GATTO MACHINERY DEVELOPMENT CORP

Instruction Manual
Pultrustion Puller

MODEL PP-207-12P	6 BELT
MODEL PP-207-7P	4 BELT
MODEL PP-208-12P	6 BELT
MODEL PP-208-7P	4 BELT

SERIAL NUMBER _____

GATTO MACHINERY DEVELOPMENT CORPORATION

UGE022/0597

---CAUTION---

DISCONNECT ALL ELECTRICAL POWER TO THIS MACHINE AT THE POWER SOURCE AND MAKE SURE THAT ALL MACHINE MOTION HAS STOPPED BEFORE OPENING CONTROL BOX PANELS OR DOORS OR REMOVING GUARDS.

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PART 1

GENERAL SPECIFICATIONS

1.1 TECHNICAL DATA

Belt Opening	7" or 8"	
Width Capacity on Belts	7"-2Belt 12"-3Belt	
Belt Contact Length	38"	
Lower Belt Height	42" Minimum 46" Maximum	
Puller Drive	Motor	DC
	Speed	60 to 1750 RPM
	Type	TENV
Motor Control	230 Volt Single Phase DC motor control with armature feedback	
	Armature Volts	180V-DC
	Field Volts	200V-DC
Puller Speed Range	ARR 1	1"/min.to 10ft/min.
	ARR 2	4"/min.to 10ft/min.
	ARR 2	6"/min.to 15ft/min.
	ARR 3	4"/min.to 40ft/min.
Electric Power Connection See 1.2.3	Service Voltage:	230 Volts 460 volts with internal power transformer connected 460V to 230V. 550 volts with internal power transformer connected 550V to 230V.

Electric Power	Phase:	Single Phase - Ungrounded
	Frequency:	60 HZ

NOTE: CONNECT THE GD TERMINAL BLOCK IN THE JUNCTION BOX TO THE PLANT SERVICE GROUND TO SEPARATELY GROUND THE MACHINE.

Air System	Shop Air Connection	½" DIA.- Minimum
	Air Pressure	80 PSI - Minimum
	Air Consumption	Negligible

1.1 (Cont'd.)

Dimensions	Length	64½"
	Width	51½"
	Height	80" Max.
Weight		2000 lbs. approx.

1.2 APPLICATION AND MODE OF OPERATION

1.2.1 PULLER FUNCTION

This machine has been specifically designed for use in pulling shapes containing carrier/reinforcement materials impregnated with thermoset resins through heated dies to produce strong, rigid pultruded shapes on a continuous basis. Pulling speed ranges from less than one inch per minute to more than forty feet per minute are available as shown in section 1.1.

The pulling force necessary to move the material through the die or dies is generated by opposing power driven endless rubber cleated belts that are held in maintained pressure contact with the pultrusion to produce high frictional drive forces on the pultrusion without belt slippage. The drive speed control is stepless to provide accurate, stable speeds over the full design speed range.

The Puller speed control potentiometer is always mounted in a portable box. Normally the Puller Start-Stop controls are on the electric control panel. At customers option the Puller Start-Stop controls can be placed in the portable box for remote control of the Puller. Speed is indicated on a panel meter.

In this machine the lower belt system is fixed in position. The upper belt system is moved into and out of pulling contact with the pultrusion by two air cylinders that act on the beam structure that carries the upper belt system. Upper belt pressure is adjustable by an air pressure regulator on the air panel. Air cylinder operation is controlled by an infinite positioning handle operated manual four way air valve on the air panel.

The machine was lubricated and tested for eight hours before shipment. After inspection for possible damage in shipment, the machine is ready for installation and operation in the line. In testing, tryout or operation materials other than thermoset pultrusions or thermoplastic pipe or shapes must not be used to determine belt action or pulling capability as the machine may be damaged.

1.2.2 PLACEMENT IN THE LINE - HANDLING

The machine frame is an all welded structure with bottom longitudinal square tube bracing. After uncrating the machine may be handled by a fork lift truck, lifting from either side of the machine, with the forks lifting on the bracing. The center of gravity of the machine is about 27 inches from the drive end. Lift with maximum fork spacing.

The machine is placed in the line with electrical control panel on the operators side. The air valve is always on the die end of the machine. The portable speed control box is positioned as desired.

The two front and two back guide posts are parallel to the belts and may be used for longitudinal line up.

1.2.2 (Cont'd.)

The lower belt surfaces are used to establish vertical positioning. A long, straight wood beam placed on the lower belts and extending through the machine allows accurate vertical positioning of both the entrance and exit ends. Vertical positioning is by jack screws at each corner; either vee wheel type or floor pad type. In this machine the pulling forces are high and the machine must be anchored so that it does not slide backward toward the die. When vee rails are used to support the machine they are bolted to the floor. Wheel stops, welded to the rail ends keep the machine from moving toward the die during operation. At the maximum pulling capability of the machine there is a possibility that the exit end of the machine may lift off the rails and tip backward. The exit of the machine should be rigidly anchored directly to the floor or through the rails that are bolted to the floor. The anchor should be designed for a pull of 1000 pounds minimum.

When the machine is supported by jack screws of the floor pad type, the machine must be blocked on the entering end against movement toward the die.

1.2.2 (Cont'd,)

The blocking should resist push forces of 2000 pounds minimum. The exit end of the machine should be rigidly anchored directly to the floor with the anchor designed for a minimum pullout of 1000 pounds.

1.2.3 ELECTRICAL SUPPLY

The Puller is supplied for 230 volts single phase 60 HZ direct, for 460 volts single phase 60 HZ with an internal 5 KVA stepdown transformer 460 volts to 230 volts or 550 volts single phase 60 HZ with a 5 KVA stepdown transformer 550 volts to 230 volts. Voltages and frequencies other than shown require special equipment. Power wiring is shown on the electrical schematic diagram.

