orion®
PACKAGING INC.

OPERATION MANUAL

For All Inquiries
Please Contact
Our Local Distributor

FOR U.S.A. (Only)
1-800-333-6556

Operation Manual
Jun-2002

Thank you for choosing ORION stretch-wrapping equipment. It is a wise choice, which will benefit your company now and in the future.

ORION uses a unique combination of functional, rugged steel structure and sophisticated control systems to offer equipment high in durability and low in maintenance requirements. Our advanced control systems mean that ORION equipment can be operated safely and efficiently without the need for special operator expertise and skills.

Please read this manual carefully and keep it handy. Following these simple operating instructions will insure the safe and efficient performance of this machine and simple maintenance procedures will guarantee long and productive life of the equipment.

Notice:

Our manual covers standard features of the machine. Certain options may not be fully covered due to their unique application.

In order to acquire more information about custom made features of your machine and to provide quicker service, the following information is required when making an inquiry:

1) **Model**
2) **Serial Number**
3) **Subassembly (see PART LIST)**

SAFETY

ORION'S stretch wrappers should be operated with caution and common sense as any other industrial equipment. To prevent a potential injury and/or electrical shocks, careful operation of the machine and awareness of its many automatic functions is required.

NOTE: All electrical power and compressed air must be disconnected prior to all inspection, maintenance or repair work.

ORION PACKAGING SYSTEMS INC.
SEMI-AUTOMATIC SPECIFICATIONS - EFFECTIVE SEPTEMBER 1st, 2000
REVISED APRIL 2001

ORION MATRIX® SERIES MODEL M-67IS

Semi-Automatic Medium Duty Rotary Tower System *with Integral Stand*

Maximum Load Size	53"W x 53"L x 80"H (Max Load Diagonal 75")
Weight Capacity	Unlimited (Floor Loaded)
Utilities	115/1/60 15 Amp Service
Rotary Tower	12" Diameter Precision Ring Bearing Tower Support Structural Steel Tube Design
Tower Drive	Heavy Duty ANSI Chain & Sprocket Drive 0 - 12 RPM Variable Tower Speed Electronically Adjustable Acceleration/Deceleration (Soft Start) Variable Speed Drive Motor Positive Home Position Alignment Feature
Control Features	CSA Approved, NEMA 12 Control Panel State-of the-Art Allen Bradley MicroLogix Programmable Logic Controller User Friendly Controls with Non-Proprietary Pushbuttons and Switches Revo-Logic™ Exact Wrap Counting Technology Load / Personnel Safety Stop Photocell System Electronic Film Tension Control Adjustment on the Panel End of Cycle Film Force Release Separate Top and Bottom Wrap Count Selectors Variable Speed & Separate Film Carriage Up/Down Controls Film Carriage Raise / Lower Switch (Manual) Cycle Pause for Stopping the Wrap Cycle Without Resetting Reinforce Wrap for Banding Photocell for Automatic Load Height Detection with On / Off Switch Tower Jog Pushbutton
Film Delivery	20" Orion Insta-Thread™ Powered Prestretch Film Delivery System Outward Facing Carriage for Ease of Film Roll Change Precision Ground, Polyeurethane Pre-Stretch Rollers for Consistent, Maximum Film Yield 245% Standard Pre-Stretch Ratio (Maximum 395%) Easy & Safe to Operate Self-Threading Carriage Design Electronic Film Tension Control Adjustment on the Panel Full Authority Film Dancer Bar with Variable Speed Output (Non-Wearing Sensor) Heavy Duty ANSI Chain & Sprocket Ratio Control
Film Carriage Elevator Drive	Heavy Duty ANSI Chain Carriage Lift Variable Speed Drive Motor Multi-Point UHMW Precision Carriage Guidance System
Structural Features	100% Structural Steel Construction Throughout Non-Proprietary, Locally Obtainable Components Throughout Easy Access to All Components Open Mechanical Design for Ease of Maintenance Integral Structural Steel Stand (Floor Bolted)
Estimated Shipping Weight	*2,000* lbs.

Note: The M-67IS is also available at no additional charge in a wall/column/beam mountable version in which the base is cut flush with the stand and widened, and attachment tabs are added to the upper structure (must be stated at time of order).

UNLOADING

Machine can be easily unloaded and transported by a forklift with a minimum capacity of 2500 lbs.

1. Carefully insert the forks into the lifting tubes to the maximum possible depth. Depending on the model, a forklift access may be either at the turntable end of the machine frame, the tower end or both. In case of the mongoose machine enter the forks under the frame or insert the forks in the tube brackets welded to the top of machine.

2. Lift the machine (or other part of system) only to the necessary height to move it with no bouncing or friction on the floor.

3. Sit the machine down assuring uniform contact with the floor, which is necessary to ensure correct and smooth operation.

INSPECTION

1. Remove all packing and supporting additions - these may include the blocks under the carriage and the restraining bar over the table.

NOTE: when removing the stretchwrap film covering the machine, care must be taken not to cut any of the electrical wires and/or polyurethane covering on the film carriage rollers.

2. Perform a visual inspection of the electrical and mechanical parts for loosened joints and/or broken connections. Any suspected shipping damage must be reported immediately to the freight carrier. Any transport damage cannot be claimed to Orion Packaging Inc.

Items that are vulnerable to damage and must be inspected:

- motors and transmissions (transmissions may require purge plugs which could have been be unplugged for the transport purpose)
- junction boxes
- electrical conduits
- proximity and limit switches
- photocells

3. Check the turntable assembly to ensure that there is no crippling of the movable parts i.e. casters, center axle or drive assembly.

4. Verify the following:

- turntable or rotary arm drive system to confirm that the reducer to drive the chain is snug and properly aligned
- verify the wires tight conduits for crushed sections or loose fittings
- verify the film carriage to be sure that it is correctly aligned with the tower
- verify the tension on the lift chain
- verify all the dials and knobs on the control panel for smooth action

MACHINE INSTALLATION

After the visual inspection has been completed, the electrical power and the compressed air shall be connected as specified on the diagrams supplied with the machine.
An electrical diagram is provided with each machine in the operating manual envelope attached to the panel enclosure.

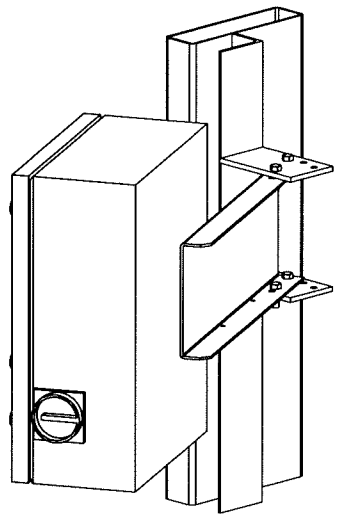
ASSEMBLY PROCEDURE

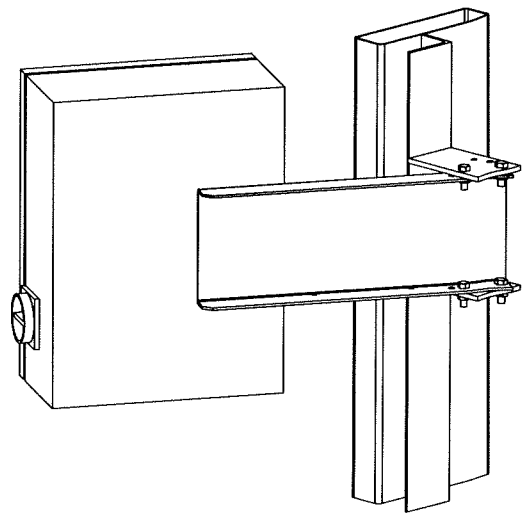
The structural frames of the machine have to be installed on a leveled floor. Locate the main wrapper section into its final position, keeping the tower assembly away from any traffic.
The wrapper mainframe section **must be bolted to the floor by the 1/2"** concrete floor anchors (leg & shield or expandable type).
NOTE: Mongoose M66IS or M67IS the "Z" stand **must be bolted to the floor by the 5/8"** or stronger anchors

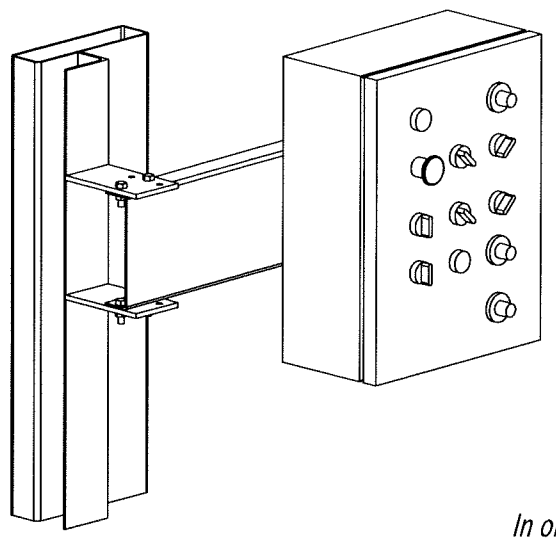
- Any wiring that has been disconnected to facilitate transport is marked with a number located on the junction box to which the wiring must be reconnected. Any wire run that appears too short or long may indicate that the position of the mechanical components is incorrect. Verify the status of all assemblies before proceeding.
- The tower deviation from vertical must not exceed 1/4" on the distance of 10 feet (angle: 0 degree 6').
- The conveyor roller deviation from horizontal must not exceed 1/16" on the distance of 52" (angle: 0 degree 4').

CONTROL PANEL

In the case of the free standing panel (console) place it adjacent to the system and anchor firmly to the floor. Connect the liquid tight (rigid conduit) to the main junction box located on the wrapper main frame next to the tower.







In order to facilitate access and manipulation the control panel can be mounted in several alternating positions.

CONTROL PANEL POSITIONS

STD *DWG. # 435217*

START

STOP

orion®

Orion Packaging Systems

Collierville,TN, USA
Laval, PQ, Canada

FILM TENSION

1X = PAUSE 2X = RESET

UP ONLY

UP / DOWN

WRAP MODE

1 2 3

TOP WRAPS

REINFORCE WRAP

TURNTABLE TOWER JOG

PHOTOEYE

OFF ON

1 2 3

BOTTOM WRAPS

DOWN UP

CARRIAGE JOG

POWER

CARRIAGE UP SPEED

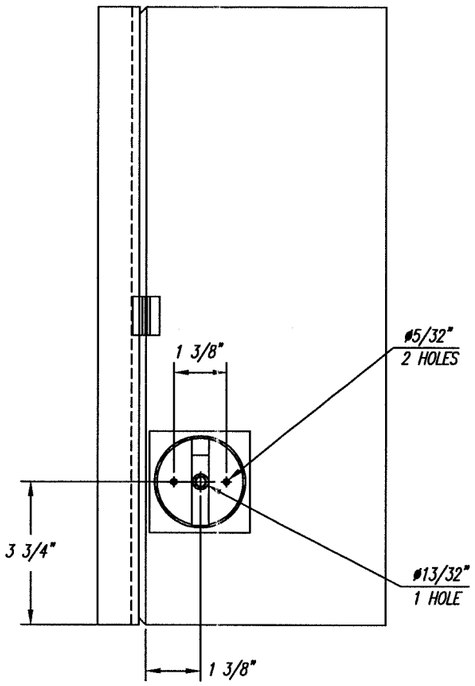
! WARNING !

DANGEROUS OR FATAL ELECTRIC SHOCKS MAY RESULT IF POWER TO THE MACHINE IS NOT DISCONNECTED BEFORE OPENING THE PANEL. DISCONNECT POWER TO THE MACHINE BEFORE OPENING THE PANEL.

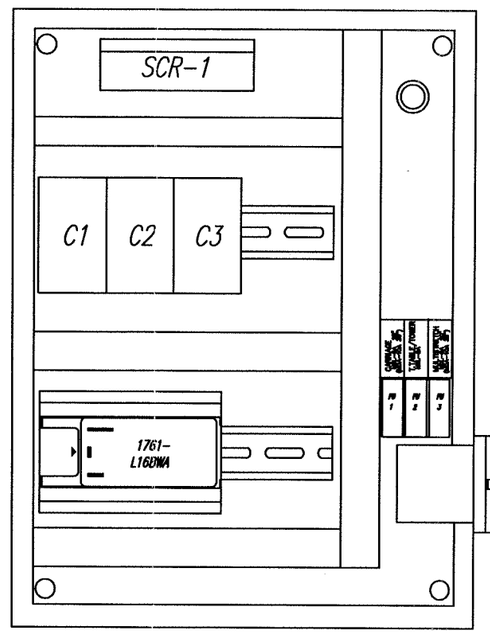
CARRIAGE DOWN SPEED

PN 500 104

M55:M57:M66:M67-17(STD)
PANEL STICKER PN-500 104
(5412 ECH161206)



SIDE VIEW
MAIN SWITCH LOCATION



M55:M57:M66:M67-17 (STD) PANEL LAYOUT
PANEL SIZE 16X12X06

NOTES:

1: SCR-2 (168-4) IS LOCATED ON ENCLOSURE DOOR.

