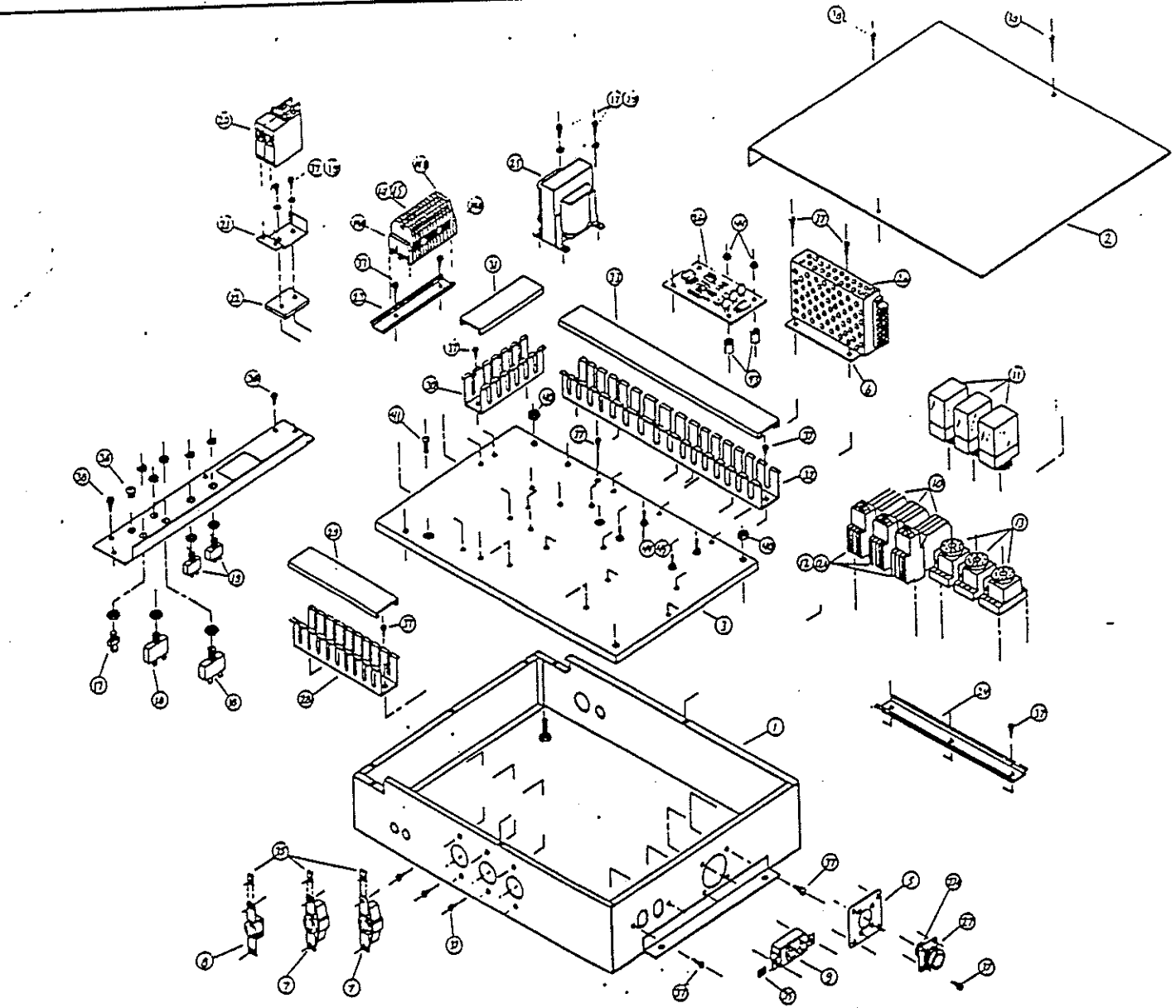


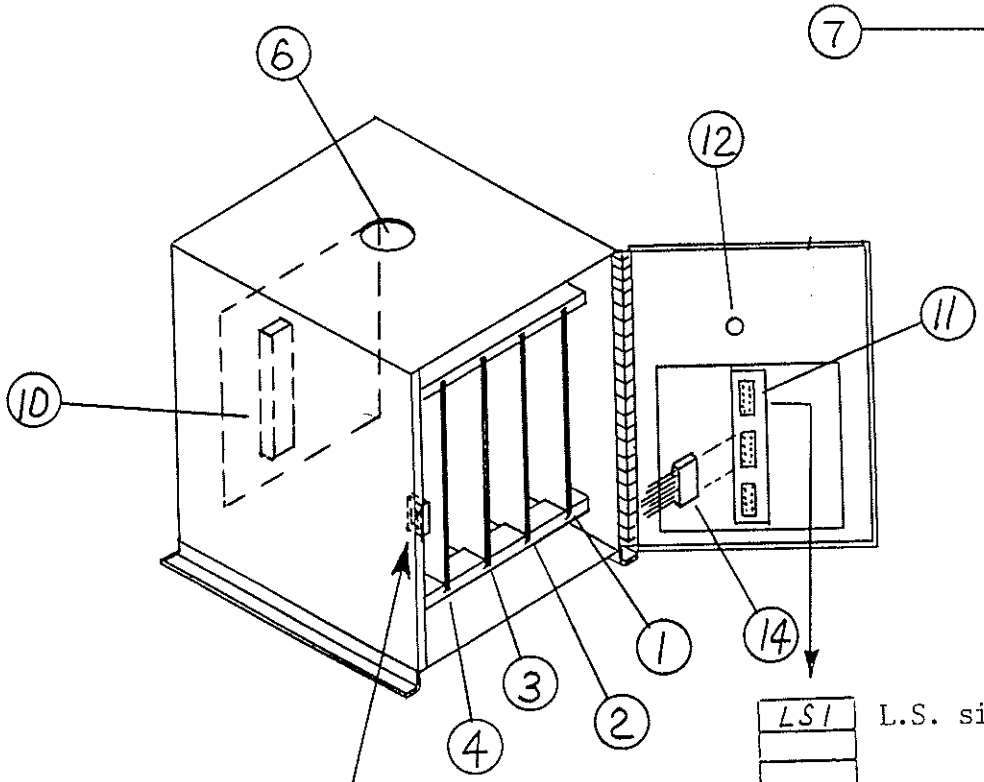
MENDES Québec Canada	DESCRIPTION: BOITIER D'ALIMENTATION - VERSION #2	SPÉCIFICATIONS	PAR: / ÉCHELLE:
	VÉR.: ..... APPR.: ..... DATE: 2-8-88		PARTIE No. SB-0640-58

MATERIAL LIST

POWER BOX

SB-0640-58

INDEX	CODE NUMBER	DESCRIPTION
-	M-0640-58-01	ELECTRICAL BOX
-	M-0640-58-04	COVER
-	M-0640-58-05	MOULTING PLATE
-	M-0640-58-06	COVER (SMALL
-	M-0640-73	RECEPTACLE HOLDER
-	M-0640-58-07	POWER SUPPLY SUPPORT
7	E-2320	PUMP RECPT 3 POS.
8	E-4560	BALL LIFT RECPT
9	E-5252	PINLIGHT PLUG 115V.
10	E-620-28	POWER RELAY
11	E-601-12	PLUG-IN RELAX 11 P.
12	E-600-40	OVERLOAD 9.4-14
12A	E-600-31	OVERLOAD 6.3-9.4
13	E-600-12	SOCKET 11 P.
14	E-115116	TERMINAL 4-18
14A	E-103002-26	STOPPER
14B	E-118368	FLASQUE
15	E-115118	TERMINAL 4-14
16	E-600-46-02	OVERLOAD 2A
17	E-ZF122UEE	START BUTTON
18	E-600-46-05	OVERLOAD 5A
19	E-7501-K15	SW. SP. ST.
20	E-600-25	BREAKER 25A
21	E-600-25-1	BRAKET FOR BRAKER
22	E-P-0640-10	NYLON SUPPORT
23	E-164800	RAIL 6.5 PO
24	E-164800-1	RAIL 13 PO
25	E-600-10	POWER TR 115/208/240
26	E-LUS10A9	POWER SUPPLY 9 V. DC
26A	E-MD3-65	P.C.B. O CROSSING
27	E-206043-1	RECEPTACLE 14 F.
27A	E-66592-1	SOCKET CONTACT # 18
35	E-TN40	SPRING NUT
36	E-805	SNAP PLUG 1/2
37	H-072-16	# 6 x 3/8 RH. SCW.
38	H-072-19	# 8 x 1/2 RH. SOC.TR.
39	H-024	3/16 I.D. FLAT WASHER
40	H-080-05	5/16-18 HEX. KEP NUT
41	H-063-F	1/4-20 x 1/2 MAC.SCW
43	P-0640-58-7	PLASTIC SPACER
44	H-006-1	6/32 HEX. KEP NUT
45	H-052-C	6/32 x 1" RH. SOCK. MACH. SCW.



7 — Pin detector Lane 1
Pin detector Lane 2

Machine #1
Machine #2
Communication
Supply

LS1	L.S. signal Lane 1
LS2	L.S. Signal Lane 2
DB2	Ball detector signal Lane 2
DB1	Ball detector signal Lane 1

MENDES Québec Canada

DESCRIPTION :

BOWLINGO CONTROL BOX

VÉR. : ..... APPR. : ..... DATE : 90/06

SPÉCIFICATIONS

BOWLINGO
MODEL 201E

PAR :

ÉCHELLE :

PARTIE No.

SB-6500-35-1

MATERIAL LIST

ELECTRONIC CONTROL BOX

SB-650035-1 / SB-6500-35-2 / SB-6500-35-2B

INDEX	CODE NUMBER	DESCRIPTION
1	E-MD3-5C	P.C.B. I.O.
2	E-MD3-7C	P.C.B. SCORING
3	E-MD3-12	P.C.B. SOUND
4	E-MD3-6C	P.C.B. C.P.U.
6	E-900	FAN
7	EC-035-18	CABLE PIN DETECTOR
10	E-MD3-11	P.C.B. MOTHER BOARD
11	E-MD3-20	P.C.B. LED INDICATOR
12	E-1-422	C.P.U. RESET BUTTON
14	EC-035-26	CABLE INDICATOR LED

- Verifications before changing parts or P.C.B.:

1) An electronic control is specifically designed to control the two pinsetter functions.

   If problems arise and before replacing components the following points must always be verified:

   A) Check the 220 volts power source.

   B) Check if the START button is activated.

   C) Check the fuse or the transformer RESET on the power box.

   D) Check if the electronic controler LEDs are lit.

   E) Check if the ball detector LEDs are lit.

2) Recuperation of the score / method to follow:

   1) Shut off the main breaker for 10 to 14 seconds.

   2) Turn breaker ON and wait 5 to 10 seconds.

   3) Press the start button.

   4) The two machines should start up.

   5) To continue the game, replace the two keyboards into play.

3) Reset instructions:

The real method to carry-out a complete RESET:

   1) Shut off the main breaker.

   2) Open the electronic control door and hold the RESET button on the CPU board for 3 seconds while at the same time pressing on the RESET button on the door.

   3) Replace the main breaker to the ON position and wait 5 to 10 seconds. Then, press the START button (the machines should not start up).

4) Check to see if the machines are ON by positionning the (MAN-AUTO) switch to the MANUAL position then by replacing it to the AUTOMATIC position. To stop the machines, press the RESET button on the door for 3 to 5 seconds.

NOTA: After a complete RESET, the non-permanent parameters are lost. You will have to replace them with proset button.

- Trouble shooting

1) If after a power failure the pinsetter does not restart:

A) Verify that the main breaker is in the ON position.

B) Verify that the START button has been activated.

C) Verify the fuse or transformer breaker.

D) Verify that the electronic controler LEDs are lit.

2) Incorrect pin readings:

A) Verify if the flat cable is connected to the electronic controler and pin detector (PCB MD3-8).

B) Verify if the sensor corresponding to the unread pin is correctly positionned.

C) Verify that electronic sensor is well connected to the P.C.B. MD3-8.

D) Verify that electronic sensor is in good condition by replacing it by another one.

E) Change the P.C.B MD3-8.

F) Change the flat cable.

3) If after a complete reset and in activating the start button the machines restart:

A) Verify if the MAN-AUTO button is in the AUTO position.

B) Shut the power source off and carry out a complete reset.

C) Change the electronic controler.

4) If when the machines start up, the forward ball lift does not start:

A) Verify that the 110 volt power supply is ON.

B) Verify if the ball lift surcharge protector is in good condition.

C) Verify the motor belt.

5) If there is no display on the animation panel:

A) Verify if 220 volt source for the supply of the power box is ON.

6) Bad ball readings:

A) Verify if the green light on the sensor is in the reset position.

B) Verify if the light goes out when the sensor is obstructed.

C) Verify if the sensor is 1/2" over the alley's surface. Do this by moving an object of 1/2" under the ray, while checking if the light stays lit.

D) Verify if the reflector is properly set and clean.

E) Verify if the signal is visible on the electronic control.

F) Change the electronic sensor.

3- ADJUSTMENTS: (Pinsetter)
****

A- PRELIMINARIES:

Before proceeding with any adjustments, please make sure that:

1) Machine is ON.

2) Proper pressure feeds the machine at least 100 P.S.I. for the Fivepin and 125 P.S.I. for the Duckpin. The standard gauge on the compressor will tell you.

3) LEDs on the electronic control box are lighted up.

4) Compressed air pressure is adjusted at 125 P.S.I. when coming into each and every machine.

5) Proper power feeds 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:

Before beginning the adjustments, make a pin fall down that the machine will make a complete cycle.

- check once more if the pressure is normal;
- check if the strings have all passed at the right place.

If the drawbar cannot reach the D-2 position, proceed to the adjustment of the strings.

Before proceeding to the mechanical adjustments, be sure that the electronic control is well adjusted and the electronics sensors are at the good position as shown on diagram MEA-35-07.

NOTICE: Before beginning the mechanical adjustments, you have to make sure of the following points:

1) That the manometer indicates the right pressure;

2) That the pindeck is in P-1 position, ready to bowl position;

A) Adjustment no 1: String adjustment
Refer to diagram # MEA-35-01

B) Adjustment no 2: CAMS adjustment
Refer to diagram # MEA-35-02

C) Adjustment no 3: Full set bar adjustment
Refer to diagrams # MEA-35-03A
MEA-35-03B

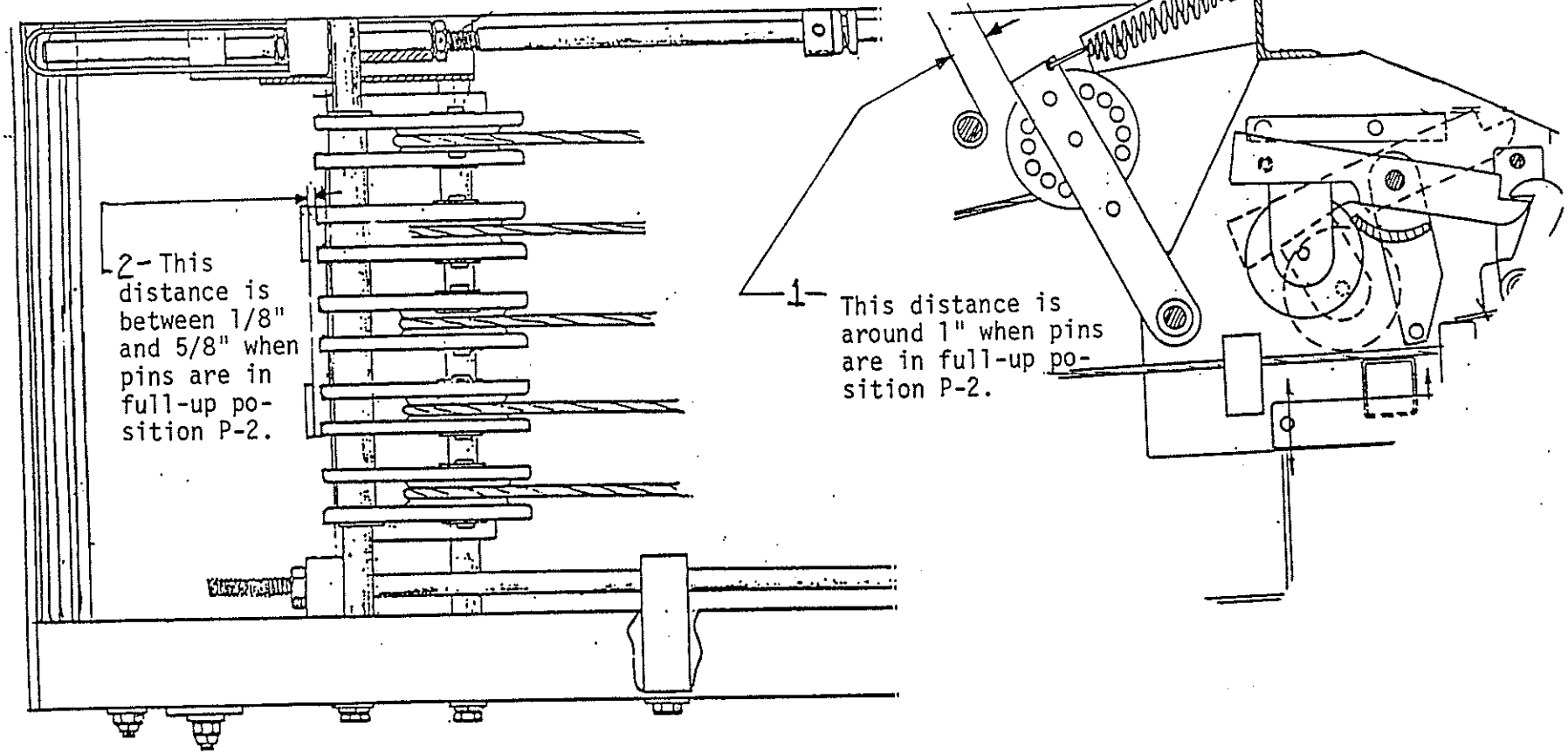
D) Adjustment no 4: Release bar adjustment
Refer to diagram # MEA-35-04