Power is supplied to the Puller Junction Box (7) by a three wire power cable (2) with a four wire power plug (1). The ground (GD) terminal block in the junction box, machine ground, is connected to the plant service ground through the power cable and the polarized prong of the power plug. In wet locations it is recommended that the machine be separately grounded connecting to the ground (GD) terminal in the junction box or to the machine frame.

1.2.3 (Cont'd.)

The DC drive motor was connected for proper rotation at the factory and is not affected by phase rotation of the supply.

1.2.4 AIR SUPPLY

Proper operation of the Puller requires a constant, high pressure air supply. Use of air during operation is very low as air drain is only a function of leakage in the air system. The plant air supply line should be ½ inch diameter, minimum. The air supply line to the Puller should be short and no smaller than ¼ inch in diameter. The air connection (35) is on the entrance end of the frame near the junction box. Supply pressure should be 80 PSI minimum.

PART 2

MECHANICAL SYSTEM

2.0 MECHANICAL SYSTEM

2.1 MACHINE SUPPORT AND POSITIONING SYSTEM

The Puller is supported on jack screws (50) at each corner of the base plate (49) to provide vertical adjustment. Each jack screw is supplied with a swivel vee caster (51) or a swivel floor pad (52).

The vee caster, swivel type, does not move as the jack screw is adjusted. The floor pad, also swivel type, does not move as the jack screw is adjusted. In positioning move the jack screw in sequence to keep the machine level as it is raised or lowered.

If the machine is mounted on vee rails a wheel limit stop should be applied on each rail on the die end of the track. Bolt the rail rigidly to the floor.

See section 1.2.2 for complete instillation instructions

2.2 MACHINE FRAME

The lower Puller frame is an all welded structure comprised of a bottom machinery plate (49) and an end and side wrap-around (53) with box reinforcing under the bottom machinery plate and heavy angle bracing along the ends and sides of the wrap-around at the top. An additional heavy angle brace is placed longitudinally near the center of the frame to provide additional top plate support.

The top machinery plate(55) is bolted to the angle bracing along the ends, sides and center to provide a rigid structure from which to mount the front (56) and rear (57) drive plates, the guide shaft housing (99), the guide shafts (100), the stock guide roller supports (58), the DC drive control box (8), the stepdown transformer (16) when supplied, and the machinery top cover (136). The pads on which the guide shaft housings (99) and the guide shafts (100) are mounted are machined to a common plane for flatness and parallelism. The machine frame is so rigid that three jack screws (50) will position the machine. Always make sure that all four jack screws carry a load during operation.

2.3 DRIVE TRAIN

Drive power is supplied by a DC motor (22) powered by a 230 volt single phase motor control with armature feedback (19). The operating range of the motor is 60 RPM to 1750 RPM.

Two types of drive train systems are used with three basic machinery arrangements.

Type 1 ARR 1 — Adjustable internal ratio - Belt speed range 1" per minute to 10 ft. per minute.

Type 2 ARR 2 — Fixed internal ratio - Belt speed range 4" per minute to 10 ft. per minute and 6" per minute to 15 ft. per minute depending on the speed reducer ratio.

Type 1 ARR 3 — Adjustable internal ratio - Belt speed range 4" per minute to 40 ft. per minute with direct coupling from the transmission to the reducer for high torque design.

The drive motor (22) transmission (65) speed reducer (66), (67), (68) or (69) and the lower drive jackshaft (77) are mounted on the lower machinery plate (49). The lower belt system drive shaft (80), upper reversing jackshaft (77), reversing gears (79) and the upper belt system drive shaft (83) are mounted from the front (56) and rear (57) drive plates. The lower belt system drive shaft (80) drives the lower belt system drive shaft (110) through chain coupling (97).

2.3 (Cont'd.)

The upper belt system drive shaft (83) drives the upper belt system drive shaft (110) through universals (95) and (96). The drive between the universals is spline type to allow free up and down movement of the upper belt system while under power drive.

The different drive train systems are fully described under 2.3.1, 2.3.2 and 2.3.3.

2.3.1 DRIVE TRAIN ARRANGEMENT NO. 1 - TYPE 1

Drive train arrangement No. 1 has adjustable internal ratio. The element ratios are as follows:

(A) DC motor (22) to transmission (65) by belt (61) at ratio 1/1 - fixed

(B) Transmission (65) ratios 1/1, 1.85/1, 3.15/1, 4.15/1 - adjustable

(C) Transmission (65) to reducer (68), (69) by belt (63) at ratio 1/1 - fixed

(D) Reducer (68) or (69) - ratio 60/1 or 61/1 - fixed

(E) Reducer (68) or (69) to lower jachshaft (77) by chain (72) at ratio 2.33/1 - fixed

(F) Lower jackshaft (77) to lower belt system drive shaft (80) by chain (72) at ratio 2.33/1 - fixed
The upper belt system drive shaft (83) is driven at the same speed as the lower belt system drive shaft (80) as follows:

(F1) The lower belt system drive shaft (80) drives the upper jackshaft (87) by chain (72) at ratio 1/1 - fixed

(F2) Upper jackshaft (87) drives the upper belt system drive shaft (83) by gear (79) at ratio 1/1 - fixed

The design variable are the transmission ratios and the selected reducer ratio. The fixed reduction ratio in the chain drive system (E) and (F) is 5.44/1 and is fixed for any of the three drive train arrangements.

2.3.1 (Cont'd.)

By design the belts (105) or (106) move 1.877 feet or 22.53 inches for each revolution of the upper and lower belt drive shafts. With the DC motor speed range 60 RPM to 1750 RPM the available belt speeds with 60/1 or 61/1 reducer are:

Transmission (65) at 4.15/1 - 1 in./min. to 2.4 ft./min.

Transmission (65) at 3.15/1 - 1.3 in./min. to 3.2 ft./min.

