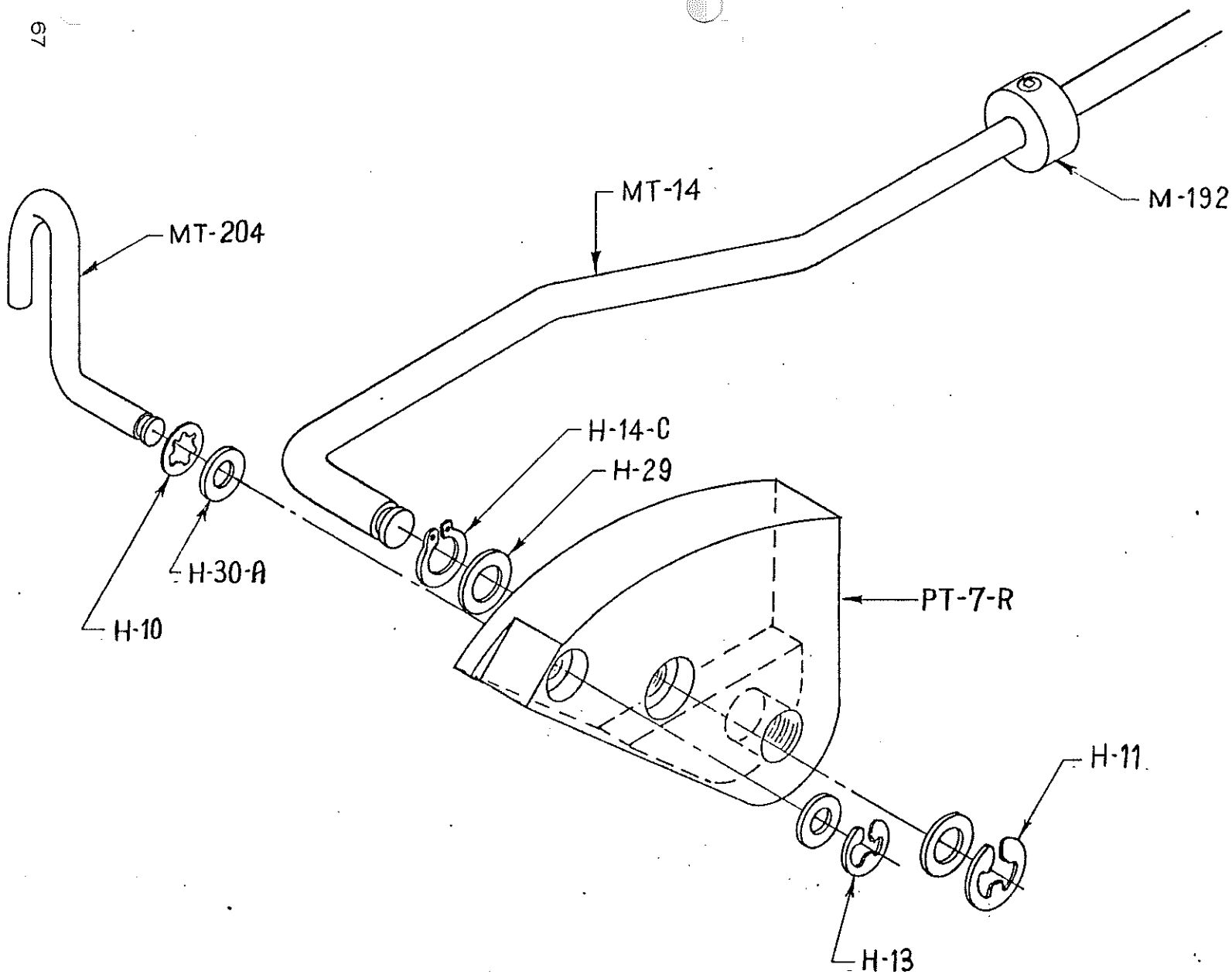
MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: BUMPER SHEAVE ASSEMBLY L.W.W.	SPÉCIFICATIONS MODEL : 200, 201, 500 & 901	PAR: CAB	ÉCHELLE: VARIABLE
VER:	APPR:		DATE: 10/2/77	SUB
			PARTIE NO:	5012



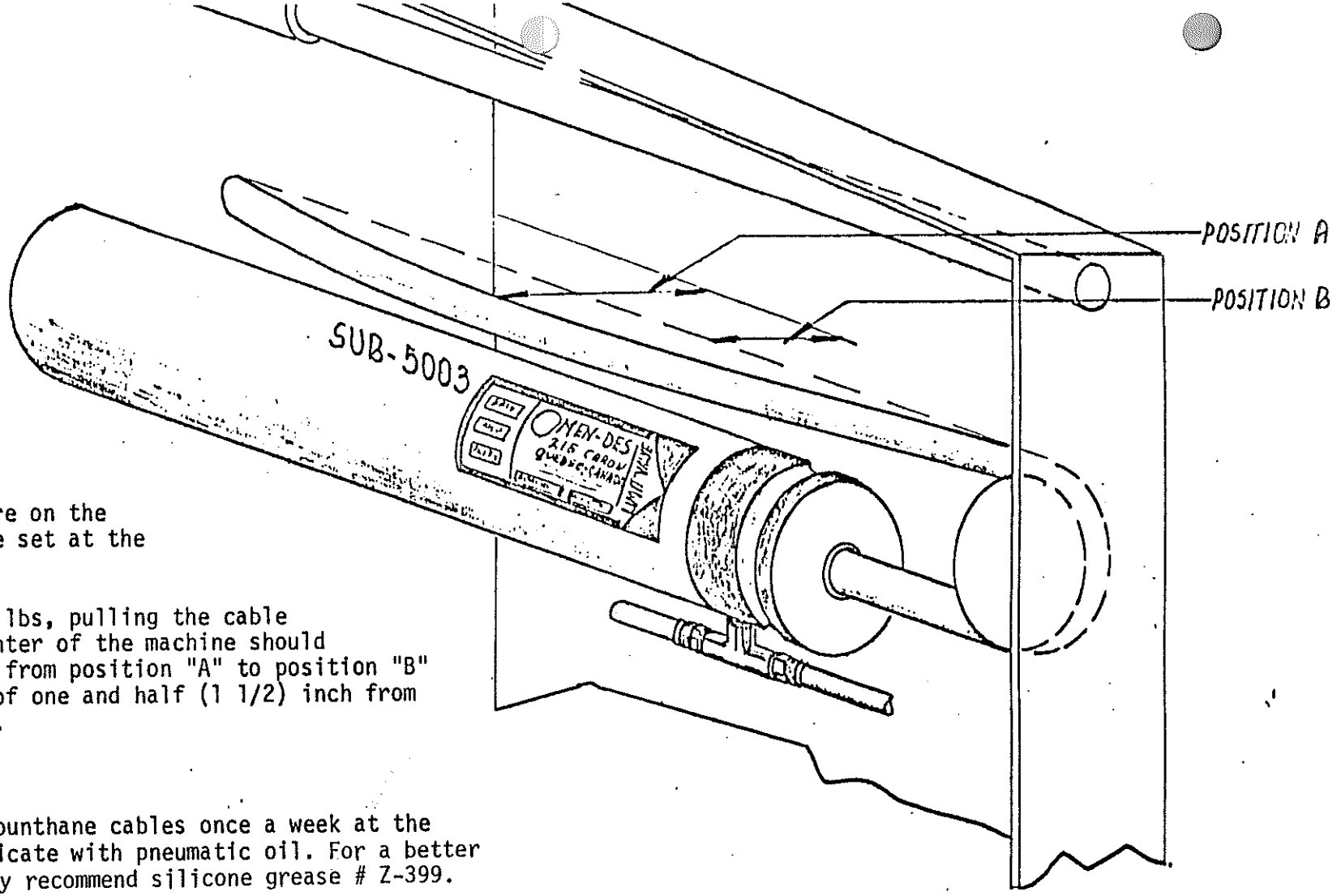
MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: BRAKE ARM ASSEMBLY	SPÉCIFICATIONS 500-201-901	PAR: CAS	ÉCHELLE: 3/4" = 1"
VLH:	APPR:	Mfd under licence from J.J. Leidl Pat. Pend.	DATE: 7/12/76	SUB
			PARTIE NO: 5015	



MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: SENSOR SHEAVE ASSEMBLY W.W.	SPÉCIFICATIONS MODEL : 200, 201 & 901 500	PAR: CAS / ÉCHELLE: VARIABLE
VER:	APPR:		DATE: 11/2/77 SUB
			PARTIE NO: 5017



MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: CAM ASSEMBLY	SPÉCIFICATIONS MODEL: 500	PAR: CAS	ÉCHELLE: 1"=1"
VÉR:	APPR:		DATE: 18/2/77	SUB
			PARTIE NO: 7000	



INSTRUCTIONS:

1.) The air pressure on the machine must be set at the proper level

2.) A tension of 3 lbs, pulling the cable towards the center of the machine should move the cable from position "A" to position "B" for a maximum of one and half (1 1/2) inch from the side plate.

IMPORTANT:

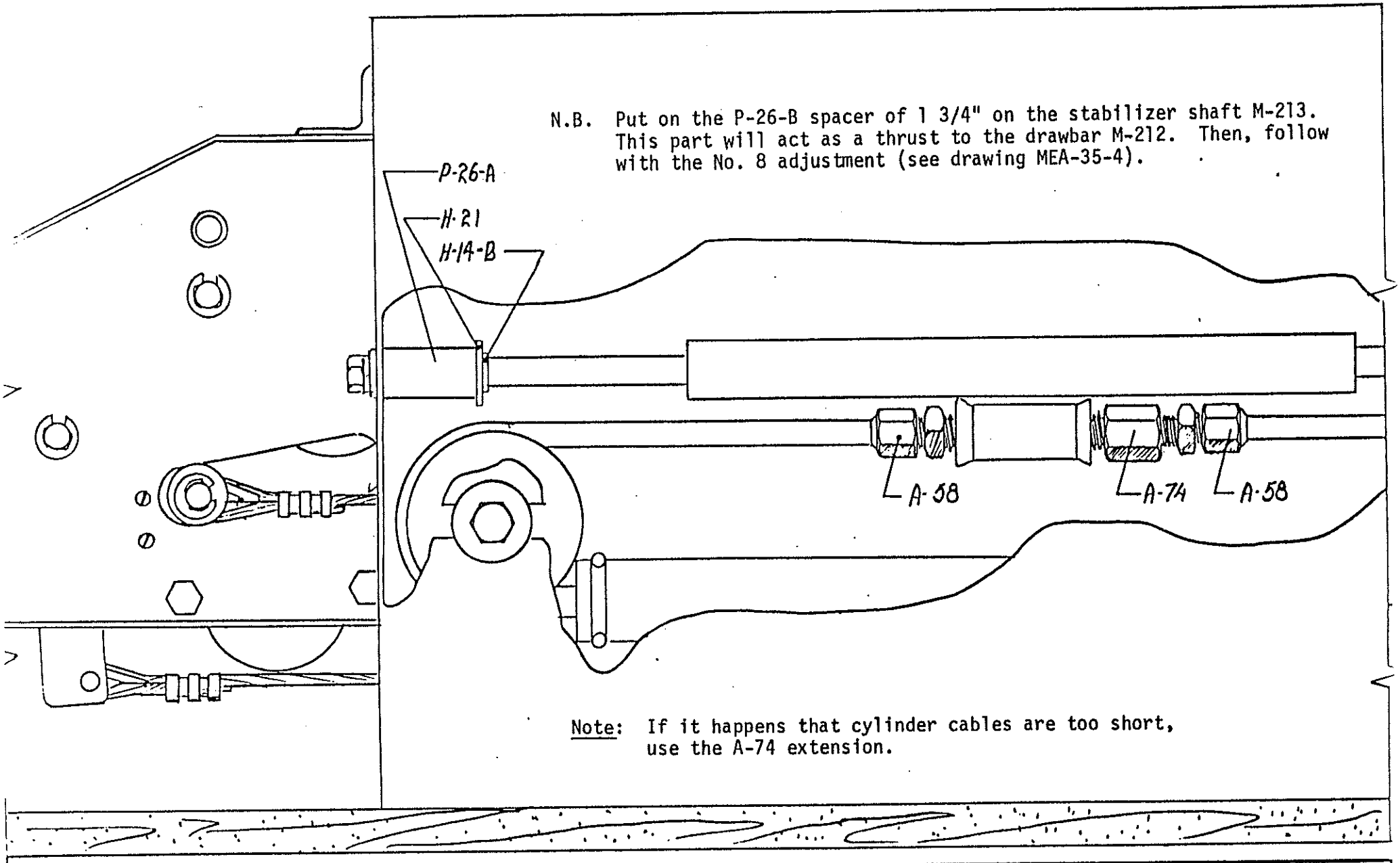
Please clean rounthane cables once a week at the least and lubricate with pneumatic oil. For a better result we highly recommend silicone grease # Z-399.

