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## PREFACE

This operation manual has been compiled for the reference of trained personnel, on **NO ACCOUNT** should anyone attempt to operate the Platform purely by reference to this manual.

A full training program **MUST** be completed by anyone wishing to operate the Dunlop Platform.

All information contained in this manual was correct at the time of printing, however Dunlop Mastclimbers reserves the right to modify or make changes.

## OPERATION

By pendant control from the platform with dead man type push buttons incorporating an emergency stop button.

## DRIVE

By two only 5 hp braked drive units, each with its own reduction spur gear box, drive shaft and pinion, on to independent racks which are an integral part of each mast section. Pinions and racks are manufactured from steel to BS 970 specifications.

## 2. SETTING UP THE BASIC UNIT

When Dunlop 12,000 is delivered to site first of all ascertain correct positioning by marking the center of required position on existing building or floor (see chart with Platform dimensions). Before positioning the Dunlop 12,000 close to the building, release and unfold the outriggers that are located nearest the building. Next determine the distance you wish the edge of the platform to be away from the building, 32" from front face of mast is a recommended distance. When you are satisfied with the platform position it must then be leveled by the use of the screw jacks that are located on the end of the outriggers. The four outriggers should be as short as possible. Good quality packing (such as railway sleepers) must be placed under the jacks to act as load spreaders. When the platform is level the platform extensions can then be bolted on to give required length. These extensions are fixed by using 3/4" grade 8 bolts with a locking nut. When the predetermined number of platform extensions have been added a check must be made to ensure the front edge of the platform is still parallel to the building. When this check is carried out and the platform once again checked for level the two center jacks can then be screwed down, (**HAND TIGHT ONLY**) again on to adequate timber packs.

**NOTE:** To obtain maximum stability up to 32ft. (freestanding height) the outriggers should be fully extended and set at 45 degrees to the base unit. If this is not practical because of the proximity of the building, restricted access etc., it is advisable to insert a tie at any convenient height to lessen any swaying movement.

The electricity supply can now be connected by plugging main feed cable in the isolation box near the front end of the chassis, (check supply with technical data). After making sure the trailing cable between the moving platform and the chassis is plugged in both ends, (and is the correct length for the height of the building) the polarity of the electrical supply can then be determined. First make sure the switch on mains isolator box is in the "On" position and that the switch on main control panel is set at No. 1. The next step is to press the pump button on the pendant control (SEE DIAGRAM). When this is pressed the electrical motor that drives the hydraulic unit will start up.

The handle that activates the hydraulic arm must then be pressed. If the polarity is correct the hydraulic jib will raise and lower. If the hydraulic jib does not raise and lower the switch on the control panel must be turned to No. 2. This will correct the polarity. The handle for the hydraulics must then be worked again, causing the hydraulic jib to raise and lower.

The machine is now ready to receive mast sections. These can be picked up from ground level and placed on the platform by using the longer of the two slings. Once the masts are loaded on the platform make sure all safety fences are in position, including the gate. By using shorter sling, pick up one mast section and place on the top of the base unit. Secure the mast section by using four 3/4" grade 8 bolts with hardened washer and lock nut. These bolts must be inserted downwards with the washer and nuts underneath and tightened to 475 N M's torque. When these bolts are all tight, remove the sling and return hydraulic jib to park position. The platform is now ready to climb. To achieve this press the "start" and "up" buttons together, releasing the "start" once the platform has lifted a few inches. If the platform will not rise check safety switches. The Platform should then be raised so that the top limit switch stops just short 2" from the top of the mast. The machine will not overrun. The second mast is then ready to be fixed. Mast erection is repetitive, up to approximately 25 ft where the first tie must be located. During the erection process it is incumbent upon the erectors to ascertain that the moving platform does not catch on any protruding objects, (windows, walls, etc.). Before fixing the first tie a check must be made to ensure that mast is vertical in both directions and that the platform is parallel to the building. If the jacks on the outriggers are adjusted in any way the centre jacks also be adjusted accordingly.

#### **DISMANTLING**

This is the reversal of erection procedure, but care must be taken to ensure that all safety procedures are adhered to and that all traces of anchor bolts are removed and holes made good.

#### **EMERGENCY STOP**

At any time all movement of the platform will stop when the red button is pressed. Before re-starting, the red button must be twisted clockwise to reset, and then the circuit reengaged by pressing "start".

