Revised: 3/1/12

SPECIAL PURPOSE PERSONNEL ELEVATOR MANUAL

THIS MANUAL PREPARED FOR:

DATE:

CUSTOMER:

INSTALLED BY

STYLE STATE

TRAVEL NUMBER OF LANDINGS

CAPACITY

ELECTRICAL CLASSIFICATION

WIRING DIAGRAM:
DRAWINGS:

GUIDE RAILS: (CAR) 8 lb machine tee
(COUNTERWEIGHT) 6 lb machine tee

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NOTICE

BEFORE ANY

MAINTENANCE OR

SERVICE IS PERFORMED

ON THIS SPECIAL

PURPOSE PERSONNEL

ELEVATOR, IT MUST

BE LOCKED OUT IN

ACCORDANCE WITH

CURRENT OSHA AND

NEC REQUIREMENTS!

3/1/12

This manual is generic in nature for use with the five (5) capacity sizes of Sidney Special Purpose Personnel Elevators: 300 lbs., 500 lbs., 650 lbs., 750 lbs. and 1000 lbs. capacities.

Some diagrams and drawings found in this manual are also generic to all elevators and others are specific to the capacity and design characteristic of your elevator.

Those diagrams and drawings, which are generic and intended for reference only, may not reflect your exact installation.

Please feel free to contact *Sidney Manufacturing Company* if you have any questions about the installation, operation, maintenance or testing of your special purpose personnel elevator.

PURPOSE - The *Sidney Line* - Special Purpose Personnel Elevator - will provide safe vertical transportation in a wide variety of structures and locations such as feed mills, grain elevators, towers and other places where elevators of this type are permitted by the enforcing authority. This elevator cannot be accessible to the general public but is for the limited use of authorized personnel only. The *Sidney Line* - Special Purpose Personnel Elevator - embodies safety devices and features to promote maximum safety for the operator.

The Department of Labor, Division of Elevator Safety of your state must be consulted before installing this equipment and the proper installation permits secured. Some states also require the installing contractor to be licensed. Most states and many cities require conformity to a code which has been developed as a result of much study, research and many hearings in an effort to safe-guard the life and health of those using this type of equipment. Conformity to the code may require certain safety measures and installation procedures of the contractor as well as particular features in the design of the elevator, which the manufacturer has made every effort to abide by.

The purpose of this manual is to describe the operation; maintenance and testing for the increased safety which may or may not be required for code conformity. Diagrams will give installation information but regulations pertaining to the required clearances, shaftway construction, wiring, etc. are the responsibility of the installing contractor. Sidney Manufacturing Company will be glad to assist in the above areas and answer your questions.

The following information is intended for use as a helpful guide during installation but is not to be construed as a detailed or complete step by step installation process.

The installation of this elevator must be done by personnel experienced in the installation of elevators and familiar with elevator codes and standards as well as general safety practices and State and Federal (OSHA) regulations pertaining to the construction industry that must be followed.

In most states, an elevator installation permit must be obtained prior to installation and in some areas the installer must have a specific elevator installers license and be QEI.
Among some of the installation and safety procedures and requirements that must be followed can be found in ASME A17.1-2010 *Safety Code for Elevators and Escalators,* ASME A17.2-2010 Guide for Inspection of Elevators, Escalators, and Moving Walks. A *Manual for Electric Elevators, Basic Field Practices for Installation of Elevators and Escalators* published by the National Elevator Manufacturing Industry Inc. Copies of this book may be ordered from *Elevator World*, P.O. Box 6506, Mobile, AL 36606. Copies of ASME publications may be ordered from the American Society of Mechanical Engineers, ASME Order Department, 22 Law Drive, and P.O. Box 2300, Fairfield, NJ 07007-2300, phone number l-800-321-2633 ext. 386.

These publications must be used in conjunction with this manual for installation, operation, maintenance and testing.

If you have any questions whatsoever or need assistance in any way, please call Sidney Manufacturing Company at 1-800-482-3535 or 937-492-4154.

CAPACITY AND SPEED

The "Sidney Line" Special Purpose Personnel Elevator is available in five sizes. 300 lbs, 500 lbs, 650 lbs, 750 lbs, 1000 lbs. capacity. The inside area of the 300 lbs. capacity car is (5) five square feet, the inside area of the 500 lbs. capacity car is (7.5) seven point five square feet, the inside area of the 650 lbs. & 750 lbs. capacity car is (9) nine square feet and the inside area of the 1000 lbs. capacity car is (l3) thirteen square feet. The car will travel approximately (96) ninety-six feet per minute.

CONSTRUCTION AND SPECIFICATIONS
CAR - The car is constructed entirely of steel. Three sides of the car (except double door cars) are totally enclosed with solid steel and the front is protected to its full height by expanded metal door. A hinged escape hatch is provided in the top of the car when possible.

A car door locking device with stationary cam at each landing is provided when required by certain state codes.

HOISTING MACHINE - The hoisting assembly is comprised of a premium efficiency inverter duty 1.15 service factor motor. This is C-flanged to input shaft of a right or left angle gear reducer and on opposite side of input shaft of a C-flanged electric brake is mounted. Specific information from the manufacturer of these components can be found toward the back of this manual. A traction sheave with a taper lock bushing is mounted to the output shaft of the reducer along with an outboard bearing on the end of the shaft. The entire assembly is mounted on a heavy frame.

ELECTRIC BRAKE - See bulletin No's BK-4710 and BK-4614 for adjustment of Dings Brake.

REDUCER GEARBOX - See gear reducer section of this manual.

COUNTERWEIGHT - The counterweight is fabricated from a solid steel billet and is sized according to the weight of the car and its posted capacity.

GUIDE RAILS - Refer to the first page of this manual to determine which type you have.

CABLES - The hoisting cables are constructed of 8 x l9 traction steel elevator wire rope. Three (3) l/2" wire ropes are used with the style 15AA and 57AA series Special Purpose Personnel Elevators. Hoisting cables are attached to the car and counterweight by one of two methods whichever is permitted in your area. One method is babbitted sockets (Diagram MM-9) or by wedge type sockets (Diagrams MM24, MM24-A, MM-24C, MM27-A, and MM34 .

COMPENSATING CHAIN - When provided the compensating chain is used to counterbalance, or partially counterbalance, the weight of the suspension ropes. Refer to drawing 8292-CC for chain mounting.

DOWNSPEED GOVERNOR - Each special purpose personnel elevator is provided with a downspeed governor. This is a mechanical device that activates the car safeties in the event of overspeed in the down direction. Should the car develop a speed of (175) one hundred seventy five feet per minute or more, the governor bale will trip and lock the governor cable, in turn setting the safeties. The governor is pre-set and sealed at the factory to trip at the proper speed. Do not attempt to adjust the governor. Reference GOV-1 and GOV-2 photos. If problems occur, contact *Sidney Manufacturing Company*.

The safety system is designed to lock the car to the guide rails if overspeed in the down direction occurs.

A manual tripping device is mounted on the same side as the governor limit. This device is used to manually trip the governor when operating at proper speed to comply with the annual inspection of the personnel elevator. Refer to drawings B-8807-01 sheets 1 & 2 and GOV-3 photo.

BI-DIRECTIONAL GOVERNOR: Certain State codes require ascending overspeed protection device that is actuated by a bi-directional governor that actuates in both the up & down direction. The sheave brake is activated when the governor trips in the up direction, referenece H-W GOV-3.

CAR GOVERNOR ROD ASSEMBLY - Upon application of the downspeed governor the car governor rod assembly will apply the safeties on the guide rails. Determine why the safeties set and check to insure no damage was done to the safety system or any other parts. (Dwg. D-6190-02)

NOTE: 1000 lb. capacity elevators use a spring rod releasing carrier.
(Dwg. D-10090-01, MM37, MM38 & MM39)

The safety system is designed to lock the car to the guide rails if overspeed in the down direction occurs. The safety shoes are an eccentric design and will grip the rails tighter as the car tries to go down. When the safeties are engaged, a safety switch on the governor and safety shoe opens the control circuit and stops the motor.

The downspeed governor will apply the safeties in the event of overspeed. As stated earlier, the car travels approximately 96 feet per minute. Should the car reach a speed of 175 feet per minute, the bale (Dwg. B-8807-01) on the governor will trip and stop the governor cable from following the car. When this happens it causes the safeties to move up and engage the guide rails.

ELECTRICAL - Furnished as standard equipment is a fuseable disconnect control panel, which houses the brains of the special purpose personnel elevator. Within this panel is a 240/480 V - 115 V transformer which reduces the control circuit voltage to ll5 volts, interlocking reversing contactors which controls the motor direction, a phase reverse relay which opens the control circuit in the event of phase loss or phase reversal, soft start and delay after stop. Also an anti-welding contactor and the control circuit relays are provided. The entire panel is prewired to a terminal strip for easy jobsite connection. Battery back up for cab light and electric alarm.

Constant Pressure Push Button Operation. Up/down push buttons are provided for each landing as standard equipment. Furnished for the car is a (5) five button station. Up-down, emergency stop, an alarm button and light switch. In conjunction with the alarm contacts is a signal alarm, which should be mounted at some point in the facility where other employees can hear it. Where required, an inspector's station is furnished on top of the car.

OPTIONAL: SINGLE AUTOMATIC OPERATION: If provided - Single Automatic Operation by means of one button in the car for each landing served and one button at each landing, so arranged that if any car or landing button has been actuated the actuation of any other car or landing operating button will have no effect on the operation of the car until the response to the first button has been completed.

SOFT START and SOFT STOP are standard features for the Single Automatic Operation Control.

Several switches are provided to monitor the various functions throughout the system. Each hoistway door is provided with a switch that tells the controller if the doors are open or closed. A switch is provided on the car to provide the same functions for the car door. Located under the car platform is a switch on the safeties. This opens the control circuit if the safeties apply. (See safety system) The same type switch is mounted on the downspeed governor to open the control circuit if the governor bale trips. The escape hatch in the top of the car when provided also has a limit switch, which opens the control circuit if the escape lid is raised. A stop switch is provided on top of the car.

HOISTWAY LIMIT SWITCHES - Four (4) other switches are provided and act as hoistway limit switches (Dwg. C-6191-02).
These switches become the terminal and final hoistway limit switches. The terminal limits stop the car even with the top and bottom landings. The final limit switches acts as back up switches, should overtravel occur. The final limit switches must be mounted to stop the car at the bottom before it

makes contact with the buffer springs and at the top before the car can strike any overhead obstruction. A 3 pole disconnect switch is provided for the hoistway pit. By using this switch while in the pit, the motor leads are disconnected and no one can accidentally run the car down. A wiring diagram can be found in this manual for your style elevator.

Additional hoistway limits will be provided for Single Automatic Operation control . Zone limits and additional car limits are required. A wiring diagram can be found in this manual for your style elevator.

HOISTWAY DOORS - Manually operated hoistway doors are furnished for all landings. Doors with windows hinge on a heavy angle iron outer frame. Provided as standard equipment with each landing door is an interlock or electro mechanical locking device. This prevents the car from operating if the landing door is open. After the door has been installed, all other open sides of the hoistway at each landing must be enclosed to a height and most state codes require not less than 7'-0" for the sides, backs & front fill in panels. (including any area still open on each side of the landing door).

RETIRING CAM - A retiring cam motor and striker are furnished on certain Styles. (See Dwg. B-8590-01 & C6191-02) When any of the up or down buttons are pushed, provided all safety switches are closed, the retiring cam energizes and retracts which in turn locks the landing door. When this happens, the locking roller arm switch closes and allows the car to leave the landing. The striker remains in this retracted position until the car arrives at the desired landing and the operator takes his finger off the push button (constant pressure push button operation). If the control is by single automatic operation you only need to press the push button and release your finger once. At this time, the retiring cam de-energizes and allows the cam to drop in place unlocking the landing door. Drawing B-8590-01 is for the correct position of the retiring cam cable assembly.

PIT AND BUFFER SPRINGS - Buffer springs are provided for the car and counterweight. Whenever possible, the pit should be located at the lowest portion or basement level of the hoistway. If this is not possible, a framework must be erected to support the buffer springs. The framework must be capable of supporting the weight of the car and its rated load descending at governor tripping speed of l75 feet per minute. The pit must be enclosed to its full height with material that will reject a l" ball. If the hoistway is so designed that a basement or otherwise opening is below the pit, this area must be protected against access.

GOVERNOR TAKE UP ASSEMBLY - The downspeed governor is furnished with a weighted take up (Dwg. D-6190-02). The take up assembly is mounted in the pit and is required to keep tension on the governor cable. Improper tension on the
governor cable can cause the bale on the governor to trip and set the safeties.

INSTALLATION - Information drawings, spec. sheets & shipping manifest and Installation & Maintenance manual are shipped with each elevator. Before you begin your installation: review the drawings thoroughly, check the spec sheets & shipping manifest to see that you have received all the equipment. The Installation & Maintenance manual is a guide only and covers several models and it is intended as a guide only and to make your installation go smooth as possible, we recommend that you

read the entire manual before you start the installation. Every installation is unique and may require changes on the jobsite.

The first section of rails for the car and counterweight starting in the pit to be 7'-0" to avoid splice plates at brackets. Car & counterweight rail brackets are adjustable for most elevators, the bolts and rail clips are provided except the bolts to attach to the wall are not provided. (Ref: Dwgs. C-10065, B-5821-03, C-10064-02 & D-7398-02) Install the first two sections of guide rails in the hoistway so they can be removed or omit the first two sections and install the third section. This must be done so the car can be inserted into the hoistway and raised up on the section of guide rails. Do this by starting the rails into the guide blocks on the car top and raising the car up until the rails have passed through the guide blocks on the bottom of the car. At this time, the first section of guide rails can be installed in the hoistway. NOTE*: Slide the counterweight inside the first section of weight guide rails before installing them permanently in the hoistway*. (Guide rails must be installed directly across from each other to keep the car from twisting as it travels up the hoistway) Rails must be installed straight and plumb the entire length.

Special care should be taken to insure that the proper distance between the guide rails is maintained the entire height of the hoistway. Reference Drawings D-7398-02 sheets 1 & 2 and 5020.

Install the overhead drive assembly above the top landing at the height shown on the top landing elevation view of your drawings. This will provide top car clearance which is 30" from the highest projection of the car top to the nearest part of the overhead drive when the counterweight is resting on its fully compressed buffer spring. Position the drive frame so that one edge of the cable sheave is directly over the center of the car and the other edge or deflector sheave where provided is directly over the center of the counterweight. Support the drive frame using a deadload safety factor of five (5) for steel and six (6) for reinforced concrete.

Install the hoisting cables. Do not dispose of the cable tags for they are to be attached to the cable after installation. Thread the cables over the cable sheave on the drive assembly and down through the weight guides to the bottom of the hoistway. Block the counterweight 9" above its buffer springs and fasten each cable to the counterweight. Means of fastening the cables are provided according to your State code requirements. Wire rope sockets or wedge type clamps are used. Diagram MM-9 is for wire rope sockets or Diagram MM24, MM24-A, MM-24C, MM27-A, MM 34, MM35 & MM36 are for wedge type which will show the proper method of attaching the cables. Remove the excess length of cable.

Install the downspeed governor cable. See Dwg. B-6190-02 The governor system and governor is an important part of the safety system. THE CAR MUST NOT BE OPERATED IN THE HOISTWAY AT ANY TIME FOR ANY REASON DURING OR AFTER THE INSTALLATION UNTIL THE GOVERNOR SAFETY SYSTEM IS PROPERLY INSTALLED AND TESTED. Install the governor weighted take up assembly in the pit. A guide plate is furnished with the take up assembly, which must be permanently mounted in the pit. NOTE: The weight assembly must be able to move freely in the guide plate. The l2" diameter cable sheave on the weight assembly in the pit must be directly below and in line with the l2" diameter cable sheave on the downspeed governor at the top of the hoistway. This is necessary to keep the governor cable from crawling off either of the sheaves when the car is in motion. Block the governor weight assembly at

the top of the guide plate prior to cutting the governor cable to the desired length. This will allow the governor cable to stretch after it is installed without the weight bottoming out on the pit floor.

INSTALLATION OF LANDING DOORS - Doors should be installed no more than 5" from face of car door to face of landing door. A retiring cam or stationary cam is used, see Dwgs. C-6440-14, C-6440-16, C-6440-28 & C-6440-29 for installation. The retiring cam assembly device will lock the landing door prior to the car leaving the landing and will not unlock the landing door until the car has stopped at the landing. The electro mechanical locking device will lock the landing door when the car leaves the landing and the stationary cam will unlock the landing door when the car is at the landing. After the landing doors have been installed, the remaining three sides of the hoistway and front fill in panels must be enclosed to a height of not less than 7'-0" with either solid material or expanded metal that will reject a l" ball. See Diagram MM-20 for reference. Some State codes require the entire hoistway be enclosed to its full height 8'-0". Contact *Sidney Manufacturing Company* for this information.

ELECTRICAL INSTALLATION - The proper wiring diagram is provided for the style elevator you have purchased. All wiring shall conform to the requirements of the latest National Electrical Code. Mount the main fused disconnect panel box in an electrical room or at the point in the facility where other motor controls are mounted. The control panel is equipped with all necessary components to operate the motor and control circuit. Line fuses and heater elements are provided for the voltage specified on the order. Check wiring diagram that is provided to make sure the fuses and heaters do correspond with your line voltage. Operating temperature range for some of the components in the main fused disconnect panel is -10C to +50C (+14F to +122F).

NOTE: *The main fused disconnect panel must be mounted in a control room or location with controlled environment. Some components mounted in the control panel require low humidity and no condensation. Thermostatically controlled heater, air conditioner or fan may be required to maintain low humidity, no condensation and correct temperature. Failure to provide a proper location will void the warranty.*

The alarm and cab light are on their own separate circuit. A battery back up is provided for both the electric alarm and cab light.

The car is prewired to a junction box mounted under the car. Strain relief grips are provided for each end of the trail cord, which follows the car up and down the hoistway. One end attached to the terminal box under the car and the other end attached to a junction box mounted at the halfway point of the hoistway, hoistway junction box furnished by others. (See Diagram MM-17 and 5793).

The motor and electric brake are both 240/480 dual voltage. Check motor plate and brake coil found inside the brake housing for proper lead connections in respect to voltage used. <u>Improper lead connections will destroy the motor and brake. Do not connect brake coil leads to motor leads and refer to electrical wiring diagram provided.</u>

A pit switch is provided. This must be mounted at the entrance to the pit and is a 3-pole disconnect in the motor line. This allows anyone entering the pit for maintenance to disconnect the motor circuit.

Mount and wire up/down call stations at each landing door. Mount and wire limit switches on each landing door interlocks and/or electro mechanical locking devices per the wiring diagram. These switches will open the control circuit when the landing door is open.

SINGLE AUTOMATIC OPERATION requires additional hoistway limits and cams. Refer to drawing SINGLE AUTO for mounting locations in the hoistway and wire per wiring diagram provided.

Mount and wire hoistway limit switches and mounting plates. See Dwg. C-6191-02. These switches are the "normal stop" and the "over travel" stopping devices. The normal stop limit switches must be adjusted to stop the down direction of the car even with the bottom landing and the up direction of the car even with the top landing. The over travel switches must be mounted as shown on Dwg. C-6191-02 and wired to open the control circuit per the wiring diagram. Two mounting plates (top & bottom) for mounting on back of the car guide rails with rail clips & rail clip bolts are provided.

ELECTRIC ALARM - Mount and wire the alarm at some point in the facility that other employees can hear it.

GEAR REDUCER -

l. The IPTS reducer contained the proper amount of Mobil SHC-626 synthetic oil with a temperature range of -40 to +125 ° F. (A Mobil product) when it left the factory.

   Mobil SHC-626 synthetic oil is recommended for filled for life gearboxes, especially high ratio/low-efficiency worm gears and remotely located gearboxes where oil change is difficult. We recommend that the oil be checked every six months.

2. Never completely fill any reducer with oil. It will cause oil leakage and overheating which results in rapid wear of oil seals, bearings and gears. The oil should be on a level with the oil-level plug or gauge - never any higher.

3. See additional reducer information on the following pages for the specific gearbox used on your elevator.

MAINTENANCE AND TESTS -

Included in this manual is a five (5) page Safety Survey Check Sheet and Report for making extra copies to use as a helpful guide during your periodic maintenance and testing of the elevator functions.

In many facilities, in-house maintenance personnel can do the weekly, monthly, quarterly and bi-annually checks. <u>HOWEVER, YOU MUST CONTRACT THE SERVICES OF A QUALIFIED ELEVATOR</u>

INSPECTION AND REPAIR SERVICE COMPANY FAMILIAR WITH THE ASME A17 STANDARDS PERTAINING TO SPECIAL PURPOSE PERSONNEL ELEVATORS AND INSPECTIONS TO PERFORM THE REQUIRED ANNUAL CHECKS AND TESTS. DUE TO SEVERE ATMOSPHERIC CONDITIONS OF SOME INSTALLATIONS THESE MAINTENANCE CHECKS AND TESTS MAY BE REQUIRED ON A MORE FREQUENT SCHEDULE.

The following information is intended for use as a helpful guide and not a detailed step by step inspection process. A detailed inspection process is best described in "professional standards" adopted by the elevator industry. Namely ASME A17.2- 2007 *Guide for Inspection of Elevators, Escalators, and Moving Walks* which must be used in conjunction with this manual.

Stress safety during inspection, maintenance and tests of your special purpose personnel elevator. Notify all plant personnel of the time period the above will be done. Attach tags on all landing push buttons reminding employees that the elevator is not to be operated. Follow OSHA Lockout/Tagout procedures.

Check all landing hoistway doors. Make sure the door construction will reject a l" ball when the door is closed. Make sure the door unlocks and locks as the car enters or leaves the landing. Hoistway doors that can be opened when the car is not at the landing are not permitted. If your car is equipped with a retiring cam (Dwgs. C-6191-02, C-6440-14 & B-8590-01) make sure the cam retracts properly.

When a retiring cam is used, the landing door must lock before the car leaves the landing and unlock after the car has stopped at the landing. If your Special Purpose Personnel Elevator is equipped with hoistway-door combination mechanical locks and electric contacts they will prevent opening the landing door unless the car is within 12" of the landing. Check the limit switch on each landing door for proper operation. When this switch is working properly, the car will not operate unless the landing door is closed.

Check to insure all other sides of the hoistway at each landing are enclosed to a height of at least seven feet (7'-0") with solid material or expanded metal that will reject a l" ball. Some States require that the entire hoistway be enclosed to its full height. Consult *Sidney Manufacturing Company* for this information.

Inspect the inside of the car to determine that the car enclosure is structurally sound and is securely fastened to the platform. The rated capacity plate must be mounted inside the car. Check the car door to make sure it is operating in its track and will completely close. Check the switch on the car door. If the switch is working properly, the door must be closed before the car will operate.

Make sure the emergency escape hatch on the car top, when provided, has not been obstructed and can be easily opened. The light in the car must be working and the guard on the globe must be in place.

Operate the car in each direction by means of the push buttons in the car and at each landing to determine that they do not stick or bind and that they are properly marked. The car should stop within one inch when the buttons are released. If it does not, see the motor brake adjustment section of this

manual for proper brake adjustment. Make sure the off-on switch or emergency stop buttons stop the car. Check that the alarm is in operating order and that the alarm is mounted at some point in the hoistway where other employees are normally working and can hear it. Check the battery back up for the electric alarm with power turned off.

Inspect the counterweight by running the car high enough in the hoistway to bring the counterweight down to ground level where it is easy to stand. Determine that the lock nuts and cotter pins are in place. All threaded and nutted connections must have double nuts with cotter pins. Make sure the counterweight is running within its guides and the UHMW guides are not worn excessively. Note how the cables are attached to the counterweight.

If the cable fastening is of the babbitted socket type, note whether there are any broken wires at the point where the cable enters the socket. This can be detected by prying the individual wire in the strand with a sharp instrument (such as a knife blade). Also, note whether the rope has lost its lay where it enters the socket and whether any strands bulge out. Inspect the basket of the socket and note whether the loops of the cable strands are visible to determine if the socket is properly babbitted with the "turn back" method. (Diagram MM-9) If wedge type sockets are
Used, check to see that the wedge is properly seated in the socket and that the fastening is backed up with retainer clips (See Diagram MM24 & M 24-A).

The same procedure can be used to inspect the cables at the point where they are attached to the car.

Examine the hoisting cables and the downspeed governor cable carefully. If the cables are dirty or over-lubricated, a proper inspection may not be possible unless the dirt or excess lubricant is removed. Examination of the cables should preferably start with the car located at the top of the hoistway and should be made from the top of the car, examining the cables on the counterweight side. If this is not possible, any safe means may be used by operating the car two feet at a time and stopping it to look at the cables. If any section of cable cannot be seen from within the hoistway, mark this section with chalk to indicate the location of the unexamined portion and examine it later from the overhead machinery space or from the pit. If one hoisting cable is in need of replacement, replace all of them. The cables in the set should all be from the same manufacturer and all of the same material, grade, construction and diameter and from the same batch/reel. When buying new cable, specify the diameter, 8 x l9 traction steel elevator wire rope. Never attempt to add to the length or repair by splicing any cable.

<u>Cable inspection must be made by a qualified elevator mechanic using their best judgment in making the inspection and in selecting the location from which a proper examination of the cables can best be made.</u>

Proper lubrication of hoisting cables will prolong their life. Excessive or improper lubricants may seriously reduce the traction and cause slippage. This can be determined by observing the cables where they pass over the traction sheave. Some cable creepage is normal.

Check the terminal and final stopping device. The bottom terminal should stop the down direction of the car even with the bottom landing. Likewise, the top terminal limit switch should stop the up direction of the car even with the top landing. The final stopping devices are used in case of overtravel at either one of these two landings. They are like switches, however, they are wired so to stop the up and down direction. Use a proper tool to open this switch and try to start the car in each direction to insure their proper function.

Check Single Automatic Operation control for the car stopping level at intermediate landings in both the up and down direction.

Examine the guide rails for correct alignment of the joints. Insure that the guide rails are not loose in any point in the hoistway. Where wooden guide rails are used, excessively worn wooden guide rails should be replaced, as proper safety brake shoe contact with the rails may not be possible. Steel guide rails will normally last the life of the elevator. Check the rails to brackets, brackets to building construction, fishplates, car guide shoes to determine whether they are sound and tight. Check the UHMW guide inserts on the car and counterweight for wear. (Diagram MM23 and Dwg. B-7357)

Examine overhead beams supporting the hoistway drive assembly to determine whether they are securely fastened to supports or firmly embedded in concrete walls. Examine all exposed bolt fastenings of beams supporting machinery or sheaves, check for any unusual noise or play in the drive assembly and bearings. The level of oil in the reservoirs should be checked and any leakage noted. Elevators of this type are low RPM and under normal operating conditions the outboard bearing should not need lubrication more than twice a year. Have the elevator operated in each direction and observe the operation of the motor and brake. Check all motor bolts to determine if they are in place and tight. Make sure the traction sheave is free of cracks or broken spokes and check the condition of the grooves.

The following inspection and test must be done on no less than an annual basis and must be performed by a qualified elevator inspection service company familiar with and trained in the requirements and procedures described in ASME A17.1-2010, ASME A17.2.-2010 and this manual. NOTE: DUE TO SEVERE ATMOSPHERIC CONDITIONS OF SOME INSTALLATIONS THESE MAINTENANCE CHECKS AND TESTS MAY BE REQUIRED ON A MORE FREQUENT SCHEDULE.

This inspection and test is of the safety system designed to set the safeties, locking the car to its guide rails in the event of overspeed in the down direction. These safeties are called type “A” instantaneous safeties. These safeties will develop a rapidly increasing pressure on the guide rails during the stopping interval. The operating force is derived entirely from the mass and the motion of the car being stopped. These safeties apply pressure on the guide rails through eccentric safety shoes. A downspeed governor activates the safeties.

Test the downspeed governor to determine that it is properly calibrated to trip at 175 FPM and that it functions properly. On a quarterly basis, add a couple drops of Marvel lubricating oil or equal to all pivot points of the governor.

The Acceptance Test and Periodic Test of the Type A Governor-Operated Safeties shall be tested with rated load in the car and by operating the car at rated speed in the down direction and tripping the governor jaws by hand.

Instruct your employees on the proper use of the elevator. Make sure the elevator conforms to code and the preceding governor safety system tests are conducted immediately following initial installation or major repair and then annually. DUE TO SEVERE ATMOSPHERIC CONDITIONS OF SOME INSTALLATIONS THESE MAINTENANCE CHECKS AND TESTS MAY BE REQUIRED ON A MORE FREQUENT SCHEDULE THAN ANNUALLY.

When required by certain State Codes following items are provided:

ASCENDING CAR OVERSPEED PROTECTION DEVICE: Bi-Directional Governor that actuates in both the up and down directions, reference H-W GOV-1. The sheave brake is activated when the governor trips in the up direction is mounted on the overhead drive assembly and will reset automatically when you reset the governor limit. This is shown on the Elevator Drive Assembly ASME A17.1-2010 brochure.

UNINTENDED CAR MOVEMENT DEVICE: Protection against unintended car movement away from a landing when the hoistway door and/or car door are open. The sheave brake along with limit switches monitors the car and stops the car if unintended car movement is detected.

H-W GOV-1 Bi-Directional Governor in its proper position. H-W GOV-2 tripped in the down direction and H-W GOV-3 tripped in the up direction.

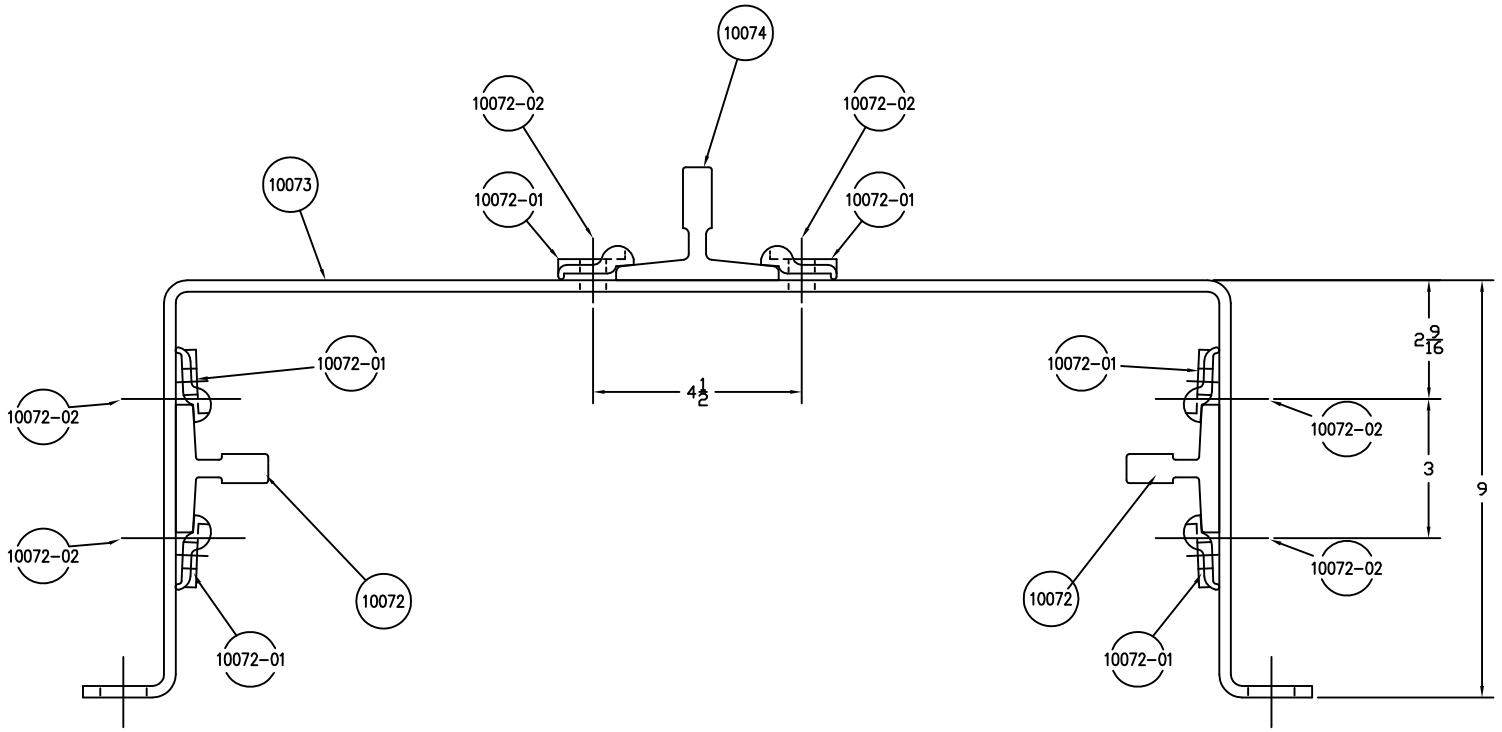
When the sheave brake is provided the instructions are in the packet sent with shipment that contains installation & electrical drawings.

If you need additional information or we can be of any assistance, please feel free to contact *Sidney Manufacturing Company at 1-800-482-3535 or 937-492-4154 or email us at smcsales@sidneymfg.com.*

BILL OF MATERIALS

PART NO.	QUANTY	DESCRIPTION
10072	AS REQ'D.	T-163 6.25# MACHINE TEE RAIL
10072-01	12*	C-161 CLIP FOR 8# RAIL - STANDARD STEEL SPECIALTY CO.
10072-02	12*	1/2"ø x 1 1/4" LONG HEX BOLT AND NUT FOR C-161 CLIP -
10073	AS REQ'D.	WEIGHTBOX BRACKET
10074	AS REQ'D.	T-161 8# MACHINE TEE RAIL

* PER 1 WEIGHTBOX BRACKET



PLAN

10065

WEIGHTBOX BRACKET ASSEMBLY

(AS REQUIRED)

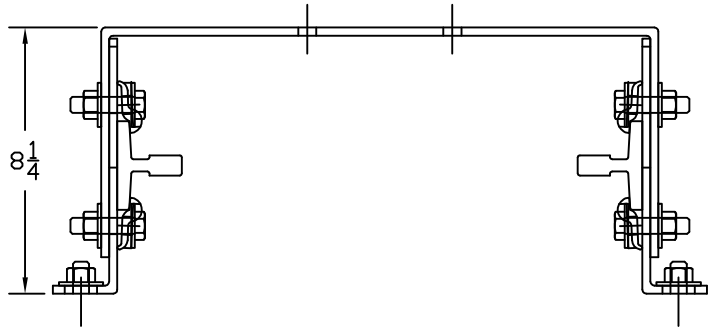
Sidney Manufacturing Comp
Custom sheet metal fabrication - producers of industrial prod

REF: 91134A09

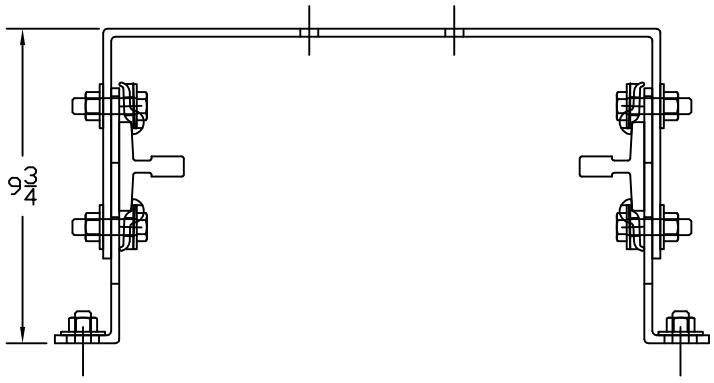
TITLE
1000LB. CAPACITY MANLIFT ELEV
WEIGHTBOX BRACKET ASSEMBLY

DRAWN BY	TJG	DATE	5/24/91	DRAWING NUMBER C-10065
CHECKED	JJW	SCALE	1=2	
APPROVED		SHEET	1 OF 1	SUPERSEDES / SUPERSEDED BY

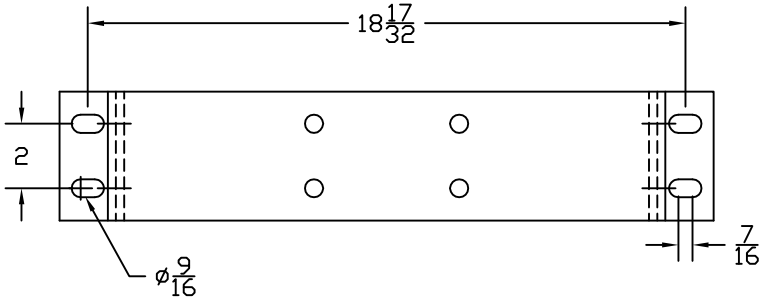
2	-	CHANGED 2X2 TEE RAIL TO 6.25# MACHINE TEE	6/12/06	TAG
1	-	MOVE COUNTERWEIGHT OVER 1/4"	2-11-98	SMS

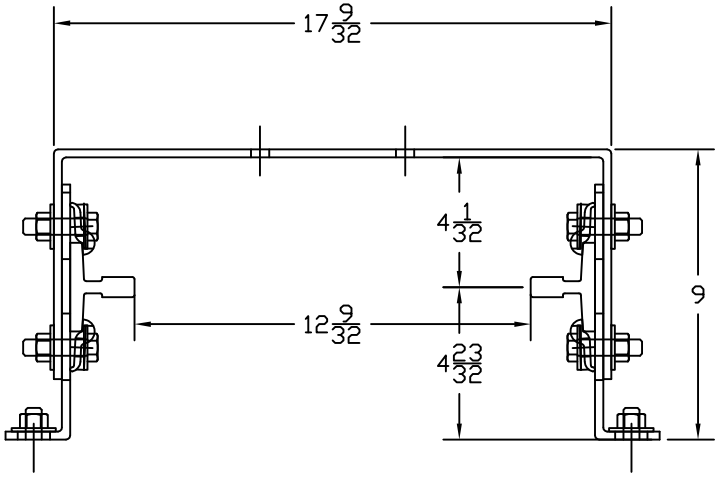


MINIMUM HEIGHT

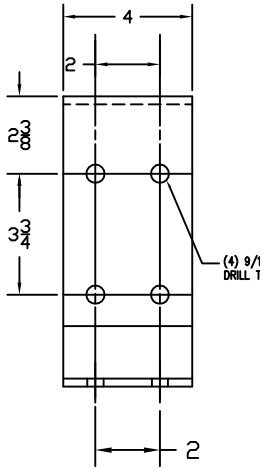


MAXIMUM HEIGHT



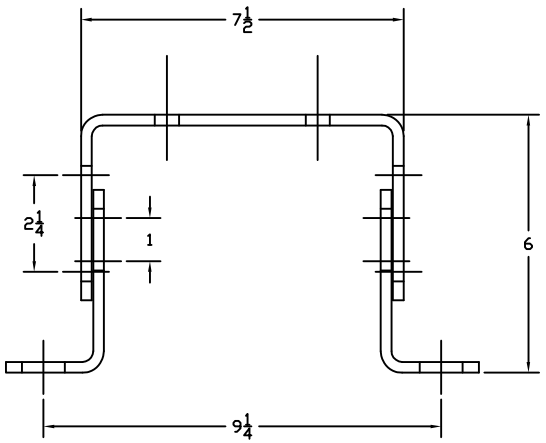


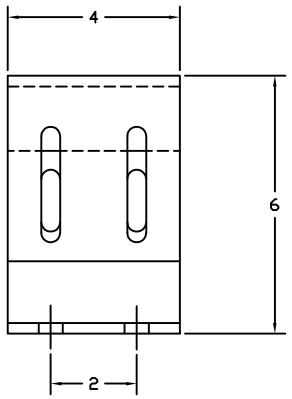
STANDARD HEIGHT



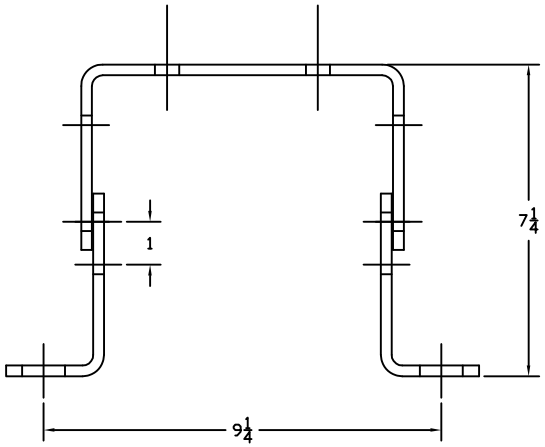
Sidney Manufacturing Company *Custom sheet metal fabrication – producers of industrial products*	DRAWN BY SMS	DATE 5/15/02	TITLE ADJUSTABLE WEIGHTBOX BRACKET FOR MACHINE T-RAILS AND 6.25 MACHINE TEE CTW RAILS	DRAWING NUMBER B-5821-0
	CHECKED	SCALE 1=4		
	APPROVED	SHEET 1 OF 2		

1		4	ASSEMBLY BOLTS	Ø3/8" X 1 1/4" HHCS, NUTS, FLAT AND LOCK WA.

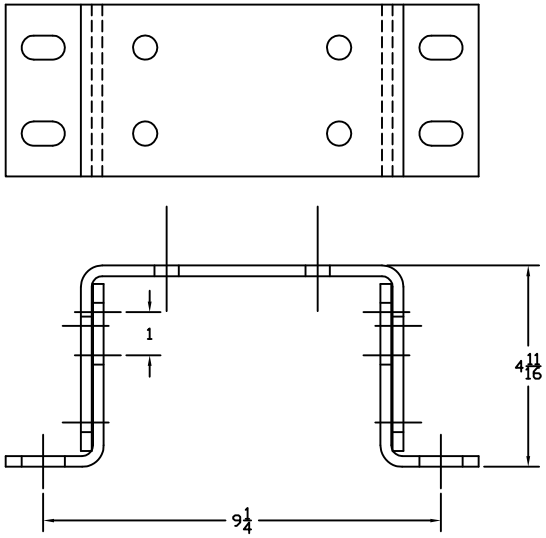




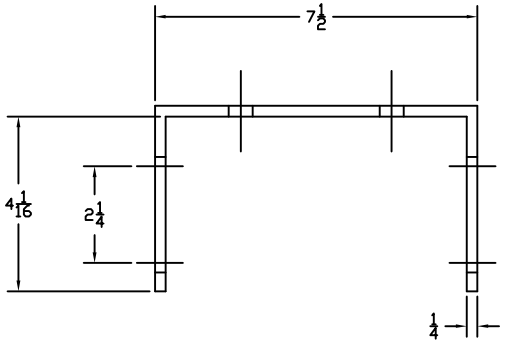
ADJUSTABLE GUIDE RAIL BRKT.

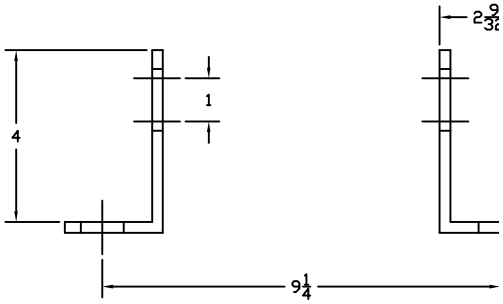


MAX. HEIGHT



MIN. HEIGHT



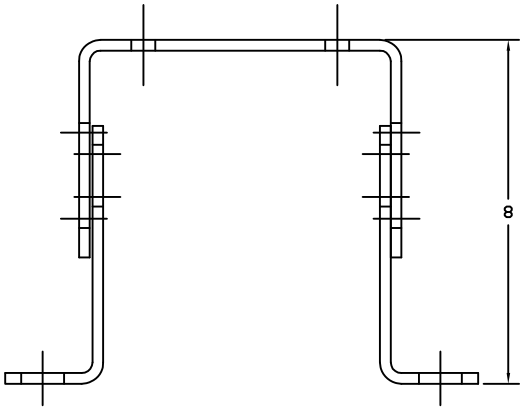


Sidney Manufacturing Company
Custom sheet metal fabrication – producers of industrial products

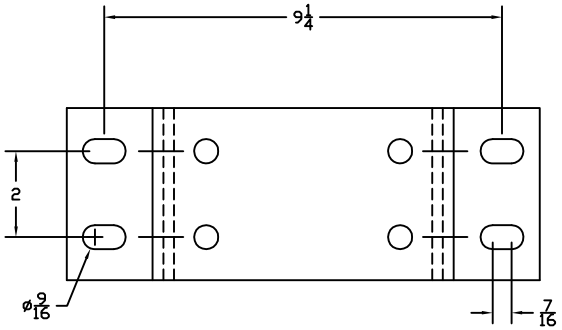
CF: STD

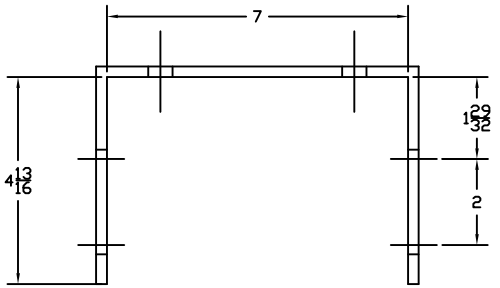
DRAWN BY: SMS	DATE: 8/5/98	TITLE: ADJUSTABLE GUIDE RAIL BRACKET FOR MACHINE T-RAILS 6" TALL BRACKET	DRAWING NUMBER: B-5800-0
CHECKED	SCALE: 1=3		
APPROVED	SHEET 1 OF 2		

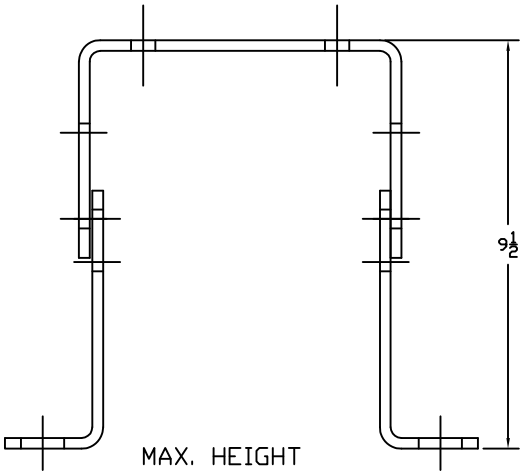
1		4	ASSEMBLY BOLTS	Ø3/8" X 1" HHCS, NUTS, FLAT AND LOCK WASHER



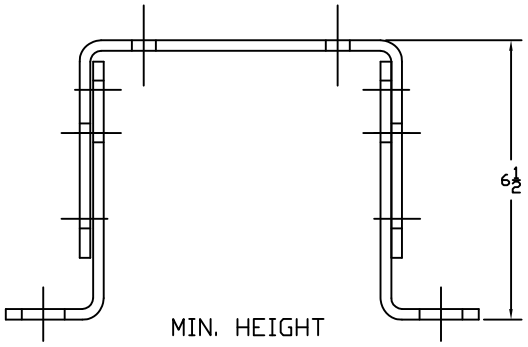
ADJUSTABLE GUIDE RAIL BRKT.