VERY IMPORTANT:

Adjust the cylinder to make sure that the cable and the cylinder are parallel to one another.

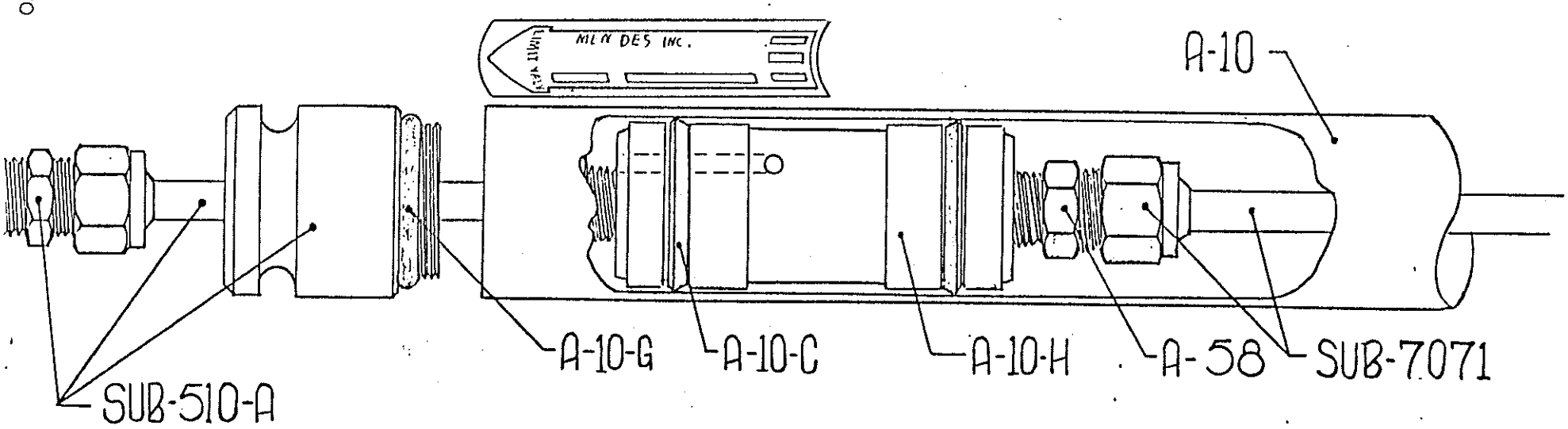
MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: ADJUSTING TENSION ON THE CYLINDER CABLE	SPÉCIFICATIONS MODEL 500	PAR:	ÉCHELLE:
APPR:	Used under licence from J.J.Leidl - Pat. Pend.		DATE: 28/7/73	PARTIE NO: BT-2

N.B. Put on the P-26-B spacer of 1 3/4" on the stabilizer shaft M-213. This part will act as a thrust to the drawbar M-212. Then, follow with the No. 8 adjustment (see drawing MEA-35-4).



Note: If it happens that cylinder cables are too short, use the A-74 extension.

MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: HOW TO INSTALL CYLINDERS - MODEL "C"	SPÉCIFICATIONS MODEL 500	PAR:	ÉCHELLE: VARIABLE
25-08-75 APPR:	Mfd under licence from J.J.Leidl - Pat. Pend.		DATE: 28/7/75	PARTIE NO: BT-3



A SUB-510-A INCLUDES THE HEAD, THE CABLE AND THE COUPLINGS A-58 AT EACH END.
A SUB-7071 INCLUDE THE CABLE AND THE COUPLING A-58 AT ONE END.

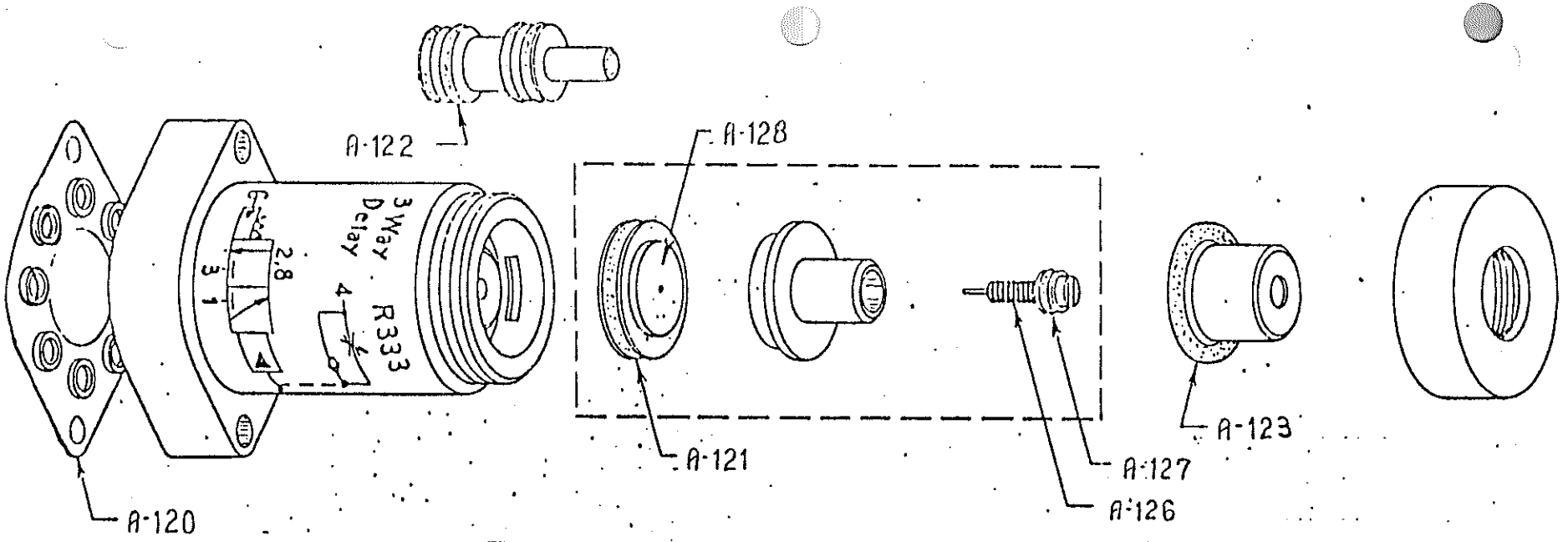
HOW TO DISMANTLE THE CYLINDER:

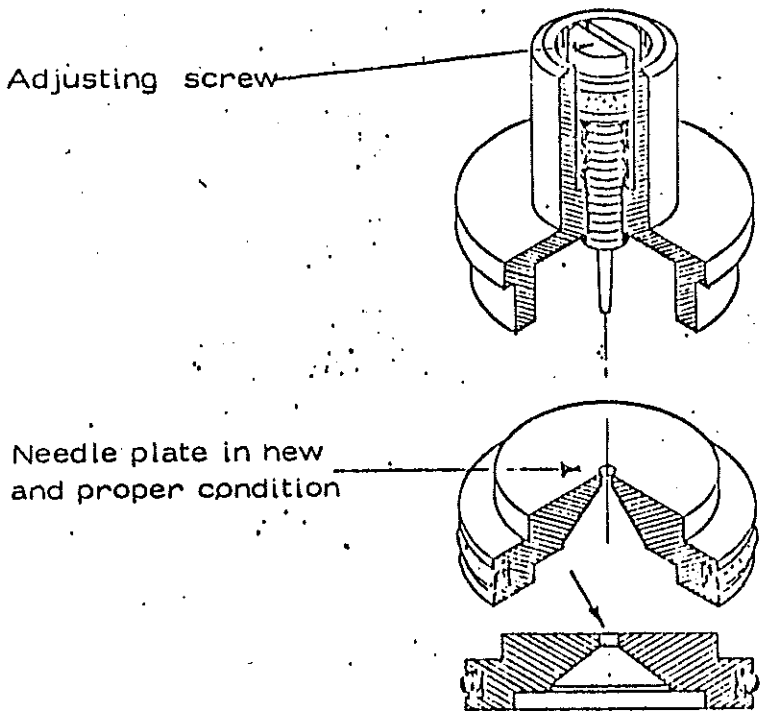
- Unscrew the defective head from the barrel;
- Take out the piston from the barrel;
- Hold the piston firmly and unscrew the coupling A-58.

HOW TO RE-ASSEMBLE THE CYLINDER:

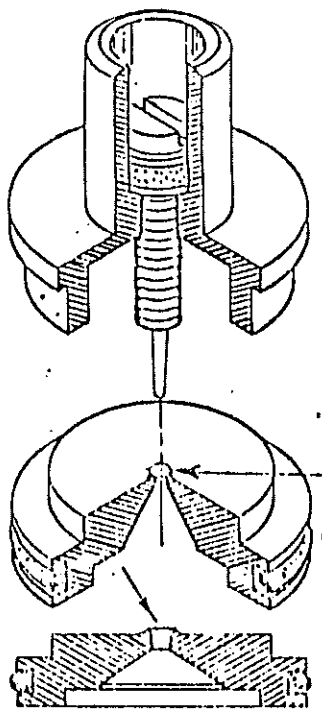
- Fix the new head by screwing the coupling A-58 into the piston;
- When this work is completed, make sure the diameter of the piston does not exceed 1.115";
- Lubricate properly the piston with oil Z-400;
- Replace, with special care, the piston inside the barrel and make sure not to damage or reverse the seals. This is most important.
- Screw the head SUB-510-A on the barrel.

MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: HOW TO REPAIR SUB-5003 - TYPE "C"	SPÉCIFICATIONS MODEL 500	PAR:	ÉCHELLE: 1:1
VER:	APPR:	Mfd under licence from J.J. Leidl - Pat. Pend.	DATE: 15/8/75	PARTIE NO: BT-4



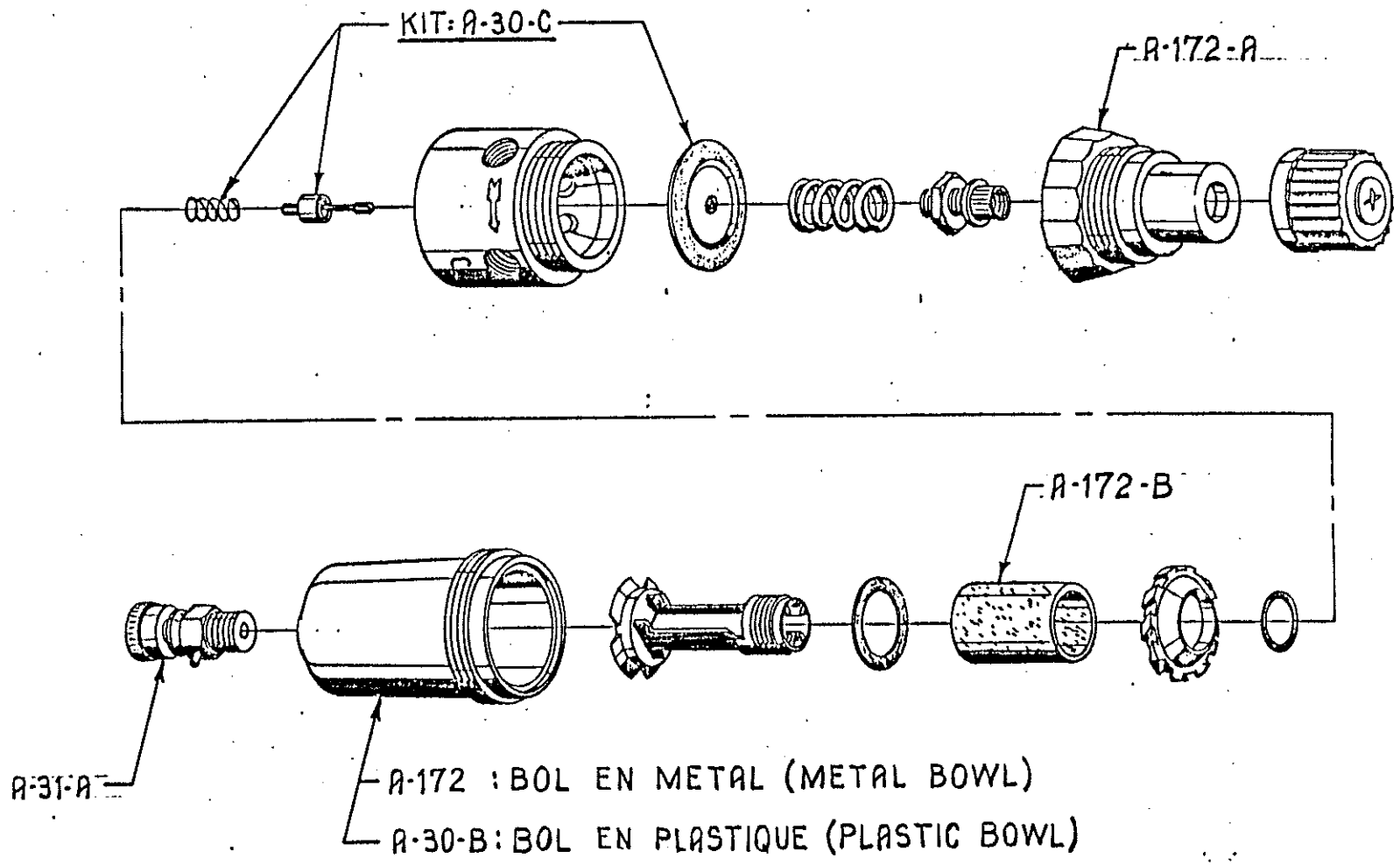


Damaged needles and needle plate are not covered by warranty.