E) Adjustment no 5: Fingers' adjustment
Refer to diagrams # MEA-35-05A
MEA-35-05B

F) Adjustment no 6: Brakes' adjustment
Refer to diagram # MEA-35-06

G) Adjustment no 7: Sensors' adjustment
Refer to diagram # MEA-35-02

H) Adjustment no 8: Adjustment for placing pins on the pindeck
Refer to diagram # MEA-40-10



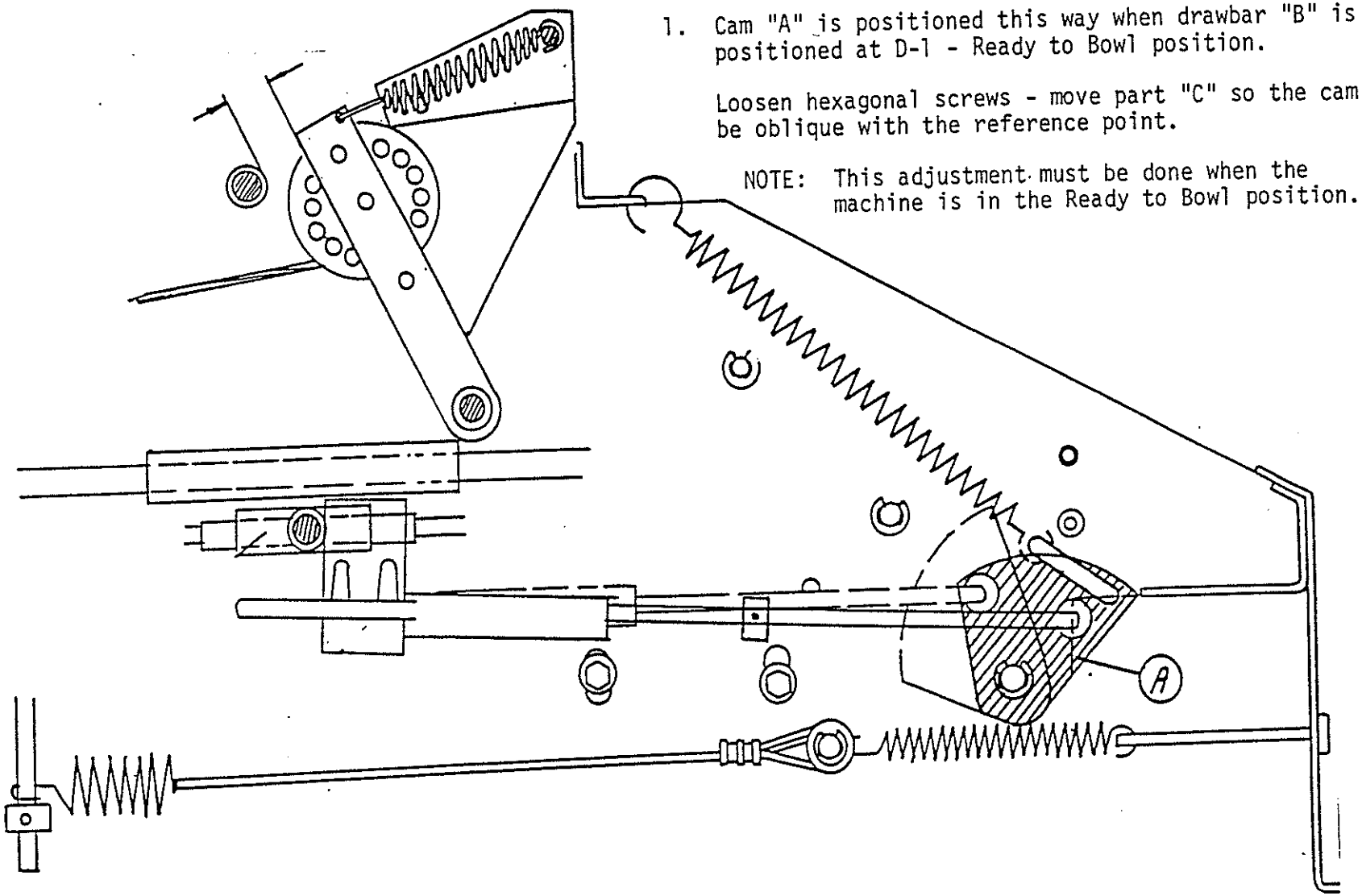
Adjust strings with the reel "A" to obtain drawbar position as shown on # 2 and the reel "A" position as shown on # 1.

MENDES Québec Canada	DESCRIPTION: STRINGS ADJUSTMENT	SPÉCIFICATIONS MODEL 501E	PAR:	ÉCHELLE:
	VÉR.: ..... APPR.: ..... DATE: 06/88		PARTIE No. MEA-35-01	

1. Cam "A" is positioned this way when drawbar "B" is positioned at D-1 - Ready to Bowl position.

   Loosen hexagonal screws - move part "C" so the cam be oblique with the reference point.

   NOTE: This adjustment must be done when the machine is in the Ready to Bowl position.

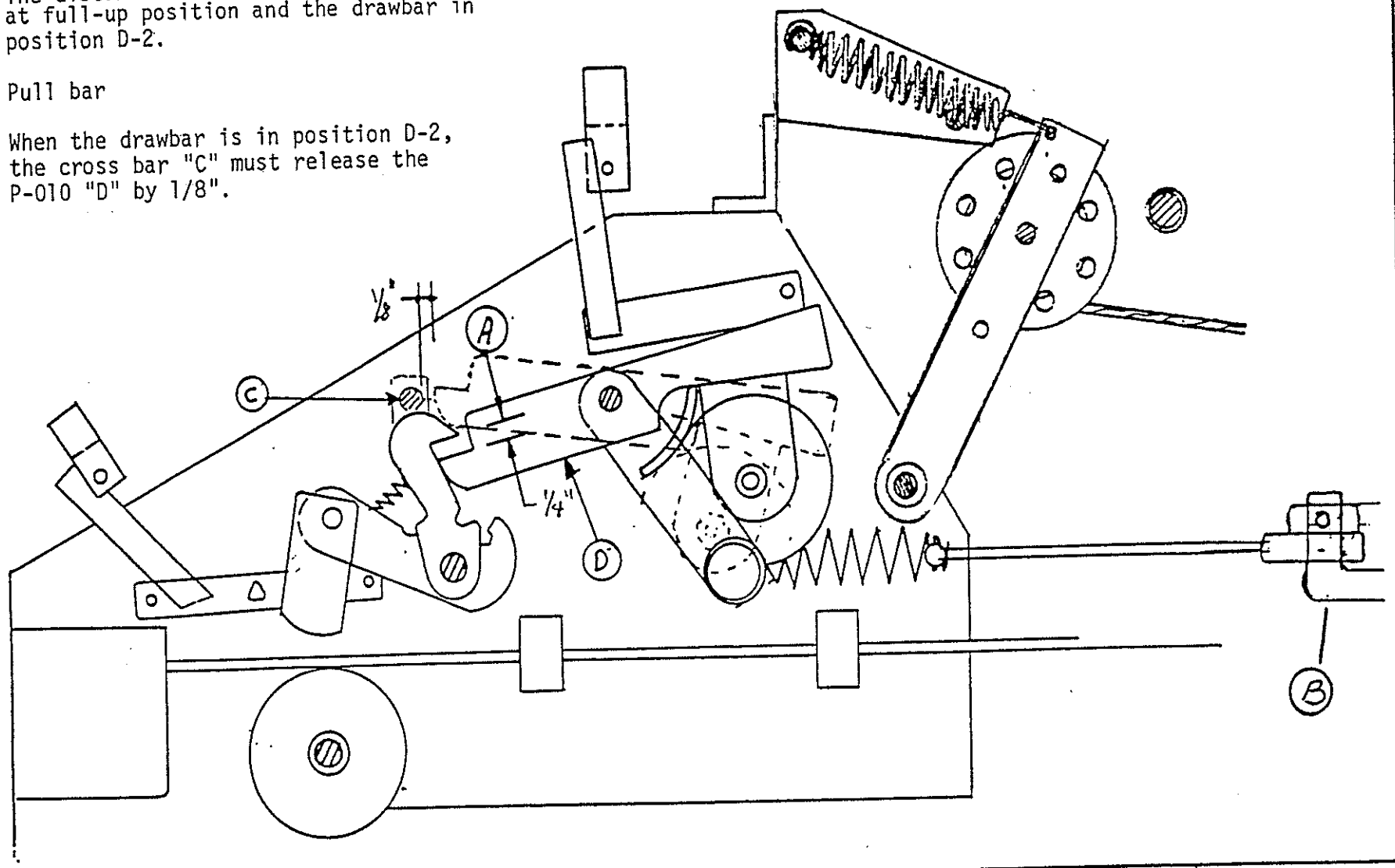


MENDES Québec Canada	DESCRIPTION: CAM ADJUSTMENT	SPÉCIFICATIONS MODEL 501E	PAR: / ÉCHELLE:
	VÉR.: / APPR.: / DATE: 06-88		PARTIE No. MEA-35-02

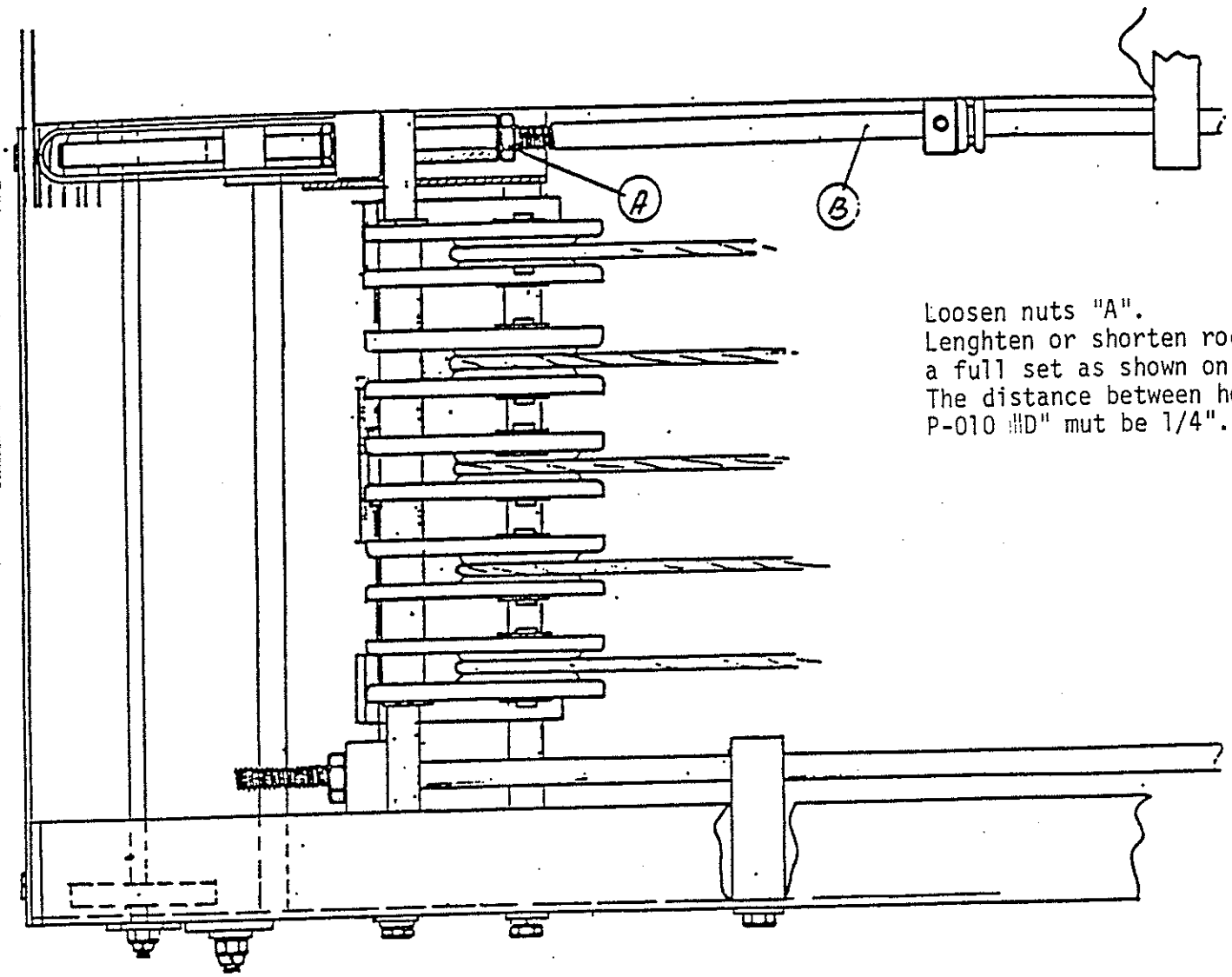
A. The distance is 1/4" (7mm) when pins are at full-up position and the drawbar in position D-2.

B. Pull bar

C. When the drawbar is in position D-2, the cross bar "C" must release the P-010 "D" by 1/8".

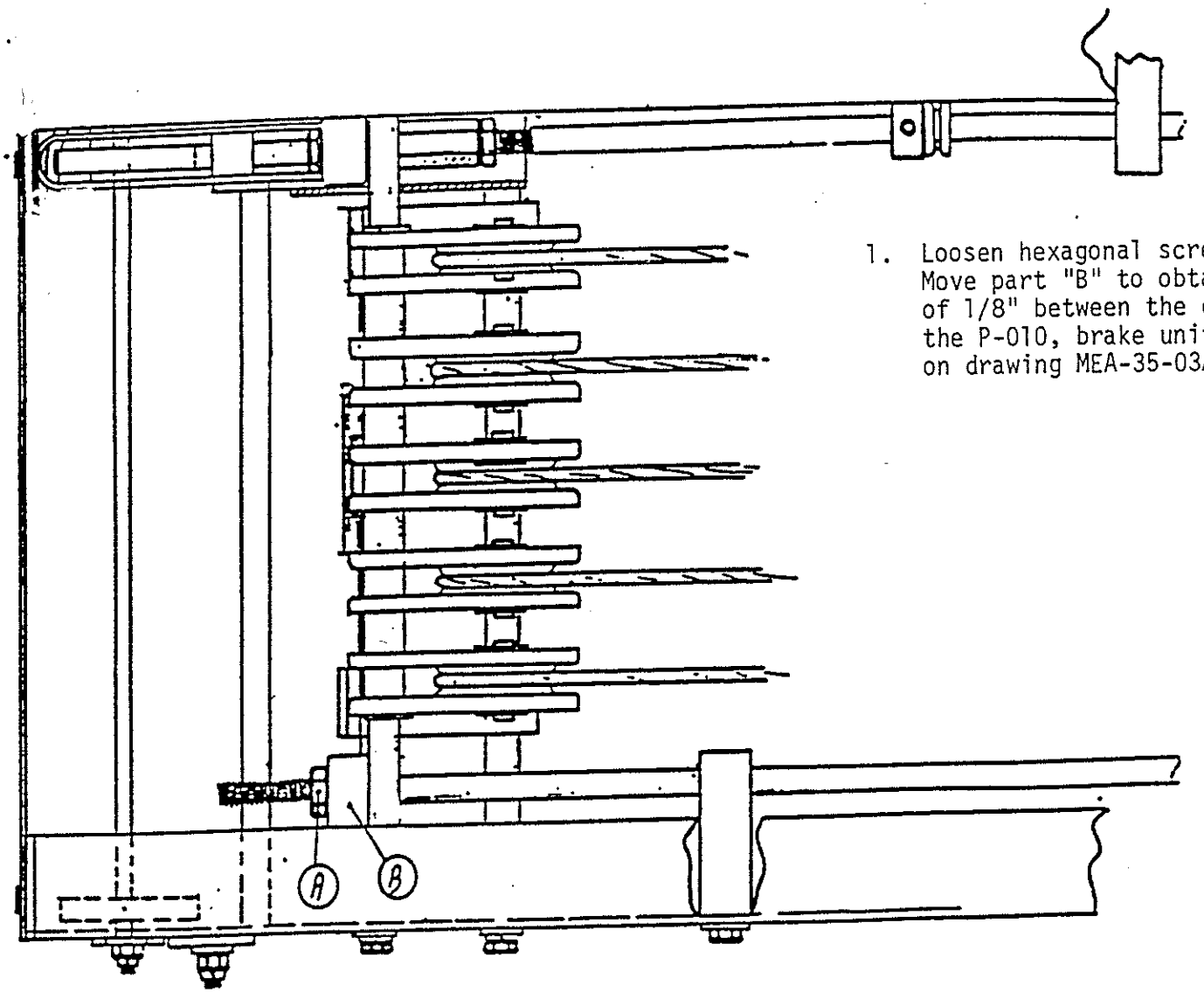


MENDES Québec Canada	DESCRIPTION: FULL SET ADJUSTMENT	SPÉCIFICATIONS MODEL 501E	PAR:	ÉCHELLE:
	VÉR.: ..... APPR.: LM DATE: 06-88		PARTIE No. MEA-35-03A	



Loosen nuts "A".
Lenghten or shorten rod "B" to obtain
a full set as shown on diagram MEA-35-03A.
The distance between hook and finger
P-010 "D" mut be 1/4".

