

052 CHEESE PACKER

Operational and Mechanical Contents

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SECTION ONE

Introduction



1.1 MACHINE DESCRIPTION

1.1.1 The Ryan 052 Cheese Packer has been designed and manufactured by Ryan Manufacturing for the Dairy Industry.

1.1.2 The machine will receive cheese blocks in a plastic packaged form via the multivac machine. The cheese block sizes are :

170 mm x 93 mm x 32 mm = 500g

170 mm x 93 mm x 45 mm = 750g

170 mm x 93 mm x 47 mm = 800g

170 mm x 93 mm x 60 mm = 1000g

Exiting a single lane conveyor the divertor conveyor will guide the blocks into three lanes. The packaging machine will stack three blocks vertically within the machine. This is repeated four times. This stack (twelve blocks) is then placed in to the erected carton.

The machine carries out a closing and taping procedure.

The carton is then ejected from the machine.

The machine will operate at a speed of one block per second.



1.2 WARRANTY

1.2.1 Mechanical Guarantee

We under take to make good and/or replace free of charge any malfunctioning components supplied by us. We also under take to install and adjust such components for a period of 365 days following the Take-over Certificate.

1.2.2 Software Guarantee

For all software and software engineering the guarantee is for a period of 90 days following the Take-over Certificate.

1.2.3 Non-compliance Forms

Should a fault occur please fill out a Non-compliance Form and advise Ryan Manufacturing Limited.



SECTION TWO

Operation and Safety



2.2 MACHINE SAFETY FEATURES

2.2.1 The machine and conveyor system is fitted with three emergency stops.

- A/ Front of machine
- B/ Rear of machine
- C/ Start of Divertor Conveyor

2.2.2 The top control panel of the machine is fitted with the following controls :

- A/ Start
- B/ Stop
- C/ Reset
- D/ Emergency Stop

2.2.3 The bottom panel of the machine is fitted with eight lights.

- A/ The green light, when lit, acknowledges that the system is functioning correctly.
- B/ The red light, when lit, acknowledges that a fault has occurred in that section.

2.2.4 The machine is fully enclosed with polycarbonate panels.

2.2.5 The machine is fitted with four access doors. The doors are interlocked with the master control relay so that all electrical and pneumatic actuators are isolated.

2.3 MANUAL AND SETTING MODES

- 2.3.1** Within the machine there is an electrical panel with two key switches. Extreme caution is required when operating these switches. This area of operation should only occur when adjustments need to occur.

Bypass

This switch overrides the electrical over loads door and safety circuits.

Dry Run

This switch is for a manual test with no product in the machine. The machine will be activated via the start button.

- 2.3.2** In both cases when switches are activated the amber light will show.

- 2.3.3** We recommend that the keys are held by the area safety supervisor.

2.4 CONTROLS AND SERVICES

- 2.4.1** The control and electrical cabinet is situated in the front-left position of the machine. Authorized maintenance personnel should have the only access.
- 2.4.2** As installed the machine comes complete with the New Zealand Certificate of Compliance.
- 2.4.3** Any electrical repair work undertaken on site must comply with the Electrical Wiring Regulations and Codes of Practice.
- 2.4.4** Any work carried out will comply with the Anchor Products Site Lockout and Practicing Procedures.
- 2.4.5** The pneumatic cabinet is situated in the rear-right position of the machine. Authorized maintenance personnel should have the only access.
- 2.4.6** The machine should not be subject to conditions causing moisture or excessive dust.

2.5 MACHINE OPERATION

2.5.1 Operator Panel

The Operator Control Panel contains the following buttons:

Start with indication

Stop

Reset with indication

E-Stop

2.5.2 Start and Stop

On pressing the Start button the Start lamp will indicate green. The box tape conveyors and infeed conveyors will start. The stack will begin to cycle if product is present and a box will be formed. The machine will stack two rows of cheeses until a box is formed and then continue with the stack and load sequence to fold and tape the box. Once the box has been moved into the box tape conveyor the stack and load will come down and start the cycle again. This will continue until the Stop button is pressed or the safety circuit is activated.

Note - The machine will not do a stack until all product is in position on the foot, hence it will wait here forever if no product arrives at the foot.

The Stop button will stop the machine once a box has been completed. Pressing the Stop button will cause the green Start lamp in the Start button to flash. This indicates that the machine is awaiting box completion to stop. The Start button can be pressed again to cancel out the awaiting to stop condition. The green Start lamp will change to continuous green showing that the machine is running again.

2.5.3 Reset and E-Stop

On power up the Reset button will be illuminated amber indicating that the machine is in a safe powered down state. The emergency dump air valve will be de-energized stopping any air getting through

to the valves and machine. The PLC outputs will not receive any power so nothing can operate electrically.

On pressing the Reset button the emergency dump will energize and will soft start the air supply to the machine to smoothly return cylinders to their start-up state. PLC outputs will have power to them and the amber reset light will go out showing that the machine is ready to run. If the machine cannot be reset then check the Machine Status display just below the Operator Control Panel. This will be explained under the Machine Status Display, Section 9.2. The Reset button is also used to reset faults and is explained in more detail under Faults, Section.

The E-Stop button will activate the quick dump removing air from the machine and PLC output power. If the E-Stop button is depressed the E-Stop lamp on the Machine Status Display will be extinguished. The E-Stop is part of the safety circuit.

On pressing the Reset button a timer, seven seconds, is started that stops the machine from starting until it has timed out. This allows the soft start to reach full air pressure and move cylinders to their correct positions.

2.5.4 Machine Status Display

These green lamps indicate the status of the machine safety circuit which is reset by the Reset button. The lamps indicate the following:

Power Lamp PLC inputs have power

Air Lamps Correct main air pressure is supplied to the machine

Overload Lamp All motors are ready to run as required by the PLC

Door Lamp All doors are closed

E-Stop Lamp All E-Stops are off

The Operator Control Panel and diverer E-Stops are latching hence they must both be unlatched before the machine can run. This is seen by the E-Stop lamp not being illuminated.

All these lamps must be on before the machine can be reset and run. Air, overload, doors and E-Stop form the machine safety circuit. If any of these conditions are not being satisfied the machine will stop, dump air and remove power from the PLC output modules.

The Air, Overload, Door and E-Stop lamps are in a cascade control. If the E-Stop, Doors and Overloads are functional but the Air is off then all lamps below the Air lamp will also be off. Hence always check the top lamp that is off first, this may be the only problem. Work your way down until all lamps are on.

Overload and doors can be bypassed with the bypass key switch for set-up and test purposes.

2.5.5 Set-up Panel

This panel houses two key switches, bypass and dry run, and two amber indicators. The two key switches are for aiding set-up and bypass some of the machine safety circuit. Due to this extreme care must be taken when the machine is bypassed. If bypass or dry run are on, the amber lamp below will illuminate and the key cannot be withdrawn.

Bypass

This keyswitch bypasses the overload and door part of the machine safety circuit so that motors can be turned off for test purposes and doors can be opened with the machine running for set-up purposes.

Dry Run

This keyswitch puts the machine in a manual stepping mode where it can be stepped through without product or boxes. Each time the start button is pressed the box and stack sequence will be incremented through. If product is run in this mode it will jam up as the fingers will not open in time to allow product through in time.

2.6 PRODUCT SIZE CHANGE OVER

Whenever the size of cheese portion being packed is to be changed, the following steps must be followed:

- 2.6.1 Place a bundle of the correct size of box into the case packer magazine.
- 2.6.2 Adjust box top finger (1) so that it protrudes 3-4mm below the edge of the unfolded box.
This will fit in the slot between the box end flap (left) and the box side flap (right).
- 2.6.3 Adjust height of box end folder (2) so that its bottom edge is about 2mm above the folded box top.
- 2.6.4 Adjust height of top cellotape head (3) to:
 - A) Highest position for 1.0 Kg portions.
 - B) Center position for 750g portions.
 - C) Lowest position for 500g portions.
- 2.6.5 Bottom cellotape head requires no height adjustment. Check how much cellotape is left on reels.
- 2.6.6 Adjust height of top vacuum suction cups (4) to:
 - A) Highest position for 1.0 Kg portions.
 - B) Center position for 750g portions.
 - C) Lowest position for 500g portions

Boxface guide to be central between the top and bottom cups for 1.0 Kg and 750g portions.
Boxface guide is not required for 500g portions.
- 2.6.7 Adjust height of box top flapper (5) to:
 - A) Top of slot for 1.0 Kg portions.
 - B) Center of slot for 750g portions.
 - C) Lowest of slots for 500g portions.
- 2.6.8 Adjust foot stack height sensor (6) to:
 - A) Bottom of slot for 1.0 Kg portions.
 - B) 2-3mm from bottom of slot for 750g portions.
 - C) 10mm from bottom of slot for 500g portions.

2.6.9 Check that the front flap retainer is 3-4mm above top of the formed (but open) box.

This should not require adjustment unless box size is inconsistent.

2.6.10 Test box forming sequence:

- A) Switch machine to dry run.
- B) Press start to initiate each box forming action.
- C) Check quality of empty folded box to ensure that all items adjusted for height are in the correct position.
- D) Switch dry run selection off.



8

SECTION THREE

Maintenance



3.1 GENERAL MAINTENANCE

- 3.1.1 All gearboxes and roller bearings on the Ryan cheese packer are sealed units. This allows for minimum maintenance and long life components.
- 3.1.2 The pneumatic system is designed to use non-lubricated dry air so as no oil pots have been used.
- 3.1.3 Cleaning of the machine should be done with a non-solvent/non-abrasive cleaner as this could damage guards and other components.
- 3.1.4 On no account should the machine be cleaned with large quantities of water. Components such as electronics and pneumatics will be damaged and the operator may be electrocuted.
- 3.1.5 It is recommended that once a week a fitter views each machine running and talks with the operators, while doing so, to determine any problem areas.

Before adjusting or replacing any parts take note of original position so as not to disturb machine settings.

Visually check all fastenings and fixtures.

Any modifications, services, breakage's etc should be documented on the supplied Non-compliance forms and forwarded to both Ryan Manufacturing Ltd and Pasture Pak, Anchor Products Ltd - Production Supervisor.

