

# INSTALLATION INSTRUCTIONS/ OPERATORS MANUAL

This manual provides  
Installation & Operating instructions for

## *BUS-TRAC SYSTEM*

### **NOTIFY CARRIER OF DAMAGE AT ONCE.**

It is the responsibility of the consignee to inspect the container upon receipt of same and to determine the possibility of any damage, including concealed damage. Avtec suggests that if you are suspicious of damage to make a notation on the delivery receipt. It will be the responsibility of the consignee to file a claim with the carrier. We recommend that you do so at once.

Manufacture Service/Questions 888-994-7636.

Information contained in this document is known to be current and accurate at the time of printing/creation. Unified Brands recommends referencing our product line websites, [unifiedbrands.net](http://unifiedbrands.net), for the most updated product information and specifications.

# AVTEC.



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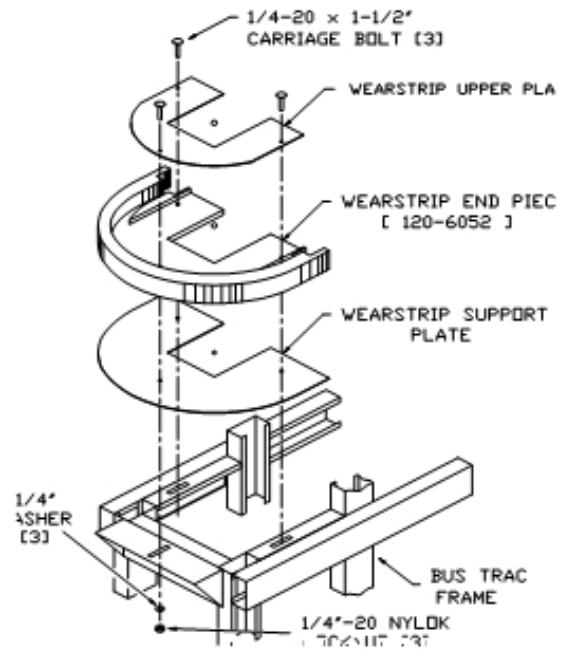
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# INSTALLATION INSTRUCTIONS

## I. BUS-TRAC INSTALLATION

- A. It is important that the Bus-Trac be mounted level in order to help ensure proper drive component alignment which minimizes drive train wear.
- B. If the unit is supported by a wall, shims can be placed between the Bus-Trac's frame and the top of the wall. These shims should be either welded in place or held in place by the bolts which secure the Bus-Trac frame to the wall.
- C. If the Bus-Trac is supplied with a stainless steel base, be sure that the floor area where the base is to be located is flat and level. Secure the base to the floor by bolting through the base frame into the floor. Secure the Bus-Trac frame to the base with the bolts supplied.



## II. CHAIN ASSEMBLY

- A. Normal operation of the Bus-Trac causes chain stretch and wear. The service life of the Bus-Trac chain expires when it has stretched 3%. The original AVTEC chain is installed with offset links which account for 3% of its total length. Stretch is compensated for by removal of the offset links. When all offset links are removed the chain has reached its service limit and must be replaced. Whenever chain replacement is required the associated sprockets should also be replaced.
- B. Interim tension can be maintained without removing any offset links. To do this, move the shafts outward as follows: [Refer to fig. 1]
  1. Loosen the gearbox mounting bolts [4] and back-off the gearbox tensioning bolts [2].
  2. Loosen the shaft bearing mounting nuts [4 per bearing]. [Top and bottom]
  3. Loosen the end wear strip mounting nuts [3 per end piece].
  4. Loosen the jam nuts on the bearing tensioning bolts.
  5. Adjust tension on the driven chain by moving the bearings outward using the bearing tensioning bolts until the chain slack has been removed. Adjust the tension by moving the driven shafts outward equally at both ends. Use a level to make sure that the shafts are vertical.