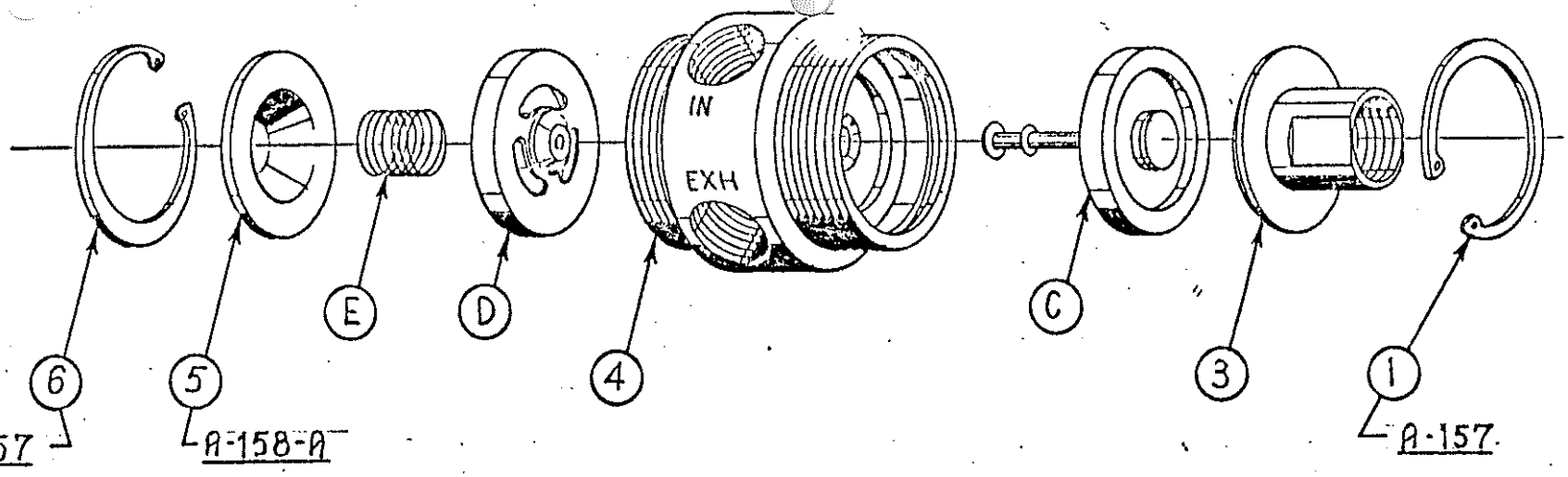


Needle plate damaged from over tightening adjusting screw. Once needle plate is damaged proper adjustment is impossible.

MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: CARE MUST BE TAKEN IN ADJUSTING MODULES.	SPÉCIFICATIONS A-100 A-101 A-105	PAR: CAS	ÉCHELLE: VARIABLE
APPR:			DATE: 17/3/77	PARTIE NO: BT-6

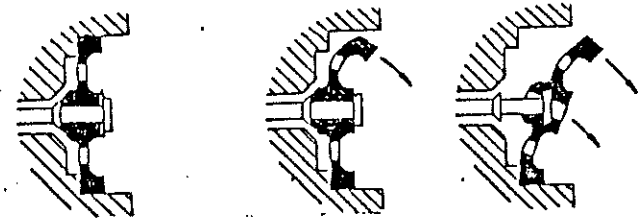


MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: Pièces de rechange du régulateur / Regulator replace parts	SPÉCIFICATIONS A-170	PAR: ca	ÉCHELLE: ½ = 1"
VER:	APPR:		DATE: 3/3/78	PARTIE NO: BT-13



DISASSEMBLY PROCEDURE

1. Remove Retaining Ring 6, End Cap 5, and Spring E.
2. Remove Diaphragm D as SHOWN.
3. Remove Retaining Ring 1, Actuator 3.

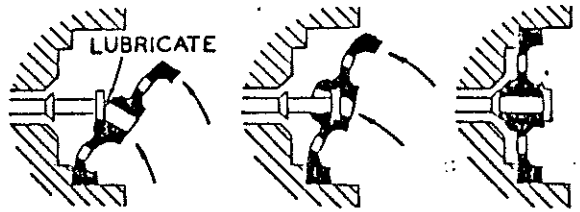


4. Remove Main Stem and Diaphragm Assembly C NOTING relationship to "IN" port to assure correct reassembly.

NOTE: Parts "C-D-E" included in the kit A-156

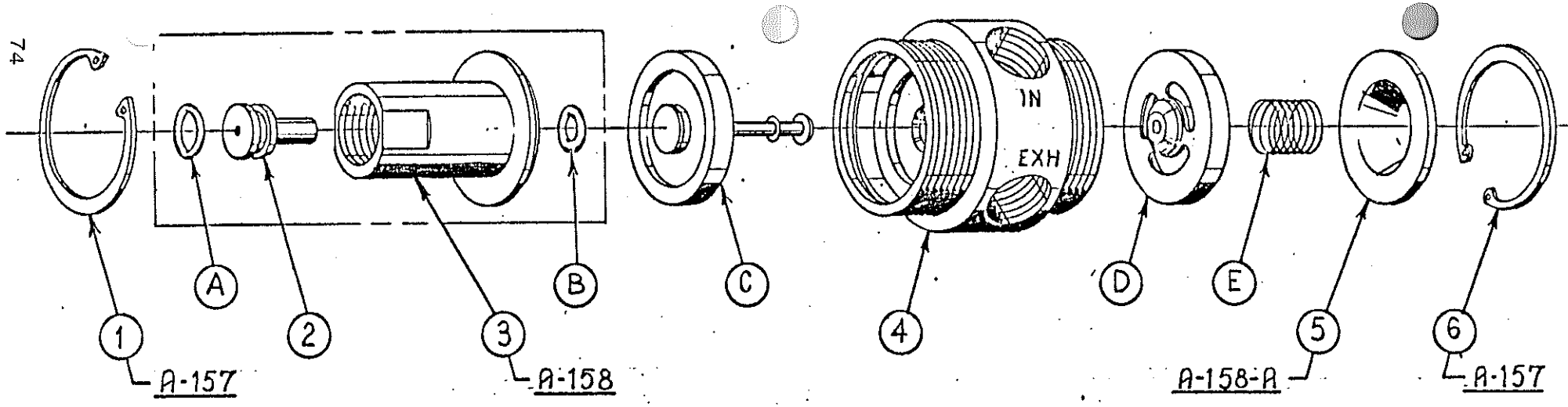
REASSEMBLY PROCEDURE

1. Insert New Main Stem and Diaphragm Assembly C into Valve Body 4 in correct relationship to "IN" port.
2. Assemble New Diaphragm D to main stem as SHOWN.



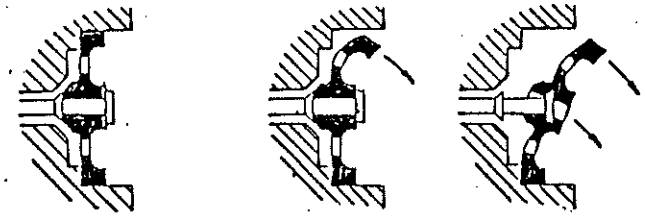
3. Add New Spring E, End Cap 5 and Retaining Ring 6.
4. Assemble Actuator 3 to valve Body 4 with Retaining Ring 1.

MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: How to repair a poppet normally closed	SPÉCIFICATIONS A-147	PAR: CAS	ÉCHELLE: 1"-1"
VER: 05-10-79 APPR:			DATE: 2/3/78	PARTIE NO: BT-16



DISASSEMBLY PROCEDURE

1. Remove Retaining Ring 6, End Cap 5, and Spring E.
2. Remove Diaphragm D as SHOWN.
3. Remove Retaining Ring 1, Actuator 3.

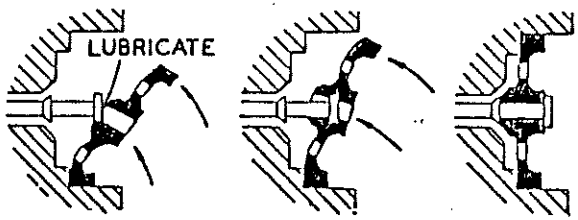


4. Remove Piston 2 from Actuator 3.
5. Remove "O" ring A and B from Piston 2 and Actuator 3.
6. Remove Main Stem and Diaphragm Assembly C NOTING relationship to "IN" port to assure correct reassembly.

NOTE: Parts "A-B-C-D-E" included in the kit A-156

REASSEMBLY PROCEDURE

1. Insert New Main Stem and Diaphragm Assembly C into Valve Body 4 in correct relationship to "IN" port.
2. Assemble New Diaphragm D to main stem as SHOWN.



3. Add New Spring E, End Cap 5 and Retaining Ring 6.
4. Add New "O" Rings A and B to Piston 2 and Actuator 3.
5. Lubricate and Assemble Piston 2 to Actuator 3. Use CARE when sliding piston over threads.
6. Assemble Actuator 3 to Balve Body with Retaining Ring 1.