Magazine	Check	Weight cord Liner Bearings Pivot Bars
Box Erect	Check	D V Bushes (may need spray of silicon if sticking) The Piab Vacuum generators are positioned on top of the box erect cylinder and should be dismantled and cleaned every 3 - 4 months or whenever the operator reports ongoing lack of vacuum.
Flap Actuators	Check	All pivot points Cylinder
Box Pusher	Check	Cylinder D V Bushes

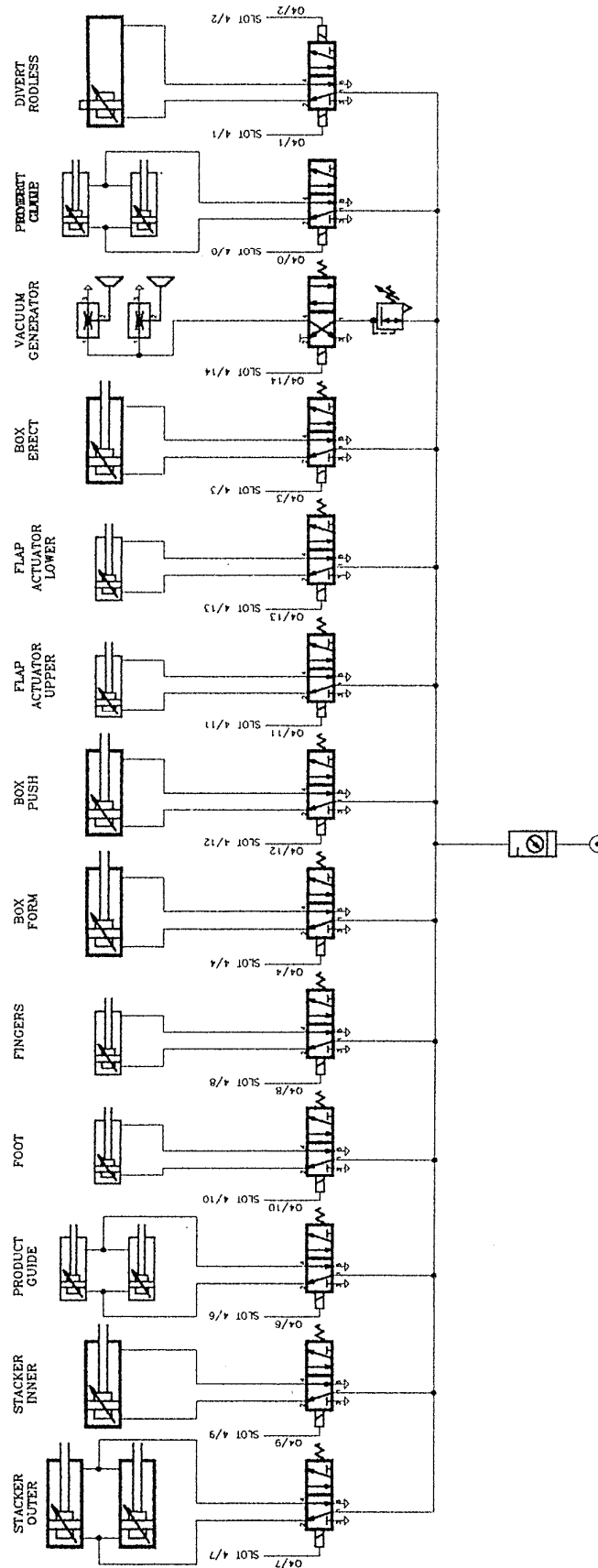


Product Guide	Check	Cylinder D V Bushes Product sides are generally taken care of by operator but check all screws are in place.
Fingers	Check	Cylinder All pivots Rod ends if replacement is necessary. It is critical that the overall lengths of all tie rods remain as set by Ryan Manufacturing Ltd. Finger plate "A" and "B" should remain parallel to each other.
Foot	Check	Overall condition of slides (lubricate with silicon spray). Brass Key (ensure fastenings are tight).
Stacker	Check	Cylinder D V Bushes
Box Conveyor	Check	Belt condition Belt tension. To increase tension adjust motor end only. To adjust width between belts rotate main shaft.
Cheese Stops	Check	Adjustment nuts are tight.
Infeed Conveyor	Check	Belt tension. Adjustment can be made from front of machine and should be carried out equally on both sides. Ensure correct belt tracking has occurred.
Diverter Conveyor	Check	Condition of Plastic infeed rods. Beam sensor lenses are clean. Belt tension.
070 Case Packer Only		
Flap Turner	Check	Belts
Supply Conveyor	Check	Condition of Belt
Tape Heads	Check	For information consult 3M



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REV	BY	DATE	MODIFICATIONS						

PNEUMATIC PARTS

Part Number	Description
52-03-03	Cabinet
52-03-04	Dia. 50 Cylinder Overhaul Kit
52-03-05	DU-Bush for Product Guide
52-03-06	Dia. 32 Cylinder Overhaul Kit
52-03-07	Dia. 25 Compact Cylinder Overhaul Kit
52-03-08	Dia. 40 Cylinder Overhaul Kit
52-03-09	Rodless Cylinder Overhaul Kit
52-03-18	4/2 Pneumatic Control Valve
52-03-19	5/2 Pneumatic Control Valve
52-03-20	Vacuum Generator



SECTION FOUR

Fault Finding



4.1 CASE PACKER FAULT FINDING CHECKLIST

Fault	Reason	Remedy
1. Box is not picked up.	<p>Boxes not vertical on magazine</p> <p>Boxes not right at front of magazine.</p> <p>Not enough vacuum.</p> <p>Boxes catching at right hand side magazine stop.</p>	<ul style="list-style-type: none"> - Check that magazine stops are parallel. - Straighten boxes in magazine. - Ensure that magazine is full. - Ensure that magazine stops are not too tight. - Open up gaps between stops to let boxes feed out. - Check that all vacuum caps are straight and able to pick up on flat face of box. - If no vacuum, check PIAB vacuum, generators. - From front of machine check that boxes are pushed hard left in the magazine. (Not when machine is running.)
2. Boxes fall out of magazine into stacking area.	<p>Magazine stops are adjusted too wide and boxes push straight past.</p> <p>Boxes are being fed into magazine when a box is being pulled.</p>	<ul style="list-style-type: none"> - Adjust position of left hand stop to allow only the box being pulled to feed out. - Do not feed magazine during time when a box is being formed.
3. Boxes not formed to correct shape.	Boxes wrong way round in magazine	<ul style="list-style-type: none"> - From front of machine check that box end is on left hand side. Box side is on right hand side.
4. Box is pulled too far forward (past product guides).	Box erect cylinder is stroking 15mm too far, due to suppression cylinders not giving full support.	<ul style="list-style-type: none"> - Check that stops on box erect cylinder are straight, and contacting with suppression cylinders. (All above box magazine.)

<p>5. Boxes are not cellotaped.</p>	<p>Cellotape run out.</p> <p>Cellotape broken.</p> <p>Cellotape wrapped around application roller.</p> <p>Cellotape folded in half and will not stick to box.</p>	<ul style="list-style-type: none"> - Replace empty reel. - Clear out free sellotape strip, then re-feed end. - Ensure that tape reek is centred on dispenser arm, clear tape that is wrapped around roller. - Check reasons above.
<p>6. Cheese pushes box up when stacking.</p>	<p>Box not formed properly.</p> <p>Product guide not located in box.</p> <p>Product guides broken.</p> <p>Box not in right place.</p> <p>Note: It is recommended that an engineers advice should be sought if these remedies are considered necessary.</p>	<ul style="list-style-type: none"> - Check box faults. - Stop machine, remove box and cheese then start again. - Stop machine and replace broken guide. - Ensure that box does not slip or change position relative to the box erect vacuum cups. - Vertical box position should not change. Lateral box position can be altered slightly by adjusting magazine stops.
<p>7. Cheese jam up when stacking.</p>	<p>Fingers open too late due to foot height adjustment sensor being too high.</p>	<ul style="list-style-type: none"> - Lower foot height sensor so that fingers open before the cheese being stacked reaches this height.
<p>8. Cheeses jam under retracting stacking foot.</p>	<p>Conveyors fall back to diverter and are not able to reverse so that stacker is clear.</p>	<ul style="list-style-type: none"> - Stop machine. Cut out cheese jammed. Stop incoming cheese until incline conveyor is clear.

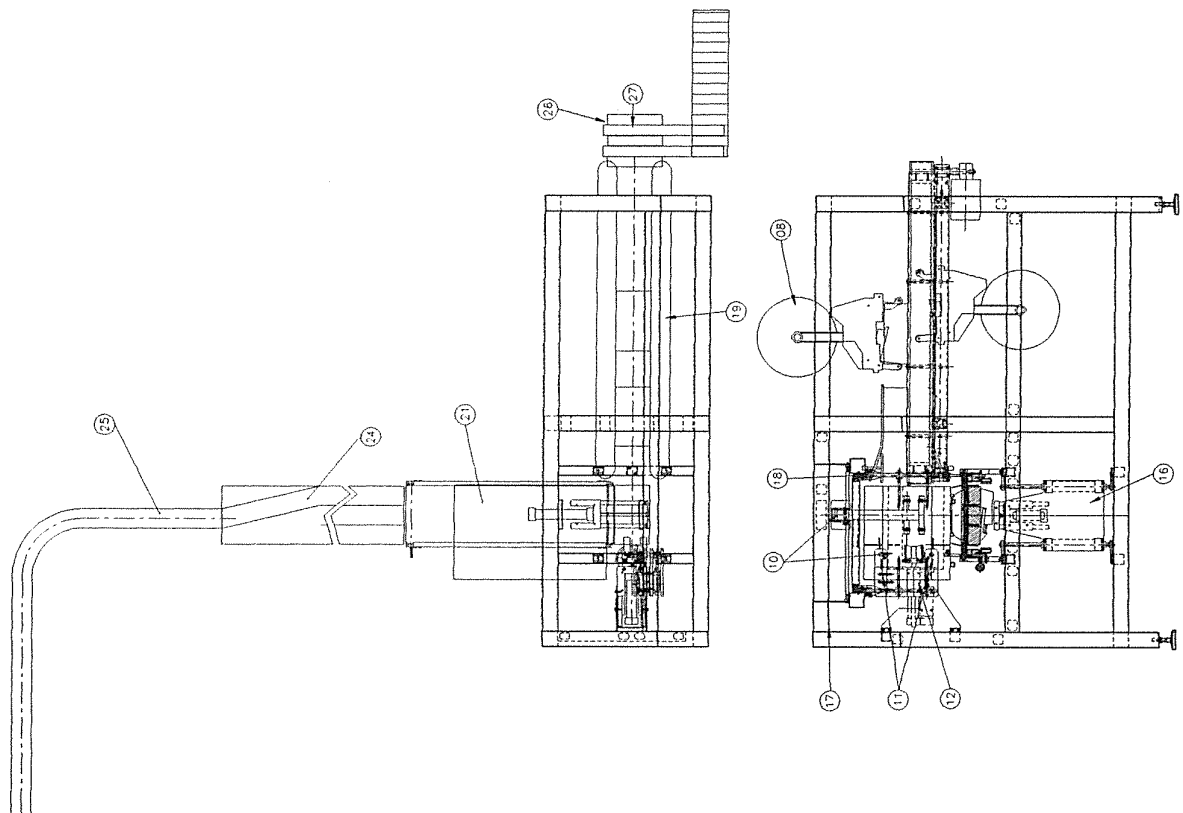


SECTION FIVE

Spare Parts

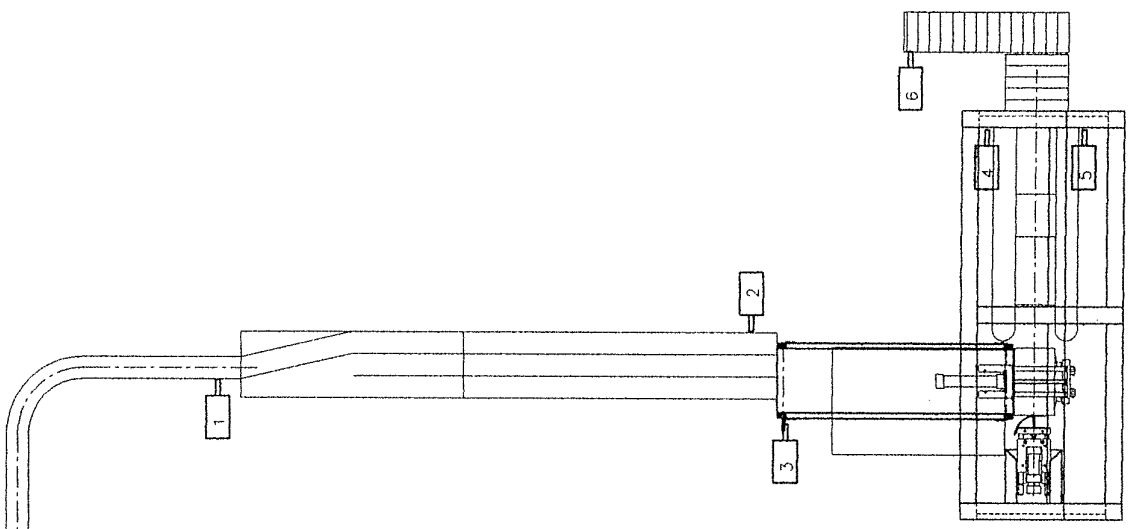


08	TAPE APPLICATION
09	MAGAZINE
10	BOX ERECT
11	FLAP - ACT
12	BOX FEED
13	PRODUCT GUIDE
14	FINGERS
15	FOOT
16	STACK
17	FRAME
18	BOX CLOSE
19	BOX CONVEYOR
20	DIVERT ARM
21	M/C INFEED CONVEYOR
24	DIVERT CONVEYOR
25	SUPPLY CONVEYOR