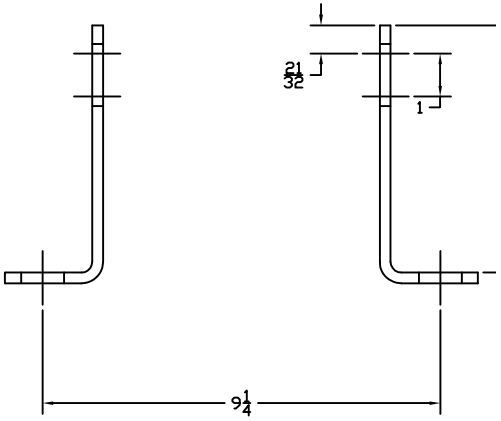




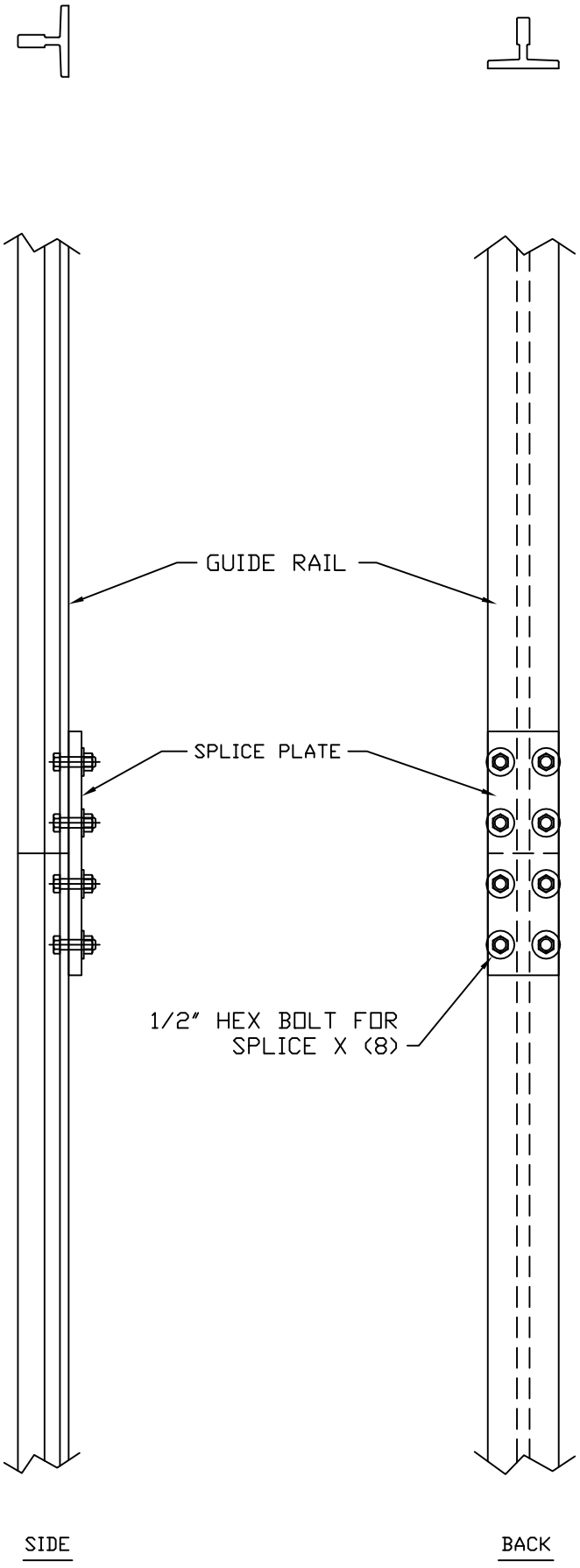
MAX. HEIGHT



MIN. HEIGHT



Sidney Manufacturing Company *Custom sheet metal fabrication – producers of industrial products* CF: STD	DRAWN BY: SMS CHECKED: APPROVED:	DATE: 10/29/98 SCALE: 1=3 SHEET 1 OF 2	TITLE: ADJUSTABLE GUIDE RAIL BRACKET FOR MACHINE T-RAILS 8" TALL BRACKET	DRAWING NUMBER: B-5800-02



Sidney Manufacturing Company
Custom sheet metal fabrication – producers of industrial products

REF:

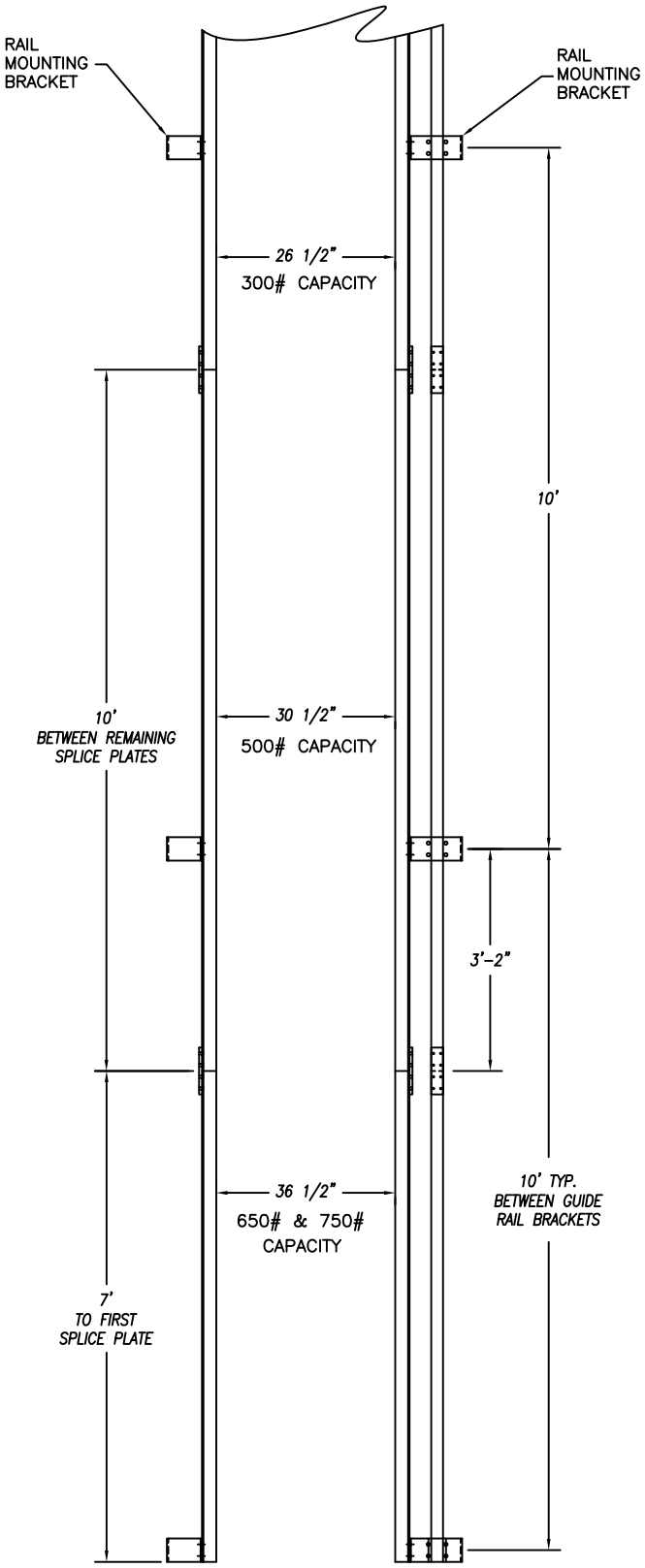
TITLE
1000LB. CAPACITY MANLIFT ELEVATO
RAIL & SPLICE PLATE ASSEMBLY

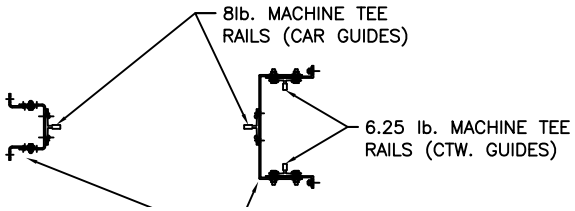
DRAWN BY TAG	DATE 6/7/06	DRAWING NUMBER C-10064-02	
CHECKED	SCALE 1=8		
APPROVED	SHEET 1 OF 1	SUPERSEDES	SUPERSEDED BY

Sidney Manufacturing Compa
Custom sheet metal fabrication - producers of industrial products
REF: STD

MACHINE TEE RAILS FOR CAR & COUNTERWEIGHT

TAG | 6/7/06 | D-7398-0
NTS | 1 of 2

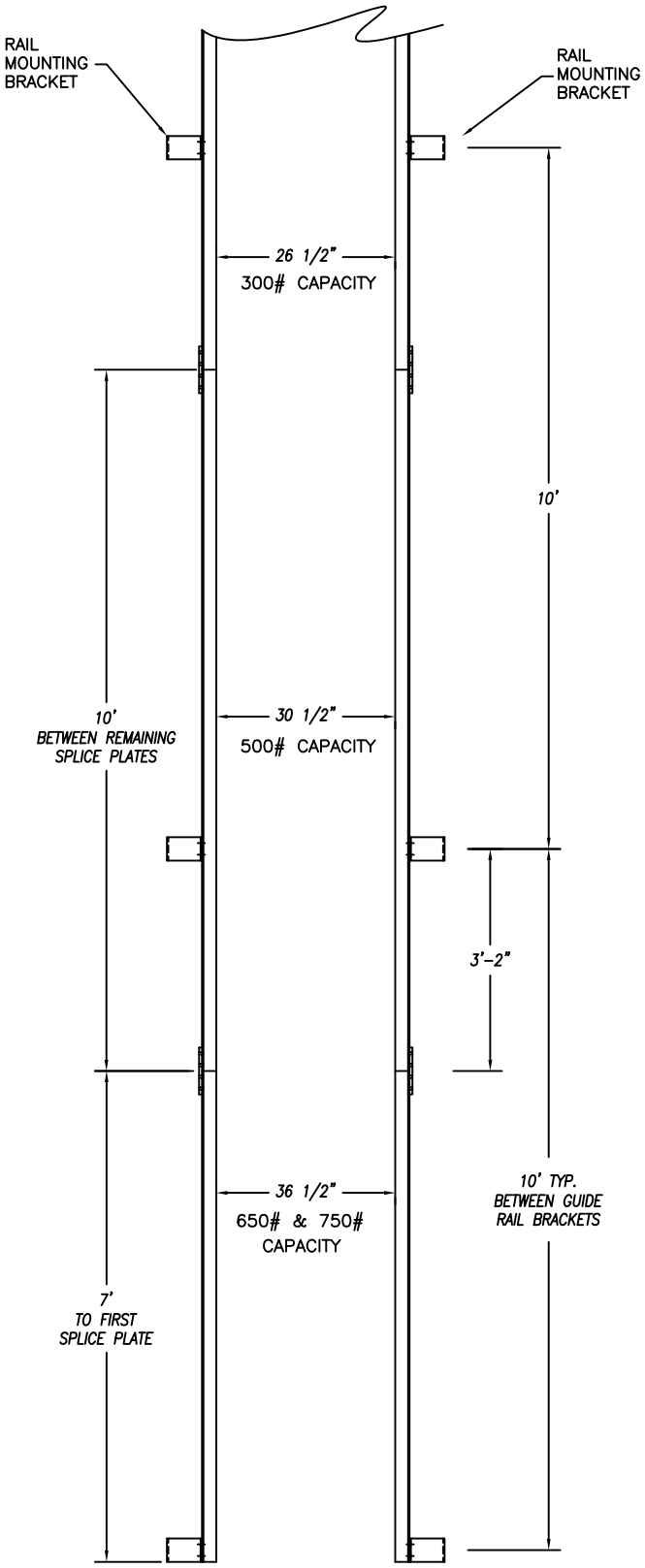


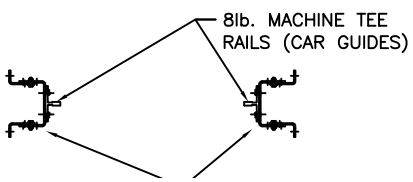


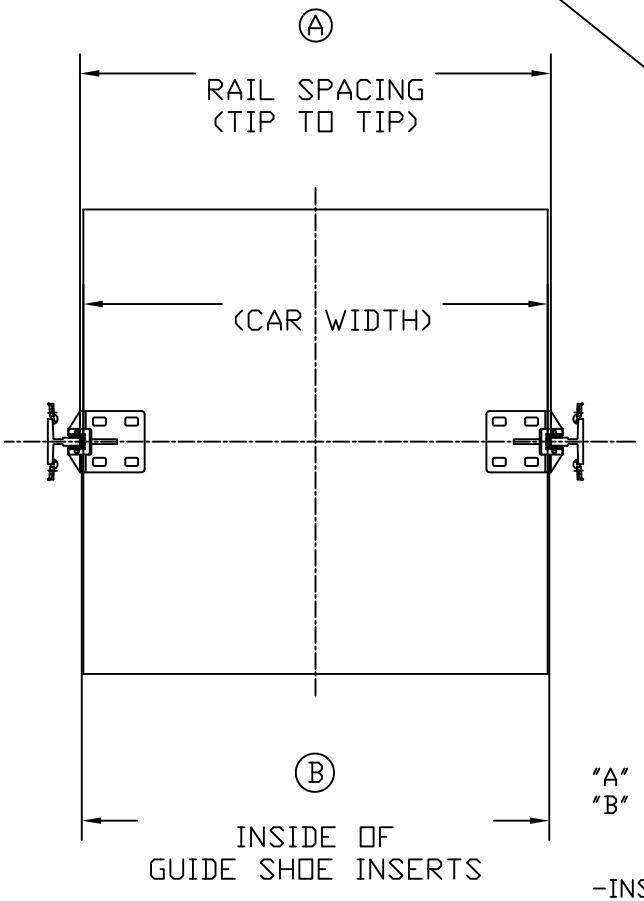
Sidney Manufacturing Compa
Custom sheet metal fabrication - producers of industrial products
REF: STD

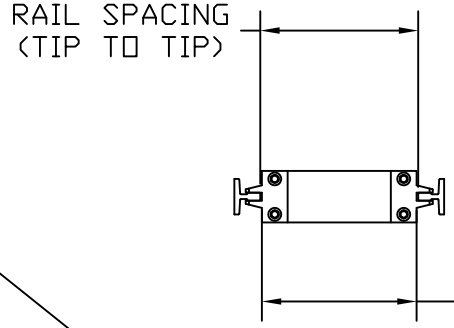
MACHINE TEE RAILS & SPLICE PLATES FOR CAR

TAG | 6/7/06 | D-7398-0
NTS | 2 | 2









-COUTERWEIGHT GUIDE BLOCKS SHOULD ALSO BE CHECKED TO ENSURE THAT THE INSIDE DIMEN IS LESS THAN RAIL (TIP TO TIP) DIMENSION.

"A" - DIMENSION "A" NEEDS TO BE 1/2" MORE THAN CAR WIDTH.
"B" - DIMENSION "B" MUST BE 1/4" TO 1/2" LESS THAN DIMENSION "A".

-INSIDE DIMENSION OF GUIDE SHOE INSERTS ON CAR MUST ALWAYS BE LESS THAN RAIL SPACING TO ALLOW FLOAT.

-THE GUIDES ON BOTH THE CAR & COUNTERWEIGHT ARE SET AT THE FACTORY ONLY AS A POINT OF REFERENCE .

-THE INSTALLING CONTRACTOR HAS THE FREEDOM TO FIELD ADJUST ACCORDINGLY TO ALLOW PROPER CLEARANCE.

Sidney Manufacturing Company
Custom sheet metal fabrication – producers of industrial products

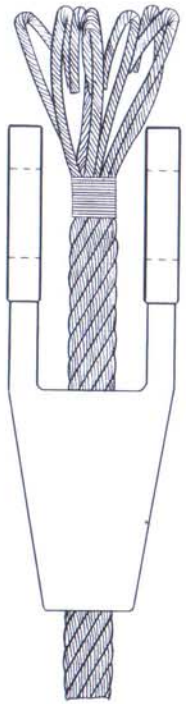
DRAWN BY TAG	DATE 8/26/09	TITLE SPECIAL PURPOSE PERSONNEL ELEV. GUIDE RAIL & GUIDE BLOCK ADJUSTMENT	DRAWING NUMBER 5020
CHECKED	SCALE		
APPROVED	SHEET 1 OF 1		

SOCKETING OF WIRE ROPES

AFTER THE ROPE HAS BEEN SEIZED, THE STRANDS SHOULD BE SPREAD APART AND THE FIBER CORE CUT AWAY AS CLOSE AS POSSIBLE TO THE SEIZING.

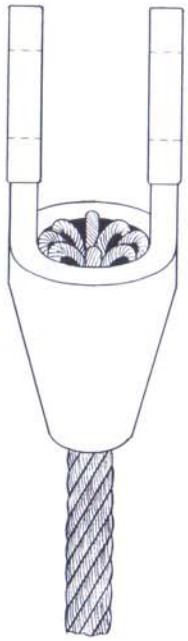
STRANDS SEPERATED AND STRAIGHTENED

THE EXPOSED ROPE STRANDS SHOULD THEN BE BENT, TURNED IN AND BUNCHED CLOSELY TOGETHER. THE PORTION TURNED IN SHOULD HAVE A LENGTH OF NOT LESS THAN TWO AND ONE-HALF (2 1/2) TIMES THE DIAMETER OF THE ROPE.



STRAND ENDS TURNED IN

WHEN THE ROPE IS PULLED AS FAR AS POSSIBLE INTO THE SOCKET, THE BEND OF THE TURNED-IN STRANDS SHOULD BE SLIGHTLY OVER-FLUSH WITH THE MOUTH OF THE TAPERED SOCKET AND WILL BE VISIBLE WHEN THE SOCKET IS POURED.

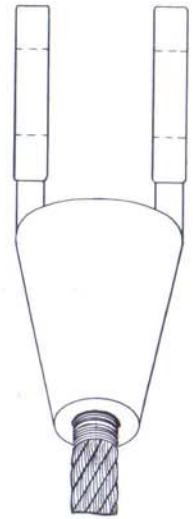


TURNED ENDS PULLED INTO BASKET READY FOR POURING

THE SOCKET SHOULD BE HELD IN A VERTICAL POSITION LARGE END UP, AND THE ROPE HELD IN A POSITION AXIAL WITH THE SOCKET. TAPE OR WASTE MAY BE WOUND AROUND THE ROPE AT THE SMALL END OF THE SOCKET TO PREVENT BABBITT FROM SEEPING THROUGH AND, AFTER THE METAL HAS BEEN COOLED, IT SHOULD BE REMOVED.

TOP VIEW OF BASKET AFTER POURING

AFTER THE SOCKET HAS COOLED, MAKE SURE THE BABBITT IS VISIBLE AT THE SMALL END OF THE SOCKET. MAKE SURE THE TOPS OF THE LOOPED STRANDS ARE VISIBLE ABOVE THE SURFACE OF THE BABBITT. THE ENTIRE LOOP OF ANY STRAND SHOULD NOT BE VISIBLE ABOVE THE BABBITT. MAKE SURE THERE IS NO LOSS OF ROPE LAY WHERE THE ROPE ENTERS THE BASKET.



BOTTOM OF BASKET AFTER POURING

DIAGRAM MM 9

NOTE:
PROCEEDURES OUTLINED IN A.N.S.I. A17.1-1978 PARAGRAPH 212.9f AND N.E.M.I. INSTALLATION MANUAL MUST BE FOLLOWED WHEN BABBITTING ALL SOCKETS.

△3 REDRAWN 9-4-90
△2 NOTE ADDED 4-29-81

Sidney Manufacturing Company
Custom sheet metal fabrication — producers of industrial products

TITLE: SOCKETING OF WIRE ROPES
SCALE: N/A
S.O. NUMBER:
DRN. BY: J.A.T.
CHK. BY:
DRAWING NUMBER:

Sidney Manufacturing Company
Custom sheet metal fabrication - producers of industrial products

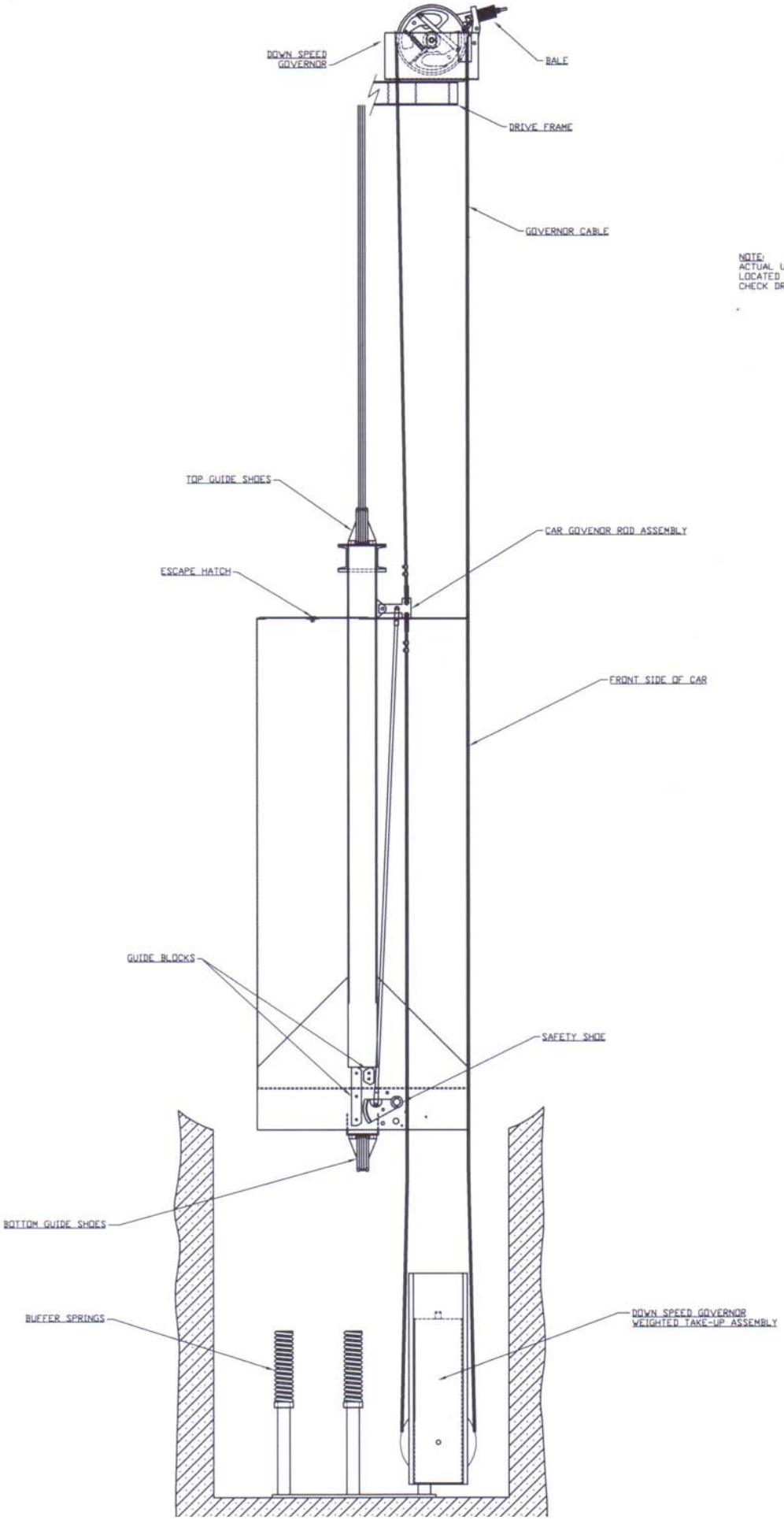
REF: STD

GOVERNOR SAFTEY DEVICE
INSTALATION DIAGRAM

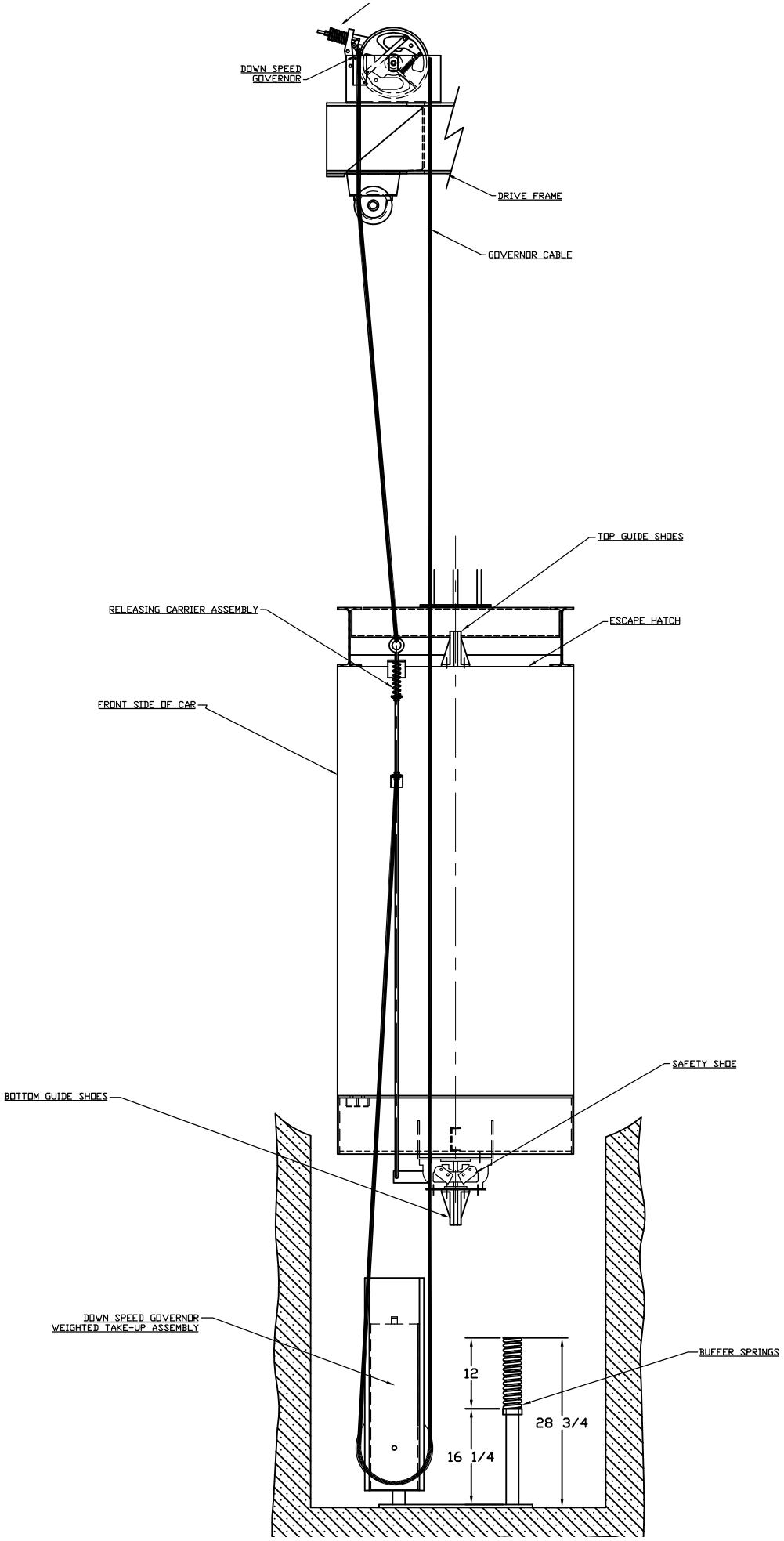
D-6190-02

5/19/08

1=8



NOTE:
ACTUAL UNIT MAY HAVE GOVERNOR LOCATED IN FRONT OR REAR.
CHECK DRAWINGS FOR YOUR UNIT.



Sidney Manufacturing Company
Custom sheet metal fabrication - producers of industrial products

REF: STD

TITLE
GOVERNOR SAFTEY DEVICE
INSTALATION DIAGRAM
FOR 1000# PERSONNEL ELEV.

DRAWN	TAG	DATE	6/7/06	DRAWING NUMBER	D-10090-0
CHECKED		SCALE	1=8	SUPERSEDES	
APPROVED		SHEET	1 of 1	SUPERSEDED BY	

#540 INSTANTANEOUS SAFETY

1000# capacity car

Installation and Adjustment Instructions

1. After bolting safety blocks to underside of car sling bottom channel, center safety on rail. There should be approximately 1/8" between side of rail and face of grip. Also, inside edge of grip should be approximately 1/4" back from face of rail.

2. Due to motion lag, linkage must be adjusted to advance grips (on opposite side of governor) to contact rail before grips on governor side. To accomplish this advancement:

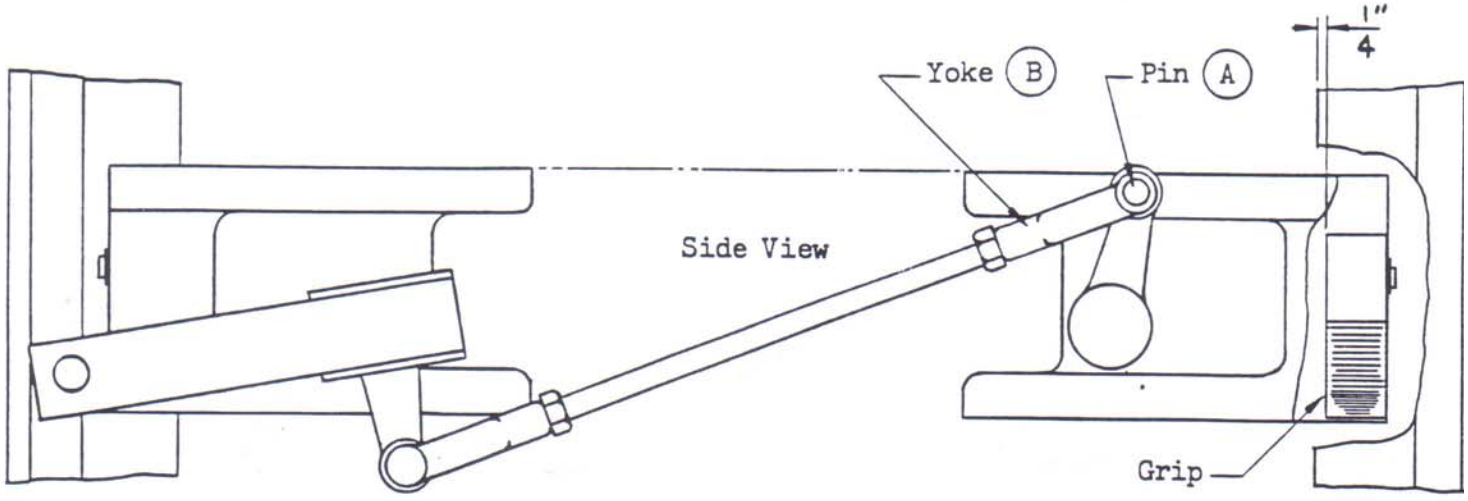
   a. Set all four grips to engage rail at same instant.

   b. Remove pin (A) and thread yoke (B) one full turn toward governor side of car. Re-insert pin (A)

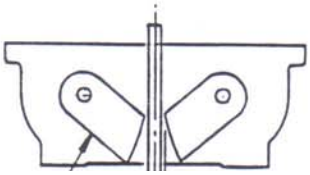
3. Set governor pull-thru at 600 pounds.

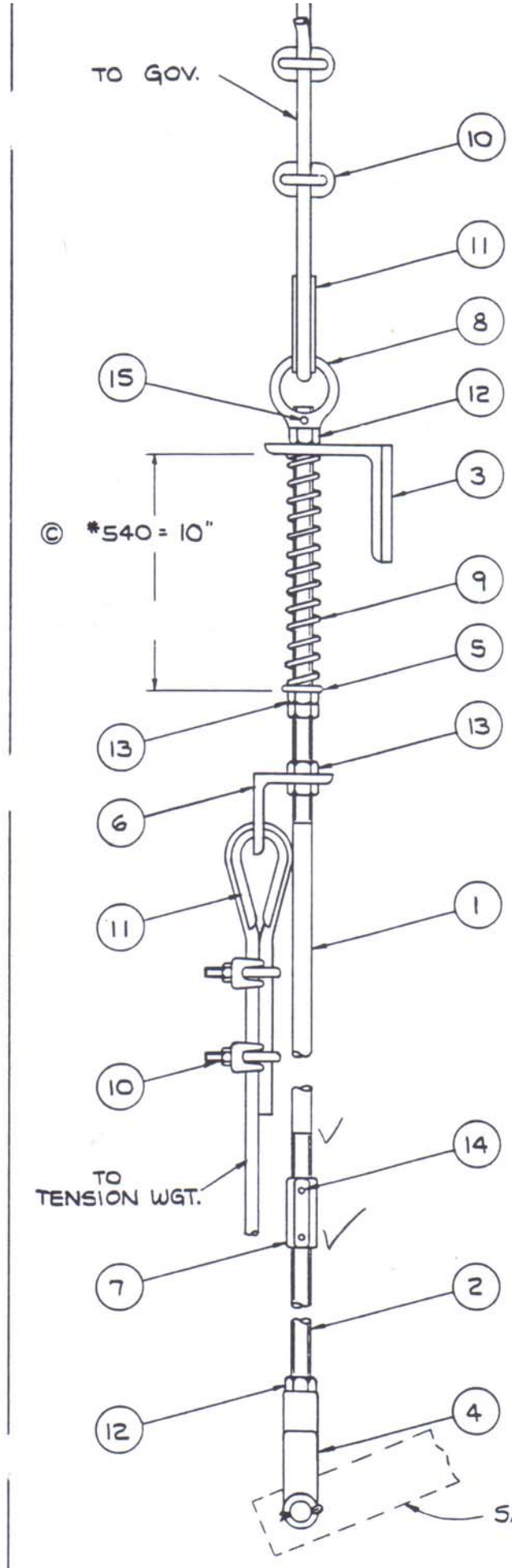
4. To insure proper operation of safety, the guide rails must be clean. Lubricate with rail oil or light coat of Nylub if required.

NOTE: No safety lubrication required.



Front View





1000# capacity car

1	540-8	1	ROD - GOV. (TOP)
2	540-8-1	1	ROD - GOV. (BOTTOM)
3	540-9	1	BRACKET - GOV. ROD
4	540-18	1	YOKE W/ 1/2" PIN (R.H.)
5	540-19	1	RETAINER - SPRING
6	540-22	1	ANGLE - GOV. ROD
7	540-23	1	COUPLING (CHICAGO LINE)
8	540-24	1	YOLK-RING (BUCKEYE #405C
9 Ⓐ	400-65	1	SPRING (540 SAFETY ONL
10	3/8"	4	CLIP - CABLE
11	3/8"	2	THIMBLE - CABLE
12	1/2" N.C.	2	NUT - STD.
13	1/2" N.C.	4	NUT - JAMB
14	1/8" x 3/4"	2	PIN - ROLL
15	1/8" x 1 1/4"	1	PIN - COTTER

USE FOR #540 ~~OR #480~~ SAFETY

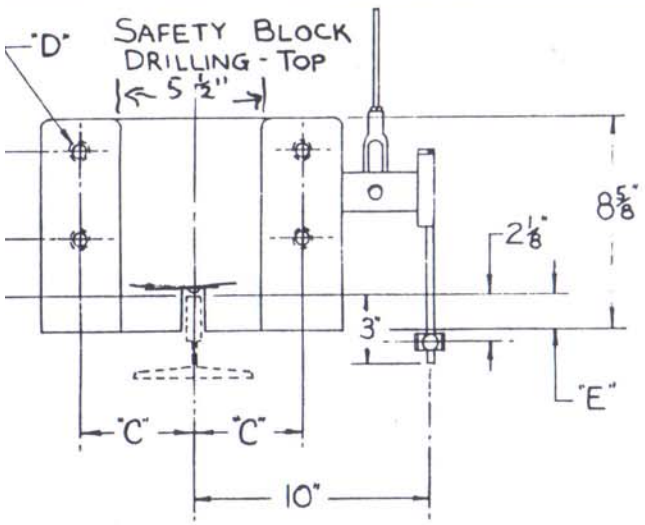
A	WAS #400-56	DA 9-20
B	WAS #400-65	DA 9-20
C	WAS 6"	DA 9-20
D	WAS 10"	DA 9-20

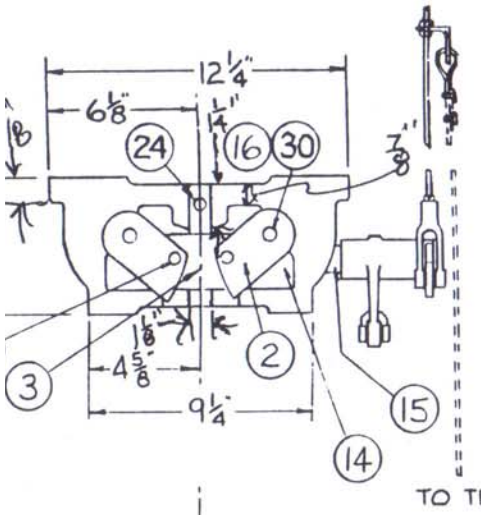
6-15-8

HOLLISTER-WHITNE
ELEVATOR CORP.
QUINCY — ILLINOIS

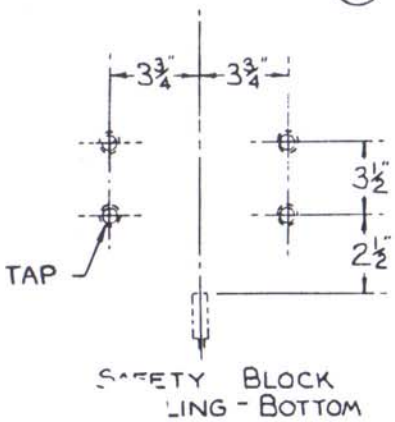
GOVERNOR ROD ASSEMB

ASSEMBLY SHEET | MM 38

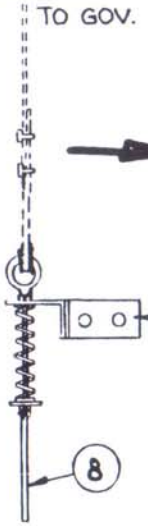




TO TENSION WGT.

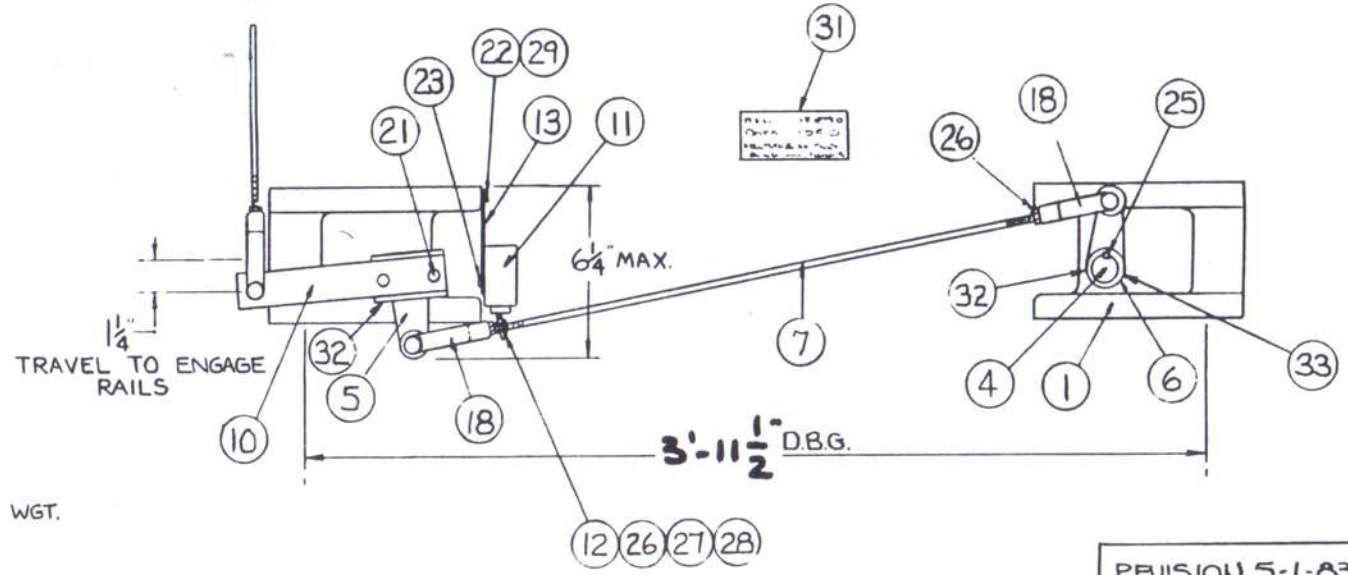


SAFETY BLOCK
DRILLING - BOTTOM

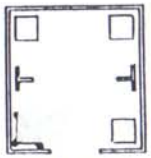


STILE SIZE	"A" 8# ONLY	"A" OTHER	"B"	"C"	"D"	"E" 8# ONLY	"E" OTHER
6"	2 1/4"		3"	4 1/8"	5/8" TAP - 11 THD. - 4 HOLES	1 1/4"	

LOCATE ABOVE CAB TOP ALLOWING FOR ACCESS TO ADJ. NUTS



FOR USE ON 8#, .. RAILS



CORNOR LOCATION

1000# capacity car

REVISION 5-1-83

10 - 1 - 77

HOLLISTER – WHITNEY
ELEVATOR CORP.
QUINCY ——— ILLINOIS

TYPE "A" INSTANTANEOUS SAFETY

ASSEMBLY SHEET

MM 37

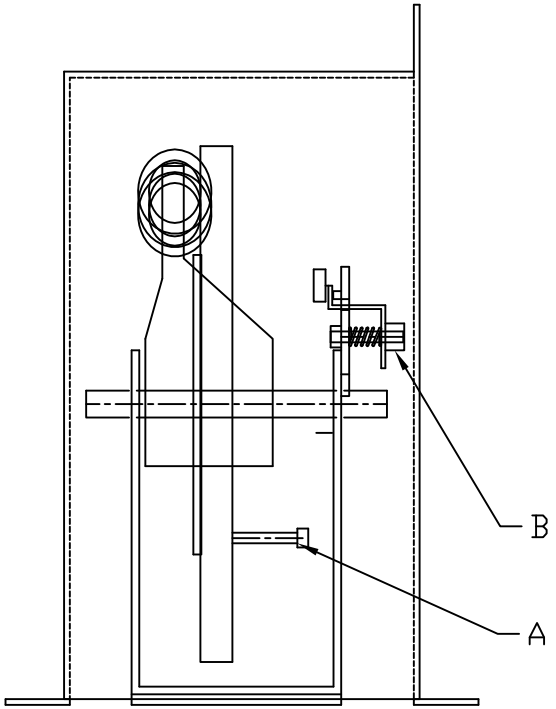
1.) THE MANUAL TRIPPING DEVICE IS MOUNTED ON THE SAME SIDE AS THE LIMIT

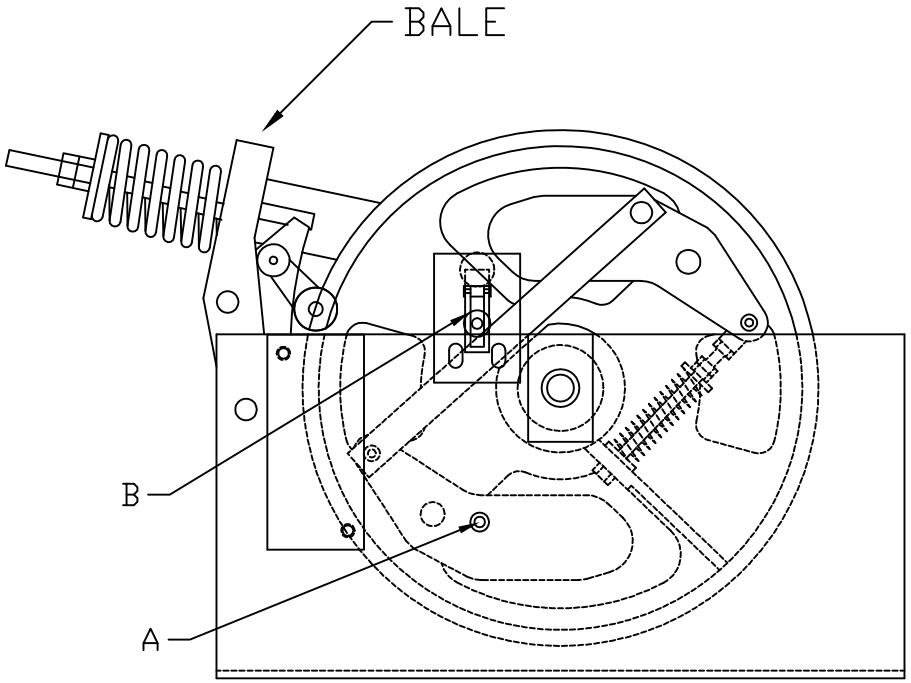
2.) THIS DEVICE IS USED TO MANUALLY TRIP THE GOVERNOR WHEN OPERATING AT PROPER SPEED TO COMPLY WITH THE ANNUAL INSPECTION OF THE PERSONNEL ELEVATOR

3.) THE PIN LOCATED ON THE PAW OF THE GOVERNOR (A) WILL MAKE CONTACT WITH THE TRIP DEVICE UPON COMPRESSING THE SPRING BY PUSHING ON THE AREA MARKED "B"