## **FIXING A TIE**

The first tie is fixed to a suitable part of the building at a height of not more than 25ft. It is in everyone's interest to ask the main contractor to stipulate the preferred type of wall anchor. The tie is made up of three parts:

1. The integral part of the mast section
2. The horizontal part of the tie, and
3. The wall plate.

The horizontal tie is bolted to the plate with a 3/4" grade 8 nut and bolt. They are offered up between the mast and the building in order to mark the building for drilling. The size of the hole depends on the type of structure and the make and size of anchor bolts. In all cases the maker's Specifications must be adhered to.

It is very important to determine a suitable tie system for each individual structure and project. This should be done in advance of setting up the equipment and should be approved by the General Contractor & the building owners, etc.

There are many different types of tie systems available, depending on the type of structure and the nature of the work being done.

A standard tie mast has two parallel tubes welded to the mast section. Each tie pipe is connected to the mast section with a scaffold clamp.

The tie pipe is usually attached to the building with a 5/8" anchor bolt.

## **INSTRUCTIONS FOR INSTALLING A PLATFORM OFF THE CHASSIS**

1. Set the base with large cribbing, 6" x 6" minimum timbers with the top two being parallel with the building to give a flat even surface for the angle iron at the bottom of the mast section. Level the timbers using wood shims as necessary. You need the front of the mast section to be 9" from the elevation, if you are not using scaffold boards, and 32" if you are using the step down outriggers.
2. Place a tie mast on the cribbing and secure to the building with a tie system.
3. Lift the platform (keep it to a 20ft. platform) along with 2 mast sections, onto the base mast and secure with four bolts. Use the crane or forklift to assist in leveling the platform. Once it is perfectly level, put your ties in and test with a torque wrench. Then release the crane. The platform with fences and two masts weight 3,600 lbs. Remember to use tag lines at the ends of the platform and to release them before traveling with the platform.

## **DISASSEMBLY OF A PLATFORM WITH NO CHASSIS**

1. Remove the additional platform extensions so that you have a 20 foot work platform.
2. Have the crane or forklift hold the mast section at the second to the last tie, then release the last two ties.
3. Lower the machine to the ground level, disconnect the power cord and lift the platform away from the building.

Remember to use two tag lines to prevent the platform from hitting the building or any other objects.

4. Patch the holes made by the ties.

## **SAFETY DEVICES**

### **TOP LIMIT SWITCH**

This is the first of two switches designated to prevent the platform from climbing over the top of the mast. It is attached to the uppermost part of the platform frame that surrounds the mast. If the spring loaded roller arm runs over the top of the mast, the switch will cut power to the up mode, thereby stopping the platform.

### **PROXIMITY SWITCH**

This is a backup safety which activates in the event that the top limit switch fails. It is a metal detecting device located underneath the top limit switch and is designed so that it is sensitive to metal up to 1/2". If this switch no longer senses the steel of the mast section, it trips the main contact relay and stops the platform.

### **BOTTOM LIMIT SWITCHES**

Two limit switches are placed underneath the platform and when contact is made with the raised plate or the mechanical stopping device, the first switch cuts power to the down mode, while the second switch acts as a backup, cutting all power.

### **PHASE FAILURE RELAY**

This device has been added to the platform to insure that an operator cannot put the Panel Isolator in the wrong position and drive the platform through the bottom limits, by depressing the "UP" button. The main contractor (MC) cannot energize until the phase failure relay light is on.

#### **AUDIBLE ALARM**

When the raise or lower contact relay is activated, the audible alarm will sound. This allows workers and anyone nearby with an obstructed view of the platform to be aware that the platform is in motion.

#### **EMERGENCY STOP**

The platform is operated by use of a pendant control, located on the platform. All pendant controls have a red emergency stop button which allows the operator to stop the platform should the need arise.

#### **OVERLOAD DEVICE**

This is located in the control panel and operates when the platform is overloaded. If the platform load is not uniformly distributed, the overload button will trip off. This automatically resets after a short period. Ensure that you remove the excess load.

#### **CENTRIFUGAL BRAKING SYSTEM**

Each motor has an electromagnetic braking device which activates when the power is off, to prevent the platform from descending. Each motor is independently capable of sustaining the load.

In the event of a power failure, the platform can be lowered by releasing the brakes manually. This may be achieved by removing the plywood trap door and pushing away the two levers on top of the motors. The platform will descend at a maximum speed of 27 feet per minute.

#### **FENCES**

The layout of the fences completely encloses the work platform and the three sides of the mast. Each fence has a 6" kick plate at the bottom to prevent objects from falling through. Fences are a standard 42" high and those fences surrounding the mast are 60" high.

#### **OVERHEAD PROTECTION**

This should be used when people are working above the platform. Our design gives maximum flexibility as the brackets fit anywhere along the platform. The brackets can also be used for winter protection. Once fully enclosed, the platform can be heated for winter work.