Transmission (65) at 1.85/1 - 2.2 in./min. to 5.4 ft./min.

Transmission (65) at 1/1 - 4 in./min. to 10 ft./min.

CAUTION: THE FOUR SPEED TRANSMISSION CANNOT BE SHIFTED WHILE THE DRIVE IS IN OPERATION. ALWAYS STOP THE DRIVE BEFORE CHANGING RATIO.

2.3.2 DRIVE TRAIN ARRANGEMENT NO. 2 - TYPE 2

Drive train arrangement No. 2 has fixed internal ratio. The element ratios are as follows:

(A) DC motor (22) to reducer (67), (68) or (69) by belt (64) at ratio 1/1 - fixed

(B) Reducer (67), (68) or (69) at ratios of 60/1, 61/1 or 40/1 - fixed

(C) Reducer (67), (68) or (69) to upper and lower belt system drive shafts (77) and (87) at a fixed reduction ratio of 5.44/1.

2.3.2 (Cont'd.)

The design variable is the reducer ratio. By design the belts (105) or (106) move 1.877 feet or 22.53 inches for each revolution of the upper and lower belt drive shafts. With DC motor speed range 60 RPM to 1750 RPM the available belt speeds are as follows:

With reducer (67) or (68) at 60/1 or 61/1 - 4 in./min. to 10 ft./min.

With reducer (69) at 40/1 - 6 in./min. to 15 ft./min.

2.3.3 DRIVE TRAIN ARRANGEMENT NO. 3 - TYPE 1

Drive train arrangement No. 3 has adjustable internal ratio.

The element ratios are as follows:

(A) DC motor (22) to transmission (65) by belt (61) at ratio 1/1 - fixed

(B) Transmission (65) - Ratios 1/1, 1.85/1, 3.15/1, 4.15/1 - adjustable

(C) Transmission (65) to reducer (66) by chain coupling (98) at ratio 1/1 - fixed

(D) Reducer (66) at ratio of 15/1 - fixed

(E) Reducer (66) to upper and lower belt system drive shafts (77) and (87) at a fixed reduction ratio of 5.44/1

The design variables are the transmission ratios and the selected reducer ratio. By design the belts (105) or (106) move 1.877 feet or 22.53 inches for each revolution of the upper and lower belt drive shafts.

2.3.3 (Cont'd.)

With the DC motor speed range 60 RPM to 1750 RPM the available belt speeds with 15/1 reducer are:

Transmission (65) at 4.15/1 - 4 in./min. to 9.6 ft./min.

Transmission (65) at 3.15/1 - 5.2 in./min. to 12.8 ft./min.

Transmission (65) at 1.85/1 - 8.8 in./min. to 21.6 ft./min.

Transmission (65) at 1/1 - 16 in./min. to 40 ft./min.

CAUTION: THE FOUR SPEED TRANSMISSION CANNOT BE SHIFTED WHILE THE DRIVE IS IN OPERATION. ALWAYS STOP THE DRIVE BEFORE CHANGING RATIO.

2.4 BEAM SYSTEMS

The belts are carried on a movable top beam system (107) and a fixed bottom beam system (108). The beams (107) and (108) are rigidly constructed with internal bracing (122). The beams are positioned and guided on four precision guide shafts (100), each shaft is positioned and partially supported by guide shaft housings (99) bolted to machined pads on the upper machinery plate (55). The guide shafts (100) are held vertical by the housings. The machined end of each shaft is attached to the supporting pad by a bottom bolt. Four vertical guide bearings (101), bolted to the beam side plates guide and position the beams.

(Cont'd)
The bottom beam system is physically supported on the shaft housings(99)and is held down by shaft collars(102) the top beam system(107)is slidably mounted on the four shafts and is moved up and down by air cylinders. At the top the shafts are tied together by combined cylinder mount and shaft positioning plates(131). Bolts(104) tie the shaft to the positioning structure.

2.4.1 BEAM PRESSURE SYSTEM

Pressure is applied to material placed between the belts by moving the top beam system(107)down to pinch the material between the top and bottom belt system. The top beam is moved by two large air cylinders(44) or (45) for example(7" or 8" stroke). The cylinder rods are clevis mounted (132) to beam drive channels(133)connected to the beam side plates through beam drive plates,(134). The pull force generated by the Puller on the material is a function of the pressure developed by the air cylinders and is controlled by varying the air pressure to the cylinders.

2.5 BELT SYSTEMS

The belt systems are mounted in and supported by the top and bottom beams. Each belt system is comprised of two or more belt tracks (105) (106).

2.5 (Cont'd.)

Each belt track is made up of rubber cleats (120) attached to two strands of No. 50 chain that have special attachments at each roller link. The chain is carried on three strand chain sprockets that have the center row removed. Drive power to each belt system is supplied from the exit end of the beam. Shafts (110) driven from the drive train are supported by bearings (81) or (82) for example, flanged or piloted, mounted on the beams. Each shaft carries drive sprockets (109); one for each track. On the entrance end of each beam, idler shafts (112), supported on bearings (81) or (82) carry idler sprockets (111); one for each belt track. The track chains are placed over the drive and idler sprockets and connected to form endless belt tracks, power driven from the exit end. To adjust chain tension in each belt track a swing arm tensioner is applied. Tensioner sprocket (117) carried on a sealed ball bearing is mounted on the tensioner arm (116). Each tensioner arm is carried on a tensioner adjusting shaft (113) supported from the beam side plates. A slotted locking plate (114) with locking screw (115) is pinned to the adjusting shaft.

2.5 (Cont'd.)

A hex head is furnished on the adjusting shaft for ease in tensioning. The slack in each belt track allows the chain to be connected or disconnected at the tensioner position.

To provide belt support along each belt track and to improve pressure distribution between the cleats and the material being pulled, pressure sprockets (123) are applied along each belt track, with the sprockets applied in pairs on the opposing belt tracks. The sprockets, carried on sealed ball bearings are mounted on shafts (123) supported internally on the beam side plates by rails (125).