Québec Canada MENDES	DESCRIPTION: ADJUSTMENT - FULL SET BAR		SPÉCIFICATIONS MODEL 501E	PAR: / ÉCHELLE:
	VÉR.:	APPR.	DATE: 06-88	PARTIE No. MEA-35-03B

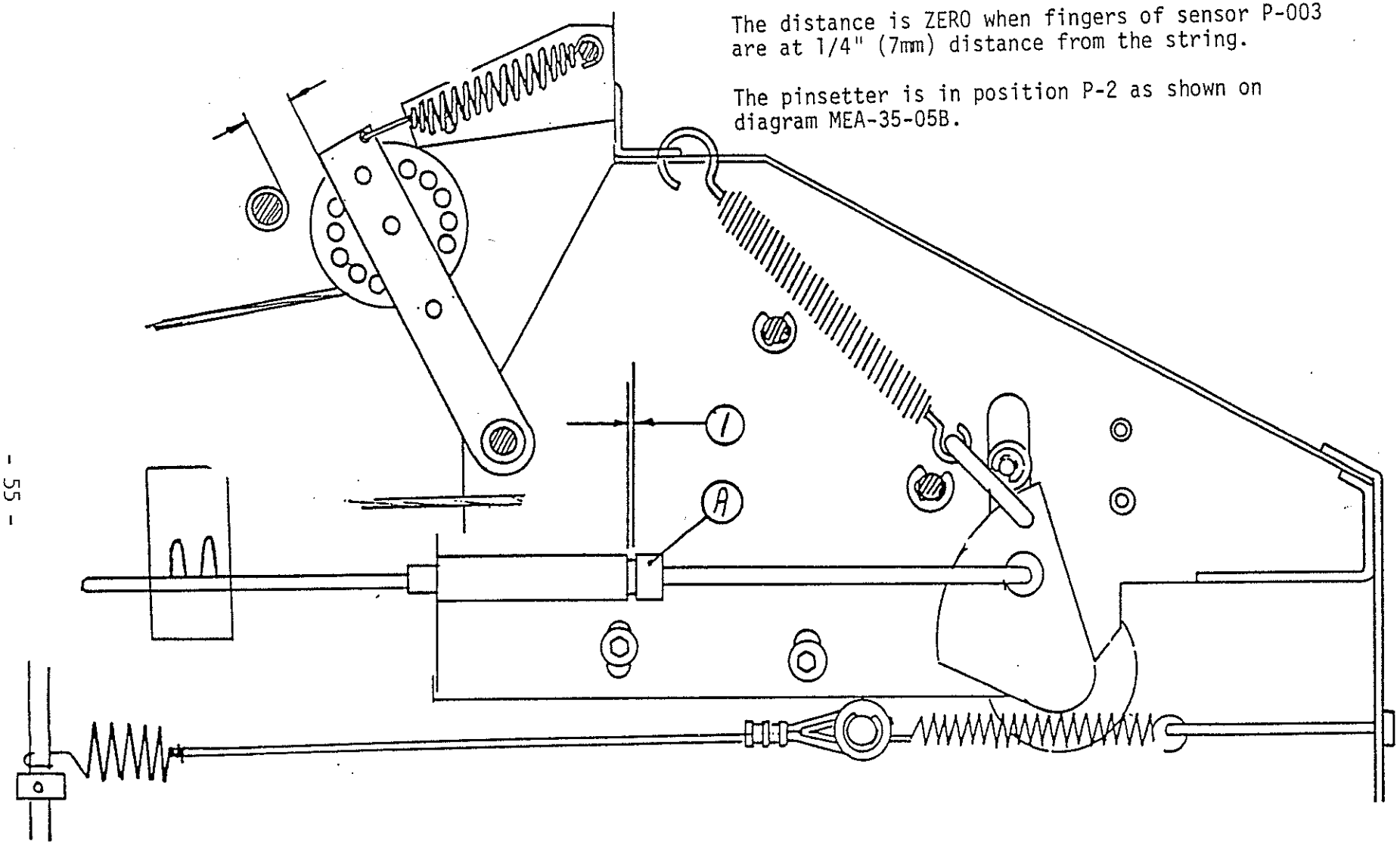


1. Loosen hexagonal screw "A". Move part "B" to obtain a clearance of 1/8" between the cross bar and the P-010, brake unit"D" as shown on drawing MEA-35-03A.

MENDES Québec Canada	DESCRIPTION: ADJUSTMENT - RELEASE BAR	SPÉCIFICATIONS MODEL 501E	PAR:	ÉCHELLE:
	VÉR.: ..... APPR.: ..... DATE: 06-88		PARTIE No. MEA-35-04	

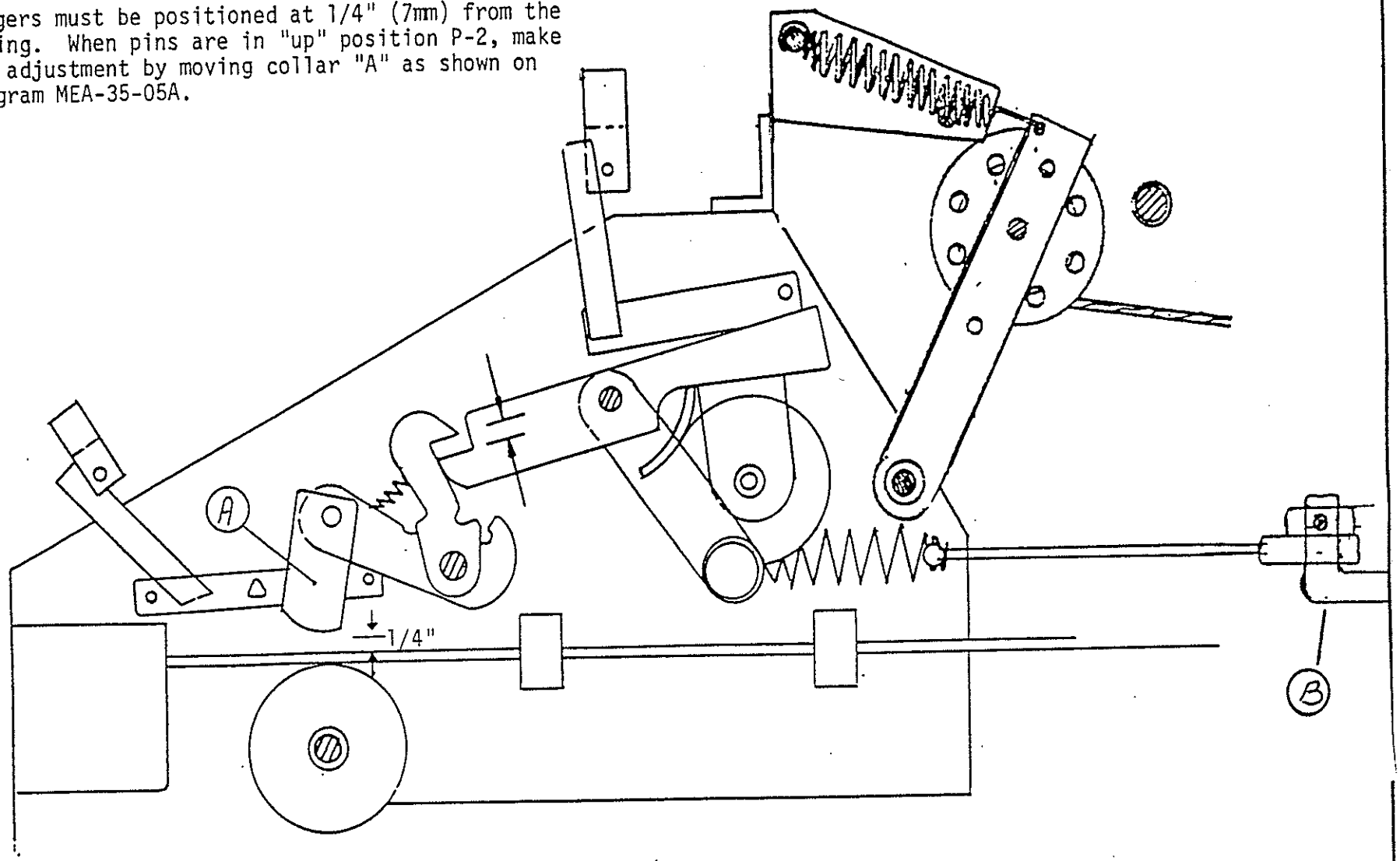
The distance is ZERO when fingers of sensor P-003 are at 1/4" (7mm) distance from the string.

The pinsetter is in position P-2 as shown on diagram MEA-35-05B.



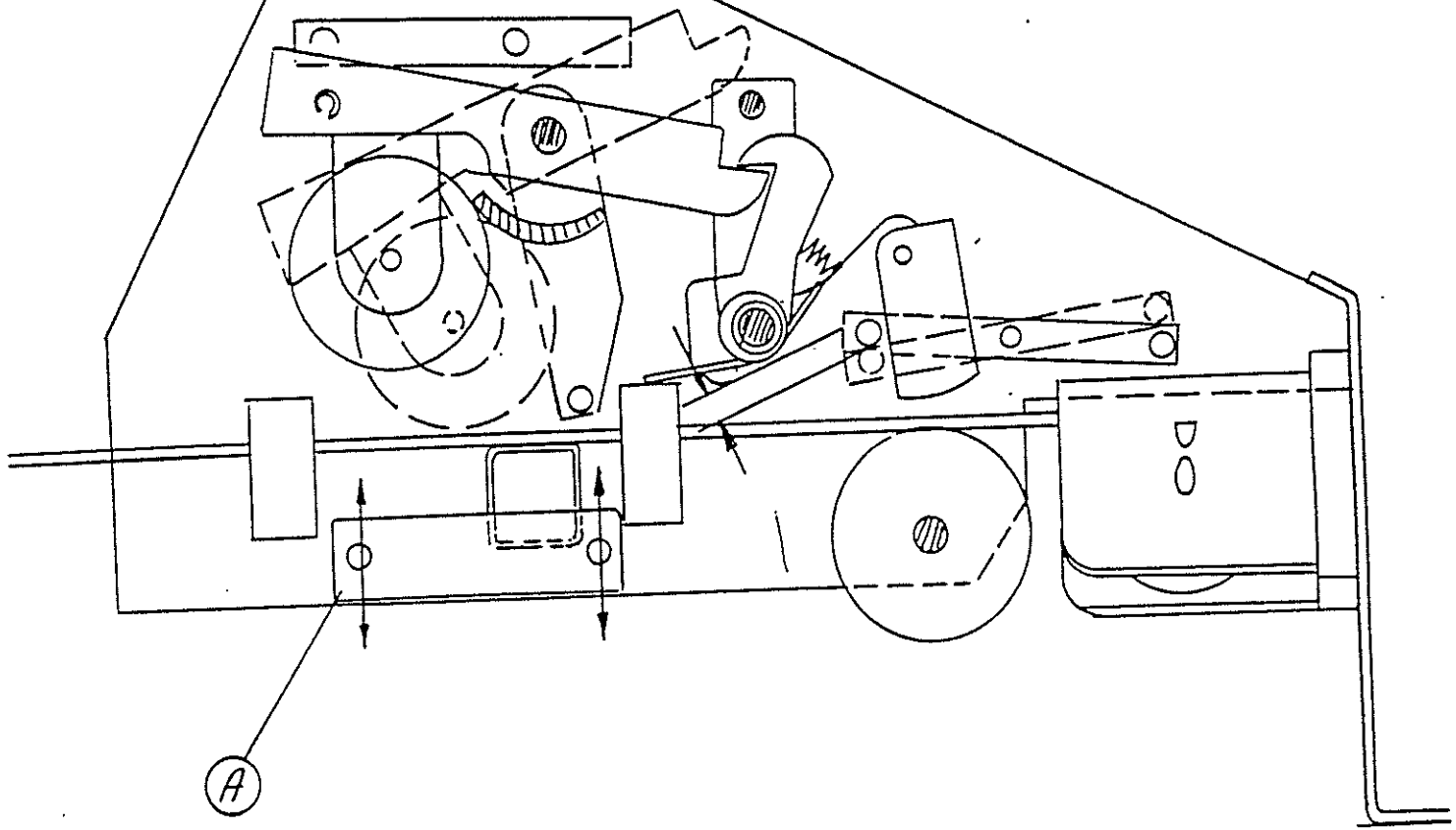
MENDES Québec Canada	DESCRIPTION: ADJUSTMENT - FINGERS P-003	SPÉCIFICATIONS MODEL 501E	PAR:	ÉCHELLE:
	VÉR.: ..... APPR.: ..... DATE: 06-88		PARTIE No. MEA-35-05A	

Fingers must be positioned at 1/4" (7mm) from the string. When pins are in "up" position P-2, make the adjustment by moving collar "A" as shown on diagram MEA-35-05A.

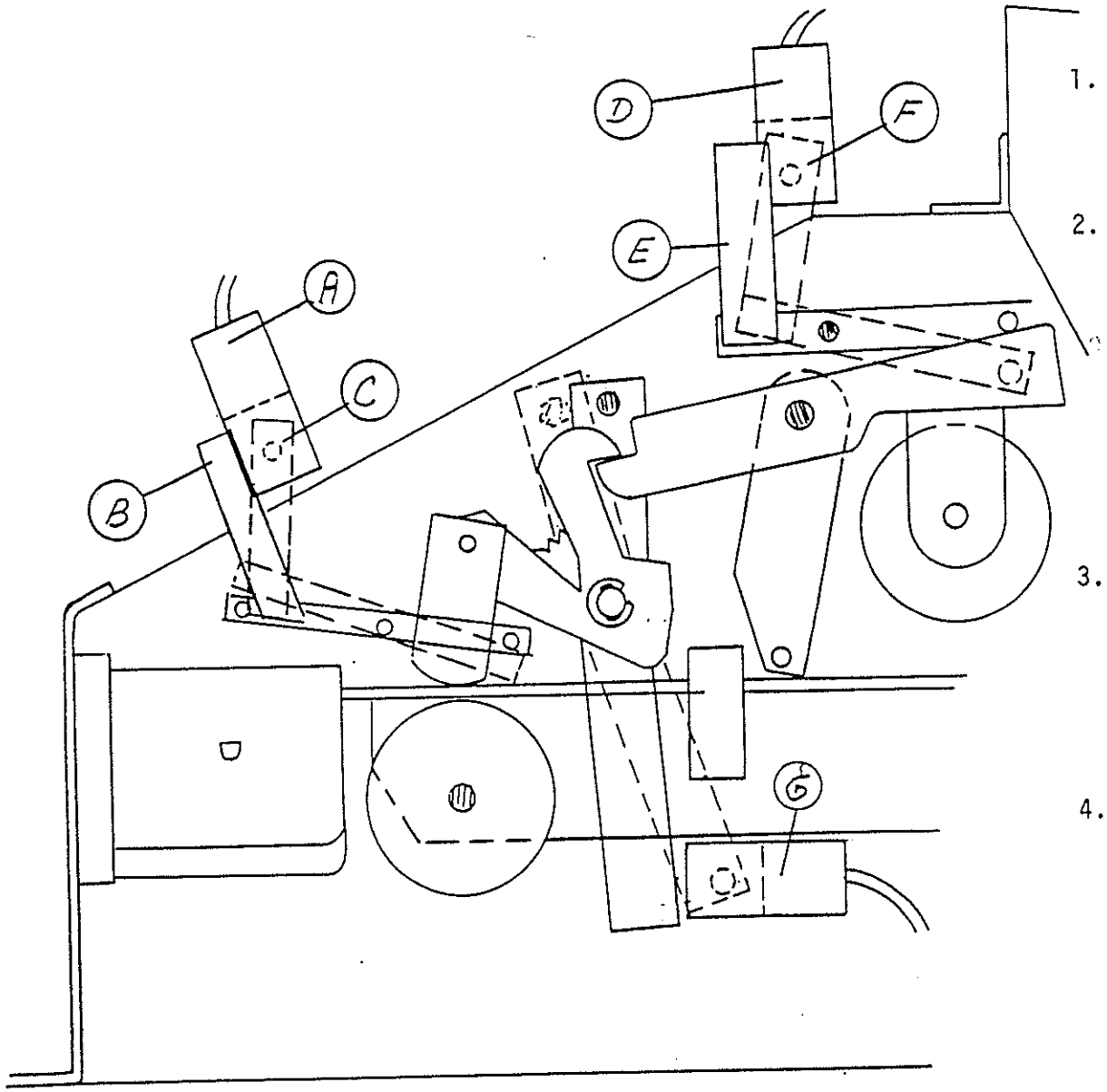


Québec Canada MENDES	DESCRIPTION: ADJUSTMENT - FINGERS P-003	SPÉCIFICATIONS MODEL 501E	PAR:	ÉCHELLE:
	VÉR.:	APPR.:	DATE: 06-88	PARTIE No. MEA-35-05B

To adjust brakes, move brake bar "A" upward or downward, till you reach at a good brakeage action. Strings must not touch the brake bar, except when brakes are engaged.