2: FU-2 & FU3:
MDL-8A (20" CARRIAGE)
MDL-10A (30" CARRIAGE OR HEAVY FILM GAUGE UPGRADE)

3: BOARD SCR-3:
336-9 (20" CARRIAGE)
336-7 (30" CARRIAGE) OR HEAVY FILM GAUGE UPGRADE)

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SCALE: 1:2

TITLE: M55,57,66,67-17(STD)

SIZE: D | DOCUMENT NO: JOB # STD 302 441/L | REV: 3

DATE: MAY-30-2003 | SHEET: 1 OF 1

FILENAME: M55-17.DWG | BASE:

NEUTRAL

NEUTRAL

NEUTRAL

ROTARY TOWER

MOTOR-1/2HP,90VDC

M-1 — 25 — 26

C3 — 27 — Rd-15.0 — 25W DYNAMIC BRAKE RESISTOR

C3 — 28

SCR-1

SCR - 858-DN

+DC — -DC — AC1 — AC2 — CONTROL (2) (1) — CCW — W — CW — COM

58 — FU-1 — MDA-8A — 24

#12 — 0-0/1

#13 — 0-0/2

N/C

CARRIAGE

MOTOR-1/2HP,90VDC

M-2 — 33 — 34 — 35

C1 — C2 — C1 — C2 — 37 — 38

SCR-2

TYPE - 188-4

+DC — -DC — AC1 — AC2 — CONTR. (1) — COM

58 — FU-2 — MDA-8A — 31

#150

A — 58 — PANEL POWER SWITCH — 57

GND NEU LINE

REQUIREMENTS:

- 115VAC
- 1Ph
- 60Hz
- 15A

NOTE:
AUTOTRANSFORMER SHOWN IS OPTIONAL.

N — 57

1 — 120V — 2

1 — 3 4 5 6 7

220V

NEUT LINE

AUTO-TRANSF.:

TYPE - M2194SA 1.5K

- (1-2)120V
- (1-3)200V
- (1-4)208V
- (1-5)220V
- (1-6)230V
- (1-7)240V

- 50/60Hz
- 1.5kVA

TYPE - I11-S213 + IE11-S2
CARRIAGE INSTA-THREAD GATE SAFETY INTERLOCK.

NOTE:
CONTACT IS OPEN WHEN THE PIN IS LATCHED

MULTISTRETCH

MOTOR-1/2HP,90VDC

M-3 — 47 — 48

SCR-3

TYPE - 336-9

A1(+DC) — A2(-DC) — AC1 — AC2 — +IN — +12 — -IN — 1 — 2

49 — 50 — 51 — 52 — 54

(1x PAUSE)
(2x RESET)
E-STOP

58 — FU-3 — MDA-8A — 45 — 46

HALL EFFECT SENSOR — BLACK — BROWN — BLUE

TYPE - IB18/15T

#54 — #53 — FROM PLC OUTPUT

53 — FILM TENSION ADJUSTMENT

TYPE - WL2000-R1305 SAFETY PHOTOCELL (M55 MODEL ONLY) — SPE2

TYPE - WL2000-R1305 SAFETY PHOTOCELL — SPE1

FROM PLC OUTPUT

E-STOP — 59 — TYPE - LC1D12008F7 — C3 — #59 — #59 VAC/VDC #4

S-PE — 60 — C3 — TOWER JOG - SS — 14 — #14 — #14 OUTPUT 0:0/3

TYPE - IM12-04BPS-ZW1
ROTARY TOWER POSITION SENSOR- PRS. — BU — BK — BN

START AUTO-CYCLE - PB.

TYPE - ZCK-J404H7
FILM CARRIAGE TOP TRAVEL - LS.

FILM CARRIAGE BOTTOM TRAVEL - LS.

FILM CARRIAGE AUTOHEIGHT - PE. — SEE NOTES BELOW

CARRIAGE UP - SS/ TOP WRAPS COUNTER -1 - SS.

CARRIAGE UP - SS/ TOP WRAPS COUNTER -3 - SS.

CARRIAGE DOWN - SS/ BOTTOM WRAPS COUNTER -1 - SS.

CARRIAGE DOWN - SS/ BOTTOM WRAPS COUNTER -3 - SS.

SPIRAL UP/UP & DOWN - SS.

63 — 64 — 65

PROGRAMMABLE CONTROLLER
ALLEN BRADLEY

MICRO CONTROLLER UNIT

IN-DC COM#1 — VAC/VDC #1 — 53
I:0/0 (IN#1) — O:0/0 (OUT #1) — 54
I:0/1 (IN#2) — VAC/VDC #2 — 46
I:0/2 (IN#3) — O:0/1 (OUT #2) — 12
I:0/3 (IN#4) — VAC/VDC #3 — 46
IN-DC COM#2 — O:0/2 (OUT #3) — 13
I:0/4 (IN#5) — VAC/VDC #4 — 59
I:0/5 (IN#6) — O:0/3 (OUT #4) — 14
I:0/6 (IN#7) — VAC/VDC #5 — 62
I:0/7 (IN#8) — O:0/4 (OUT #5) — 15
I:0/8 (IN#9) — O:0/5 (OUT #6) — 18
I:0/9 (IN#10)

(-) 24VDC OUT (+)

CAT# 1761-L16BWA

(85-264VAC) L2/N — L1 — EARTH GND

#53 TO SCR-3

FILM TENSION ENGAGE/DISENGAGE. #54 TO SCR-3

ROTARY TOWER HIGH SPEED. #12 TO SCR-1

ROTARY TOWER LOW (JOG) SPEED. #13 TO SCR-1

C3 RESET. #59 TO

C3 RESET. #14 TO

#150 TO SCR-2 CARRIAGE 2-ND SPEED.

C2 — 150 — C1 — TYPE - LC1D12008F7 CARRIAGE UP - CONTACTOR.

C1 — 160 — C2 — TYPE - LC1D12008F7 CARRIAGE DOWN - CONTACTOR.

46 — 62 — REINFORCE WRAP - SS. — 62

13 — ROTARY TOWER JOG - SS. — 12

M55;M66;M67 SLIP-RING		
SECTION #	WIRE #	
1.	GND	B
2.	NEUT	B
3.	3	A
4.	4	A
5.	33	
6.	34	
7.	45	A
8.	46	B
9.	58	A
10.	54	A
11.	60	A
12.	63	A
13.	64	A
14.	65	A
15.	90	A
16.	SPARE.	

(BOTTOM)

A - 10 WIRES CABLE
B - 9 WIRES CABLE

NOTE:

ULTRA-BEAM ULTRASONIC PROX.SENSOR "BANNER"-SU92SQD-E4

BANNER PROXY SENSOR IS OPTIONAL REPLACING SICK PHOTOCELL

N/C — WH — TO PLC INPUT — 90 — BK — (+) — 64 — YE — SUPPLY 24VDC — 64 — BN — 63 — BU — (-)

CARRIAGE AUTOHEIGHT SENS. "BANNER" TYPE-SU92SQD-E4+M3CC-512

64 — BN — WH — BU — VH — 90 — 63

NOTE:

PHOTOCELL "SICK" WT260-R290 24-120 VAC/VDC

N/C — 8 NC — TO PLC INPUT — 90 — 3 NO — 64 — 4 COM — (-) — 63 — 6 N — SUPPLY — 64 — 1 L1 — (+)

FILM CARRIAGE AUTOHEIGHT - PE. TYPE - "SICK" WT260-R280

4 — 2 — 1 — 3 — 90 — 64 — 63

1. FUSES FU-2 AND FU-3:
   - MDA-8A (20" CARRIAGE)
   - MDA-10A (30" CARRIAGE OR HEAVY FILM GAUGE UPGRADE)
2. BOARD SCR-3:
   - 336-9 (20" CARRIAGE)
   - 336-7 (30" CARRIAGE OR HEAVY FILM GAUGE UPGRADE)

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APPR. BY: S.M. DRAWN BY:
SCALE: NTS
TITLE: M55;M66;M67-17
SIZE: B DOCUMENT NO: JOB # STANDARD 302 441 REV: 3
DATE: SEPT-10-2004 SHEET: 1 OF 1
FILENAME: M66-171.DWG BASE:

PANEL SIZE 5418 ESCH61206M
STICKER 500 104 (ENGLISH)
STICKER 500 043 (FRENCH)

MACHINE OPERATION

Before Starting Machine Operation

Verify that the machine is properly connected to the electrical source. The electrical requirements depend on the machine type and features. For this information, please see the machine electrical diagram provided with the machine operation manual.
The control panel layout for the machine is shown on the drawing.

CAUTION: Before proceeding the machine operation familiarize yourself with the EMERGENCY-STOP button and all functions, switches and pushbuttons.

POWER SWITCH

Located on the panel door or side of the panel box, the lockable power switch has two settings:
ON - connects a power source to the machine
OFF - disconnects the power source.

START AND EMERGENCY STOP SWITCHES

The START switch is used to start the cycle once the load is on the turntable. The cycle may be stopped on by pressing the STOP button (may also be used for the choosing the range of counts of the top and bottom wraps - see TOP WRAPS and BOTTOM WRAPS).

NOTICE: In case of emergency, the push-pull STOP button interrupts all the machine electrical circuits. To continue the cycle the STOP push button should be pulled out and START button pressed for the machine restarting. Double pressing of the push - pull STOP button will reset the machine program and machine will be ready to apply the wrapping cycle from its beginning.

WRAP PATTERN SELECTOR SWITCH "SPIRAL" UP / UP/DOWN

The Pattern Selector Switch " SPIRAL" positions:

UP - When the UP position has been selected machine will first wrap bottom of load applying selected number of bottom wraps. The film carriage will then move to the top of load and stop. Selected number of top wraps will then be applied, after which the turntable will slow down and stop in home position. Wrap pattern "SPIRAL UP ONLY" has been completed.

UP/DOWN - This Selection has two Sub-Modes, programmable to enable the machine to perform the two different wrap patterns (Bottom Wraps First and Top Wraps First).

BOTTOM WRAPS FIRST - When this Sub-Mode has been selected machine will first wrap bottom of load applying selected number of bottom wraps. The film carriage will then move to top of load and stop. Selected number of top wraps will then be applied. The film carriage will move down to bottom position, after which the turntable will slow down and stop in home position.

TOP WRAPS FIRST - When this Sub-Mode has been selected film carriage will move to top of load and stop. Selected number of top wraps will be applied. The film carriage will then move to bottom of the load and stop. Selected number of bottom wraps will then be applied. The film carriage will be in bottom position; turntable will slow down and stop in home position.

Machine is shipped pre-programmed in TOP WRAPS FIRST Sub-Mode, in order to change Sub-Mode from TOP WRAPS FIRST to BOTTOM WRAPS FIRST see instructions below.
Before proceeding ensure that machine is in MANUAL, STANDBY MODE (machine is powered on and all machine manual functions are enabled)

- Press the STOP (Red) Button
- To Re-program machine to BOTTOM WRAPS FIRST Sub-Mode, switch and hold "Carriage Raise/Lower" Selector Switch in LOWER position and maintain for approximately 12 seconds.
- Pull the STOP (Red) push-button out.
- Perform standard machine reset procedure by double push-pull operation of the red mushroom stop button.
- At this point machine is ready and BOTTOM WRAPS FIRST Sub-Mode is now activated.

To Re-program machine to TOP WRAPS FIRST Sub-Mode follow procedures above, with the exception of step 2. Switch and hold "Carriage Raise/Lower" Selector Switch in RAISE position.
At this point machine is ready and TOP WRAPS FIRST Sub-Mode is now activated.

CARRIAGE CONTROL SWITCH

The CARRIAGE CONTROL switch is a three-position switch with the following settings:
RAISE - raises the carriage until the top limit switch on the tower is activated.
LOWER - lowers the carriage until the bottom limit switch on the tower is activated.
The switch is normally positioned in the middle where the carriage remains stationary. Turning the switch to the RAISE or LOWER will activate the carriage to move in the respective direction.

TURNTABLE JOG & REINFORCE WRAP

The turntable jog switch will rotate the turntable low speed when the switch positioned on the TOWER / TURNTABLE JOG. When the switch is released, the turntable (rotary tower) will stop. The switch is inoperative during the wrap cycle.

When the same switch is positioned on the REINFORCE WRAP the carriage will be stationary until the switch is released.

PHOTOCELL ON/OFF SWITCH

The photocell switch has two settings:

ON - when turned ON, the photocell instructs the carriage to stop and begin the top wrap sequence once the top of the load is reached. The carriage will always stop at the top of the load regardless of its height. The photoswitch position on the track can be adjusted in order to make the carriage pass the top of the load and overlap the top.

OFF - when turned OFF, the photocell is inoperative and the carriage will stop when the top limit switch has been activated.

FILM TENSION

Film tension may be adjusted using the film tension control knob. It has a range of tension from 0 to 10 (0 to 4 the low range, 4 to 8 the most useful range for most of the films used by our customers, 8 to 10 as a very high range which may break some films).

CARRIAGE SPEED

The carriage speed potentiometer control can be used to control the amount of overlap the film will have during the wrap. The potentiometer has settings from 0 to 10, the higher settings being the fastest. High settings mean less film overlap because of faster carriage speed and low settings mean more film overlap because of lower carriage speed.

TOP WRAPS 1, 2, 3...9

Three-position switch controls the number of wraps that may be applied on the top of the load. The machine is preset RANGE # 1 (top wraps: 1 or 2 or 3). To change the values of wrap see TOP & BOTTOM WRAP COUNTS CHANGE.

BOTTOM WRAPS 1, 2, 3...9

Three-position switch controls the number of wraps that may be applied on the bottom of the load. The machine is preset with RANGE # 1 (bottom wraps: 1 or 2 or 3) which may be applied. To change the values of wrap see TOP & BOTTOM WRAP COUNTS CHANGE.

TOP & BOTTOM WRAP COUNTS CHANGE

The Top & Bottom Wrap Selector Switches have three (3) ranges of wrap counts and operate independently of each other.