**IMPORTANT: The upper and lower tensioning bolts must be moved equal amounts.**

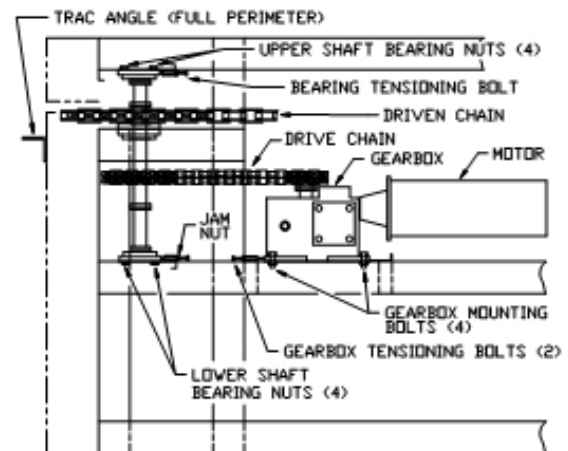


fig. 1

6. When the slack has been removed,
7. Tighten the jam nuts on the bearing tensioning bolts.
8. Tighten the shaft bearing mounting nuts.
9. Tighten the wear strip mounting nuts.
10. Remove the slack from the drive chain by moving the gearbox/motor assembly using the gearbox tensioning bolts.
11. Tighten the gearbox tensioning bolt jam nuts.
12. Tighten gearbox mounting bolts.

- C. When the shaft bearings and/or wear strips have reached their outward limits, additional tension is achieved by removing offset links from the driven chain. When all of the offset links have been removed and the shaft bearings and/or

wear strips have reached their outer limits, the chain is considered to have reached its service limit. Any additional wear would require replacement of the driven chain and associated sprockets.

- D. Offset links are removed by removing the cotter pins from the roller chain shafts and removing the end plates[s]. Re-assemble the roller chain and insert new cotter pins to hold the end plate[s] in place.
- E. If the tray carrier attachment brackets must be replaced, care must be taken when tightening the nuts which hold the brackets in place. Over-torquing the nuts could pull the shoulders off of the roller chain shafts [Refer to fig. 2].

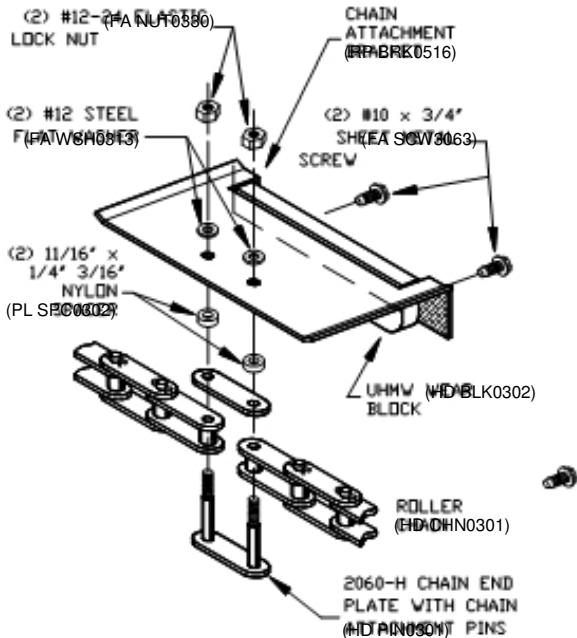


fig. 2

### III. MOTOR

- A. Brush replacement @ 2500 hours or one [1] year.

### IV. BEARING MAINTENANCE

- A. Lubricate [using Zirk fittings] after one [1] month or 250 hours of operation.
- B. Lubricate after every four [4] months or 500 hours of operation thereafter.  
Recommended lubricants:  
Lubrico Type M-6  
AVTEC part no. FL LUB0302 Bearing Grease

### V. CHAIN MAINTENANCE

- A. Use a spray lubricant on the drive and

driven chains after one [1] month or 250 hours of operation.

- B. Lubricate after every four [4] months or 500 hours of operation thereafter.