MENDES Québec Canada	DESCRIPTION: BRAKE ADJUSTMENT	SPÉCIFICATIONS MODEL 501E	PAR:	ÉCHELLE:
	VÉR.:	APPR.:	DATE: 6-88	PARTIE No. MEA-35-06



1. When the pinsetter is in P-1-Ready to Bowl position - windows of the 3 electrical sensors "A", "D" and "G" are not obstructed.

2. PART SET SWITCH:

When a pin is falling, lever "B" is moving to "C" position. The lever obstructs the electronic sensor "A". To adjust, move sensor "A" so it is obstructed gefore the end of the lever run. An electronic control LED lights on when the window of the sensor is obstructed by the lever.

3. FULL SET:

When all the pins are fallen, lever "E" is moving to function "F". The lever obstructs the window of the electronic sensor "D". The adjustment is made the same way as # 2.

4. END OF RUN:

When the drawbar is in position D-2, it impedes the pull bar run, which, at the end of the run, actuates the "Electronic Sensor G". For adjustment, follow same procedure as # 2.

Québec Canada MENDES	DESCRIPTION: ADJUSTMENT OF SENSORS FS-PS-LS	SPÉCIFICATIONS MODEL 501E	PAR:	ÉCHELLE:
	VÉR.: ..... APPR. ..... DATE: 06-08		PARTIE No. MEA-35-07	

4- ADJUSTMENTS: (Ball lift)
****

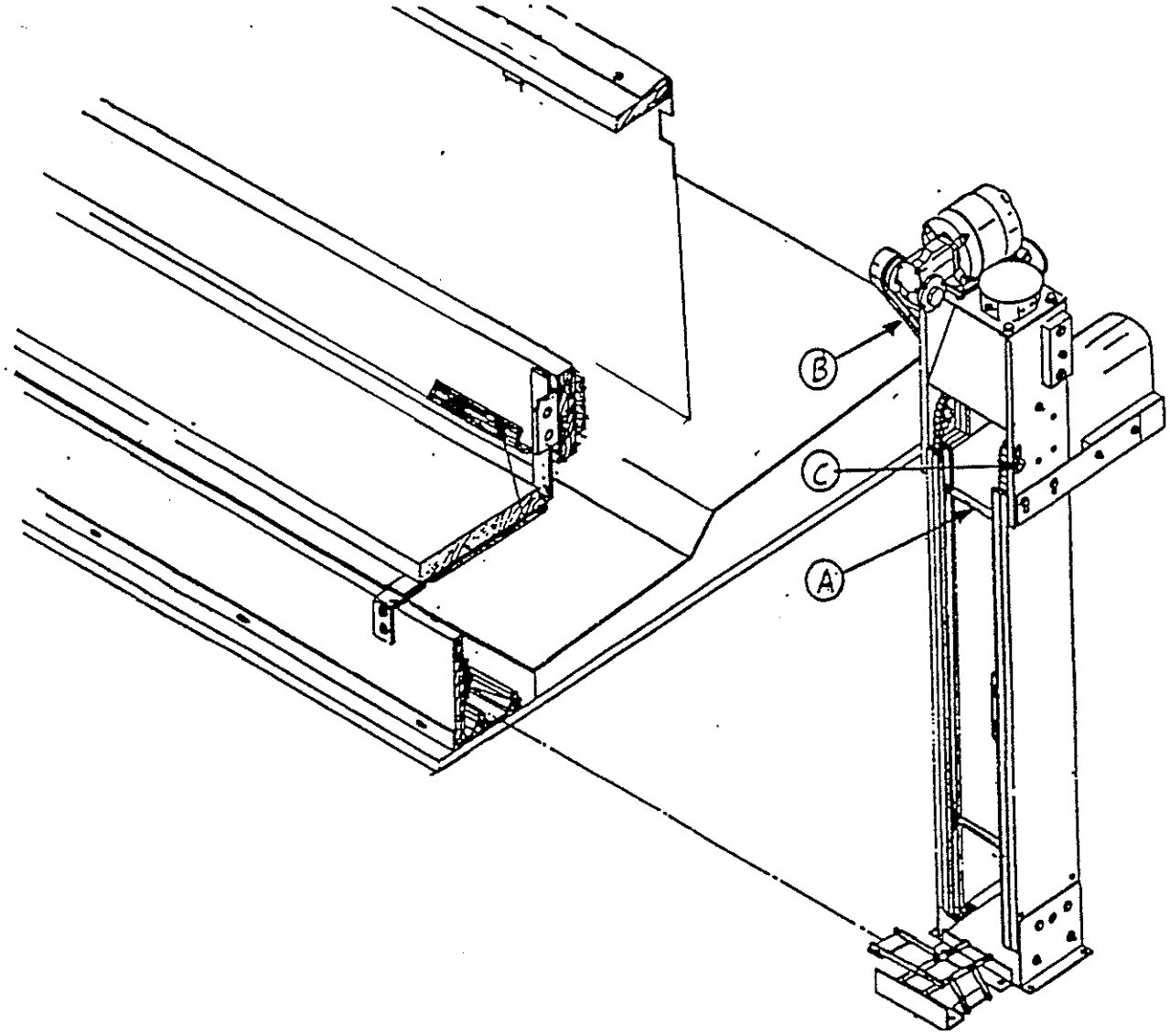
The ball lift is a simple system based on a conveyor principle. It works with a reducer motor 1/20, 115V. Chains are guided by plastic slides sturdy to wearing.

BALL LIFT AND EZ-LUSTER BALL POLISHER INTEGRATED:

The ball lift is identical except that the motor is also actuating the ball polisher. Moreover, a mechanism allows each ball to remain longer than six (6) seconds in the polisher.

The belt tension must be adjusted so that "A" bars, which lift up the balls, reach 10 lbs (4.6kg) of pulling.

To adjust, settle tension with bolt "B".



MENDES Québec Canada

DESCRIPTION: BALL LIFT ADJUSTMENT

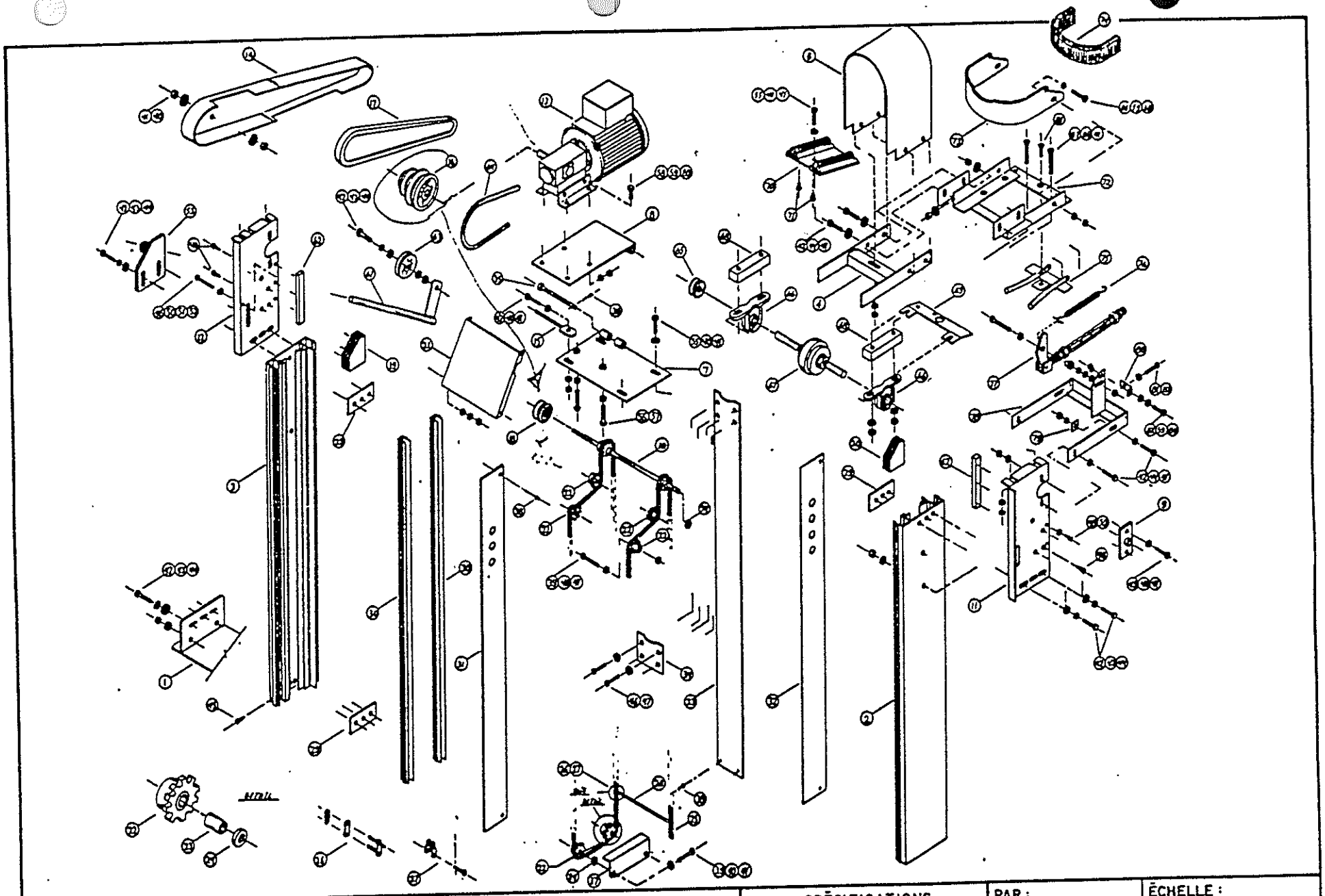
VÉR.: ..... APPR.: ..... DATE: 6-88

SPÉCIFICATIONS: MODEL 201E

PAR:

ÉCHELLE:

PARTIE No. MEA- 31-01



MENDES Québec Canada

DESCRIPTION : REAR BALL LIFT

VÉR. : ..... APPR. : Tab DATE : 2-8-88

SPÉCIFICATIONS

MODELES: HD-35
HF-45
200E
501E

PAR :

ÉCHELLE :

PARTIE No. 31-850404-30

MATERIAL LIST

CONVENTIONAL BALL LIFT DUCK AND FIVE PIN

31-850404-30

CODE NO	INDEX	DESCRIPTION
M-0700-11	1	BALL LIFT BASE
M-0700-02-04	2	MAIN SIDE PLATE RIGHT
M-0700-02-07	3	MAIN SIDE PLATE LEFT
M-0700-05	4	BALL LIFT BRIDGE
P-700-13	6	OUTSIDE BALL GUARD
M-0700-08	7	TOP HEAD PLATE
M-0700-09	8	DRIVE PLATE
M-0700-67	9	STEEL BEARING BLOC
M-0700-07	10	DRIVE SHAFT ASSY.
M-0700-04-04	11	HEAD SIDE PLATE RIGHT
M-0700-04-07	12	HEAD SIDE PLATE LEFT
E-0670-02	13	DRIVE MOTOR 110V.-60HZ
P-700-63	14	PULLEY GUARD
M-0680-24	15	IDLER TENSIONER
M-0700-21	16	50X 1/2" M.A. PULLEY
R-700-01	17	V 2280 BELT
M-0700-24	18	DOUBLE PULLEY 2MB33L
50W-0700-07	19	TOP SPOCKET GUARD LEFT
50W-0700-04	20	TOP SPOCKET GUARD RIGHT
M-0700-06	21	HAND GUARD
M-0700-10	22	40B10 IDLER SPOCKET
M-0700-10-01	23	1/2"X.753X3/4" BUSHING
M-0700-10-02	24	STEEL BEARING
M-0700-13	25	#40X30 1/2" MAIN CHAIN
M-0700-14	26	340 LINK EXTENDED PIN
M-0700-15	27	#40 HALF LINK
M-0700-27	28	CROSS CHAIN TRAVEL SHAFT
M-0700-12	29	MOUNT.PLATE FOR HEAD&BASE
P-700-15	30	CHAIN GUIDE
P-700-11-07	31	LEFT SIDE PROTECTOR
P-700-11-04	32	RIGHT SIDE PROTECTOR
P-700-12	33	INSIDE REAR PROTECTOR
P-700-10	34	TOP REAR GUIDE
M-0700-16	35	PIVOT PIN
H-035F	36	3/32" CUTTER PIN 1"LONG
M-0700-17	37	SPOCKET GUARD
H-039	39	5/16"18X1 3/4"H.H.BOLT
H-022	40	5/16" I.D.FLAT WASHER
H-080	41	5/16"-18 HEX.NYLOCK NUT
H-042B	42	5/16"-18X 1" H.H. BOLT
H-096	43	5/16" LOCK WASHER
M-0166	44	5/16"SPECIAL FLAT WASHER
H-072-16	45	#6 X3/8" RH WOOD SCREW
H-052R	46	10-32X3/4" RH SOCK SREW
H-024B	47	3/4"O.D.X3/16"I.D. WASHER
H-072-19	48	#8X1/2"RH SOCK.TRUSS SCW

MATERIAL LIST

CONVENTIONAL BALL LIFT DUCK AND FIVE PIN

31-850404-30

CODE NO	INDEX	DESCRIPTION
H-040	49	5/16"-18X1/2"H.H.BOLT
H-024	50	3/16"I.D. FLAT WASHER
H-097	51	3/16" LOCK WASHER
H-085	52	10-32" HEX. NUT PLATED
M-0700-32	53	BASE PLATE TENSIONNER
H-026	54	1/2"I.D. FLAT WASHER
H-042	55	5/16"-18X3/4"H.H.BOLT
H-052-36	56	5/16"-18X2"R.H.MACH. SREW
H-085-5	57	5/16"-18 HEX.KEEP NUT
H-046A	58	1/4"-20X1"H.H. CAP SCREW
H-023	59	1/4"I.D. FLAT WASHER
H-044	60	1/4"-20 HEX.NYLOCK NUT
M-0700-33	61	TENSIONNER
P-700-16	62	PLASTIC GUIDE
M-0700-70	63	TENSIONNER PULLEY 2016V
R-700-03	64	"O" BELTING 3/8" X 44 3/8
M-0700-72	65	PULLEY M.A. 1 1/2"X5/8"
EZP-050	66	PILLOW BLOOCK
EZP-SB026	67	SHAFT AND PULLEY ASSY
EZP-027	68	SPACER BLOCK
M-0700-38	69	SUPPORT PUSHER
M-0700-39	70	BALL TRACK
H-050-10	71	10-32X1/4"R.H. SOCK M.SCW
M-0700-35	72	BALL POLISHER BASE FRAME
EZP-010	73	PAD RETAINER
EZP-053	74	BUFFING PAD
EZP-011	75	RAIL BALL EXIT
S-071	76	REEL ARM SPRING
SB-0700-01	77	PUSHER
M-0700-36	78	BASE FRAME PUSHER
M-0700-34	79	STOPPER
M-0700-37	80	BRACKET D'AJUSTEMENT
H-050-5	81	1/4"-20X1 3/4"FH S.M.S.
H-082-5	82	1/4"-20 HEX KEP NUT
H-046	83	1/4"-20X3/4" H.H.CAP SCW
H-086-3	84	8-32WELD NUT SP-NR #242
H-050-6	85	1/4"-20X3/4" FH S.M.S.
H-050-4	86	1/4"-20X1" FH MASH. SCREW
H-052-26	87	5/16"-18X2 1/2"FH S.M SCW
M-0700-23	89	BALL LEVEL ROD

5- PREVENTIVE MAINTENANCE:
****

Maintenance of this machine may be grouped into three classifications:

- Mechanical maintenance;
- Proper lubrification;
- 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, shoud 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 in play other than careless string maintenance.