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	MODIFICATIONS REV BY DATE	DATE REV BY DATE	DATE REV BY DATE	DATE REV BY DATE

GEAR BOX				MOTOR						
No.	MAKE	TYPE	RATIO	MAKE	KW	RPM	VOLTS	AMPS	HZ	IP
1	MOTOVARIO	NMRV050	50:	ABB	0.37	1420	240	2.4	50	55
2	MOTOVARIO	NRV030	1:20	CEG	0.18	2750	230	0.91	50	55
3	MOTOVARIO	NRV030	1:10	SEIMEC	0.18	1360	230	0.92	50	55
4	MOTOVARIO	NRV030	1:20	SEIMEC	0.18	1350	220	1.28	50	55
5	MOTOVARIO	NRV030	1:20	SEIMEC	0.18	1350	220	0.7	50	55
6	MOTOVARIO	NRV030	1:25	NERI	0.06	1360	220	0.6	50	55



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PROJECT 052
 MANUAL
 GEARBOX / MOTOR INFORMATION

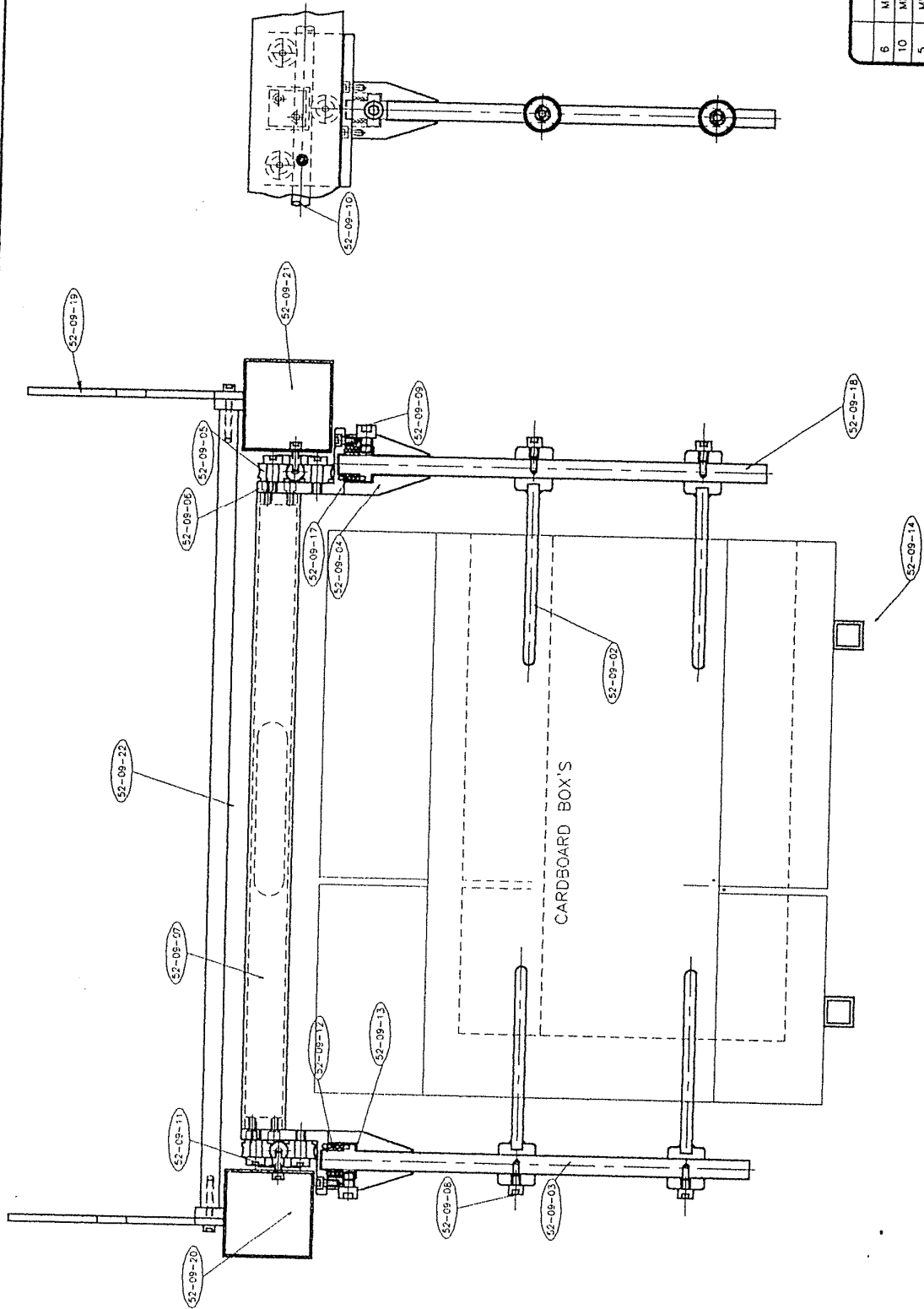
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	DRAWN	A. CHANDLER
	DATE	13-03-86
	REV	BY
	DATE	
	MODIFICATIONS	

RECOMMENDED SPARE PARTS LIST

Part Number	Description	Quan
-	Motor Vario NRV30 1:20 GEARBOX	1
-	Motor Vario NRV30 1:10 GEARBOX	1
52-03-04 ✓	Overhaul Kit for 50mm Dia. Cylinder	2
52-03-05 ✓	Du Bush for Cylinder Guides	4
52-03-06 ✓	Overhaul Kit for 32mm Dia. Cylinder	1
52-03-07 ✓	Overhaul Kit for 25mm Dia. Compact Cylinder	1
52-03-08 ✓	Overhaul Kit for 40mm Dia. Cylinder	1
52-03-09 ✓	Overhaul Kit for 32mm Dia. Rodless Cylinder	1
52-03-18 ✓	4/2 Valve	2
52-03-19 ✓	5/2 Valve	1
52-03-20 ✓	Piab Vacuum Generator	1
52-09-12	Right Spring	2
52-09-17	Spring Left	2
52-10-26	Vacuum Cup	4
52-11-03	Bearing	2
52-11-16	Rod End	1
52-13-12	DU Bush	2
52-13-08	Product Guide Small	2
52-13-09	Product Guide Long	2
52-14-16	Rod End	1
52-14-17	Rod End	1
52-14-18	DU Bush	4
52-14-19	Bearing	2
52-14-20	Rod End	1
52-15-06	Key	1
52-15-11	Seal Kit for Foot	2
52-19-21	Box Conveyor Belt	1
52-19-44	Conveyor Bearing	2
52-21-41	Conveyor Bearing	4
52-21-42	Conveyor Bearing	2

52-09-40

1/4" ID LUBRICATION SPINDLE FINGER



DRAWN LOOKING FROM THE FRONT

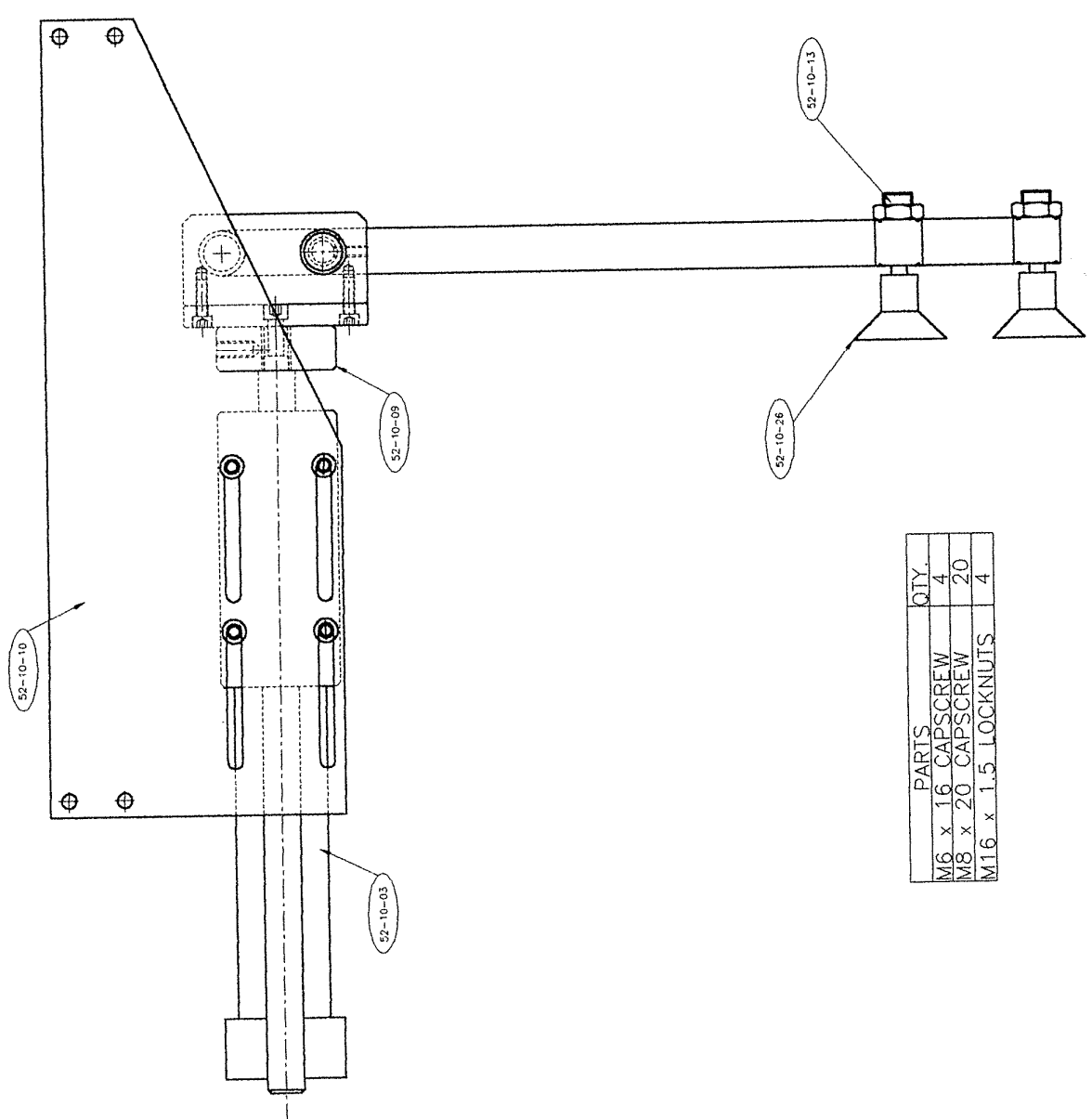
PART DESC.	
6	M6 CAPSCREWS x 20mm
10	M8 CAPSCREWS x 20mm
5	M5 x 16 CAPSCREWS
10	φ20 RUBBER PLUGS
6	M8 CAPSCREWS x 15
4	M8 CAPSCREWS x 35mm