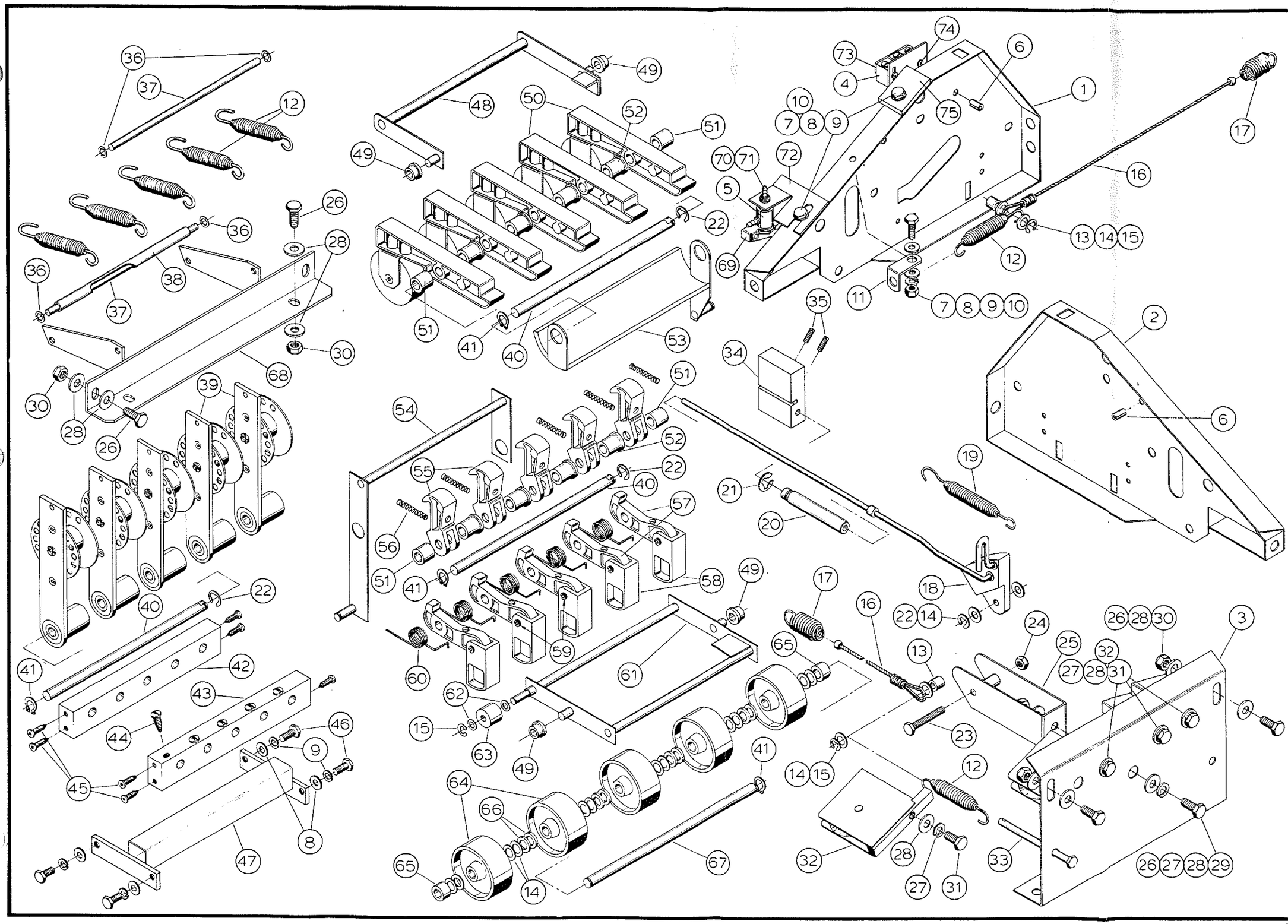
MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: How to repair a poppet normaly open	SPÉCIFICATIONS A-148	PAR: CAB	ÉCHELLE: 1"=1"
VER: [illegible] APPR: [illegible]			DATE: 2/3/78	PARTIE NO: BT-17

OILING AND CHECKING CHART
PNEUMATIC PINSETTERS

	DAILY	WEEKLY	MONTHLY	EVERY 2 MONTHS	YEARLY
1.- Oiling of main cylinder SUB-5003	X				
2.- Checking and adjusting of the strings	X				
3.- Cleaning and oiling of main cylinder cables (SUB-5003)		X			
4.- Oiling of ball lift cylinders		X			
5.- Bleeding of the compressor reservoir and checking of oil level in the compressor		X			
6.- Oiling of the sensor sheave assembly Oiling of the pin bumper assembly		X			
7.- Filling of the automatic oilers (see drawing PNA-35-2)			X		
8.- Cleaning of the filter of the air dryer			X		
9.- Oiling of shaft of all moving parts and axle of the pulleys P-8			X		
10.- Checking of the cables tension on the main cylinders (see BT-2)			X		
11.- Tightening of all screws and checking of the vibro insulators			X		
12.- Changing of the oil in the compressor				X	
13.- Cleaning or changing of the filter itself in the oil filter removal unit					X
14.- Changing of the filter of the air compressor					X
15.- Checking of the compressor by a specialized firm in this field					X

N.B. OILING OF THE MAIN CYLINDERS IS AUTOMATIC ON MODELS 201 - 500 - 901

MenDes Inc. QUÉBEC – CANADA	DESCRIPTION: OILING AND CHECKING CHART	SPECIFICATIONS PNEUMATIC PINSETTERS	PAR:	ECHEL:
VER:	APPR:		DATE: OCTOBER 7	PARTIE NO: BT-5



FAIT PARTIE DU

AUTOMATIC
PNEUMATIC
PINSETTER

REVISIONS

SCEAU

MEN DES

APPROUVE

215 CARON
QUEBFC

MEN DES INC.

MODELE

500

DOSSIER	DATE
	25/3/77

DESS. PAR:	ECHELLE
cas	VARIABLE

NOM DU DESSIN

SENSOR
PARTS

N° DU DESSIN

P-35-1

MANUFACTURED UNDER LICENCE
FROM J.J.LEIDL PAT. PENDING

PARTS LIST FOR P-35-1
MODEL 500

ITEM	CODE	DESCRIPTION
1	M-01	sensor side plate - right
2	M-02	sensor side plate - left
3	M-5	sensor front plate
4	E-810	micro switch
5	A-19	valve 1/8" p. 3 way miniature
6	H-32-E	1/2" X 1/4" roll pin - spring pin
7	H-46	1/4" - 20 X 3/4" hex. head cap screw
8	H-23	1/4" clear I.D.
9	H-95	1/4" lock washer
10	H-82	1/4" - 20 hex. nut plated
11	M-55	relatch spring bracket
12	S-71	reel arm spring
13	M-100-C	second latch and relatch sheave spring
14	H-27	3/8" I.D. spacer washer
15	H-11	1/4" "E" ring
16	SUB-5007	pull cable assembly
17	S-76	buffer spring - pull rod cable
18	SUB-7000	cam assembly
19	S-80	sensor lift cam spring
20	P-17	sensor cam push rod bushing
21	H-10-A	1/2" O.D. "E" ring
22	H-6	3/8" "E" ring
23	H-45	1/4" - 20 X 1 3/4" hex. head cap screw
24	H-44	1/4" - 20 hex. cap nylock nut
25	M-16	headpin string guide - front
26	H-42	5/16" - 18 X 3/4" hex. head cap screw
27	H-96	5/16" lock washer
28	H-22	5/16" clear I.D.

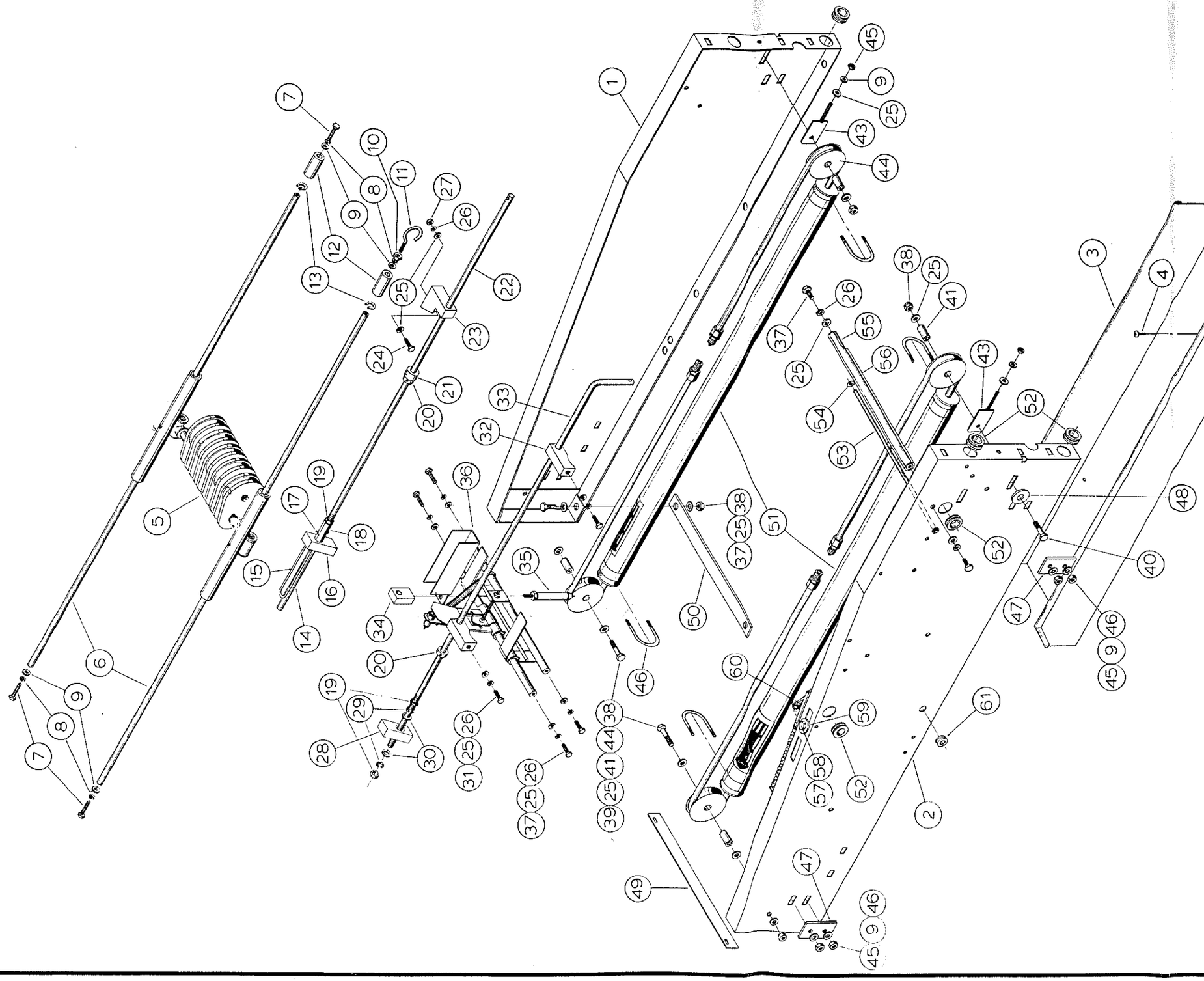
PARTS LIST FOR P-35-1

MODEL 500

ITEM	CODE	DESCRIPTION
29	H-80-A	5/16" - 18 hex. nut
30	H-80	5/16" - 18 hex. nylock nut
31	H-43	5/16" - 18 X 1/2" hex. head cap screw
32	SUB-5009	sensor sheave assembly large black wheel
33	M-267	second latch return spring pin
34	PT-226	sensor cam push rod block
35	H-63-D	1/4" - 20 X 1/2" long cup set screw
36	H-8	1/4" self locking push on
37	M-27-B	reel spring and buffer shaft
38	P-233	reel arm - buffer tube
39	SUB-5011	reel arm assembly
40	M-80	sensor cross shaft
41	H-14-A	3/8" I.D. "C" ring heavy duty
42	P-6	sensor internal string guide - front
43	P-6-A	sensor internal string guide - rear
44	H-100	9-32 X 1/2" metal socket screw
45	H-72-A	# 8 X 3/4" R.H. metal screw
46	H-50	1/4" - 20 X 1/2" hex. head cap screw
47	M-12	metal brake plate
48	M-33-A	trip arm - full set switch
49	P-32	bearing - full set and reset trip arm
50	SUB-5015	brake arm assembly
51	P-22	sensor and brake arm - end spacer
52	P-20	sensor hook and brake - center spacer
53	M-35	top brake wheel sector
54	M-32	second latch
55	P-9	sensor hook
56	S-77	sensor attitude spring
57	P-5	sensor link
58	P-3	sensor finger
59	H-32	3/16" X 7/8" rool pin - spring pin
60	S-72	sensor finger seating spring
61	M-31	sensor trip and lift arm
62	H-29	1/4" I.D. spacer washer

PARTS LIST FOR P-35-1
MODEL 500

ITEM	CODE	DESCRIPTION
63	P-31	sensor cam roller
64	P-28	nylon wheel
65	P-23	nylon wheel - end spacer
66	H-27-B	3/8" flat washer special
67	M-81	nylon wheel and cam shaft
68	M-2700	reel arm buffer
69	A-132	model 34 c. cam operator
70	A-56-B	buna gasket
71	A-118	10/32" X 1/16" hose fitting
72	M-6	part set valve bracket
73	M-28-B	micro switch support plate
74	H-52-C	1/8" X 1" self tapin
75	M-28-C	full set micro switch bracket



FAIT PARTIE DU

AUTOMATIC
PNEUMATIC
PINSETTER

REVISION

SCEAU

MEN DES

APPROUVE

215 CARON
QUEBEC

MEN DES INC.

MODELE

500

DOSSIER	DATE
	29/4/77
DESS. PAR: CAD	ECHELLE VARIABLE

NOM DU DESSIN

MACHINE
PARTS.