Vibro insulators and bse plate spacer bolts

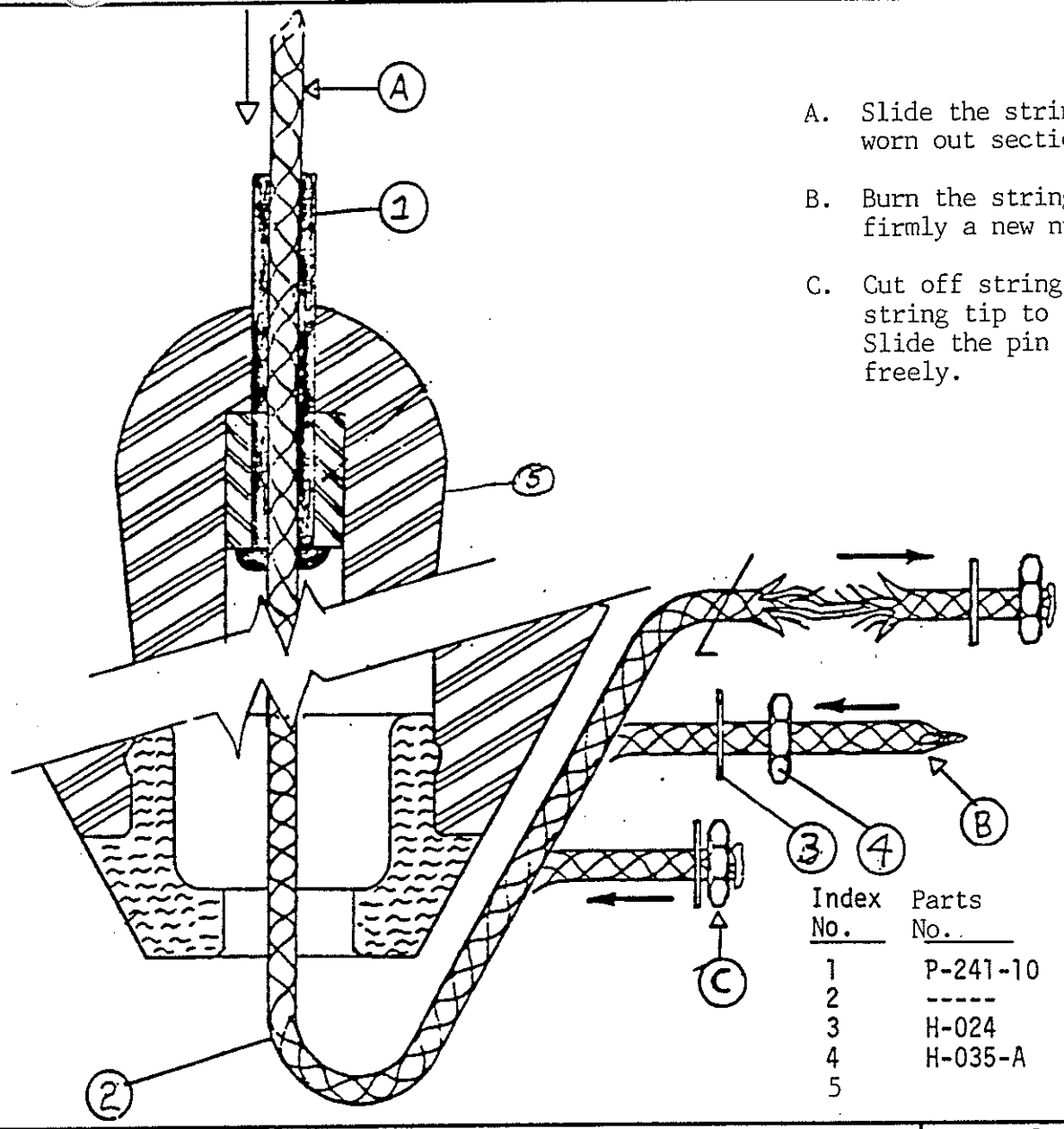
These are subject to continual violent shock and vibration. They should be checked frequently for tightness.

Moisture drains

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

Your machine is equipped with air filter 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.



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

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

C. Cut off string at 1/4" from swaged nut. Burn the string tip to shape a lump under the nut. Slide the pin along the string and check if it turns freely.

Index No.	Parts No.	Description
1	P-241-10	Plastic bushing
2	-----	String
3	H-024	Washer 3/16"
4	H-035-A	Nuts 10/32"
5		Tenpin Bowlingo

MENDES Québec Canada

DESCRIPTION: STRING MAINTENANCE

VÉR.: ..... APPR.: ..... DATE: 2-8-88

SPÉCIFICATIONS: MODEL 201E

PAR:

ÉCHELLE:

PARTIE No. MEI-35-1

LUBRICATION

Proper lubrication is essential to a smooth running trouble free machine and also for preventing its wearing out. Here agin, 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.

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.

MECHANICAL LUBRICATION

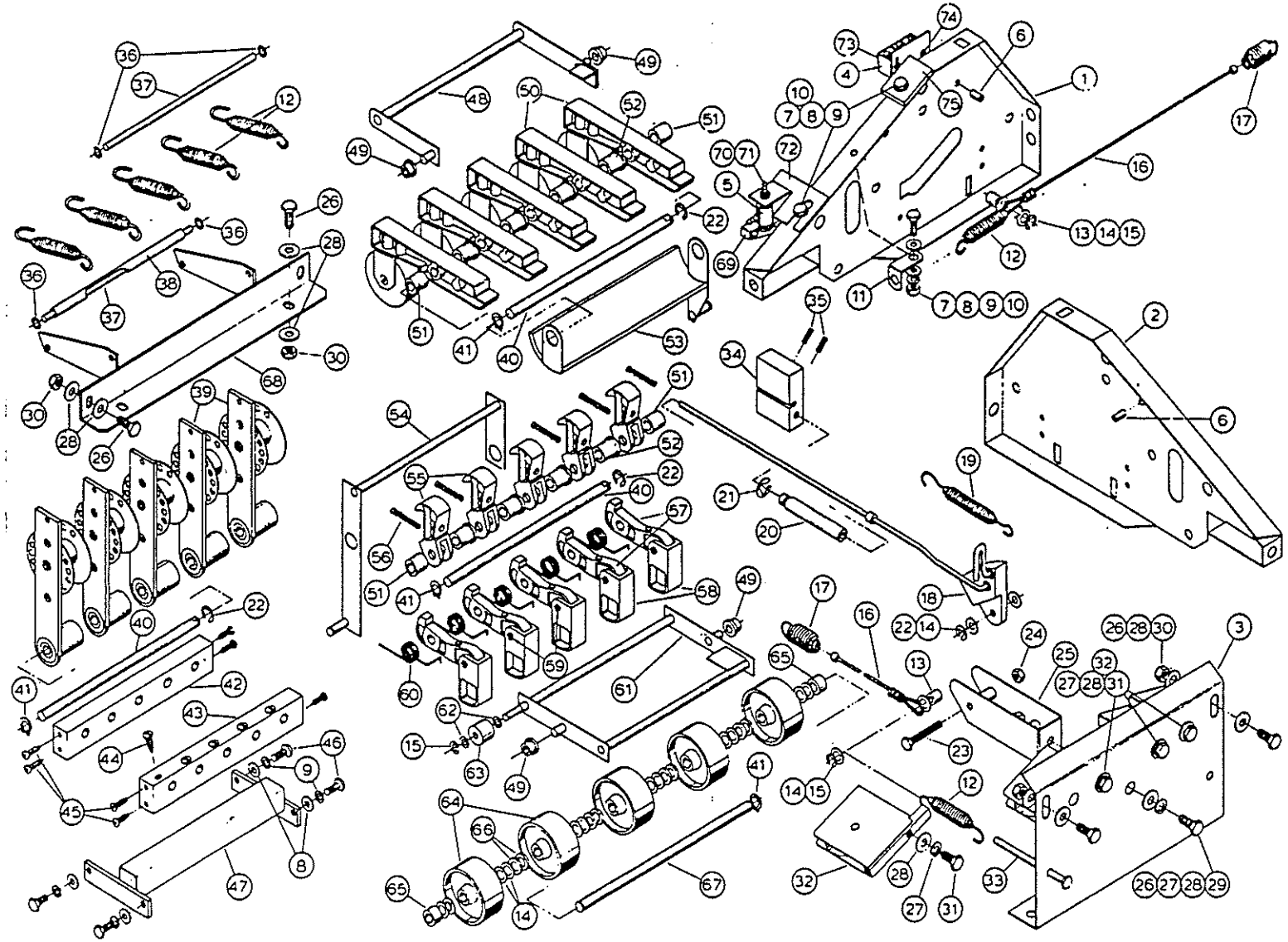
Every moving part should be properly lubricated with Z-400 pneumatic oil only.

FILTER ELEMENTS

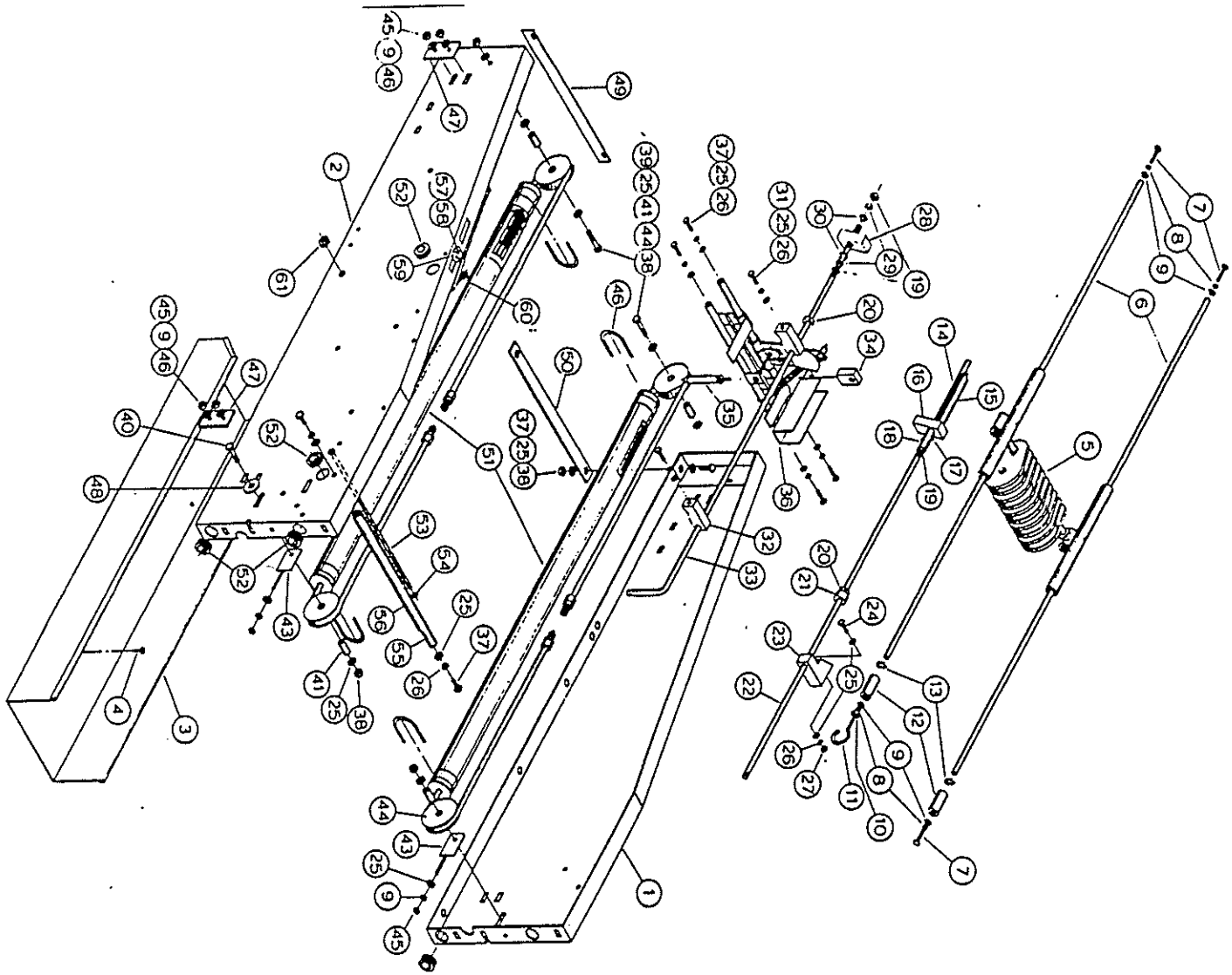
Filter element on pressure regulator and main air lane filter can be cleaned by washing in a solvent such as "Varsol". We recommend that they be replaced when solvent cleaning is no longer effective.

CLEANLINESS AND GOOD HOUSEKEEPING

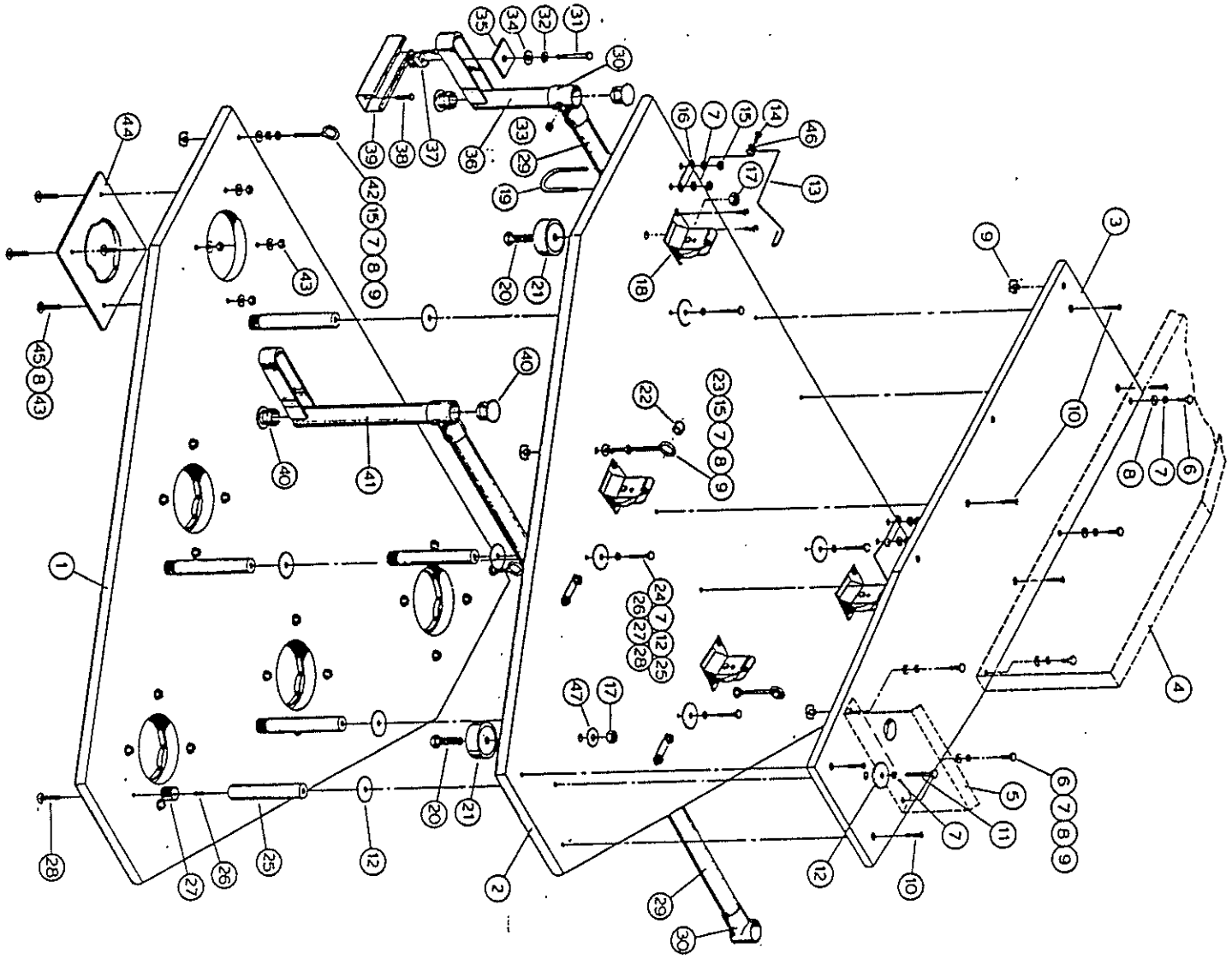
Machines must be kept free of dirt, dust and excess of oil. A clean machine is a well cared for machine, and will give good service, and trouble free operation.