## TWIN MAST PLATFORM

The modular design of the platform allows two units to be joined together, increasing the working length up to 104 feet.

There is a simple coupling device to join the two platforms, and single control panel that operates the motors from one pendant control.

The capacities are double that of a single platform, providing that the load is evenly spread along the platform. One benefit of the twin mast system is the reduction in the swaying motion and the lateral movement.

There is a leveling limit switch to prevent one platform accelerating ahead of the other.

## FAULT FINDING AND SERVICE

### 1. PLATFORM FAILS TO RESPOND TO PENDANT CONTROL

Press "power on" button and check the contractor energizes, if not, check the following:

- (a) The procedure for ensuring correct polarity has been carried out. i.e. The phase failure relay light is on.
- (b) The Earth Monitoring Relay has energized.
- (c) The emergency stop button has been left pressed in.
- (d) The platform is so low down the mast that it has opened both bottom limit switches.
- (e) There is an adequate power supply to the platform.
- (f) The overloads have tripped, although they will automatically reset after a period of time.
- (g) CB2 has tripped or wire No. 15 has come loose in either the terminal block or pendant.
- (h) Check that all circuit breakers are in the "ON" position.

**2. WHEN "POWER ON" BUTTON IS PRESSED M.C. WILL ENERGIZE BUT DROPS OUT AS SOON AS "POWER ON" BUTTON IS RELEASED. LIKELY CAUSES ARE:**

- (a) Platform is too low down the mast, and has opened the ultimate bottom limit switch. In order to defeat this limit switch and raise the platform depress the "power on" and "raise" pushbuttons simultaneously, until the platform has cleared the bottom limits.
- (b) Retaining contact on MC faulty.

**3. ULTIMATE TOP LIMIT SWITCH**

This interrupts the supply to the coil of the main contactor (MC). If the raise contactor should stick in when the raise pushbutton has been released, this limit switch will prevent the platform from going off the top of the mast.

**NOTE:** To lower the platform after testing the ultimate top limit switch hold something ferrous in front of the face of the ultimate top limit switch and depress the power "ON" pushbutton. While keeping the ferrous object in contact with the face of the Ultimate Top Limit Switch, depress the lower pushbutton until the face of the Ultimate Top Limit is in proximity to the metal of the mast again, and the top working limit is in contact with the mast.

**4. PLATFORM DOES NOT STOP WHEN OPERATOR TAKES HIS FINGER OFF THE "RAISE" OR "LOWER" PUSHBUTTON.**

This could be due to the contacts on either the raise or lower pushbutton binding, or due to a fault on the mechanical interlock on the raise/lower contactors.

**TO TEST FOR A FAULTY MECHANICAL INTERLOCK**

Isolate power to panel, remove the plastic cover on the top of the contactors by removing the 4 screws. Remove the two plastic interlock strips and try the machine to see if it now functions correctly. If so, check interlock surface for damage.

## 5. IN CASE OF POWER FAILURE

In the event of a power failure, the platform can be lowered to the ground by the following method.

Remove the floorboarding at the base of the hydraulic hoist. Access is now available to the drive motors and manual brake release levers.

By placing a foot on each brake release lever and pushing away from you, the brakes will release and the platform will descend.

The brakes can be fully disengaged without fear of the platform dropping suddenly, as a centrifugal braking system operates automatically at 10% over the normal operating speed.

The platform can be brought down to floor level in this way, remembering to release the levers when near to the chassis. This is because the limit switches do not operate.

## 6. ROAD TOWING CHECK LIST

Before attempting to tow the machine, the following checks must be made for the safety of the staff, equipment and third parties:

1. Lower platform to bottom position, electrically.
2. Lower platform on to chassis stops by use of manual brake release levers, all weight is now on the chassis and not on the drive unit rack and pinion.
3. Disconnect the electrical supply.
4. Ensure all jacks are fully wound up, outriggers retracted and folded away, and all locking pins are in position.
5. Check tire pressures are correct.
6. Connect up towing hitch.
7. Raise and lock jockey wheel.
8. Release hand brake.
9. Secure emergency brake cable to towing vehicle.
10. Connect up lighting board and check all lights working.
11. Check all fencing on platform secured.

12. Check no loose or foreign materials on platform (no spare mast sections should be carried on platform).
13. Platform supply cable should be laid neatly in retaining tray.
14. Ensure the hydraulic hoist arm is in lowered position and pinned at base.