N° DU DESSIN

P-35-2

MANUFACTURED UNDER LICENCE
FROM J.J. LEIDL PATENT PENDING

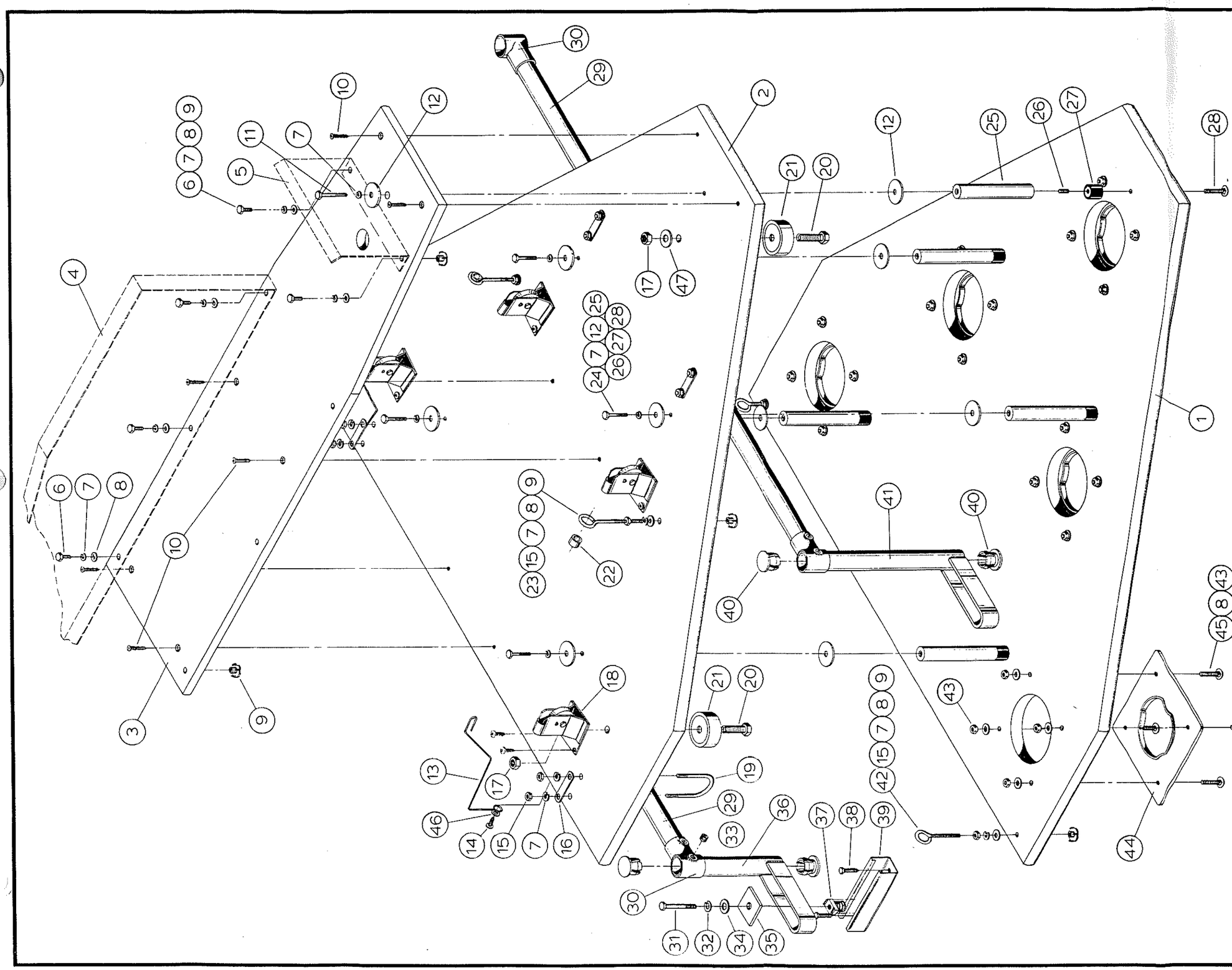
PARTS LIST FOR P-35-2
MODEL 500

ITEM	CODE	DESCRIPTION
1	M-001	main frame side plate - right
2	M-002	main frame side plate - left
3	M-286-B	string trough
4	H-72-A	# 8 X 3/4" R.H. metal screw
5	SUB-2120	drawbar assembly
6	M-213	drawbar stabilizer shaft
7	H-46	1/4" - 20 X 3/4" hex. head cap screw
8	H-95	1/4" lock washer
9	H-23	1/4" clear I.D.
10	H-82	1/4" - 20 hex. nut plated
11	H-58-F	1/4" - 20 X 2" eye bolt
12	P-26-A	drawbar stabilizer - end spacer
13	H-14-B	3/8" O.D. "C" ring
14	M-4-B	relatch pull bar adj. rod
15	MT-265	drawbar guard brake sector trip block
16	P-15-A	trip block - brake sector pull bar
17	H-35-F	3/32" cutter pin 1" long
18	H-83-B	coupling 3/8" N.C.
19	H-77-A	3/8" - 16 hex. cad plated
20	M-191	pull bar stop collar
21	RB-39-A	rubber grommet
22	M-4-A	relatch pull bar
23	P-34-B	pull rod support
24	H-40	5/16" - 18 X 1 1/2" hex. head cap screw
25	H-22	5/16" clear I.D.
26	H-96	5/16" lock washer
27	H-80-A	5/16" - 18 hex. nut
28	P-11-A	second latch pull bar

PARTS LIST FOR P-35-2

MODEL 500

ITEM	CODE	DESCRIPTION
29	H-99	3/8" lock washer
30	H-27	3/8" I.D. spacer washer
31	H-41	5/16" - 18 X 1 1/4" hex. head cap screw
32	P-34	pull rod support
33	M-29-A	second latch pull bar
34	P-4	relatch cylinder loop
35	A-12-E	cylinder 1/2" bore X 1" stroke
36	SUB-2300	limit valve assembly
37	H-42	5/16" - 18 X 3/4" hex. head cap screw
38	H-80	5/16" - 18 hex. nylock nut
39	H-39	5/16" - 18 X 1 3/4" hex. head cap screw
40	H-39-A	5/16" - 18 X 2" hex. head cap screw
41	M-102	hoist cylinder pulley sleeve
43	M-7	main cylinder cable tensioner
44	P-8	hoisting cylinder pulley
45	H-44	1/4" - 20 hex. cap nylock nut
46	H-59-C	1/4" X 1" "U" bolt
47	M-20	cylinder "U" bolt plate
48	M-168	cable tensioner external washer 1 5/8"
49	M-203	top cross tie - main frame rear
50	M-8	main frame rear spacer - bottom
51	SUB-5003	main cylinder assembly
52	R-15	rubber grommet
53	M-99	sensor finger stop bar
54	H-8	1/4" self locking push on
55	M-92	main frame cross rod
56	P-232	reel arm back stop tube
57	H-42-A	5/16" - 3/4" X 24 hex. head cap screw
58	M-504	locking plate 5/16" - 18 T.N.
59	M-166	cable tensioner external washer 1 1/8"
60	SUB-0501	retarder valve assembly
61	RB-39	rubber grommet



FAIT PARTIE DU

AUTOMATIC
PNEUMATIC
PINSETTER

REVISIONS

SCEAU

MENDES

APPROUVE Pro

215 CARON
QUEBEC

MENDES INC.

MODELE

500

DOSSIER	DATE
	21/6/77
DESS. PAR: ars	ECHELLE VARIABLE

NOM DU DESSIN

MACHINE
BASE PLATES
PARTS

N° DU DESSIN

P-35-3

MANUFACTURED UNDER LICENCE
FROM J.J.LEIDL PATENT PENDING

PARTS LIST FOR P-35-3
MODEL 500

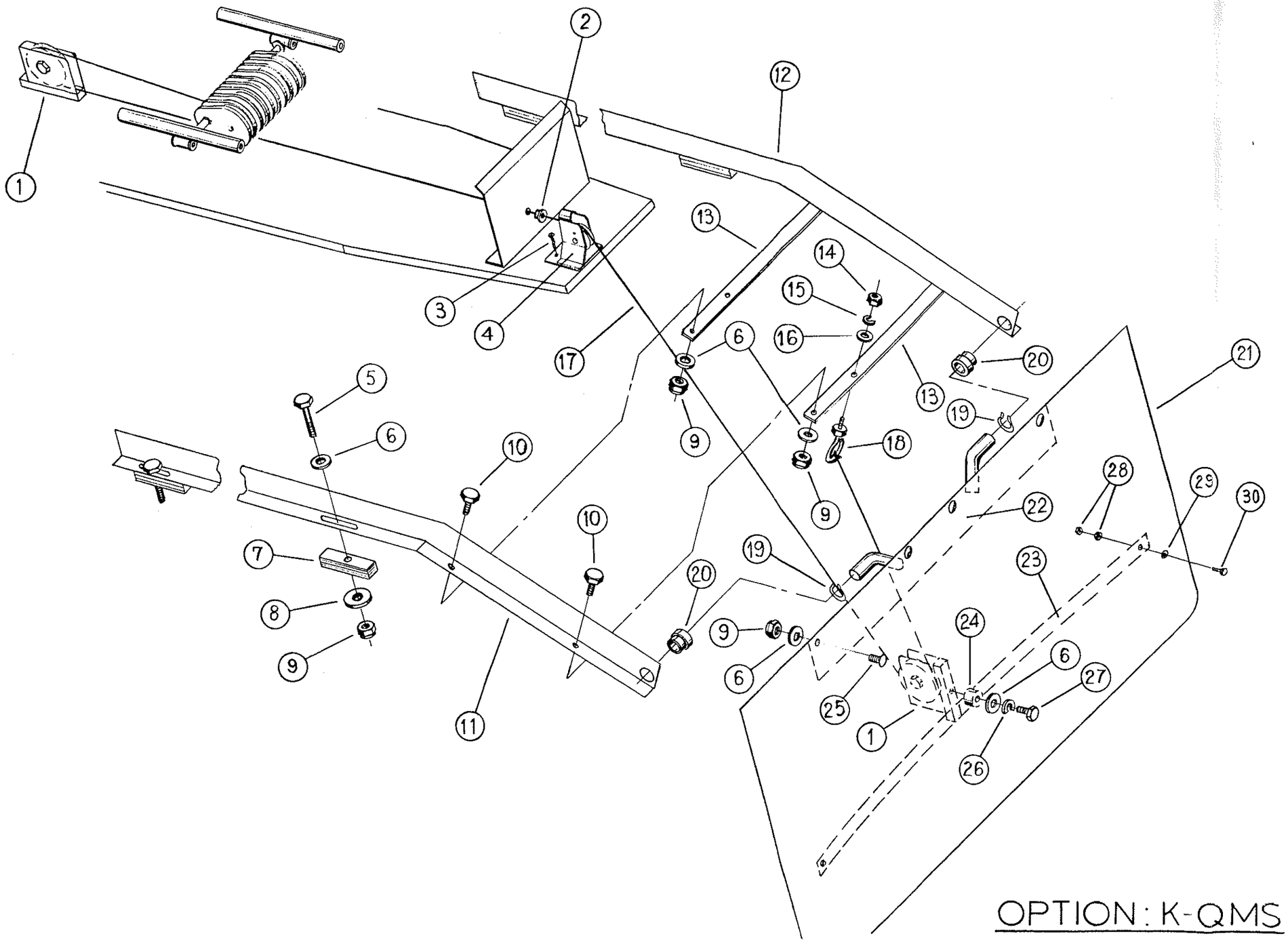
ITEM	CODE	DESCRIPTION
1	5W-10	bottom base plate peinture
2	5W-11	top base plate peinture
3	5W-12	machine plate peinture
4	M-001	main frame side plate - right
5	M-5	sensor front plate
6	H-42	5/16" - 18 X 3/4" hex. head cap screw
7	H-96	5/16" lock washer
8	H-22	5/16" clear I.D.
9	H-81	5/16" - 18 tee nut
10	H-70-A	# 12 X 1 1/2" F.H. wood screw
11	H-39-A	5/16" - 18 X 2" hex. head cap screw
12	M-168	cable tensioner external washer 1 5/8"
13	M-47	rear pin string guide
14	H-72-A	# 8 X 3/4" R.H. metal screw
15	H-80-A	5/16" - 18 hex. nut
16		"U" bolt plate 3 1/4"
17	H-78	1/2" X 20 hex. nut cad plated
18	SUB-5012	pin bumper sheave assembly large wheel
19	H-59-A	5/16" - 3 1/4" "U" bolt
20	M-41	pin bumper bolt
21	R-10	pin bumper
22	P-33	string guide bushing
23	H-58	5/16" - 18 X 6" eye bolt
24	H-39	5/16" - 18 X 1 3/4" hex. head cap screw
25	M-78	base plate spacer bar - main frame post
26	H-61	5/16" - 18 X 3/4" long cup set screw
27	R-14	vibro insulator
28	H-53	5/16" - 18 X 1 1/2" carriage bolt

PARTS LIST FOR P-35-3

MODEL 500

ITEM	CODE	DESCRIPTION
29	I-34	main cross supporting pipe
30	I-11	10-7 - 1/4" tee kee klamp single
31	H-37-H	3/8" - 16 x 2 3/4" hex. head cap screw
32	H-99	3/8" lock washer
33	I-24	97-7 set screw
34	H-21	3/8" clear I.D.
35	M-400	mounting washer
36	M-370	short mount foot
37	H-89	3/8" - 18 unistrut spring nut
38	H-68	5/16" x 1 1/2" lag screw
39	M-450	unistrut bar
40	I-16-B	77-7 plastic knob
41	M-360	long mount foot
42	H-58-B	5/16" - 18 x 2" eye bolt
43	H-80	5/16" - 18 hex. nylock nut
44	P-13	pin centering ring
45	H-54	5/16" - 18 x 1 3/4" carriage bolt
46	H-24	3/16" clear I.D.
47	H-20	1/2" clear I.D. flat washer

September 1978



OPTION : K-QMS

FAIT PARTIE DU

AUTOMATIC
PNEUMATIC
PINSETTER

REVISIONS

SCEAU

APPROUVE

215 CARON
QUEBEC

MENDES INC.