SUPPLEMENT

THIS APPLIES TO 10 BELT PULTRUSION PULLERS ONLY

2.5.1 Removal of Belts:

This machine is supplied with a chain removal tool. To remove a belt, first locate the chain connecting unit and position the belt so that the link is mid-way between the drive or idler sprocket and the tension sprocket (117). Remove the tensioner on the belt by loosening screw (115) and pivoting the tensioner arm. Remove two cleats either side of the chain connecting link. Use the chain removal tool, gripping the chain links at the links where the cleats were removed furthest from the connecting link. Tension the chain with the tool and remove the connecting link

2.6 AIR CONTROL SYSTEM

Air to the Puller is brought in at the air supply connection (35). The air is cleaned and dried by an automatic drain filter (39). Plastic air hose (36) carries supply air to the air pressure regulator (42) mounted on the air panel (40). Regulated air pressure is indicated by the guage (43) on the air panel. Operating air to cylinders (44) or (45) for example, (7" or 8" stroke) supplied through air hose (37) is controlled by infinite positioning manual valve (46) on the air panel. Moving the handle down moves the top beam down. Moving the handle up moves the top beam up. The beam pressure is a function of the regulated air pressure and air pressure should always be high enough to prevent belt slippage.

PART 3

ELECTRICAL SYSTEM

.0 ELECTRICAL SYSTEM

3.1 ELECTRICAL POWER SUPPLY

The electrical supply is convered in 1.2.3.

3.2 DC VARIABLE SPEED DRIVE SYSTEM

Power to drive the Puller is provided by a DC motor (22). The motor is totally enclosed, non ventilated. The 230 volt, single phase motor control with armature feedback supplies DC to the motor field at 200 volts (constant) and DC to the motor armature at 180 volts maximum, (variable from 7 volts to 180 volts). Armature voltage is controlled by the remote speed control potentiometer (13) in remote box (18).

With the potentiometer counter-clockwise to zero, the motor runs at minimum speed 60 RPM (7 volts DC on armature) providing minimum belt speed for the selected internal ratio of the drive train. With the potentiometer clockwise to 10 turns, the motor runs at 1750 RPM (180 volts on the armature). Providing maximum belt speed for the selected internal ratio of the drive train.

The Drive Train

The 10 turn potentiometer provides essentially stepless speed control over the range. Minimum and maximum speeds can be changed only by changing the drive train ratio.

3.3 ELECTRICAL CONTROL SYSTEM

The drive system incorporates a packaged 230 volt DC motor control with armature feedback (19), with internal fuse (11), mounted in control box (8) with cover (9). Wiring of the control components into the motor control unit are shown on the electrical schematic. Power at 230 volts, single phase, 60 HZ or 460 volts, single phase, 60 HZ is brought into the junction box (7) through power cord (2) equipped with polarized plug (1); wired for single phase. The remote potentiometer is wired directly to the control unit (19) through 4 wire shielded cable (4). Where the Puller Start-Stop buttons are supplied remote they are wired directly to the control unit (19) through 4 wire control cable (3).

At supply voltages above 230 volts, an internal power step down transformer (16) is always furnished as the motor control is single voltage.

Power to the motor control is supplied through a circuit breaker (27) on the electrical panel (41). When drive power is on, the red pilot light (28) is on. A blank hole (33), in the control panel is provided for the Puller start button (29) when the remote Start-Stop option is not provided.

.3 (Cont'd.)

A Puller stop button (30) is provided on the panel. Where remote Start-Stop is provided, a second stop button (30) is supplied on the remote box (12).

Belt speed, directly proportional to armature voltage is read on a panel meter (26) calibrated in feet per minute. Running hours are recorded on a panel meter (25). Where blowers are supplied, the 115 volt blower motor (23) is supplied through a 50 VA step-down transformer (17). The blower operates only while drive power is on.

3.4 TEST OF ELECTRICAL FUNCTIONING

1. Connect air to the machine at the inlet connection (35). Pressure should be 80 PSI minimum. Set the belt pressure regulator (42) at about 30 PSI on gauge (43).
2. Set the remote speed control potentiometer (13) at about ½ speed (5 turns).
3. Turn the circuit breaker (27) off.
4. Connect the Puller to power, 230 volts or 460 volts.
5. Turn the circuit breaker (27) on.
6. The red power on pilot light (28) should come on.
7. With the manual valve (46) move the top beam up and down to establish beam control.

.4 (Cont'd,)

8. Press the start button (29). The green light in the button will come on and the belts will be driven at an intermediate speed. Start and stop the drive several times to establish that Start-Stop is fully operable.

9. With the drive on, operate the belts over the full speed range using the remote speed control.

10. If the drive has a four speed transmission (65), check the speed range over each ratio.

PART 4

SERVICING THE UNIT

4.0 SERVICING THE UNIT

4.1 MECHANICAL INSPECTION AND ADJUSTMENT

4.1.1 AIR FILTER

The air filter (39) is automatic drain type and does not require maintenance.

4.1.2 AIR CYLINDERS

The two large air cylinders (44) or (45) are pre-lubricated for the life of the machine.

4.1.3 AIR VALVE

The air valve is shear seal type. If leakage develops replace the three internal seals.

4.1.4 TIMING BELTS

The timing belts should be inspected regularly for wear. A worn belt should be replaced immediately. The belts are steel cable reinforced and do not stretch.

4.1.5 DRIVE CHAIN TENSION

Slack in the 80-2 drive chain (72) is taken up by tensioners (73) lower drive, (73) upper drive and (74) lower drive shaft to upper jackshaft. Do not over-tighten the chain.

4.1.6 BELT TENSION

Each belt track is equipped with a swing arm tensioner, Remove slack only with belts in pressure contact. Do not over-tighten.