Range #1	Wrap values of 1 - 2 - 3
Range #2	Wrap values of 4 - 5 - 6
Range #3	Wrap values of 7 - 8 - 9

For the selection of any of these ranges for top and bottom wraps please do as follows:
Before proceeding ensure that machine is in MANUAL, STANDBY MODE (machine is powered on and all machine manual functions are enabled)
Press the STOP (red) Button
Set the Top and Bottom wrap count selector switch to the position corresponding with the desired count range.

1 = Range #1
2 = Range #2
3 = Range #3

Press the START (Green) pushbutton and maintain for approximately 12 seconds.
Pull the STOP (Red) pushbutton out.
Perform standard machine reset procedure by double push-pull operation of the red mushroom stop button.
At this point machine is ready and new preset values are loaded.

MACHINE WRAPPING TEST

Notice: It is advisable to test-run the equipment with several pallet loads before attempting to wrap using film. Please position the operator beside the EMERGENCY STOP push button.

Start up of the machine (system) may determine the need for the adjustment of:

- load height stop photoswitch (on the carriage)
- top limit switch position
- bottom limit switch position
- roping bar height adjustment

Before the test procedure adjust the wrapping cycle parameters i.e. top wraps, bottom wraps, height photocell on/off, film tension, carriage speed (those two parameters may be adjusted during the wrapping cycle).

LOADING THE FILM

The film roll can be loaded on the carriage mandrel from either end of the roll. When using tacky film, please verify that the inward tacky surface of the film is inward on the load.

1. Disconnect power (turn off power switch)
2. Swing up the top mandrel spool
3. Put the roll of film on the bottom mandrel
4. Install the top mandrel on top of the roll to prevent upward movement
5. Pull the handle marked PULL TO OPEN to open film distributor cradle
6. Pass the roped tail of the film through opening (as shown on the film quick threading pattern DWG. # 418180 Fig. 1)
7. Close the film distributor cradle by pushing bar marked PUSH TO CLOSE
8. When the film feeding is completed (Fig. 2) - turn the power switch on
9. Peel off the first few winds of the film (multistretch will run due to displacement of the dancer roller) and fix the film end onto the load.

The system is now ready to begin the first wrapping cycle.

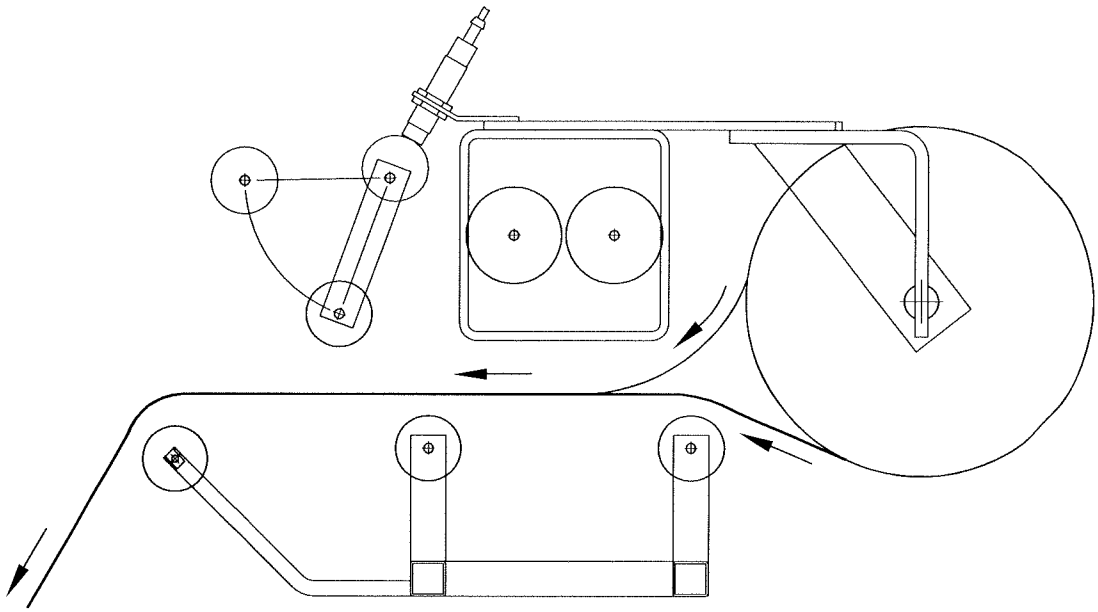


Fig. 1 OPEN CRADLE

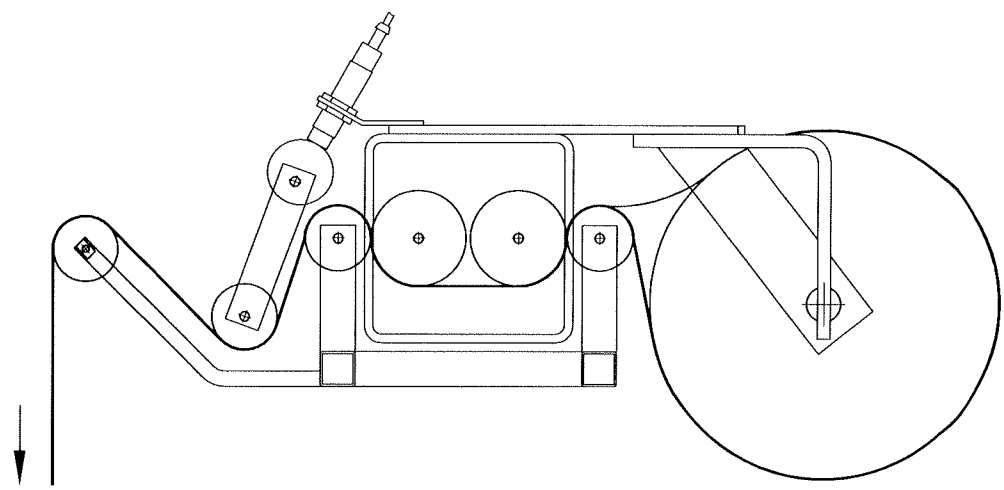


Fig. 2 CLOSED CRADLE

INSTA-THREAD FILM CARRIAGE
FILM QUICK THREADING

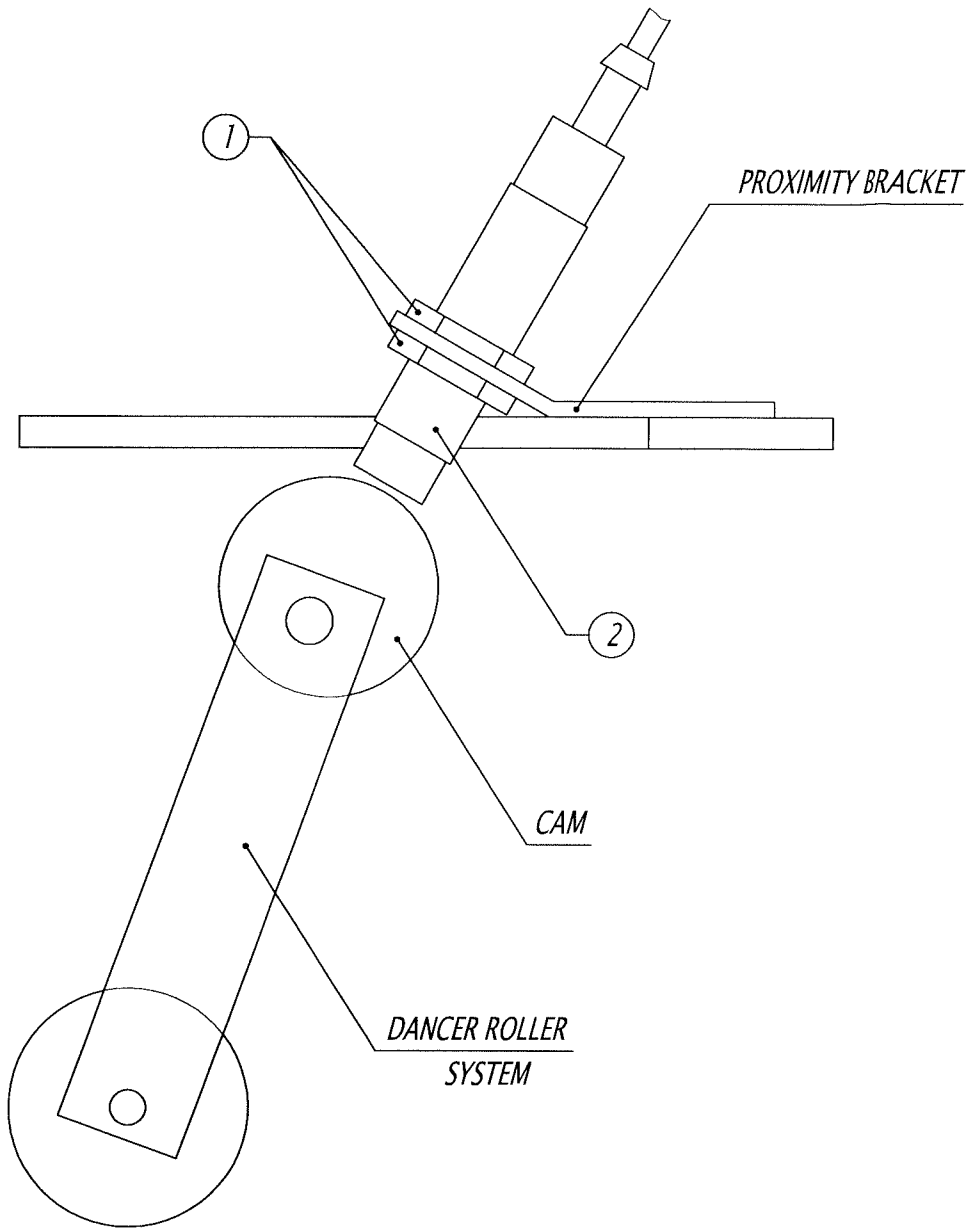
UPDATED FEB-15-99 *DWG # 418180*

PROXIMITY SENSOR ADJUSTMENT

Occasionally the Feed Back Proximity Sensor may need some adjustment. The position of the feed back proximity sensor against the cam is shown on drawing # 419139.

Adjustment instructions:

- remove the carriage cover
- unbolt the two nuts holding the proximity switch - item # 1
- turn the Proximity sensor - (item # 2) to create the gap between the cam and the front side of proximity sensor about 1/8 "
- tighten on the nuts securing the Proximity Sensor
- turning the trim pot SPAN (Board 336-8 or 336-9) adjust the moment when motor starts to turn when dancer roller moved from its home position up to 1 1/2".



PROXIMITY SENSOR
FEED BACK ADJUSTMENT

UPDATED FEB-15-99

DWG # 419139

MACHINE MAINTENANCE

All general information about machine maintenance is based on normal machine working conditions: indoors, moderate dust and low moisture environment, and maximum rotation of 32 RPM of turntable/rotary arm.

They should be regarded as guidelines, reviewed and corrected according to requirements of actual use and conditions.

MOTOR MAINTENANCE

An occasional inspection of the brushes should be made in order to establish a wear rate. Replacement brushes should be installed before old brushes wear to 9/16" long, measured on the long side. After replacing brushes run the motor near rated speed for at least 1/2 hour with no load to seat the new brushes.

Failure to properly seat the new brushes may cause commutator damage and rapid wear of the new brushes. If the commutator becomes rough, scored or out of shape, a competent motor shop should disassemble it and resurface the commutator.

With every third brush change, have a competent motor shop resurface the commutator and blow the carbon dust out of the motor.

REDUCER OIL CHANGE

All external cap screws and plugs on the reducing transmission should be checked for tightness after the first week. It is recommended to change the oil every six months or at least 1800 hours of operation, whichever comes first. When adding or changing oil, the transmission should never be filled above the oil level mark indicated, because leakage and overheating may occur.
Below is the list of the type of lubricant that should be used.

List of recommended reducer oils

Manufacturer	Lubricant
American Oil Co..	American Cyl Oil no:196-L
Cities Service Oil Co.	Citgo Cyl Oil 100-5
Gulf Oil Corp.	Gulf Senate 155
Mobil Oil Corp.	Mobil 600 W Suerr Cyl. Oil
Philips Oil Corp.	Andes S 180
Texaco Inc.	624 + 650T Cyl.Oil
Shell Oil Co.	Velvata Oil J82
Union Oil of Cal.	Red Line Worm Gear Lube 140

RING BEARING MAINTENANCE (when applicable)

The ring bearing (located under the turntable) should be re-lubricated internally and externally.

Internally: by injecting grease into all the lubrication nipples in succession until a collar of fresh grease appears around the perimeter of the ring. The re-lubrication interval suggested for these bearings, used in Stretch Wrapping Machinery is 750 hours, with a maximum period of 6 months. The lubricant should be fresh and applied in sufficient quantities to make sure all surfaces are lubricated.

Externally: by lubricating and wiping the chain drive with oily cloth.
The frequency of lubrication depends on entirely upon the usage of the machine and environment in which the machine is placed (dust, moisture etc.).
Machines working under extremely dirty conditions should be lubricated every 400 operating hours but at minimum, every 2 months. Longer lubrication intervals may occur only when machine is working under very clean and dry conditions but should be not be longer than 6 months.

List of recommended lubricants for the ring bearing lubrication

Manufacturer	Lubricant
BP	Energrease LS2
Castrol	Speeroll AP2
Esso	Beacon 2
Gulf	Crown Grease 2
Mobil	Mobilus 2
Shell	Avania Grease R2
Texaco	Glissando FT 2
Valvoline	LB - 2

TOWER RACEWAYS MAINTENANCE

The film distributor (carriage) is sliding on the plastic guides attached behind its back plate. The section of the tower on which the plastic guides move (raceways) should be cleaned and re-greased approximately every 600 hours of machine operation.