MODELE

500

OPTION	DATE
K-QMS	9/2/78
DESS. PAR	ECHELLE
CAS	VARIABLE

NOM DU DESSIN

STANDARD
SHIELD
PARTS

N° DU DESSIN

P-35-4

MANUFACTURED UNDER LICENCE
FROM RJ LEIPL PATENT PENDING

PARTS LIST FOR P-35-4
MODEL 500

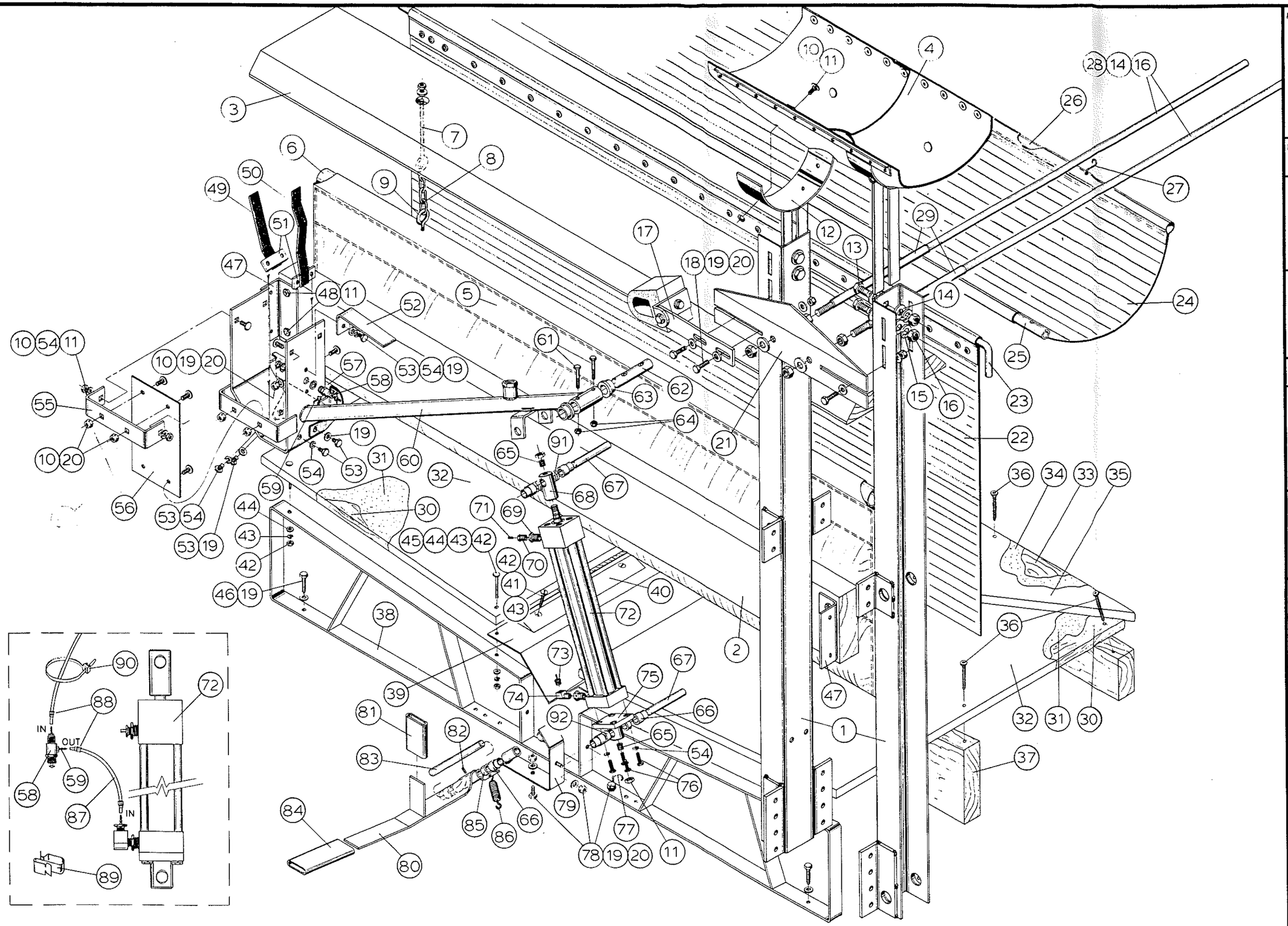
ITEM	CODE	DESCRIPTION
1	SUB-5017	sensor sheave assembly white wheel
2	P-32	bearing - full set and reset trip arm
3	H-72-A	# 8 X 3/4" R.H. metal screw
4	SUB-5008	pin bumper sheave assembly small black wheel
5	H-38-B	5/16" - 18 X 2 1/2" hex. head cap screw
6	H-22	5/16" clear I.D.
7	5W-100	block for shield
8	M-168	cable tensioner external washer 1 5/8"
9	H-80	5/16" - 18 hex. nylock nut
10	H-42	5/16" - 18 X 3/4" hex. head cap screw
11	M-132-L	shield arm left
12	M-132-R	shield arm right
13	M-135	shield arm cross bar
14	H-82	1/4" - 20 hex. nut plated
15	H-95	1/4" lock washer
16	H-23	1/4" clear I.D.
17	I-22-A	pin string 14 ft lenght
18	H-58-F	1/4" - 20 X 2" eye bolt
19	H-2	1/2" grip ring
20	P-29	ball lift cylinder hinge - ball gate hinge
21	P-52	front shield
22	M-137	shield support plate
23	M-133	shield tensioner
24	P-22	sensor and brake arm - end spacer
25	H-55	5/16" - 18 X 3/4" carriage bolt
26	H-96	5/16" lock washer
27	H-40	5/16" - 18 X 1 1/2" hex. head cap screw
28	H-85	# 10-32 hex. cad plated

PARTS LIST FOR P-35-4

MODEL 500

ITEM	CODE	DESCRIPTION
29	H-24-B	washer 3/4" O.D. 3/16" I.D.
30	H-51-B	10/32" X 3/4" R.H. steel machine screw
31	H-90-A	"S" hook large # 10

September 1978



FAIT PARTIE DU

BALL-LIFT

REVISION

SCEAU

MENDES

APPROUVÉ

215 CARON
QUEBEC

MeNDes INC.

MODELE

500

DOSSIER	DATE
	19/8/77
DESS. PAR:	ECHELLE
	VARIABLE

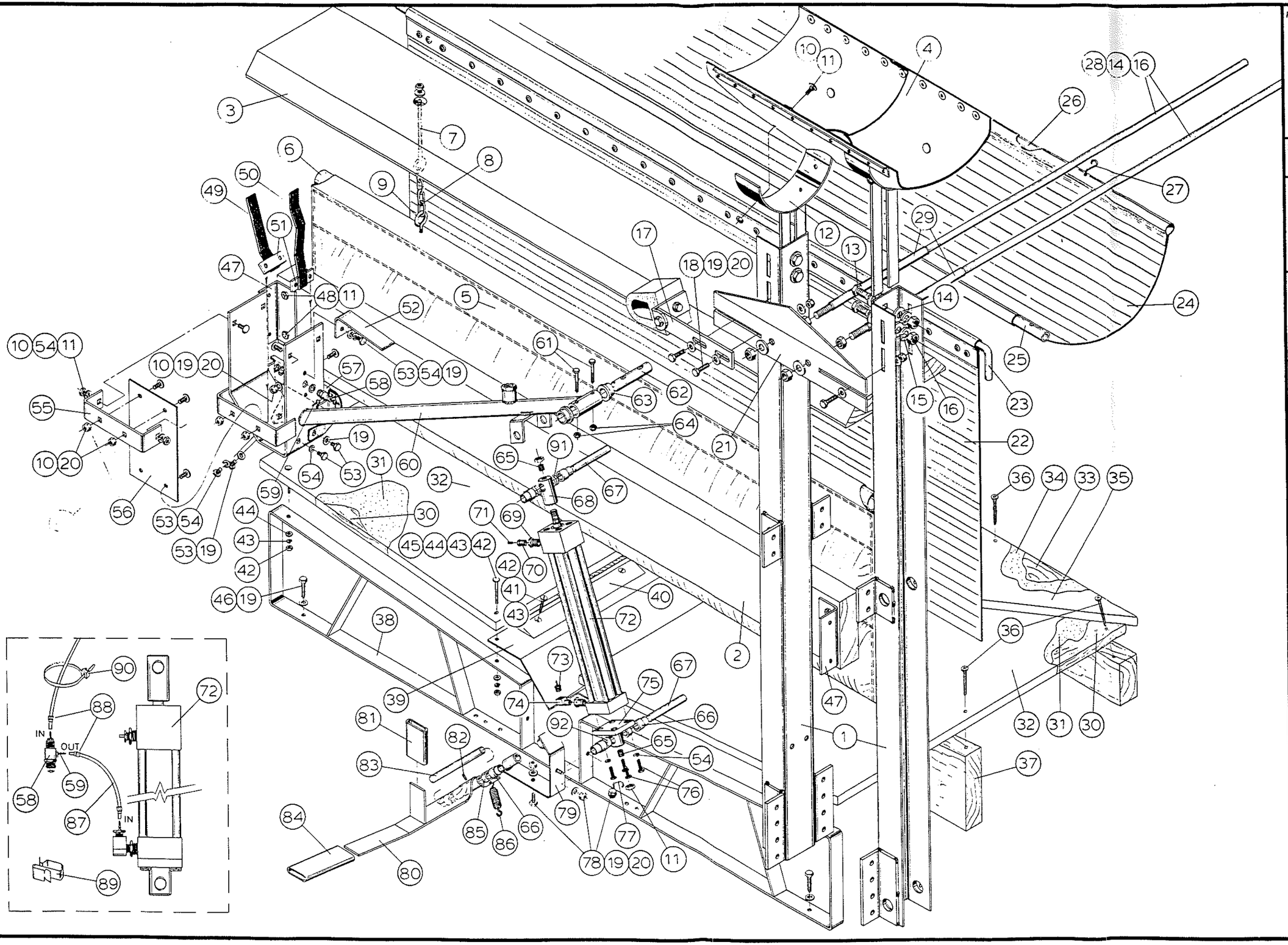
NOM DU DESSIN

BALL-LIFT
& PIT
PARTS

N° DU DESSIN

P-25-1

MANUFACTURED UNDER LICENCE
FROM J.J. LEIDL PAT. PENDING



FAIT PARTIE DU

BALL-LIFT

REVISION

SCEAU

MENDES

APPROUVÉ

215 CARON
QUEBEC

MeNDes INC.