4.1.7 BELT CLEATS

The belt cleats (120) should be inspected regularly. Cleats can be removed at the tension sprocket position by dropping adjacent tensioner sprockets to provide room to apply a ratchet type hex wrench to remove the 10-32 socket head cap screws that anchor the cleat to the chain.

Water or oil on the cleats seriously affects pulling capability and should be removed.

4.2 MACHINE LUBRICATION

4.2.1 DC MOTOR

The DC motor is ball bearing type and is equipped with bearing grease ports. Regrease using No. 2 lithium base ball bearing grease.

4.2.2 BLOWER MOTOR

The blower motor, when supplied, is prelubricated for the life of the machine.

4.2.3 TRANSMISSIONS

The transmission was lubricated at the factory. Drain and refill with EP gear lubricant SAE 140 every 2000 hours of operation.

4.2.4 REDUCER

The reducer was lubricated at the factory. Drain and refill with EP gear lubricant SAE 140 every 2000 hours of operation, drain through plate (49). Refill through hole in plate (55).

4.2.5 DRIVE CHAIN AND SPROCKETS

The 80-2 drive chain (72) should be lubricated regularly. Brush on a light coat of No. 2 lithium base ball bearing grease.

4.2.6 GEARS

A lubrication fitting (84) is provided for lubricating the gears (79). Grease regularly using No. 2 lithium base ball bearing grease.

4.2.7 UNIVERSALS

Lubricate the universlas (95) and (96) regularly. Use No. 2 lithium base ball bearing grease.

4.2.8 GUIDE BEARINGS

The guide bearings (101) are equipped with lubrication fittings. Lubricate regularly using No. 2 lithium base ball bearing grease.

.2.9 BALL BEARINGS - ROLLER BEARINGS

All flange ball bearings are equipped with lubrication fittings. Lubricate regularly with No. 2 lithium base ball bearing grease.

All belt tensioner sprockets are equipped with prelubricated and sealed ball bearings. There is no provision for lubrication.

All belt pressure sprockets are equipped with prelubricated and sealed ball bearings. There is no provision for lubrication.

The 80-2 chain tensioner sprockets are roller bearing. They are equipped with lubrication fittings. Lubricate regularly with No.2 lithium base ball bearing grease.

PART 5

DRAWINGS

5.0	DRAWINGS	
5.1	ELECTRICAL SCHEMATIC RH AND LH PULLERS	
	230 volts and 460 volts - no options	C - 115L - 120 A
5.2	ELECTRICAL REVISION - BOX OPTION	B - X540 - 124
5.3	AIR SCHEMATIC	B - X540 - 010
5.4	DRIVE TRAIN ARRANGEMENTS	C-- X540 - 125
5.5	WER 200 A MANUAL	
5.6	WER 990 - 1A CONNECTION DIAGRAM	
5.7	WER 990 - 1 ELECTRICAL SCHEMATIC	
5.8	EQUIPMENT PHOTOGRAPHS	EP - 150-001 EP - 150-002 EP - 150-003 EP - 150-004 EP - 150-005