4.) THE GOVERNOR CAN BE TRIPPED SAFELY BY PROPERLY USING THIS DEVICE

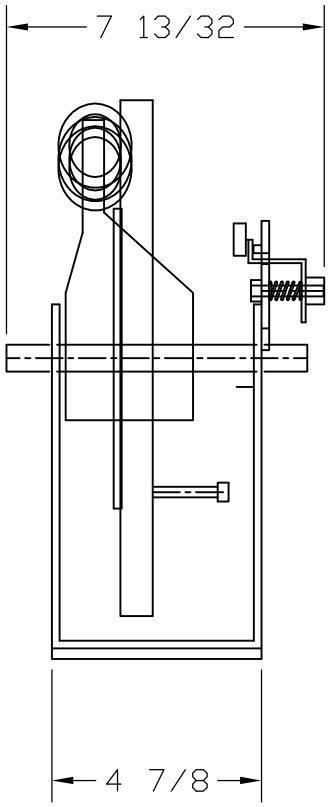
5.) THE DEVICE IS HOUSED IN THE GUARD TO AVOID ACCIDENTAL TRIPPING

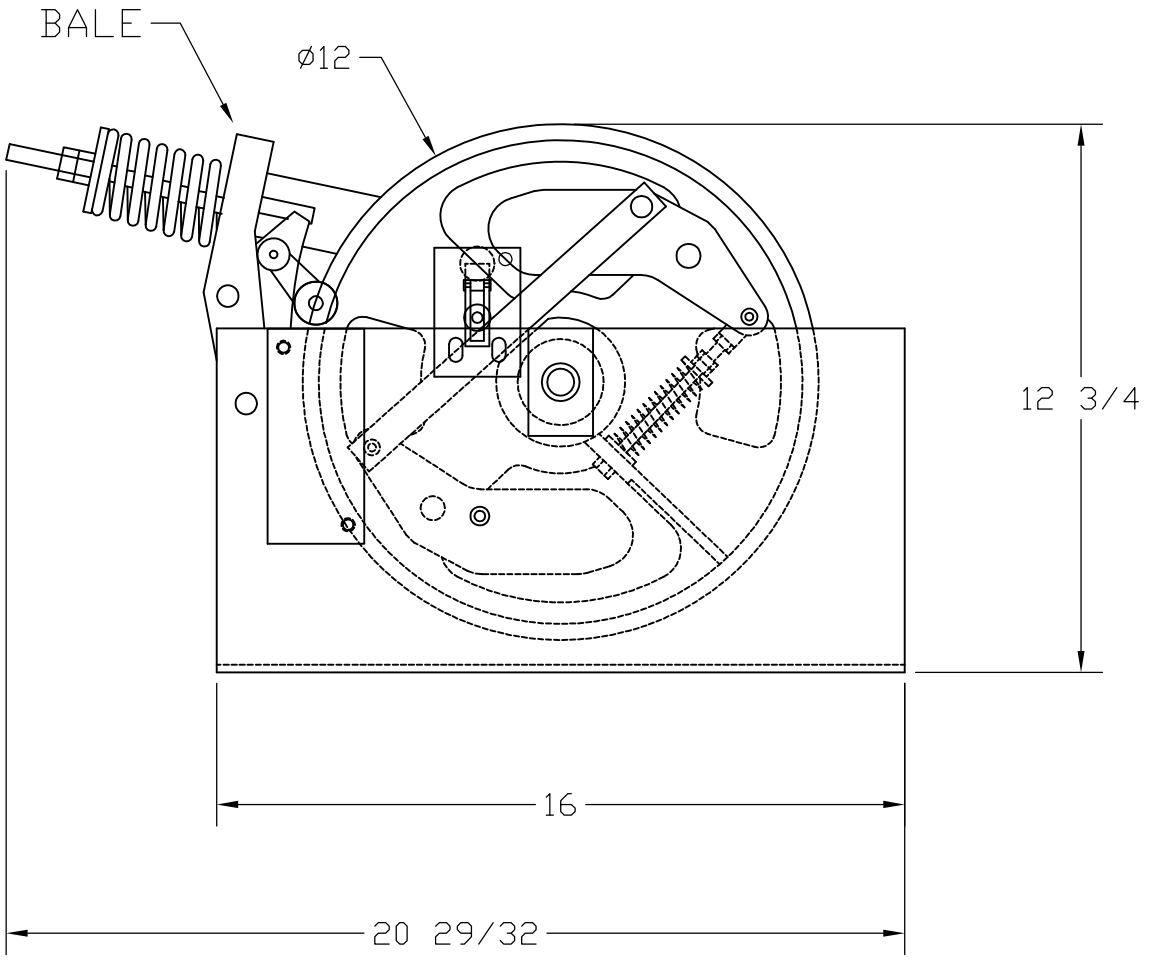




Sidney Manufacturing Company *Custom sheet metal fabrication – producers of industrial products*	DRAWN BY SMS	DATE 2/24/03	TITLE MANUAL GOVERNOR TRIPPING DEVICE INSTRUCTION SHEET	DRAWING NUMBER B-8807-0
	CHECKED	SCALE 1=3		
	APPROVED	SHEET 1 OF 2		

F: STD

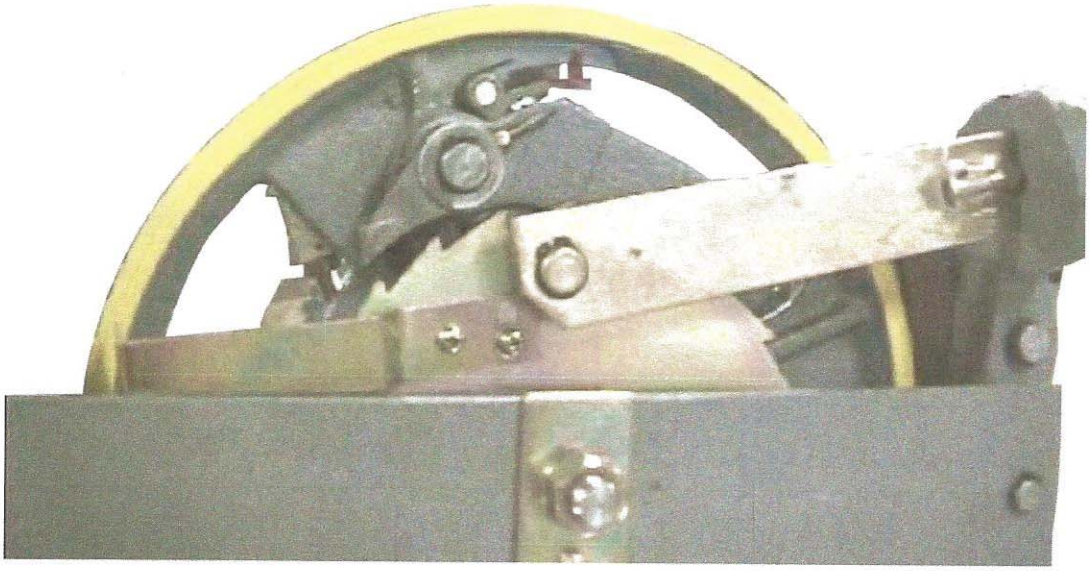




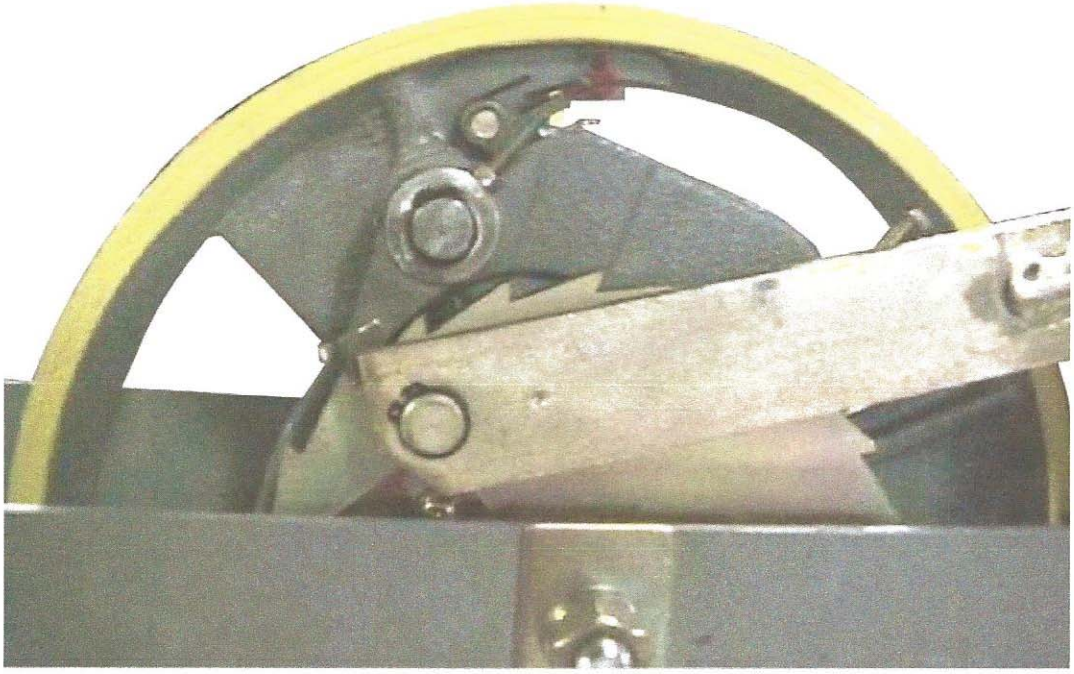
Sidney Manufacturing Company
Custom sheet metal fabrication – producers of industrial products

CF: STD

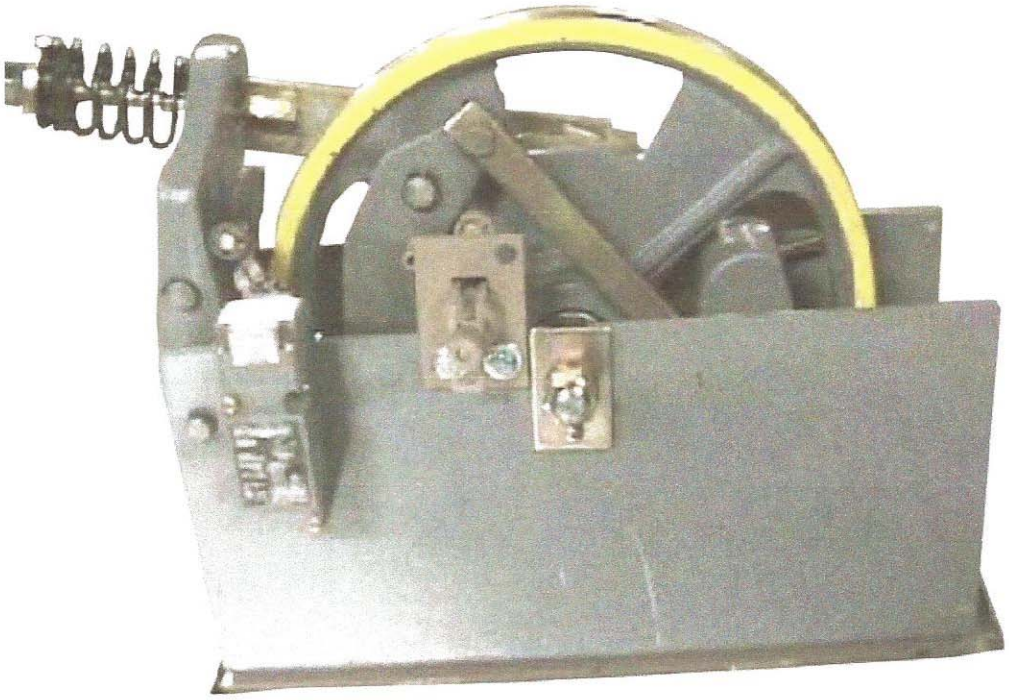
DRAWN BY: SMS	DATE: 2/24/03	TITLE: CERTIFIED GOVERNOR MODEL CE-GV01	DRAWING NUMBER: B-8807-0
CHECKED	SCALE: 1=3		
APPROVED	SHEET 2 OF 2		



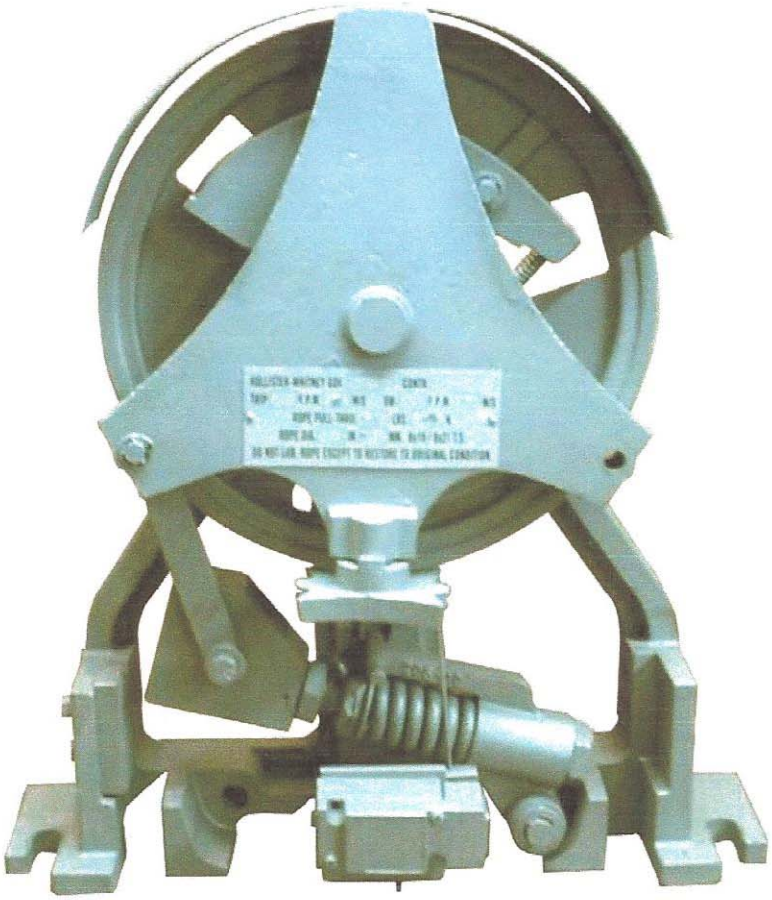
GOV-1



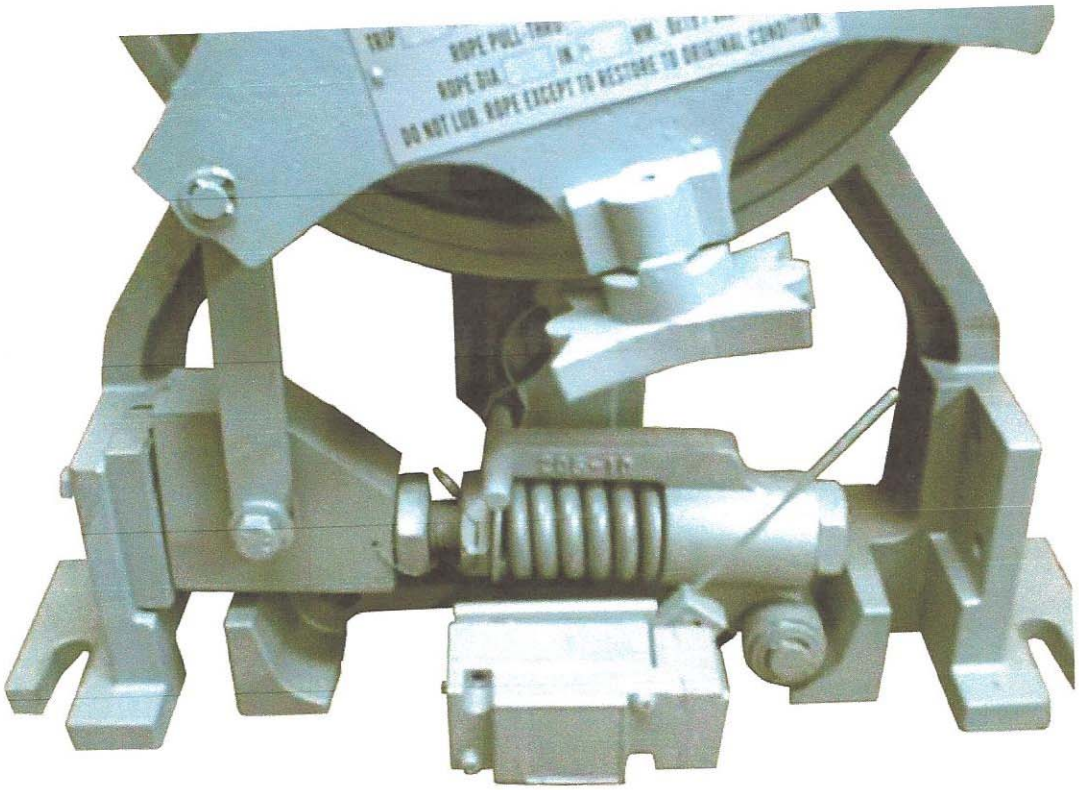
GOV-2



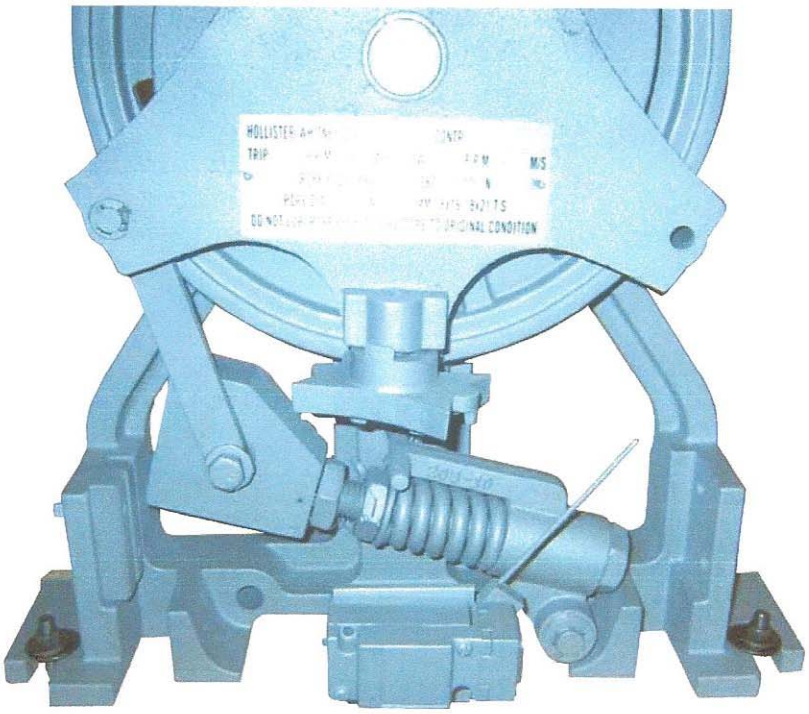
GOV-3



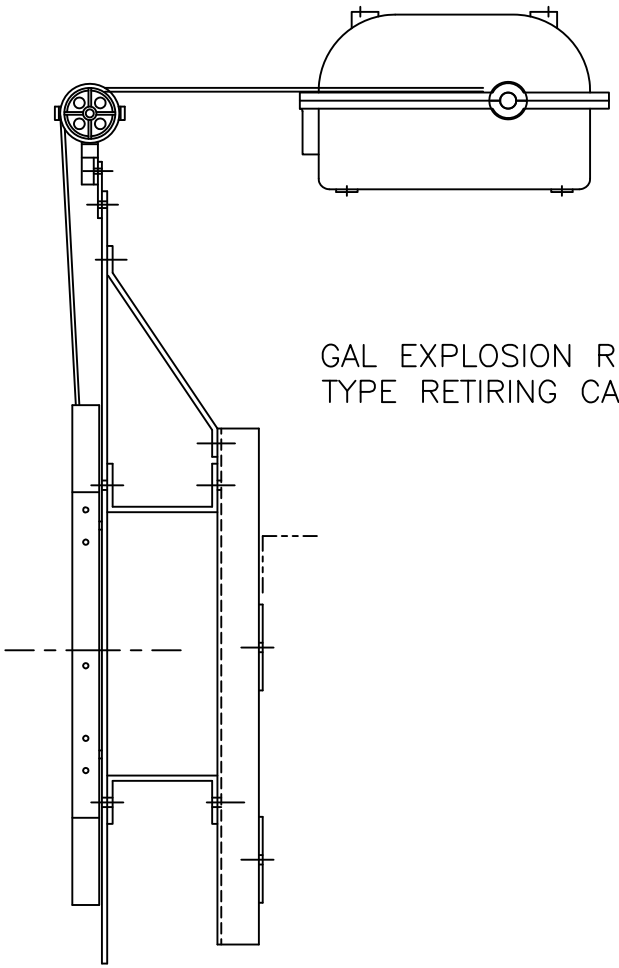
H-W GOV-1



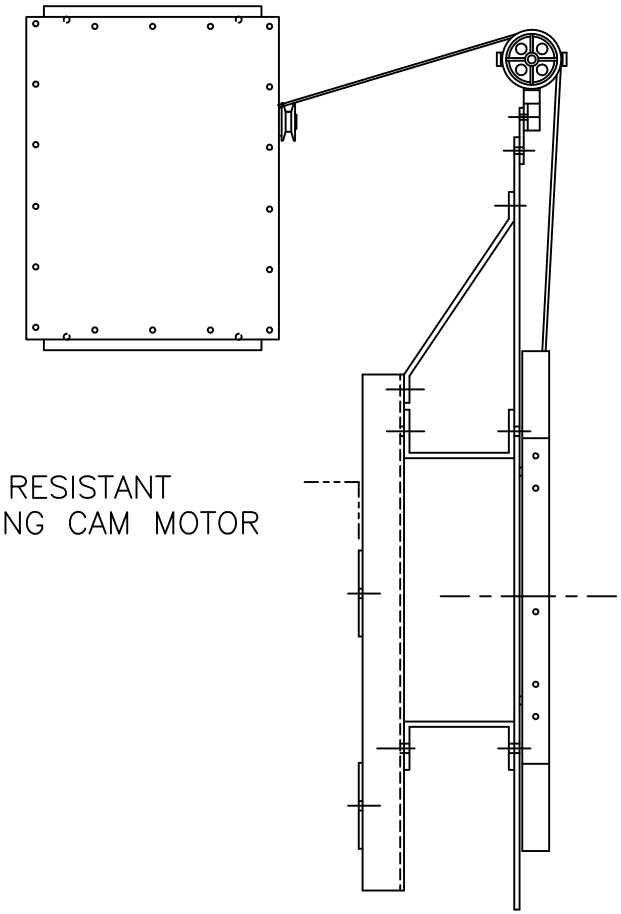
H-W GOV-2



H-W GOV-3



GAL EXPLOSION RESISTANT
TYPE RETIRING CAM MOTOR



GAL WATER RESISTANT
TYPE RETIRING CAM MOTOR

Sidney Manufacturing Company *Custom sheet metal fabrication – producers of industrial products*	DRAWN BY TAG	DATE 5/19/08	TITLE GAL RETIRING CAM ASSEMBLY WITH GAL MOTOR	DRAWING NUMBER B-8590-0
	CHECKED	SCALE 1=6		
	APPROVED	SHEET 1 OF 1		

F: STD

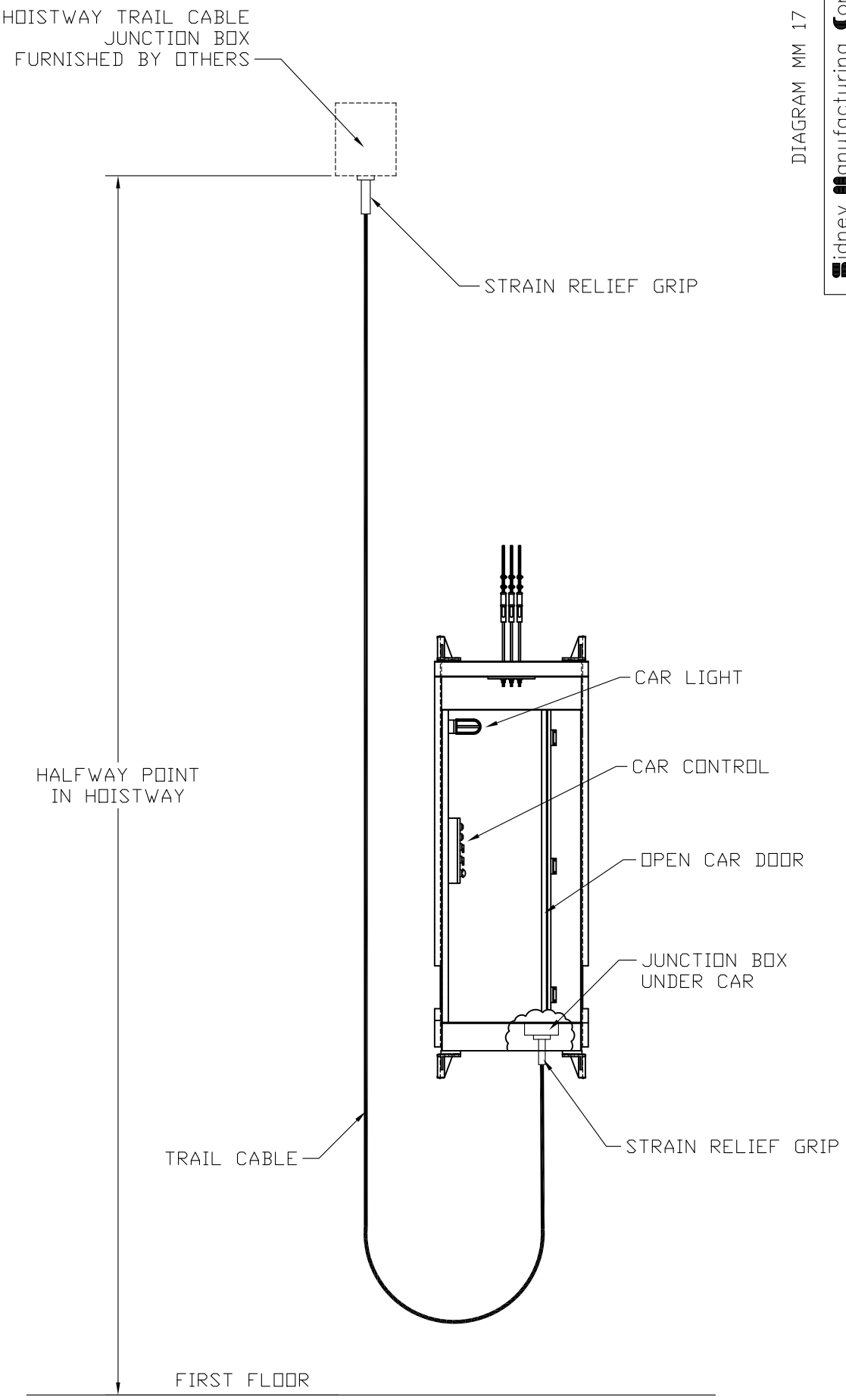


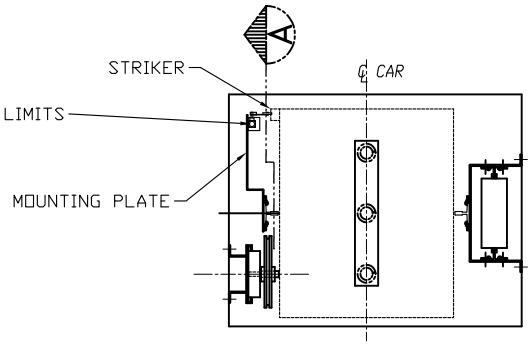
DIAGRAM MM 17

Sidney Manufacturing Company
Custom sheet metal fabrication – producers of industrial products

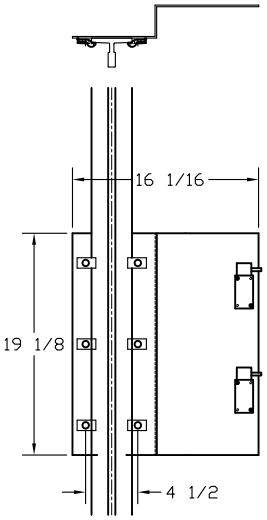
REF: STD

TITLE
ELECTRIC TRAIL CABLE INSTALLATIO

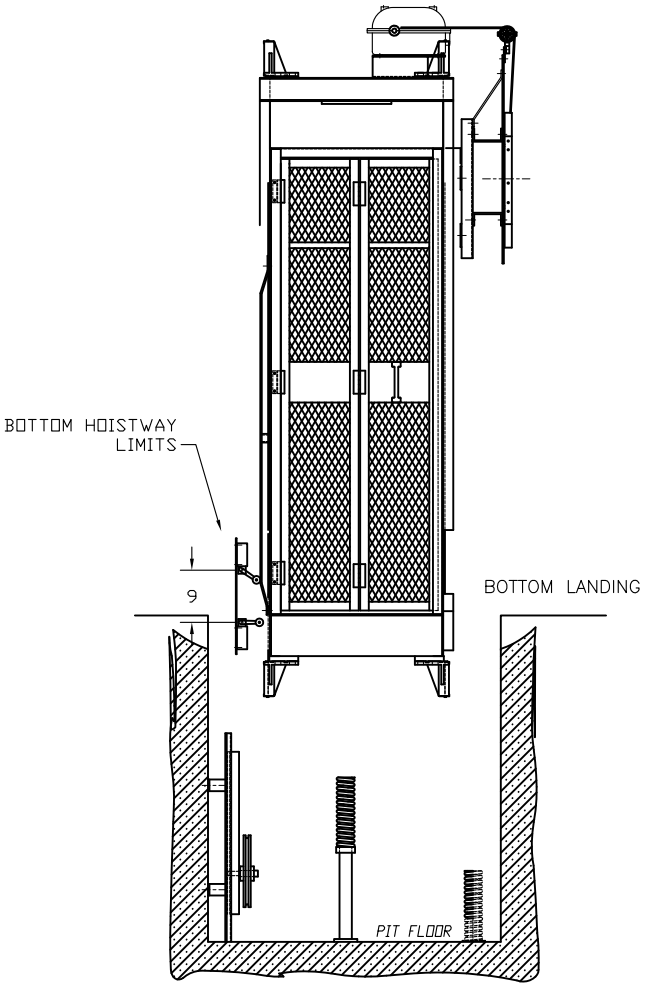
DRAWN BY TAG	DATE 2/23/12	DRAWING NUMBER 7401	
CHECKED	SCALE		
APPROVED	SHEET 1 OF 1	SUPERSEDES	SUPERSEDED BY

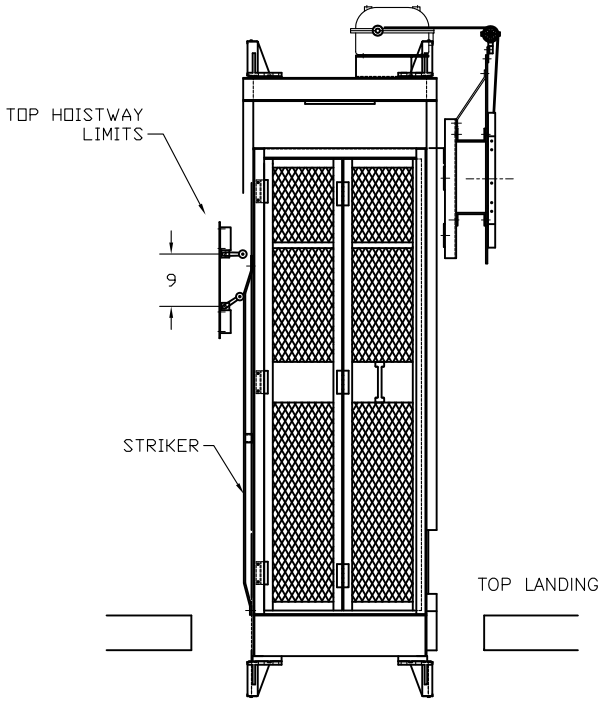


TOP VIEW



VIEW A





NOTES:

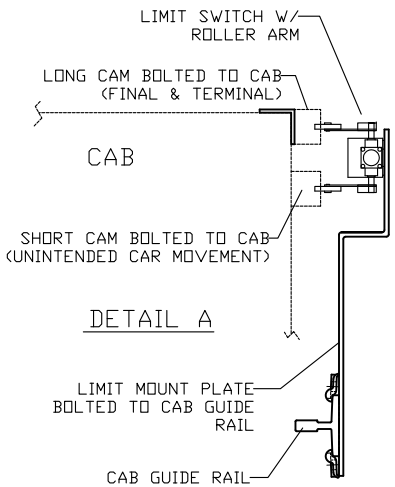
- STRIKER MOUNTED ON CAB BY INSTALLING CONTRACTOR
- FINAL AND TERMINAL LIMIT SWITCHES MOUNT TO MOUNTING PLATE (SUPPLIED BY MANUFACTURER)
- MOUNTING PLATE MOUNTS TO GUIDE RAIL WITH RAIL CLIPS (SUPPLIED BY MANUFACTURER)
- MOUNT AND ADJUST TERMINAL LIMITS TOP AND BOTTOM, SO THAT THE STRIKER MAKES CONTACT WITH THE ROLLER LEVER AND STOPS THE CAB FLOOR EVEN WITH ITS RESPECTIVE LANDINGS. WHEN THIS IS ACCOMPLISHED MOUNT FINAL LIMIT AS SHOWN. SEE WIRING DIAGRAHM FOR WIRING INSTRUCTION.

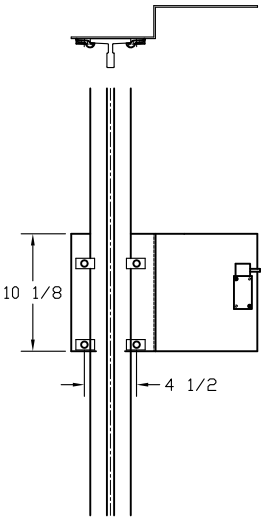
Sidney Manufacturing Comp
Custom sheet metal fabrication – producers of industrial prod

REF: STD

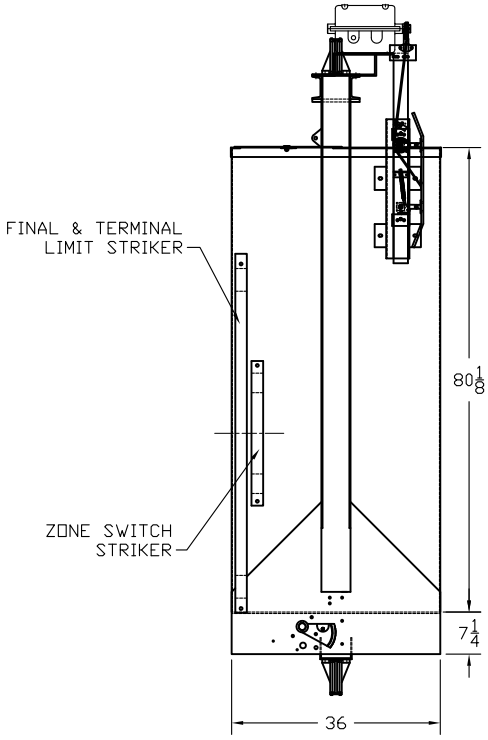
TITLE
FINAL AND TERMINAL LIMIT SWI
LOCATION DETAILS

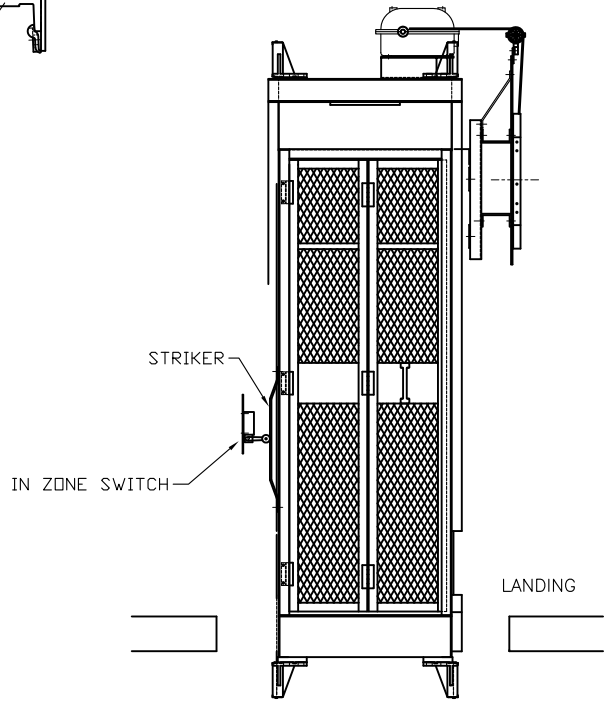
DRAWN BY	DATE	DRAWING NUMBER
SMS	5/19/08	6191-02 F
CHECKED	SCALE 1=16	
APPROVED	SHEET 1 OF 1	SUPERSEDES / SUPERSEDED BY





VIEW A





NOTES:

–STRIKER MOUNTED ON CAB BY INSTALLING CONTRACTOR

–"IN ZONE" LIMIT SWITCHES MOUNT TO MOUNTING PLATE (SUPPLIED BY MANUFACTURER)

–MOUNTING PLATE MOUNTS TO GUIDE RAIL WITH RAIL CLIPS (SUPPLIED BY MANUFACTURER)

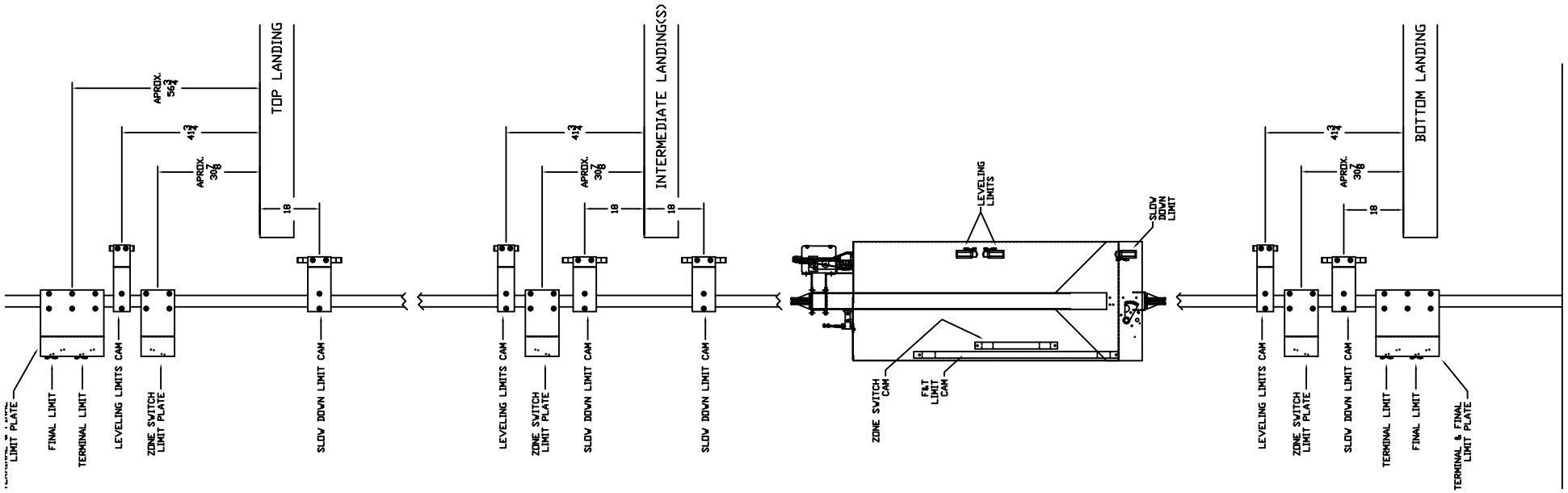
–MOUNT AND ADJUST ZONE LIMITS, SO THAT THE LIMIT SWITCH LEVER ARM IS IN THE CENTER OF THE STRIKER WHEN CAR IS LEVEL WITH ITS LANDING. IF THE CAR WERE TO DRIFT 7" UP OR 7" DOWN THE LIMIT SWITCH LEVER ARM SHOULD LOOSE CONTACT WITH THE STRIKER.
SEE WIRING DIAGRAM FOR WIRING INSTRUCTION.