NOTICE: If the machine works in a dusty and corrosive environment, the raceways should be re-greased more often (at least every 100 hours).

CHAIN MAINTENANCE

To clean the chain, wipe it with an oily cloth every month. When machine is working in a dusty and damp environment, it may be necessary to repeat the cleaning operation more often.

As the chain lubricants please use the most common chain lubricants on the market.

With time, the chain will tend to stretch. A loose chain should be tightened at the chain tensioner, or by moving the reducer on its mounting plate.

NOTICE: Chain tension first adjustment must be done after the first two weeks of machine usage.

PNEUMATIC SYSTEM MAINTENANCE (when applicable)

The air supply system must be checked weekly and must be free from the moisture. In cold environments, it may be necessary to drain the air supply system daily..

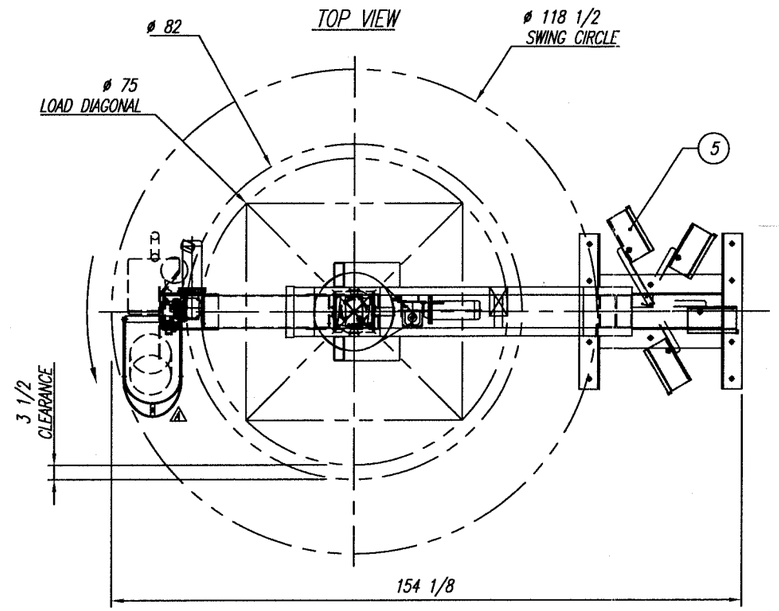
CAM FOLLOWER MAINTENANCE (when applicable)

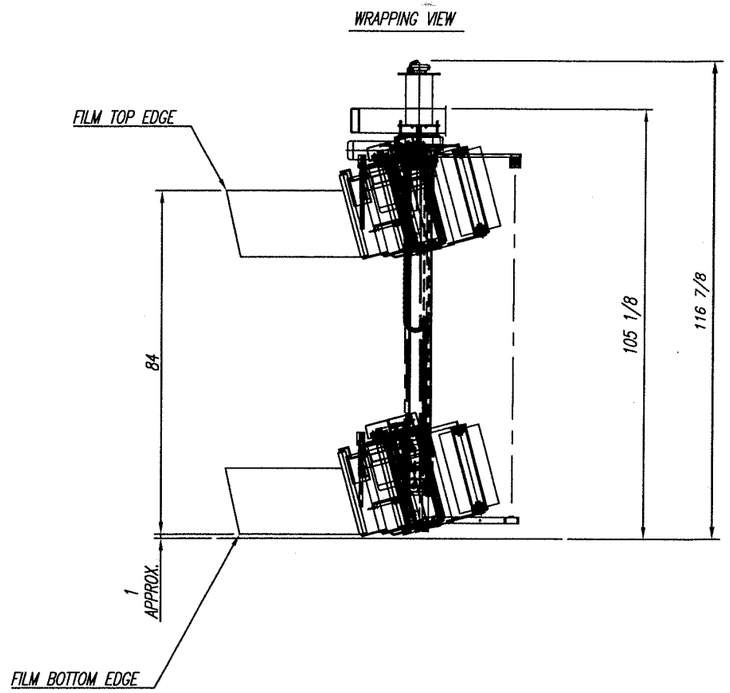
The cam followers have deep grease pockets and do not need frequent relubrication. The portion of the tower on which the cam followers run, should be cleaned and regreased every 300 hours of operation. If the machine operates in a dusty or corrosive environment the tower should be relubricated more often.

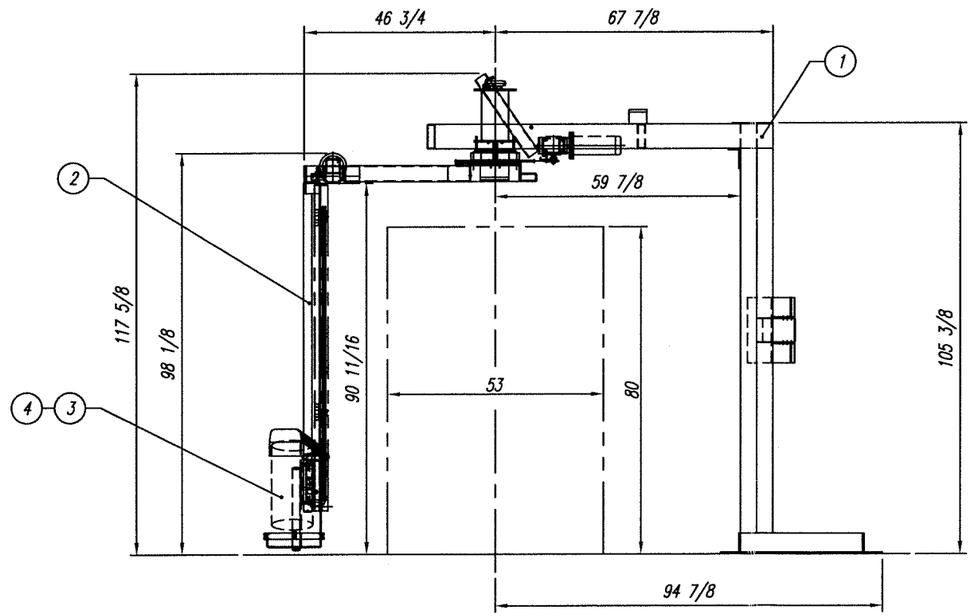
SEMI-AUTOMATIC
STANDARD ASSEMBLIES
PART LIST

NOTE:

- Quantities llisted in order of part number
- The names given to the parts are generic.
-







NOTE :

1. 0–12 RPM VARIABLE TOWER SPEED
2. MAX LOAD SIZE: 53"W x 53"L x 80"H (MAX. LOAD DIAGONAL 75")
3. WEIGHT CAPACITY: UNLIMITED (FLOOR LOADED)
4. UTILITIES : 115/1/60 15 AMP SERVICE
5. MACHINE COLOR: 2–TONE ORION STANDARD GREY (PLATINUM & DARK GREY)
6. 20" INSTA–THREAD FILM CARRIAGE (30" OPTIONAL)
7. FIXING "Z" STAND TO A FLOOR USE MIN 5/8" DIA. ANCHORING BOLTS (GRADE 5 OR STRONGER)

TOTAL WEIGHT : 1204.5 LBS

No.	DESCRIPTION	DWG SIZE	PART No.	Q'ty	WEIGHT
5	CONTROL PANEL "EUROBEX" F225–96–0069 ASS'Y			1	30.0
4	30" INSTA–THREAD CARR, FRL/17 (OPTIONAL)			1	–
3	20" INSTA–THREAD FILM CARRIAGE, FRL/17			1	124.3
2	M67/13A ROTARY ARM–TOWER ASS'Y			1	254.1
1	M67/13A INTEGRAL STAND – ASSEMBLY			1	796.1

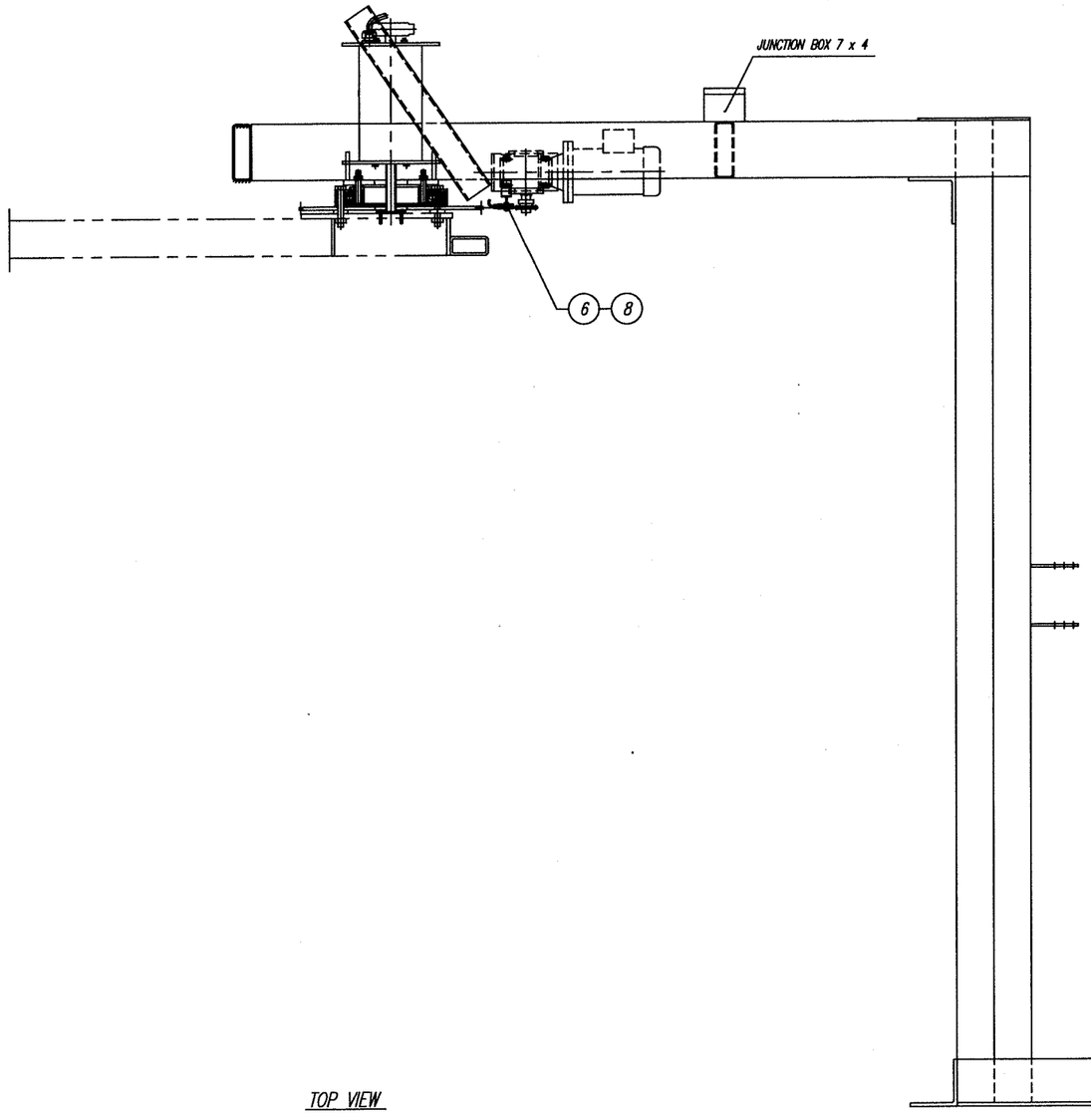
REMARKS: –

REMARKS: –

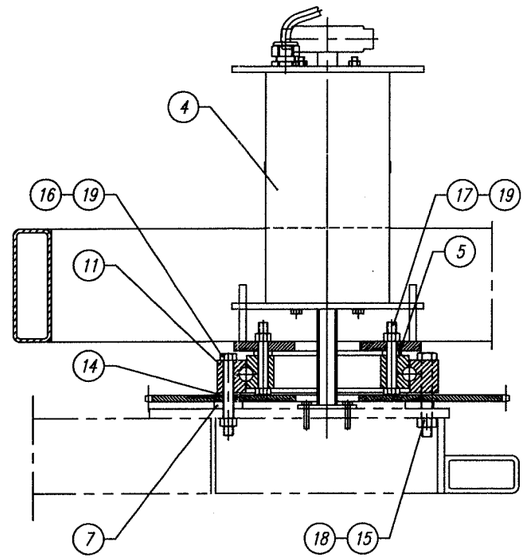
M67/17IS – WRAPPER W/INTEGRAL "Z" STAND

orion
PACKAGING INC.
2270 INDUSTRIEL, LAVAL
QUEBEC, CANADA, H7S 1P9
TEL.: (450) 667–9769

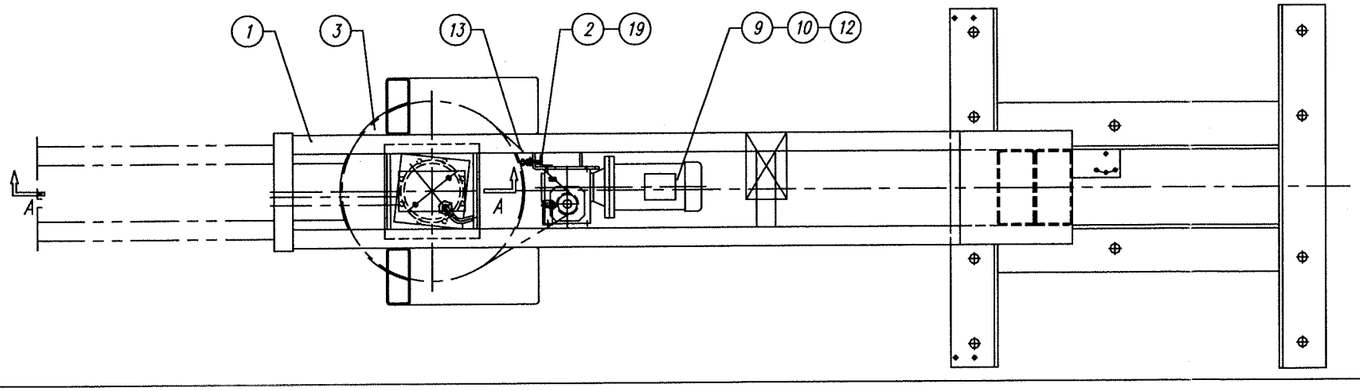
DATE: FEB–20–2003	SCALE: 1 : 24
DRAWN BY: S. KUBICKA	MACHINE TYPE: M67/17IS
CHECKED BY:	DRAWING SIZE: C
ASSEMBLY DWG: LAYOUT	JOB No.: STD	DRAWING No.: 437502