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<p>REV. BY</p>		<p>DATE</p>		<p>MODIFICATIONS</p>	

MAGAZINE

Refer Drawing 52-09-01

Part Number	Description
52-09-02	Arm
52-09-03	Pivot Bar
52-09-04	Tension Spring Housing
52-09-05	Wheel
52-09-06	Wheel Bracket
52-09-07	Brace and Handle
52-09-08	Lock Screw
52-09-09	Stop
52-09-10	Bar Rail
52-09-11	Spacer
52-09-12	Spring (right)
52-09-13	Thrust Washer
52-09-14	Bottom Support
52-09-15	Spring Sleeve
52-09-16	Spring Washer
52-09-17	Spring (left)
52-09-18	Pivot Bar (left)
52-09-19	Mounting Bracket
52-09-20	Rail Mount (left)
52-09-21	Rail Mount (right)
52-09-22	Rail Mount (brace)
52-09-23	Pulleys
52-09-24	Magazine Puller
52-09-25	Magazine Pulley Bracket
52-09-26	Bracket Pulley
52-09-27	Spacer Plate
52-09-28	Rail Bracket
52-09-29	Rail
52-09-30	Finger Shaft
52-09-31	Finger
52-09-32	Finger Mount
52-09-33	Upper Spring
52-09-34	Magazine Weight and Tube
52-09-35	Censor Bracket
52-09-36	Lower Spring Plate



PARTS	QTY.
M6 x 16 CAPSCREW	4
M8 x 20 CAPSCREW	20
M16 x 1.5 LOCKNUTS	4

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PROJECT 052
 LINE 1 CHEESE PACKER
 BOX ERECTOR - GENERAL ARRANGEMENT

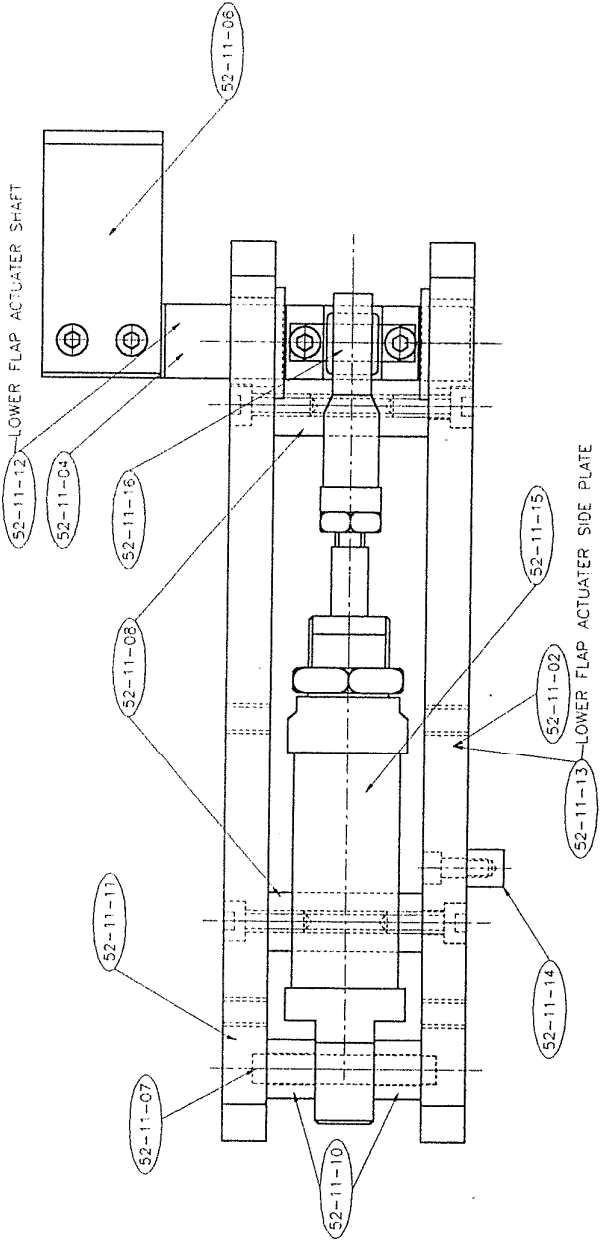
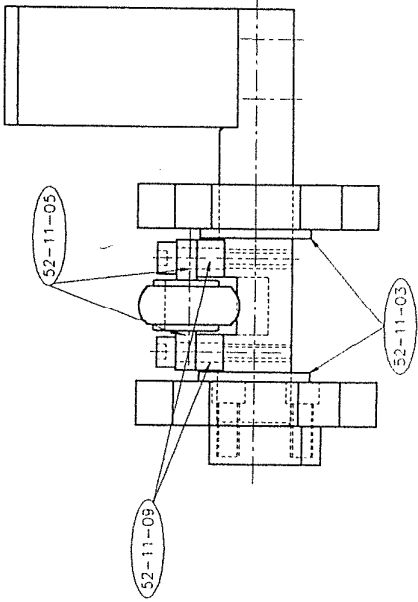
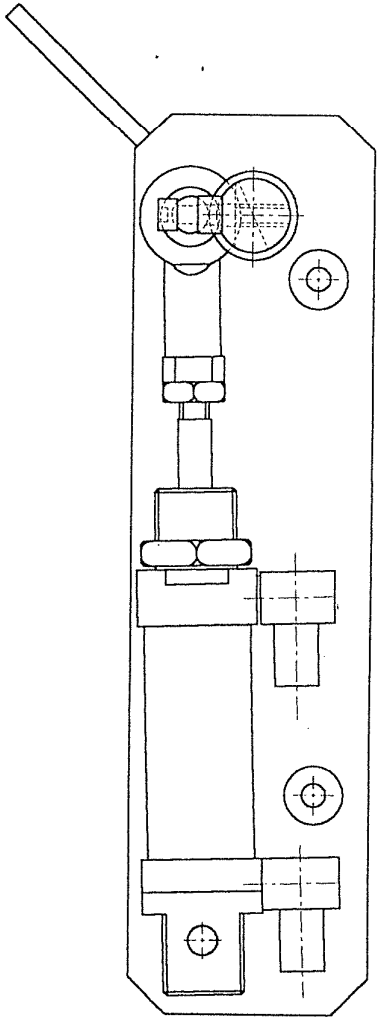
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DRAWING No. **52-10-01**
 ISSUE **A**
 DRAWN: A.C. PHILIP
 DATE: 15-09-95

BOX ERECT

Refer Drawing 52-10-01

Part Number	Description
52-10-02	Arm
52-10-03	Cylinder Assembly
52-10-04	Pivot Bush
52-10-05	Locking Bush
52-10-06	Locking Pin
52-10-07	Side Plate
52-10-08	Mount Plate
52-10-09	Cylinder Mount
52-10-10	Frame Plate
52-10-11	Adjustment Washer
52-10-12	Bracket
52-10-13	Adjuster
52-10-19	Cylinder Mount
52-10-21	Stop Arm
52-10-22	Stop
52-10-23	Cup Washers
52-10-24	Support Plate
52-10-25	Support Washer
52-10-26	Vacuum Cup
52-03-04	Cylinder Kit for 52-10-03
52-03-05	DU-Bush in Cylinder Guide



QTY.	PARTS
6	M6 x 1.00 x20
2	M5 x 0.80 x 25
2	M5 x 0.80 x 10
1	M10x1.25 LOCKNUT/H

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 TELEPHONE 0-7-847 2022 FAX 0-7-847 7160

TOLERANCES:
 NO DECIMAL PLACE = 0
 ONE DECIMAL PLACE = 0.0
 TWO DECIMAL PLACES = 0.01
 ALL DIMENSIONS ARE IN MILLIMETERS

PROJECT 052
 FLAP ACTUATOR
 GENERAL ASSEMBLY

DRAWING No. **52-11-01**
 DRAWN: A.D. CHANDLER
 DATE: 22-09-95

FLAP ACTUATOR

Refer Drawing 52-11-01

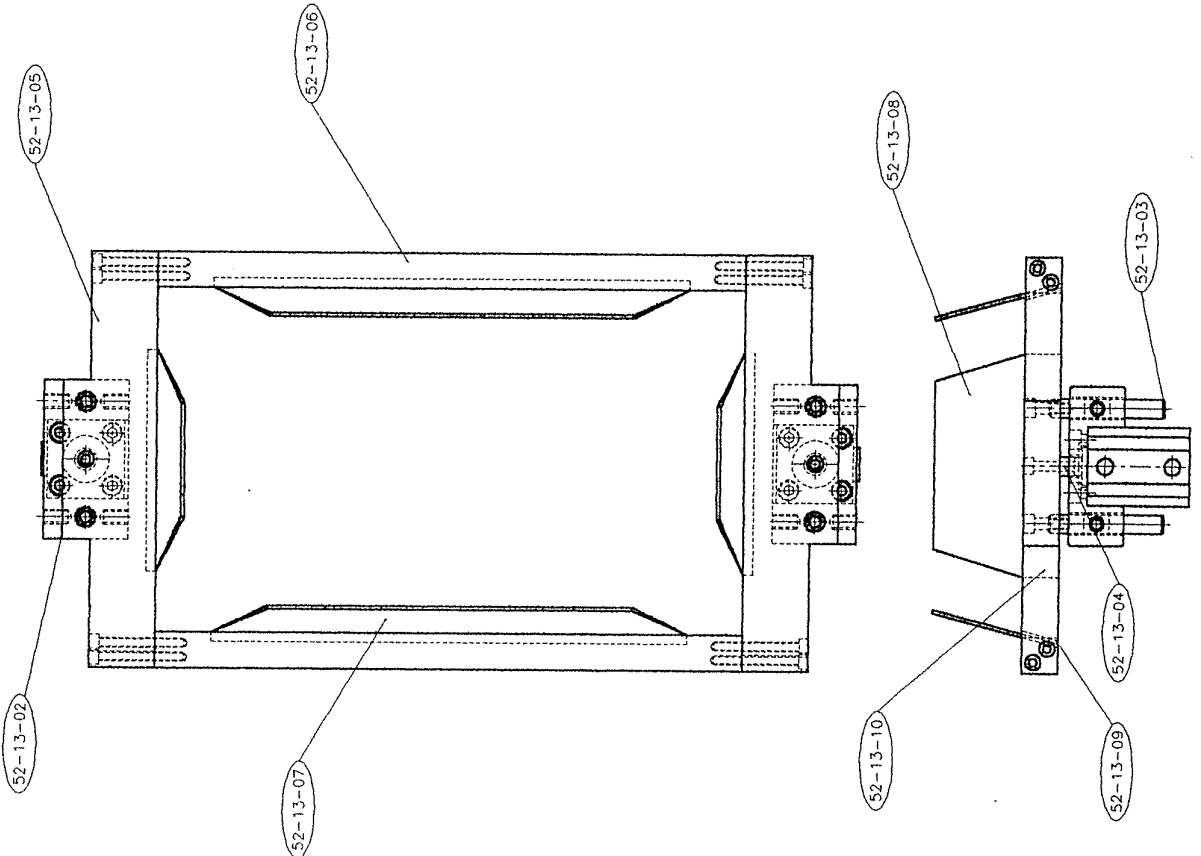
Part Number	Description
52-11-02	Side Plate "A"
52-11-03	Bearing
52-11-04	Shaft (upper)
52-11-05	Shaft
52-11-06	Flap
52-11-07	Pivot Shaft
52-11-08	Spacer
52-11-09	Spacer
52-11-10	Spacer Top
52-11-11	Side Plate "B"
52-11-12	Shaft Lower
52-11-13	Side Plate "C"
52-11-14	Key
52-11-15	Cylinder
52-11-16	Rod End
52-11-17	Flap (lower)
52-11-18	Bush and Spacers (lower)
52-03-06	Cylinder Overhaul Kit for 52-11-15