MODELE

500

DOSSIER	DATE
	19/8/77
DESS. PAR:	ECHELLE
	VARIABLE

NOM DU DESSIN

BALL-LIFT
& PIT
PARTS

N° DU DESSIN

P-25-1

MANUFACTURED UNDER LICENCE
FROM J.J. LEIDL PAT. PENDING

PARTS LIST FOR P-25-1

MODEL 500

ITEM	CODE	DESCRIPITON
1	M-17	ball lift "U" frame
2	10W-14	back cushion stop plank (2" X 6" X 60")
3	10W-15	air line plank (2" X 8" X 66")
4	SUB-5010	rubber ball receiver assembly
5	I-102	cushion one piece bag type
6	M-452	cushion pipe
7	H-58	5/16" - 18 X 6" eye bolt
8	H-92	cushion chain 6" long
9	H-58-C	5/16" - 18 X 4" eye bolt
10	H-55	5/16" - 18 X 3/4" carriage bolt
11	H-80-A	5/16" - 18 hex. nut
12	M-83	ball receiving trough bracket
13	H-55-C	1/2" - 13 X 1" carriage bolt
14	H-20	1/2" clear I.D. flat washer
15	H-98	1/2" lock washer
16	H-77	1/2" - 13 hex. nut cad plated
17	SUB-3510	ball lift bumper duck assembly
18	H-41	5/16" - 18 X 1 1/4" hex. head cap screw
19	H-22	5/16" clear I.D.
20	H-80	5/16" - 18 hex. nylock nut
21	M-350	long mount foot
22	P-250	lower heavy apron
23	M-264-A	lower heavy apron rail
24	P-235	upper heavy apron
25	M-264	lower apron rail
26	M-263	upper light apron rail
27	H-90-A	"S" hooks large # 24

PARTS LIST FOR P-25-1

MODEL 500

ITEM	CODE	DESCRIPTION
28	M-266-A	ball rail 3/8" pipe
29	P-238	ball rail cushion tube
30	5W-108	side pit board
31	P-258	pit board sponge
32	P-259	pit board cover
33	5W-105	pit board front
34	P-256	pit board sponge
35	P-257	bucket bumper
36	H-70	# 12 X 2 1/2" F.H. wood screw
37	5W-106	pit board support center
38	M-96	pit frame rear
39	P-53-B	pit trough short
40	P-54	corner slope pit trough
41	H-48	1/4" - 20 X 1 1/2" F.H.
42	H-82	1/4" - 20 hex. nut plated
43	H-95	1/4" lock washer
44	H-23	1/4" clear I.D.
45	H-57-B	1/4" - 20 X 2" carriage bolt
46	H-68	5/16" X 1 1/2" lag screw
47	M-453	cushion stop bracket
48	H-55-A	5/16" - 18 X 2" carriage bolt
49	S-98	ball lift positioning spring
50	S-97	ball lift actuator spring
51	M-18	ball lift - spring retainer
52	M-93	ball lift valve guard
53	H-43	5/16" - 18 X 1/2" hex. head cap screw
54	H-96	5/16" lock washer
55	M-9-A	ball lift receiver bracket - top
56	R-12	ball receiver - back pad
57	R-12-A	ball receiver - front pad
58	A-130	3 way valve model 3 p. spring return
59	A-46	10-32 barb 1/8" hose
60	M-4800	ball lift arm assembly
61	H-45	1/4" - 20 X 1 3/4" hex. head cap screw

PARTS LIST FOR P-25-1

MODEL 500

ITEM	CODE	DESCRIPTION
62	M-91	ball lift main hinge pin
63	P-19	ball lift main bearing
64	H-44	1/4" - 20 hex. cap nylock nut
65	H-61	5/16" - 18 X 3/4" long cup set screw
66	P-29	ball lift cylinder hinge - ball gate hinge
67	M-90	ball lift cylinder hinge left
68	M-112	rod cylinder bracket
69	A-38	reducer bushing 1/4" M.P.T. X 1/8" F.P.T.
70	A-59	1/8" M.P.T. 10-32 F.P.T. reducer bushing
71	A-137	metering screw
72	A-12	cylinder 1 1/2" X 14" stroke
73	A-45	1/8" M.P.T. barb 1/8" hose
74	A-41	1/8" - street elbow
75	M-113	bottom cylinder bracket
76	H-42-A	5/16" - 3/4" X 24 hex. head cap screw
77	H-59-B	"S" hooks small
78	H-42	5/16" - 18 X 3/4" hex. head cap screw
79	M-39	ball stop bracket
80	M-38	ball stop leaf
81	P-251	ball stop leaf bumper (3 1/8")
82	H-62	5/16" - 24 X 3/8" long cup set screw
83	M-38-A	ball gate shaft
84	P-252	ball stop leaf bumper (5")
85	P-27-A	spacer bushing drawbar sheave
86	S-71	reel arm spring
87	A-57	1/8" I.D. air hose
88	A-47	hose clamp 1/8" I.D.
89	E-31	hose clips
90	E-51	T.Y. wrap long
91	S-48	head shaft stabilizer spring
92	P-25	inside bushing - drawbar sheave
	P-53	pit trough long 48"
93	M-10	receiver spacer bar

PARTS LIST FOR PNA-35-1

MODEL 500

CODE	DESCRIPTION
A-12-E	cylinder 1/2" bore 1" stroke
A-20	3 way miniature valve 10-32"
A-25	10-32 quick exhaust
A-27	pilot actuator 10-32
A-28-C	valve 1/8" pt solenoid 24 V. AC 3-way
A-30-C	diaphragm Watts
A-31-A	drain 1/8" M.P.T.
A-36	nipple hex. 1/4" M.P.T.
A-38	reducer bushing 1/4" M.P.T. X 1/8" F.P.T.
A-40	1/8" - street tee
A-41	1/8" - street elbow
A-42	tee 1/8" male and female
A-46-A	10-32 barb 1/8" hose
A-54	10-32 hex. plug fitting
A-56-B	buna gasket
A-59	1/8" M.P.T. 10-32 F.P.T. reducer bushing
A-73	adaptor 1/8" M.P.T. 1/8" F.P.T.
A-79	choke
A-81	quick connectors couplers female 1/4"
A-82	male tread adaptor 1/4" M.P.T.
A-100	3-way delay spring return screw adj.
A-101	3-way delay screw adj. (double pilot)
A-102	3-way double pilot
A-106	sub. plate
A-107	mounting stripe
A-108	connectors
A-109	plastic hose
A-117	hose clamp 1 1/16"
A-118	10/32" X 1/16" hose fitting
A-132	model 34 c. cam operator

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PARTS LIST FOR PNA-35-1

MODEL 500

CODE	DESCRIPTION
A-136	air manifold
A-141	female hex. connector 10/32"
A-142	nipple short coupling 10/32"
A-144	universal elbow fitting 10/32"
A-145	universal tee fitting 10/32"
A-146	universal tee "X" fitting 10/32"
A-147	125 (N.C.) pilot valve 3 way
A-148	125 A (N.C.) pilot valve 3 way
A-150	mounting nuts for A-147/148
A-151	poppet valve 2 way 1/8" PT
A-153	ball actuator
A-162	standard gauge
A-170	filter regulator
A-172	metal bowl (for A-170)
A-175	lubricator with drain cup
A-176	bowl (for A-175)
A-187	electrical switch
A-188	mounting bracket
A-191	inline volume chamber
A-300	polyethylene sleeve 1/4"
A-302	nut sleeve assembly 1/4"
A-304	male connector 1/4" X 1/8" PT
A-308	male branch tee 1/4" X 1/8" PT
A-309	male elbow 1/4" X 1/8" PT
A-311	male elbow 3/8" X 1/4" PT
A-314	union 1/4" O.D.
A-330	poly flo tubing 1/4" O.D. (blue)
E-542	electrical counter
E-560	White Rodgers transformer
E-564	3/8" connectors
E-566	junction box cover 4 X 4
E-800	shielded cable connectors (Amphenol male)
E-801	connectors cap (Amphenol)
E-802	M.I.P. socket (female with connector)
E-808	resistance 470 V. 2 watts
E-809	pilot - light

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PARTS LIST FOR FOLLOWING PAGES

MEA-25	ball lift
MEI-35-4	air-line assembly
MEI-35-1	cord maintenance
SUB-0501	retarder valve assembly
SUB-2120	drawbar assembly
SUB-2300	limit valve assembly
SUB-3510	ball lift bumper duck assembly
SUB-5008	pin bumper sheave assembly small black wheel
SUB-5009	sensor sheave assembly large black wheel
SUB-5011	rell: arm assembly
SUB-5012	pin bumper sheave assembly large wheel
SUB-5015	brake arm assembly
SUB-5017	sensor sheave assembly white wheel
SUB-7000	cam assembly
BT-3	how to install cylinders - model "C"
BT-4	how to repair SUB-5003 - type "C"
BT-6	care must be taken in adjusting modules
BT-13	regulator replace parts
BT-16	how to repair a poppet normally closed
BT-17	how to repair a poppet normally open

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CODE	DESCRIPTION
A-10	cylinder 1 1/8" X 37" stroke cable
A-10-C	lip seal for piston
A-10-G	"O" ring for piston 1/8" X 7/8"
A-10-H	cylinder piston 2.650"
A-20	3 way miniature valve 10-32
A-23	1/8" p. flow control - 2 way knob adjust
A-30-B	watts bowl for A-170
A-30-C	diaphragme Watts

CODE	DESCRIPTION
A-31-A	drain 1/8" M.P.T. (plastic knob)
A-39	1/8" - 1/8" - 1/8" F.P.T. tee
A-40	1/8" - street tee
A-41	1/8" - street elbow
A-45	1/8" M.P.T. barb 1/8" hose
A-46-A	10-32 barb 1/8" hose
A-47	hose clamp 1/8" I.D.
A-54-B	plug hex. head 1/8" M.P.T.
A-56-B	buna gasket
A-57	1/8" I.D. air hose
A-58	1/4" M.P.T. 3/8" hose
A-74	union 1/4" M.P.T. 1/4" F.P.T.
A-118	10/32" X 1/16" hose fitting
A-120	base gasket
A-121	static "O" ring
A-122	spool "O" ring
A-123	seal head gasket "O" ring
A-126	needle control screw type slot
A-127	needle control screw type slot "O" ring
A-128	needle plate
A-130	3 way valve model 3 p. spring return
A-137	metering screw
A-147	125 (N.C.) pilot valve 3 way
A-148	125 A (N.O.) pilot valve 3 way
A-151	poppet valve 2 way 1/8" PT
A-153	ball actuator
A-156	seal repair kit for A-147 & A-148
A-157	clips for A-147 & A-148
A-158	pilot head for A-147 & A-148
A-158-A	bottom plate for A-147 & A-148
A-162	standard gauge
A-170	filter regulator
A-171	mounting bracket
A-172	metal bowl for A-170
A-172-A	head for A-170
A-172-B	filter for A-170

CODE	DESCRIPTION
A-301	polyethylene sleeve 3/8"
A-303	nut sleeve assembly 3/8"
A-305	male connector 3/8" X 1/8" PT
A-306	male connector 3/8" X 1/4" PT
A-308	male branch tee 1/4" X 1/8" PT
A-309	male elbow 1/4" X 1/8" PT
A-340	poly flo tubing 3/8" O.D. (blue)
E-31	hose clips
H-2	1/2" grip ring
H-6	3/8" "E" ring
H-7	external "C" ring
H-10	3/16" self locking push on
H-11	1/4" "E" ring
H-13	3/16" "E" ring
H-14-B	3/8" O.D. "C" ring
H-14-C	1/4" I.D. "C" ring heavy duty
H-21	3/8" clear I.D.
H-22	5/16" clear I.D.
H-24	3/16" clear I.D.
H-26	1/2" I.D. spacer washer
H-29	1/4" I.D. spacer washer
H-30-A	3/16" I.D. washer for pop rivet
H-31-A	3/16" X 1 1/4" spring pin
H-32-C	3/16" X 3/8" roll pin - spring pin
H-35-C	1/8" X 5/8" rivet
H-39	5/16" - 18 X 1 3/4" hex. head cap screw
H-41	5/16" - 18 X 1 1/4" hex. head cap screw
H-42-A	5/16" - 3/4" X 24 hex. head cap screw
H-42-B	5/16" - 18 X 1" hex. head cap screw
H-44	1/4" - 20 hex. cap nylock nut
H-46-A	1/4" X 20 X 1"
H-50-B	1/4" X 5/8" socket cap screw
H-57	1/4" - 20 X 3" carriage bolt
H-66	5/16" X 3/4" long shoulder screw
H-72-B	3/4" X 8" F.H. wood screw
H-80	5/16" - 18 hex. nylock nut
H-82	1/4" - 20 hex. nut plated