Recommended lubricants:  
McMaster Carr No. 6159K11 Roller Chain Lubricant

### VI. OPERATION

- A. The Bus-Trac is equipped with one or more pairs of push buttons which are used to start and stop the motor. Depressing any of the start buttons will start the tray carriers in motion. Depressing any of the stop buttons will stop the motor. These switches are intended to start and stop the motor at the beginning and end of the busing period or whenever the Bus-Trac will not be used for an extended period of time.

- B. The tray carrier speed can be changed [when the Bus-Trac is on] by turning the speed control knob. Turn the knob counter-clockwise to slow the Bus-Trac and clockwise to increase speed. [Maximum speed is approximately sixteen feet per minute (16 fpm)].
- C. An optional limit switch may be provided which will turn off the Bus-Trac if something becomes caught on the tray carrier[s] or if something protrudes too far beyond the edge of the tray carrier(s). To resume Bus-Trac operation, clear the obstruction, then press the start button.

### VII. ELECTRICAL REQUIREMENTS

120vac, 20 amps, 60 hz

### VIII. CLEANING

- A. It is important to keep the AVTEC Bus-Trac clean in order to avoid an unsanitary condition. The AVTEC Bus-Trac is designed with easy cleaning in mind. It is recommended that electrical power be turned OFF while cleaning. Removable baskets can be cleaned in all types of dish machines. Sponge the exterior of the unit clean with warm, soapy water and wipe with a clean towel. DO NOT HOSE DOWN the Bus-Trac, as this may remove lubricants from the chain, causing premature wear. DO NOT USE STEEL WOOL, SOS or BRILLO PADS or other abrasive pads or cleaners on any part of the unit, as it will mar the finish.

B. Individual 2 and/or 3 tier tray carriers may be removed for cleaning and will fit in any 20" x 20" dish rack. Carriers are located on certain tray hanger rungs, according to specific operation.