SECTION A–A
SCALE 1 : 4



TOP VIEW



No.	DESCRIPTION	DWG SIZE	PART No.	Q'ty	WEIGHT
19	HEX. NUT		011266	12	
18	HEX. NUT		013278	4	
17	HEX. HEAD SCREW		011924	8	
16	HEX. HEAD SCREW		013633	4	
15	HEX. HEAD SCREW		013277	4	
14	FLAT WASHER		012930	8	
13	ROLLER CHAIN		010009	1	
12	SPROCKET		010074	1	
11	TURNTABLE BEARING (SMALL)		015597	1	
10	REDUCER		015191	1	
9	EL. MOTOR		017851	1	
8	PROXIMITY SWITCH		013848	1	
7	DOUBLE HOLES SPACER		409258	4	
6	PROXIMITY SWITCH BRACKET		422195	1	
5	SPACER		403189	8	
4	SLIP RINGS ASS'Y		423628	1	
3	SPROCKET		421437	1	
2	CHAIN TIGHTENER		419946	1	
1	M67/13A INTEGRAL STAND – WELDING		427412	1	

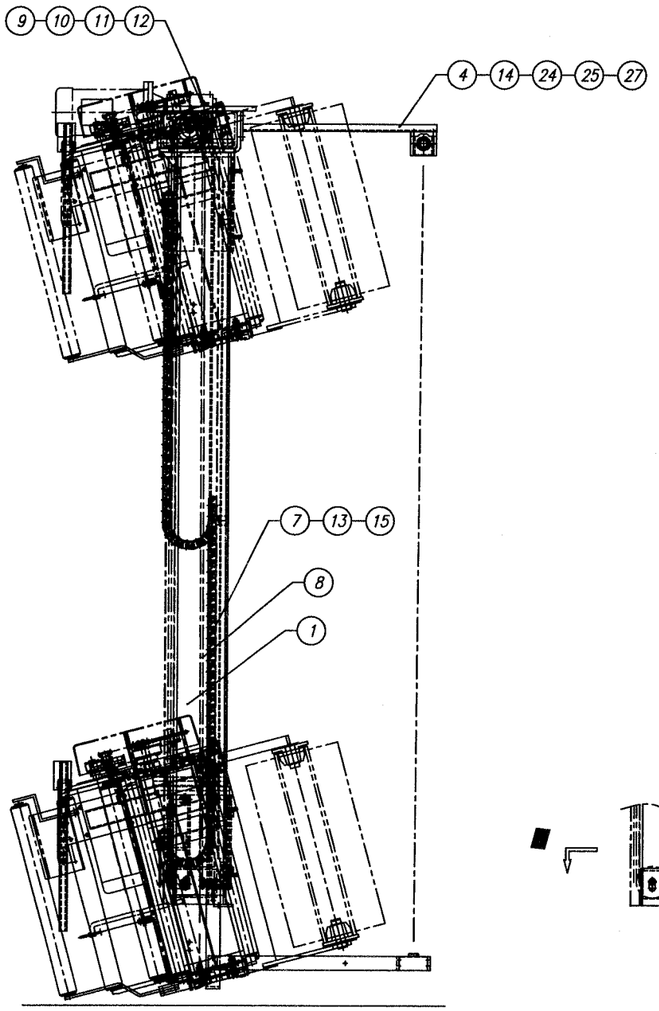
REMARKS:

REMARKS: –

M67/13A INTEGRAL STAND – ASSEMBLY

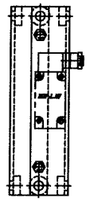
orion
PACKAGING INC.
2270 INDUSTRIEL, LAVAL
QUEBEC, CANADA, H7S 1P9
TEL.: (450) 667-9769

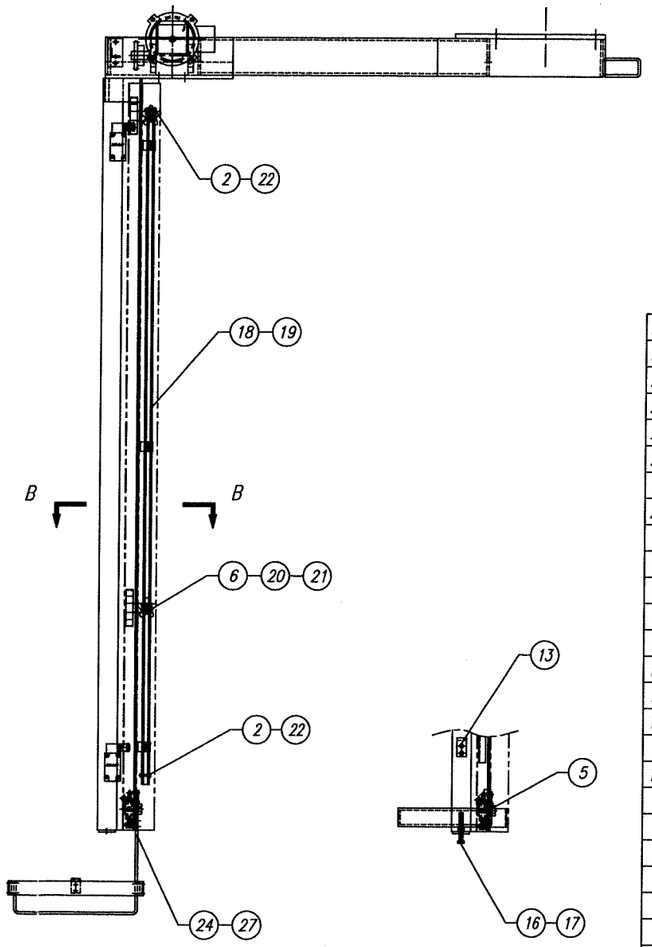
ASSEMBLY DWG: 427410 B	JOB No.: STD/13A	DRAWN BY: M. G. GOLA	DATE: NOV. 22/1999
CHECKED BY:		DRAWING No.: 427411M	DRAWING SIZE: D
SCALE: 1 : 8	MACHINE TYPE: M67/13IS		



LIMIT SWITCH MOUNTING

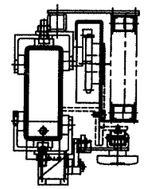
SCALE 1 : 4

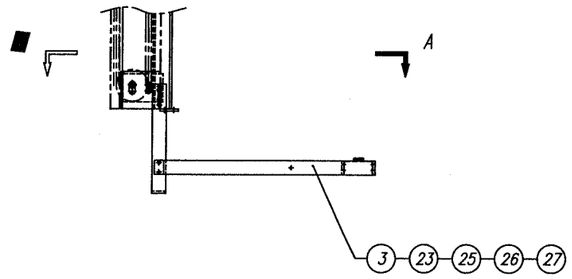




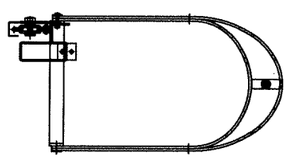
SECTION B–B

SCALE 1 : 4



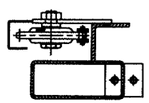


SECTION A–A



SECTION A–A

SCALE 1 : 4



No.	DESCRIPTION	DWG. SIZE	PART No.	Q'ty	WEIGHT
27	SPRING WASHER		011393	8	
26	WASHER		012222	4	
25	HEX NUT		012687	6	
24	HEX HEAD SCREW		011382	4	
23	HEX HEAD SCREW		016762	4	
22	HEX. NUT		012726	2	
21	CHANNEL GUIDE		427690	1	
20	BLACK KNOB		010092	2	
19	PAN PHILL SCREW		013463	3	
18	CHANNEL		427689	1	
17	HEX. NUT		011128	1	
16	HEX. HEAD SCREW FULL THREAD		015063	1	
15	CARRIAGE LIFT TRAK HOLDER		428528	1	
14	PHOTOCELL			1	
13	POWER TRACK		015897	1	
12	CARRIAGE BUMPER		404624		
11	EL. MOTOR		017851	1	
10	REDUCER		015200	1	
9	SPROCKET		010343	1	
8	CHAIN		010009	1	
7	GUARD + EXT.		428527	1	
6	STRIKER		427691	2	
5	IDLER SPROCKET ASS'Y		420809	1	
4	SAFETY PHOTOCELL BRACKET		437225	1	
3	ROTARY ARM SAFETY REFLECTOR BRACKET ASS'Y		437193	1	
2	PAN PHILL SCREW		012690	2	
1	M67/17 ROTARY ARM TOWER WELDING		437488	1	

REMARKS:

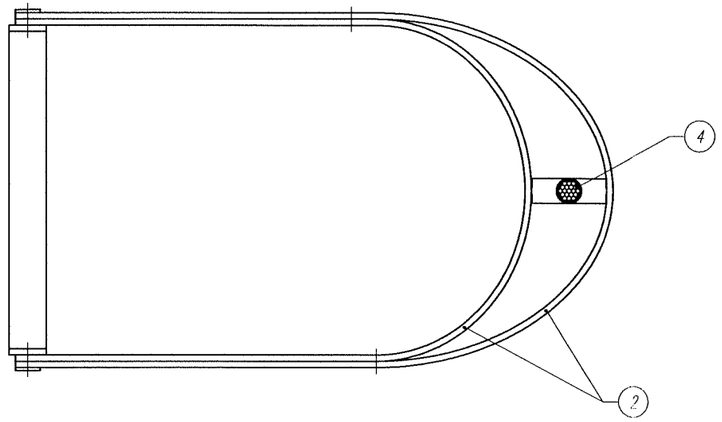
REMARKS:

M67/17 ROTARY ARM TOWER ASSEMBLY

orion
PACKAGING INC.
2270 INDUSTRIEL, LAVAL
QUEBEC, CANADA, H7S 1P9
TEL.: (514) 667-9769

ASSEMBLY DWG.: –	JOB No.: STD	DRAWING No.: 437487M
	CHECKED BY:	DRAWING SIZE: D
	DRAWN BY: J-NICOLAS BACON	MACHINE TYPE: M67/17
	DATE: FEB-17-2003	SCALE: 1 : 8

VIEW A



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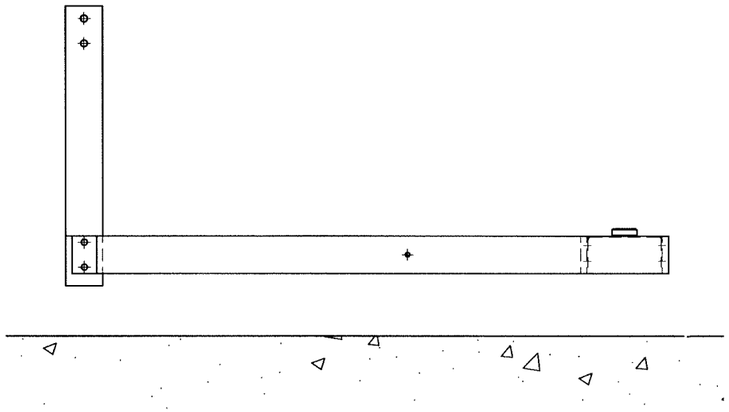
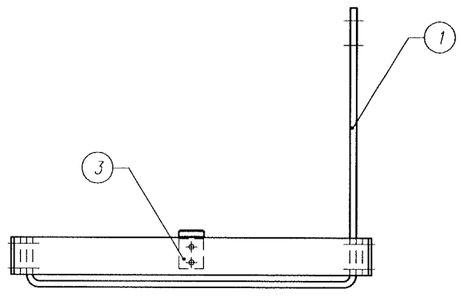
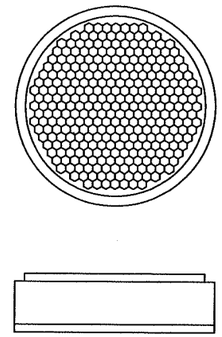




REFLECTOR SICK 1" SELF-ADHESIVE



REQ'D - 1 pc.