Sidney Manufacturing Comp
Custom sheet metal fabrication – producers of industrial prod

REF: STD

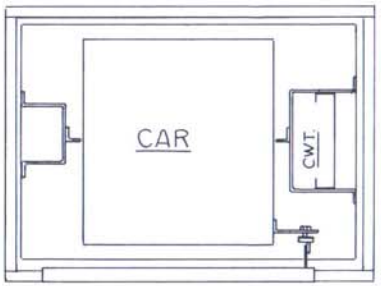
TITLE
UNINTENDED CAR MOVEMENT ZON
SWITCH LOCATION DETAILS

DRAWN BY: TAG	DATE: 11/11/08	DRAWING NUMBER: 6191-02
CHECKED	SCALE: 1=16	
APPROVED	SHEET 1 OF 1	SUPERSEDES / SUPERSEDED BY

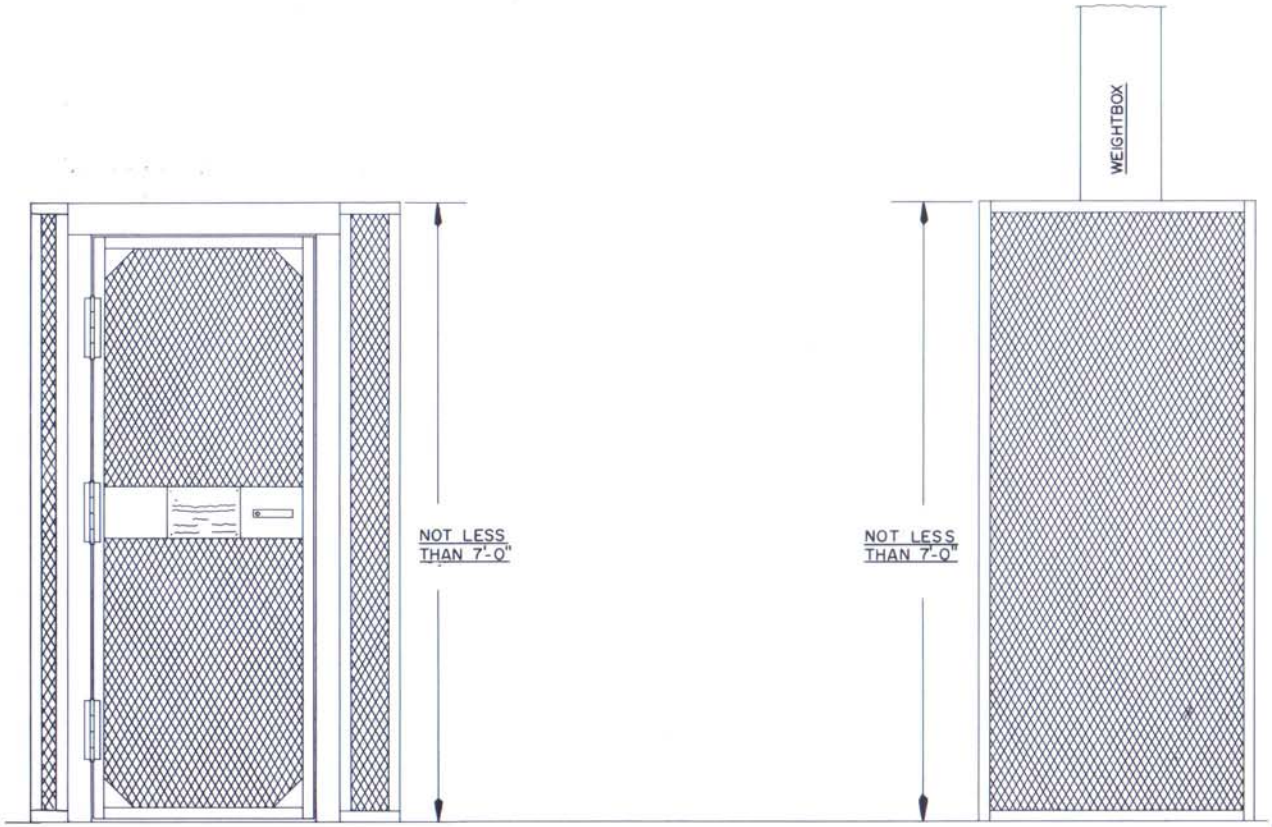


Sidney Manufacturing Company *Custom sheet metal fabrication – producers of industrial products*	DRAWN BY TAG	DATE 2/29/12	TITLE SPECIAL PURPOSE PERSONNEL ELEV. SINGLE AUTOMATIC CONTROL HOISTWAY CAM LOCATIONS
	CHECKED	SCALE	
	APPROVED	SHEET 1 OF 1	

DRAWING NUMBER
SINGLE AUTO



TOP VIEW



FRONT VIEW

SIDE VIEW

DIAGRAM MM 20

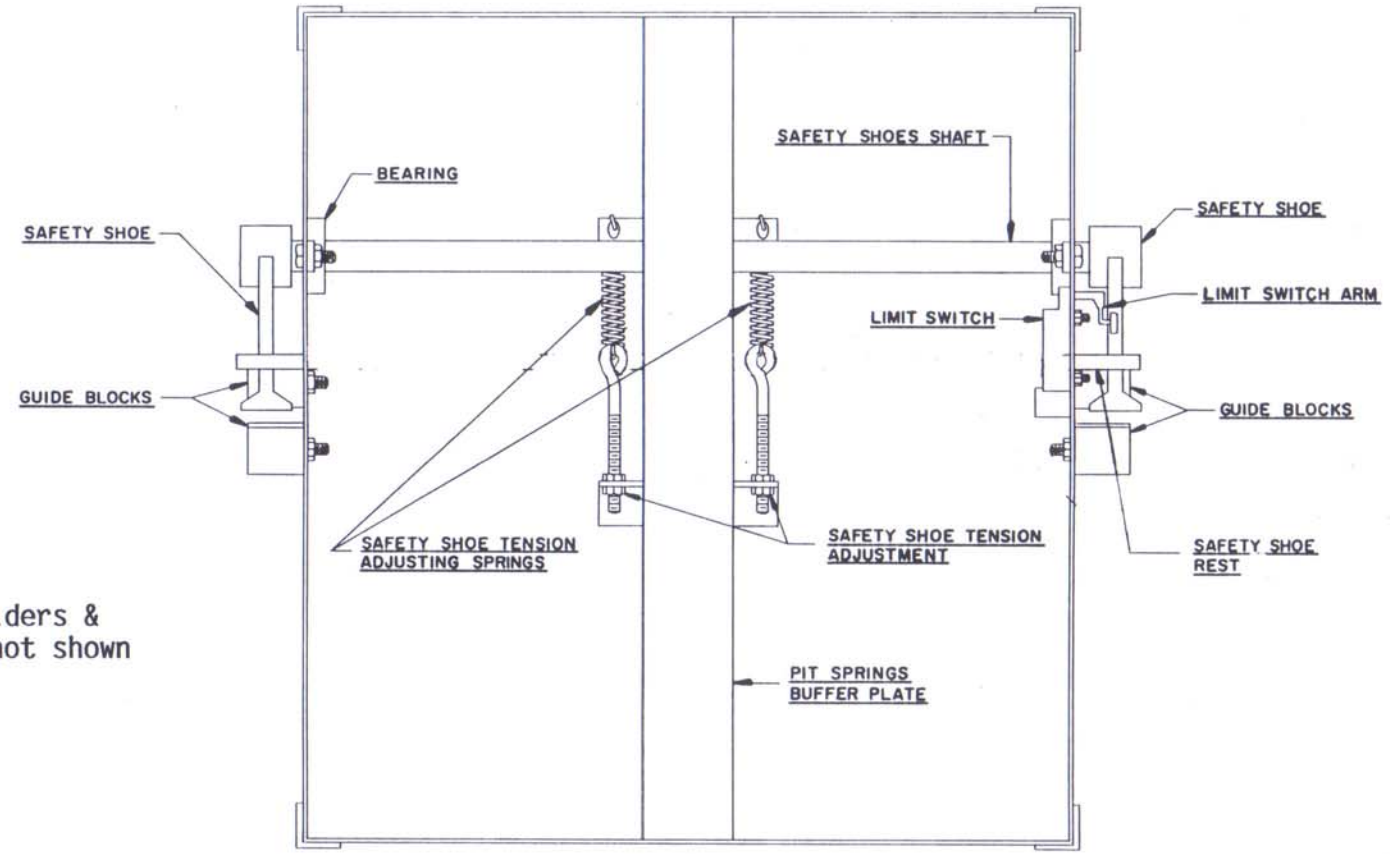
TYPICAL HOISTWAY ENCLOSURE

(BY OTHERS)

Sidney Manufacturing Company
Custom sheet metal fabrication — producers of industrial products

TITLE	HOISTWAY ENCLOSURE
SCALE	N/A
S.O. NUMBER	
DRN. BY	J.A.T.
CHK. BY	
DATE	8-27-90
DRAWING NUMBER	CC-7390

⚠ SMC TITLE BLOCK 8-27-90



NOTE:
UHMW guide holders &
guide blocks not shown

DIAGRAM MM 21

CAR BOTTOM, 300 & 500 LB CAPACITY UNITS

Sidney Manufacturing Compa
Custom sheet metal fabrication — producers of industrial products

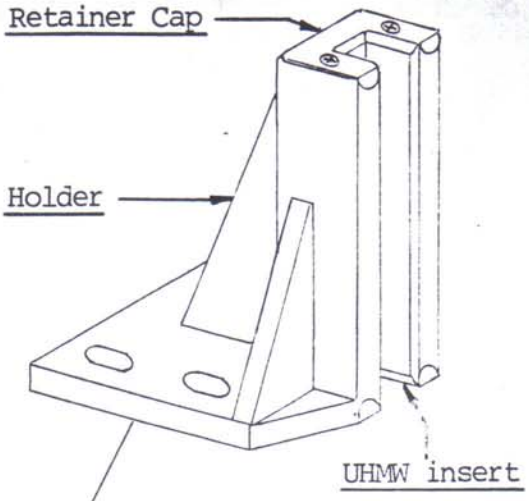
TITLE SAFETY SHOE TENSION ADJUSTMENT

SCALE N/A
SO NUMBER
DRN BY JAT.
CHK BY
DATE 8-27-90

DRAWING NUMBER CC-7404

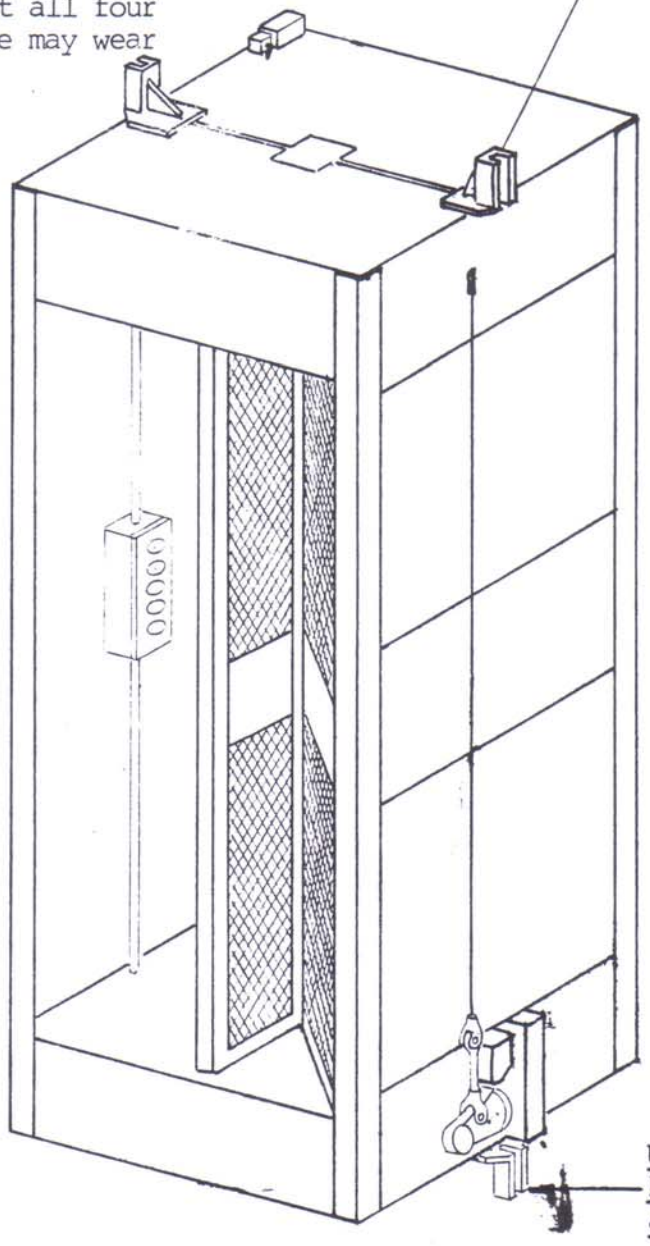
⚠SMS TITLE BLOCK 8-21-90

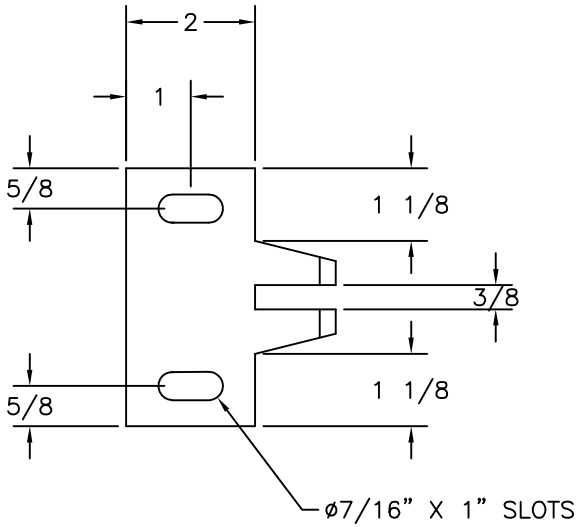
The UHMW inserts are extremely abrasion resistive. Replacement will depend on frequency of use and condition of guide rails. Inspect inserts every three months for wear. Replace inserts before they have worn enough to allow the rails to come in contact with any steel portion of the insert holder or car.

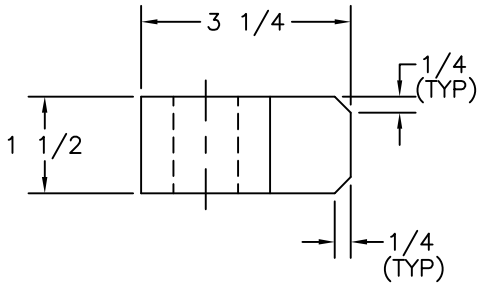


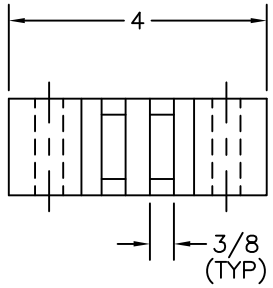
Remove two screws and retainer cap to slide inserts out of holder. To replace slip UHMW insert over guide rail and slide insert on guide rail back into holder. Replace retaining cap.

Always inspect all four inserts as one may wear more than another.









2		BEING USED FOR ALL (4) MANLIFTS	2/29/96
1		WAS CC-7357, REDRAWN ON CAD	5/25/95

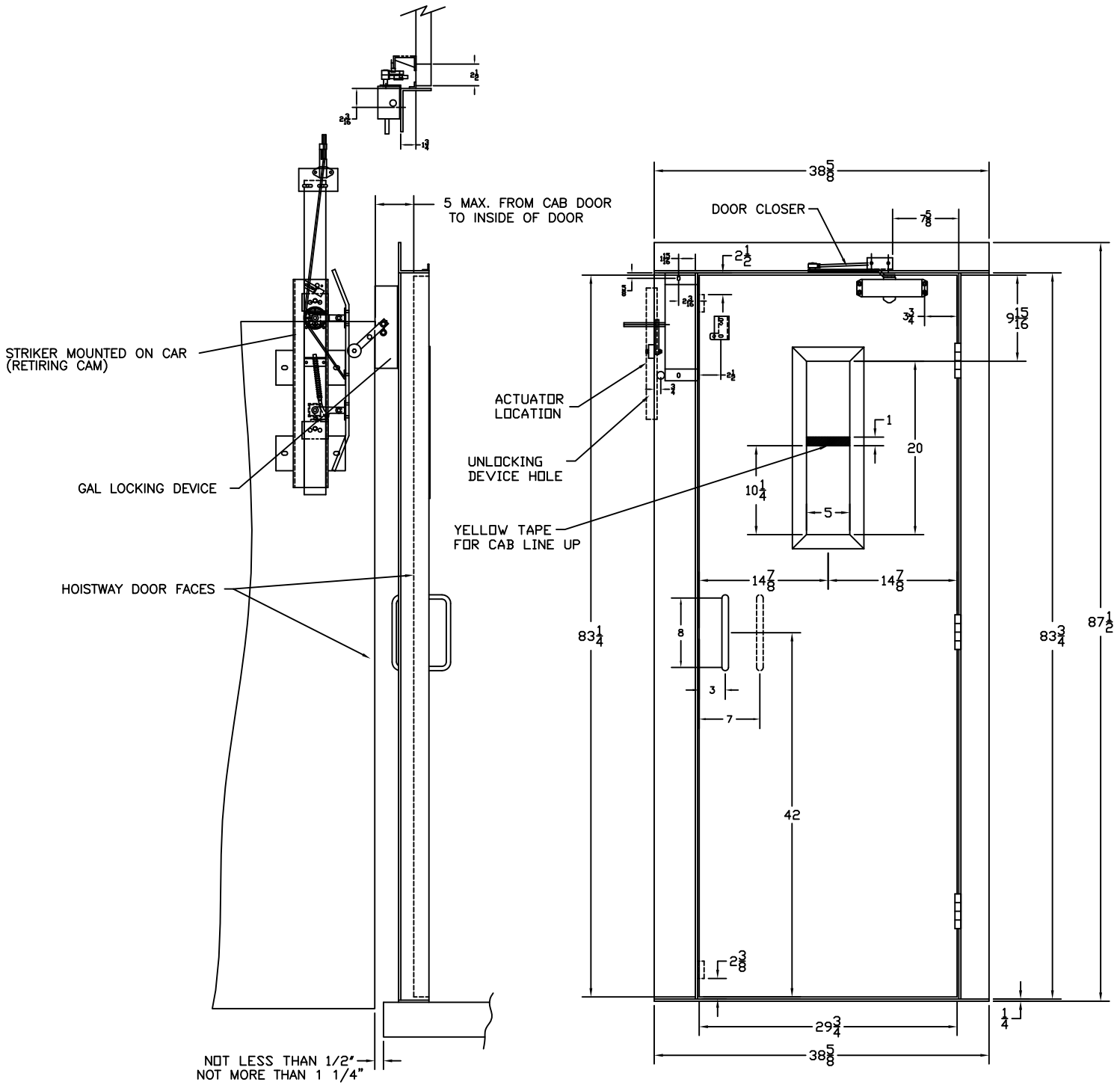
Sidney Manufacturing Company
Custom sheet metal fabrication – producers of industrial products

DRAWN BY: JON | DATE: 7/9/90
CHECKED | SCALE: NTS
APPROVED | SHEET 1 OF 1

TITLE: UHMW COUNTERWEIGHT GUIDE BLOCK

DRAWING NUMBER: B-7357-0

F: STD

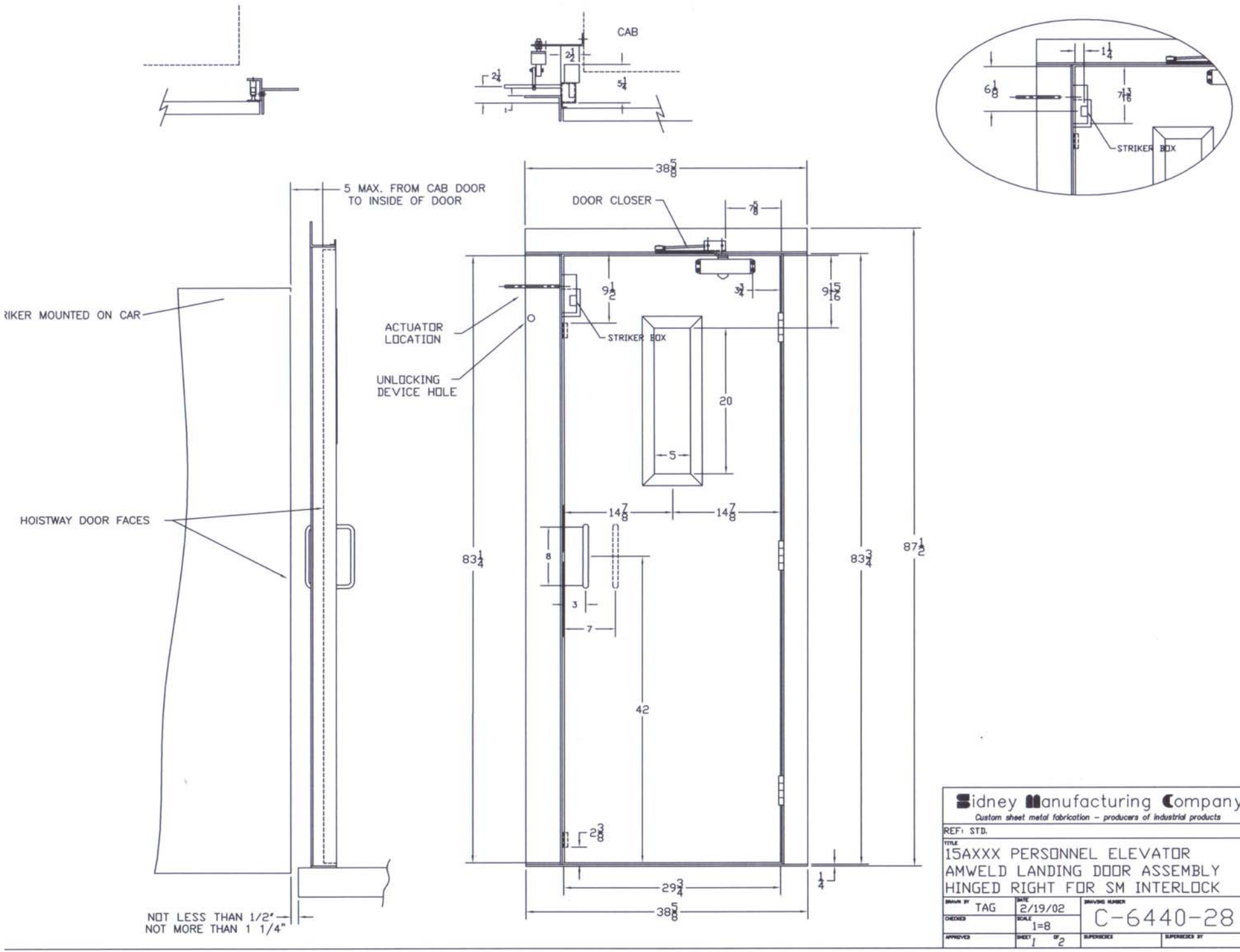


Sidney Manufacturing Comp
Custom sheet metal fabrication – producers of industrial prod

REF: STD.

TITLE
15AXXX-RC PERSONNEL ELEVATO
AMWELD LANDING DOOR ASSEMBL
HINGED RIGHT FOR RETIRING CA

DRAWN BY SMS	DATE 2/11/00	DRAWING NUMBER C-6440-	
CHECKED	SCALE 1=8		
APPROVED	SHEET 1 OF 3	SUPERSEDES	SUPERSEDED BY



Sidney Manufacturing Company

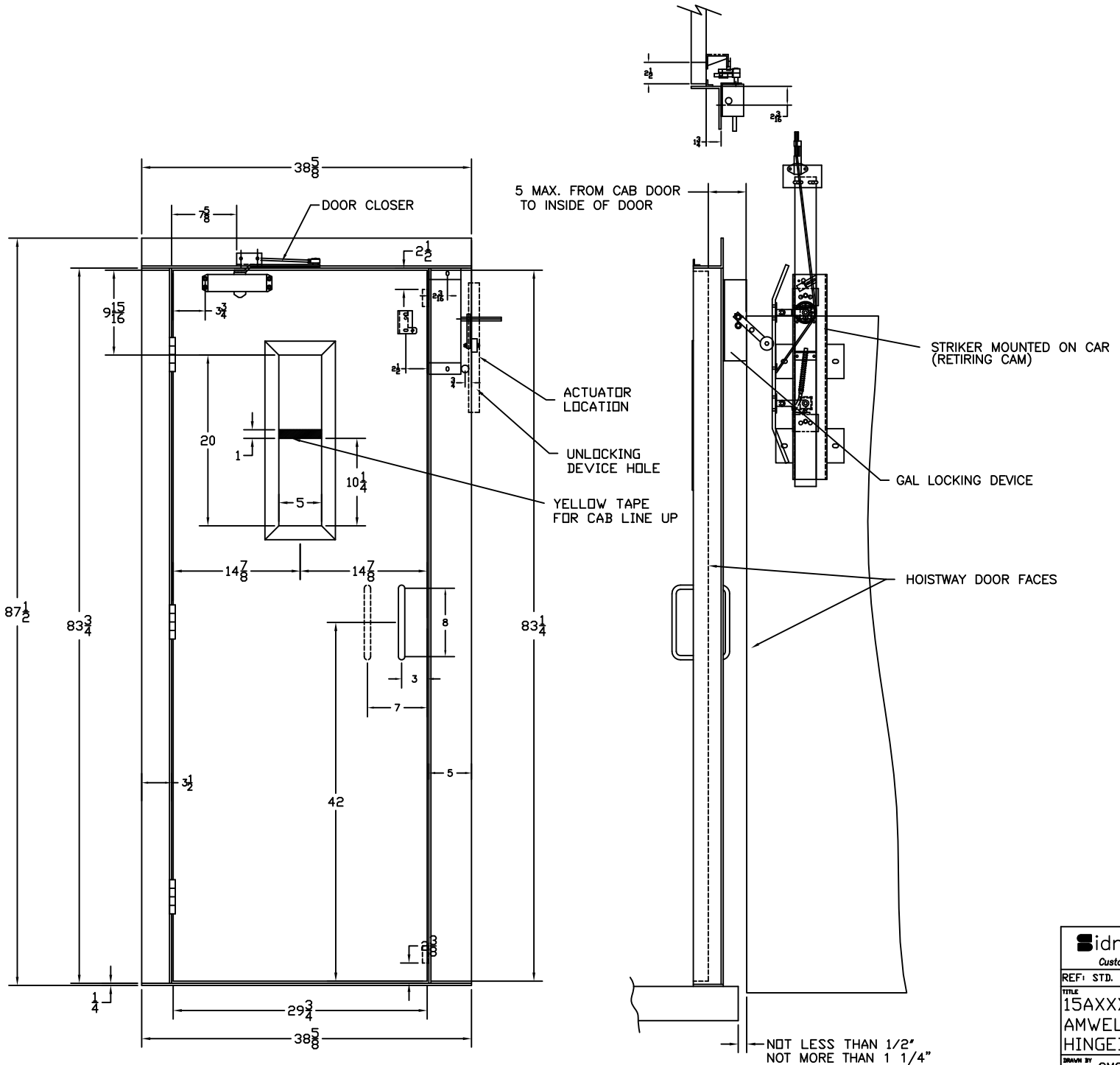
Custom sheet metal fabrication – producers of industrial products

REF: STD.

TITLE

15AXXX PERSONNEL ELEVATOR
AMWELD LANDING DOOR ASSEMBLY
HINGED RIGHT FOR SM INTERLOCK

DRAWN BY: TAG	DATE: 2/19/02	DRAWING NUMBER: C-6440-28
CHECKED	SCALE: 1=8	
APPROVED	SHEET 1 OF 2	SUPERSEDES / SUPERSEDED BY

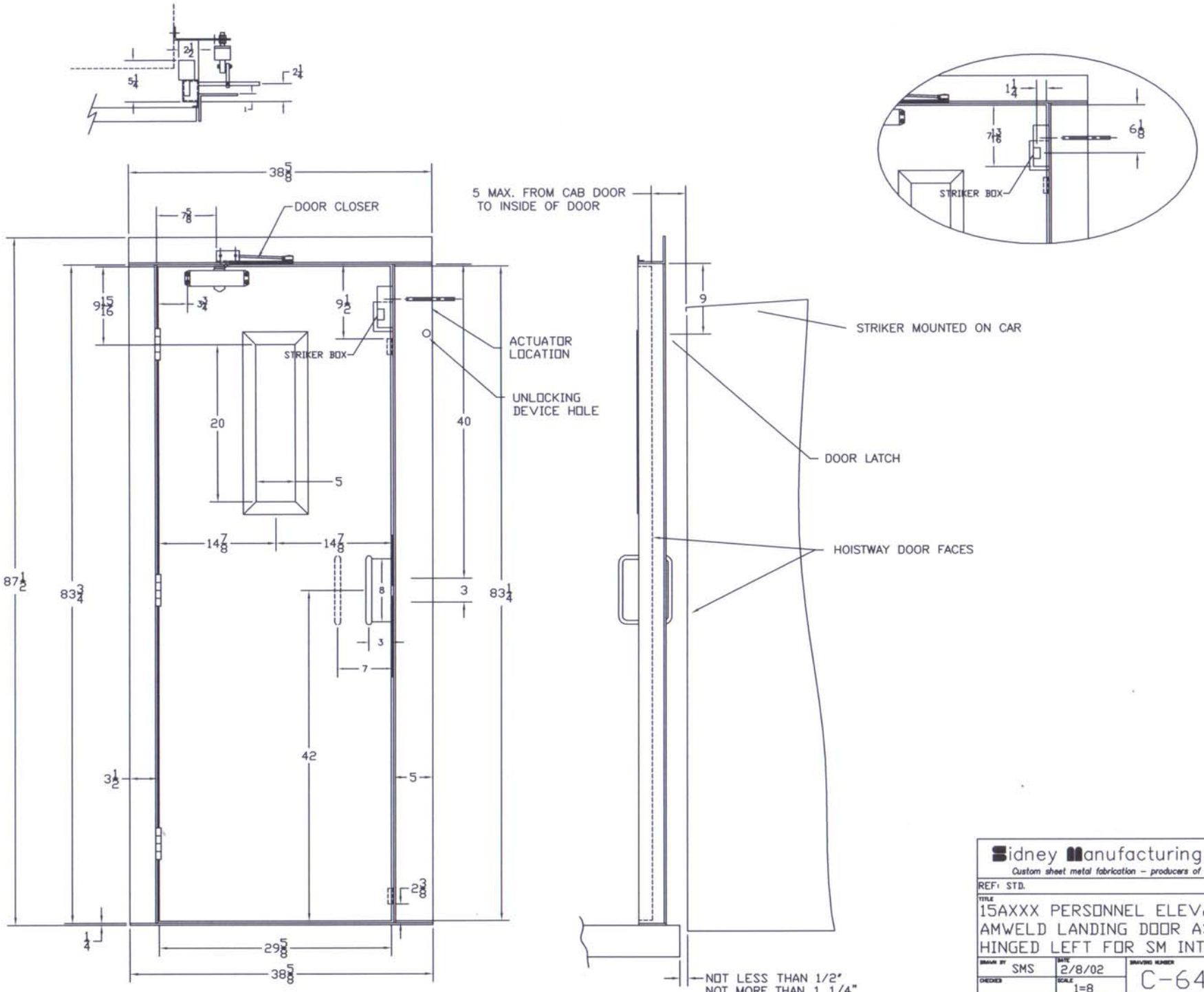


Sidney Manufacturing Comp
Custom sheet metal fabrication – producers of industrial prod

REF: STD.

TITLE
15AXXX-RC PERSONNEL ELEVATO
AMWELD LANDING DOOR ASSEMBL
HINGED LEFT FOR RETIRING CAM

DRAWN BY: SMS	DATE: 4/19/00	DRAWING NUMBER: C-6440-	
CHECKED	SCALE: 1=8		
APPROVED	SHEET 1 OF 3	SUPERSEDES	SUPERSEDED BY



Sidney Manufacturing Company

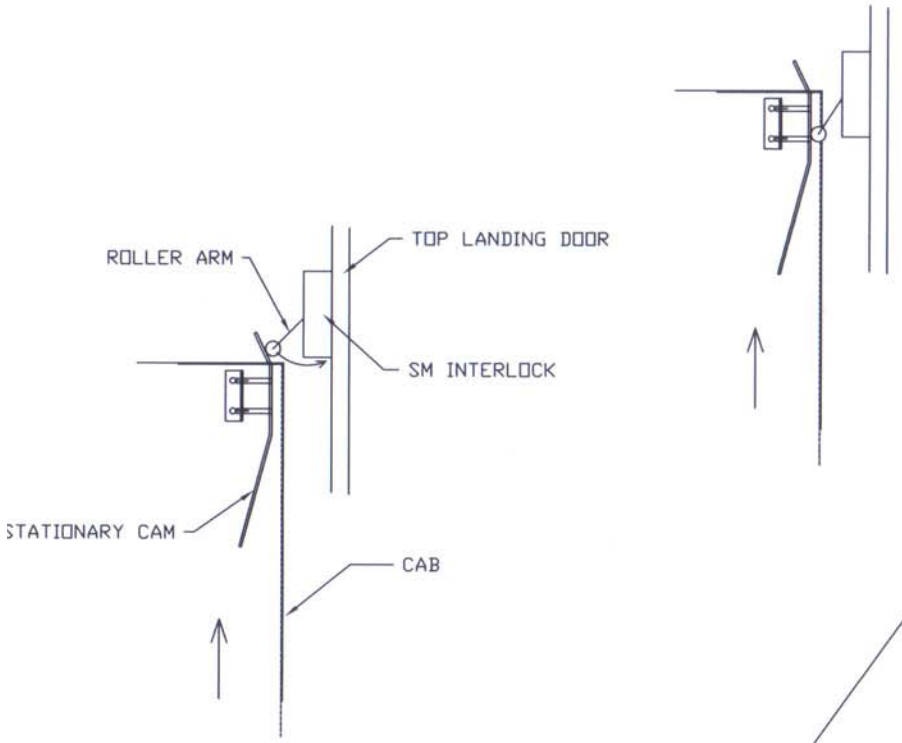
Custom sheet metal fabrication – producers of industrial products

REF: STD.

TITLE

15AXXX PERSONNEL ELEVATOR
AMWELD LANDING DOOR ASSEMBLY
HINGED LEFT FOR SM INTERLOCK

DRAWN BY	DATE	DRAWING NUMBER
SMS	2/8/02	C-6440-29
CHECKED	SCALE 1=8	
APPROVED	SHEET 1 OF 2	SUPERSEDES / SUPERSEDED BY



GAL TYPE "SM" INTERLOCK

LEFT HAND INTERLOCK FOR
A RIGHT HAND HINGED DOOR

GAL TYPE "SM" INTERLOCK

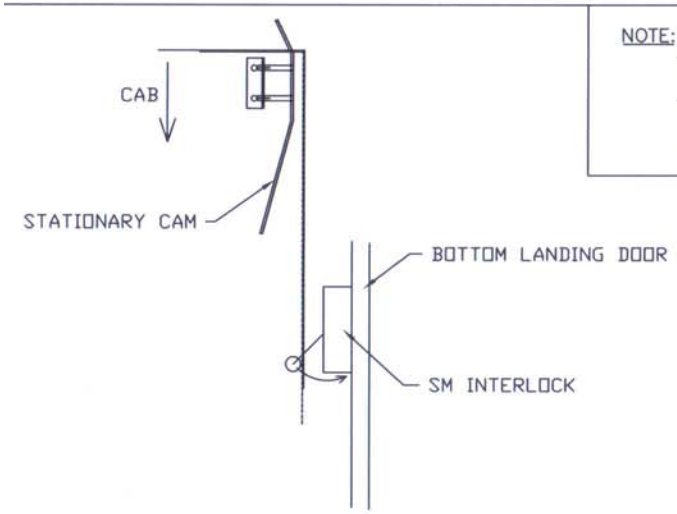
RIGHT HAND INTERLOCK FOR
A LEFT HAND HINGED DOOR

NOTE: ROLLER ARM APPROX. 45°
- –CHECK ROTATION OF SHAFT FOR PROPER ROTATION BEFORE RUNNING CAR.
- –STATIONARY CAM ON CAR AND ROLLER ARM NEEDS TO BE ADJUSTED SO ROLLER ARM DOES NOT OVER ROTATE

Sidney Manufacturing Company
Custom sheet metal fabrication – producers of industrial products

REF: archive\manlift\sminterlock.dwg

DRAWN BY: TAG	DATE: 2/23/05	TITLE: GAL-SM INTERLOCK DETAIL	DRAWING NUMBER: B-GALSM-01U
CHECKED	SCALE: 1=6		
APPROVED	SHEET 1 OF 1	CAB TRAVELING UP	



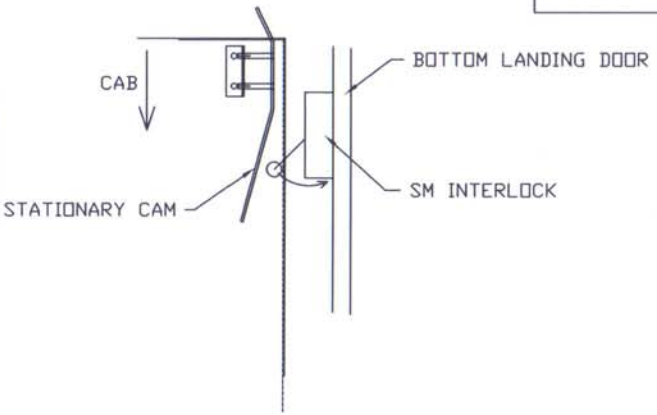
NOTE: ROLLER ARM APPROX. 45°
- CHECK ROTATION OF SHAFT FOR PROPER ROTATION BEFORE RUNNING CAR.
- STATIONARY CAM ON CAR AND ROLLER ARM NEEDS TO BE ADJUSTED SO ROLLER ARM DOES NOT OVER ROTATE

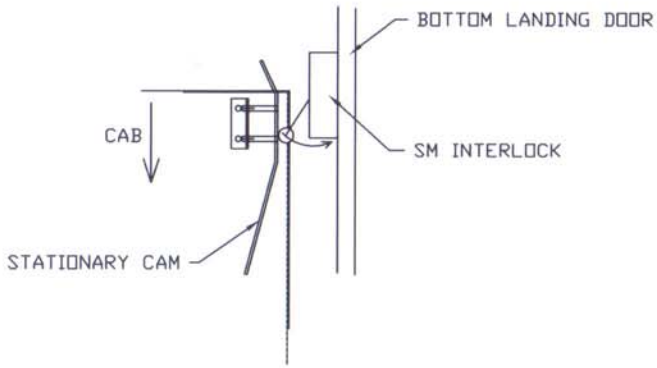
GAL TYPE "SM" INTERLOCK

RIGHT HAND INTERLOCK FOR
A LEFT HAND HINGED DOOR

GAL TYPE "SM" INTERLOCK

LEFT HAND INTERLOCK FOR
A RIGHT HAND HINGED DOOR





Sidney Manufacturing Company
Custom sheet metal fabrication – producers of industrial products
F: archive\manlift\sminterlock.dwg

DRAWN BY	DATE
TAG	2/23/05
CHECKED	SCALE
	1=6
APPROVED	SHEET OF
	1 1

TITLE: GAL-SM INTERLOCK DETAIL
CAB TRAVELING DOWN

DRAWING NUMBER: B-GALSM-01D

GENERAL SPECIFICATIONS:

-WHEN INSTALLING WIRE ROPE IN WEDGE SOCKET, ALWAYS PRE-LOAD THE WEDGE WITH WIRE ROPE IN PLACE, THEN ATTACH RETAINER CLIP.

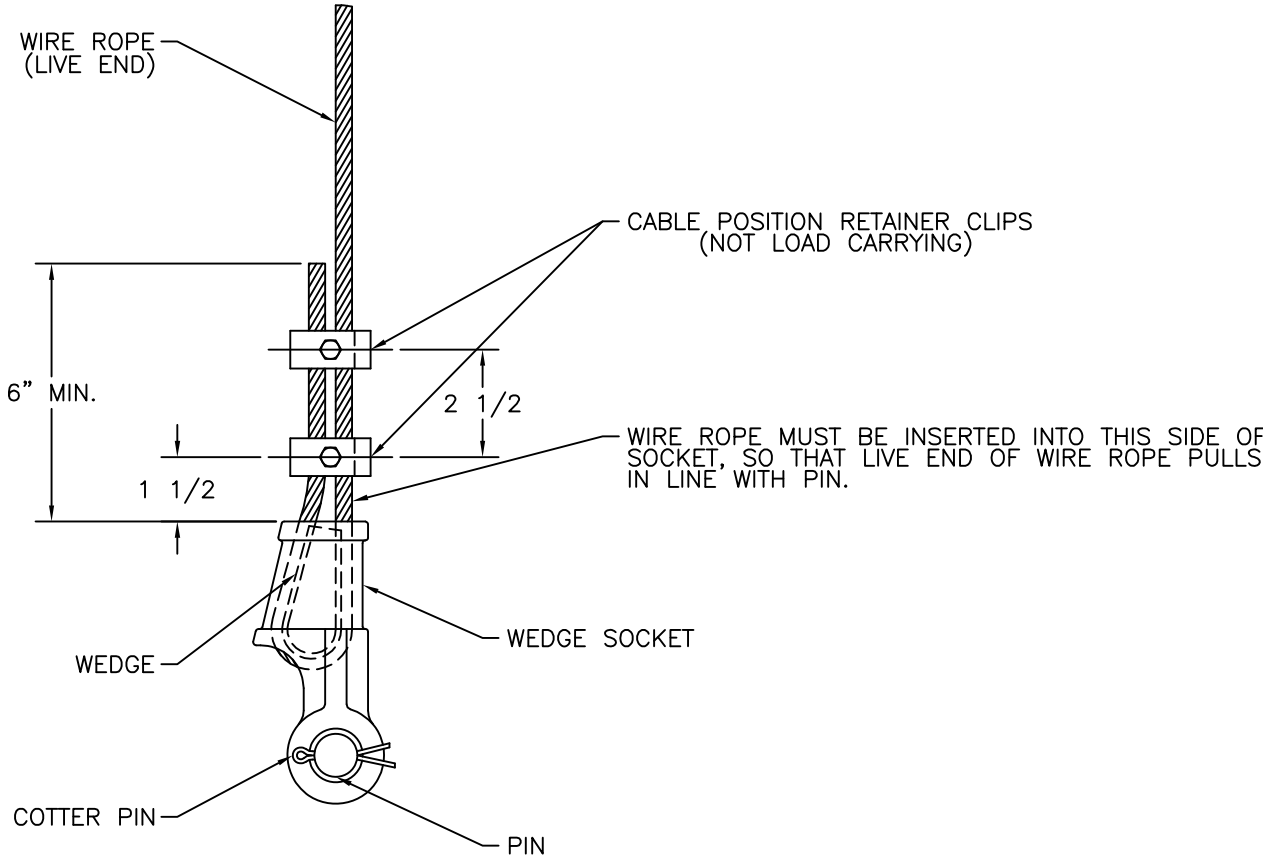


DIAGRAM MM24

2		*REPLACED FIST GRIPS WITH RETAINER CLIPS*	*3/28/96*
1		*REDRAWN ON CAD, WAS CC-6193*	*4/7/95*

Sidney Manufacturing Company
Custom sheet metal fabrication – producers of industrial products

CF:

DRAWN BY: JON	DATE: 4/29/81	TITLE: WEDGE TYPE CABLE SOCKET ELEVATOR MANUAL DIAGRAM MM24	DRAWING NUMBER: B-6193
CHECKED	SCALE: NTS		
APPROVED	SHEET: 1 OF: 1		

GENERAL SPECIFICATIONS:

-WHEN INSTALLING WIRE ROPE IN ROPE WEDGE CLAMP, ALWAYS PRE-LOAD THE WEDGE WITH WIRE ROPE IN PLACE, THEN ATTACH RETAINER CLIP.

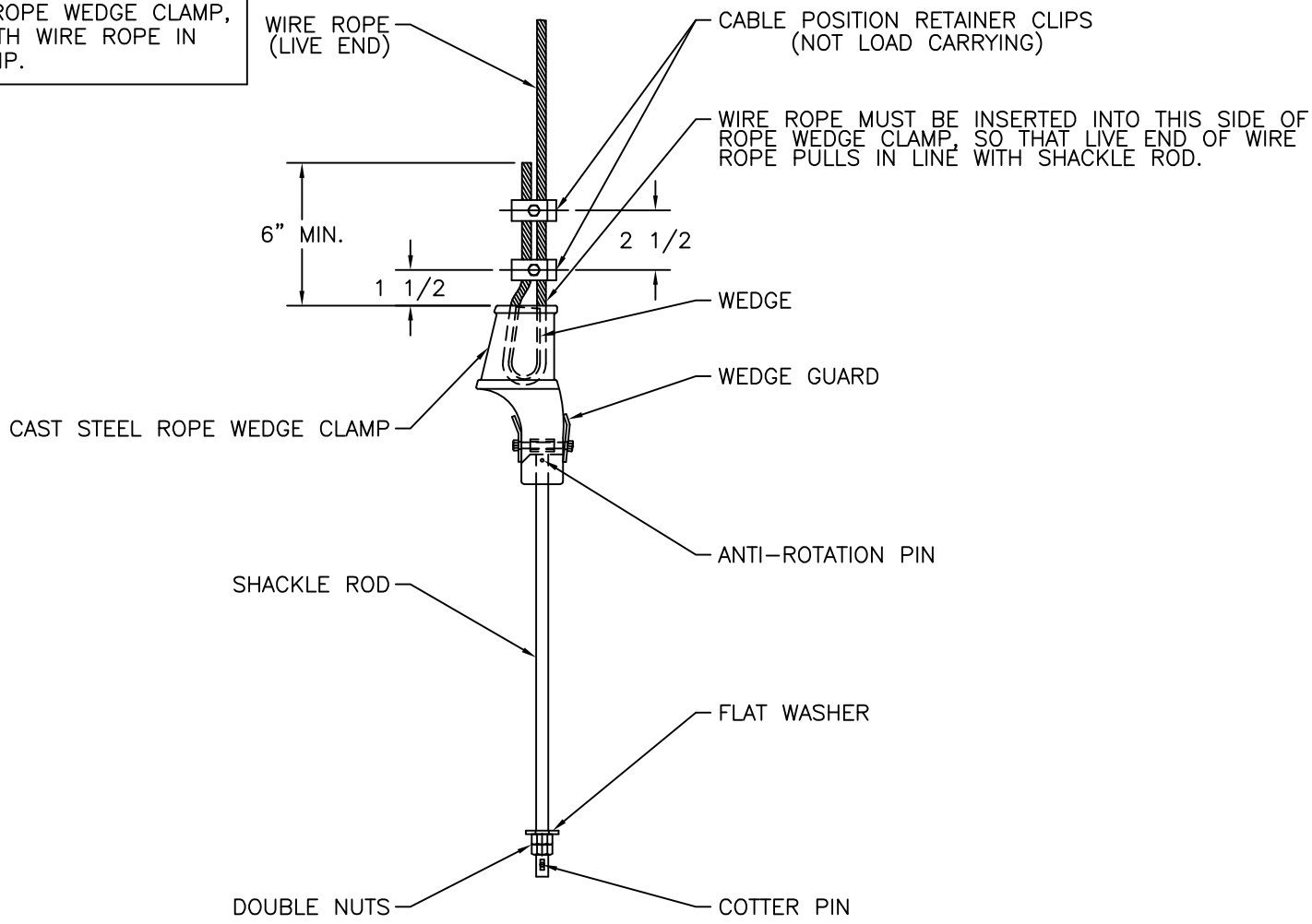


DIAGRAM MM24-A

Sidney Manufacturing Company *Custom sheet metal fabrication – producers of industrial products*	DRAWN BY: KDL	DATE: 3/27/96	TITLE: ROPE WEDGE CLAMP ELEVATOR MANUAL DIAGRAM MM24-A	DRAWING NUMBER: B-8351
CF:	CHECKED: JON	SCALE: NTS		
	APPROVED: JON	SHEET: 1 OF: 1		

NEW

Introducing *wedge-guard*®

Rope Wedge Clamp
Wedge Retaining Assembly

- Strengthens High Rise Applications
- Prevents Wedge and Cable dislodgement
- Patent Pending
- Easy to install on existing jobs
- Required in California
- Available now

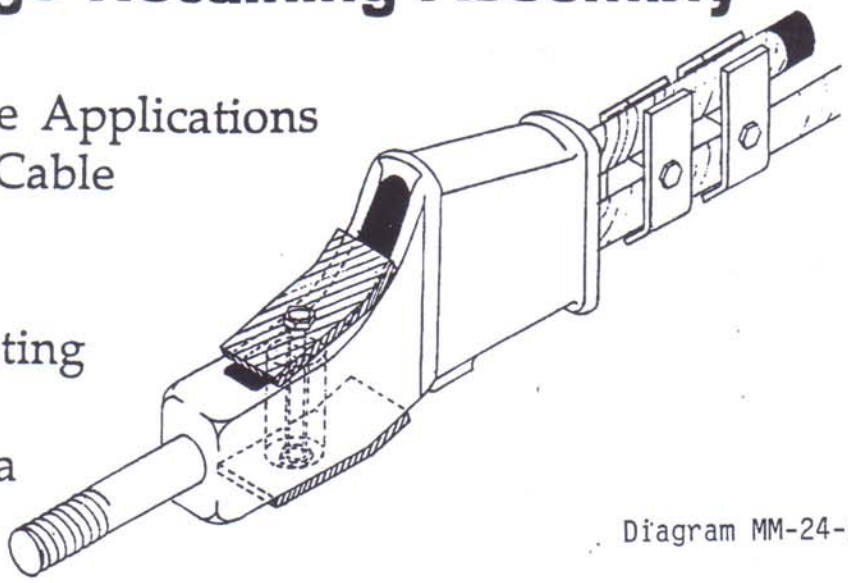
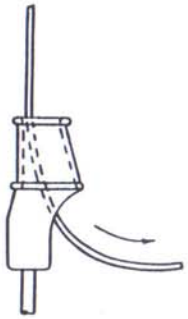


Diagram MM-24-C

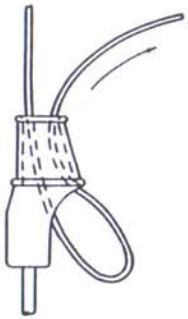
INSTALLATION PROCEDURE

STEP 1



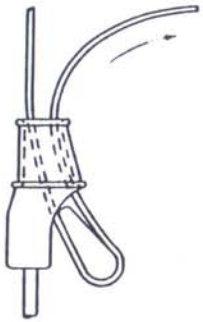
Insert the end of the lift rope down through the wedge clamp body, taking up all the slack in the rope.

STEP 2



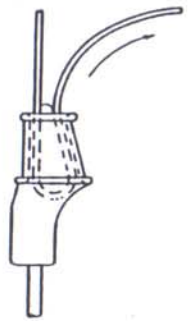
Thread the end back up through the front side of the wedge clamp body, leaving just enough loop to install the rope wedge.

STEP 3



Insert the wedge into the loop.

STEP 4

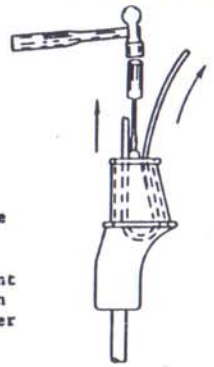


While pulling down on the hoist rope with one hand to keep it taut, pull up on the loose end with a quick pull until the rope loop and the wedge are seated in the clamp body.

STEP 5

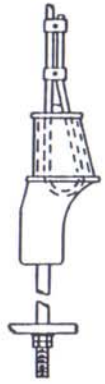
After all ropes are installed, let the weight of the car and counterweight rest on the ropes. The rope and wedge will rise about 1" to the final "set" under load. Cut the surplus rope off of the tail end after binding, so as to leave approximately a 6" tail. Install a retainer clip as shown to prevent the rope wedge from slackening in the event that the car or counterweight lands on the buffers. Install a second retainer clip to retain the tail end.

STEP 5A
(when required)



(Initial equalizing)
Any rope or ropes that are tighter than the rest can be easily slackened and equalized by tapping the wedge down until the rope slides through, by using a hammer and a drift pin, which is inserted into the top of the clamp body between the rope and the tail end. Repeat this on all tight ropes until all ropes have equal tension.

STEP 6



Equalize the final rope tension by adjusting the rod nuts while holding the wedge clamp body to prevent rotation.