#### **7. DRIVE MOTOR BRAKE ADJUSTMENT**

1. Remove manual brake release lever (14mm spanner).
2. Remove brake cowling - 4 No. screws (Phillips).
3. Unscrew jubilee clip nearest to you and roll back rubber weather protection ring.
4. The air cap on the brakes can now be checked.
5. If brakes require adjustment remove circlip on end of shaft and withdraw cast iron fan. Brakes can then be adjusted by the use of a 6mm Allen Key and 14mm open ended spanner.
6. The air gap can be checked with the use of feeler gauges, 0.4mm should be used.

#### **8. DAILY INSPECTION**

All fences secure

End fences in place

Mast fences in place

Warning signs and load charts on

Planks are secure and tied down if necessary

Safety lines secure where applicable

Limit switches working up and down

No materials are stored on the outriggers

Visual alarm on

Emergency stop working

Machine is not overloaded

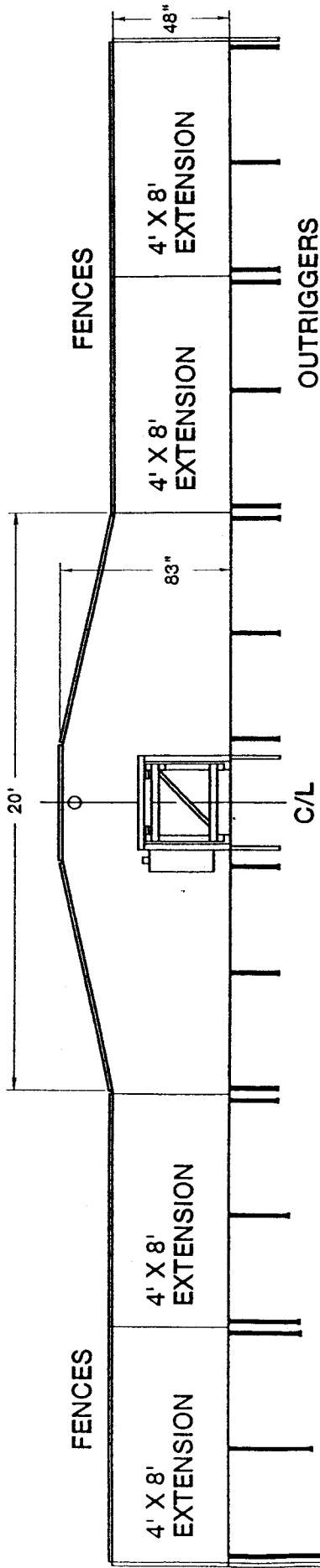
Rollers working and greased

Power cord runs freely

Ties secure

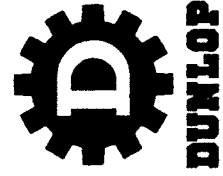
# PLAN VIEW

BASIC 20 FT. PLATFORM AND 4' X 8' EXTENSIONS  
FENCE LAYOUT  
OUTRIGGER LAYOUT

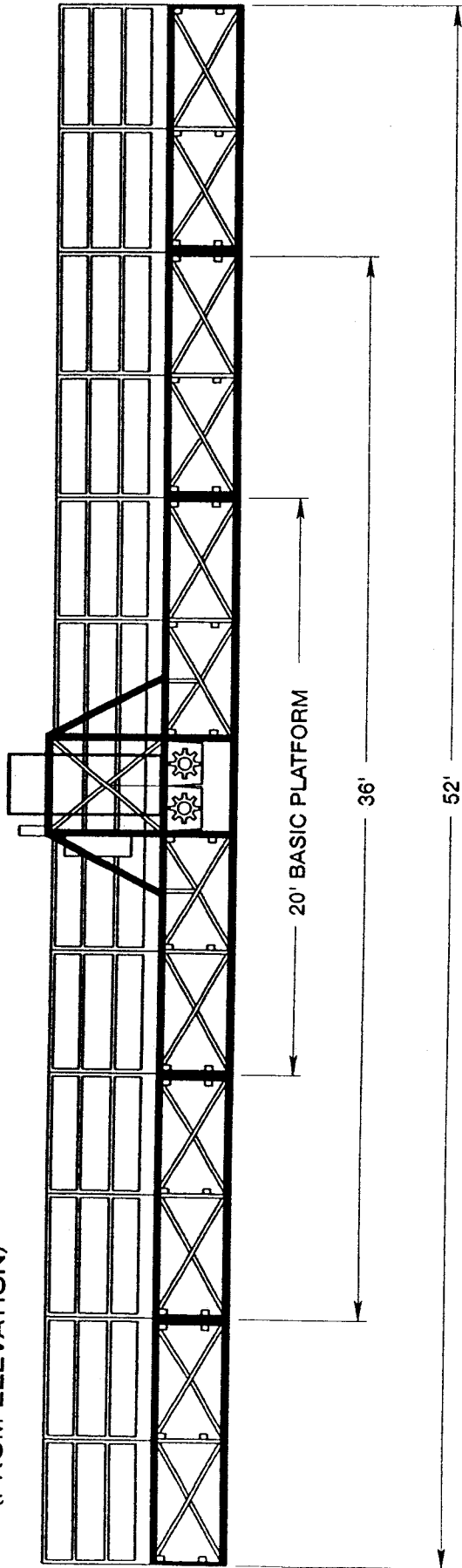


NOTE:  
OUTRIGGER PLANKS GO FROM TWO TO A MAXIMUM OF FOUR  
AFTER THIS YOU NEED TO PROVIDE ADDITIONAL SUPPORT.

NO MATERIALS ARE TO BE PLACED ON THE OUTRIGGERS.  
END FENCES REQUIRED WHEN OUTRIGGERS ARE USED.



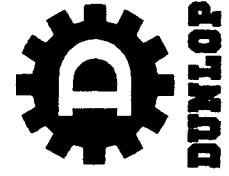
**FRONT VIEW**  
(FROM ELEVATION)



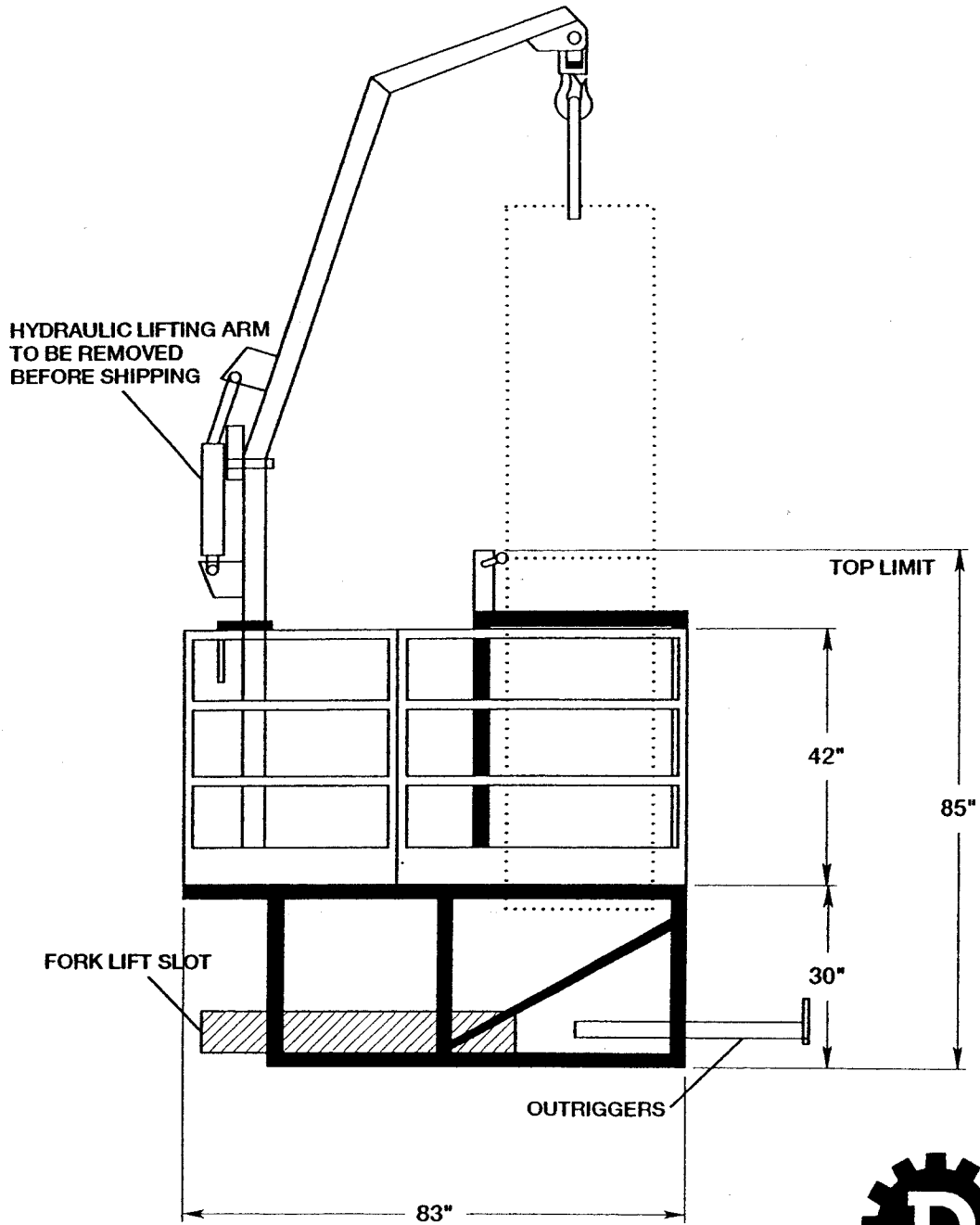
THE MODULAR SYSTEM HAS BOTH FOUR AND EIGHT FOOT EXTENSIONS. WHICH PROVIDES FOR GREATER FLEXIBILITY WHEN LAYING OUT A JOB. PLATFORM SIZE RANGE FROM 20' - 52'.