REPLACES DWG. # 426957 A

⚠ REV. A , JUN-9-2003 , JNB

No.	DESCRIPTION	DWG. SIZE	PART No.	Q'ty	WEIGHT
4	REFLECTOR SICK 1" SELF-ADHESIVE		017688	1	
3	SAFETY REFLECTOR BRIDGE	A	437196	1	
2	SAFETY PLASTIC BUMPERS	B	437195	1	
1	SAFETY BRACKET	B	437194	1	

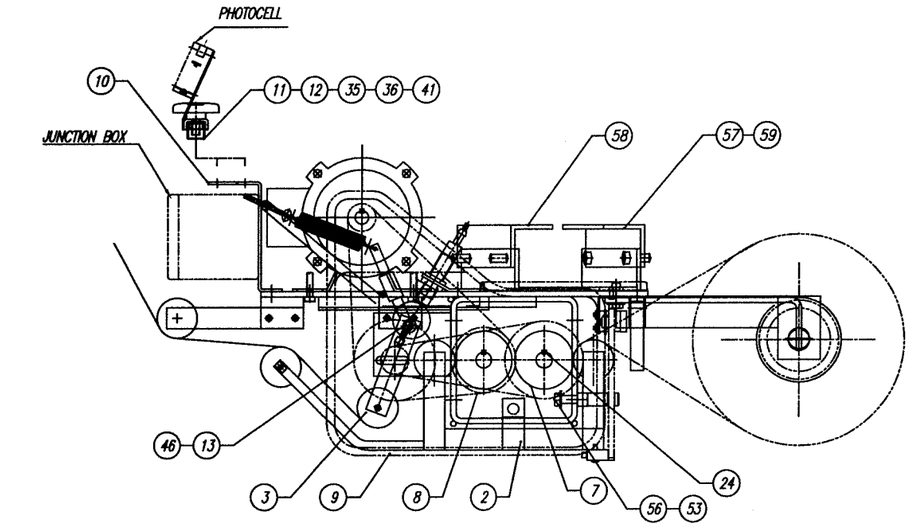
REMARKS: -

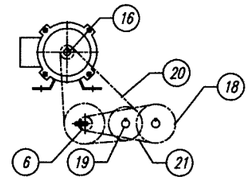
REMARKS: -

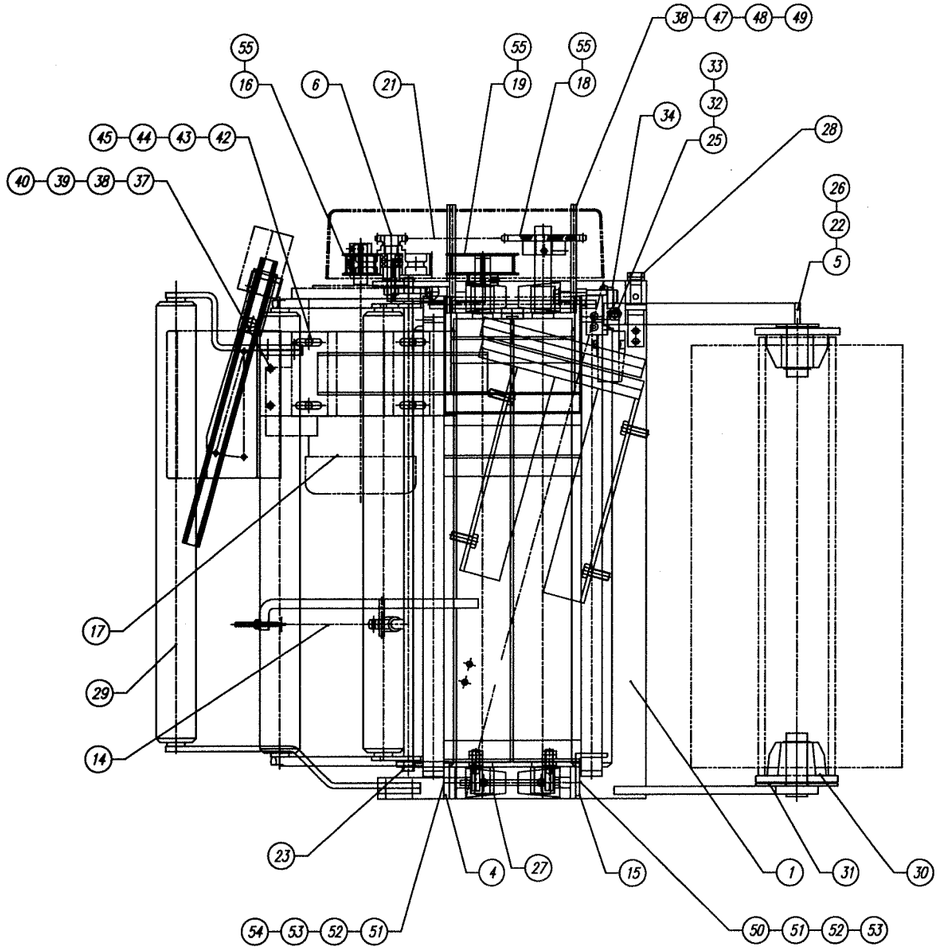
ROTARY ARM SAFETY REFLECTOR BRACKET ASS'Y

orion
PACKAGING INC.
2270 INDUSTRIEL, LAVAL
QUEBEC, CANADA, H7S 1P9
TEL.: (450) 667-9769

DATE: JAN-13-2003		SCALE: 1 : 4
DRAWN BY:		MACHINE TYPE: M / 17
CHECKED BY: -		DRAWING SIZE: C
ASSEMBLY DWG.: -	JOB No.: STD	DRAWING No.: M-437193







59	SLIDE BOTTON		427058	12	
58	CARRIAGE CHAIN ATTACHMENT ANGLE (5x2-TOWER)		420000	1	
57	CARRIAGE ATTACHMENT ANGLE (2"- TH'K TOWER)		419999	1	
56	HEX HEAD SCREW		016131	1	
55	SET SCREW		-	6	
54	HEX HEAD SCREW		013479	1	
53	WASHER FLAT		010948	8	
52	WASHER LOCK		011390	7	
51	NUT HEX		011128	7	
50	HEX HEAD SCREW		012476	6	
49	NUT CAP		-	3	
48	WASHER FLAT		012221	3	
47	RUBBER GROMMET		014502	3	
46	HEX SOCKET HEAD CAP SCREW		010257	1	
45	WASHER FLAT		012725	4	
44	WASHER LOCK		012724	4	
43	NUT HEX		012751	4	
42	HEX HEAD SCREW		012757	4	
41	PAN PHILL SCREW		013384	2	
40	LOCK WASHER		011393	2	
39	FLAT WASHER		012221	2	
38	HEX NUT		012689	5	
37	HEX HEAD SCREW		012475	2	
36	KNOB		010092	1	
35	NUT FLAT SQUARE		017853	1	
34	SAFFETY SWITCH BRACKET ASS'Y - FRL		434221	1	
33	JAM NUT		015121	1	
32	FLAT WASHER		010948	2	
31	BOTTOM SPOOL WASHER		432322	1	
30	BOTTOM SPOOL		432323	2	
29	IDLE ROLLER ASSEMBLY		426543	1	
28	MANDREL LOCK		421643	1	
27	PILLOW BLOCK		011192	4	
26	FLAT WASHER		012323	1	
25	HEX. HEAD SCREW		010293	1	
24	SQ. KEY		010227	3	
23	FL.BRONZE BUSHING		014247	2	
22	SELF SEATING RETAINING RING		013860	2	
21	CHAIN		013397	1	
20	GEARBELT		011151	1	
19	GEARBELT PULLEY		431672	1	
18	SPROCKET (245 %)		428647	1	
17	ELECTRIC MOTOR		015240	1	
16	GEARBELT PULLEY		431477	1	
15	CRADLE ROLLER OPENING LOCK		409469	2	
14	TENSION SCREW ASS'Y		433628	1	
13	PROXIMITY SENSOR CAM		413744	1	
12	PHOTOCELL HOLDER (FRL, FLR)		432739	1	
11	PHOTOCELL CHANNEL		436223	1	
10	JUNCTION BOX (7 x 4) BRACKET FRL		438619	1	
9	FIBERGLASS COVER - (FRL)		414305	1	
8	RUBBER ROLLER - 2 (20" FILM)		420917	1	
7	RUBBER ROLLER - 1 (20" FILM)		420916	1	
6	SPROCKET / PULLEY ASS'Y		431475	1	
5	TOP MANDREL - FRL		420942	1	
4	DANCER ROLLER BRACKET (FRL)		413745	1	
3	DANCER ROLLER ASSEMBLY - 20 (FRL)		414194	1	
2	CRADLE ROLLER ASSEMBLY - 20 M/14 (FRL)		422327	1	
1	I.T. BACK PLATE - 20" (FRL)		431146	1	
No.	DESCRIPTION	DWG. SIZE	PART No.	Q'ty	WEIGHT

REMARKS:

REMARKS:

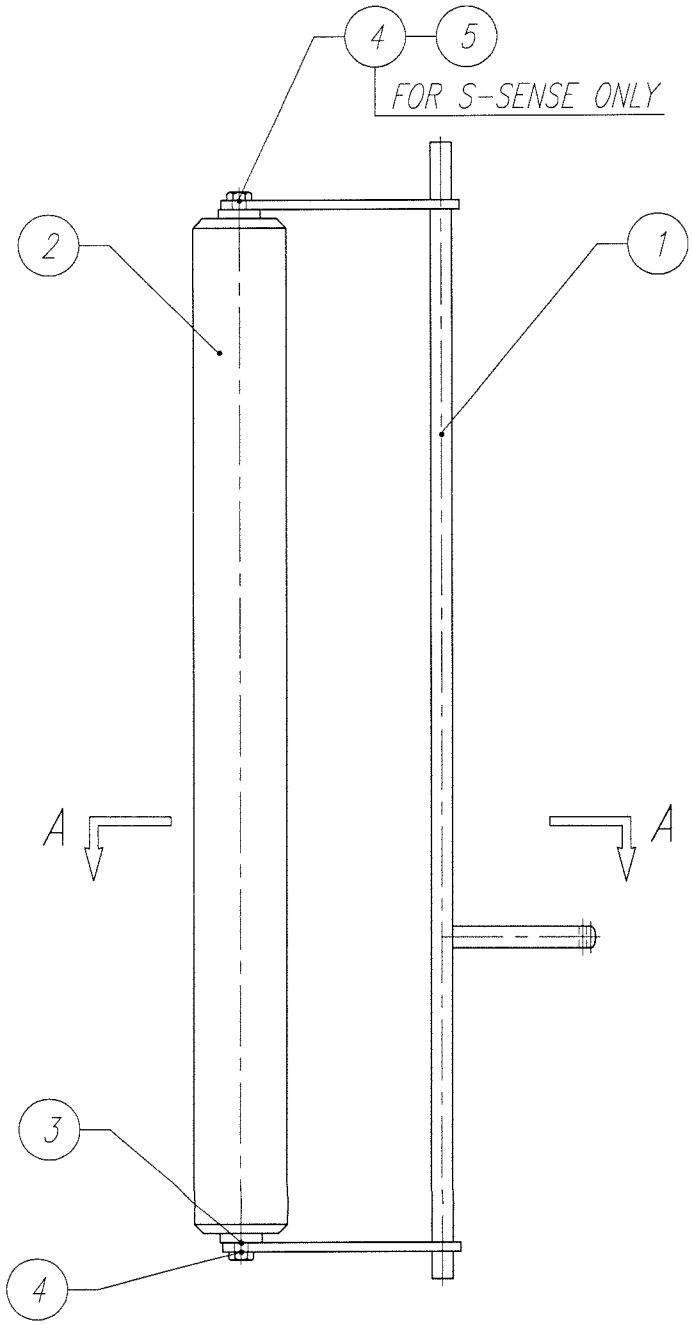
20" INSTA-THREAD CARRIAGE (FRL)

orion PACKAGING INC.
2270 INDUSTRIEL, LAVAL
QUEBEC, CANADA, H7S 1P9
TEL.: (514) 667-9769

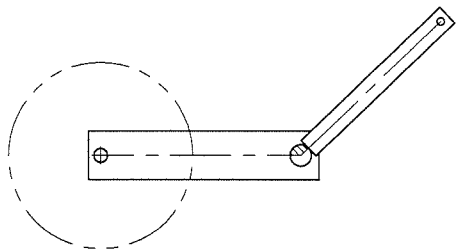
ASSEMBLY DWG.:

DATE: JUNE-26-2003
DRAWN BY: S. KUBICKA
CHECKED BY:
JOB No.: STD

SCALE: 1 : 4
MACHINE TYPE: M/17
DRAWING SIZE: C
DRAWING No.: 438625M



A – A



No.	DESCRIPTION	DWG. SIZE	PART No.	Q'ty	WEIGHT
5	SOCKET HEAD CAP SCREW		010259	1 (0)	
4	HEX HEAD SCREW		012475	1 (2)	
3	FLANGE NUT		014164	2	
2	ALUMINIUM ROLLER – 20	A	402789	1	
1	DANCER ROLLER CRADLE – 20 (FRL)	A	414195	1	