BOX PUSHER

Refer Drawing 52-12-01

Part Number	Description
52-12-02	Side Plate
52-12-05	Adjustment Plate
52-12-06	Bottom Plate
52-12-07	Bar Plate "A"
52-12-08	Bar Plate "B"
52-12-09	Forming Bar
52-12-10	Plate Spacers
52-12-11	Plate Washer
52-12-12	Bottom Flap Guide
52-12-13	Photo Electric Bracket
52-12-14	Vacuum Cup Holder
52-03-04	Cylinder Overhaul Kit for 52-12-04 and 52-12-03
52-03-05	DU-Bush for Guide Block

PART	QTY.
M6x20 CAPSCREWS	12
M5x30 CAPSCREWS	2
M5x45 CAPSCREWS	8
M5x10 FLAT HEAD	12
M5x45 CAPSCREW	4
SOCKET SCREWS	



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PROJECT 052
 PRODUCT GUIDE
 GENERAL ASSEMBLY

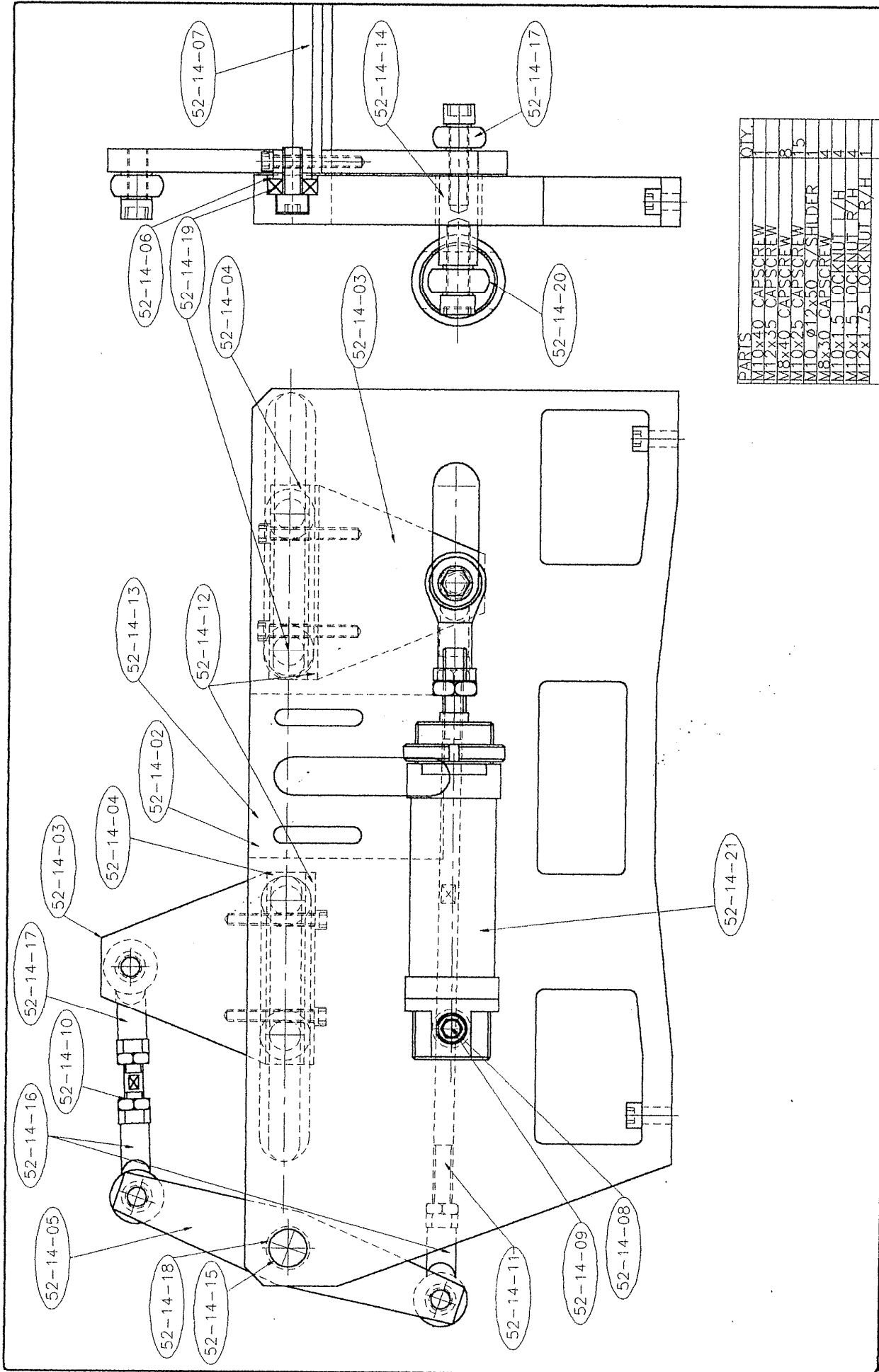
REV	BY	DATE	MODIFICATIONS

DRAWING No. **52-13-01**
 DRAWN: A.D. CHANLER
 DATE: 02-10-95
 ISSUE

PRODUCT GUIDE

Refer Drawing 52-13-01

Part Number	Description
52-13-02	Cylinder Block
52-13-03	Cylinder Guide Rod
52-13-04	Spacer Sleeve
52-13-05	Frame Side "A"
52-13-06	Frame Side "B"
52-13-07	Guide Side "B"
52-13-08	Guide Side "A"
52-13-09	Guide Plate "B"
52-13-10	Guide Plate "A"
52-13-11	Cylinder
52-13-12	DU Bush
52-03-07	Overhaul Kit for 70-13-11



PARTS	QTY.
M10x40 CAPSCREW	1
M12x35 CAPSCREW	1
M8x40 CAPSCREW	3
M10x25 CAPSCREW	5
M10 - Ø12x50 S/SLIDER	1
M8x30 CAPSCREW	4
M10x1.5 LOCKNUT L/H	4
M12x1.75 LOCKNUT R/H	1

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 FABRICATION = 0 +1.0 -1.0
 ALL DIMENSIONS ARE IN METERS

PROJECT 052
 FINGERS
 ASSEMBLED

DRAWING No. **52-14-01**
 DRAWN: A.C.PHILLIP
 DATE: 02-10-93

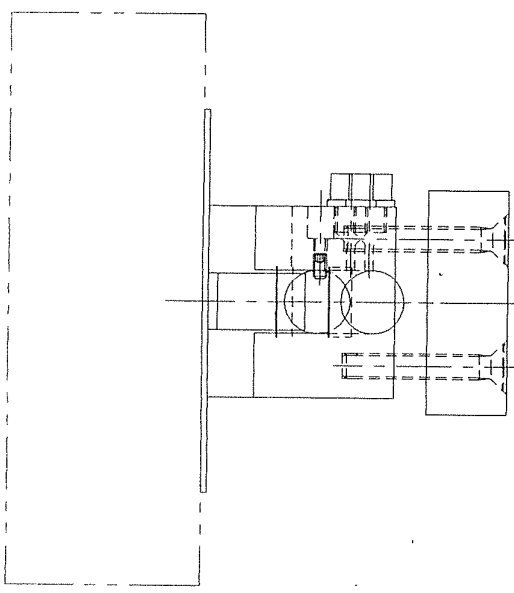
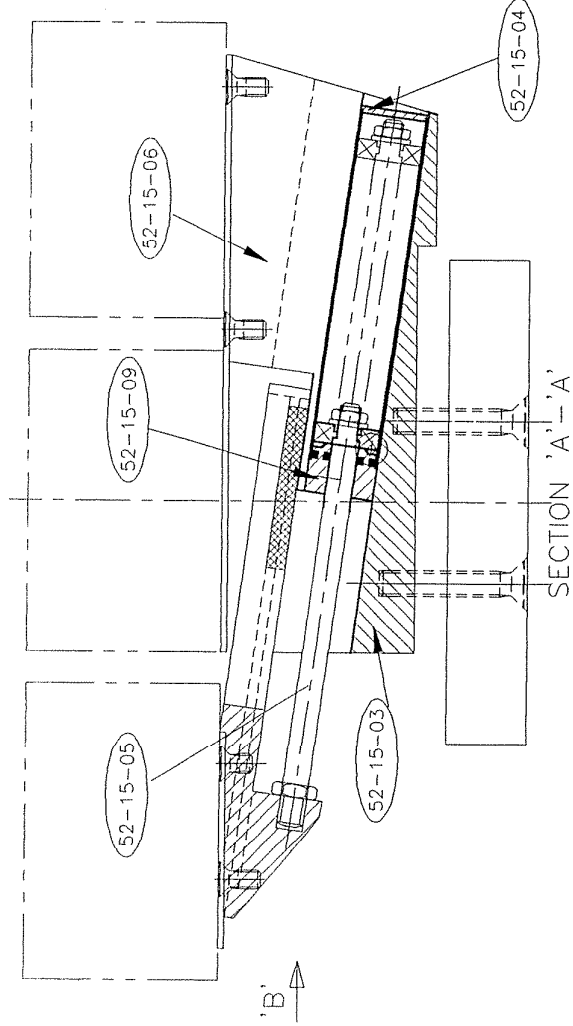
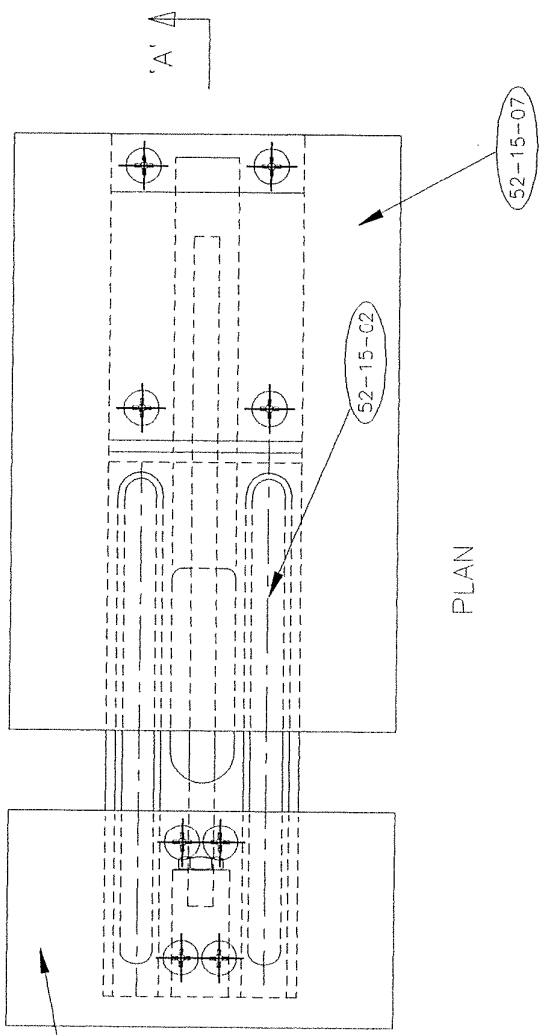
ISSUE: _____
 REVISION: _____
 DATE: _____
 MODIFICATIONS: _____