MENDES Québec Canada	DESCRIPTION: SENSOR PARTS		SPÉCIFICATIONS MODEL 201E	PAR: / ÉCHELLE:
	VÉR.:	APPR.: JM	DATE: 6-88	PARTIE No. P-35-1



MENDES Québec Canada	DESCRIPTION : MACHINE PARTS		SPÉCIFICATIONS MODEL 201E	PAR :	ÉCHELLE :
	VÉR. :	APPR. :	DATE : 6-88	PARTIE No. P-35-2	



Québec Canada MENDES	DESCRIPTION: MACHINE BASE PLATE PARTS	SPÉCIFICATIONS MODEL 201E	PAR: / ÉCHELLE:
	VÉR.: ..... APPR.: ..... DATE: 6-88		PARTIE No. P-35-3

PARTS LIST FOR P-35-1

MODEL 501E

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 501E

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 501E

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

PARTS LIST FOR P-35-2

MODEL 501E

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 501E

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

PARTS LIST FOR P-35-3

MODEL 501E

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 501E

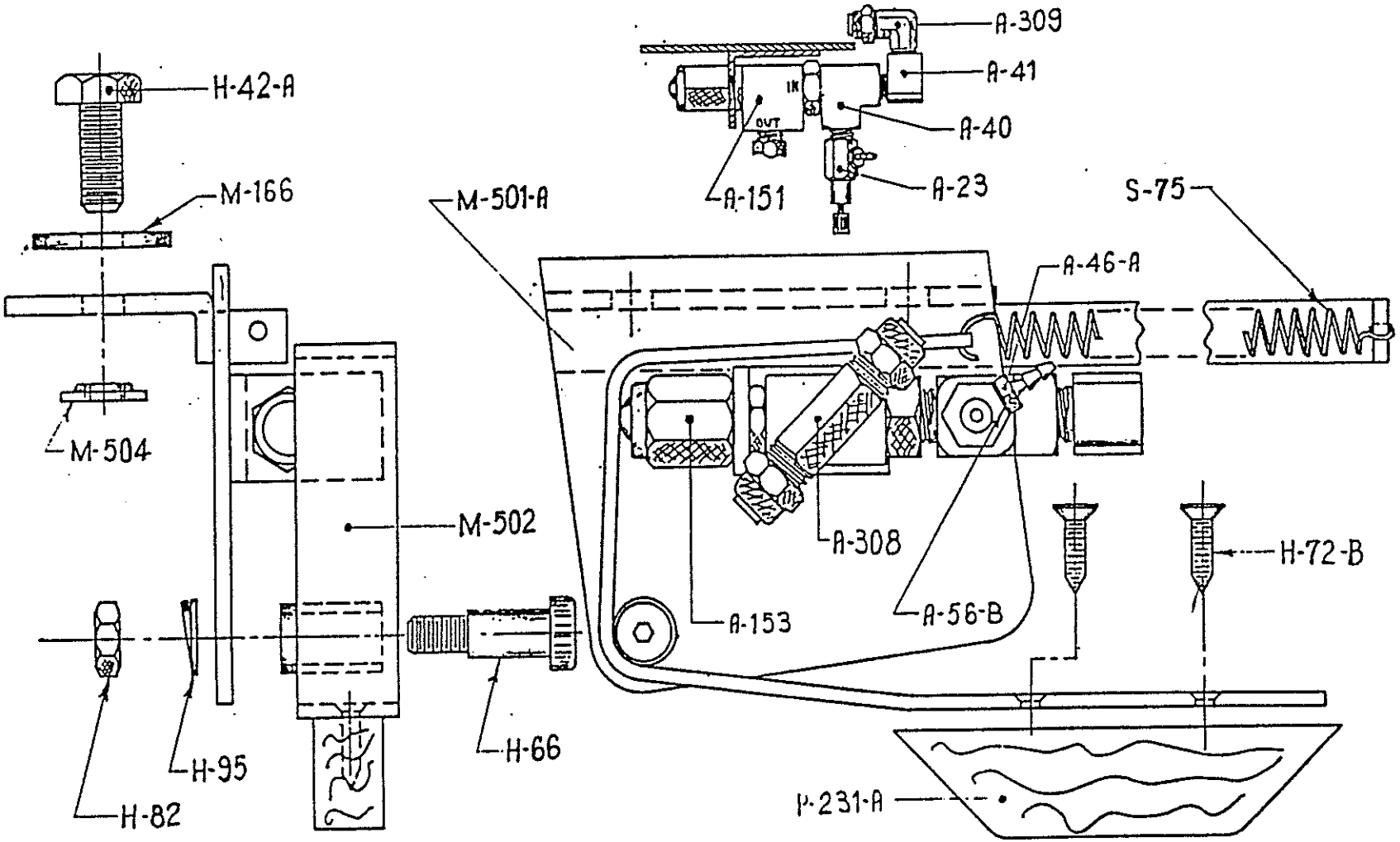
ITEM	CODE	DESCRIPTION
29	I-34	main cross supporting pipe
30	I-11	10-7 - 1/4" tee kee klamp single
31	H-37-H	3/8" - 16 x 2 3/4" hex. head cap screw
32	H-99	3/8" lock washer
33	I-24	97-7 set screw
34	H-21	3/8" clear I.D.
35	M-400	mounting washer
36	M-370	short mount foot
37	H-89	3/8" - 18 unistrut spring 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

PARTS LIST FOR FOLLOWING PAGES

CODE	DESCRIPTION
MEI-35-1	CORD MAINTENANCE
SUB-0501	RETARDER VALVE ASSEMBLY
SUB-2120	DRAWBAR 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-13	REGULATOR REPLACE PARTS
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-23	1/8" P. FLOW CONTROL - 2 WAY KNOB ADJUST
A-30-C	DIAPHRAGM WATTS
A-31-A	DRAIN 1/8" M.P.T. (PLASTIC KNOB)
A-41	1/8" - STREET ELBOW
A-46-A	10-32 BARB 1/8" HOSE
A-54-B	PLUG HEX. HEAD 1/8" M.P.T.
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-151	POPPET VALVE 2 WAY 1/8" PT
A-153	BALL ACTUATOR
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
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

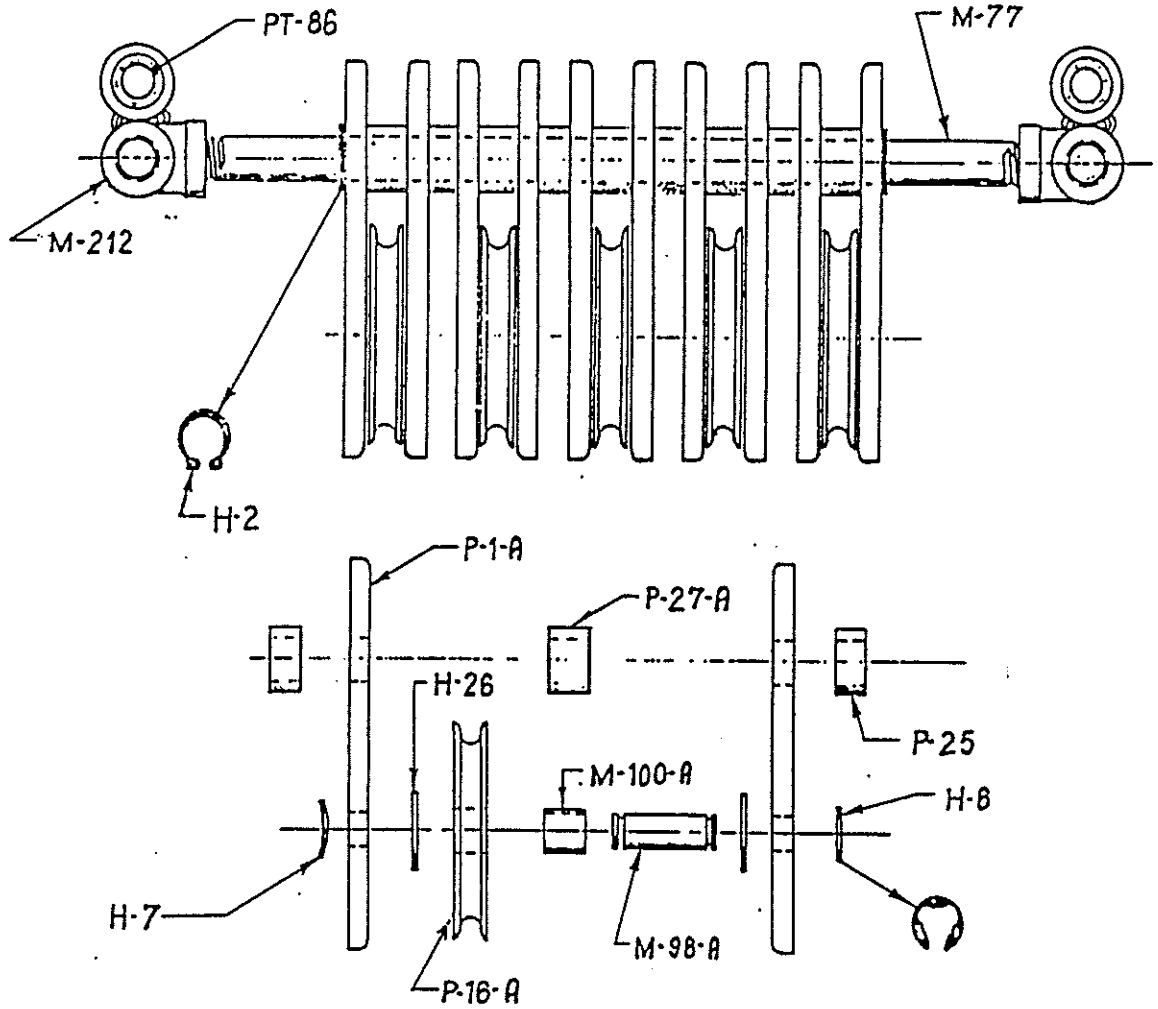
CODE	DESCRIPTION
H-10	3/16" SELF LOCKING PUSH ON
H-11	1/4" "E" RING
H-13	3/16" "E" RING
H-14-B	3/8" O.D. "C" RING
H-14-C	1/4" I.D. "C" RING HEAVY DUTY
H-21	3/8" CLEAR I.D.
H-24	3/16" CLEAR I.D.
H-26	1/2" I.D. SPACER WASHER
H-29	1/4" I.D. SPACER WASHER
H-30-A	3/16" I.D. WASHER FOR POP RIVET
H-31-A	3/16" 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-42-A	5/16" - 3/4" X 24 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-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
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-19	TOP BRAKE WHEEL BRACKET
M-22	RELL ARM
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-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-501-A	SOFT SET DELAY FRAME
M-502	SOFT SET TRIP ARM

CODE	DESCRIPTION
M-504	LOCKING PLATE 5/16" - 18 T.N.
P-1-A	DRAWBAR SHEAVE PLATE
PT-7-R	SENSOR LIFT CAM
P-10	BRAKE WHEEL ARM
P-14	SHEAVE PULLEY BIN 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
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

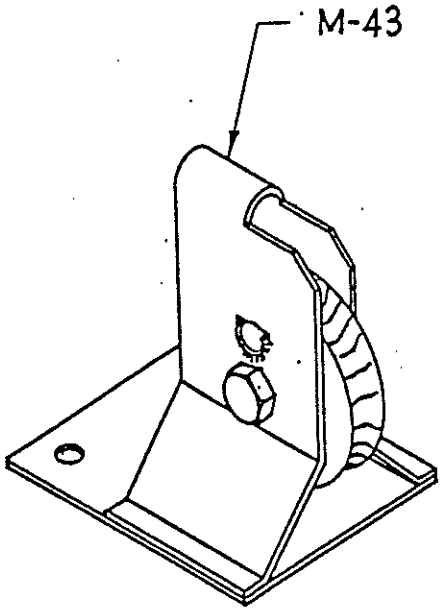


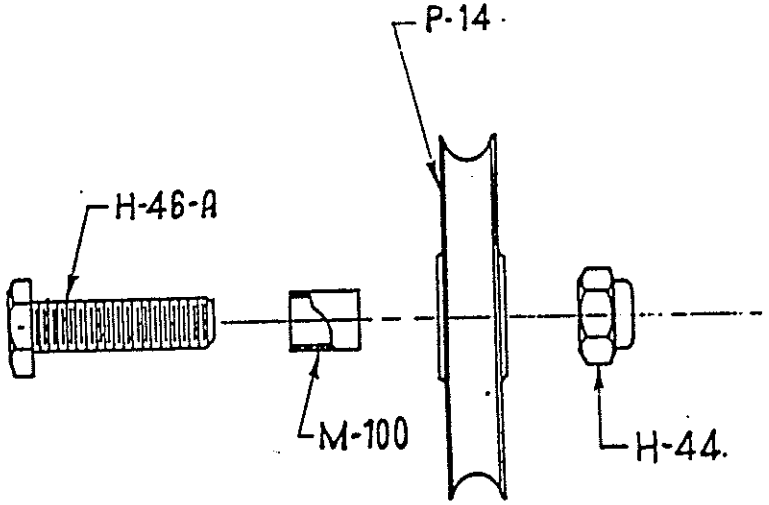
- 80 -

Québec Canada MENDES	DESCRIPTION: RETARDER VALVE ASSEMBLY	SPÉCIFICATIONS MODEL 201E	PAR: / ÉCHELLE:
	VÉR.: ..... APPR.: ..... DATE: 6-88		PARTIE No. SB-0501

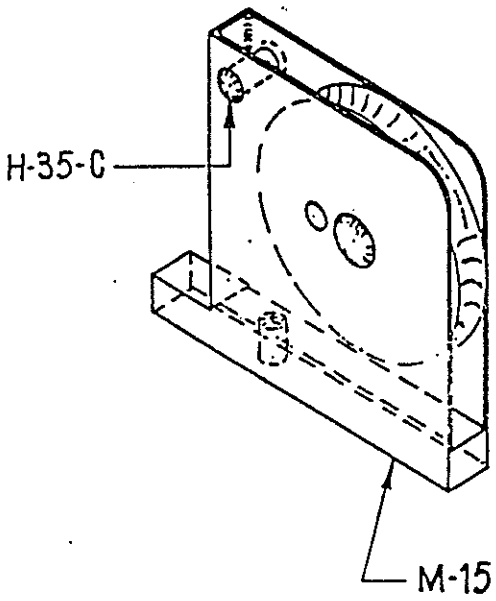


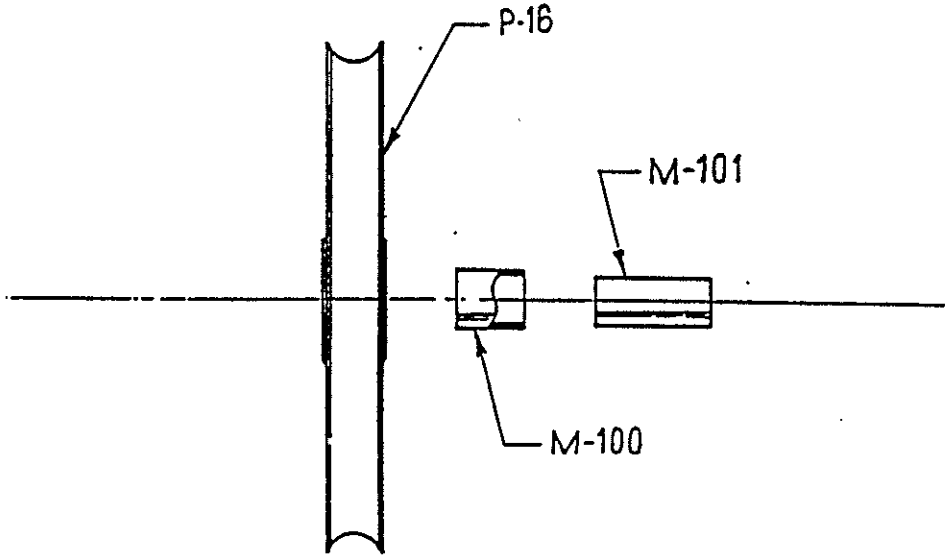
MENDES Québec Canada	DESCRIPTION: DRAWBAR ASSEMBLY	SPÉCIFICATIONS MODEL 201E	PAR:	ÉCHELLE:
	VÉR.: ..... APPR.: ... DATE: 6-88		PARTIE No. SB- 2120	