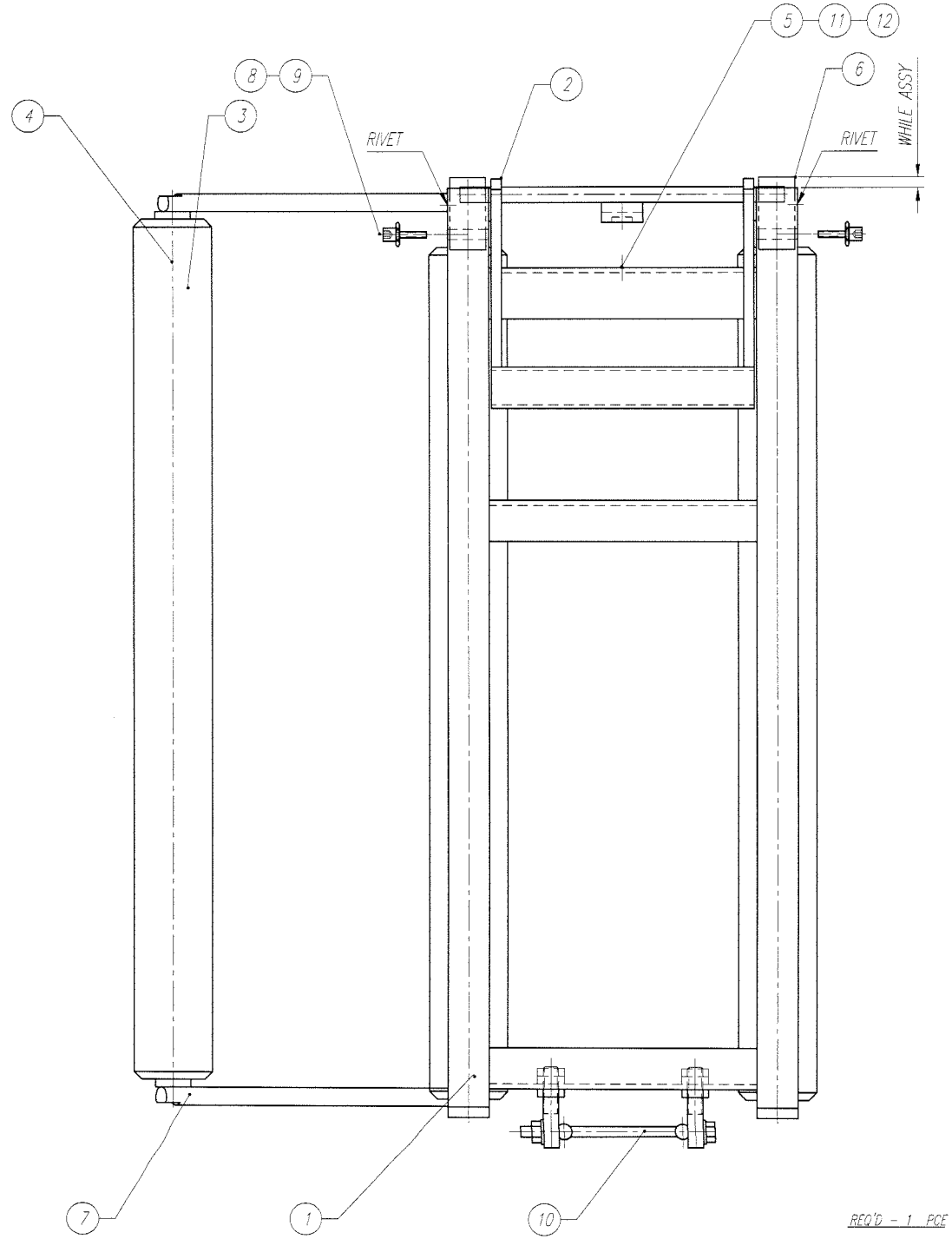
REMARKS:

REMARKS:

DANCER ROLLER ASSEMBLY – 20 (FRL)

orion
PACKAGING INC.
2270 INDUSTRIEL, LAVAL
QUEBEC, CANADA, H7S 1P9
TEL.: (514) 667-9769

	DATE: SEP-17-99	SCALE: 1 : 4
	DRAWN BY: ROGER F.	MACHINE TYPE: ALL/12
	CHECKED BY:	DRAWING SIZE: A
ASSEMBLY DWG.: —	JOB No.: STD – 12.1	DRAWING No.: M-414194



REQ'D - 1 PCE

REVISION "B" APR-22-2003 S.K.(AS PER KRIS)
REVISION "A" AUG-13-2002 S.K.

	No.	DESCRIPTION	DWG SIZE	PART No.	Q'ty	WEIGHT
B	12	HEX NUT		013048	1	
B	11	HEX SOCKET HEAD CAP SCREW 1/4-28UNF 5/8"LG		-	1	
	10	CRADLE HINGE ASS'Y	A	426200	1	
	9	HEX NUT		013451	4	
A	8	SOCKET HEAD CAP SCREW		014002	4	
A	7	BUTTON SOCKET CAP SCREW		015133	6	
	6	POLYETHYLENE	A	431158	2	
	5	SPRING		013994	1	
	4	IDLE ROLLER SHAFT	A	413249	3	
	3	ALUMINIUM ROLLER	A	402789	3	
	2	LOCK	A	412542	1	
	1	CRADLE ROLLER FRAME - 20" (FRL)	B	422328	1	

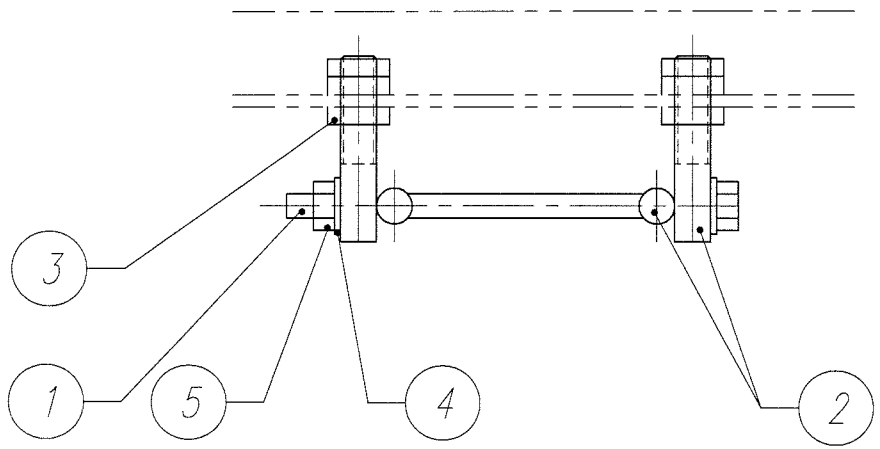
REMARKS: REPLACES THE SAME DWG # FROM JAN-25-99

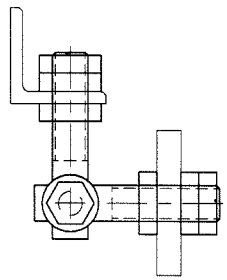
REMARKS: -

CRADLE ROLLER ASSEMBLY - 20 (FRL)

orion
PACKAGING INC.
2270 INDUSTRIEL, LAVAL
QUEBEC, CANADA, H7S 1P9
TEL.: (450) 667-9769

DATE: DEC-15-99		SCALE: 1 : 2
DRAWN BY:		MACHINE TYPE: H,L/14
CHECKED BY:		DRAWING SIZE: C
ASSEMBLY DWG.: 422047 C	JOB No.: STD	DRAWING No.: M-422327





No.	DESCRIPTION	DWG. SIZE	PART No.	Q'ty	WEIGHT
5	HEX. SELF-LOCKING NUT		015098	1	
4	FLAT WASHER		012221	2	
3	HEX. JAM NUT		012582	12	
2	SPECIAL BOLT	A	415938	4	
1	HEX. HEAD SCREW		015099	1	

REMARKS: –

REMARKS: –

CRADLE HINGE ASS'Y

orion
PACKAGING INC.
2270 INDUSTRIEL, LAVAL
QUEBEC, CANADA, H7S 1P9
TEL.: (514) 667-9769

DATE: DEC-15-1999

SCALE: 1 : 2

DRAWN BY: S. KUBICKA

MACHINE TYPE: ALL

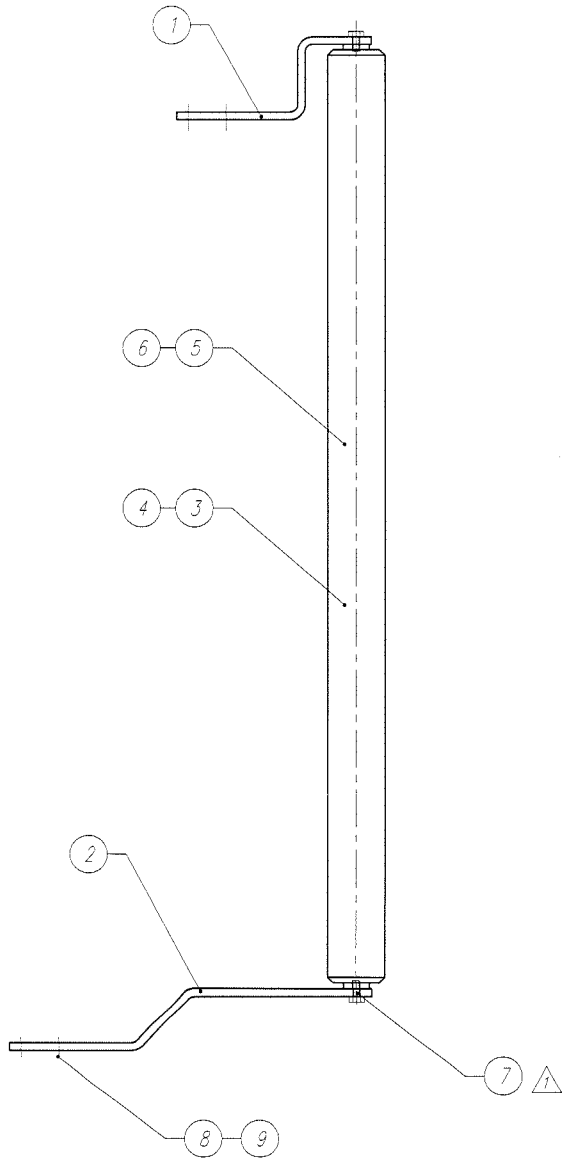
CHECKED BY:

DRAWING SIZE: A

ASSEMBLY DWG.: –

JOB No.: STD

DRAWING No.: M-426200



REVISION 3 APR-22-2003 S.K.(AS PER KRIS)
REV. 2 JUN-08-2001 M. GOLA
REV. 1 OCT-18-2000 G. SEWERYN

No.	DESCRIPTION	DWG SIZE	PART No.	Q'ty	WEIGHT
9	NUT, HEX		014664	4	
8	HEX HEAD SCREW		015009	4	
7	HEX HEAD SCREW		010466	2	
6	IDLE ROLLER SHAFT	A	423967	1	
5	AL. ROLLER	A	402875	1	
4	IDLE ROLLER SHAFT	A	423966	1	
3	AL. ROLLER	A	402789	1	
2	HRS FLAT BAR			1	
1	HRS FLAT BAR			1	

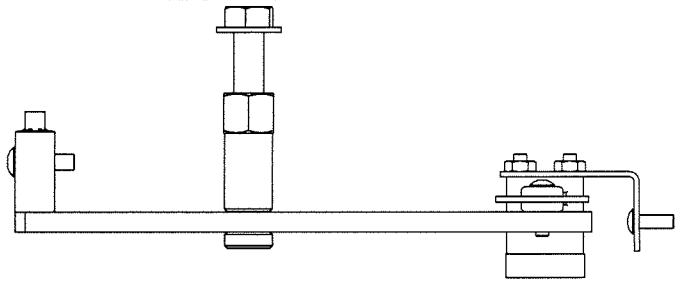
REMARKS:
REMARKS:

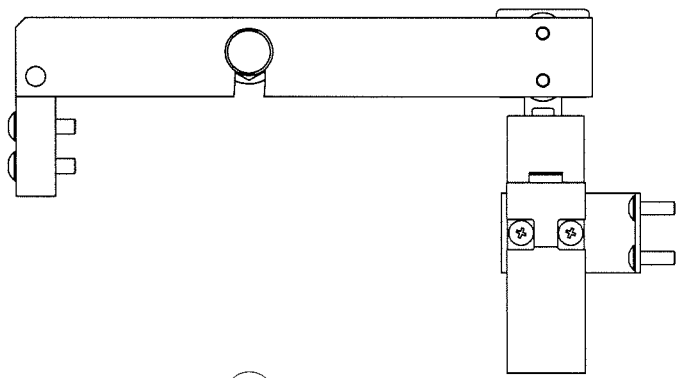
IDLE ROLLER ASSEMBLY

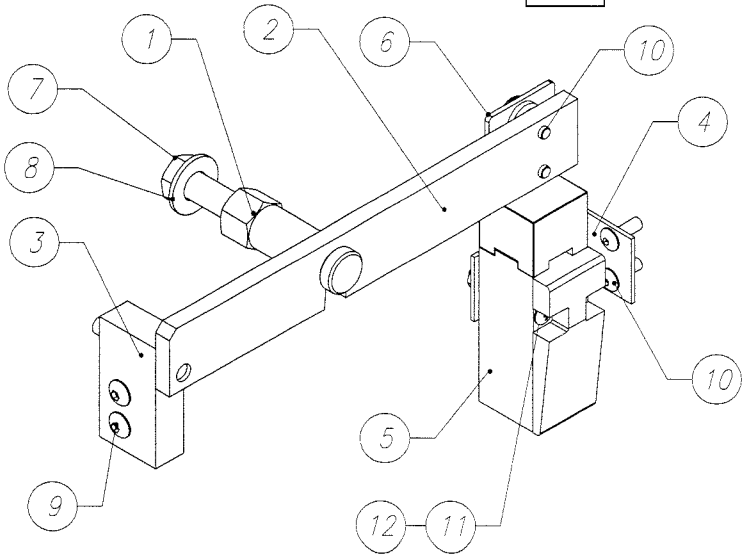
orion PACKAGING INC.
2270 INDUSTRIEL, LAVAL
QUEBEC, CANADA, H7S 1P5
TEL.: (514) 667-5769

DATE: JAN-20-2000
SCALE: 1 : 2
DRAWN BY:
MACHINE TYPE: M455
CHECKED BY:
DRAWING SIZE: D
ASSEMBLY DWG: 426492 D
JOB No.: –
DRAWING No.: M-426543

Q'TY : 1 pce







REQ'D – 1 PCE

REVISION "A" APR-23-2003 S.K.(AS PER KRIS)