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DRAWN BY: JPS	DATE: 2/7/96
CHECKED:	SCALE: NTS
APPROVED:	SHEET: OF

TITLE: ROPE WEDGE CLAMP INSTALLATION

DRAWING NUMBER: MM27-A

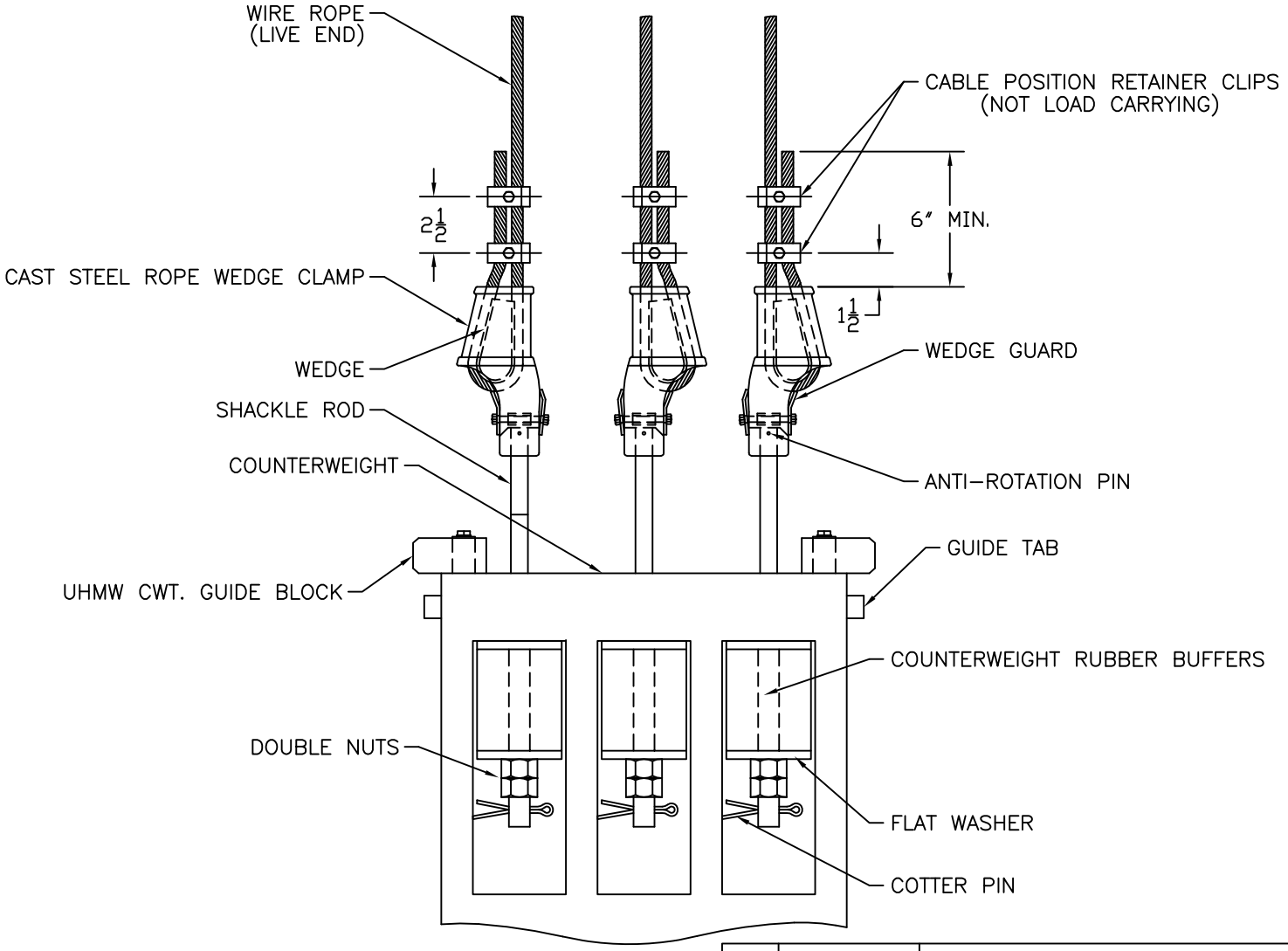

DIAGRAM MM34

A		DELETED SPRINGS \ ADDED RUBBER BUFFERS	1/25/07

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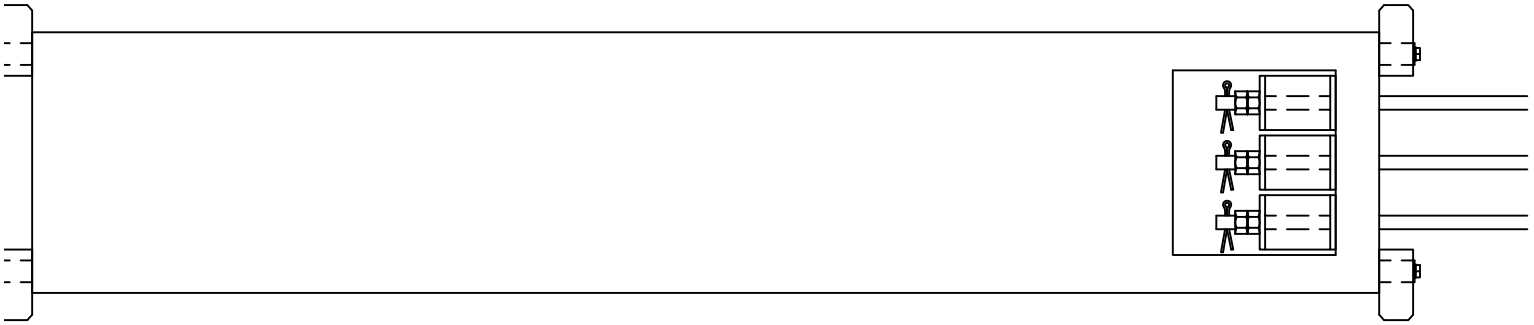
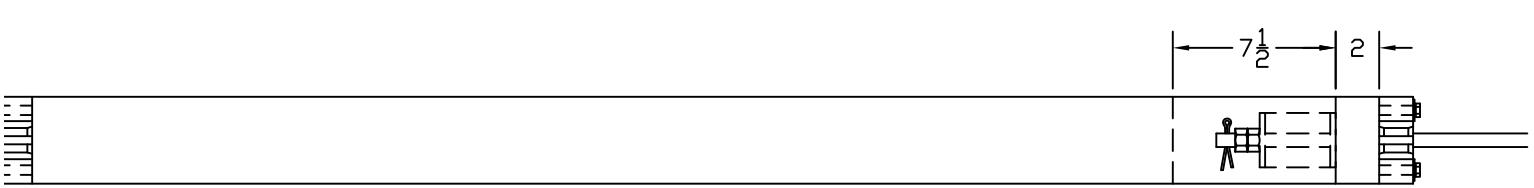
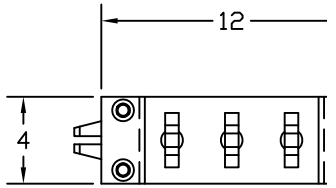
DRAWN BY: TAG	DATE: 1/25/07	TITLE: 3 CABLE, ROPE WEDGE CLAMP COUNTERWEIGHT RIGGING ELEVATOR MANUAL DIAGRAM MM34	DRAWING NUMBER: B-10066-1
CHECKED	SCALE: NTS		
APPROVED	SHEET 1 OF 1		

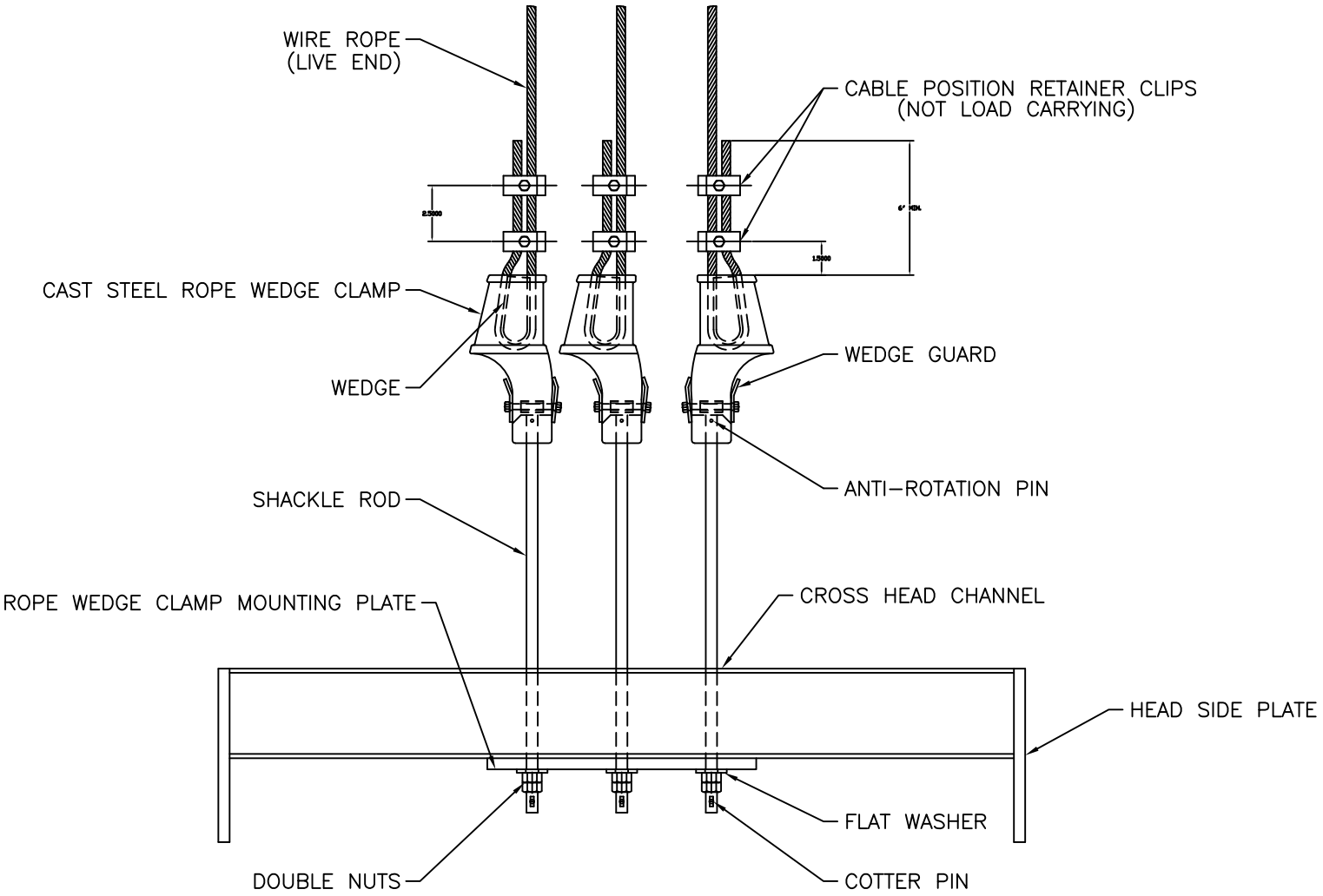






DATE: 6/5/08 MTL: .2836 lb./cu. in. DESCRIPTION: ELEVATOR CTW. BILLETS, SLING TYPE CAB

DAT: BY: TAG QTY: SCALE: 1=10 SO#: SHT# 1/1 CUSTOMER: DWG# 8292-05-A

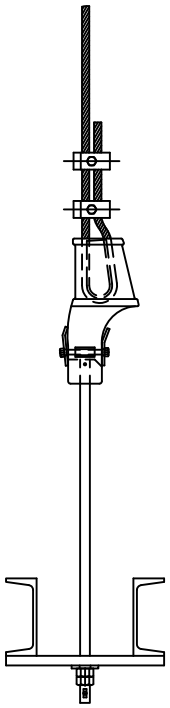


	CHANGED TO 3-CABLE	2/23/12	TAG

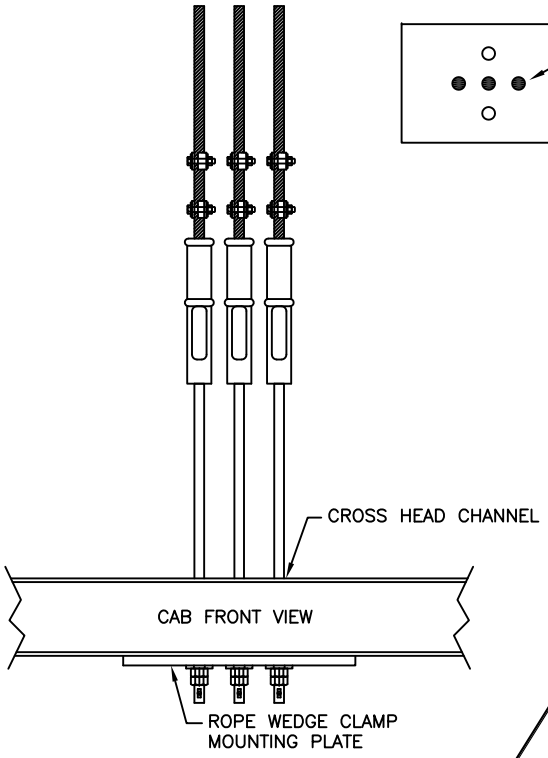
DIAGRAM MM35

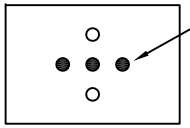
Sidney Manufacturing Company
Custom sheet metal fabrication – producers of industrial products

DRAWN BY: TAG	DATE: 2/23/12	TITLE: 3 CABLE, ROPE WEDGE CLAMP CAB RIGGING ELEVATOR MANUAL DIAGRAM 35	DRAWING NUMBER: B-8350
CHECKED	SCALE: NTS		
APPROVED	SHEET 1 OF 1		

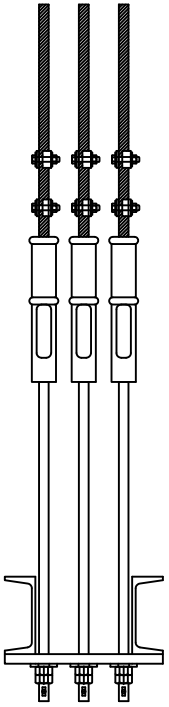


CAB SIDE VIEW



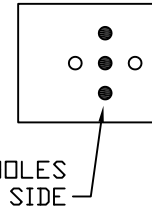


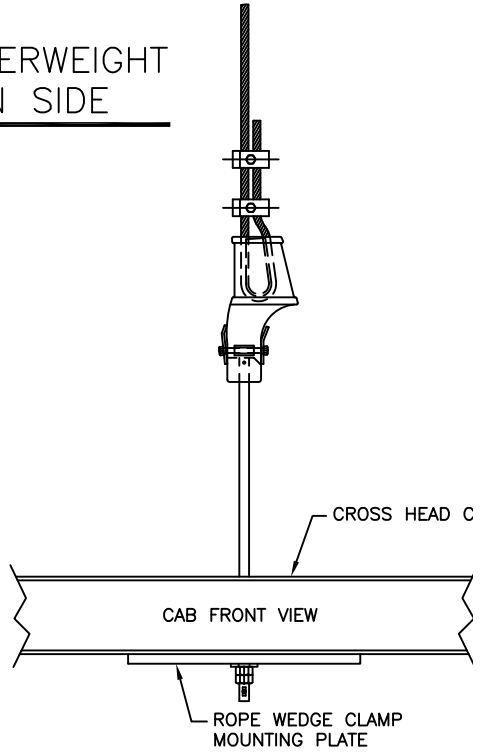
COUNTERWEIGHT
DOWN REAR



CAB SIDE VIEW

COUNTERWEIGHT
DOWN SIDE





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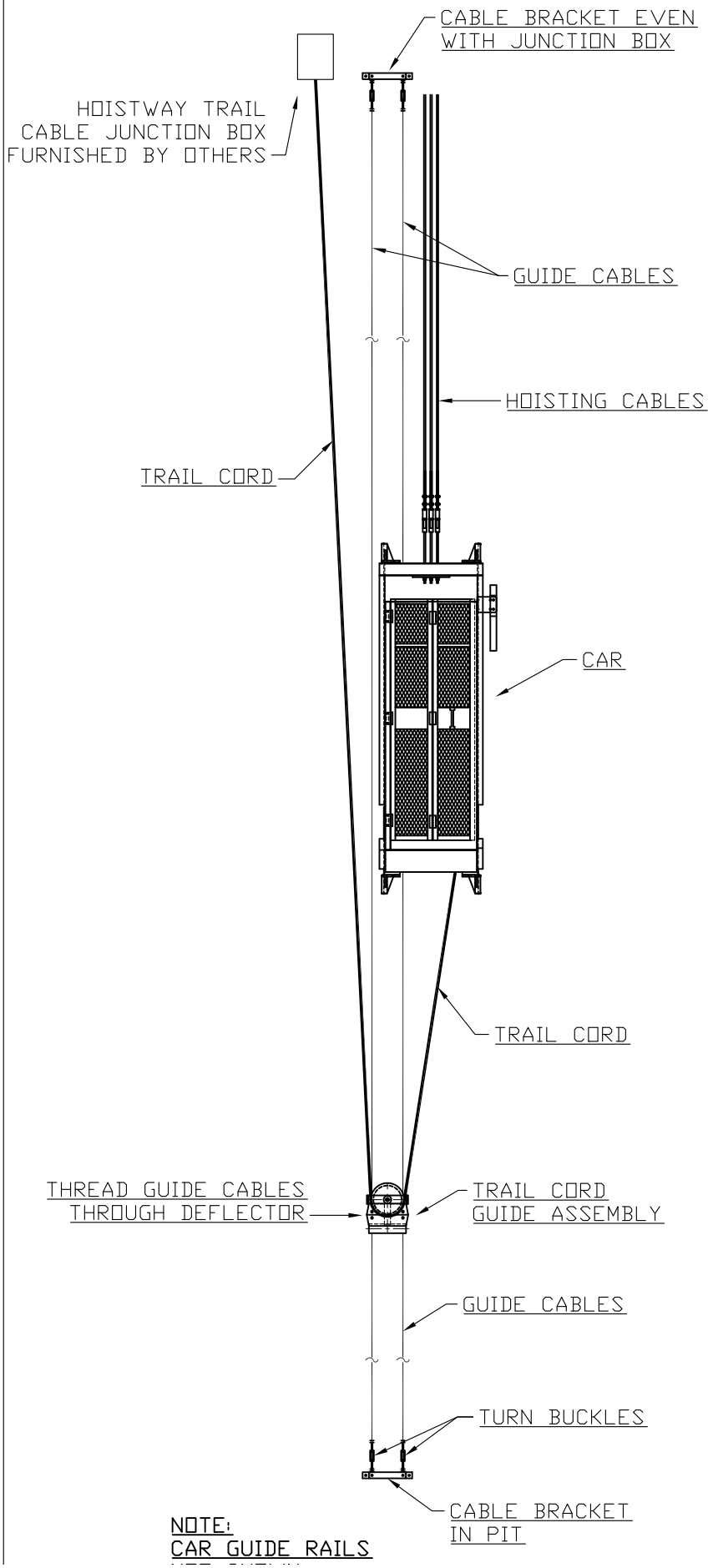
DRAWN BY TAG	DATE 6/5/08	TITLE 3 CABLE, ROPE WEDGE CLAMP CAB RIGGING ELEVATOR MANUAL DIAGRAM 35-1	DRAWING NUMBER B-8350-1
CHECKED	SCALE NTS		
APPROVED	SHEET 1 OF 1		DIAGRAM MM



NOTE:
CAR GUIDE RAILS

Sidney Manufacturing Company
Custom sheet metal fabrication – producers of industrial products

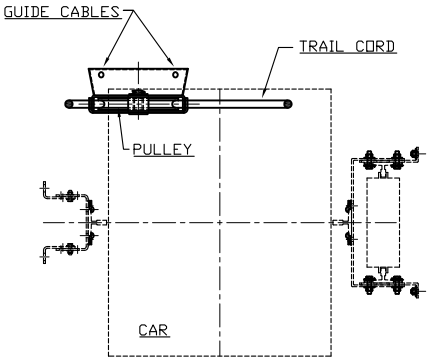
REF: STD

TITLE: TRAIL CORD GUIDE WEIGHT INSTALLATION

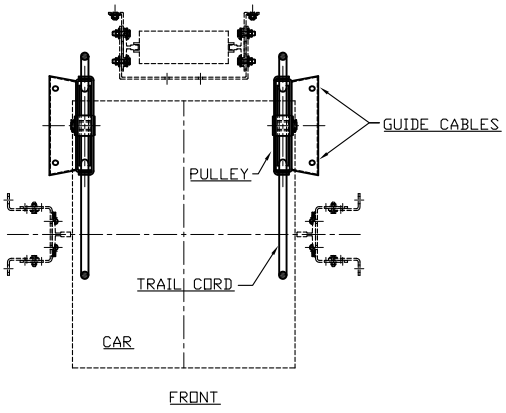
DRAWING NUMBER: 5793

DRAWN BY	TAG	DATE	7/11/08	SUPERSEDES	SUPERSEDED BY
CHECKED		SCALE			
APPROVED		SHEET 1	OF 1		

SUGGESTED REAR MOUNTING POSITION



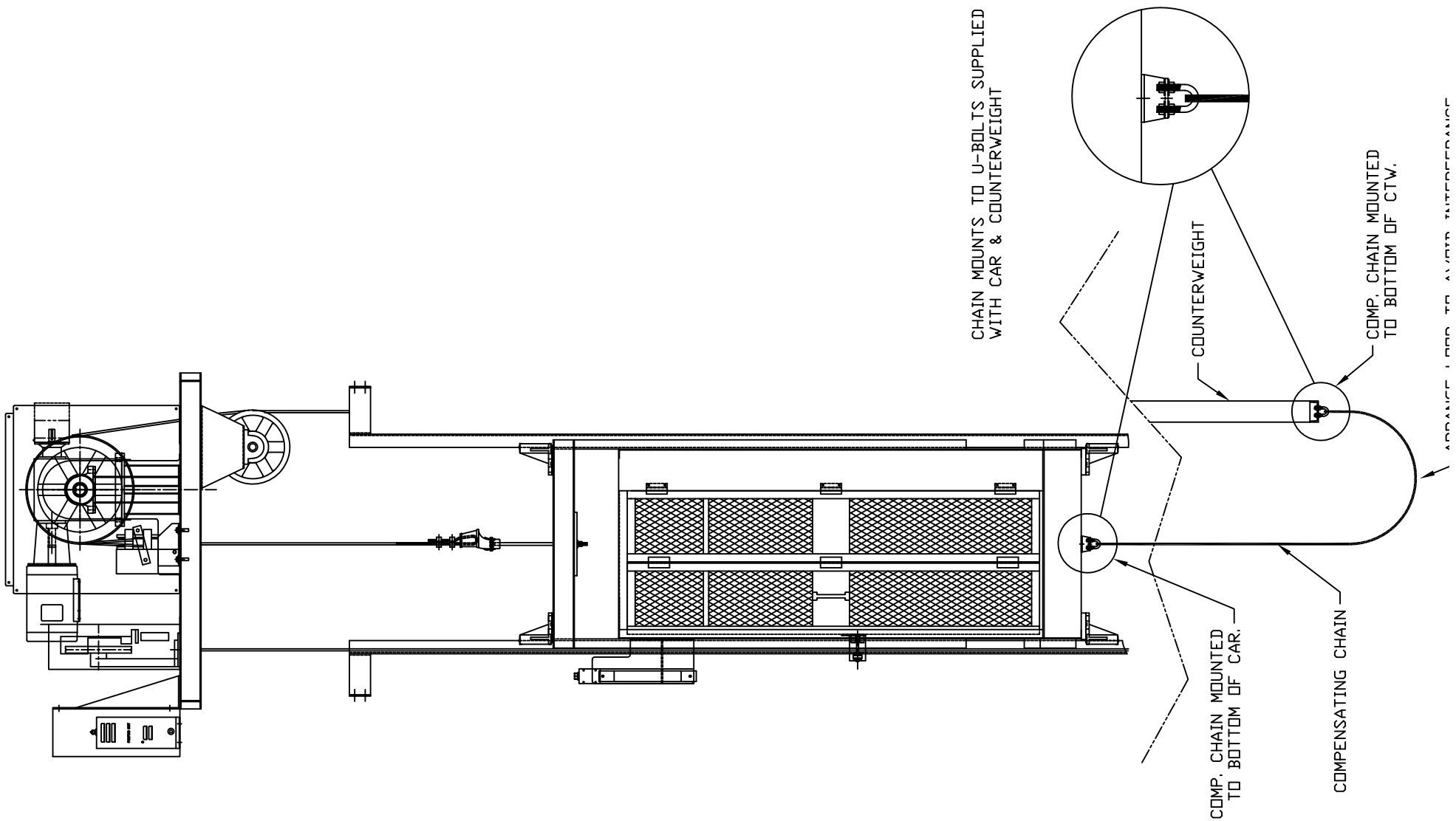
SUGGESTED SIDE MOUNTING POSITIONS



NOTE:

POSITIONS SHOWN ARE SUGGESTIONS ONLY.

TRAIL CORD GUIDE MAY BE MOUNTED IN



Sidney Manufacturing Company

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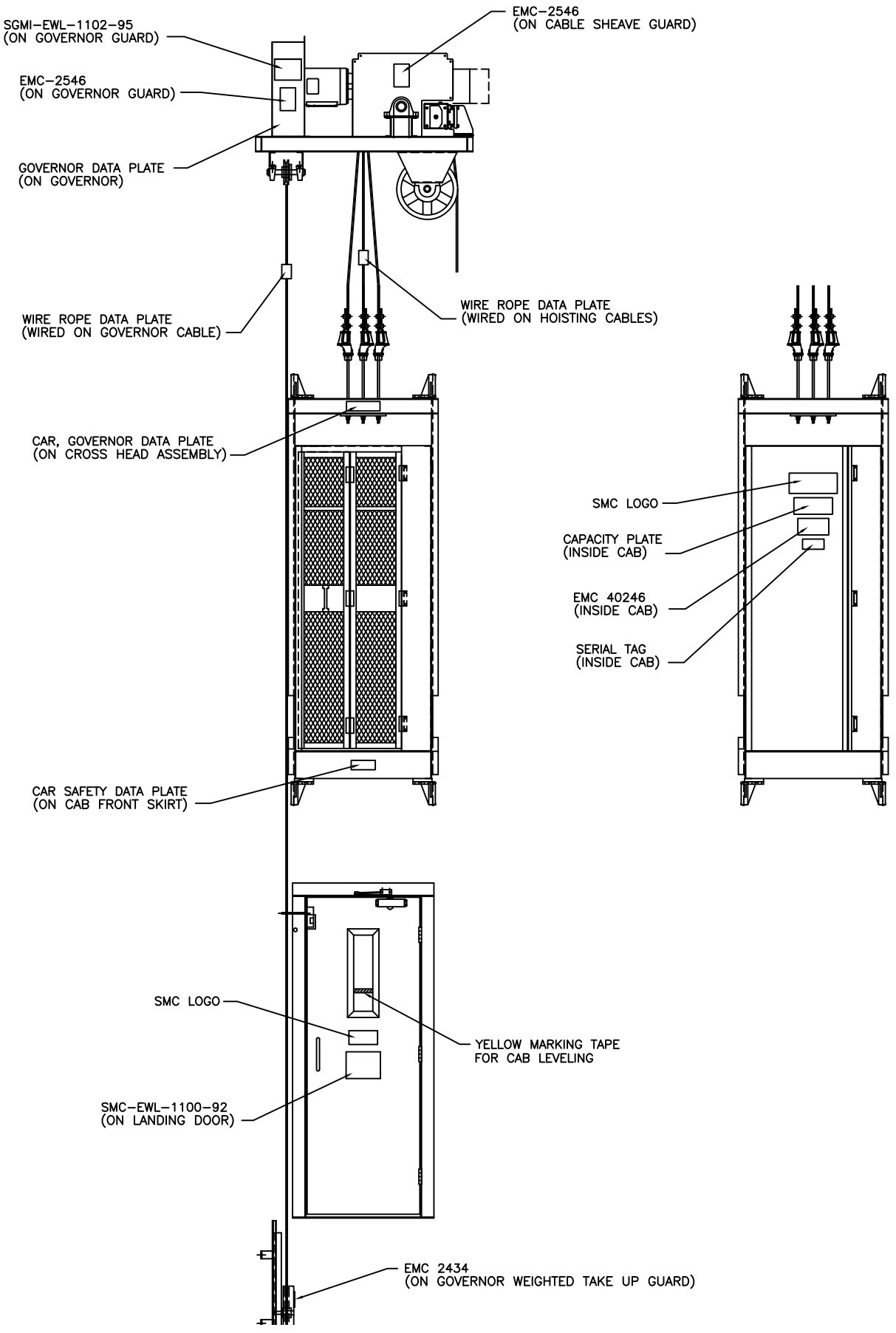
CF:

DRAWN BY TAG	DATE 12/10/09	TITLE SPECIAL PURPOSE PERSONNEL ELEV.	DRAWING NUMBER 8292-CC
CHECKED	SCALE		
APPROVED	SHEET 1 OF 1	COMPENSATION CHAIN MOUNTING	

LOCATION OF HAZARD WARNING LABELS AND DATA PLATES
ON ALL SIDNEY SPECIAL PURPOSE PERSONNEL ELEVATORS

IT IS ABSOLUTELY NECESSARY THAT THE WARNING LABELS AND DATA PLATES LISTED BELOW BE ATTACHED AND UNOBSCURED IN THE LOCATION SHOWN IN THIS DIAGRAM. IT IS THE RESPONSIBILITY OF THE OWNER–EMPLOYER TO KEEP HIS/HER PLACE OF EMPLOYMENT FREE FROM RECOGNIZED HAZARDS LIKELY TO CAUSE DEATH, SERIOUS BODILY INJURY OR PROPERTY DAMAGE. WARNING LABELS AND DATA PLATES MAY HELP TO DECREASE RECOGNIZED HAZARDS.



Sidney Manufacturing Company
Custom sheet metal fabrication – producers of industrial products

REF: REF: CC-7408, DIAGRAM MM30

TITLE: LOCATION OF WARNING LABELS AND DATA PLATES ON SPECIAL PURPOSE PERSONNEL ELEVATO

DRAWN BY: TAG | DATE: 2/23/12 | DRAWING NUMBER: C-7408

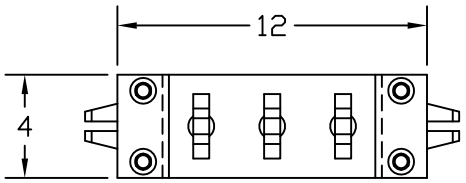
CHECKED | SCALE | SHEET 1 OF 1 | SUPERSEDES | SUPERSEDED BY

APPROVED

1	UPDATED CAB, DRIVE & AMWELD LANDING DOOR	2/23/12	TAG	

GENERAL SPECIFICATIONS:

-SEE MANUAL DIAGRAM MM24–A FOR ADDITIONAL INSTRUCTIONS ON RETAINER CLIP WIRE ROPE RIGGING.



VIEW A

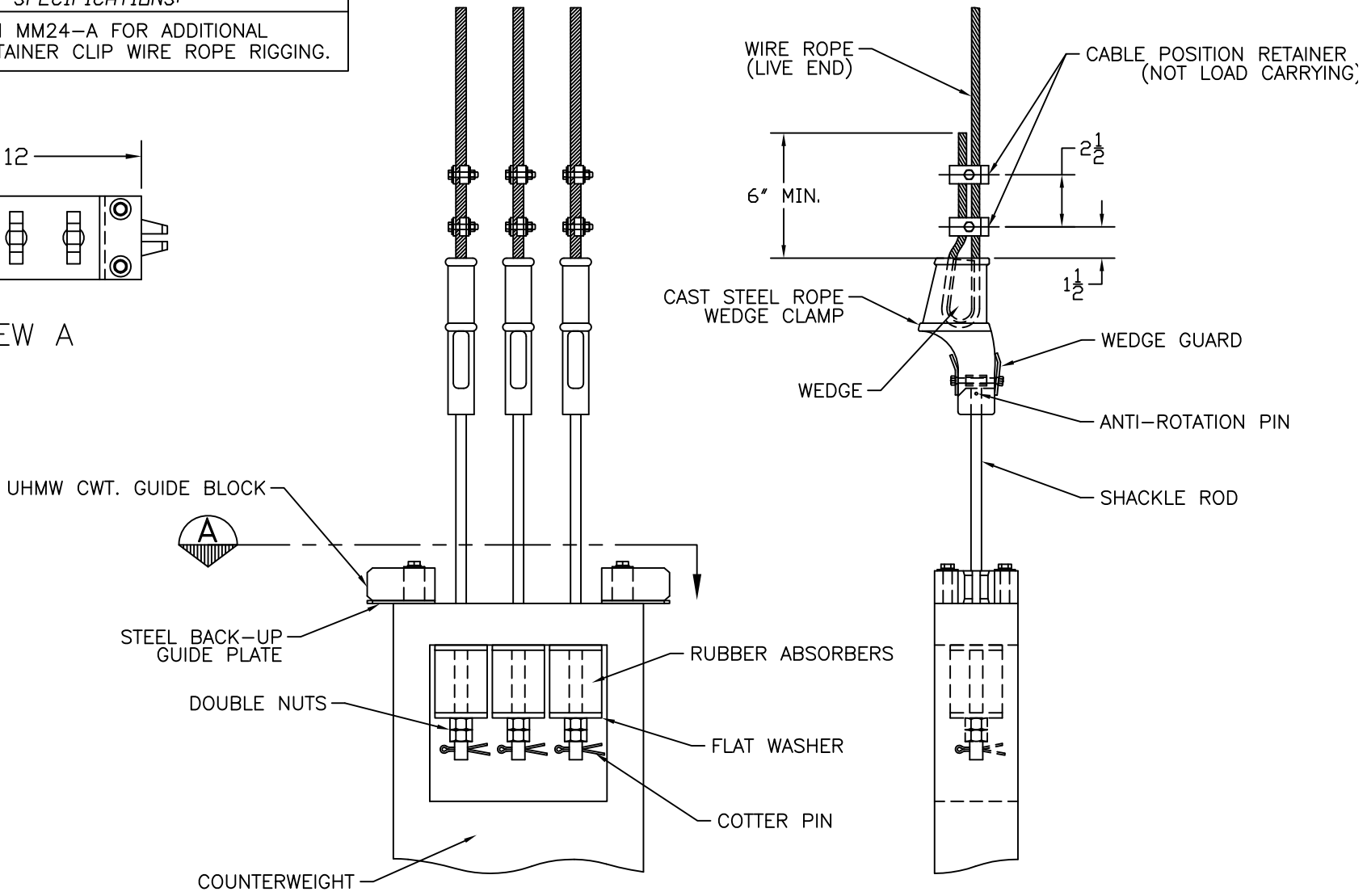
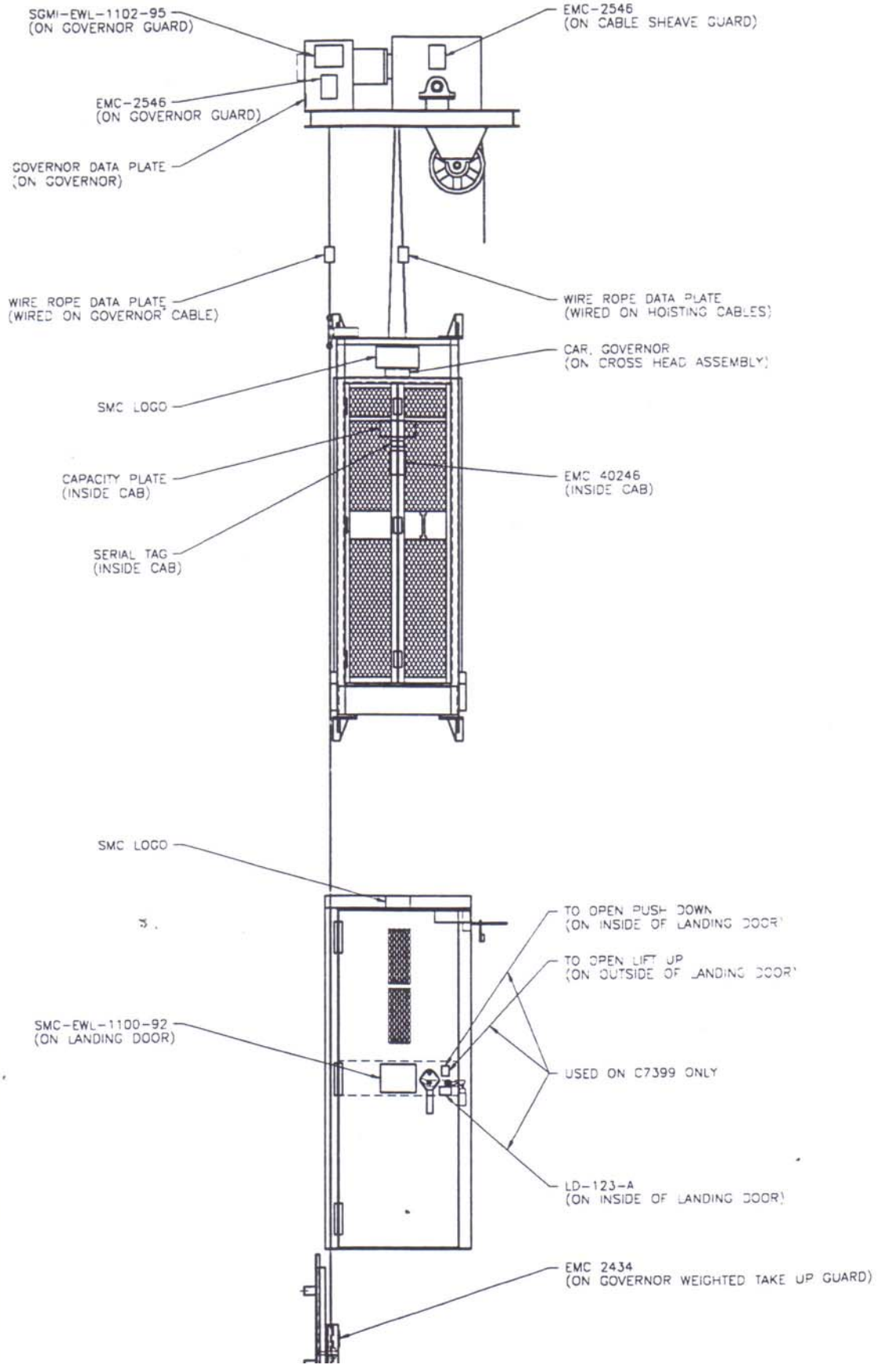


DIAGRAM M

Sidney Manufacturing Company *Custom sheet metal fabrication – producers of industrial products*	DRAWN BY TAG CHECKED APPROVED	DATE 2/28/12 SCALE SHEET 1 OF 1	TITLE 3 CABLE, ROPE WEDGE CLAMP COUNTERWEIGHT RIGGING ELEVATOR MANUAL DIAGRAM MM36	DRAWING NUMBER B-8353-02

LOCATION OF HAZARD WARNING LABELS AND DATA PLATES ON ALL SIDNEY SPECIAL PURPOSE PERSONNEL ELEVATORS

IT IS ABSOLUTELY NECESSARY THAT THE WARNING LABELS AND DATA PLATES LISTED BELOW BE ATTACHED AND UNOBSCURED IN THE LOCATION SHOWN IN THIS DIAGRAM. IT IS THE RESPONSIBILITY OF THE OWNER-EMPLOYER TO KEEP HIS/HER PLACE OF EMPLOYMENT FREE FROM RECOGNIZED HAZARDS LIKELY TO CAUSE DEATH, SERIOUS BODILY INJURY OR PROPERTY DAMAGE. WARNING LABELS AND DATA PLATES MAY HELP TO DECREASE RECOGNIZED HAZARDS.



3		CHANGED GOVERNOR GUARD DECAL FROM 82 TO 95	4/4/96
2		REMOVED SGMI-EWL-1101-82 DECAL FROM FRAME	11/28/95
1		RELAWN ON CAD	4/10/95

Sidney Manufacturing Com

Custom sheet metal fabrication - producers of industrial pro

REF: REF CC-7408, DIAGRAM MA3D

LOCATION OF WARNING LABELS AND DATA PLATES ON SPECIAL PURPOSE PERSONNEL EL

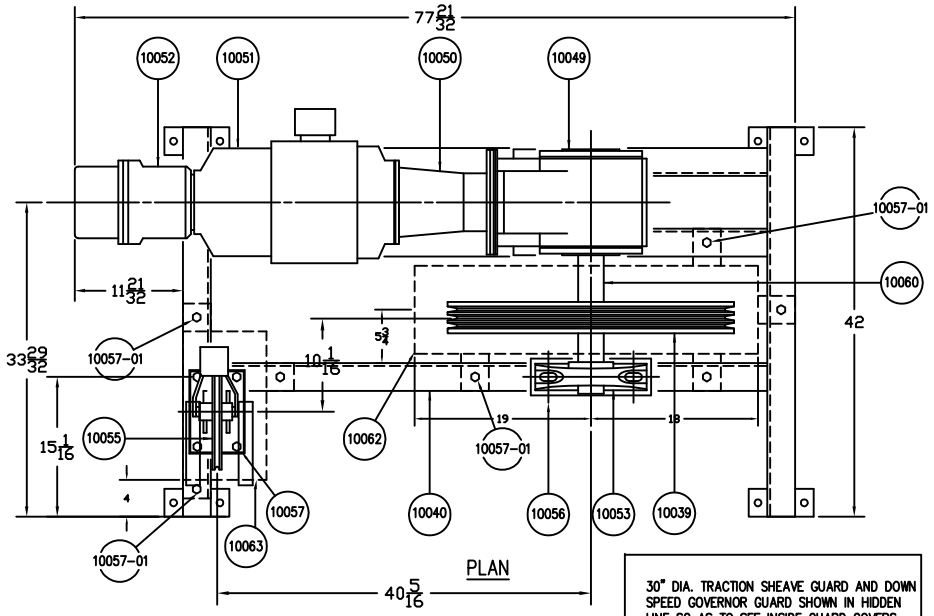
DRAWN BY: J.A.T. 9/12/90

SHEET 1 OF 1

C-7408

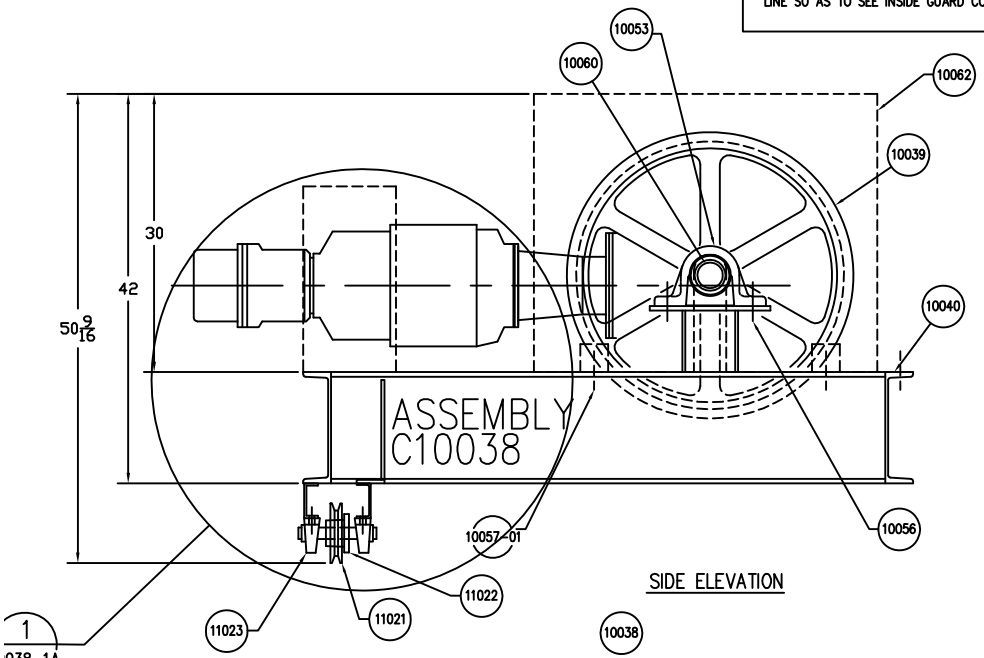
BILL OF MATERIALS

PART NO.	QUANTITY	DESCRIPTION
10049	1	SEW EURODRIVE RIGHT ANGLE HELICAL-BEVEL GEAR REDUCER UNIT – FOOT MOUNTED – MODEL NO. KA96LP
10050	1	SEW EURODRIVE NEMA C-FACE ADAPTER – TYPE LP – NEMA MOTOR 254T/25
10051	1	DUTY MASTER ALTERNATING CURRENT MOTOR – 5 HP – TOTALLY ENCLOSED, C-FACE, FAN COOLED, DESIGN D, FRAME 254TC
10052	1	DINGS BRAKE, TORQUE 25 LB. FT., FRAME 254TC
10053	1	DODGE P2B – SCM X 2 15/16" PILLOW BLOCK BEARING, PART NO. 126821 OUTBOARD PILLOW BLOCK BEARING FOR DRIVE SHAFT
10055	1	MONTGOMERY ELEVATOR COMPANY DOWN SPEED GOVERNOR WITHOUT OVERSPEE SWITCH – MODEL NO. P-6834
10056	6	7/8"ø x 4" LONG HEX BOLT WITH SPLIT WASHER AND HEX NUT FOR OUTBOAR BLOCK BEARING AND GEAR REDUCING UNIT – GRADE 5
10057	3	1/2"ø x 2 1/2" LONG HEX BOLT WITH SPLIT WASHER AND HEX NUT FOR DOWI SPEED GOVERNOR UNIT – GRADE 5
10057-01	8	1/4"ø x 1 1/2" LONG HEX BOLT WITH SPLIT WASHER AND HEX NUT FOR 30" TRACTION SHEAVE AND DOWN SPEED GOVERNOR GUARDS – GRADE 5
10060	1	2 15/16"ø x 26" LONG OUTPUT DRIVE SHAFT
10062	1	30" DIA. – 3 GROOVE SLIP SHEAVE GUARD
10063	1	DOWN SPEED GOVERNOR GUARD
10039	1	30" DIA. – 3 GROOVE SLIP SHEAVE ASSEMBLY
10040	1	DRIVE ASSEMBLY STRUCTURAL STEEL WELDMENT
11021	1	BROWNING DEFLECTOR SHEAVE, PART #:1C60Q
11022	1	BROWNING Q1 X 1 1/4" BUSHING
11023	2	P2BVSC X 1 1/4" DODGE BEARING
	1	1 1/4"ø SHAFT – 8 7/16" LONG
10057-02	1	1/2"ø x 1 3/4" LONG HEX BOLT WITH SPLIT WASHER AND HEX NUT FOR DOWI SPEED GOVERNOR UNIT – GRADE 5



PLAN

30" DIA. TRACTION SHEAVE GUARD AND DOWN SPEED GOVERNOR GUARD SHOWN IN HIDDEN LINE SO AS TO SEE INSIDE GUARD COVERS.