PART 6

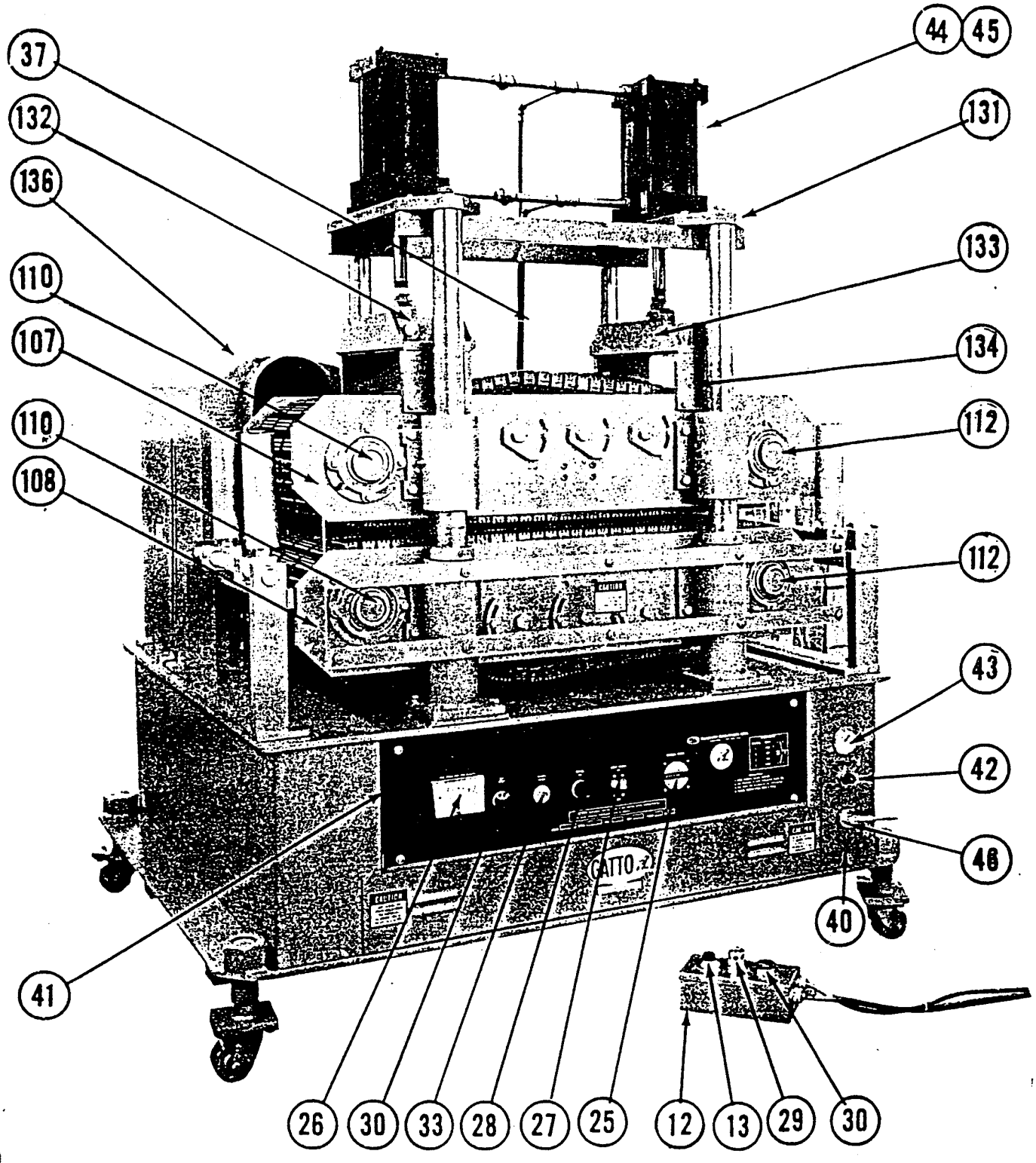
SPARE PARTS

6.0 SPARE PARTS

ITEM		QUANTITY
1	Power Plug - 4 prong polarized	1
2	Power Cable - 12 AWG/ 3 wire	12 Ft.
3	Control Cable - 16 AWG/ 4 wire	50 Ft.
4	Control Cable - Shielded - 16 AWG/ 4 wire	50 Ft.
11	Rectifier Fuse - Buss - 35 AMP	2
13	Potentiometer - 10 turn - 2K	1
19	230 Volt Motor Control with Armature Feedback	1
22	DC Drive Motor	1
23	Ventilation Blower - 115 Volts - 60 HZ	1
25	Elasped Time Meter	1
26	Belt Speed Meter	1
27	Circuit Breaker - 30 AMP	1
28	Pilot Light - Red	1
29	Start Pushbutton - with pilot light	1
30	Stop Pushbutton - Mushroom Head	1
32	Pilot Light Bulb	6
42	Air Pressure Regulator - ½" Ports - 0 to 60 PSI	1
43	Air Pressure Gauge - 2½" diameter - 0 to 100 PSI	1
46	Air Valve - Manual - 4 way	1

.0 (Cont'd.)