CODE	DESCRIPTION
H-85-A	10-24 hex. nut cad plated
H-95	1/4" lock washer
M-11	storage reel axle pin
MT-14	sensor cam push bar
M-15	shield cord sheave
M-15-A	pull - 1 sheave - large
M-17	ball lift "U" frame
M-19	top brake wheel bracket
M-22	rell arm
M-24-C	limit valve bracket
M-24-D	limit valve actuator
M-25	main cylinder - stroke adjustment stop
M-42	spring storage reel
M-43	pin bumper sheave
MT-43	pin bumper sheave
M-76-A	top brake wheel axle pin (slotted)
M-77	drawbar
M-98-A	drawbar sheave pin
M-100	front and bumper sheave axle
M-100-A	drawbar sheave axle
M-100-B	pin bumper sheave axle
M-101	front bumper sheave
M-166	cable tensioner external washer 1 1/8"
M-168	cable tensioner external washer 1 5/8"
M-192	sensor cam push bar stop collar
MT-204	sensor lift cam pull spring link
M-212	drawbar stabilizer
M-213	drawbar stabilizer shaft
M-351	ball lift bumper bracket
M-352	ball lift bumper retainer
M-501-A	soft set delay frame
M-502	soft set trip arm
M-504	locking plate 5/16" - 18 T.N.
M-2300	reset cylinder and limit valve bracket
P-1-A	drawbar sheave plate
PT-7-R	sensor lift cam
P-10	brake wheel arm

CODE	DESCRIPTION
P-14	sheave pulley pin bumper
P-16	sheave pulley sector
P-16-A	sheave pulley drawbar (injected)
P-25	inside bushing - drawbar sheave
P-26	storage reel arm bushing
P-26-A	drawbar stabilizer - end spacer
P-27-A	spacer bushing drawbar sheave
PT-86	drawbar stabilizer - guide bushing
P-231-A	soft set shoe long
RT-9	ball lift bumper brake cushion
R-11-A	upper brake wheel
S-71	reel arm spring
S-74	storage reel spring
S-75	limit valve second latch quadrant spring
SUB-510-A	cylinder head cable assembly
SUB-7071	repair cable assembly
Z-399	silicone grease tube - 8 oz.
Z-400	pneumatic oil

BULLETIN

MENDES INC. 215, Caron, Québec, Canada, G1K 5V6 (418) 529-5395 Télex: 051-3369

QUILLES–BILLARD–GYMNASE–TENNIS
BOWLING–BILLIARD–GYMNASIUM–TENNIS

PURCHASE ORDERS

To secure a fast delivery and minimize the risk of lost goods, you are invited to:

1) Write your address in full: city, county or district, province, postal code and give your telephone number.

2) Indicate "C.O.D." unless you have an open account with us. If you wish to open an account, let us know the name and the address of your bank, or any other credit references.

3) Specify the quantity of units:(dozen, box, bottle, gallon, quart, set, etc.).

4) Under "Code", carefully mention the part number. It is of great importance to do so.

5) Use the description of the parts list.

6) All pinsetter parts are F.O.B. destination, by the most economical way. If you prefer a particular routing, please mention it in the space provided to this effect.

CONDITIONS:

- All purchase orders should be signed by a staff member of your organization.

- No merchandise is to be returned without the pre-authorization of our company.

- Any returned merchandise is subject to a 15% discount before credit is given, in order to cover the handling and other charges.

- All errors should be reported to us not later than 15 days after the shipment of goods.

- MenDes Inc. is not responsible for damages to goods during transportation. It is very important to report any defect or irregularity on the delivery slip.

- Open accounts are subject to an interest of 2.5 monthly, if the bills are not paid within 30 days.

TROUBLE SHOOTING

INTRODUCTION

The information contained in this Trouble Shooting is to help you locate any minor trouble and repair it quickly.

However, before doing anything on the machine, make sure that:

1) The red light on the panel control is "ON";

2) The pressure gauge indicates the required pressure;

3) The strings are adjusted at their right length and threaded at the right place.

MenDes Inc.
Quebec, P.Q.

September 1978

Complaint 1. PINSETTER RE-CYCLES CONTINUOUSLY

Cause A Sticking bowler button

Remedy A Replace defective button

Cause B Full set micro-switch being held closed

Remedy B Re-adjust micro-switch for trigger clearance. See adjustment drawing MEA-35-2. If micro-switch defective, replace.

Cause C Defective full set solenoid, remaining closed, when circuit de-energised.

Remedy C Replace solenoid

Cause D De-tangler module time delay set too fast. i.e. in advance of time delay set for rear time delay module.

Remedy D Adjust de-tangler module time delay as per adjustment page 3.3 paragraph "D". Replace module if defective.

Note: If no time delay adjustment can be obtained with this module and there are no replacements to hand, exchange the unit with the "Rear Time Delay Module" and adjust as necessary.

Complaint 2. PINSETTER RE-CYCLES AT PERIODIC INTERVALS

Cause A Brake assembly not clamping string effectively, causing sensing finger to move forward and trigger partial set switch.

Cause B Improper adjustment of the lower brake roller assembly having caused the string to wear a groove in the upper and lower brake rollers.

Remedy B Replace defective roller. Adjust as per drawing MEA-35-2

Complaint 3. PINSETTER DOES NOT CYCLE ON PARTIAL SET SIGNAL

Cause A Time delay adjustment on partial set module A-101-TI incorrectly set or defective.

Remedy A Adjust time delay screw in top of module as per adjustment page 3.2 paragraph "C".

Complaint 4. PINSETTER DOES NOT CYCLE WHEN RE-SET BUTTON DEPRESSED

Cause	A	No power to pinsetter
Remedy	A	Check managers control "ON" switch
Cause	B	Red light on pinsetter extinguished with manager control switch "ON".
Remedy	B	Check for transformer power supply, and blown fuse in dis-connect box

Complaint 5. PINSETTER CYCLES TOO SLOWLY ON UPSPEED AND DOWNSPEED

Cause	A	Lack of sufficient air pressure
Remedy	A	Check air regulator gauge for minimum 80 lbs p.s.i. Check if air compressor tank pressure minimum 90 p.s.i.
Cause	B	Air pressure gauge shows drop in air pressure during machine cycle of more than 5 lbs p.s.i.
Remedy	B	Disconnect air supply. Remove bowl from air regulator assembly. Remove and replace internal air filter. Clean needle valve, diaphram, and spring assembly. Re-assemble and adjust.
Cause	C	Three way pilot valve to cylinders A-147 does not shift.
Remedy	C	Replace valve assembly
Cause	D	Exhaust is too dirty
Remedy	D	Change it or clean it
Cause	E	Cable tension on cylinder is too great
Remedy	E	Adjust it
Cause	F	Defective cylinder Sub-5003
Remedy	F	Change it

Complaint 6. PINSETTER CYCLES TOO SLOWLY OR STOPS ON DOWN CYCLE ONLY

Cause	A	Down speed exhaust flow control valve shut down too far.
Remedy	A	Adjust down speed screw as per adjustment page 3.4 paragraph "F".

Complaint 7. PINSETTER CYCLES TOO FAST ON DOWNSPEED CYCLE, CAUSING PINS TO WOBBLE WHEN SET ON PINDECK.

Cause	A	Down speed exhaust flow control valve open too far
Remedy	A	Adjust down speed screw as per adjustment page 3.4 paragraph "F"
Cause	B	Pin speed retarder for soft set on pindeck, maladjusted.
Remedy	B	Adjust soft set retarder as per adjustment page 3.4 paragraph "F"
Cause	C	Massive air leakage at connections to front of cylinders or through end cap seals.
Remedy	C	Replace defective cylinder.

Complaint 8. TRAVEL BAR STOPS AT REAR, PINS HELD UP IN DECK

Cause	A	Rear limit switch not being closed
Remedy	A	Check pin string adjustment as per drawing MEA-35-1 and MEA-35-2 and check that travel bar contacts and closes rear limit switch
Cause	B	Rear time delay module out of adjustment. Will not trigger
Remedy	B	Adjust screw in top of rear time delay module to allow one second delay. Replace if defective.
Cause	C	Defective cylinder pilot valve A-147 and or a A-148 do not shift as required.
Remedy	C	Replace defective valves as necessary. (The defective valve may be determined by disconnecting the air supply lines to the valves and observing air leakage from one or both valves.)
Cause	D	Massive air leakage at connections to front of cylinders or through end cap seals.
Remedy.	D	Replace defective cylinder.

Complaint 9.		PINS DO NOT FALL FREELY ON BALL IMPACT
Cause	A	Second latch pull bar does not rest against stop pin and allows brake arm to apply brake immediately on ball impact.
Remedy	A	Check position of stop collar on second latch pull bar and adjust.
Remedy	B	Check for broken spring on M-267 and replace as necessary.
Remedy	C	Check for free movement of second latch pull bar through. P-34 - pull rod support - Re-position as necessary.

Complaint 10.		PINS HELD UP IN DECK WHEN THEY SHOULD BE RE-SPOTTED AFTER PARTIAL SET
Cause	A	Same as complaint No. 9
Remedy	A	Same as complaint No. 9 - Remedies A, B and C.

Complaint 11. PINS ARE RESPOTTED AFTER KNOCK-DOWN ON PARTIAL RE-SET

Cause	A	Cycle time delay set too fast
Remedy	A	Adjust time delay on partial set module A-101-TI page 3.2, paragraph "C"
Cause	B	Second latch pull bar does not release brake arm to clamp string
Remedy	B	Check for broken buffer spring. S-76 on pull rod cable and if necessary replace
Remedy	C	Check adjustment and security of nylon block P-15-A on rear of second latch pull bar

Complaint 12.		PINS DO NOT SPOT CORRECTLY
Cause	A	Incorrect pin string adjustment
Remedy	A	Check string adjustment - Drawing MEA-35-1 and MEA-35-2
Cause	B	Broken centering ring
Remedy	B	Replace centering ring
Cause	C	Pinsetter frame was shifted on mounting feet
Remedy	C	Slacken bounting bolts and move pinsetter until correct pin spotting position is achieved. Re-tighten mounting bolts securely.
Cause	D	Pin up time delay valve A-100-SP not set correctly.
Remedy	D	Set time delay valve as per adjustment page 3.4 paragraph "E" full up position.
Cause	E	Pin does not run free on swivel P-2.
Remedy	E	See for installation string as MEI-35-1 and MEI-35-2

MENDES BULLETIN

MENDES INC. 215, Caron, Québec, Canada, G1K 5V6
(418) 529-5395 Télex: 051-3369

QUILLES–BILLARD–GYMNASE–TENNIS
BOWLING–BILLIARD–GYMNASIUM–TENNIS

Dear customer:

Your manufacturer is pleased to enclose herewith an "OILING AND CHECKING CHART".

Its presentation is quite simple and no doubt it will be helpful to your operator in the maintenance of your pinsetters.

We invite you to follow these instructions most carefully. You will be the first to benefit from rewarding savings realized by eliminating unnecessary service calls, undue mechanism wear, etc.

Our co-operation is yours! Any ideas you may have in mind will benefit both parties.

Yours very truly,

MENDES INC.

LOUISE ROBERGE
General Director

September 1978

OILING AND CHECKING CHART
PNEUMATIC PINSETTERS

	DAILY	WEEKLY	MONTHLY	EVERY 2 MONTHS	YEARLY
1.- Oiling of main cylinder SUB-5003	X				
2.- Checking and adjusting of the strings	X				
3.- Cleaning and oiling of main cylinder cables (SUB-5003)		X			
4.- Oiling of ball lift cylinders		X			
5.- Bleeding of the compressor reservoir and checking of oil level in the compressor		X			
6.- Oiling of the sensor sheave assembly Oiling of the pin bumper assembly		X			
7.- Filling of the automatic oilers (see drawing PNA-35-2)			X		
8.- Cleaning of the filter of the air dryer			X		
9.- Oiling of shaft of all moving parts and axle of the pulleys P-8			X		
10.- Checking of the cables tension on the main cylinders (see BT-2)			X		
11.- Tightening of all screws and checking of the vibro insulators			X		
12.- Changing of the oil in the compressor				X	
13.- Cleaning or changing of the filter itself in the oil filter removal unit					X
14.- Changing of the filter of the air compressor					X
15.- Checking of the compressor by a specialized firm in this field					X

N.B. OILING OF THE MAIN CYLINDERS IS AUTOMATIC ON MODELS 201 - 500 - 901