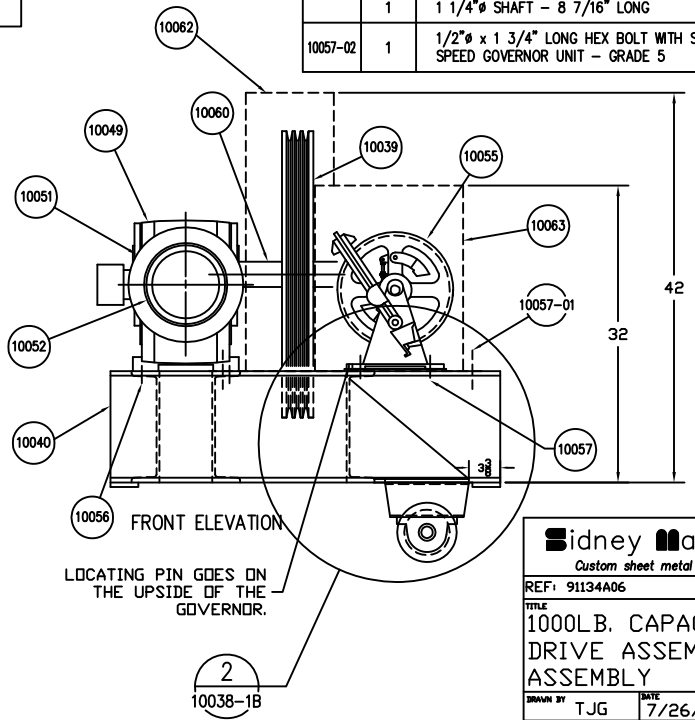


SIDE ELEVATION

DRIVE ASSEMBLY STRUCTURAL STEEL ASSEMBLY

(1 REQUIRED)

1
038-1A



FRONT ELEVATION

LOCATING PIN GOES ON THE UPSIDE OF THE GOVERNOR.

2
10038-1B

2		ADDED DEFLECTOR SHEAVE, BUSHING & BEARINGS	3/20/96	JPS
1		CHANGES TO 10053,10056,10060,10062, AND 10039	2/7/96	JPS

Sidney Manufacturing Comp

Custom sheet metal fabrication – producers of industrial produ

REF: 91134A06

TITLE: 1000LB. CAPACITY MANLIFT ELEV
DRIVE ASSEMBLY STRUCTURAL S
ASSEMBLY

DRAWN BY	DATE	DRAWING NUMBER
TJG	7/26/91	C-10038
CHECKED: JJW	SCALE: 1=10	
APPROVED	SHEET 1 OF 2	SUPERSEDES / SUPERSEDED BY

Gearmotors and Gear Reducers

OPERATING INSTRUCTIONS

01 805 52 US

GENERAL
These operating instructions are intended to help you install and operate the drive. For trouble free service, proper installation and operation are essential. Additionally, these instructions contain important recommendations on maintenance.

Before shipment, every SEW-Eurodrive gear unit is tested, checked and properly packed. However, please inspect the drive immediately upon arrival for shortage or transit damage. Note the damage or shortage on the freight bill of lading and file a claim with the carrier. Also, notify SEW-Eurodrive of the shortage or damage.

LUBRICANTS
All gearmotors and gear reducers are supplied with the correct grade and quantity of lubricating oil for the specified mounting position. Exceptions include reducers shipped without input assemblies. The recommended lubricants are found on page 2.

LONG TERM STORAGE
If the drive is not installed immediately, it should be stored in a dry, protected area. If the drive is to be stored for an extended period of time and was not ordered from SEW for long term storage, contact your nearest SEW assembly plant for information on Long Term Storage.

Drives which are used for standby service should be stored as a sealed gearcase.

INSTALLATION OF COMPONENTS ON DRIVE SHAFTS
Do not hammer on the shafts. Hammering can cause brinelling of the reducer's bearings shortening the bearing life. We recommend heating the components to approximately 175°F (when possible) and sliding them on the shaft. This will reduce possible damage to the reducer's bearings.

For both standard and metric SEW shaft tolerances, refer to the SEW Catalog.

Shaft couplings should be properly aligned to prevent vibration, coupling wear, and premature failure of the shaft bearings.

To prevent the output shaft and bearings from being subjected to excessive loads, the maximum overhung load, as shown in SEW-Eurodrive catalogs, should not be exceeded. Please consult our engineering department if the load may exceed the recommended figure given or where there are combined radial and axial loads. In such cases, the exact operating conditions must be stated including speed, direction of rotation, position, magnitude and direction of the external radial and axial loads being applied.

SHAFT MOUNTED REDUCERS
SEW-Eurodrive supplies the recommended hollowshaft mounting paste with every hollowshaft reducer. The mounting paste is to be applied on the keyed output shaft. The mounting paste is to aid in the prevention of rusting and fretting corrosion between the reducer hollowshaft and the shaft of the driven machine. The mounting paste will aid in shaft removal when necessary.

Warning! Always ensure exposed, rotating parts are properly covered to ensure safety.

For additional information on shaft mounted reducers, drive shaft configuration and tolerances, refer to the SEW-Eurodrive Catalog.

INSTALLATION AND OPERATION
The drive installation site should be selected to ensure:

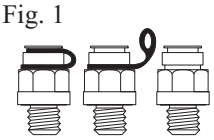
- Ambient temperatures below 40°C (104°F).
- Unimpeded flow of air to the motor and variable speed units.
- Accessibility to the drain, level and breather plugs.
- Adequate space for the removal of brakemotor fanguard for brake adjustment and maintenance.

The drive unit should be mounted on a flat, vibration damping, and torsionally rigid structure. Careful alignment is critical. Mounting to an uneven surface will cause housing distortion. The flatness tolerance of the supporting surface should not exceed:

- For gear units size 80 and smaller — 0.004 inch.
- For gear units above size 80 — 0.008 inch.

For transportation, the units are supplied with the breather plug already mounted. After the unit is installed, the black rubber seal located on the breather MUST BE REMOVED (Fig. 1). In addition, the oil level should be checked. Remove the plated (non-painted) oil level plug. The oil level is correct when the surface of the oil is level with the lowest point of that tapped hole, the exception is S37. Units W10, W20 and W30 are sealed in any position.

Fig. 1



After installation, the actual mounting position should be confirmed against the mounting postion shown on the gear reducer nameplate. Adequate lubrication is only guaranteed if the unit is mounted in the specific nameplated mounting position.

Refer to the SEW Catalog if a specific mounting position diagram is needed.

MAINTENANCE
Warning! Always ensure equipment is secure and electrical power is off before removing or performing maintenance on the drive assembly. Oil levels and oil quality should be checked at regular intervals, determined by usage and the environment. Grease and oil should be changed per the recommendations on page 2. Check coupling alignment, chain or belt tension, and mounting bolt torque periodically. Keep the drive relatively free of dust and dirt.

SEW EURODRIVE

SOUTHEAST MANUFACTURING & ASSEMBLY CENTER
1295 Old Spartanburg Hwy, Lyman, SC 29365
(864) 439-7537 Fax: (864) 439-7830

SOUTHWEST ASSEMBLY CENTER
3950 Platinum Way, Dallas, TX 75237

MIDWEST ASSEMBLY CENTER
2001 West Main Street, Troy, OH 45373
(937) 335-0036 Fax: (937) 332-0038

EAST COAST ASSEMBLY CENTER
200 High Hill Road, Bridgeport, NJ 08014

WEST COAST ASSEMBLY CENTER
30599 San Antonio Road, Hayward, CA 94544
(510) 487-3560 Fax: (510) 487-6381

LUBRICANTS

	6) °C -50 0 +50 +100	DIN (ISO)	ISO,NLGI	Mobil®	Shell	Klüber Lubrication	ARAL	BP	Tribol	Texaco	Optimol	Fuchs
R…	Standard -10 +40	CLP(CC)	VG 220	Mobilgear 630	Shell Omala 220	Klüberoil GEM 1-220	Aral Degol BG 220	BP Energol GR-XP 220	Tribol 1100/220	Meropa 220	Optigear BM 220	Renolin CLP 220
	-25 +80	CLP PG	VG 220	Mobil Glygolyle 30	Shell Tivela WB	Klübersynth GH 6-220	Aral Degol GS 220	BP Enersyn SG-XP 220	Tribol 800/220	Synlube CLP 220	Optiflex A 220	
	4) -40 +80	CLP HC	VG 220	Mobil SHC 630	Shell Omala 220 HD	Klübersynth EG 4-220	Aral Degol PAS 220		Tribol 1510/220	Pinnacle EP 220	Optigear Synthetic A 220	Renolin Unisyn CLP 220
K…(HK…)	4) -40 +40		VG 150	Mobil SHC 629		Klübersynth EG 4-150				Pinnacle EP 150		
	-20 +25	CLP (CC)	VG 150 VG 100	Mobilgear 627	Shell Omala 100	Klüberoil GEM 1-150	Aral Degol BG 100	BP Energol GR-XP 100	Tribol 1100/100	Meropa 150	Optigear BM 100	Renolin CLP 150
F…	-30 +10	HLP (HM)	VG 68-46 VG 32	Mobil D.T.E. 13M	Shell Tellus T 32	Klüberoil GEM 1-68	Aral Degol BG 46		Tribol 1100/68	Rando EP Ashless 46	Optigear 32	Renolin B 46 HVI
	4) -40 +10	CLP HC	VG 32	Mobil SHC 624		Klüber-Summit HySyn FG-32				Cetus PA 0 46		
	4) -40 -20	HLP (HM)	VG 22 VG 15	Mobil D.T.E. 11M	Shell Tellus T 15	Isoflex MT 30 ROT		BP Energol HLP-HM 10		Rando HDZ 15		
	Standard 0 +40	CLP (CC)	VG 680	Mobilgear 636	Shell Omala 680	Klüberoil GEM 1-680	Aral Degol BG 680	BP Energol GR-XP 680	Tribol 1100/680	Meropa 680	Optigear BM 680	Renolin CLP 680
	-20 +60	CLP PG	VG 680 1)	Mobil Glygoyle HE 680		Klübersynth GH 6-680		BP Enersyn SG-XP 680	Tribol 800/680	Synlube CLP 680		
S…(HS…)	4) -30 +80	CLP HC	VG 460	Mobil SHC 634	Shell Omala 460 HD	Klübersynth EG 4-460				Pinnacle EP 460		
	4) -40 +10		VG 150	Mobil SHC 629		Klübersynth EG 4-150				Pinnacle EP 150		
	-20 +10	CLP (CC)	VG 150 VG 100	Mobilgear 627	Shell Omala 100	Klüberoil GEM 1-150	Aral Degol BG 100	BP Energol GR-XP 100	Tribol 1100/100	Meropa 100	Optigear BM 100	Renolin CLP 150
	-25 +20	CLP PG	VG 220 1)	Mobil Glygoyle 30		Klübersynth GH 6-220			Tribol 800/220	Synlube CLP 220	Optiflex A 220	
	4) -40 0	CLP HC	VG 32	Mobil SHC 624		Klüber-Summit HySyn FG-32				Cetus PA 0 46		
	4) -30 +40	HCE	VG 460		Shell Cassida Fluid GL 460	Klüberoil 4UH1-460	Aral Eural Gear 460				Optileb GT 460	
R…,K…(HK…), F…,S…(HS…)	-20 +40	E	VG 460			Klüberbio CA2-460	Aral Degol BAB 460				Optisynt BS 460	
	Standard -20 +40	CLP PG	VG 460			Klübersynth UH1 6-460						
W…(HW…)	Standard -20 +40	SEW PG	VG 460 2)			Klüber SEW HT -460-5						
	4) -40 +10	API GL5	SAE 75W90 (~VG 100)	Mobilube SHC 75 W90-LS								
	-20 +40	CLP PG	VG 460 3)			Klübersynth UH1 6-460						
R32 R302	-25 +60	DIN 51 818 5)	00	Glygoyle Grease 00	Shell Tivela GL 00	Klübersynth GE 46-1200				Multifak 6833 EP 00		
	Standard -15 +40		000 - 0	Mobilux EP 004	Shell Alvania GL 00		Aralub MFL 00	BP Energrease LS-EP 00		Multifak EP 000	Longtime PD 00	Renolin SF 7 - 041

01 805 792 0S

CLP	=	Mineral oil	**1)**	Helical-worm gear units with PG oil: Please contact SEW-EURODRIVE
CLP PG	=	Polyglycol (W gear units, conforms to USDA-H1	**2)**	Special lubricant for Spiroplan® gear units only
CLP HC	=	Synthetic hydrocarbons	**3)**	Recommendation: Select SEW $f_B \geq 1.2$
E	=	Ester oil (water pollution danger category WGK 1)	**4)**	Pay attention to critical starting behavior at low temperatures!
HCE	=	Synthetic hydrocarbons + ester oil (USDA - H1 certification)	**5)**	Low-viscosity grease
HLP	=	Hydraulic oil	**6)**	Ambient temperature
	=	Synthetic lubricant (= synthetic anti-friction bearing grease)		Lubricant for the food industry (food grade oil)
	=	Mineral lubricant (= mineral-based anti-friction bearing grease)		Biodegradable oil (lubricant for use in agriculture, forestry and water resources)

Oil levels and oil quality should be checked at frequent intervals, depending on usage. Oil changes are required at intervals of 10,000 operating hours or every two years, whichever comes first. If a synthetic oil lubricant is used, then this period can be extended to 20,000 operating hours or every four years, whichever comes first. In applications where hostile operating conditions exist, such as high humidity, corrosive environment, or large temperature changes, the lubricant should be changed at more frequent intervals.

The gear units W10, W20 and W30 are supplied with a synthetic oil which is good for the life of the reducer, independent of the mounting position.

Grease packed bearings should be cleaned and regreased every 10,000 hours or 20,000 hours for synthetic grease. Input (high speed) bearings should not be overgreased. They should be filled with grease not to exceed 1/3 of the bearing's free volume. For output bearings and bearings with replaceable grease shields, fill to 2/3 of their free volume.

ATTENTION

When the recommended lubricant is not avilable, it is permissible to use a lubricant having equivalent characteristics but we do not recommend that lubricants of different brands be mixed. Under no circumstances should synthetic lubricants be mixed with one another or with one having a mineral base.

LUBRICANTS

The approximate lubricant in US gallons and liters per mounting position is as follows:

Gear Unit	Mounting Positions											
	M1 [1]		M2 [1]		M3		M4		M5		M6	
	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters
RX57	0.16	0.60	0.21	0.80	0.34	1.30	0.34	1.30	0.24	0.90	0.24	0.90
RX67	0.21	0.80	0.21	0.80	0.45	1.70	0.50	1.90	0.29	1.10	0.29	1.10
RX77	0.29	1.10	0.40	1.50	0.69	2.60	0.71	2.70	0.42	1.60	0.42	1.60
RX87	0.45	1.70	0.66	2.50	1.25	4.80	1.25	4.80	0.77	2.90	0.77	2.90
RX97	0.55	2.10	0.90	3.40	1.95	7.4	1.85	7.0	1.25	4.80	1.25	4.80
RX107	1.05	3.90	1.50	5.6	3.05	11.6	3.15	11.9	2.05	7.7	2.05	7.7
RXF57	0.13	0.50	0.21	0.80	0.29	1.10	0.29	1.10	0.18	0.70	0.18	0.70
RXF67	0.18	0.70	0.21	0.80	0.40	1.50	0.37	1.40	0.26	1.00	0.26	1.00
RXF77	0.24	0.90	0.34	1.30	0.63	2.40	0.53	2.00	0.42	1.60	0.42	1.60
RXF87	0.42	1.60	0.51	1.95	1.30	4.90	1.05	3.95	0.77	2.90	0.77	2.90
RXF97	0.55	2.10	0.98	3.70	1.85	7.1	1.65	6.3	1.25	4.80	1.25	4.80
RXF107	0.82	3.10	1.50	5.7	2.95	11.2	2.45	9.3	1.90	7.2	1.90	7.2
R07	0.032	0.12	0.055	0.20	0.055	0.20	0.055	0.20	0.055	0.20	0.055	0.20
R17/R17F	0.065	0.25	0.15	0.55	.090	0.35	0.15	0.55	0.09	0.35	0.11	0.40
R27/R27F	0.065 (0.11)	0.25 (0.40)	0.18	0.70	0.13	0.50	0.18	0.70	0.13	0.50	0.13	0.50
R37/R37F	0.080 (0.25)	0.30 (0.95)	0.22	0.85	0.25	0.95	0.28	1.05	0.20	0.75	0.25	0.95
R47/R47F	0.18 (0.40)	0.70 (1.50)	0.42	1.60	0.40	1.50	0.44	1.65	0.40	1.50	0.40	1.50
R57/R57F	0.21 (0.45)	0.80 (1.70)	0.50	1.90	0.45	1.70	0.55	2.10	0.45	1.70	0.45	1.70
R67/R67F	0.29 (0.61)	1.10 (2.30)	0.69 (0.92)	2.60 (3.50)	0.74	2.80	0.84	3.20	0.48	1.80	0.53	2.00
R77/R77F	0.32 (0.79)	1.20 (3.00)	1.00 (1.10)	3.80 (4.10)	0.95	3.60	1.10	4.10	0.66	2.50	0.90	3.40
R87/R87F	0.61 (1.60)	2.30 (6.0)	1.75 (2.15)	6.7 (8.2)	1.90	7.2	2.05	7.7	1.65	6.3	1.70	6.5
R97	1.20 (2.60)	4.60 (9.8)	3.10 (3.70)	11.7 (14.0)	3.10	11.7	3.55	13.4	3.00	11.3	3.10	11.7
R107	1.60 (3.60)	6.0 (13.7)	4.30	16.3	4.45	16.9	5.1	19.2	3.50	13.2	4.20	15.9
R137	2.65 (6.6)	10.0 (25.0)	7.4	28.0	7.8	29.5	8.3	31.5	6.6	25.0	6.6	25.0
R147	4.05 (10.6)	15.4 (40.0)	12.3	46.5	12.7	48.0	13.7	52.0	10.4	39.5	10.8	41.0
R167	7.1 (18.5)	27.0 (70.0)	21.6	82.0	20.6	78.0	23.2	88.0	17.4	66.0	18.2	69.0
RF07	0.032	0.12	0.055	0.20	0.055	0.20	0.055	0.20	0.055	0.20	0.055	0.20
RF17	0.065	0.25	0.15	0.55	.090	0.35	0.15	0.55	0.09	0.35	0.11	0.40
RF27	0.065 (0.11)	0.25 (0.40)	0.18	0.70	0.13	0.50	0.18	0.70	0.13	0.50	0.13	0.50
RF37	0.090 (0.25)	0.35 (0.95)	0.24	0.90	0.25	0.95	0.28	1.05	0.20	0.75	0.25	0.95
RF47	0.17 (0.40)	0.65 (1.50)	0.42	1.60	0.40	1.50	0.44	1.65	0.40	1.50	0.40	1.50
RF/RM57	0.21 (0.45)	0.80 (1.70)	0.48	1.80	0.45	1.70	0.53	2.00	0.45	1.70	0.45	1.70
RF/RM67	0.32 (0.66)	1.20 (2.50)	0.71 (0.95)	2.70 (3.60)	0.71	2.70	0.69	2.60	0.50	1.90	0.55	2.10
RF/RM77	0.32 (0.69)	1.20 (2.60)	1.00 (1.10)	3.80 (4.10)	0.87	3.30	1.10	4.10	0.63	2.40	0.79	3.00
RF/RM87	0.63 (1.60)	2.40 (6.0)	1.80 (2.10)	6.8 (7.9)	1.85	7.1	1.85	7.0	1.65	6.3	1.70	6.4
RF/RM97	1.35 (2.70)	5.1 (10.2)	3.15 (3.70)	11.9 (14.0)	2.95	11.2	3.70	14.0	2.95	11.2	3.10	11.8
RF/RM107	1.65 (3.95)	6.3 (14.9)	4.20	15.9	4.50	17.0	5.1	19.2	3.45	13.1	4.20	15.9
RF/RM137	2.50 (6.6)	9.5 (25.0)	7.1	27.0	7.7	29.0	8.6	32.5	6.6	25.0	6.6	25.0
RF/RM147	4.35 (11.1)	16.4 (42.0)	12.4	47.0	12.7	48.0	13.7	52.0	11.1	42.0	11.1	42.0
RF/RM167	6.9 (18.5)	26.0 (70.0)	21.6	82.0	20.6	78.0	23.2	88.0	17.2	65.0	18.7	71.0

[1] Standard level (increased oil level) - The larger gear unit of a multi-stage unit must be filled with the larger oil volume.

For additional information on R-Series mounting positions, refer to the SEW Catalog.

LUBRICANTS

The approximate lubricant in US gallons and liters per mounting position is as follows:

Gear Unit	Mounting Position											
	M1		M2		M3		M4		M5		M6	
	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters
F27	0.16	0.60	0.21	0.80	0.17	0.65	0.18	0.70	0.16	0.60	0.16	0.60
F37	0.25	0.95	0.33	1.25	0.18	0.70	0.33	1.25	0.26	1.00	0.29	1.10
F47	0.40	1.50	0.48	1.80	0.29	1.10	0.50	1.90	0.40	1.50	0.45	1.70
F57	0.69	2.60	0.92	3.50	0.55	2.10	0.92	3.50	0.74	2.80	0.77	2.90
F67	0.71	2.70	1.00	3.80	0.50	1.90	1.00	3.80	0.77	2.90	0.84	3.20
F77	1.55	5.9	1.95	7.3	1.15	4.30	2.10	8.0	1.60	6.0	1.65	6.3
F87	2.85	10.8	3.45	13.0	2.05	7.7	3.65	13.8	2.85	10.8	2.90	11.0
F97	4.90	18.5	5.9	22.5	3.35	12.6	6.7	25.2	4.90	18.5	5.3	20.0
F107	6.5	24.5	8.4	32.0	5.1	19.5	9.9	37.5	7.1	27.0	7.1	27.0
F127	10.7	40.5	14.4	54.5	9.0	34.0	16.1	61.0	12.2	46.3	12.4	47.0
F157	18.2	69.0	27.5	104.0	16.6	63.0	27.7	105.0	22.7	86.0	20.6	78.0
FF27	0.16	0.60	0.21	0.80	0.17	0.65	0.18	0.70	0.16	0.60	0.16	0.60
FF37	0.26	1.00	0.33	1.25	0.18	0.70	0.34	1.30	0.26	1.00	0.29	1.10
FF47	0.42	1.60	0.49	1.85	0.29	1.10	0.50	1.90	0.40	1.50	0.45	1.70
FF57	0.74	2.80	0.92	3.50	0.55	2.10	0.98	3.70	0.77	2.90	0.79	3.00
FF67	0.71	2.70	1.00	3.80	0.50	1.90	1.00	3.80	0.77	2.90	0.84	3.20
FF77	1.55	5.9	1.95	7.3	1.15	4.30	2.15	8.1	1.60	6.0	1.65	6.3
FF87	2.85	10.8	3.50	13.2	2.05	7.8	3.70	14.1	2.90	11.0	2.95	11.2
FF97	5.00	19.0	5.9	22.5	3.35	12.6	6.8	25.6	5.00	18.9	5.4	20.5
FF107	6.7	25.5	8.4	32.0	5.1	19.5	10.2	38.5	7.3	27.5	7.4	28.0
FF127	11.0	41.5	14.7	55.5	9.0	34.0	16.6	63.0	12.2	46.3	12.9	49.0
FF157	19.0	72.0	27.7	105.0	16.9	64.0	28.0	106.0	23.0	87.0	20.9	79.0
FA/FH/FV27 FAF/FHF/FVF27 FAZ/FHZ/FVZ27	0.16	0.60	0.21	0.80	0.17	0.65	0.18	0.70	0.16	0.60	0.16	0.60
FA/FH/FV37 FAF/FHF/FVF37 FAZ/FHZ/FVZ37 FT37	0.25	0.95	0.33	1.25	0.18	0.70	0.33	1.25	0.26	1.00	0.29	1.10
FA/FH/FV47 FAF/FHF/FVF47 FAZ/FHZ/FVZ47 FT47	0.40	1.50	0.48	1.80	0.29	1.10	0.50	1.90	0.40	1.50	0.45	1.70
FA/FH/FV57 FAF/FHF/FVF57 FAZ/FHZ/FVZ57 FT57	0.71	2.70	0.92	3.50	0.55	2.10	0.90	3.40	0.77	2.90	0.79	3.00
FA/FH/FV67 FAF/FHF/FVF67 FAZ/FHZ/FVZ67 FT67	0.71	2.70	1.00	3.80	0.50	1.90	1.00	3.80	0.77	2.90	0.84	3.20
FA/FH/FV77 FAF/FHF/FVF77 FAZ/FHZ/FVZ77 FT77	1.55	5.9	1.95	7.3	1.15	4.30	2.10	8.0	1.60	6.0	1.65	6.3
FA/FH/FV87 FAF/FHF/FVF87 FAZ/FHZ/FVZ87 FT87	2.85	10.8	3.45	13.0	2.05	7.7	3.65	13.8	2.85	10.8	2.90	11.0
FA/FH/FV97 FAF/FHF/FVF97 FAZ/FHZ/FVZ97 FT97	4.90	18.5	5.9	22.5	3.35	12.6	6.7	25.2	4.90	18.5	5.3	20.0
FA/FH/FV107 FAF/FHF/FVF107 FAZ/FHZ/FVZ107	6.5	24.5	8.4	32.0	5.1	19.5	9.9	37.5	7.1	27.0	7.1	27.0
FA/FH/FV127 FAF/FHF/FVF127 FAZ/FHZ/FVZ127	10.3	39.0	14.4	54.5	9.0	34.0	16.1	61.0	11.9	45.0	12.3	46.5
FA/FH/FV157 FAF/FHF/FVF157 FAZ/FHZ/FVZ157	18.0	68.0	27.2	103.0	16.4	62.0	27.5	104.0	22.4	85.0	20.3	77.0

For additional information on F-Series mounting positions, refer to the SEW Catalog.

LUBRICANTS

The approximate lubricant in US gallons and liters per mounting position is as follows:

Gear Unit	Mounting Position											
	M1		M2		M3		M4		M5		M6	
	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters
K37	0.13	0.50	0.26	1.00	0.26	1.00	0.33	1.25	0.25	0.95	0.25	0.95
K47	0.21	0.80	0.34	1.30	0.40	1.50	0.53	2.00	0.42	1.60	0.42	1.60
K57	0.32	1.20	0.61	2.30	0.66	2.50	0.74	2.80	0.69	2.60	0.63	2.40
K67	0.29	1.10	0.63	2.40	0.69	2.60	0.91	3.45	0.69	2.60	0.69	2.60
K77	0.58	2.20	1.10	4.10	1.15	4.40	1.55	5.8	1.10	4.20	1.15	4.40
K87	0.98	3.70	2.10	8.0	2.30	8.7	2.90	10.9	2.10	8.0	2.10	8.0
K97	1.85	7.0	3.70	14.0	4.15	15.7	5.3	20.0	4.15	15.7	4.10	15.5
K107	2.65	10.0	5.5	21.0	6.7	25.5	8.8	33.5	6.35	24.0	6.35	24.0
K127	5.5	21.0	11.0	41.5	11.6	44.0	14.3	54.0	10.6	40.0	10.8	41.0
K157	8.2	31.0	16.4	62.0	17.2	65.0	23.8	90.0	15.3	58.0	16.4	62.0
K/KH167	8.7	33.0	25.1	95.0	27.7	105.0	32.5	123.0	22.4	85.0	22.2	84.0
K/KH187	14.0	53.0	40.1	152.0	44.1	167.0	53.0	200	37.8	143.0	37.8	143.0
KF37	0.13	0.50	0.29	1.10	0.29	1.10	0.40	1.50	0.26	1.00	0.26	1.00
KF47	0.21	0.80	0.34	1.30	0.45	1.70	0.58	2.20	0.42	1.60	0.42	1.60
KF57	0.34	1.30	0.61	2.30	0.71	2.70	0.83	3.15	0.77	2.90	0.71	2.70
KF67	0.29	1.10	0.63	2.40	0.74	2.80	0.98	3.70	0.71	2.70	0.71	2.70
KF77	0.55	2.10	1.10	4.10	1.15	4.40	1.55	5.9	1.20	4.50	1.20	4.50
KF87	0.98	3.70	2.15	8.2	2.40	9.0	3.15	11.9	2.20	8.4	2.20	8.4
KF97	1.85	7.0	3.90	14.7	4.55	17.3	5.70	21.5	4.15	15.7	4.35	16.5
KF107	2.65	10.0	5.8	21.8	6.8	25.8	9.3	35.1	6.7	25.2	6.7	25.2
KF127	5.5	21.0	11.0	41.5	12.1	46.0	14.5	55.0	10.8	41.0	10.8	41.0
KF157	8.2	31.0	17.4	66.0	18.2	69.0	24.3	92.0	16.4	62.0	16.4	62.0
KA/KH/KV37 KAF/KHF/KVF37 KAZ/KHZ/KVZ37 KT37	0.13	0.50	0.26	1.00	0.26	1.00	0.37	1.40	0.26	1.00	0.26	1.00
KA/KH/KV47 KAF/KHF/KVF47 KAZ/KHZ/KVZ47 KT47	0.21	0.80	0.34	1.30	0.42	1.60	0.57	2.15	0.42	1.60	0.42	1.60
KA/KH/KV57 KAF/KHF/KVF57 KAZ/KHZ/KVZ57 KT57	0.34	1.30	0.61	2.30	0.71	2.70	0.83	3.15	0.77	2.90	0.71	2.70
KA/KH/KV67 KAF/KHF/KVF67 KAZ/KHZ/KVZ67 KT67	0.29	1.10	0.63	2.40	0.71	2.70	0.98	3.70	0.69	2.60	0.69	2.60
KA/KH/KV77 KAF/KHF/KVF77 KAZ/KHZ/KVZ77 KT77	0.55	2.10	1.10	4.10	1.20	4.60	1.55	5.9	1.15	4.40	1.15	4.40
KA/KH/KV87 KAF/KHF/KVF87 KAZ/KHZ/KVZ87 KT87	0.98	3.70	2.15	8.2	2.30	8.8	2.95	11.1	2.10	8.0	2.10	8.0
KA/KH/KV97 KAF/KHF/KVF97 KAZ/KHZ/KVZ97 KT97	1.85	7.0	3.90	14.7	4.15	15.7	5.30	20.0	4.15	15.7	4.15	15.7
KA/KH/KV107 KAF/KHF/KVF107 KAZ/KHZ/KVZ107	2.65	10.0	5.4	20.5	6.3	24.0	8.6	32.4	6.3	24.0	6.3	24.0
KA/KH/KV127 KAF/KHF/KVF127 KAZ/KHZ/KVZ127	5.5	21.0	11.0	41.5	11.4	43.0	13.7	52.0	10.6	40.0	10.6	40.0
KA/KH/KV157 KAF/KHF/KVF157 KAZ/KHZ/KVZ157	8.2	31.0	17.4	66.0	17.7	67.0	23.0	87.0	16.4	62.0	16.4	62.0

For additional information on K-Series mounting positions, refer to the SEW Catalog.

LUBRICANTS

The approximate lubricant in US gallons and liters per mounting position is as follows:

Gear Unit	Mounting Position											
	M1		M2		M3 [1]		M4		M5		M6	
	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters	Gallons	Liters
S37	0.065	0.25	0.11	0.40	0.13	0.50	0.15	0.55	0.11	0.40	0.11	0.40
S47	0.090	0.35	0.21	0.80	0.18 (0.24)	0.70 (0.90)	0.26	1.00	0.21	0.80	0.21	0.80
S57	0.13	0.50	0.32	1.20	0.26 (0.32)	1.00 (1.20)	0.38	1.45	0.34	1.30	0.34	1.30
S67	0.26	1.00	0.53	2.00	0.58 (0.82)	2.20 (3.10)	0.82	3.10	0.69	2.60	0.69	2.60
S77	0.50	1.90	1.10	4.20	0.98 (1.45)	3.70 (5.4)	1.55	5.9	1.15	4.40	1.15	4.40
S87	0.87	3.30	2.15	8.1	1.80 (2.75)	6.9 (10.4)	3.00	11.3	2.20	8.4	2.20	8.4
S97	1.80	6.8	3.95	15.0	3.55 (4.75)	13.4 (18.0)	5.8	21.8	4.50	17.0	4.50	17.0
SF37	0.065	0.25	0.11	0.40	0.13	0.50	0.15	0.55	0.11	0.40	0.11	0.40
SF47	0.11	0.40	0.24	0.90	0.24 (0.28)	0.90 (1.05)	0.28	1.05	0.26	1.00	0.26	1.00
SF57	0.13	0.50	0.32	1.20	0.26 (0.40)	1.00 (1.50)	0.41	1.55	0.37	1.40	0.37	1.40
SF67	0.26	1.00	0.58	2.20	0.61 (0.79)	2.30 (3.00)	0.84	3.20	0.71	2.70	0.71	2.70
SF77	0.50	1.90	1.10	4.10	1.05 (1.55)	3.90 (5.8)	1.70	6.5	1.30	4.90	1.30	4.90
SF87	1.00	3.80	2.10	8.0	1.85 (2.65)	7.1 (10.1)	3.15	12.0	2.40	9.1	2.40	9.1
SF97	1.95	7.4	3.95	15.0	3.65 (4.95)	13.8 (18.8)	6.0	22.6	4.75	18.0	4.75	18.0
SA/SH37 SAF/SHF37 SAZ/SHZ37 ST37	0.065	0.25	0.11	0.40	0.13	0.50	0.13	0.50	0.11	0.40	0.11	0.40
SA/SH47 SAF/SHF47 SAZ/SHZ47 ST47	0.11	0.40	0.21	0.80	0.18 (0.24)	0.70 (0.90)	0.26	1.00	0.21	0.80	0.21	0.80
SA/SH57 SAF/SHF57 SAZ/SHZ57 ST57	0.13	0.50	0.29	1.10	0.26 (0.40)	1.00 (1.50)	0.40	1.50	0.32	1.20	0.32	1.20
SA/SH67 SAF/SHF67 SAZ/SHZ67 ST67	0.26	1.00	0.53	2.00	0.48 (0.69)	1.80 (2.60)	0.77	2.90	0.66	2.50	0.66	2.50
SA/SH77 SAF/SHF77 SAZ/SHZ77 ST77	0.48	1.80	1.05	3.90	0.95 (1.30)	3.60 (5.0)	1.55	5.8	1.20	4.50	1.20	4.50
SA/SH87 SAF/SHF87 SAZ/SHZ87 ST87	1.00	3.80	1.95	7.4	1.60 (2.30)	6.0 (8.7)	2.85	10.8	2.10	8.0	2.10	8.0
SA/SH97 SAF/SHF97 SAZ/SHZ97 ST97	1.85	7.0	3.70	14.0	3.00 (4.20)	11.4 (16.0)	5.4	20.5	4.15	15.7	4.15	15.7

[1] Standard level (increased oil level) - The larger gear unit of a multi-stage unit must be filled with the larger oil volume.

The approximate lubricant in US gallons and liters for ALL mounting positions for the W-Series is as follows

Gear Unit	Gallons	Liters
W/WF/WA/WAF10	0.042	0.116
W/WF/WA/WAF20	0.065	0.24
W/WF/WA/WAF30	0.11	0.40

Note: The Spiroplan® series gear units are mounting position indepedent of oil filling.

For additional information on S-Series mounting positions, refer to the SEW Catalog.

Dings CO. DYNAMICS GROUP

60 Series Hazardous Brake Instructions

READ THIS BULLETIN CAREFULLY BEFORE INSTALLING OR OPERATING THE 60 SERIES BRAKE. FAILURE TO COMPLY WITH THESE INSTRUCTIONS CANCELS ALL WARRANTIES SINCE THE SAFETY OF THE UNIT MAY BE ENDANGERED BY IMPROPER INSTALLATION OR OPERATING PROCEDURES.

Figure 1

MOTOR MOUNTED*			FOOT MOUNTED		
	ENCLOSURE SUFFIX			ENCLOSURE SUFFIX	
MODEL NO.	CAST IRON	ALUMINUM	MODEL NO.	CAST IRON	ALUMINUM
8-61001	-66B	-67B	F8-61001	-66B	-67B
8-61003	-66B	-67B	F8-61003	-66B	-67B
8-62006	-66B	-67B	F8-62006	-66B	-67B
8-63010	-66B	-67B	F8-63010	-66B	-67B
8-63015	-66B	-67B	F8-63015	-66B	-67B

*If a hazardous location brake is purchased by other than an authorized electric motor manufacturer, a Foot Mounted brake must be purchased to obtain the UL label.

DESCRIPTION

The 60 Series Brake is a direct acting, electro magnetically released, spring set unit that utilizes rotating and stationary disc contact to supply positive braking action and quick release and setting capabilities at all times. Brakes which are not provided with a floor mounting bracket are intended to be mounted as an integral part of electric motors listed for corresponding hazardous locations where the acceptability of the combinations has been determined by Underwriter's Laboratories, Inc. The explosion-proof assembly is completed by assembly of the brakes to the motors.

CAUTION

DO NOT OPERATE MANUAL RELEASE OR ENERGIZE BRAKE COIL BEFORE INSTALLATION IN ORDER TO PRESERVE PRE-ALIGNMENT OF ROTATING DISCS FOR EASE OF INSTALLATION.

USE ONLY HUB FURNISHED BY DINGS SPECIFICALLY FOR USE IN HAZARDOUS LOCATION BRAKES. DO NOT OPERATE BRAKES IN EXPLOSIVE ATMOSPHERE WITH COVER OR COVER BOLTS REMOVED.

MANUAL RELEASE (See Figure 7)

To manually release brake, rotate release knob (41) clockwise until it strikes stop-pin (39). Brake will remain released until release knob is rotated counterclockwise, or until power is restored, automatically resetting the brake.

THERMAL RELEASE

If the brake overheats, the thermal release mechanism will release spring pressure on the friction discs, releasing brake. To reset thermal release, allow brake to cool, then rotate release knob (41) counterclockwise until it strikes the stop-pin. Check brake operation as overheating may indicate a broken lead wire or burned out coil.

The thermal release mechanism has been calibrated at the factory and the setting of the bimetal element and control rod MUST NOT BE DISTURBED. If the mechanism does not function properly, the complete operator assembly (44) must be returned to the factory for adjustment and calibration.

WARNINGS

A. Read this bulletin carefully before installing or operating the brakes. Failure to comply with the installation or operating instructions cancels all warranties and may cause injury to personnel and damage to property.

B. DESCRIPTION

The 60 and 70 Series brake for hazardous location is a direct acting, electromagnetically released, spring set brake that utilizes rotating and stationary disc contact to supply positive braking action. Brakes can be mounted independently of any other equipment by using a U.L. listed foot mounting bracket, or mounted in a location approved by U.L. to an electric motor listed for corresponding hazardous locations. The brakes are equipped with a thermal overload mechanism that will prevent the external surfaces of the unit to reach or exceed the lowest temperature for the Classes and Groups for which the brakes are listed.

C. OPERATING INFORMATION

When the external surface of the brake approaches the specified temperature limit, the thermal overload mechanism will automatically release the brake and hold it in the released position. The thermal overload mechanism prevents the surface temperature of the brake from rising to a level that could ignite the surrounding gases or dusts by releasing the brake and therefore, stopping a further increase in temperature. Once the brake has been released by the thermal overload mechanism, control over the rotation of the motor and movement of the load is lost. This uncontrolled rotation of the motor and movement of the load could cause injury to personnel and damage to property.

The brake is also equipped with a thermal switch. When properly wired into the motor starting circuit, the thermal switch shuts down the motor before the thermal overload mechanism releases the brake. When the thermal switch activates, it stops the motor and load, preventing the uncontrolled motion described above.

The thermal overload mechanism can be reset manually after a cooling off period. Before resetting, the cause for actuating the thermal overload mechanism should be removed.

To minimize the possibility of overheating the brake to a point where the thermal overload mechanism will be actuated, the performance of the brake has to be matched to the requirements of the application.

When selecting the brake model, consideration has to be given to brake torque, thermal capacity, electrical power supply, housing material and any unusual conditions.

BRAKE TORQUE

As a general rule, brake torque is matched to the full load motor torque (brake and motor shaft at the same speed). Depending on the type of application, the torque sometimes is increased by a safety factor of 1.5 to 2. If factors such as stopping time, travel distance during stopping and others, are important, the exact torque requirement has to be calculated, using the inertia and speed of all moving parts.

THERMAL CAPACITY

Thermal capacity describes the capacity of the brake to perform the maximum number of stops without excessive heat buildup that will actuate the thermal overload mechanism or damage internal brake parts. The maximum number of stops depends on the rating of the brake, inertia to be stopped and speed from which stops are made. To calculate the thermal capacity requirements of the application, inertia and speed of all moving parts and the number of stops of one full operating cycle must be known.

ELECTRICAL POWER SUPPLY

The coil of the electromagnet, which supplies the releasing force under normal operating conditions, will operate properly with a tolerance of plus or minus 10% of rated voltage. A voltage higher than 110% will shorten the life of the coil considerably due to the higher temperature generated inside the coil. A voltage of less than 90% may prevent the armature from moving towards the magnet frame. If this occurs, the coil will burn out within months.

HOUSING MATERIAL

The 60 Series H.L. brake is available with an aluminum or cast iron housing. The selection depends on the environment. Certain vapors or liquids prevent the use of the lighter aluminum housing.

UNUSUAL CONDITIONS

Please consult Dings Home Office, if ambient temperature is above 40^{o}C (104^{o}F), brake shaft speed is over 3600 RPM, or any other unusual conditions exist.

List of Dings Brake Models
Listed by Underwriter's Laboratories, Inc.
For Hazardous Locations, Class I, Group C and D
Class II, Group E, F and G
Temperature Code - T3C

For Direct Mounting to Motor "C" Face.
NEMA Motor Frame Sizes
56C, 66C, 143TC, 145TC

Model No.*	Torque Ft. Lbs.	Thermal Capacity HP Sec./Min.
8-61001-xx	1.5	7
8-61003-xx	3	7
8-62006-xx	6	8
8-63010-xx	10	9
8-63015-xx	15	9

For Adapter Mounting to Motor "C" Face.
NEMA Motor Frame Sizes
182TC, 184TC, 213TC,
215TC, 245TC, 256TC

Model No.*	Torque Ft. Lbs.	Thermal Capacity HP Sec./Min.
A8-61001-xx	1.5	7
A8-61003-xx	3	7
A8-62006-xx	6	8
A8-63010-xx	10	9
A8-63015-xx	15	9

For Foot Mounting

Model No.*	Torque Ft. Lbs.	Thermal Capacity HP Sec./Min.
F8-61001-xx	1.5	7
F8-61003-xx	3	7
F8-62006-xx	6	8
F8-63010-xx	10	9
F8-63015-xx	15	9

* Complete Model Number by Adding
Suffix -66B for Cast Iron Housing
Suffix -67B for Aluminum

INSTALLATION OF BRAKE ON MOTOR ENDSHIELD (See Figure 7)

STANDARD MOTOR "C" FACE MOUNTING NEMA FRAME SIZES 56C, 66C, 143TC, 145TC					
MODEL NO.		WT.	TORQUE	DIMENSIONS AH	
CAST IRON	ALUMINUM	LB.	LB. FT.	MAX.	MIN.
8-61001-66B		40.5	1.5	2 3/8	1 3/4
	8-61001-67B	23	1.5	2 3/8	1 3/4
8-61003-66B		40.5	3	2 3/8	1 3/4
	8-61003-67B	23	3	2 3/8	1 3/4
8-62006-66B		43	6	2 3/4	2
	8-62006-67B	24	6	2 3/4	2
8-63010-66B		45.5	10	3 1/8	2 1/4
	8-63010-67B	25.5	10	3 1/8	2 1/4
8-63015-66B		45.5	15	3 1/8	2 1/4
	8-63015-67B	25.5	15	3 1/8	2 1/4

Do not operate manual release or energize brake coil before installation in order to preserve pre-alignment of rotating disc for easy installation of brake to motor.

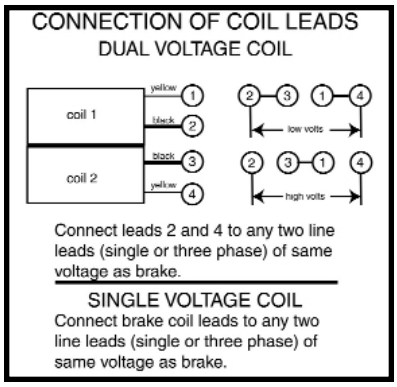
Because of the close fit on all joints (bracket, cover, hub), care should be taken to prevent damage to all machined surfaces.

Do not operate brake in hazardous location with cover removed. All testing must be done in a non-explosive atmosphere.

1. Remove hub (6) from brake and mount hub with key (not supplied by Dings) on motor shaft per dimension shown in Figure 5. Be sure that hub used is item supplied by Dings for hazardous location applications. Tighten both set screws to 8-10 lb. ft. torque.
2. Cast Iron Enclosure: Remove four cover bolts (42A) and lockwashers (43) and remove cover (38A).
   Cast Aluminum Enclosure: Remove four cover bolts (42B), flat washer (9), locknut (8) and cover (38B).
3. Inspect motor "C" flange and remove any nicks or burrs. This will assure a precision fit of brake to motor flange. Slide brake over hub (6), engaging teeth of rotating disc (2) and hub.

NOTE:
ONLY CONNECT BRAKE COIL TO 4L1 & 4L2 FROM CONTROL PANEL. DO NOT CONNECT BRAKE COIL TO MOTOR LEADS

8/7/08



4. Install four mounting bolts (10) and tighten to 40 lb. ft. torque. Install four locking set screws (11) and tighten to 40 lb. ft. torque. This seals flame path around mounting bolts. Check rotation of hub to make certain it does not rub in bracket (5). Diametrical clearance of hub outside diameter to bracket bore shall not exceed .024".
5. Connect brake coil leads to any two line leads of same voltage as brake. All wiring should be positioned to prevent pinching or chafing and all connections well taped to prevent grounding.
6. Replace cover (38A or 38B). Make certain that two pins of release shaft (35) fit over roll pin (32). A soft mallet may be used to tap cover in place. Fasten with four bolts (42A or 42B), washers (9 or 43) and locknuts (8). A loose or missing bolt will render the brake unsafe for operation in hazardous locations.