ITEM		QUANTITY
51	Vee Caster - Swivel	4
61	Timing Belt 450 H 100	1
63	Timing Belt 240 H 100	1
64	Timing Belt 270 H 100	1
70	Shear Pin for Shear Pin Sprockets	2
78	4 Bolt Flange Bearings - 1 3/4" Bore	2
81	4 Bolt Flange Bearings - 2" Bore - Piloted or	4
82	4 Bolt Flange Bearings - 2" Bore - Plain	4
95	Drive Universal	1
96	Driven Universal	1
117	Belt System Tensioner Sprocket Bearing	6
120	Urethane Belt Cleat	50
121	Cleat Carrier Chain No. 50 with attachment	50 Ft.
123	Belt System Pressure Sprocket Bearing	12
135	Plastic Guard	1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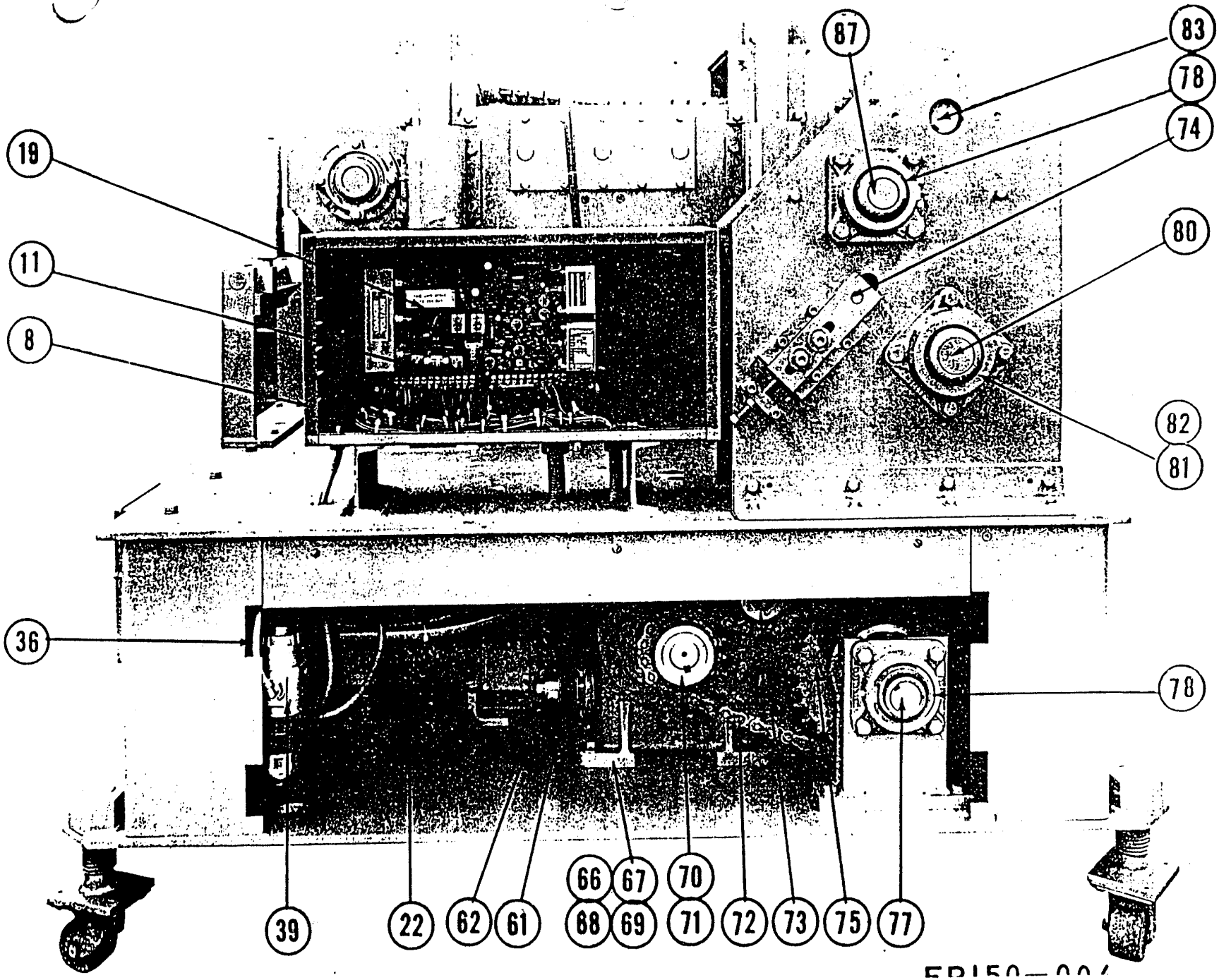
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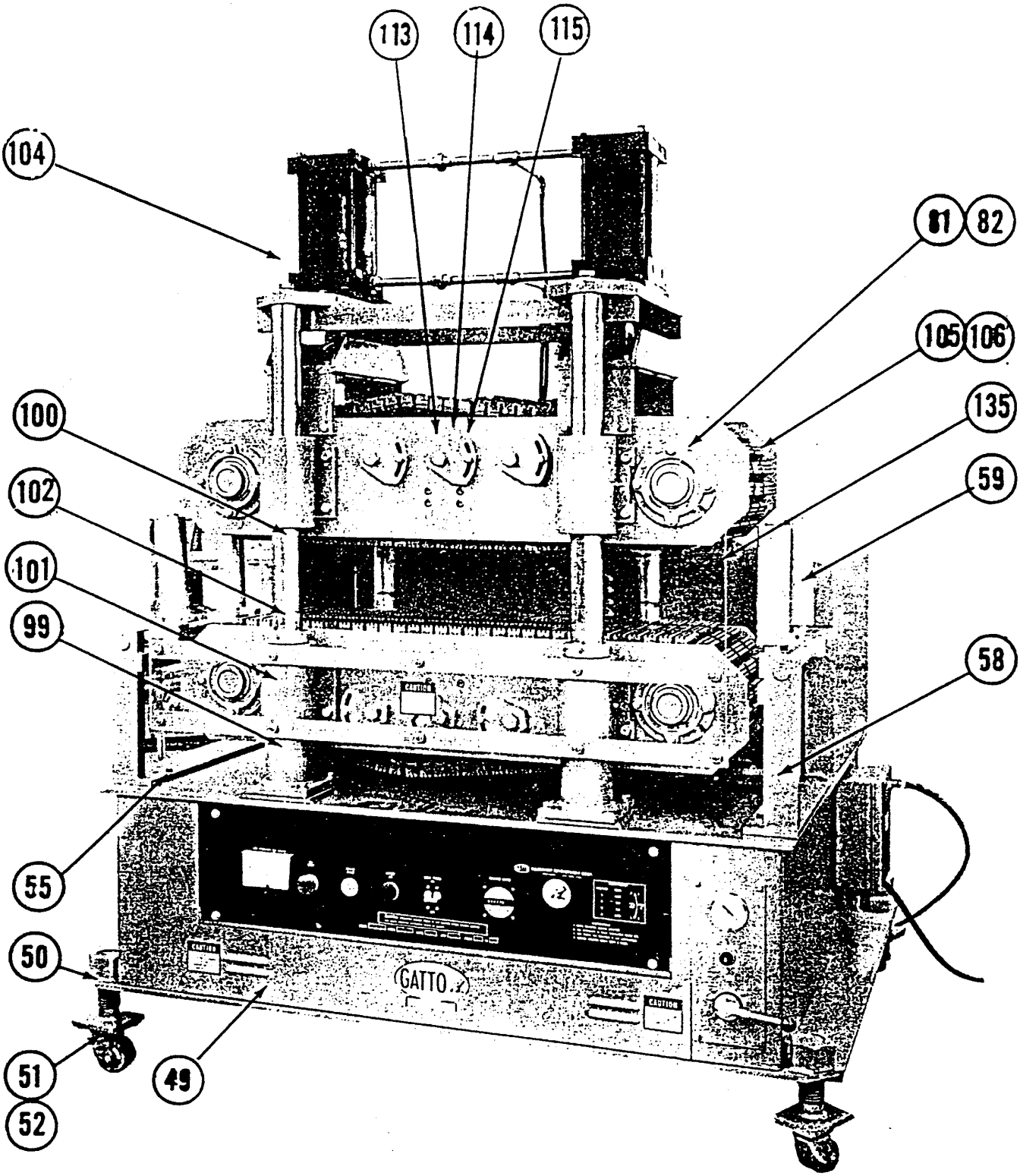
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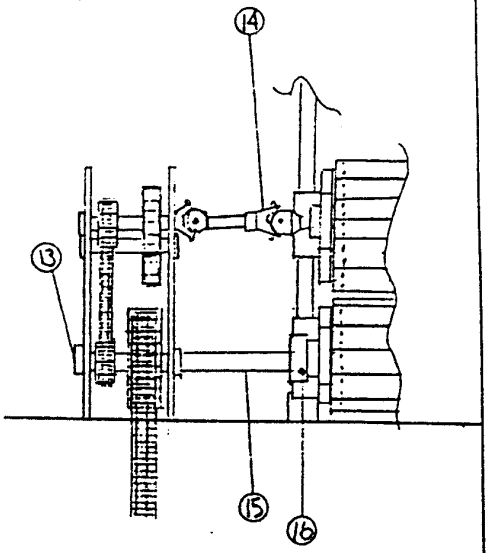
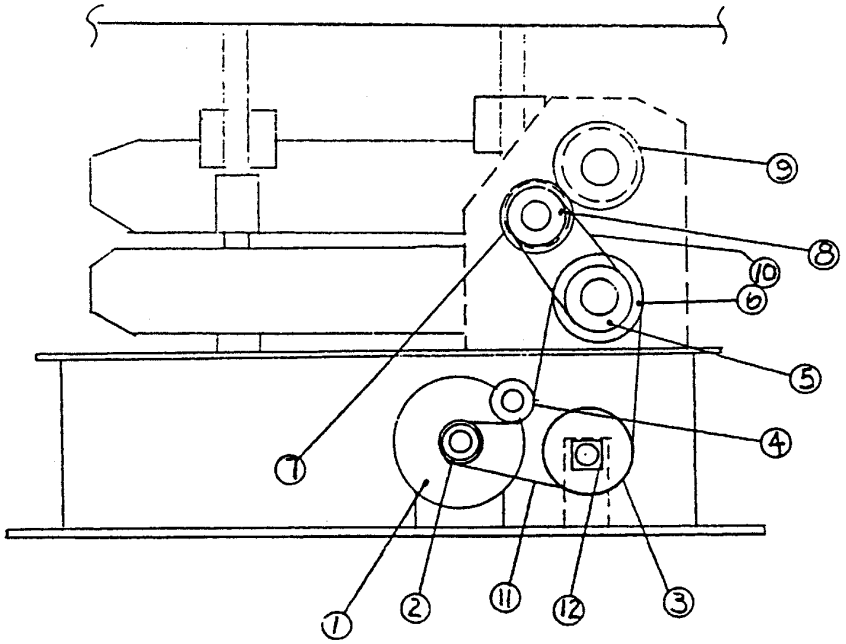
GATTO