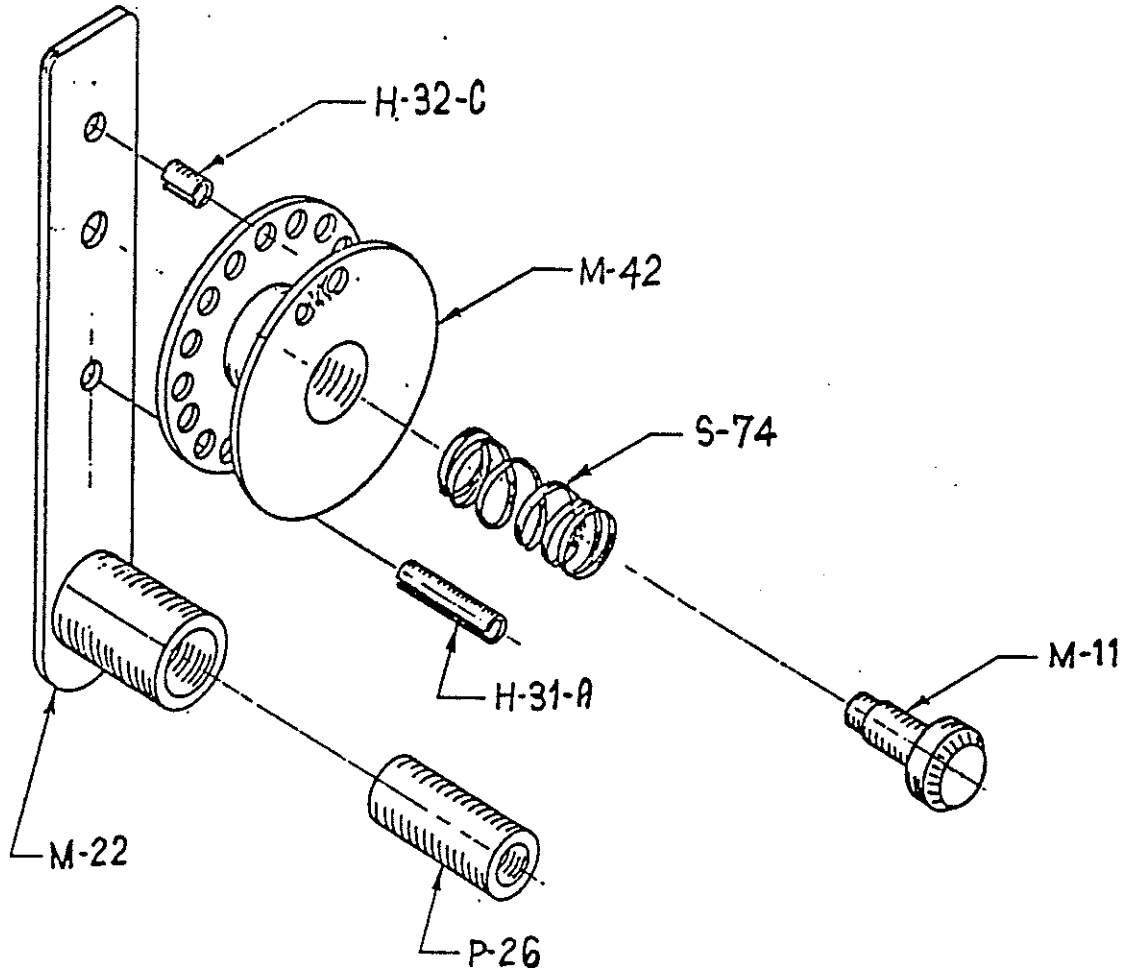


Québec Canada MENDES	DESCRIPTION: BUMPER SHEAVE ASSEMBLY B.W.	SPÉCIFICATIONS MODEL 201E	PAR:	ÉCHELLE:
	VÉR.: ..... APPR.: ..... DATE: 6-88		PARTIE No. SB-5008	

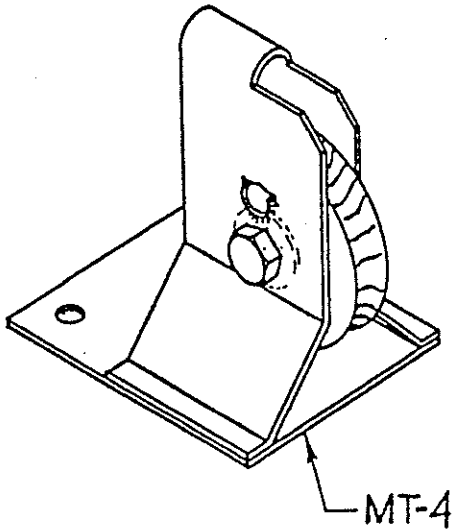


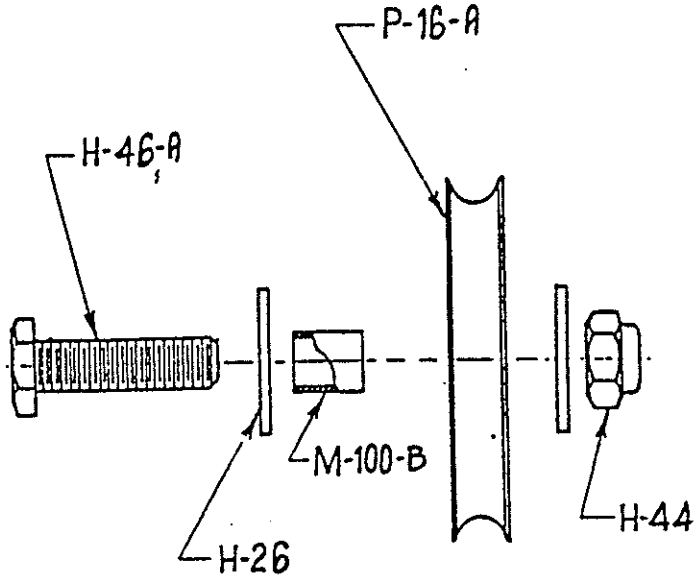


MENDES Québec Canada	DESCRIPTION: SENSOR SHEAVE ASSEMBLY B.W.	SPÉCIFICATIONS MODEL 201E	PAR:	ÉCHELLE:
	VÉR.:	APPR.:	DATE: 6-88	PARTIE No. SB-5009

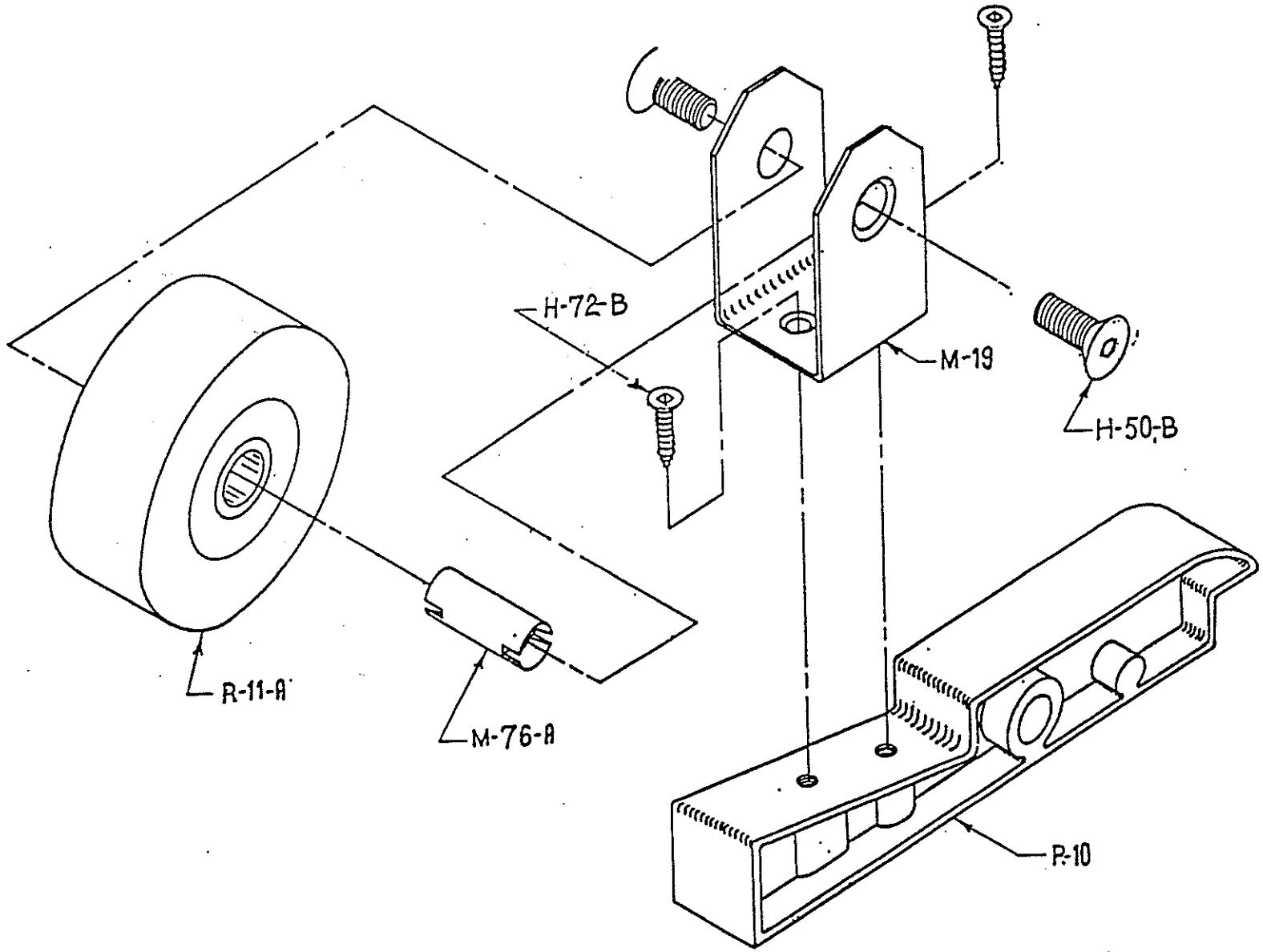


MENDES Québec Canada	DESCRIPTION: REEL ARM ASSEMBLY	SPÉCIFICATIONS MODEL 201E	PAR:	ÉCHELLE:
	VÉR.: ..... APPR.: ... DATE: 6-88		PARTIE No. SB-5011	

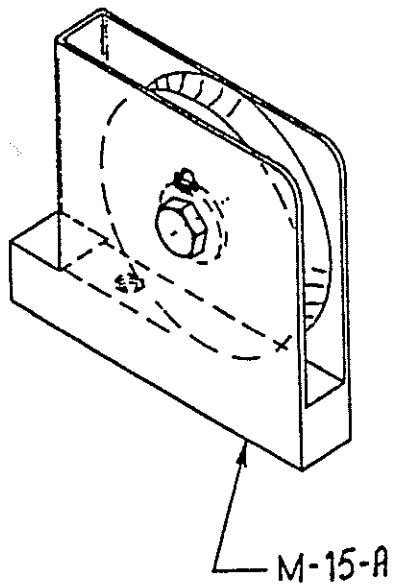


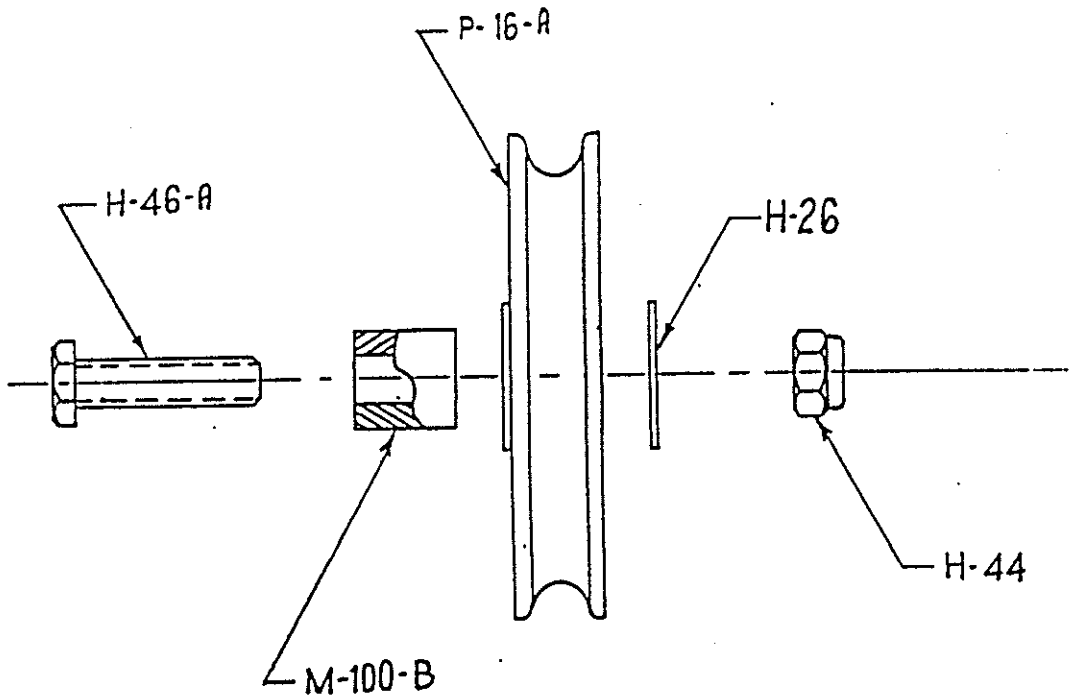


MENDES Québec Canada	DESCRIPTION: BUMPER SHEAVE ASSEMBLY L.W.W.	SPÉCIFICATIONS MODEL 201E	PAR:	ÉCHELLE:
	VÉR.: ..... APPR.: ..... DATE: 6-88		PARTIE No. SB-5012	



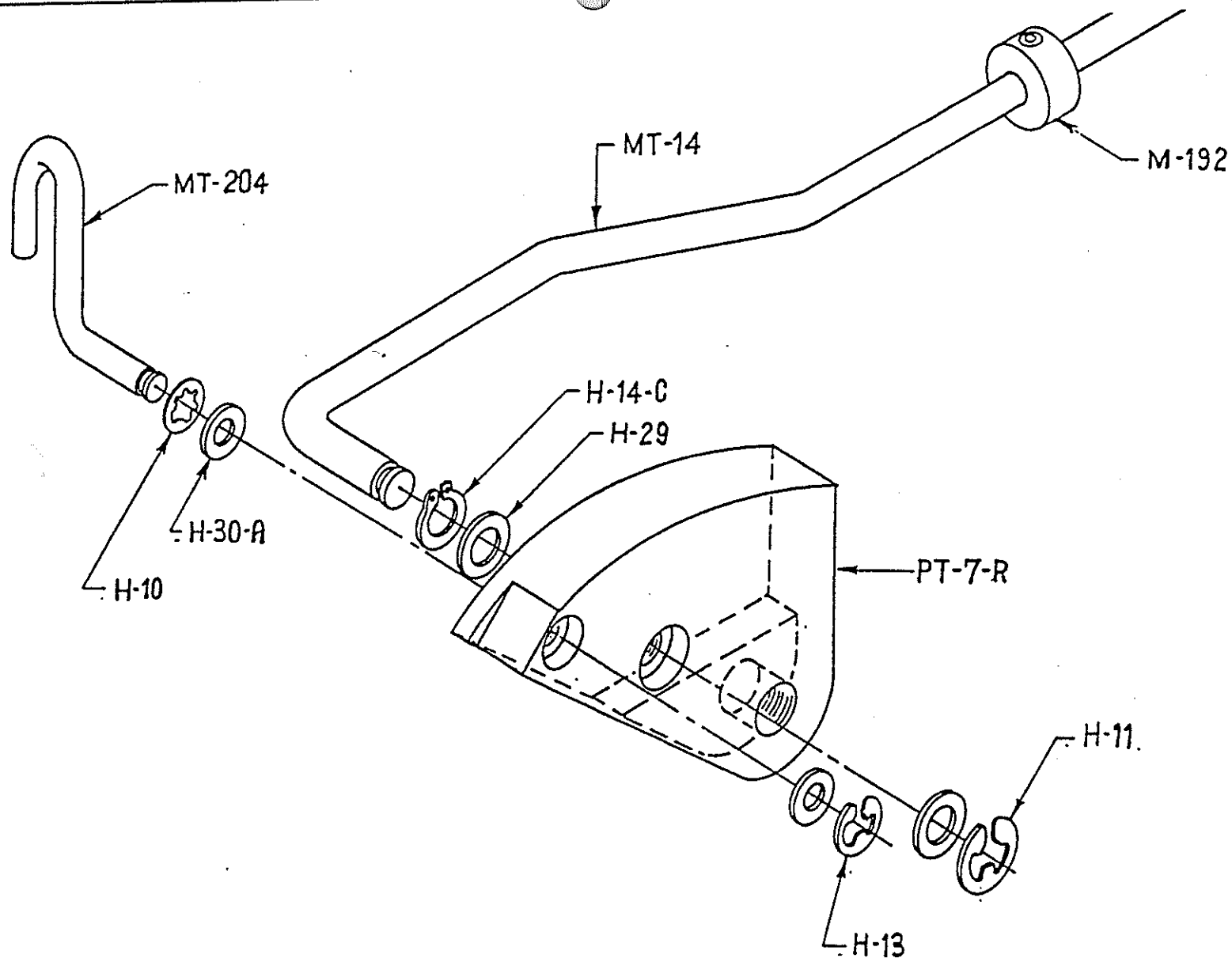
MENDES Québec Canada	DESCRIPTION : BRAKE ARM ASSEMBLY	SPÉCIFICATIONS MODEL 201E	PAR : / ÉCHELLE :
	VÉR. : / APPR. : / DATE : 6-88		PARTIE No. SB- 5015