INSTALLATION OF BRAKE WITH ADAPTER ON MOTOR ENDSHIELD (See Figure 3)

ADAPTER MOTOR "C" FACE MOUNTING NEMA FRAME SIZES 182TC, 184TC, 213TC, 215TC, 254TC, 256TC					
MODEL NO.		WT.	TORQUE	DIMENSIONS AH	
CAST IRON	ALUMINUM	LB.	LB. FT.	MAX.	MIN.
A8-61001-66B		47.5	1.5	2 3/16	2 3/16
	A8-61001-67B	30	1.5	2 3/16	2 3/16
A8-61003-66B		47.5	3	2 3/16	2 3/16
	A8-61003-67B	30	3	2 3/16	2 3/16
A8-62006-66B		50	6	3 3/16	2 7/16
	A8-62006-67B	31	6	3 3/16	2 7/16
A8-63010-66B		52.5	10	3 9/16	2 11/16
	A8-63010-67B	32.5	10	3 9/16	2 11/16
A8-63015-66B		52.5	15	3 9/16	2 11/16
	A8-63015-67B	32.5	15	3 9/16	2 11/16

7. Inspect motor "C" flange and remove any nicks or burrs. This will insure a precision fit of adapter to the motor flange. Mount adapter to motor flange using the four bolts and lockwashers supplied. A soft mallet may be used to tap adapter into place. All bolts should be drawn up evenly and tight.

   Check alignment of adapter. Clamp dial indicator to brake hub (position A) and measure pilot eccentricity. This must not exceed .002" total indicator reading for a full revolution of hub. Reposition dial indicator (position B) and check adapter face runout which must not exceed .004" total indicator reading for a full revolution of the hub. Remove hub (6) from brake and mount hub with key (not supplied by Dings) on motor shaft per dimension shown in Figure 3. Tighten both setscrews to 8-10 lb. ft. torque. Complete mounting of brake per paragraphs 2 through 6.

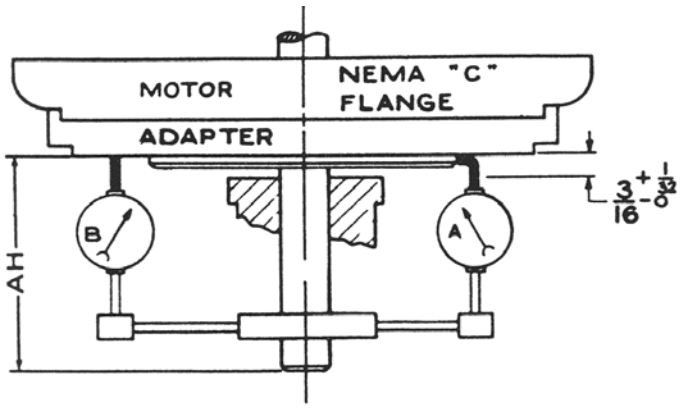


Figure 3. 60 Series Hazardous Location Brake - Adapter Installation

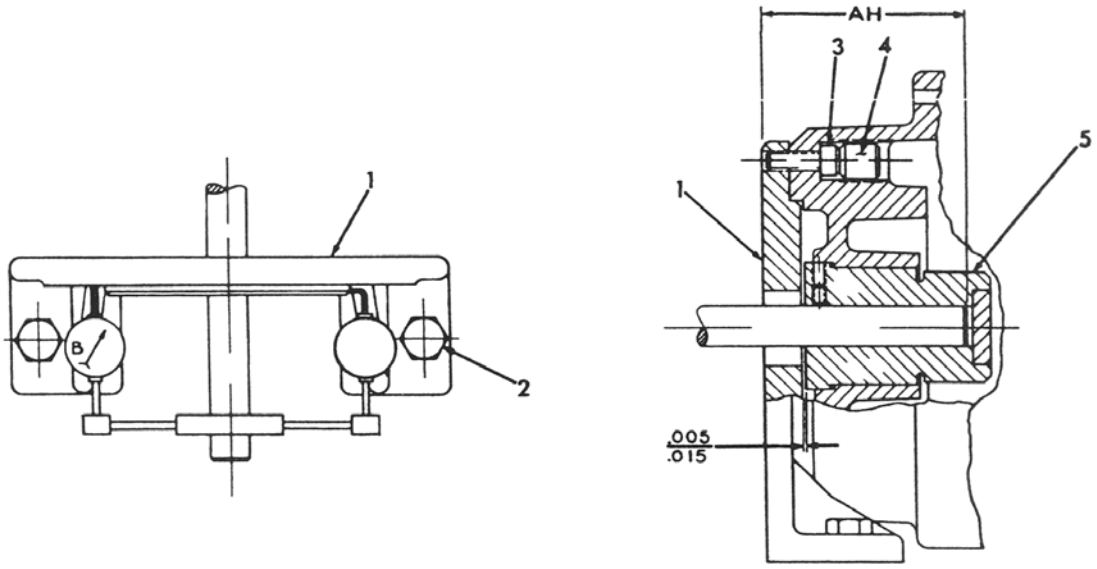


Figure 4. 60 Series Hazardous Location Brake - Foot Mount Installation

INSTALLATION OF FOOT MOUNTING BRAKE (See Figure 4)

8. Install bracket (1) over motor shaft extension and half-tighten cap screws (2). The distance from the mounting face of the bracket (1) to end of motor shaft must not exceed dimension “AH” max.
9. Clamp dial indicator “A” to motor shaft and position bracket (1) with shims as necessary, by tapping with a soft mallet until dial indicator does not read over .002” total change in one full revolution of the shaft. Move dial indicator to “B” and position bracket until dial indicator does not read over .004” total change in one full revolution of shaft.
10. Draw all bolts up tight. Recheck alignment with dial indicator. Readjust if necessary until tolerances are within limits with all bolts tight.
11. Remove hub (6, Figure 7) from brake and mount hub with key (not supplied by Dings) on motor shaft per dimension as shown in Figure 4. Tighten both setscrews to 8-10 lb. ft. torque. Complete mounting of brake (paragraph 2-6).

FOOT MOUNTING					
MODEL NO.		WT.	TORQUE	DIMENSIONS AH	
CAST IRON	ALUMINUM	LB.	LB. FT.	MAX.	MIN.
8-61001-66B		40.5	1.5	2 3/8	1 3/4
	8-61001-67B	23	1.5	2 3/8	1 3/4
8-61003-66B		40.5	3	2 3/8	1 3/4
	8-61003-67B	23	3	2 3/8	1 3/4
8-62006-66B		43	6	2 3/4	2
	8-62006-67B	24	6	2 3/4	2
8-63010-66B		45.5	10	3 1/8	2 1/4
	8-63010-67B	25.5	10	3 1/8	2 1/4
8-63015-66B		45.5	15	3 1/8	2 1/4
	8-63015-67B	25.5	15	3 1/8	2 1/4

WEAR ADJUSTMENT (See Figures 5 & 7)

When armature plate (12) touches bracket (5), closing gap "B", adjustment for friction disc wear is required.

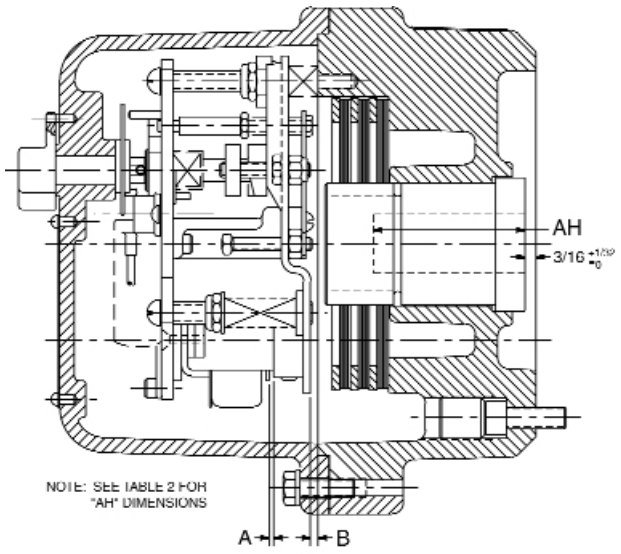


Figure 5. 60 Series H.L. Brake

12. To adjust, turn screws (16) clockwise until magnet gap "A" reads .040" to .045" at narrowest gap, for 1 and 2 disc models and reads .050" to .055" at narrowest gap for 3 disc models. Any delay in adjusting gap will result in eventual loss of torque.

TORQUE ADJUSTMENT (See Figure 7)

13. Brake is factory set for rated torque. To increase stopping time and lower torque, turn locknuts (45) counterclockwise. Each full turn decreases torque by approximately 10%.

FRICTION DISC REPLACEMENT (See Figure 7)

14. When total wear on rotating friction disc (2) reaches 1/16", replace disc as follows. Loosen three mounting screws (37), with release knob in release position, remove operator assembly as a unit, spring (13), and stationary disc (1).
15. Reassemble all parts in reverse order. Start all three of the mounting screws (37), then turn two adjustment screws (16) counterclockwise to allow the three operator assembly mounting posts to seat against the bracket (5), then tighten mounting screws. Readjust magnet gap, see "Adjustment for Wear", paragraph 12.

MAGNET ASSEMBLY REPLACEMENT (See Figures 5 & 7)

16. To replace magnet assembly, unscrew two flat head screws (31), remove magnet assembly (25) with shoulder nut (23) and rubber washer (24).
17. Replace complete magnet assembly (25) and reassemble parts in reverse order.
18. Magnet will be noisy, if magnet faces are not parallel in closed position. Turn pivot nut (15) until minimum noise is obtained.
19. If manual release does not work properly after resetting pivot nut, set magnet gap "A" to read .040" to .045" at narrowest gap, for 1 and 2 disc models and .050" to .055" at narrowest gap for 3 disc models. Turn release shaft clockwise until it strikes roll pin (39), releasing brake.
20. Adjust locknut (14) and jam nut (21B) until magnet gap "A" is .030" at center of magnet face width. Manual release must be in release position for this measurement.

VERTICAL MOUNTING

INSTALLATION AND ADJUSTMENT

Installation and adjustment of the vertically mounted Dings Hazardous Location Brake is the same as on the standard 60 Series Hazardous Location Brake.

FRICTION DISC REPLACEMENT

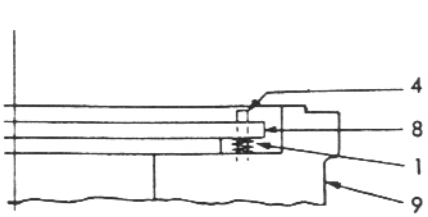
When replacing friction discs, follow procedure outlined in paragraphs 14 and 15, with this addition: Care must be taken to insure proper insertion of the disc separating springs. Springs are color-coded for easy identification, and reference is made to spring color. See Figure 6. The installation order of the disc springs is dependent on brake mounting position, (above or below motor), so make sure to consult the correct diagram for spring location.

Vertical Mounting Parts

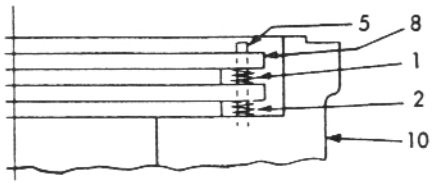
			NO. OF ROTATING DISCS					
			CAST IRON			ALUMINUM		
ITEM	DESCRIPTION	PART NO.	1	2	3	1	2	3
1	SPRING (SILVER)	G060350-001	2	2	2	2	2	2
2	SPRING (BLACK)	G060350-002	-	2	2	-	2	2
3	SPRING (BRONZE)	G060350-003	-	-	2	-	-	2
4	ROLLPIN - 1/8” X 5/8”	W005003-071	2	-	-	2	-	-
5	ROLLPIN - 1/8” X 1”	W005003-077	-	2	-	-	2	-
6	ROLLPIN - 1/8” X 1-3/8”	W005003-080	-	-	2	-	-	2
7	STATIONARY DISC	H060203-003	-	-	-	1	1	1
8	STATIONARY DISC	H060203-004	1	2	3	1	2	3
9	BRACKET - C.I. (1 DISC)	L060083-001	1	-	-	-	-	-
10	BRACKET - C.I. (2 DISC)	L060083-002	-	1	-	-	-	-
11	BRACKET - C.I. (3 DISC)	L060083-003	-	-	1	-	-	-
12	BRACKET - C.A. (1 DISC)	L060042-001	-	-	-	1	-	-
13	BRACKET - C.A. (2 DISC)	L060042-002	-	-	-	-	1	-
14	BRACKET - C.A. (3 DISC)	L060042-003	-	-	-	-	-	1

8-60 BRAKE WITH CAST IRON ENCLOSURE

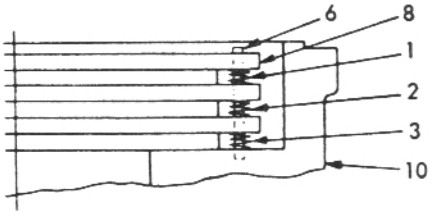
BRAKE MOUNTED ABOVE MOTOR



1 DISC MODEL



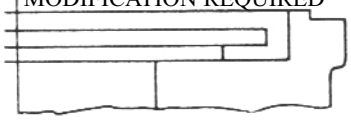
2 DISC MODEL



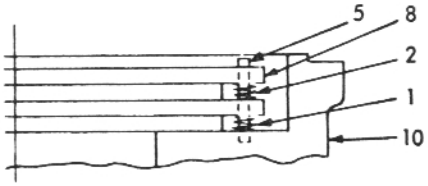
3 DISC MODEL

BRAKE MOUNTED BELOW MOTOR

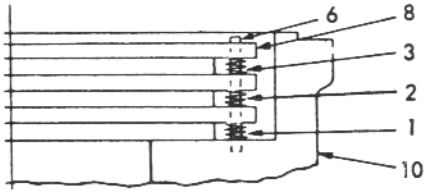
STANDARD BRAKE - NO MODIFICATION REQUIRED



1 DISC MODEL



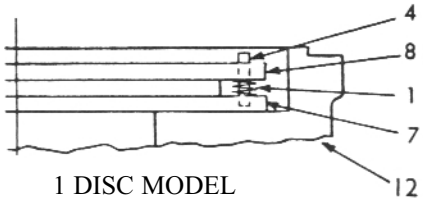
2 DISC MODEL



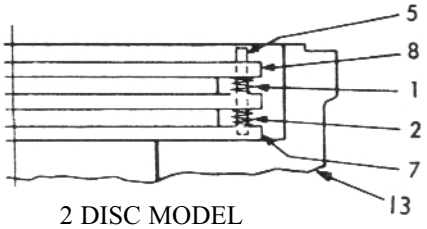
3 DISC MODEL

8-60 BRAKE WITH CAST IRON ENCLOSURE

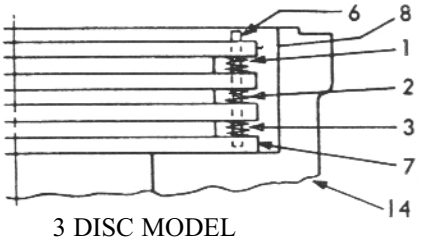
BRAKE MOUNTED ABOVE MOTOR



1 DISC MODEL

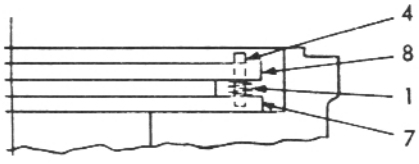


2 DISC MODEL

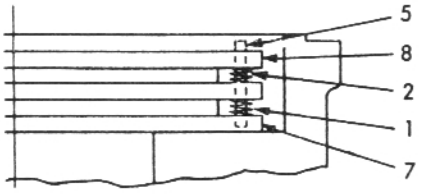


3 DISC MODEL

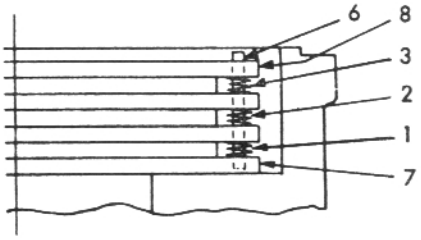
BRAKE MOUNTED BELOW MOTOR



1 DISC MODEL



2 DISC MODEL



3 DISC MODEL

Figure 6. Vertical Mounting

ITEM	NO. REQ'D	PART NO.	DESCRIPTION
1	See note 1	H060147-001	Stationary Disc
2	See note 2	H060157-004	Rotating Disc
3	2	W001012-048	Name Plate Drive Screw, Type U
4	1	H060396-001	Name Plate
5A	1	L060032-***	Bracket (Cast Iron)
5B	1	L060042-***	Bracket (Cast Aluminum)
6	1	K060097-***	Hub
7	1	G060380-005	Condulet Assembly
8	4	W003013-003	Locknut - Esna 5/16-18 NC (Cast Aluminum Enclosure)
9	4	W004002-007	Flat Washer (Cast Aluminum Enclosure)
10	4	W001013-109A	Mounting Bolt
11	4	W002005-052	Locking Setscrew
12	1	H060162-003	Armature Plate Assembly
13	1	G060297-001	Compression Spring
14	2	W003001-013	Locknut - Esna 1/4-20
15	1	G060267-001	Pivot Nut
16	2	W002003-001	Square Head Adjustment Screw
17	1	K060105-001	Release Camshaft
18	2	G060268-001	Bushing
19	2	G060275-***	Torque Spring
20	2	G060294-001	Washer
21A	1	G060295-001	Lift Bar Assembly
21B	2	W003007-001	Jam Nut W/ Nylok Insert
22	1	G060277-001	Return Spring
23	2	G060305-001	Shoulder Nut
24	2	G060310-001	Rubber Washer
25	1	See note 3	Magnet Assembly
26	1	W005003-069	Return Spring Pin-Esna
28	2	W05003-073	Rollpin-Esna
29	1	G060265-001	Shaft Guide
30	1	W004005-001	Washer
31	2	W001017-003	Flat Head
32	1	W005003-116	Rollpin-Esna
33	1	W001012-063	Drive Screw - Type U
34	1	G060370-001	Return Spring
35	1	H060222-001	Release Shaft Assembly
36	3	Included with Item 37	Internal Tooth Lockwasher
37	3	W001003-006	Mounting Screw
38A	1	L060041-001	Cover (Cast Iron)
38B	1	L060089-001	Cover (Cast Aluminum)
39	1	W005003-069	Stop Pin - Esna
40	1	W005003-073	Rollpin - Esna
41A	1	H060170-003	Release Knob (Cast Iron)
41B	1	H060170-001	Release Knob (Cast Aluminum)
42A	4	W001007-030	Hex. Head Cap Screw (Cast Aluminum Enclosure)
42B	4	See note 4	Hex. Head Cap Screw (Cast Iron Enclosure)
43	4	W004006-007	Lockwasher (Cast Iron Enclosure)
44	1	K060115-***	Operator Assembly
45	2	W003001-018	Locknut - Esna
46	1	W003001-018	Locknut - Esna

Note 1: Stationary Disc Quantity (Item 1).
Cast Iron Enclosure - Number of Stationary Discs equals number of rotating discs.
Cast Aluminum Enclosure - Number of Stationary Discs is one more than the number of rotating discs.

Note 2: Rotating Disc Quantity (Item 2).
To find number of rotating discs, read third digit of model number.
i.e. 8-63010-66B has 3 rotating discs

Note 3: Part No. H060200 for 63015 Models
Part No. H060199 for All Other Models

Note 4: Capscrew size (item 42B)
1 Disc Brake W001007-034
2 Disc Brake W001007-035
3 Disc Brake W001007-037

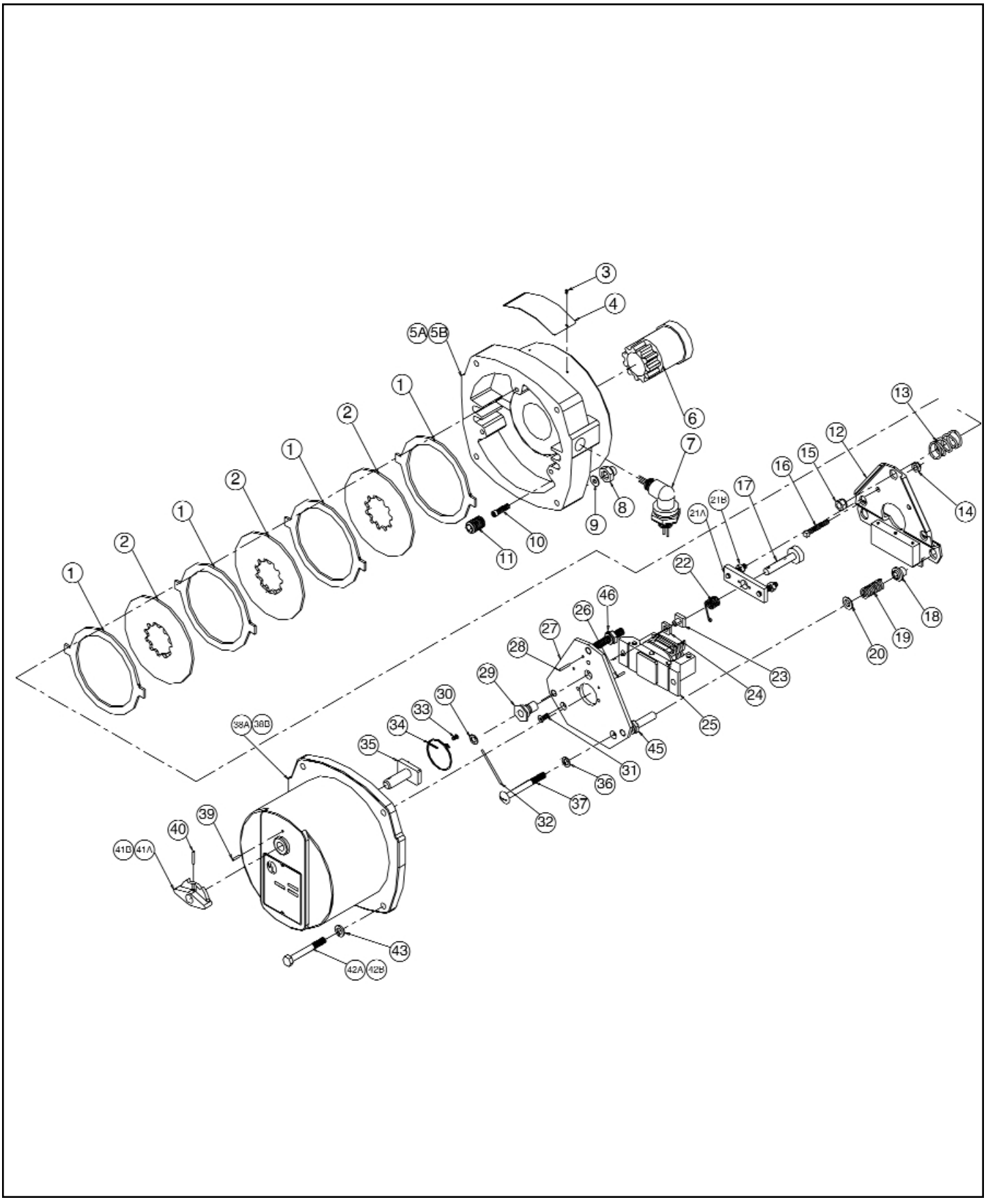


Figure 7. Exploded View

TROUBLESHOOTING

BRAKE DOES NOT RELEASE	Check for broken lead wire, low voltage, and the power supply to brake.
BRAKE DOES NOT STOP	Check for worn or broken friction discs. Check brake hub to make certain it has not shifted on shaft. Check manual release. When brake coil is energized, release knob should move freely to reset position. Check thermal release. Release may have been activated.
BRAKE CHATTERS OR HUMS	Check magnet faces. They must be clean and parallel. Check shading coil (not illustrated) located in slots on magnet center pole. Shading coil must be in position and not broken.

ORDERING INFORMATION

Please provide the following information to expedite your renewal parts orders:

Model Number
Serial Number (if available)
Voltage, Phase and Frequency
Hub Bore and Keyway Dimensions
Horizontal or Vertical Mounting
(if vertical, specify whether above or below motor)

Bulletin No. BK4710 (3/07 REV A)

Dings CO. DYNAMICS GROUP

60 Series End-mount Brake Instructions

Enclosed WPDT Housing with Deep Drawn Cover

Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference. When unpacking the brake, inspect it carefully for damage that may have occurred during transit.

DESCRIPTION

These magnetic disc brakes mount directly onto NEMA 56C, 143TC, and 145TC frame motors, on the end opposite the drive shaft. The brake is direct acting, electro-magnetically released, and spring set. It uses rotating friction and stationary disc contact to supply positive braking action. It retains quick release and setting capabilities at all times.

Model 6-60000-545 is designed to mount directly onto C-face motors where a gasket between the brake and motor will prevent liquid media from entering the brake.

Model 6-60000-535 is for TEFC motors or foot mount applications. The hub seal prevents liquid media from entering the brake through openings in the motor fan cover or foot mounting bracket.

WARNING: Do not install or use these brakes in an explosive atmosphere.

SPECIFICATIONS

Torque: 1-1/2 through 20 lb. ft.

NEMA Motor Frame Sizes: 56C, 143TC and 145TC.

Enclosure: Aluminum, with steel cover.

Voltage: All NEMA single phase voltages and frequencies are standard. Others optional.

Duty: Rated for continuous duty.

Mounting: Direct to NEMA C face. Horizontal or vertical position with slight modifications.

Maximum Ambient Temperature: 40^{O}C.

Maximum Input Speed: 3600 RPM.

G0060969

DIMENSIONS

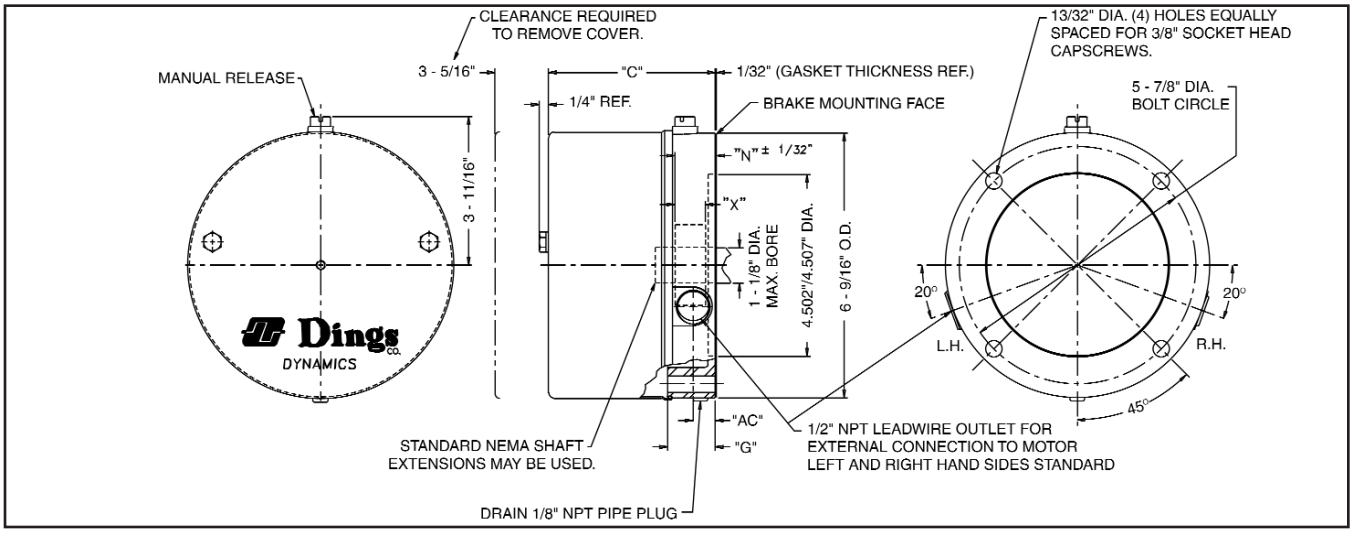


Figure 1

Model Number	Number of Rotating Discs	Torque Lb. Ft.	* Thermal Capacity HPS/MIN.	Inertia of Rotating Parts Lb. Ft.^{2}	Dimensions				
					X	G	AC	C	N±1/32
6-61001-545	1	1.5	6	.006	.875	1.19	.585	4.13	1.156
6-61003-545	1	3	6	.006	.875	1.19	.585	4.13	1.156
6-62006-545	2	6	6	.010	.875	1.19	.585	4.13	1.156
6-62010-545	2	10	6	.010	.875	1.19	.585	4.13	1.156
6-63015-545	3	15	6	.015	1.187	1.56	.873	4.50	1.468
6-63020-545	3	20	6	.015	1.187	1.56	.873	4.50	1.468

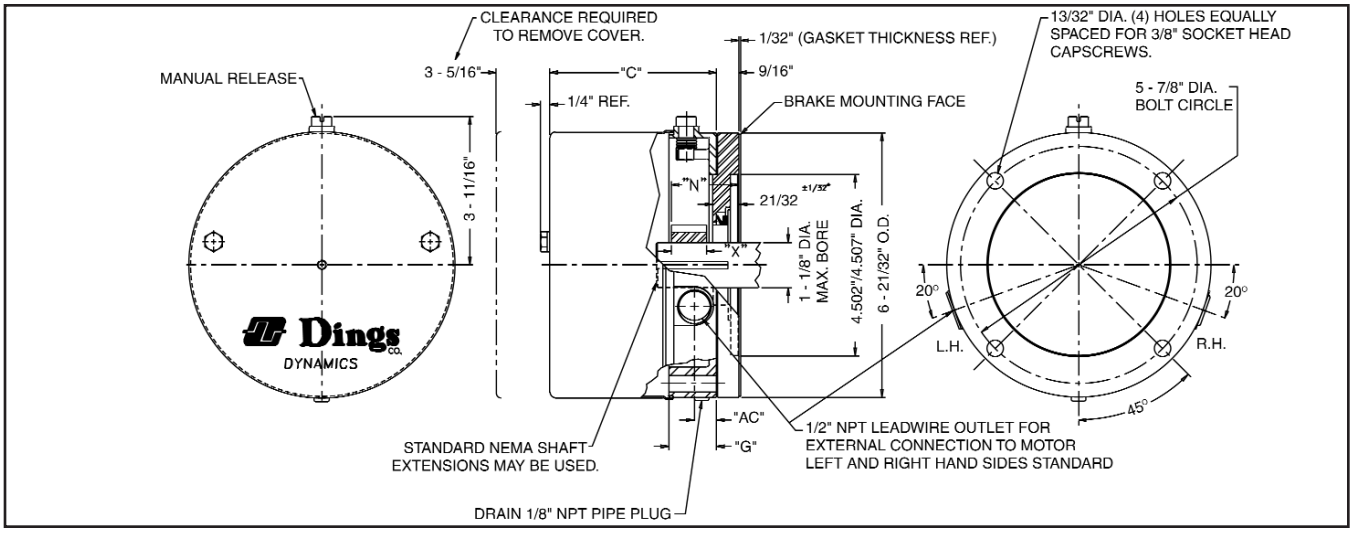


Figure 2

Model Number	Number of Rotating Discs	Torque Lb. Ft.	* Thermal Capacity HPS/MIN.	Inertia of Rotating Parts Lb. Ft.^{2}	Dimensions				
					X	G	AC	C	N±1/32
6-61001-535	1	1.5	6	.006	.875	1.19	.585	4.13	1.687
6-61003-535	1	3	6	.006	.875	1.19	.585	4.13	1.687
6-62006-535	2	6	6	.010	.875	1.19	.585	4.13	1.687
6-62010-535	2	10	6	.010	.875	1.19	.585	4.13	1.687
6-63015-535	3	15	6	.015	1.187	1.56	.873	4.50	2.000
6-63020-535	3	20	6	.015	1.187	1.56	.873	4.50	2.000

*Thermal capacity (HPS/MIN.) was determined under the following test conditions:

a) Room temperature 72°F.
b) Stopping time of one second or less.
c) Brake mounted in a horizontal position.
d) Equal on and off times.
e) 1800 RPM.
f) Coil energized with 110% of rated voltage.

INSTALLATION

CAUTION: To preserve pre-alignment of rotating discs for ease of installation, do not operate manual release or energize brake coil before installation.

NOTE: The brakes are designed for horizontal mounting. Modification is required for vertical mounting. Brakes that are modified will have a prefix on the model number of VO (Vertical Over) or VU (Vertical Under).

Mounting Hub on Motor Shaft

For Model 6-60000-545:

Refer to Figure 3.

1. Place rotating disc hub, with key, onto motor shaft with part number facing away from motor. Measure from motor face as shown.
2. Tighten both setscrews to 8 - 10 lb. ft. torque.

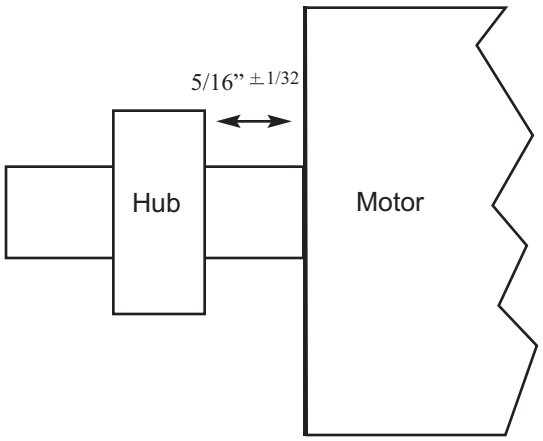


Figure 3

For Model 6-60000-535:

Refer to Figure 4.

1. Remove rubber v-ring from v-ring hub assembly.
2. Place v-ring hub assembly onto motor shaft, with part number facing away from motor. Measure from motor face as shown.

   NOTE: If motor shaft keyway extends into v-ring area, install a key long enough to engage v-ring hub assembly and rotating disc hub. See step (3) before tightening setscrews. Tighten both setscrews to 35 lb. in. torque.
3. Place "RTV" sealant in small amounts to fill crevices only. Attention should be paid to the areas around and between the v-ring hub assembly, reference the .040" x 45° chamfer, motor shaft, hub keyway and motor shaft keyway. Use Dow Corning #739 RTV only; other types may form acetic acid during curing if subjected to water or high humidity. This will cause premature failure of zinc plated parts.

   CAUTION: If this procedure is bypassed, liquid media may seep into the brake.
4. Replace v-ring onto v-ring hub assembly. Apply a small amount of grease to the lip of the v-ring.
5. Place rotating disc hub with key onto motor shaft with part number facing away from motor. Measure from brake mounting face as shown. Tighten both setscrews to 8 - 10 lb. ft. torque.

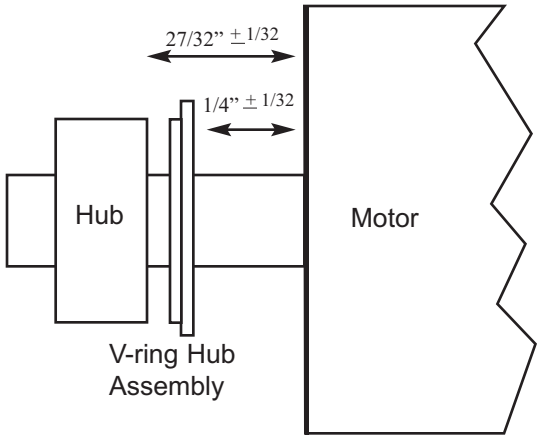


Figure 4

Placing Brake on Motor Shaft

1. Remove cover. Place gasket on the motor mounting face. Position brake over hub on shaft, aligning hub splines with rotating friction disc splines. Drain plug to face down on horizontal models.

   NOTE: For model 6-60000-535 a second gasket is positioned between the bracket and adapter bracket. If gasket does not make contact around the mounting face completely (360°), remove gasket and place RTV sealant around the mounting bolt holes to approximately 1" dia. Use Dow Corning #739 RTV only; other types may form acetic acid during curing if subjected to water or high humidity. This will cause premature failure of zinc plated parts.

   If tapped holes in motor for mounting bolts are not totally enclosed, place RTV sealant around threads before bolting brake to motor. Use Dow Corning #739 RTV only.

   If water can accumulate in the cavity between the v-ring hub assembly and fan guard or other unsealed mounting face to the height of the v-ring seal, drill a hole in the fan guard or other equipment so the water drains out.
2. Tighten mounting bolts to 25 lb. ft. torque.
3. Connect coil leads as outlined under "Connection of Coil Leads" and Fig. 3.
4. Let RTV #739 cure 24 hours before replacing cover.
5. Replace cover . Tighten cover screws to 5 lb. ft. torque.

Connection of Coil Leads

After securing the brake to the motor, connect coil leads for proper voltage per wiring diagram (Fig. 5 shows dual voltage coil). Incorrect connection can result in brake failure.

CAUTION: The voltage supplied to the coil must match the voltage that the coils are connected for, or the coils will burn out.

Single voltage coil:
Connect brake coil leads to any two line leads (single or three phase) of same voltage and frequency as brake.

Dual voltage coil:
Connect leads 2 and 4 to any two motor line leads (single or three phase) of same voltage as brake. Connect leads 1 and 3 as shown for voltage desired. Brake must be energized with motor.

OPERATION

These brakes are spring set devices with an electrical (magnet) release. They contain a rotating friction disc that is driven by a hub mounted on the motor shaft. When energized, the magnet compresses the torque springs, removing the force pressing the stationary disc and friction disc together. This permits free rotation of the shaft.

WARNING: Observe proper safety precautions in applications where a brake failure would allow the load to move in such a manner as to injure personnel. KEEP PERSONNEL AWAY FROM LOAD AREAS.
If brake torque rating is higher than motor full-load torque rating, use brake rating rather than motor rating when selecting other drive components.

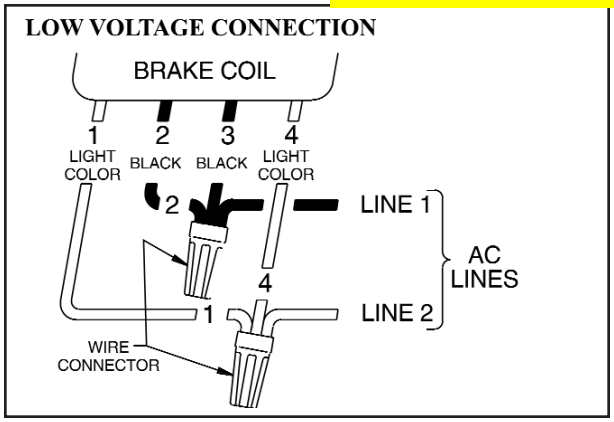
Take the following precautions when operating the brake:
1. Do not operate the brake at higher than nominal static torque capacity.
2. For applications with high inertia-type loads or rapid cycling, the thermal capacity of the brake must be considered.
3. High start-stop rates may damage motor. Consult motor manufacturer if high cycling rates are expected.
4. Be sure power supply conforms to electrical rating of brake.

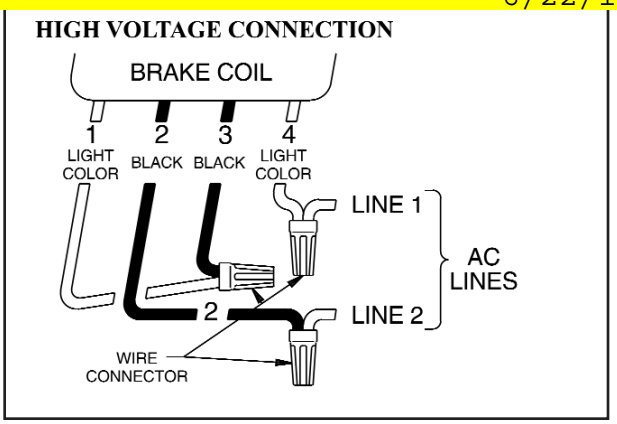
Manual Release

The brake is equipped with a manual release. Turn the release knob clockwise to stop position to release the brake. The brake will remain released until the release knob is turned counterclockwise (approx. 65°) or until the brake coil is energized, automatically resetting the brake.

NOTE:
ONLY CONNECT BRAKE COIL TO 4L1 & 4L2 FROM CONTROL PANEL. DO NOT CONNECT BRAKE COIL TO MOTOR LEADS
6/22/10

Wiring Diagrams





MAINTENANCE

Caution: Before attempting to service or remove any components, make certain that the power is disconnected and that the load is completely removed, secured or blocked to prevent injury or property damage.

Wear Adjustment

Caution: Load to be removed or blocked. Brake may be inoperative during this procedure.

Before air gap "A" reaches .100", adjustment is required. Any delay in adjusting the magnet air gap will result in eventual loss of torque.

Refer to Figure 6.

1. Remove cover to expose square head wear adjusting screws (15H) and expose magnet air gap "A."
2. Measure air gap "A" using 3/8" to 1/2" wide feeler gauge. (Measure at center of magnet.) Air gap must be the same on both sides of magnet.
3. Turn two square head adjusting screws (15H) until air gap "A" measures:
   .045/.050 for 1 disc models
   .050/.055 for 2 disc models
   .060/.065 for 3 disc models
4. Replace cover, sealing washers and cover screws. Tighten to 5 lb. ft. torque.

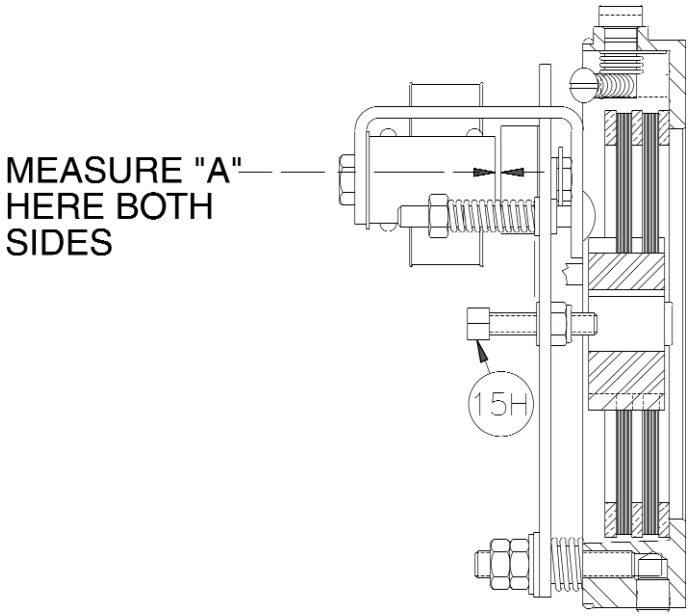


Figure 6

Torque Adjustment

Caution: Load to be removed or blocked. Brake may be inoperative during this procedure.

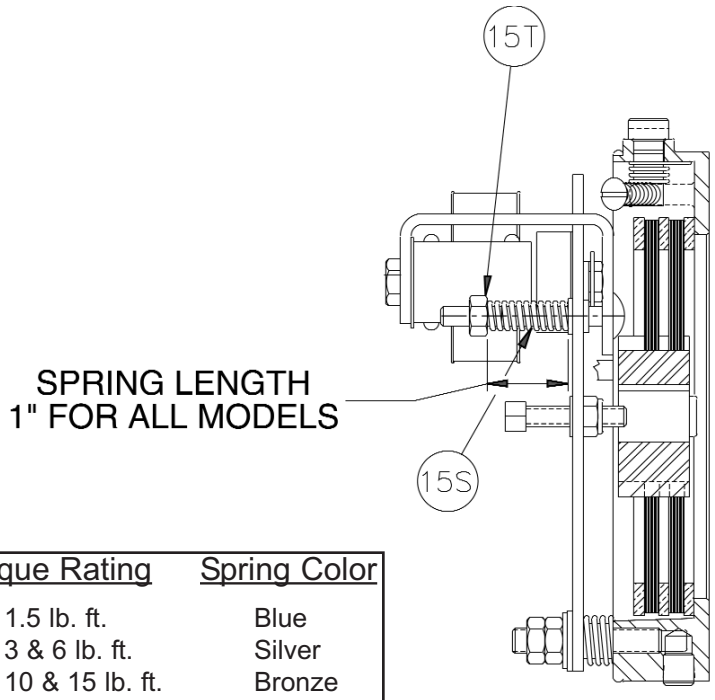
The magnetic disc brake is factory set for rated static torque. The brake can be adjusted to reduce torque which increases stopping time. Do not attempt to adjust brake for higher torque, as this will cause premature coil burnout.

Refer to Figure 7.

1. To adjust, remove cover to expose torque locknuts (15T), which are above torque springs (15S).
2. To increase stopping time and reduce torque, turn both torque locknuts counterclockwise, increasing spring length. Each full turn reduces torque 7% to 10% depending on the model.
   NOTE: Maximum spring length is 1.2". At maximum length reduced torque will be:

Rated Torque	Reduced Torque
1.5 lb. ft.	1.0 lb. ft.
3 lb. ft.	2 lb. ft.
6 lb. ft.	4 lb. ft.
10 lb. ft.	7 lb. ft.
15 lb. ft.	10 lb. ft.
20 lb. ft.	13 lb. ft.

3. Replace cover, sealing washers and cover screws. Tighten to 5 lb. ft. torque.



Torque Rating	Spring Color
1.5 lb. ft.	Blue
3 & 6 lb. ft.	Silver
10 & 15 lb. ft.	Bronze
20 lb. ft.	Green

Figure 7

Friction Disc Replacement

Caution: Load to be removed or blocked. Brake *will* be inoperative during this procedure.

When total wear on a rotating friction disc reaches 1/16", replace disc. If brake model number has a prefix VO or VU, see page 8. Numbers in parentheses refer to parts illustrated in Figure 12.

1. ***Removing operator assembly***
   a. Disconnect power.
   b. Remove cover.
   c. Remove operator assembly (15) by removing screws (16), pivot stud (10), washer (18), bushing (17), and compression spring (11). NOTE: Item (10) has a hex socket in end of stud for removal. Do not loosen nuts (19) on pivot stud (10), or "Pivot Stud Adjustment" (on page 7) to quiet the magnet will have to be made again.
2. ***Replacing the friction disc***
   Remove worn rotating discs (13) and stationary discs (12). Replace worn discs and install new discs in the same order. Install stabilizer clip (14), if furnished, on rotating discs prior to installing.
3. ***Re-assembly of operator assembly (15)***
   a. Turn two screws (15H) counterclockwise five turns. Place operator assembly onto brake bracket (2) and install two screws (16). Replace compression spring (11), bushing (17), washer (18), and pivot stud (10) which has the two nuts (19) in place. Tighten firmly.
   b. Readjust magnet air gap "A" as described under "Wear Adjustment" on page 5.
   c. Check manual release operation before completing installation. Adjust per "Manual Release Adjustment" on page 7 if required.
4. ***Completing installation***
   Replace cover. Tighten cover screws to 5 lb. ft. torque. Reconnect power.