No.	DESCRIPTION	DWG. SIZE	PART No.	Q'ty	WEIGHT
12	HEX NUT	–	013278	2	–
11	PAN SCREW	–	016015	2	–
10	BUTTON HEAD M4 x 14MM	–	–	4	–
9	BUTTON HEAD SCREW #10-32UNF 1 LG	–	–	2	–
8	FLAT WASHER	–	014481	1	–
7	HEX SCREW	–	014668	1	–
6	STRAIGHT KEY	–	017312	1	–
5	SAFETY SWITCH	–	017311	1	–
4	SAFETY SWITCH BRACKET	A	434153	1	–
3	LOCKING ARM BEARING	A	434152	1	–
2	LOCKING ARM-FRL	A	434222	1	–
1	SAFETY PIN	A	434150	1	–

A

REMARKS: –

REMARKS: – –

SAFETY SWITCH BRACKET ASSEMBLY-FRL

orion
PACKAGING INC.
2270 INDUSTRIEL, LAVAL
QUEBEC, CANADA, H7S 1P9
TEL.: (450) 667-9769

DATE: APR-09-2002

SCALE: 1 : 2.5

DRAWN BY:

MACHINE TYPE: M

CHECKED BY:

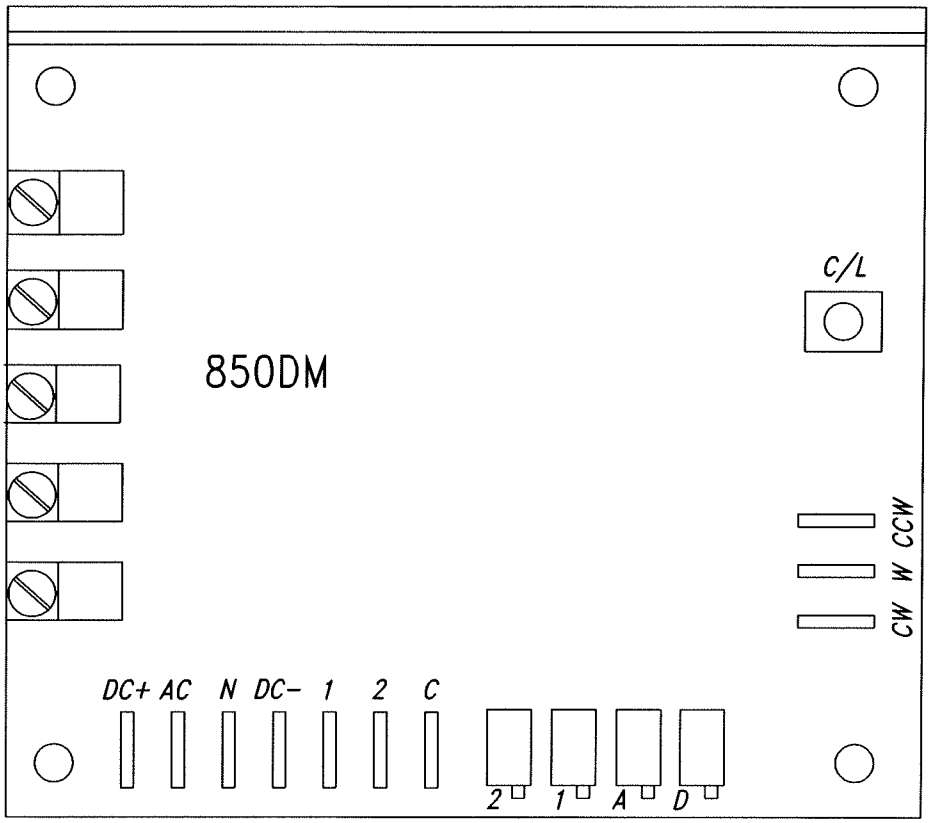
DRAWING SIZE: A

ASSEMBLY DWG.: –

JOB No.: STD

DRAWING No.: M-434221

APPENDIX



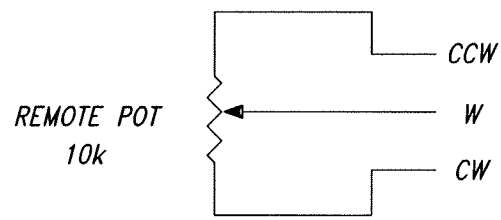
2-ND SPEED (HIGH)
REMOTE ADJUSTMENT
(IF NOT USED-PUT JUMPER
BETWEEN "CW" & "W").

TERMINALS:

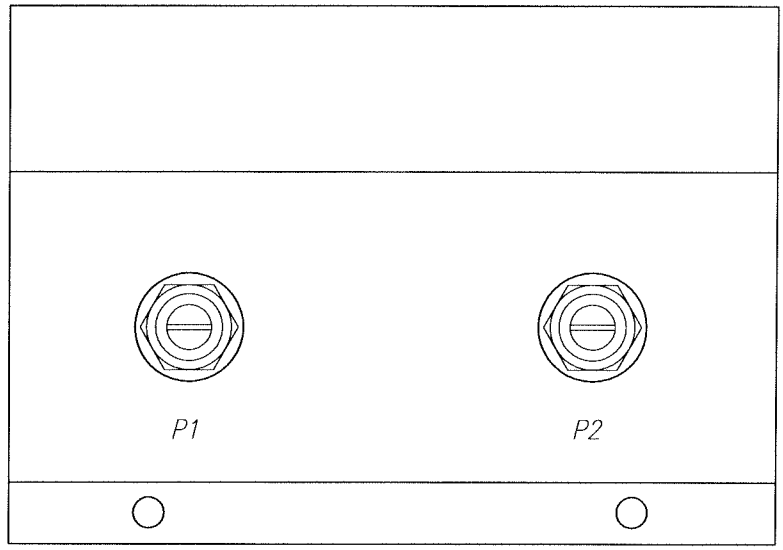
DC+: ARMATURE CONTROL.
AC: AC (HOT) POWER INPUT.
N: AC NEUTRAL.
DC-: ARMATURE CONTROL.
C: CONTROL COMMON.
2: SPEED CONTROL (HIGH).
1: SPEED CONTROL (JOG).

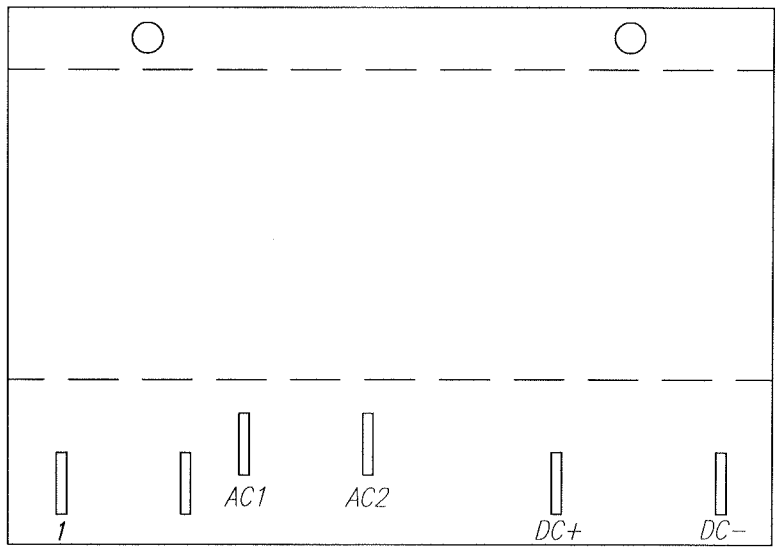
POTENTIOMETERS:

2: HIGH SPEED ADJUSTMENT.
1: JOG SPEED ADJUSTMENT.
A: ACCELERATION ADJUSTMENT.
D: DECELERATION ADJUSTMENT.
C/L: CURRENT LIMIT.



850DM 2 SPEED DC MOTOR CONTROL BOARD

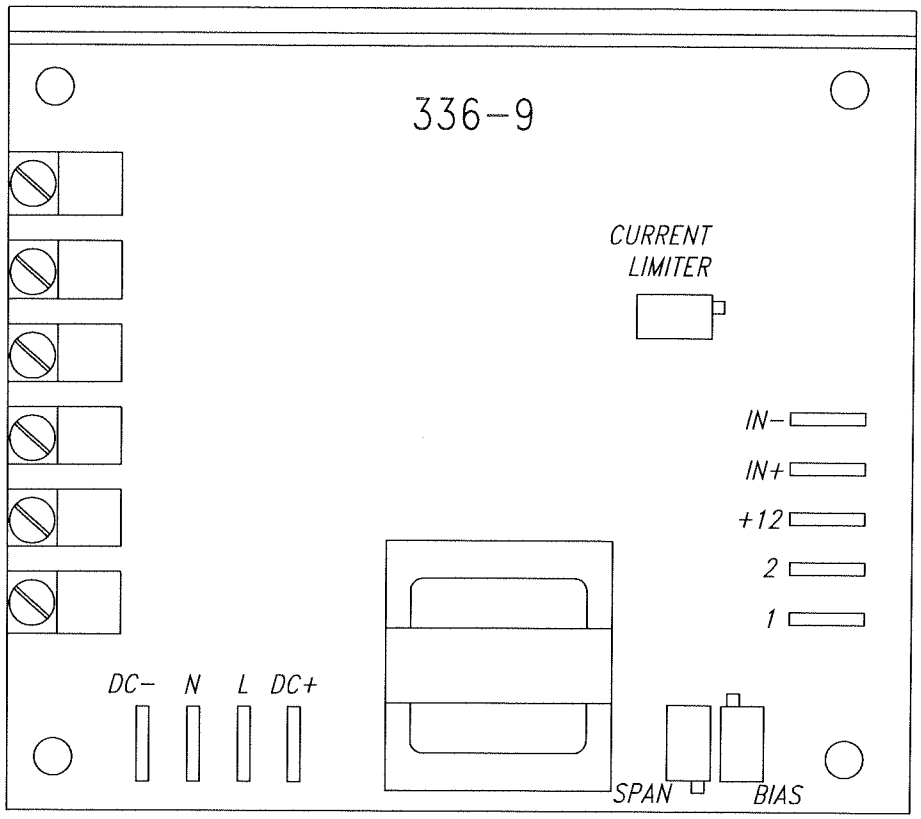




1 : CONTROL
AC1: AC INPUT
AC2: AC INPUT
DC+: ARMATURE CONTROL
DC-: ARMATURE CONTROL

POTS: SPEED ADJUSTEMENT.

168-4 CARRIAGE DOUBLE SPEED BOARD



DC+: ARMATURE CONTROL

N: AC NEUTRAL

L: AC LINE

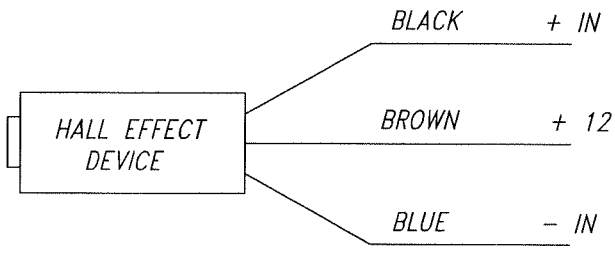
DC-: ARMATURE CONTROL

POTENTIOMETER

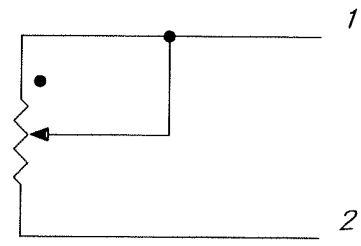
SPAN: HALL EFFECT SENSITIVITY CONTROL

BIAS: SYSTEM BIAS (FACTORY SET)

CURRENT LIMITER: (FACTORY SET)



FILM TENSION ADJUSTMENT
REMOTE POTENTIOMETER



336-9
MULTISTRETCH BOARD

Multistretch Motor Control Board Calibration Instructions For 336-6,7,8,9, Board.

Adjustments:

Bias: (RV3) The Pot marked RV3 controls the system Bias.

This control injects an offset voltage, which adds or subtracts from the voltage reference defined by the External Tension Adjustment (Film Tension Potentiometer); this will allow extremes of adjustment to be set to levels consistent with proper operation. Typically, the Bias will be used to center the operating range in linear portion of its characteristics.

Note: This adjustment is normally made at the factory and should not require fields adjustment. For reference, the factory test procedure calls for a voltage setting of 1.30 Volts DC at the cathode of Z1 (Zener Diode) achieved by adjusting the RV3 pot.

Span: (RV1) The Pot marked RV1 controls the system loop gain.

This system loop gain may be adjusted if the motor continues to be energized when the dancer arm is unloaded and at rest. With the machine stopped, the potentiometer should be adjusted to ensure that the motor is de-energized in this condition, and so that a light pull on the free end of the film causes the film to feed freely. Counter clockwise (CCW) adjustment of this potentiometer will increase the response time i.e. (soften the motor tension response) plus decrease the response time i.e. (sharpen the motor response) plus increase the maximum possible motor speed attainable.

Current Limit: (RV4) The pot marker RV4 controls the torque (Amps) that the 336 Board allows to the motor.

To protect the unit against damage, should the motor stall. Jam, or current demands exceed it's rating, a current-limiting circuit is included which keeps motor current at a safe level regardless of motor load, or input from the tension arm. This potentiometer is set at the factory to suit ½ hp Motors. Should changes be required in the field, proceed as follows. Monitor the motor current. Advance the potentiometer slowly until desired current is reached. This should not exceed 125% of the nameplate rating. Do not install the motor for more than a few seconds, or damage may occur.

Trip: (for 336-8 only)

The output relay located on SCR Board (Outputs: Com, NO,NC) is energized when the current is flowing between DC "+" & DC "-" overshoots the level selected on the potentiometer marked "Trip". It de-energizes when the voltage falls below the normal current by approximately 5% or when power to board breaks.