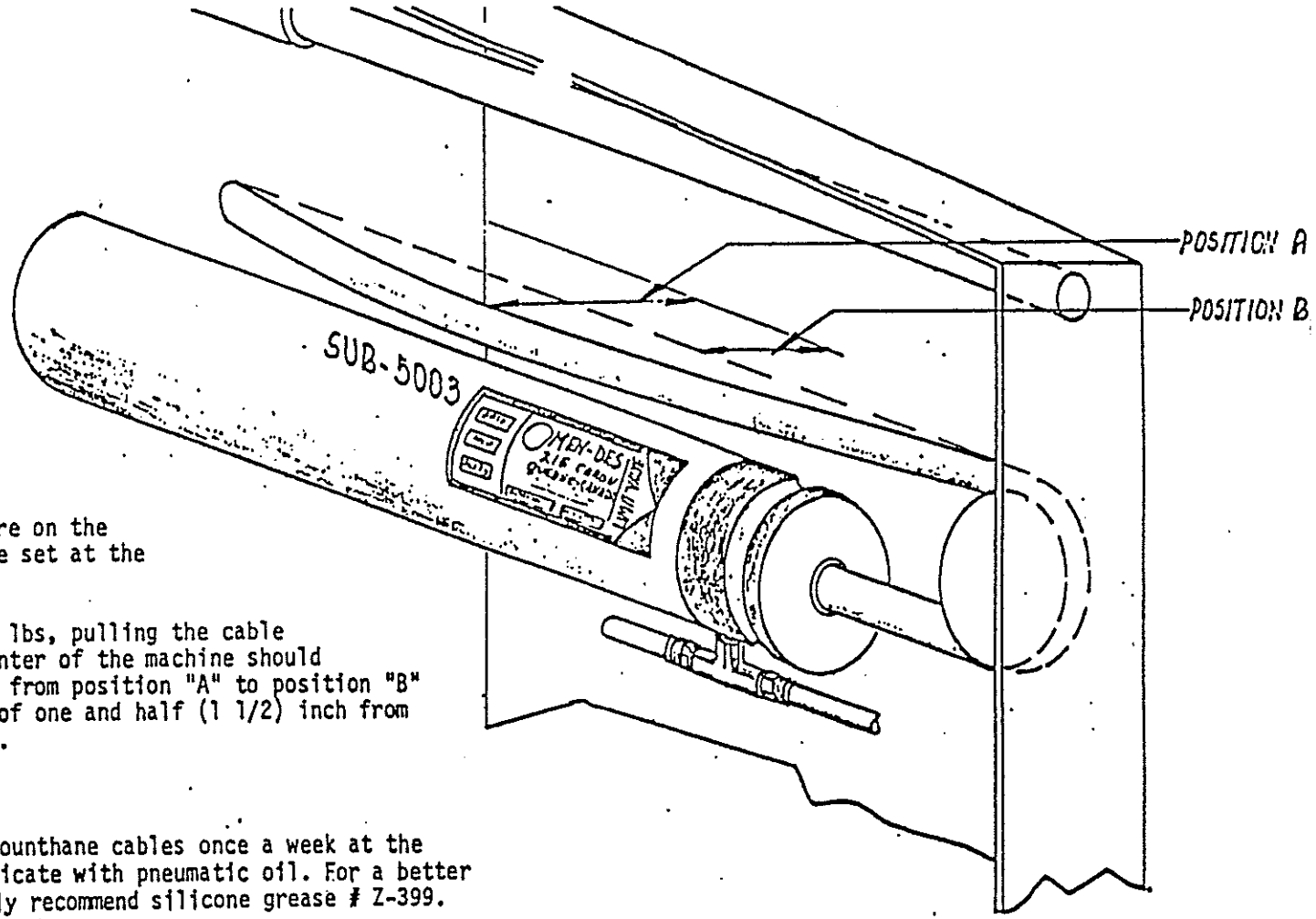


MENDES Québec Canada	DESCRIPTION : SENSOR SHEAVE ASSEMBLY W.W.	SPÉCIFICATIONS MODEL 201E	PAR :	ÉCHELLE :
	VÉR. :	APPR. : Cyl. DATE : 6-88	PARTIE No. SB - 5017	

Hughes-Owens Geovel



MENDES Québec Canada	DESCRIPTION : CAM ASSEMBLY		SPÉCIFICATIONS MODEL 2010E	PAR : / ÉCHELLE :
	VÉR. :	APPR. : GM	DATE : 6-88	PARTIE No. SB-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.

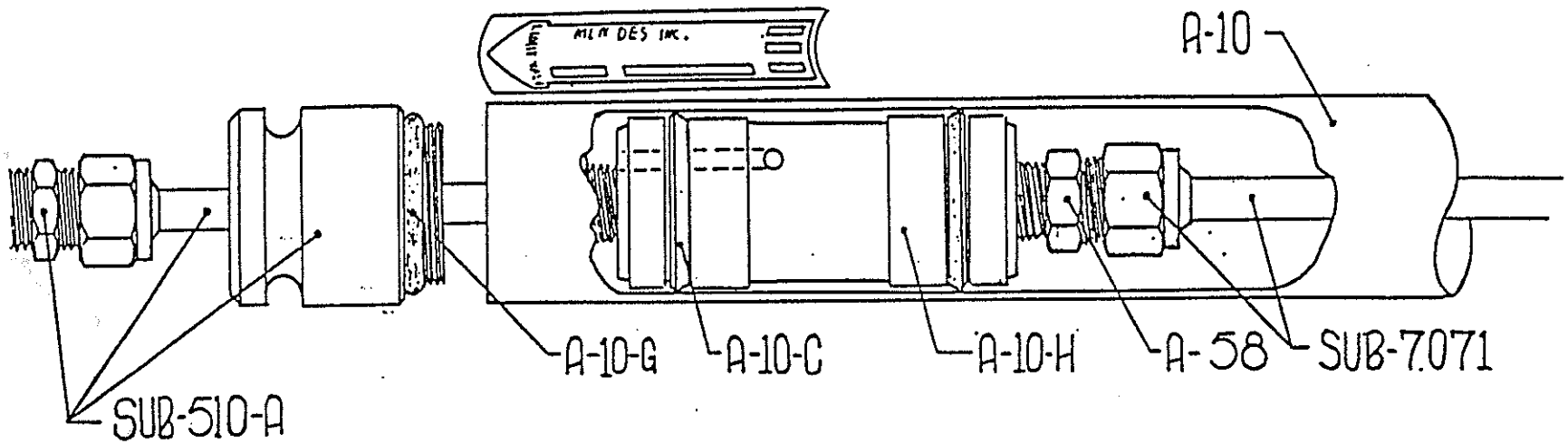
IMPORTANT:

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 Québec Canada	DESCRIPTION: ADJUSTING TENSION ON THE CYLINDER CABLE		SPÉCIFICATIONS	PAR: / ÉCHELLE:
	VÉR.:	APPR.:	MODEL 2.01E	PARTIE No. BT-02
		DATE: 6-88		



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.

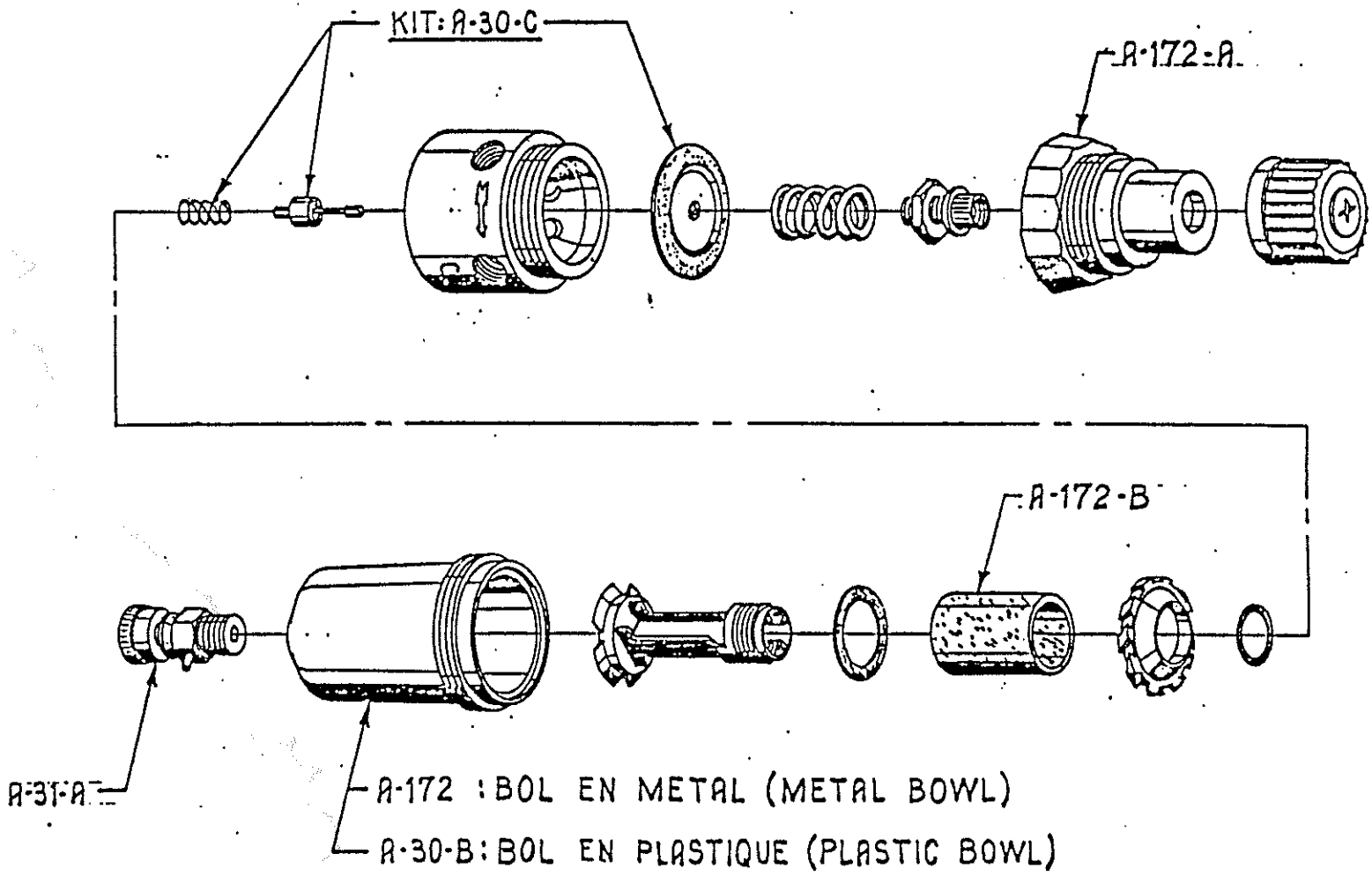
HOW TO DISMANTLE THE CYLINDER:

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

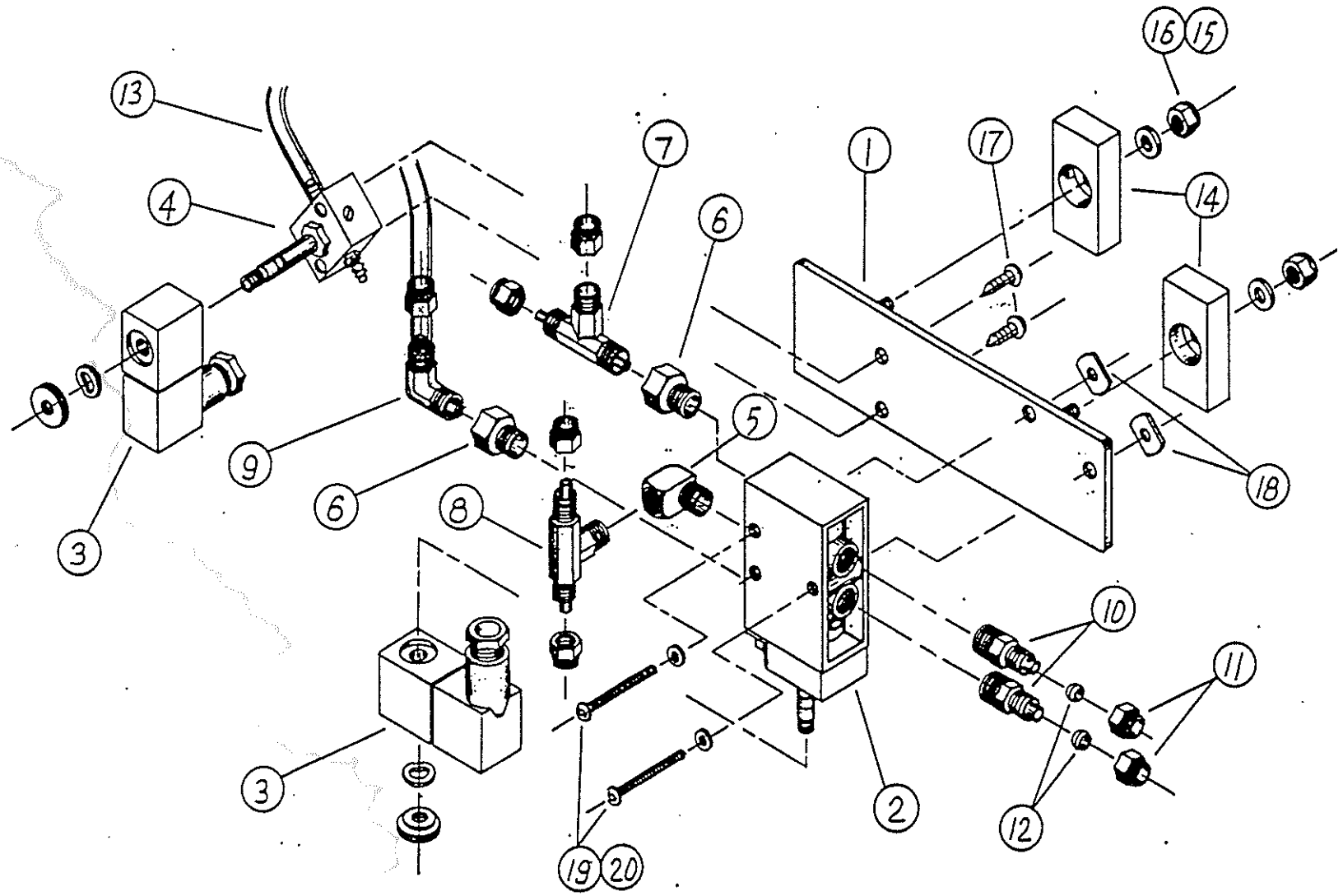
HOW TO RE-ASSEMBLE THE CYLINDER:

- 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 Québec Canada	DESCRIPTION: HOW TO REPAIR SUB-5003 - TYPE "C"	SPÉCIFICATIONS MODEL 201E	PAR:	ÉCHELLE:
	VÉR.:	APPR.: CM	DATE: 6-88	PARTIE No. BT-04



MENDES Québec Canada	DESCRIPTION: REGULATOR REPLACE PARTS		SPÉCIFICATIONS MODEL 201E	PAR: / ÉCHELLE:
	VÉR.:	APPR.: M	DATE: 6-88	PARTIE No. BT-13



Québec Canada MENDES	DESCRIPTION: FIVE PIN MAIN VALVE		SPÉCIFICATIONS MODEL 201E	PAR: / ÉCHELLE:
	VÉR.:	APPR.: [illegible]	DATE: 6-88	PARTIE No. SB-A014-9982-5

MATERIAL LIST

FIVE PIN MAIN VALVE ASSEMBLY

SB-A014-9982-5

CODE NO	INDEX	DESCRIPTION
M-014-9982-5	1	MOUNTING PLATE MAIN VALVE
A-014-9982	2	VALVE MFH 5 1/8" FESTO
A-014-6718	3	MSFW 24AC SOLENOID FESTO
A-014-4450	4	VALVE MFH-3 10/32" FESTO
A-041	5	STREET ELBOW 1/8"
A-073	6	ADAPTOR 1/8" M.S. 1/8" F.
A-313	7	MALE R/TEE 1/4" OD 1/8" MPT
A-308	8	MALE BRA. TEE 1/4" X 1/8" PT
A-309	9	MALE ELBOW 1/4" X 1/8" PT
A-304	10	MALE CONNECT 1/4" X 1/8" PT
A-302	11	NUT SLEEVE ASS. 1/4"
A-300	12	POLY. SLEEVE 1/4"
A-330	13	POLY. FLO TUBING 1/4" BLUE
P-014-9982	14	SPACER BLOCK MOUNT. PLATE
H-023	15	1/4" I.D. FLAT WASHER
H-044	16	1/4"-20 HEX NYLOCK NUT
H-072A	17	#8 X 3/4" RH SOCK WOOD SCW
H-086-2	18	6/32 WELD NUT SP-NR # 241
H-052D	19	6/32 X 1" RH SOCK MACH SCW
H-024	20	3/16" I.D. FLAT WASHER

OILING AND CHECKING CHART
PNEUMATIC PINSETTERS

	DAILY	WEEKLY	MONTHLY	EVERY 2 MONTHS	YEARLY
1. Oil main cylinder SUB-5003	X				
2. Check and adjust strings	X				
3. Clean and oil main cylinder cables (SUB-5003)		X			
4. Oil ball lift			X		
5. Bleed compressor tank and check oil level		X			
6. Oil sensor sheave assembly and bumper assembly		X			
7. Oil shaft of all moving parts and axle pulleys P-08			X		
8. Check the cables tension on the main cylinders (see BT-2)			X		
9. Tight all screws and check the vibro insulators			X		
10. Chang oil in the compressor				X	
11. Clean or change the filter					X
12. Change the filter of the air compressor					X
13. Check the compressor by a specialized firm in this field					X

N.B. OILING OF THE MAIN CYLINDERS IS AUTOMATIC ON MODELS 201-501-901