## **IMPORTANT SAFETY INSTRUCTIONS FOR BUS TRAC**

**WARNING** - When using electric appliances, basic precautions should always be followed, including the following:

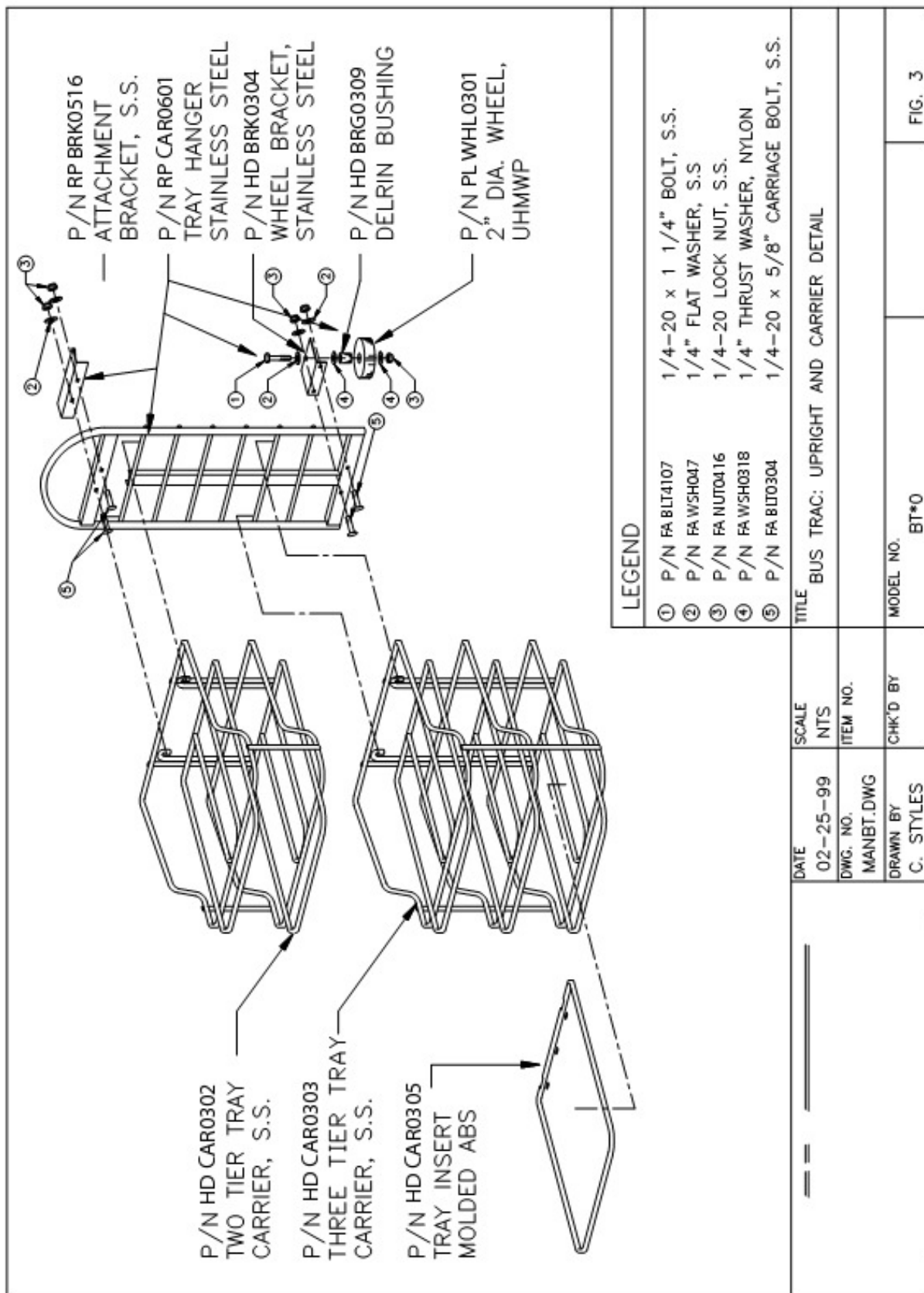
- a) Read all the instructions before using the appliance.
- b) To reduce the risk of injury, close supervision is necessary when an appliance is used near children.
- c) Do not contact moving parts.
- d) Only use attachments recommended or sold by the manufacturer.
- e) Do not use outdoors.
- f) For a permanently connected appliance - Turn the power switch to the off position when the appliance is not in use and before servicing or cleaning.

## **SAVE THESE INSTRUCTIONS**

### **GROUNDING INSTRUCTIONS FOR PERMANENTLY CONNECTED APPLIANCES**

This appliance must be connected to a grounded, metal, permanent wiring system; or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment-grounding terminal or lead on the appliance.