FINGERS

Refer Drawing 52-14-01

Part Number	Description
52-14-02	Side Plate "A"
52-14-03	Tie Rod Plate
52-14-04	Tie Rod Block
52-14-05	Tie Rod Lever
52-14-06	Bearing Spacers
52-14-07	Lever Rod
52-14-08	Cylinder Mount Sleeve
52-14-09	Cylinder Mount Washer
52-14-10	Short Tie Rod
52-14-11	Long Tie Rod
52-14-12	Finger Plate
52-14-13	Side Plate "B"
52-14-14	Spacer Sleeve
52-14-15	Lever Rod Washer
52-14-16	Rod End
52-14-17	Rod End
52-14-18	DU-Bush
52-14-19	Bearing
52-14-20	Rod End
52-14-21	Cylinder
52-03-08	Overhaul Kit for 52-14-21

PART DESC.	
2	M8 CAPSCREWS SHORTENED TO 45 LONG
2	42.5 LONG

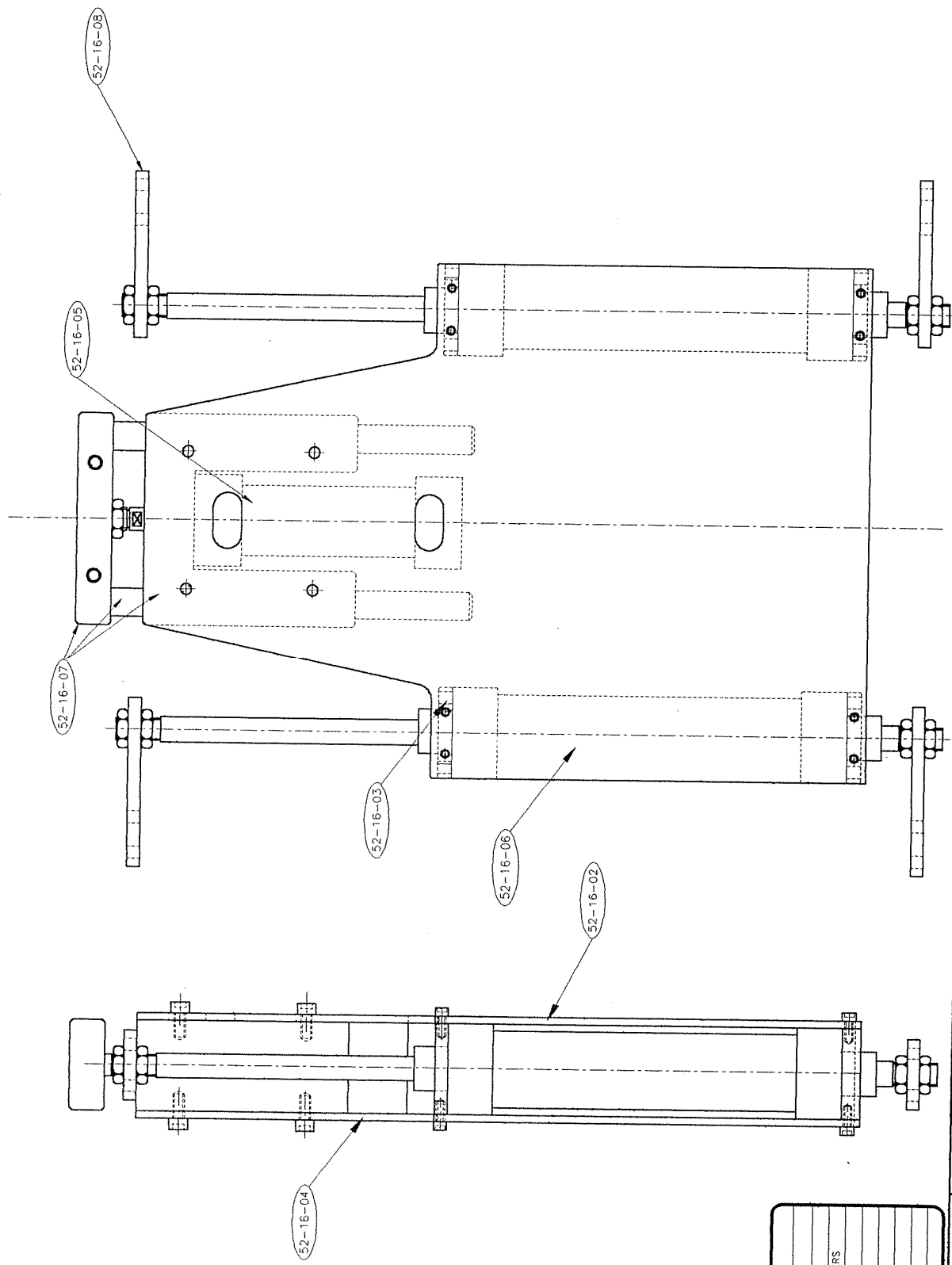


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	MODIFICATIONS	REV BY DATE	DRAWN: S. BUCKLEY DATE: 16-10-85	DATE: 16-10-85	DATE: 16-10-85

FOOT

Refer Drawing 52-15-01

Part Number	Description
52-15-02	Shoe
52-15-03	Cylinder Block
52-15-04	Sleeve
52-15-05	Shaft
52-15-06	Key
52-15-07	Plate - Static
52-15-08	Plate - Retracting
52-15-09	Cylinder Bush
52-15-10	Buffer Rod
52-15-11	Seal Kit for Cylinder



PART DESC.	
8	M8 CAPSCREW x 20mm
16	M6 CAPSCREW x 20mm
9	M16 x 1.5 NUTS FOR CYLINDERS

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PROJECT 052
 STACKER
 GENERAL ASSEMBLY

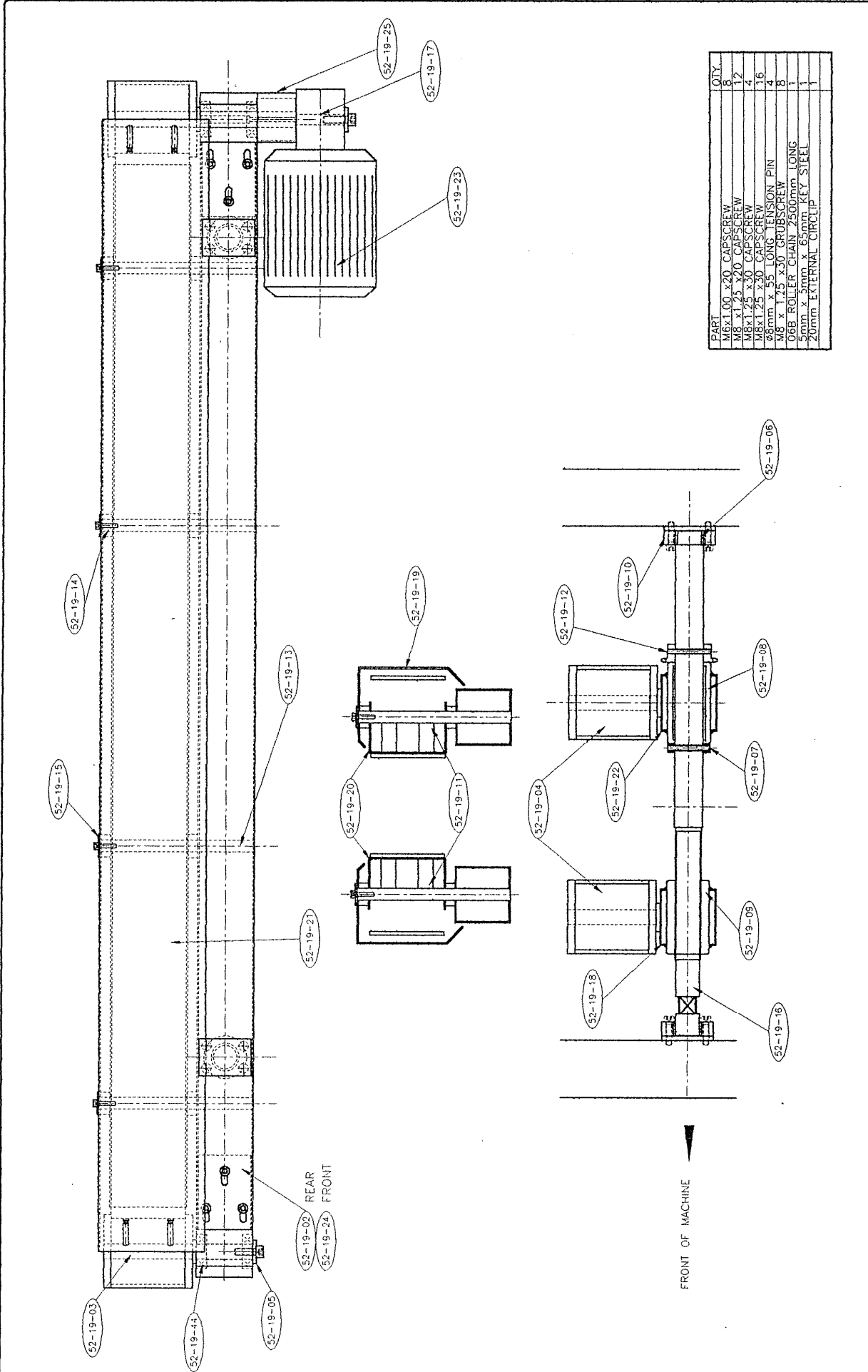
REV	BY	DATE	MODIFICATIONS

DRAWING No. 52-16-01
 DRAWN: A.D. CHANDLER
 DATE: 22-09-95

STACKER

Refer Drawing 52-16-01

Part Number	Description
52-16-02	Mounting Plate (holes)
52-16-03	Cylinder Mount Bracket
52-16-04	Mounting Plate (no holes)
52-16-05	Stacker Cylinder
52-16-06	Lift Cylinder
52-16-08	Mount Bracket
52-16-09	Switch Bracket
52-16-10	Washer
52-16-11	Adjusting Bar
52-16-12	Handle
52-16-14	Cylinder Stack Packer
52-03-04	Overhaul Kit for 52-16-03 and 52-16-06
52-03-06	DU-Bush for Cylinder Guides



PART	QTY.
M6x1.00 x20 CAPSCREW	8
M8 x1.25 x20 CAPSCREW	12
M8x1.25 x30 CAPSCREW	4
M8x1.25 x30 CAPSCREW	16
Ø8mm x 95 LONG TENSION PIN	4
M8 x 1.75 x30 GRUBSCREW	8
O6B ROLLER CHAIN 2500mm LONG	1
5mm x 5mm x 65mm KEY STEEL	1
20mm EXTERNAL CIRCLIP	1

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 TWO DECIMAL PLACES = 0.00 +0.01 -0.01
 ALL DIMENSIONS ARE IN METERS