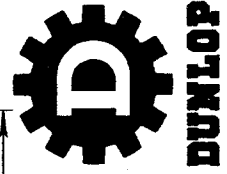
NOTES:  
NO MATERIALS TO BE PLACED ON OUTRIGGERS.  
MATERIALS SHOULD WHERE POSSIBLE BE PLACED ON MAIN 20' PLATFORM.

OVERALL LENGTH (FT.)	WEIGHT (LBS.)	ECCENTRIC LOAD (LBS.)
20	12,000	3,000
24	11,500	2,000
28	11,000	2,000
32	10,500	1,500
36	10,000	1,500
40	9,500	1,250
44	9,000	1,250
48	8,500	1,000
52	8,000	1,000

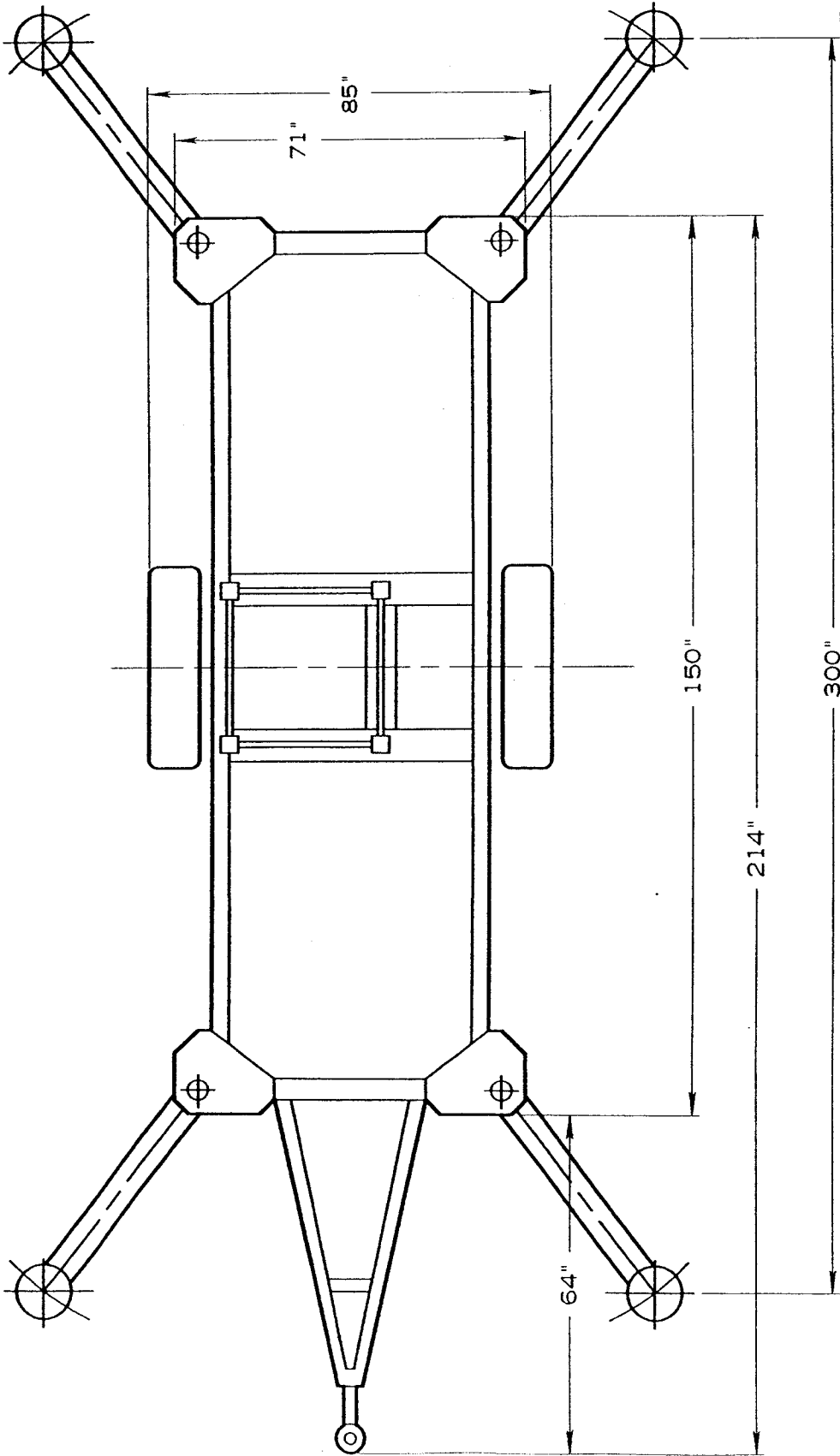