IX.BUS-TRAC: UPRIGHT AND CARRIER DETAIL

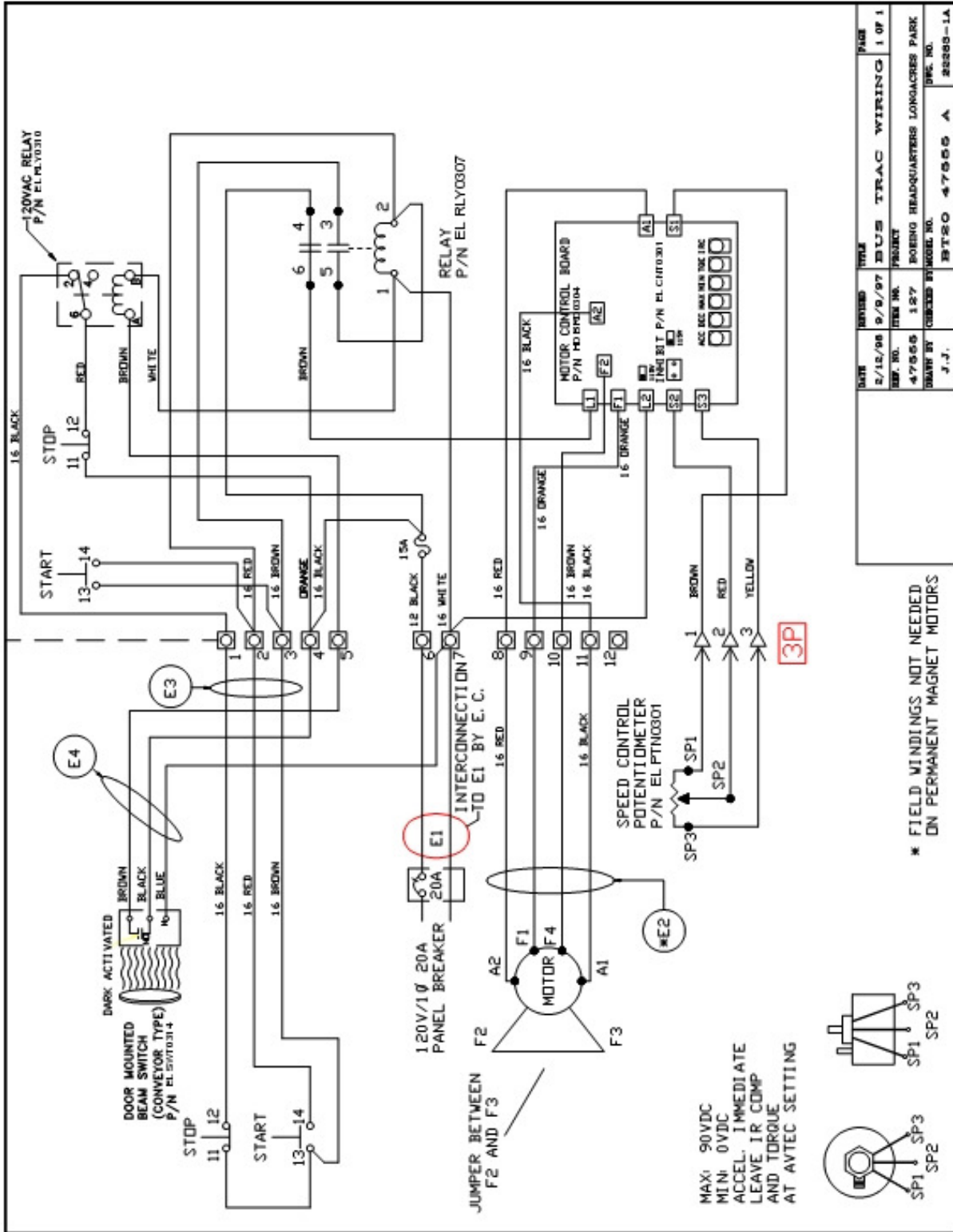


LEGEND

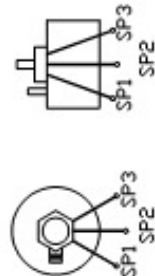
- ① P/N FA BLT4107 1/4-20 x 1 1/4" BOLT, S.S.
- ② P/N FA WSH047 1/4" FLAT WASHER, S.S.
- ③ P/N FA NUT0416 1/4-20 LOCK NUT, S.S.
- ④ P/N FA WSH0318 1/4" THRUST WASHER, NYLON
- ⑤ P/N FA BLT0304 1/4-20 x 5/8" CARRIAGE BOLT, S.S.

DATE	SCALE	TITLE
02-25-99	NTS	BUS TRAC: UPRIGHT AND CARRIER DETAIL
DWG. NO.	ITEM NO.	
MANBT.DWG		
DRAWN BY	CHK'D BY	MODEL NO.
C. STYLES		BT*0
		FIG. 3

X. BUS-TRAC: MOTOR CONTROLLER WIRING SCHEMATIC



\* FIELD WINDINGS NOT NEEDED ON PERMANENT MAGNET MOTORS



DATE	REVISED	TITLE	PAGE
2/12/98	9/9/97	BUS TRAC WIRING	1 OF 1
REV. NO.	REV. NO.	PROJECT	
47555	127	BOEING HEADQUARTERS LONGACRES PARK	
DRAWN BY	CHECKED BY	MODEL NO.	REV. NO.
J.J.		BT-20 47555 A	28289-1A