EP150—005

REV.	DESCRIPTION	DATE	BY	APP.





ITEM	PART No.	QTY.	MATERIAL	DESCRIPTION

NOTES:
EXCEPT AS NOTED FINISH ALL OVER TO √
BREAK ALL CORNERS UNLESS OTHERWISE NOTED
DO NOT SCALE PRINT

TOLERANCE UNLESS OTHERWISE NOTED

FRACTIONS	± 1/64
DECIMALS	± .005
ANGLES	± 1/4°
WELDMENTS	± 1/16

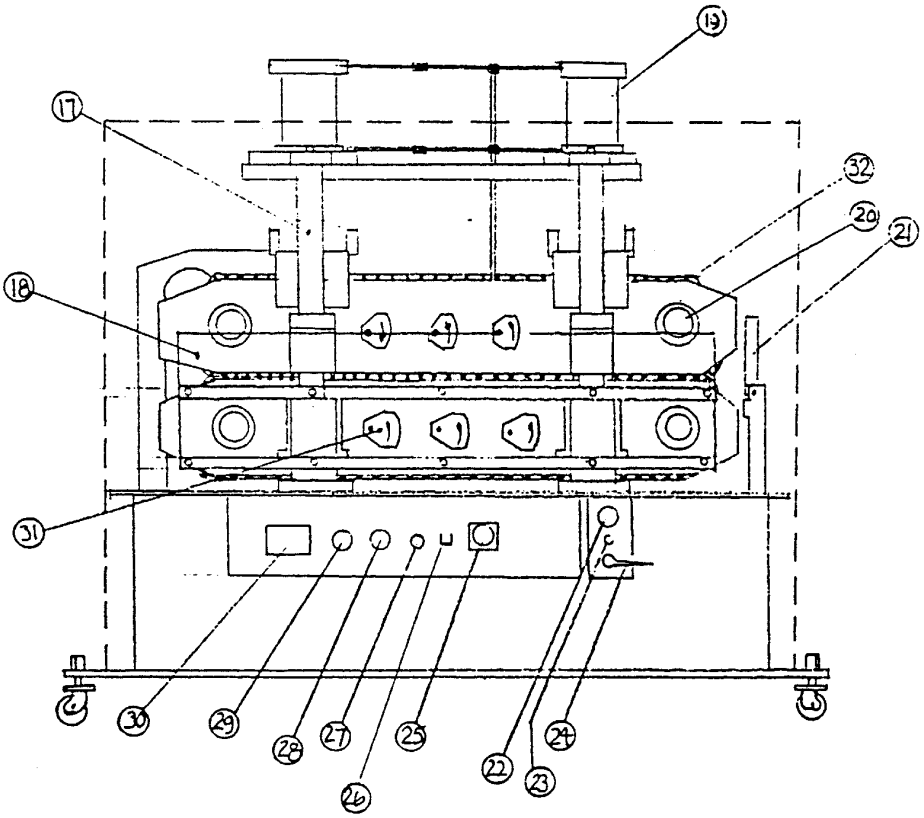
GATTO MACHINERY DEVELOPMENT CORP.

DESIGNED BY	DATE	MATERIAL
DRAWN BY ABM	DATE 3-7-77	

TITLE: PP207-12P PULTRUSION PULLER

SCALE 1:32 | A | REV.

REV.	DESCRIPTION	DATE	BY	APP.



ITEM	PART No.	QTY.	MATERIAL	DESCRIPTION

NOTES:
EXCEPT AS NOTED FINISH ALL OVER TO $\sqrt{}$
BREAK ALL CORNERS UNLESS OTHERWISE NOTED
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TOLERANCE UNLESS OTHERWISE NOTED

FRACTIONS	± .1/64
DECIMALS	± .005
ANGLES	± 1/4°
WELDMENTS	± 1/16

GATTO MACHINERY DEVELOPMENT CORP.

DESIGNED BY	DATE	MATERIAL
DRAWN BY ABM	DATE 3-7-77	

TITLE: PP207-12P PULTRUSION PULLER

SCALE		REV.
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