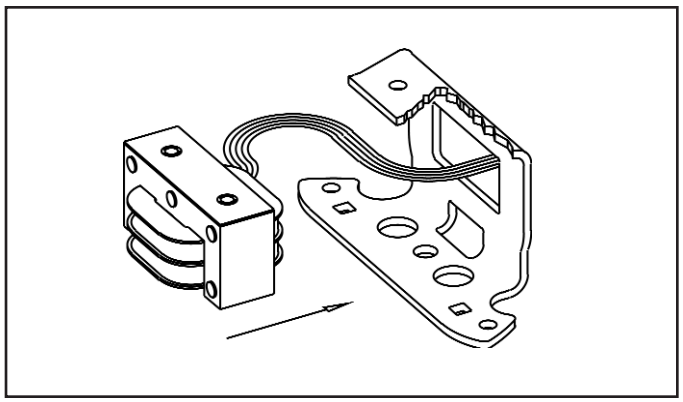


Figure 8

Magnet Assembly Replacement

Caution: Load to be removed or blocked. Brake *will* be inoperative during this procedure.

1. Disconnect power supply.
2. Remove cover.
3. Remove two capscrews (15D), magnet assembly (15A) and shock mount (15B).
4. Replace with new magnet assembly (15A), making sure shock mount (15B) is in place. Feed coil lead wires through hole in back of bracket (15C) as shown in Fig. 8. Tighten mounting screws (15D) with 55-60 lb. in. torque.
5. Place coil lead wires around mounting bracket (15C) to the same side as the wire outlet position. Connect leads wires per "Connection of Coil Leads" and Fig. 5.
6. Set air gap "A" as described under "Wear Adjustment" on page 5.
7. Energize coil. Magnet should be quiet; if not, refer to "Pivot Stud Adjustment" on page 7.
8. Check manual release. If it does not operate properly, adjust as outlined under "Manual Release Adjustment" on page 8.
9. Replace cover. Tighten cover screws to 5 lb. ft. torque. Reconnect power.

Armature Plate Assembly Replacement

Caution: Load to be removed or blocked. Brake *will* be inoperative during this procedure.

If you replace the magnet assembly, it may be necessary to replace the armature plate assembly. If it is badly deformed, it will be difficult to make the magnet quiet.

1. To replace, remove operator assembly (15) from brake. See "Friction Disc Replacement Steps 1-3" on page 6.
2. Remove nuts (15T), springs (15S), and carriage bolts (15R). This will allow the armature plate assembly (15E) to be removed from magnet bracket.
2. Reassemble new armature plate assembly to magnet bracket (15C) using items (15R), (15S) and (15T). Reassemble operator assembly to brake bracket. Set magnet air gap "A" and set torque springs (15S) to 1" as shown in Fig. 6 and 7.

Pivot Stud Adjustment

Caution: Load to be removed or blocked. Brake *will* be inoperative during this procedure.

This adjustment is made at the factory and may be required when replacing the magnet assembly or the armature plate assembly.

The purpose is to regulate the height of the armature plate so that when the magnet is energized, the armature is parallel with it. This is required so that the magnet will be quiet.
NOTE: Cover must be removed to make this adjustment.

1. To adjust: Hold nut (19) which is adjacent to washer (18) and loosen the other nut (19) and remove it from the stud.
2. Energize the magnet and turn remaining nut (19) counterclockwise slowly until the magnet becomes noisy. Turn magnet on and off several times until you find the position where the magnet first becomes quiet. At this point turn nut (19) 1/3 turn (two flats) in a clockwise position. Hold nut in this position and turn magnet on and off to make sure the magnet does not become noisy.
3. Holding this nut in place, screw on other nut and tighten it against the nut you are holding. Tighten firmly.
4. Operate the manual release. If the release does not operate properly, see "Manual Release Adjustment."

Manual Release Adjustment

Caution: Load to be removed or blocked. Brake *will* be inoperative during this procedure.

The manual release (3) may require adjustment after replacing the operator assembly (15), magnet (15A), or armature plate assembly (15E). It also may be required if adjustments are made on the pivot stud nuts (19).

The release is working properly if:

a) You turn release knob clockwise to stop and the brake is released;

b) The release knob returns to its normal position automatically when power is applied to the magnet.

NOTE: Cover must be removed to make this adjustment.

1. To adjust: Set air gap "A" as described under "Wear Adjustment" on page 5.
2. If the brake does not release, turn adjusting screw (5) counterclockwise 1/4 turn and try again.
3. If the release knob (3) does not return to its normal position automatically, turn screw (5) clockwise 1/4 turn and try again.
   NOTE: You may have to repeat Steps 2 or 3 to get the release to operate properly.

   It is important that the release knob returns to its normal position automatically when power is applied to the magnet.

Manual Release Assembly

Refer to Fig. 9.

1. Place a small amount of high temperature Neverseize grease around o-ring (24) located on release knob (3) and in release hole located at the top of bracket (2).
2. Place shaft of release knob (3) through hole in bracket (2). Slide return spring (4) over shaft; straight leg of spring should enter shaft first with leg in the position shown.
3. Slip spring (6) over screw (5) and install in tapped hole in release shaft. Screw in until it stops. Make sure spring (4) is not caught under spring (6).
4. Engage bent end of spring (4) over spring (6) as shown. Pull it over with a needle nose pliers or screwdriver.
5. Adjust release per "Manual Release Adjustment" section.

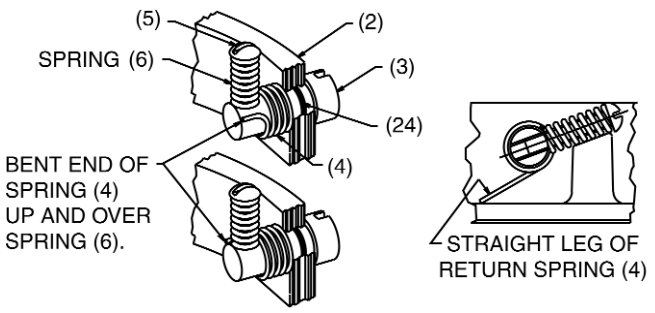


Figure 9

VERTICAL MOUNTING

Installation and adjustment of the vertically mounted brake is the same as on the standard model.

Friction Disc Replacement

When replacing friction discs, follow procedure outlined on page 6, with this addition:

Care must be taken to insure proper insertion of disc separating springs. Springs are color coded for easy identification, and reference is made to spring color (see Figs. 10 and 11). Since the installation order of the disc springs is dependent on brake mounting position (above or below motor), it is important to consult the correct diagram for spring location.

Item No.	Description	Part No.	Qty. of Parts (determined by no. of rotating discs) 1	2	3
1	Spring (silver)	G060350-001	2	2	2
2	Spring (black)	G060350-002	-	2	2
3	Spring (bronze)	G060350-003	-	-	2
4	Roll pin-1/8" dia. x 5/8" lg.	W005003-071	2	-	-
5	Roll pin-1/8" dia. x 1" lg.	W005003-077	-	2	-
6	Roll pin-1/8" dia. x 1-3/8" lg.	W005003-080	-	-	2
7	Stationary disc	H060203-003	1	1	1

Figure 10 Parts for Vertical Mounting

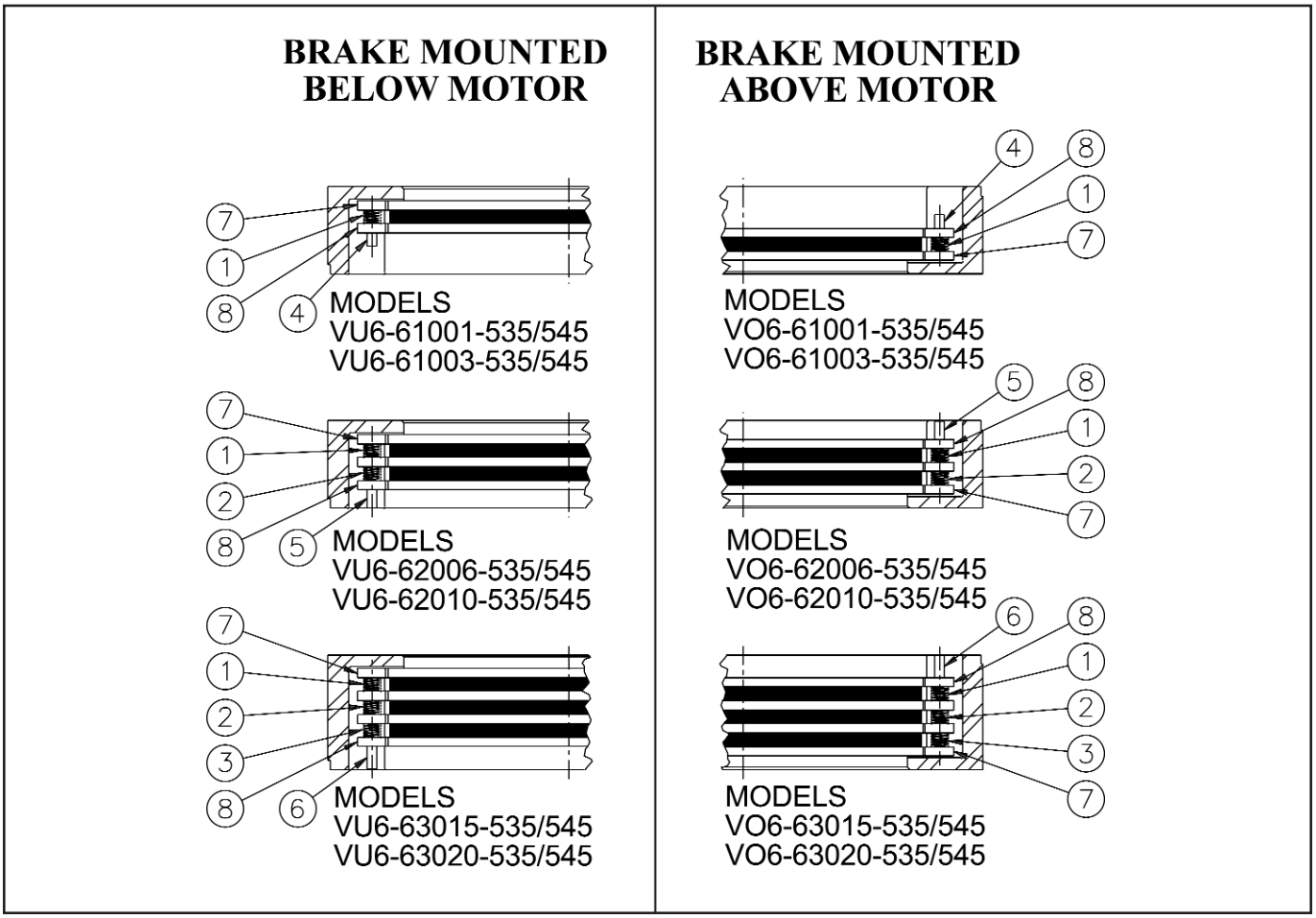


Figure 11

WARNING:

Brake performance and features must be carefully matched to the requirements of the application.

Consideration must be given to torque requirements, especially where an overhauling condition exists, as well as thermal capacity, ambient temperature, atmospheric explosion hazards, type of enclosure and any other unusual conditions.

Improper selection and installation of a brake and/or lack of maintenance may cause brake failure that could result in damage to property and/or injury to personnel.

If injury to personnel could be caused by brake failure, additional means must be provided to insure safety of personnel.

GENERAL SAFETY INFORMATION

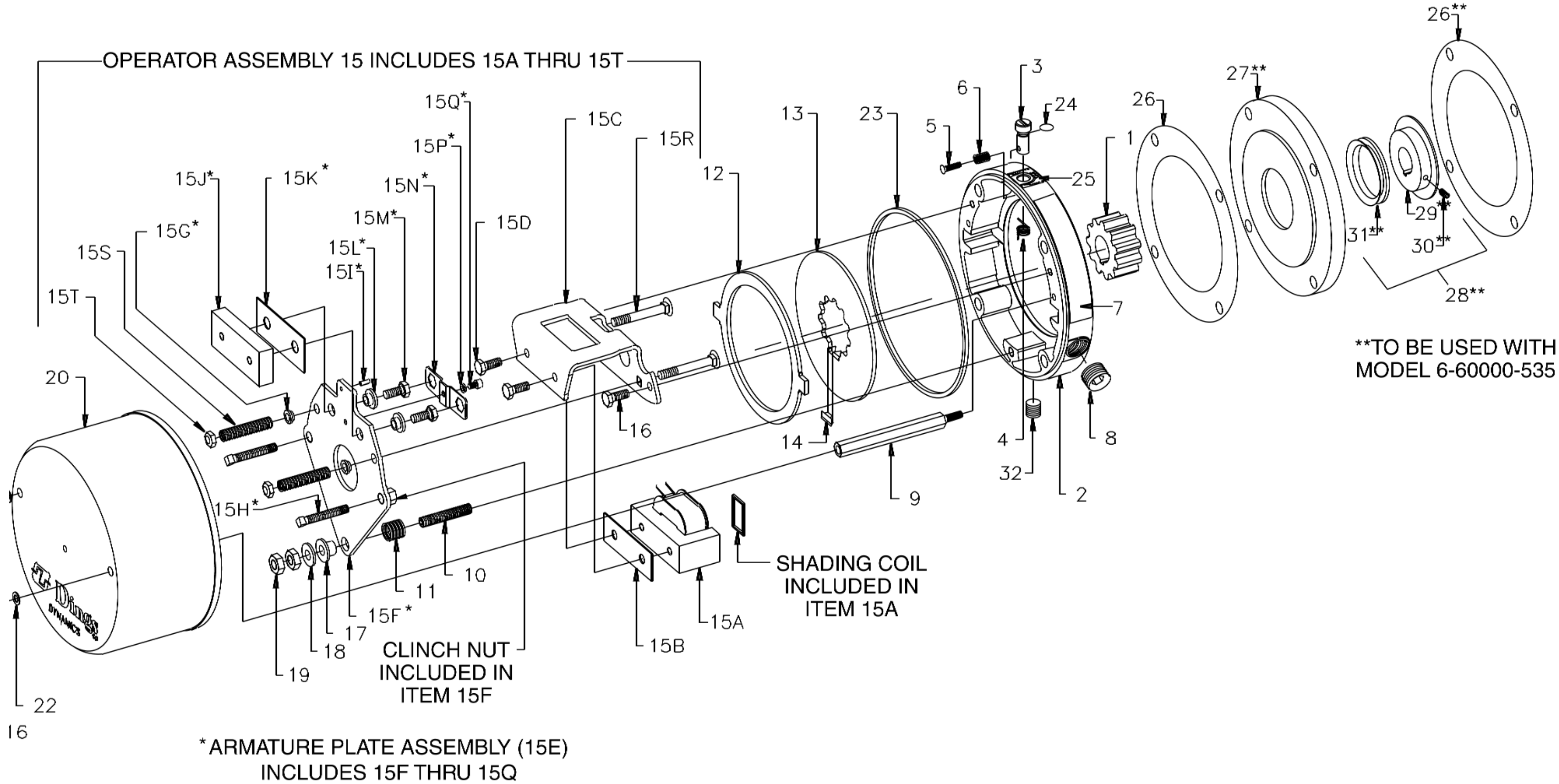
NOTE: These brakes are not intended for accurate positioning applications. They are designed for applications that require rapid stopping and holding power, such as on conveyors, door openers, etc.

1. For applications with high inertia-type loads or rapid cycling, the thermal capacity of the brake must be considered.
2. Observe all local electrical and safety codes, as well as the National Electrical Code (NEC) and the Occupational Safety and Health Act (OSHA).
3. Brake motors and brake gearmotors must be securely and adequately grounded. This can be accomplished by wiring with a grounded metal-clad raceway system, by using a separate ground wire connected to the bare metal of the motor frame, or other suitable means. Refer to NEC Article 250 (Grounding) for additional information. All wiring should be done by a qualified electrician.
4. Always disconnect power before working on or near a brake motor, a brake gearmotor, or its connected load. If the power disconnect point is out of sight, lock it in the open position and tag it to prevent unexpected application of power.
5. When working on the brake, be sure the load is completely removed, secured or blocked to prevent injury or property damage.
6. Provide guarding for all moving parts.
7. Be careful when touching the exterior of an operating motor, gearmotor or brake. It may be hot enough to cause injury or to be painful. This condition is normal for modern motors, which operate at higher temperatures when running at rated load and voltage.
8. Protect all electrical lead wires and power cables against contact with sharp objects or moving parts.
9. Do not kink electrical lead wires and power cables, and never allow them to touch oil, grease, hot surfaces or chemicals.

WARRANTY

Seller warrants products manufactured by it and supplied hereunder to be free from defects in materials and workmanship under normal use and proper maintenance for a period of twelve months from date of shipment. If within such period any such products shall be proved to Seller's reasonable satisfaction to be defective, such products shall be repaired or replaced at Seller's option. Seller's obligation and Buyer's exclusive remedy hereunder shall be limited to such repair and replacement and shall be conditioned upon Seller's receiving written notice of any alleged defect no later than 10 days after its discovery within the warranty period and, at Seller's option, the return of such products to Seller, f.o.b. its factory, when such return is feasible. Seller reserves the right to satisfy its warranty obligation in full by reimbursing Buyer for all payments it makes hereunder, and Buyer shall thereupon return the products to Seller. Seller shall have the right to remedy such defects. Seller makes no warranty with respect to wear or use items such as belts, chains, sprockets, discs and coils, all of which are sold strictly AS IS.

The foregoing warranties are exclusive and in lieu of all other express and implied warranties (except of title) including but not limited to implied warranties of merchantability, fitness for a particular purpose, performance, or otherwise, and in no event shall the Seller be liable for claims (based upon breach of express or implied warranty, negligence, product liability, or otherwise) for any other damages, whether direct, immediate, incidental, foreseeable, consequential, or special.



OPERATOR ASSEMBLY 15 INCLUDES 15A THRU 15T
15Q*
15P*
15N*
15M*
15L*
15I*
15D
15C
15R
12
13
23
5
6
3
24
25
1
26
27**
26**
31**
29**
30**
28**
7
8
2
32
4
9
14
16
15J*
15K*
15G*
15S
15T
20
15H*
11
10
15F*
17
18
19
22
16
15A
15B
SHADING COIL
INCLUDED IN
ITEM 15A
CLINCH NUT
INCLUDED IN
ITEM 15F
*ARMATURE PLATE ASSEMBLY (15E)
INCLUDES 15F THRU 15Q
**TO BE USED WITH
MODEL 6-60000-535

REPLACEMENT PARTS LIST

em No.	Description	With Hub Seal Qty	With Hub Seal 6-60000-535	Without Hub Seal 6-60000-545	Without Hub Seal Qty
1	Splined hub	1	K060107-*		1
2	Bracket 1 & 2 disc models	1	K060556-001		1
	3 disc models	1	K060557-001		1
3	Release knob	1	G060848-001		1
4	Release return spring	1	G060881-001		1
5	Release adjustment screw	1	W001002-056C		1
6	Release adjustment spring	1	G060795-001		1
7	Nameplate	1	N/A		1
8	Pipe plug 1/2" NPT	1	W010002-004C		1
9	Cover stud	2	G060902-001		2
10	Pivot stud	1	W002005-303A		1
11	Compression spring, 1.5 lb. ft . through 15 lb. ft.	1	G060821-001		1
	Compression spring, 20 lb. ft.	1	G060852-001		1
12	Stationary disc	**	H060147-001		**
13	Splined rotating friction disc	**	H060157-005		**
14	Stabilizer clip for rotating friction disc	**	H060466-001		**
15	Operator ass embly (not shown as assembly)	1	K060476-*		1
5A	Magnet assembly	1	*		1
5B	Magnet shock mount	1	G060813-001		1
5C	Magnet mounting bracket	1	H060544-001		1
5D	Hex head capscrew 1/4 -20 UNC x 1/2 lg.	2	W001008-001E		2
5E	Armature assembly (not shown) (Includes items 15F through 15Q)	1	H060541-*		1
5F	Armature plate	1	Armature assembly (15E) sold as preassembled kit only. Individual items listed for reference only and are not available for individual purchase.		1
5G	Nyliner bushing	2			2
5H	Wear adjus tment screw sq. hd. 1/4 -20 UNCx1 -1/2 lg.	2			2
15I	Roll pin 5/32" dia. x 3/8" lg.	1			1
5J	Armature lamination assembly	1			1
5K	Armature shock mount	1			1
5L	Armature spacer	2			2
5M	Hex hd. capscrew 1/4 -20 UNC x 5/8 lg. Grade 5	2			2
5N	Locking plat e	1			1
5P	Split spring lockwasher #8	1			1
5Q	Soc. hd. capscrew #8 -32 UNC x 1/4 lg.	1			1

Item No.	Description	With Hub Seal Qty	With Hub Seal 6-60000-535	Without Hub Seal 6-60000-545	Without Hub Seal Qty
15R	Carriage bolts 1/4 -20 UNC	2	G060803-001		2
15S	Torque spring (blue) 1.5 lb. ft. models	2	G060791-001		2
	Torque spring (silver) 3 & 6 lb. ft. models	2	G060792-001		2
	Torque spring (bronze) 10 & 15 lb . ft. models	2	G060793-001		2
	Torque spring (green) 20 lb. ft. models	2	G060794-001		2
15T	Lock nut 1/4 -20 UNC	2	W003013-001		2
16	Hex hd. capscrew 1/4 -20 x 1/2 lg.	4	W001008-001E		4
17	Nylon bushing	1	G060820-001		1
18	Plain brass washer	1	W004003-024		1
19	Hex nut 5/16 -18 UNC	2	W003002-002		2
20	Cover	1	H060607-001		1
21	Instruction label (not shown)	1	K060553-001	K060552-001	1
22	Nylon washer	2	W0040015-001		2
23	Cover seal	1	W006001-019		1
24	O-ring for release	1	W006001-025		1
25	Release label	1	G060859-001		1
26	Gasket, mounting face	2	H060344-004		1
27	Adapter bracket	1	H060604-001		—
28	V-ring hub seal assembly (Includes items 29 through 31)	1	H060555-***		—
29	V-ring hub assembly (includes item 30)	1	G060814-***		—
30	Setscrew #10 -32 UNF x 1/4 lg.	2	W002001-061		—
31	V-ring (V -50A)	1	W011008-002		—
32	Pipe plug 1/8 NPT	1	W010002-001C		1

* Part number is determined by one or more of the following: model number, voltage, or motor shaft diameter and keyway sizes.

** Number of rotating discs, stationary discs, and rotating friction disc stabilizer clips is shown in the brake model number. Example: -62006- has two rotating discs, two stationary discs, and two stabilizer clips (when used).

*** For use with Model 6 -60000-535 only. Items 28 and 29 require motor shaft diameter and keyway size.

TROUBLESHOOTING CHART

SYMPTOM	POSSIBLE CAUSE	CORRECTIVE ACTION
Brake does not release	1. Broken or damaged parts. 2. Wrong voltage. 3. Burned out coil. 4. Incorrect wiring connections or broken wires.	1. Replace. 2. Check for correct voltage. Voltage must correspond to that listed on brake nameplate. If the voltage is more than 10% below the nameplate voltage, the magnet may not pull in. 3. Replace magnet assembly. 4. Find the connection or wiring fault. Correct or repair as required.
Brake does not stop properly	1. Broken or damaged parts. 2. Worn friction disc. 3. Hub positioned incorrectly. 4. Brake is manually released.	1. Replace. 2. Replace disc if worn to 1/8" thickness. If disc replacement is not required, adjust air gap. (Refer to "Wear Adjustment" section.) 3. Relocated hub and key, if required. (Refer to "Installation" section.) 4. Determine if manual release is in normal position.
Brake chatters or hums	1. Dirty magnet faces. 2. Magnet faces are not parallel in closed position. 3. Loose or broken shading coil. 4. Wrong voltage supply.	1. To remove dirt, insert a clean sheet of paper between faces and energize brake. Move paper around between faces to dislodge dirt, then remove paper. 2. See "Pivot Stud Adjustment" section. 3. Replace magnet assembly. 4. Check for low voltage.
Manual release does not work	1. Broken or damaged parts. 2. Improper setting.	1. Replace. 2. See "Manual Release Adjustment" section.

ORDERING INFORMATION

Replacement parts can be purchased from your local distributor or from the Dings Co. To obtain the name of your local distributor, call us or visit our website at www.dingsco.com.

For replacement parts, please furnish this data with your order:

- Brake model number
- Part number and description (refer to parts list)
- If ordering a hub, specify bore diameter and keyway dimensions
- If ordering electrical parts, specify voltage and frequency

For a replacement brake, please furnish this data with your order:

- Brake model number
- Voltage and frequency
- Hub bore and keyway dimensions
- Mounting - horizontal or vertical. If vertical, specify whether above or below motor. If brake includes foot mounting bracket or adapter, specify.

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Weights and Oil Capacities

Single Reduction Worm Gear Reducers
Approximate Net Weight (Lbs.)

Model	Size																	
	25	34	40	45	50	60	70	80	100	120	135	155	175	200	225	250	300	350
I	7	8	9	16	14	21	31	43	82	120	190	240	360	470	680	800	1760	1760
IC	8	10	12	19	16	23	33	49	91	127	200	250	370	480	690	810	-	-
IS	7	9	10	17	15	22	32	44	84	122	200	250	370	480	690	810	-	-
ICS	8	11	13	20	17	24	34	50	93	129	210	260	380	490	700	820	-	-
IM	11	15	17	24	21	28	38	54	98	134	220	270	390	500	710	830	-	-
IMS	12	17	20	27	23	30	40	60	107	141	230	280	400	510	720	840	-	-
ISF	-	11	12	21	21	28	39	53	92	142	230	290	420	550	800	930	-	-
ICSF	-	13	15	24	23	30	41	59	101	1149	240	300	430	560	810	940	-	-
IMSF	-	19	22	31	29	36	47	69	115	161	260	320	450	580	830	960	-	-
Horizontal Base	1	1	2	3	2	3	5	6	9	17	23	26	35	48	63	80	-	-
Vertical Base	1	1	2	3	3	4	4	7	14	20	40	60	80	110	145	180	-	-
J Mount Base	4	4	6	7	7	8	11	-	-	-	-	-	-	-	-	-	-	-
Riser Block	1	2	2	2	2	3	4	-	-	-	-	-	-	-	-	-	-	-

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Unit Size	25	34	40	45	50	60	70	80	100	120	135	155	175	200	225	250	300	350
Worm Over	3	4	6	11	9	13	21	30	55	88	130	230	320	470	650	840	-	-
Worm Under	3	5	9	19	12	20	27	42	70	135	150	250	350	500	700	900	1100	1500
Vertical Output	3	5	7	14	10	16	23	34	60	110	160	260	370	550	760	980	-	-
J Mount	3	5	7	14	10	16	23	-	-	-	-	-	-	-	-	-	-	-

BACK

Online Catalog Home

Mobil SHC 600 Series

Supreme Performance Gear and Bearing Oils

Product Description

Mobil SHC 600 Series lubricants are supreme performance gear and bearing oils designed to provide outstanding service in terms of equipment protection, oil life and problem-free operation enabling increased customer productivity. These scientifically engineered oils are formulated from base fluids with an inherently high viscosity index and a unique, proprietary, additive system which enables these products to provide outstanding performance in extreme service applications at high and low temperatures, well beyond the capabilities of mineral oils. These products are resistant to mechanical shear, even in heavily loaded gear and high shear bearing applications, so that there is virtually no loss of viscosity.

The Mobil SHC 600 Series products have low traction coefficients, which derive from the molecular structure of the base stocks used. This results in low fluid friction in the load zone of non-conforming surfaces such as gears and rolling contact bearings. Low fluid friction produces lower operating temperatures and improved gear efficiency, which translates into reduced power consumption. It also results in extended parts life and allows for more economical equipment design. The base oils used in the Mobil SHC 600 Series have outstanding response to antioxidant additives resulting in superior resistance to oxidation and sludging, especially at high temperatures. The additive combination used in these oils also provides exceptional resistance to rusting and corrosion, very good antiwear, demulsibility, foam control and air release properties, as well as multimetal compatibility. The Mobil SHC 600 Series oils are also compatible with the same seal and other construction materials used in equipment normally lubricated with mineral oils.

The leading edge technology on which Mobil SHC 600 Series lubricants have always been based has made these the products of choice for operators of a wide range of equipment, worldwide. While initially recognized as a high temperature problem solver, these products are now used in many industrial applications because of the range of benefits they offer.

Features and Benefits

The Mobil SHC brand of lubricants are recognized and appreciated around the world for their innovation and outstanding performance. These molecular designed synthetic products, pioneered by our research scientists, symbolize the continuing commitment to using advanced technology to provide outstanding lubricant products. A key factor in the development of Mobil SHC 600 Series were the close contacts between our scientists and application specialists with key OEMs to ensure that our product offerings will provide exceptional performance in the continually evolving industrial equipment designs.

Our work with equipment builders has helped confirm the results from our own laboratory tests showing the exceptional performance of the Mobil SHC 600 Series lubricants. Not least among the benefits, shown in work with OEMs, is the potential for significant efficiency improvements in changing from mineral oil. These benefits are particularly evident in equipment which, by design, cannot avoid low overall efficiency, such as high ratio worm gears.

To combat high thermal exposure of the oil, our product formulation scientists chose select base oils for Mobil SHC 600 Series oils because of their exceptional thermal/oxidative resistance potential. Our formulators chose

specific additives which would maximize the benefits of the base oils to provide excellent oil life and deposit control and resistance to thermal/oxidative and chemical degradation. This formulation approach provides low temperature fluidity characteristics unmatched by mineral products and is a key benefit for remote, low ambient temperature applications. The Mobil SHC 600 Series oils offer the following features and potential benefits:

Features	Advantages and Potential Benefits
Superb high temperature thermal/oxidation resistance	Extends equipment high temperature operating capability
	Long oil life, reduced need and costs for oil change outs
	Minimizes sludge and deposits for trouble-free operation and long filter life
High Viscosity Index and absence of wax	Maintains viscosity and film thickness at high temperatures
	Exceptional low temperature performance, including start-up
Low traction coefficient	Reduces overall friction and can increase efficiency in sliding mechanisms such as gearing, with potential for reduced power consumption and lower steady-state operating temperatures.
	Minimizes effects of micro slip in rolling contact bearings for longer rolling-element life potential
High load carrying capability	Protects equipment and extends life; minimizes unexpected downtime and extends service periods
Balanced additive combination	Provides excellent performance in terms of rust and corrosion prevention, water separability, foam control, air release performance ensuring problem-free operation in a wide range of industrial applications and reduced operating costs

Applications

While Mobil SHC 600 Series are compatible with mineral oil based products, admixture may detract from their performance. Consequently it is recommended that before changing a system to one of the Mobil SHC 600 Series, it should be thoroughly cleaned out and flushed to achieve the maximum performance benefits. The Mobil SHC 600 Series oils are compatible with the following seal materials: fluorocarbon, polyacrylate, polyurethane ether, some silicone, ethylene/acrylic, chlorinated polyethylene, polysulfide, and some nitrile rubbers. There is the potential for substantial variations in the elastomers being used today. For best results, consult your equipment supplier, seal manufacturer, or your local Mobil representative to verify compatibility.

Mobil SHC 600 Series lubricants are recommended for use in a wide variety of gear and bearing applications where high or low temperatures are encountered or where operating temperatures or bulk oil temperatures are such that conventional lubricants give unsatisfactory life, or where improved efficiency is needed. They are particularly effective in applications where the maintenance costs of component replacement, system cleaning and lubricant changes are high. Specific applications include:

- Filled for life gearboxes, especially high ratio/ low-efficiency worm gears
- Remotely located gearboxes, where oil change-out is difficult
- Low temperature applications, such as ski lifts where seasonal oil changes can be avoided
- Mixer roll bearings and roll neck bearings where high temperatures are encountered

- Plastic calendars
- Severe centrifuge applications, including marine centrifuges
- Railroad A/C Traction Drives
- Mobil SHC 625*, 627, 629 and 630 are suitable for Oil Flooded Rotary Screw Compressors compressing natural gas, field gas gathering, CO2 and other process gasses used in the natural gas industry

Specifications and Approvals

Mobil SHC 600 Series meets or exceeds the following industry specifications	**624**	**625(1)**	**626**	**627**	**629**	**630**	**632**	**634**	**636**	**639**
Meets DIN 51517 T3				X	X	X	X	X	X	X
Meets ISO 1292-1 CKD				X	X	X	X	X	X	X
Meets AGMA 9005-02				X	X	X	X	X	X	X
(1) 625 is available only in the USA										

Mobil SHC 600 Series has the following builder approvals: (2)	**624**	**625(1)**	**626**	**627**	**629**	**630**	**632**	**634**	**636**	**639**
Cone Drive (US)								X		
Boston Gear (US)					X			X		
Flender BA 7300, Table A					X	X	X	X	X	X
(1) 625 is available only in the USA										
(2) Not a complete list										

Typical Properties

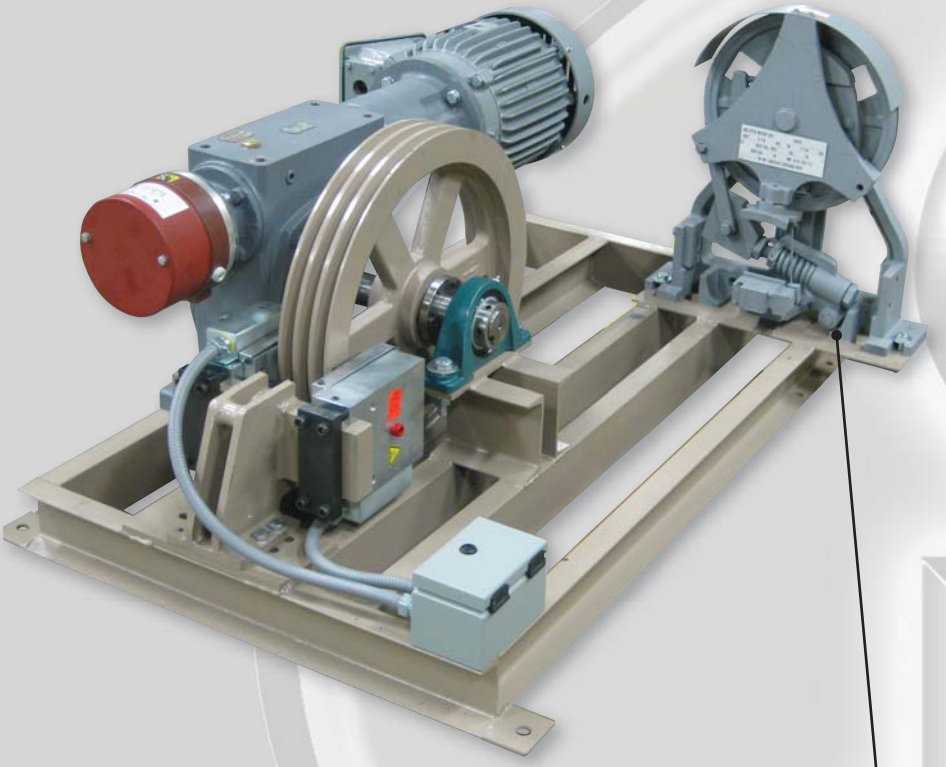
Mobil SHC 600 Series	**624**	**625 (1)**	**626**	**627**	**629**	**630**	**632**	**634**	**636**	**639**
ISO Viscosity Grade	32	46	68	100	150	220	320	460	680	1000
Viscosity, ASTM D 445										
cSt @ 40° C	31.0	46.0	66.0	97.0	149	222	320	454	652	968
cSt @ 100° C	5.8	7.7	10.3	13.7	19.0	25.7	35.0	46.5	61.2	78.5
Viscosity Index, ASTM D 2270	133	136	144	144	144	147	154	161	163	159
Pour Point, °C, ASTM D 97	-51	-48	-48	-45	-45	-42	-40	-40	-39	-33

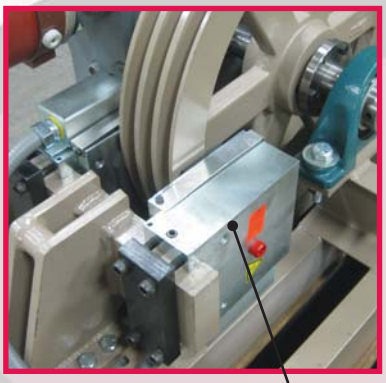
Mobil SHC 600 Series	624	625 (1)	626	627	629	630	632	634	636	639
Flash Point, ºC, ASTM D 92	237	242	231	228	235	240	236	234	240	235
Specific Gravity, ASTM D 4052, 15º C/15º C	0.85	0.85	0.86	0.86	0.86	0.87	0.87	0.87	0.87	0.87
Appearance, visual	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange	Orange
TOST, ASTM D 943, Hours to 2 NN	10,000+	10,000+	10,000+	10,000+	10,000+	10,000+	10,000+	10,000+	10,000+	10,000+
RBOT, ASTM D 2272, min.	1750	1750	1750	1750	1750	1750	1750	1750	1750	1750
Rust protection, ASTM D665, Sea Water	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass	Pass
Water Seperability, ASTM D 1401,Min. to 37 ml water @ 54º C	20	20	20	-	-	-	-	-	-	-
Water Seperability, ASTM D 1401,Min. to 37 ml water @ 82º C	-	-	-	15	15	15	25	25	30	40
Copper Corrosion, ASTM D130, 24 hrs @ 121º C	1B	1B	1B	1B	1B	1B	1B	1B	1B	1B
Foam Test, ASTM D 892, Seq I,II,IIITendency / Stability, ml/ml	0/0, 20/0, 0/0	0/0, 0/0, 0/0	0/0, 0/0, 0/0	0/0, 0/0,0/0	0/0, 0/0,0/0	0/0, 0/0,0/0	0/0,0/0,0/0	0/0, 20/0,0/0	0/0,0/0,0/0	0/0, 0/0, 0/0
FZG scuffing test, DIN 51534 (mod), A/16.6/90, Failure Stage	10	11	11	13	13	13+	13+	13+	13+	13+
(1) 625 is available only in the USA										

Health and Safety

Based on available information, this product is not expected to produce adverse effects on health when used for the intended application and the recommendations provided in the Material Safety Data Sheet (MSDS) are followed. MSDS's are available upon request through your sales contract office, or via the Internet. This product should not be used for purposes other than its intended use. If disposing of used product, take care to protect the environment. All products may not be available locally. Note for Canadian users: Mobil SHC 600 Series is not controlled under Canadian WHMIS legislation.

Elevator Drive Assembly
ASME A17.1 - 2010

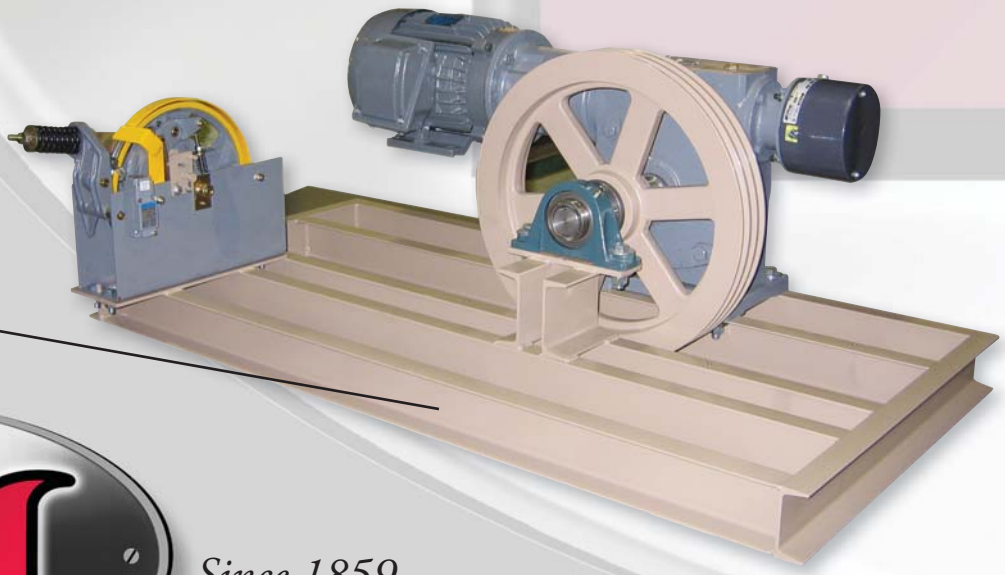




Sheave Brake

Bi-Directional Down Speed Governor

Guards removed for photos.
Do not operate without guards.



Elevator Drive
Assembly Without
Sheave Brake

Since 1859

Capacities from 300 lbs.

Sidney Manufacturing

2232012

SPECIAL PURPOSE PERSONNEL ELEVATOR SAFETY SURVEY
CHECK SHEET AND REPORT

(A) Weekly (B) Monthly (C) Quarterly (D) Bi-annually (E) Annually

(FRQ) Frequency (NR) Needs repair (SN) See notes

Item No.	FRQ	Description	OK	NR	SN
1	C	Bottom terminal limit switch			
2	C	Bottom final limit switch			
3	A	Bottom landing call station			
4	A	Intermediate landing call stations			
5	A	Top landing call station			
6	E	Top Landing door unlocking device/interlocks			
7	C	Bottom landing door limit switch			
8	E	Warning labels on landing doors			
9	C	Intermediate landing door limit switches			
10	C	If provided zone limits, slow down limits, leveling limits			
11	C	Top landing door limit switch			
12	C	Bottom landing door locking device			
13	C	Intermediate landing door locking device/interlocks			
14	C	Top landing door locking device/interlocks			
15	E	Bottom landing enclosure(7’-0” min)			
16	E	Intermediate landing enclosures (7’-0” min)			
17	E	Top landing enclosure (7’-0” min)			
18	E	Pit enclosure (full)			
19	E	Landing sill clearance (1.25” max)			

NOTE; DUE TO SEVERE ATMOSPHERIC CONDITIONS OF SOME INSTALLATIONS THESE MAINTENANCE CHECKS AND TESTS MAY BE REQUIRED ON A MORE FREQUENT SCHEDULE THAN RECOMMENDED ABOVE.

SPECIAL PURPOSE PERSONNEL ELEVATOR SAFETY SURVEY CHECK SHEET & REPORT

Item No.	FRQ	Description	OK	NR	SN
20	E	Landing door & car door clearance (5.25" max)			
21	E	Pit Ladder			
22	D	Pit light, receptacle & light switch			
23	D	Pit disconnect switch			
24	D	Pit clean			
25	E	Cab buffer springs			
26	E	Counterweight buffer springs			
27	C	Governor cable connections			
28	D	Governor cable condition			
29	C	Governor weighted take up & sheave			
30	C	Hoisting cable connections			
31	C	Hoisting cables condition			
32	D	Governor cable pivot arm and rod on car			
33	D	Safety shoes condition			
34	D	Safety shoes return springs(under car) 300, 500, 650, 750 lb. units			
35	E	Safety shoes shaft			
36	C	Safety shoe limit switch			
37	E	Car condition and construction			
38	C	Car door			
39	A	Car door limit switch			

NOTE: DUE TO SEVERE ATMOSPHERIC CONDITIONS OF SOME INSTALLATIONS THESE MAINTENANCE CHECKS AND TESTS MAY BE PROVIDED ON A MORE FREQUENT SCHEDULE THAN RECOMMENDED ABOVE.

SPECIAL PURPOSE PERSONNEL ELEVATOR SAFETY SURVEY CHECK SHEET & REPORT

Item No. NR SN	FRQ	Description	OK		
40	D	Emergency escape hatch (clear)			
41	C	Emergency escape hatch limit switch			
42	B	Car light and switch			
43	B	Car alarm and switch			
44	B	Emergency stop switch			
45	C	Retiring Cam motor and cam assembly			
46	A	Up/down controls			
47	E	Car conduit connections			
48	E	Car capacity sign			
49	D	Car trail cord connections			
50	D	Compensation chain assembly			
51	D	Trail cord condition			
51	D	Trail Cord guide assembly			
52	C	UHMW car guides			
53	E	Counterweight conditions			
54	E	Counterweight guide box condition			
55	C	Counterweight cable connection			
56	D	Counterweight eye bolts(double nuts & pin)			
57	D	Counterweight rubber buffers			
57a	D	UHMW counterweight guides			
58	A	Car operation (up direction)			

NOTE: DUE TO SEVERE ATMOSPHERIC CONDITIONS OF SOME INSTALLATIONS THESE MAINTENANCE CHECKS AND TESTS MAY BE PROVIDED ON A MORE FREQUENT SCHEDULE THAN RECOMMENDED.

Item No.	FRQ	Description	OK	NR	SN
59	A	Car operation (down direction)			
60	C	Car stopping distance (coasting)			
61	E	Guide rail condition (alignment, plumb)			
62	E	Emergency escape ladder (where provided)			
63	D	Hoistway lighting (every 30'-0")			
64	E	Safe permanent access to drive			
65	E	Drive motor disconnect switch			
66	D	Proper lighting at drive			
67	E	Pinch sheave guard			
68	C	Pinch sheave condition (cable bottom out)			
69	C	Pinch sheave bushing (tight)			
70	C	Pinch sheave spokes (cracked)			
71	C	Electric Sheave Brake(Refer to Service Manual			
72	D	Outboard bearing			
73	C	Idler sheave condition			
74	C	Idler sheave bearings			
75	D	Drive unit condition (seals, noise)			
76	D	Drive unit oil			
77	E	Drive unit weather protection(utside units)			
78	E	Governor guard			
79	E	Governor warning label			

NOTE: DUE TO SEVERE ATMOSPHERIC CONDITIONS OF SOME INSTALLATIONS THESE MAINTENANCE CHECKS AND TESTS MAY BE PROVIDED ON A MORE FREQUENT SCHEDULE THAN RECOMMENDED.

SPECIAL PURPOSE PERSONNEL ELEVATOR SAFETY SURVEY CHECK SHEET & REPORT

Item No.	FRQ	Description	OK	NR	SN
80	**C**	**Governor condition, lubricate per page 15**			
81	**C**	**Governor bale (rotates freely)**			
82	**C**	**Governor pawls (rotates freely)**			
83	**C**	**Governor limit switch**			
84	**E**	**Drive unit mounted securely**			
85	**C**	**Condition of rotating discs in brake**			
86	**E**	**Condition of disconnect (main control panel)**			
87	**E**	**Proper fuses per wiring diagram**			
88	**E**	**Control circuit fuse per wiring diagram**			
89	**E**	**Car light and alarm circuit fuse per wiring diagram**			
90	**E**	**Phase reverse relay (green light on)**			
91	**D**	**No safety circuits jumpered out**			

NOTE: DUE TO SEVERE ATMOSPHRIC CONDITIONS OF SOME INSTALLATIONS THESE MAINTENANCE CHECKS AND TESTS MAY BE PROVIDED ON A MORE FREQUENT SCHEDULE THAN RECOMMENDED.