# END VIEW OF BASIC 20' PLATFORM



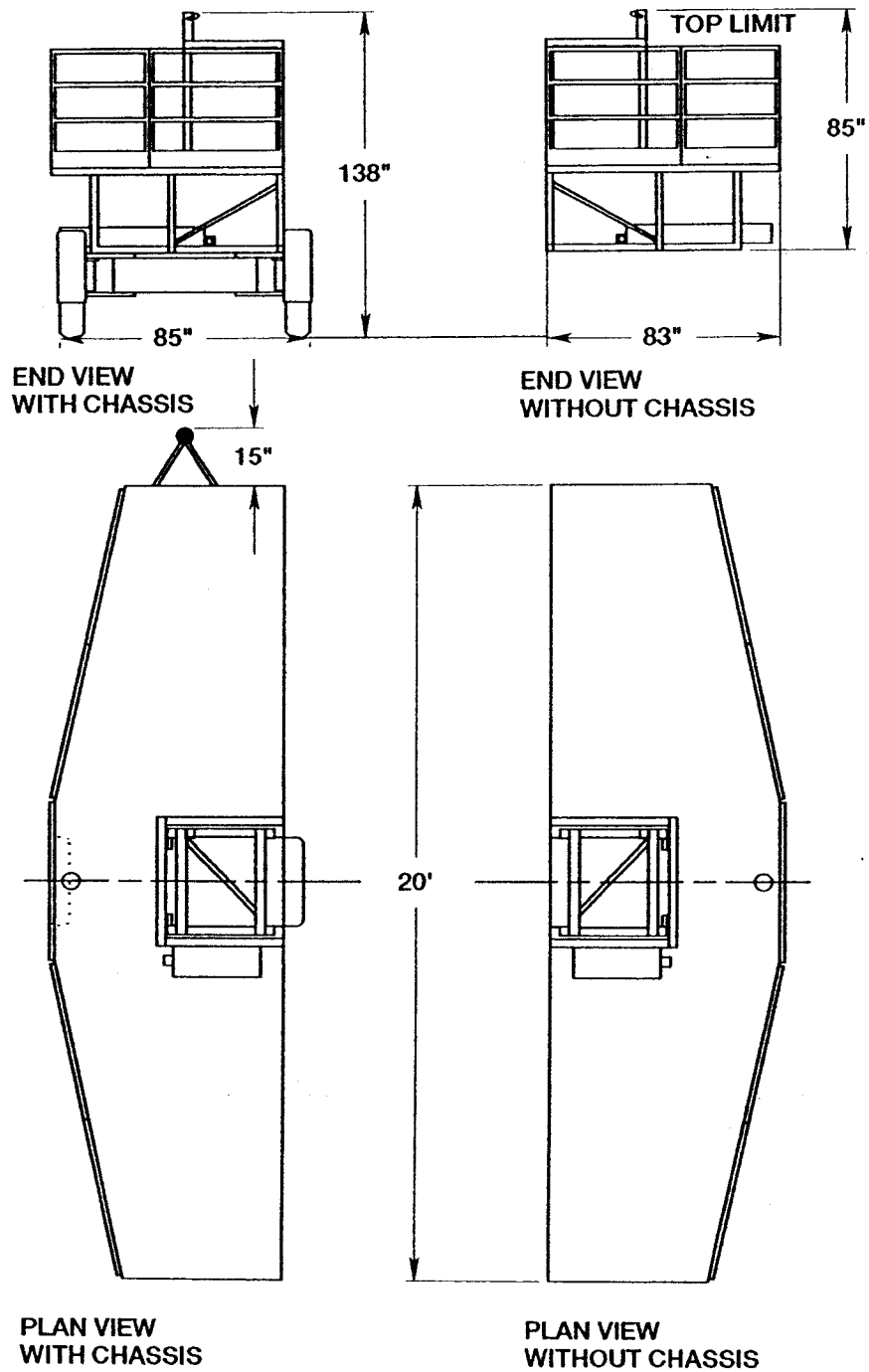


**UNDER CARRIAGE - ROAD TOWABLE CHASSIS**



TELESCOPING STABILIZERS  
POSITION AND MEASUREMENTS  
VARY ACCORDING TO SITE CONDITIONS

# SHIPPING BASIC 20' UNIT



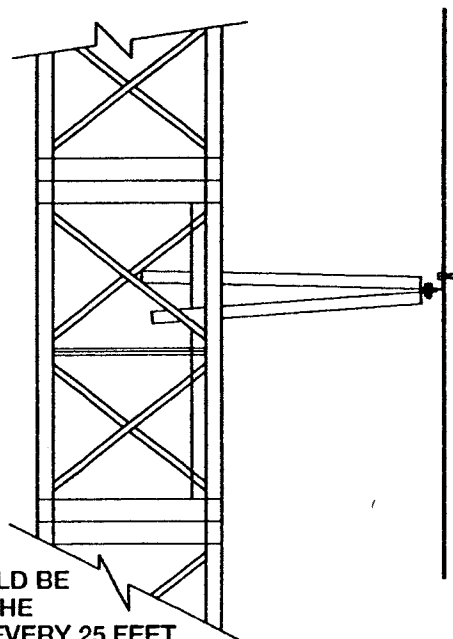
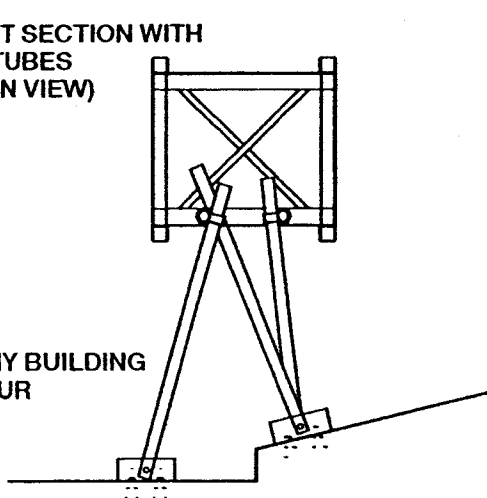
1. A DROP DECK TRAILER IS REQUIRED TO SHIP PLATFORM AND CHASSIS OTHERWISE A FLATBED IS USED FOR PLATFORM ONLY.