XI. BUS-TRAC PARTS LIST

<u>ITEM NO.</u>	<u>AVTEC PART NO.</u>	<u>DESCRIPTION</u>
1	HD BLK0302	UHMW Wear Block
2	HD CAR0305	Bus-Trac Carrier Plastic Insert
3	HD CAR0302	2 Tier Tray Carrier S/S
4	HD CAR0303	3 Tier Tray Carrier S/S
6	RP CAR0601	Bus Trac S/S Upright w/integrated Wheel and chain attachment brackets
7	HD BRG0309	WheelInsert
8	PL WHL0301	Wheel UHMW
9	RP BRK0610	S/S Lockout Bracket
10	HD BRK0304	Wheel Bracket
11	RP BRK0515	Chain Attachment Bracket "A"
12	RP BRK0516	Chain Attachment Bracket "B"
13	EL FUS0307	Fuse, 10 amp
14	EL BLK0315	Fuse Holder
15	RP PLT0301	Chain End Plate w/attachment
16	HD BRG0302	Bearing
17	HD RED0303	Gear Reducer [24MDVD]
18	HD RED0304	Gear Reducer [930MDVD]
19	EL SWT0304	Switch [Star]-Green w/N.O. Contact Block
20	EL SWT0305	Switch [Stop]-Red w/N.C. ContactBlock
23	EL TPE0302	Reflector (arm mounted small round 1")
24	EL SWT0314	Beam Switch (arm mounted)
25	HD BEA0314	Beam Switch (wall Mount)
26	EL TPE0306	Reflector (sill mounted small rectangle)
27	EL PTN0301	10K ohm Potentiometer
28	HD BRD0304	DC Motor Control Board
29	HD BRS0301	Brush Motor Replacement 3/4 hp
30	HD BRS0303	Brush Motor Replacement 1hp
31	EL MTR0203	Motor, 3/4 hp
32	EL MTR0331	Motor, 1 hp
33	FA NUT0416	1/4-20 Fiber Nut
34	FA WSH047	1/4-20 Washer S/S
35	FA BLT4107	1/4-20 x 1 1/4 Bolt S/S
36	FA WSH0318	Black Plastic Spacer

## XII. CALIBRATION PROCEDURE FOR MOTOR CONTROLS

### TOOLS REQUIRED:











Multi tester [Auto range]  
 Small Non-Metallic Screwdriver  
 Speed Indicator

Before connecting power supply:

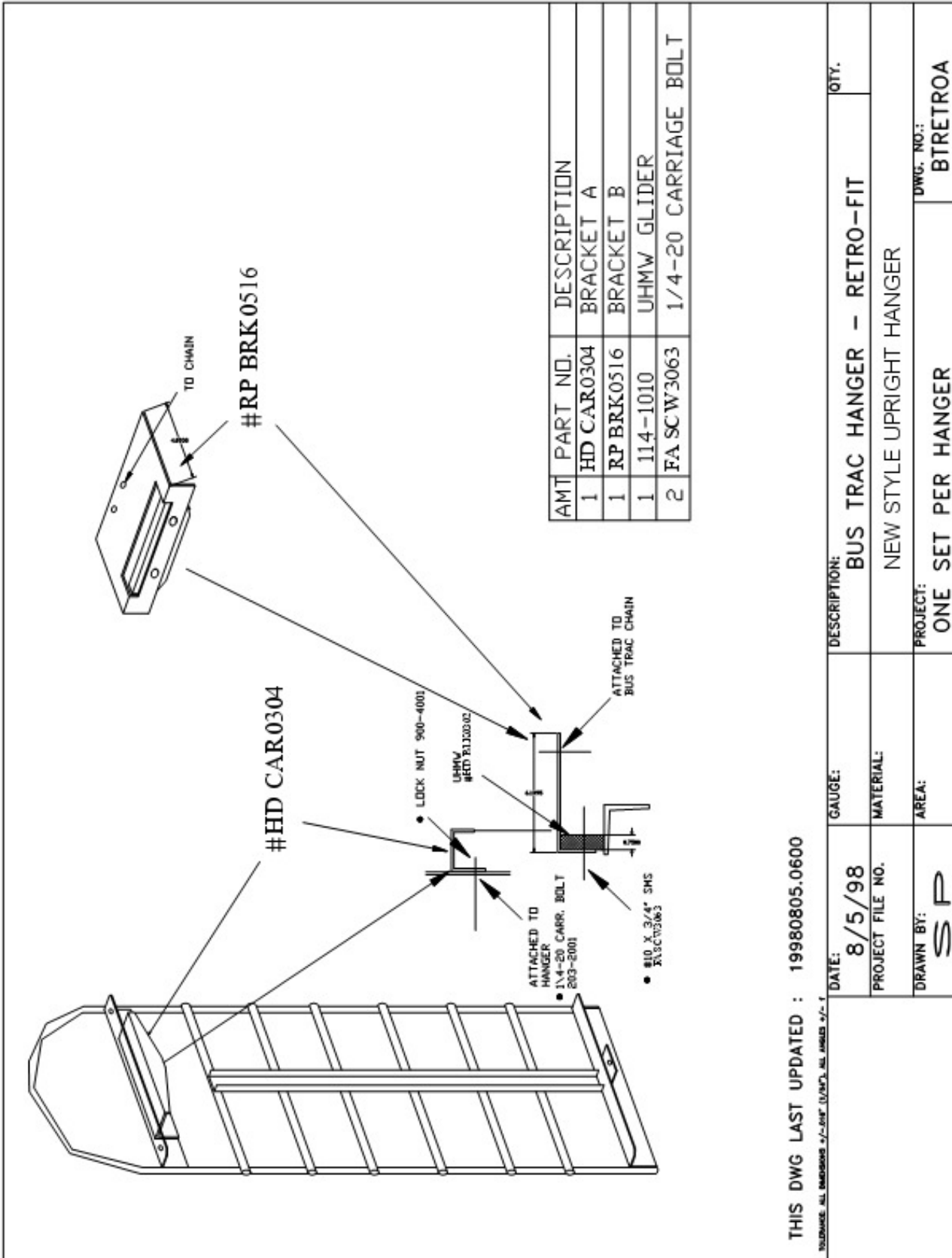
1. Set the two slide switches for the correct input voltage.
2. Set the MAX SPEED pot to full counterclockwise.
3. Set the MIN SPEED pot to full counterclockwise.
4. Set the IR COMP pot to the setting shown below for the correct horsepower.
5. Set the TORQUE pot to the setting shown below for the correct horsepower.

With the power supply connected:

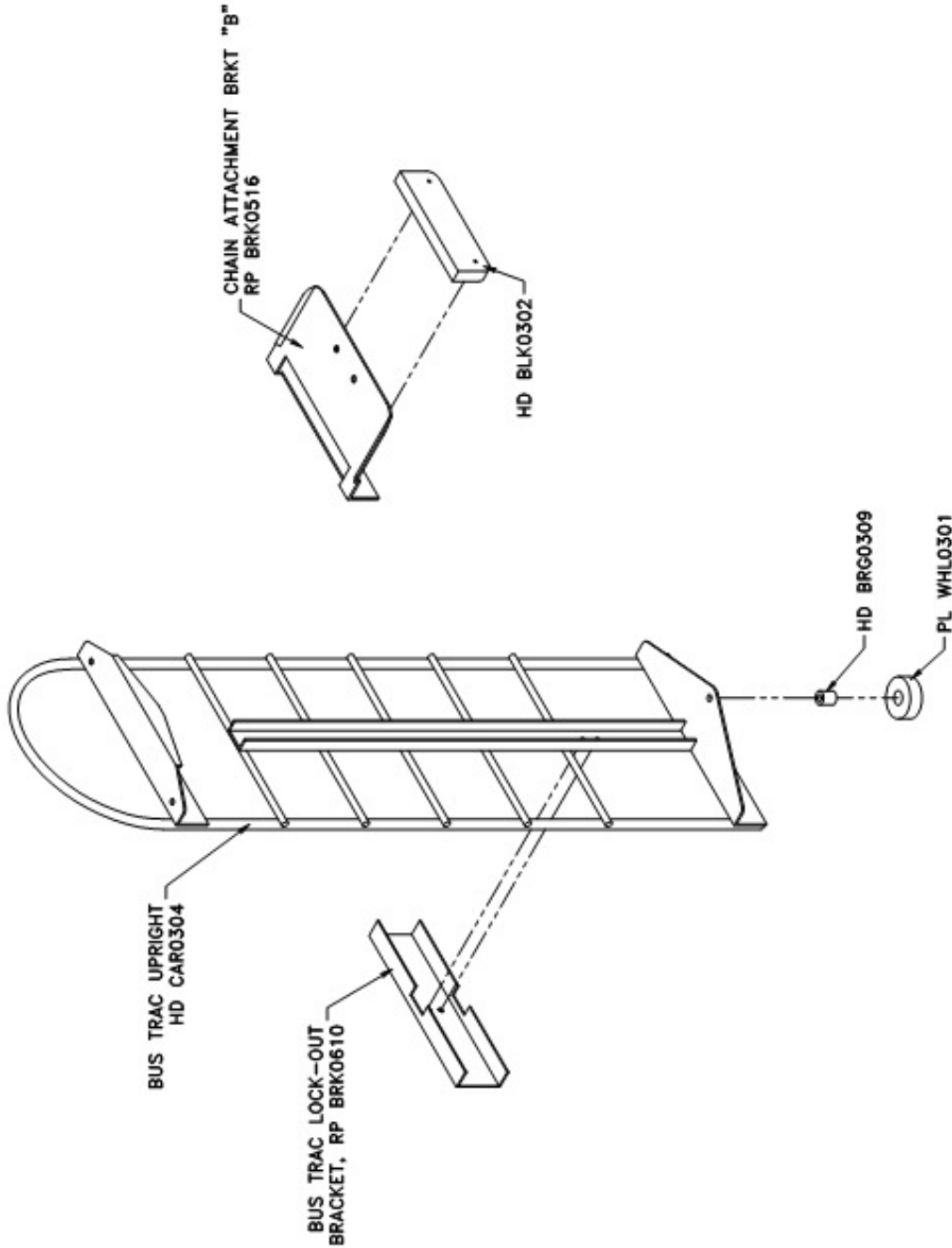
1. Set the multi tester to VOLTS AC and measure the input voltage to the control. If incorrect, disconnect the power supply and correct the problem.
2. Disconnect the multi tester and set to measure VOLTS DC. Attach leads to the motor side of the control.
3. Set the speed indicator on the front panel to 100 or full speed.
4. Adjust the MAX SPEED pot until the VOLTS DC equals the armature voltage listed on the motor nameplate.
5. Calibration is complete.

90VDC [180VDC]	1HP	3/4HP	1/2HP	1/4HP	1/8HP
	[2HP]	[1-1/2HP]	[1HP]	[1/2HP]	[1/4HP]
TORQUE					
IR COMP					

XIII. BUS-TRAC HANGER - RETRO-FIT



XIV. PRESENT BUS-TRAC HANGER (Complete Part Number RP CAR0601)



<b>AMTEC.</b>		DATE: 20061005	GAUGE:	DESCRIPTION: BUS TRAC HANGER	LASER:	GRAIN:	QTY.:
		PROJECT/REF NO.: X	MATERIAL:	THIS DWG LAST ISSUED : 20061005.0942			
		DRAWN BY: MY	AREA:	PROJECT NAME: UPRIGHT-ISO			