PROJECT 052
 BOX CONVEYOR
 GENERAL ARRANGEMENT

REV	BY	DATE	MODIFICATIONS

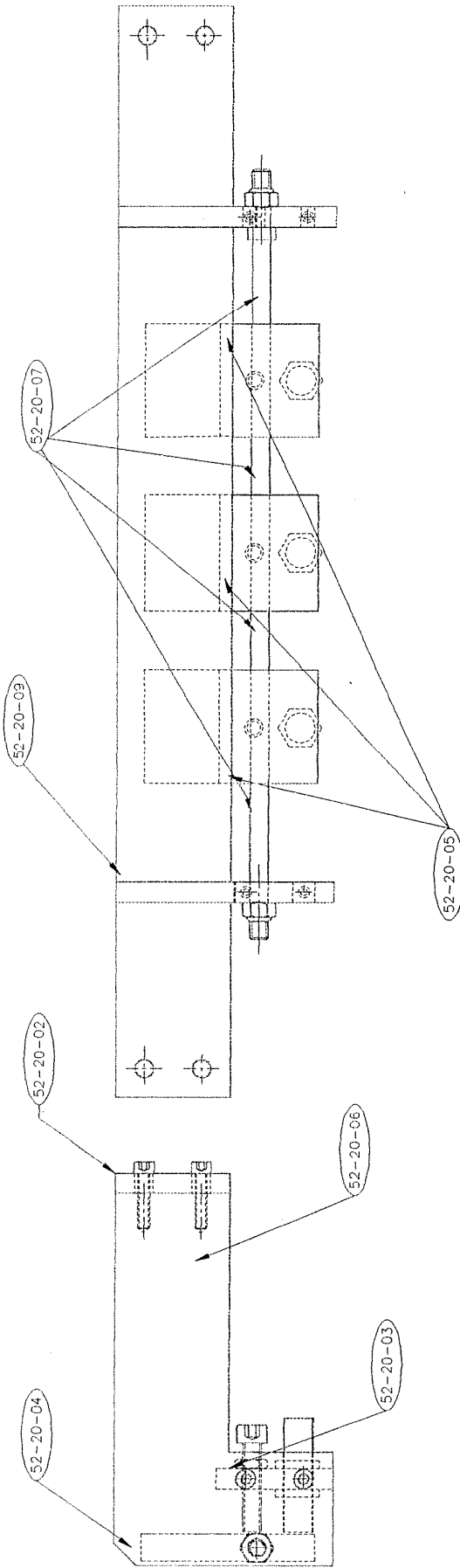
DRAWING NO. **52-19-01**
 DRAWN: A.G.PHILLIP
 DATE: 03-10-95

BOX CONVEYOR

Refer Drawing 52-19-01

Part Number	Description
52-19-02	Bearing Block
52-19-03	Shaft "A"
52-19-04	Roller
52-19-05	Washer "A"
52-19-06	Sleeve "A"
52-19-07	Sleeve "B"
52-19-08	Bush
52-19-09	Threaded Bush
52-19-10	End Plate
52-19-11	Rubber Buffer
52-19-12	Shaft Sprocket
52-19-13	Shaft "B"
52-19-14	Spacer Bush
52-19-15	Washer "B"
52-19-16	Main Shaft
52-19-17	Shaft "C"
52-19-18	R.H.S Brace (front)
52-19-19	Belt Cover "A"
52-19-20	Belt Cover "B"
52-19-21	Conveyor Belt
52-19-22	R.H.S Brace (back)
52-19-23	Gearbox
52-19-24	Front Bearing Block
52-19-25	Gearbox Mount
52-19-25A	Belt Tension Bracket
52-19-26	Tape Bracket "A"
52-19-27	Tape Bracket "B"
52-19-28	Tape Bracket
52-19-29	Tape Bracket "C"
52-19-30	Box Form Bracket
52-19-31	Top Tape Adjust
52-19-32	Top Plough Bracket
52-19-33	Top Plough Bracket Holder
52-19-34	Top Plough
52-19-35	Chain Tensioner
52-19-36	Box Form Upper Leg
52-19-37	Tape Head Bolt
52-19-38	Box Rails
52-19-44	Bearing

PART	NO.
M5 x 20 CAPSCREWS	8
M8 x 20 CAPSCREWS	4
M8 x 40 CAPSCREWS	4
M8 NYLOCK NUTS	2
M8 NUTS	4

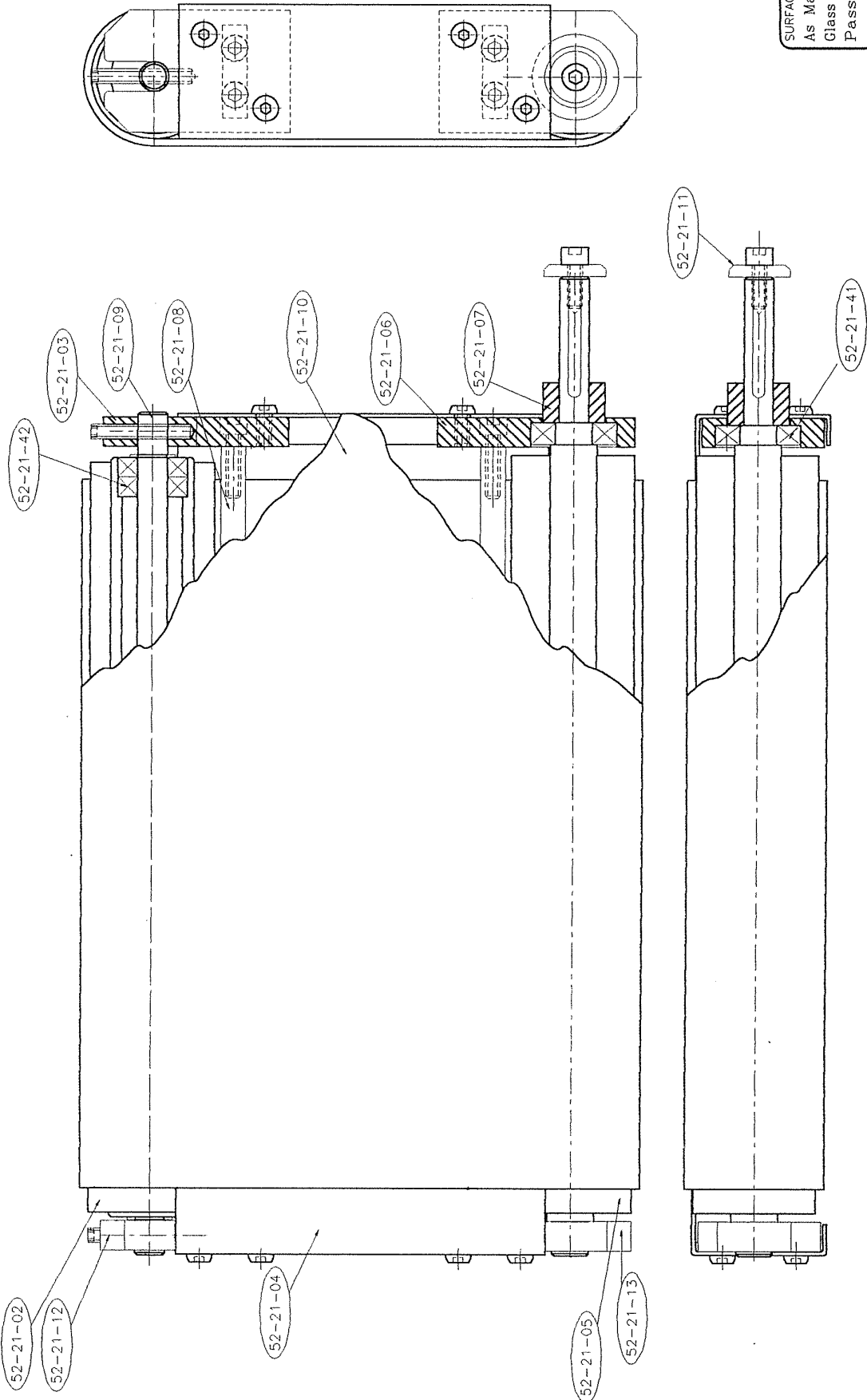


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REV	BY	DATE	MODIFICATIONS	DRAWN	DATE	ISSUE			
				A. CHANDLER	26-10-95				

CHEESE STOP

Refer Drawing 52-20-01

Part Number	Description
52-20-02	Mount
52-20-03	Censor Plate
52-20-04	Dia. 8 Rod
52-20-06	Side Bracket
52-20-07	Spacer "A"
52-20-08	Counter Weight
52-20-09	Spacer "B"
52-20-11	Stop Bar
52-20-12	Counter Weight



SURFACE FINISH:
 As Machined: NO
 Class Beaded: NO
 Passivate : YES

MATERIAL:
 Stainless Steel

DRAWING No.
 52-21-01

ISSUE

REV	BY	DATE	MODIFICATIONS

PROJECT 052
 MACHINE INFED CONVEYOR
 GENERAL ARRANGEMENT

TOLERANCES

NO.	DECIMAL PLACE	±	NO.	DECIMAL PLACE	±

FABRICATION ±0.0
 METER

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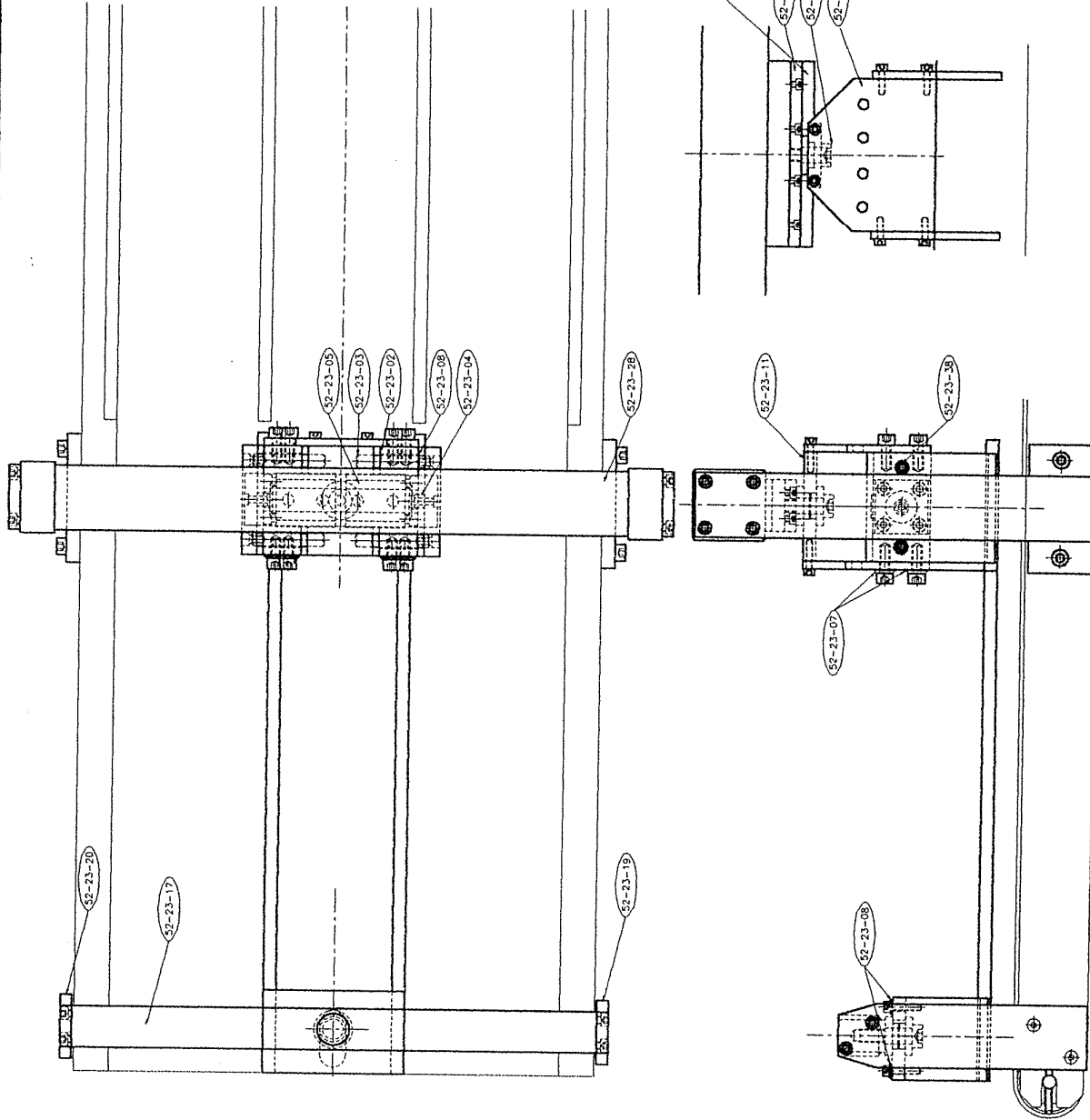
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 HANCOCK ST., HANCOCK, MI 48030
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 FAX 0-7-847 7160

INFEEED CONVEYOR

Refer Drawing 52-21-01

Part Number	Description
52-21-02	Driven Roller
52-21-03	Roller Bracket
52-21-04	Mount Plate
52-21-05	Drive Roller
52-21-06	Roller Bracket
52-21-07	Spacer
52-21-08	Bracing Bar
52-21-09	Driven Roller Shaft
52-21-10	Belt
52-21-11	Gearbox Washer
52-21-12	Roller Bracket
52-21-13	Roller Bracket
52-21-41	Driven Bearing
52-21-42	Idler Bearing

PART	No.
M5 x 15 CAPSCREWS	8
M5 x 20 CAPSCREWS	10
M5 x 25 CAPSCREWS	4
M6 x 20 CAPSCREWS	20
M8 x 25 CAPSCREWS	12
SOCKET SHOULDER SCREW 12mm x 20 Lg	2



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PROJECT 052
DIVERTER ARM
MAIN ASSEMBLY

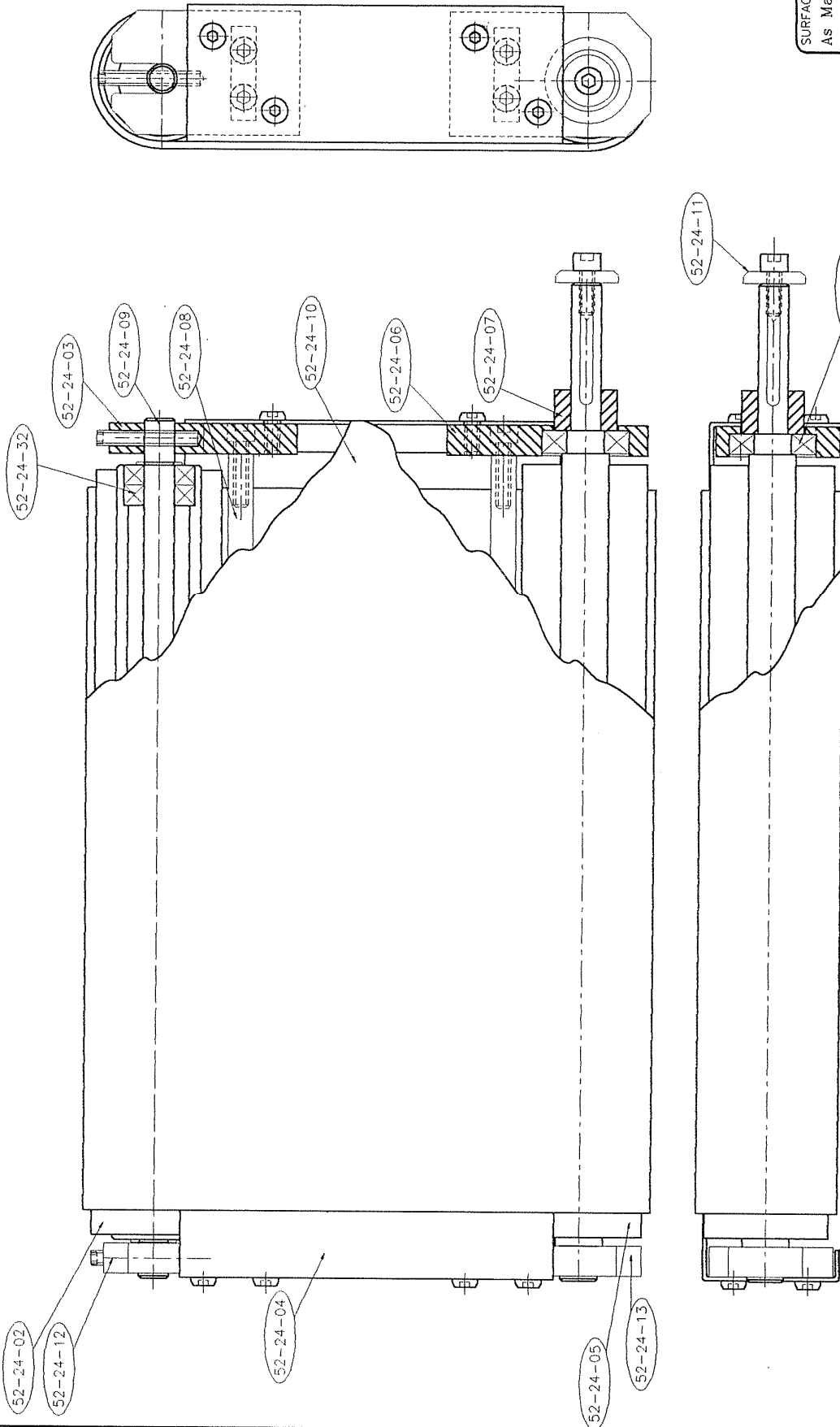
DRAWING No. 52-23-01
ISSUE
DRAWN: A.G. PHILLIP
DATE: 18-10-93

REV	BY	DATE	MODIFICATIONS

DIVERTER ARM

Refer Drawing 52-23-01

Part Number	Description
52-23-02	Cylinder Block
52-23-03	Guide Rod
52-23-04	Spacer Sleeve
52-23-05	Compact Cylinder
52-23-06	Clamp Front Plate
52-23-07	M8 Washers
52-23-08	M5 Washers
52-23-13	Main Side Plate
52-23-17	Mounting R.H.S
52-23-19	Right Fixed Leg
52-23-20	Left Fixed Leg
52-23-21	Socket
52-23-28	Rodless Cylinder
52-23-30	Swivel Pin
52-23-31	Pivot Leg
52-23-32	Leg Spacee
52-23-33	Leg Mount
52-23-34	Support
52-23-35	Support Mount
52-23-36	Bracket
52-23-37	Infeed Guide
52-03-09	Overhaul Kit for 52-23-28
52-03-07	Overhaul Kit for 52-23-05
52-23-38	DU-Bush in 52-23-02



SURFACE FINISH:
 As Machined: NO
 Glass Beaded: NO
 Passivate : YES

MATERIAL:
 Stainless Steel

DRAWING No.
 52-24-01

DRAWN: A. CHADLER
 DATE: 24-08-95

REV	BY	DATE	MODIFICATIONS

PROJECT 052
 DIVERT CONVEYOR
 GENERAL ARRANGEMENT

TOLERANCES	TITLE
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DIVERT CONVEYOR

Refer Drawing 52-24-01

Part Number	Description
52-24-02	Driven Roller
52-24-03	Roller Bracket
52-24-04	Mount Plate
52-24-05	Drive Roller
52-24-06	Roller Bracket
52-24-07	Spacer
52-24-08	Bracing Bar
52-24-09	Driven Roller Shaft
52-24-10	Belt
52-24-11	Gearbox Washer
52-24-12	Roller Bracket
52-24-13	Roller Bracket
52-24-31	Driven Bearing
52-21-32	Idler Bearing

- 52-25-06
- 52-25-47
- 52-25-48
- 52-25-49
- 52-25-72

- 52-25-08
- 52-25-76

- 52-25-03
- 52-25-77

- 52-25-05
- 52-25-07
- 52-25-75
- 52-25-74

- 52-25-10
- 52-25-12
- 52-25-40
- 52-25-51
- 52-25-73
- 52-25-70

- 52-25-09
- 52-25-19
- 52-25-21
- 52-25-22
- 52-25-23
- 52-25-71

GUIDES

IDLER

LEGS

ROLLERS

CONVEY BED

DRIVE

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	IDLER 52-25-06 52-25-47 52-25-48 52-25-49 52-25-72	GUIDES 52-25-08 52-25-76	CONVEY BED 52-25-10 52-25-12 52-25-40 52-25-51 52-25-73 52-25-70	ROLLERS 52-25-05 52-25-07 52-25-75 52-25-74	LEGS 52-25-03 52-25-77

SUPPLY CONVEYOR

Refer Drawing 52-25-01

Part Number	Description
52-25-03	Legs
52-25-05	Idler Spacer Bar
52-25-06	Bearing Blocks
52-25-07	Idler Shaft
52-25-08	Side Guides
52-25-09	Drive Shaft
52-25-10	Side Plates
52-25-12	Plastic Track Support
52-25-13	Labeler Support
52-25-14	Labeler Support
52-25-15	Through Bolt
52-25-16	Through Bolt
52-25-19	Gearbox Washer
52-25-21	Gearbox Adapter
52-25-23	Spacer
52-25-30	Idler Shaft Support
52-25-31	Corner Conveyor
52-25-70	Slat Chain
52-25-71	Sprocket
52-25-72	Idler Wheel
52-25-73	Conveyor Bed Curve
52-25-74	Single Roll
52-25-75	Spacers
52-25-76	Side Mount Top Bracket
52-25-77	Foot



Instructions and Parts

AccuGlide™ II

STD (Upper)

STD (Lower)

Taping Heads Type 29000

**Important
Safeguards**

Turn to page four
for operating
safety information

Important

It is recommended you
immediately order the
spare parts listed on
page 17. These
parts are expected to
wear through normal use
and should be kept on
hand to minimize
production delays.

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34-7004-7479-3(B91.08)R1

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3.0.00493.91

3M Packaging Systems Division

3M Center Bldg. 220-8W-01
St. Paul, MN 55144-1000





SECTION SIX

Appendix



NON-COMPLIANCE FORM

DATE:	COMPLETED BY:	FORM NO:
--------------	----------------------	-----------------

REPORT TYPE

	CUSTOMER COMPLAINT
	PRODUCT NON-CONFORMITY
	CORRECTIVE ACTION REQUEST
	PREVENTATIVE ACTION REQUEST
	HEALTH & SAFETY

DETAILS

APPROVED BY [Sign/Date]

CAUSES OF NON-CONFORMITY

CORRECTIVE ACTION REQUIRED	WHO	COMPLETED [Sign/Date]
PREVENTATIVE ACTION REQUIRED		

Corrective/Preventative Action has been reviewed and considered to be effective:

D.Ryan

Date

6