2. REMOVE HOIST ARM BEFORE SHIPPING
3. TONGUE AND HITCH GOES UNDERNEATH ADJOINING PLATFORM.



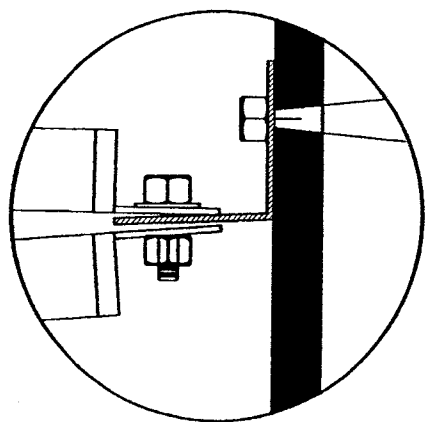
# FIXING A TIE

MAST SECTION WITH  
TIE TUBES  
(PLAN VIEW)

FITS ANY BUILDING  
CONTOUR



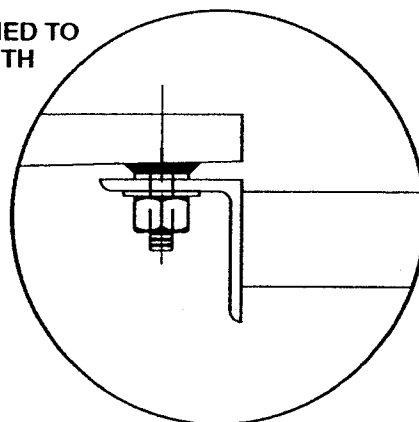
TIES SHOULD BE  
MADE TO THE  
BUILDING EVERY 25 FEET



MASONRY CONNECTION

3/4" OR 5/8" EXPANSION BOLT  
DEPENDING ON THE INSTALLATION.

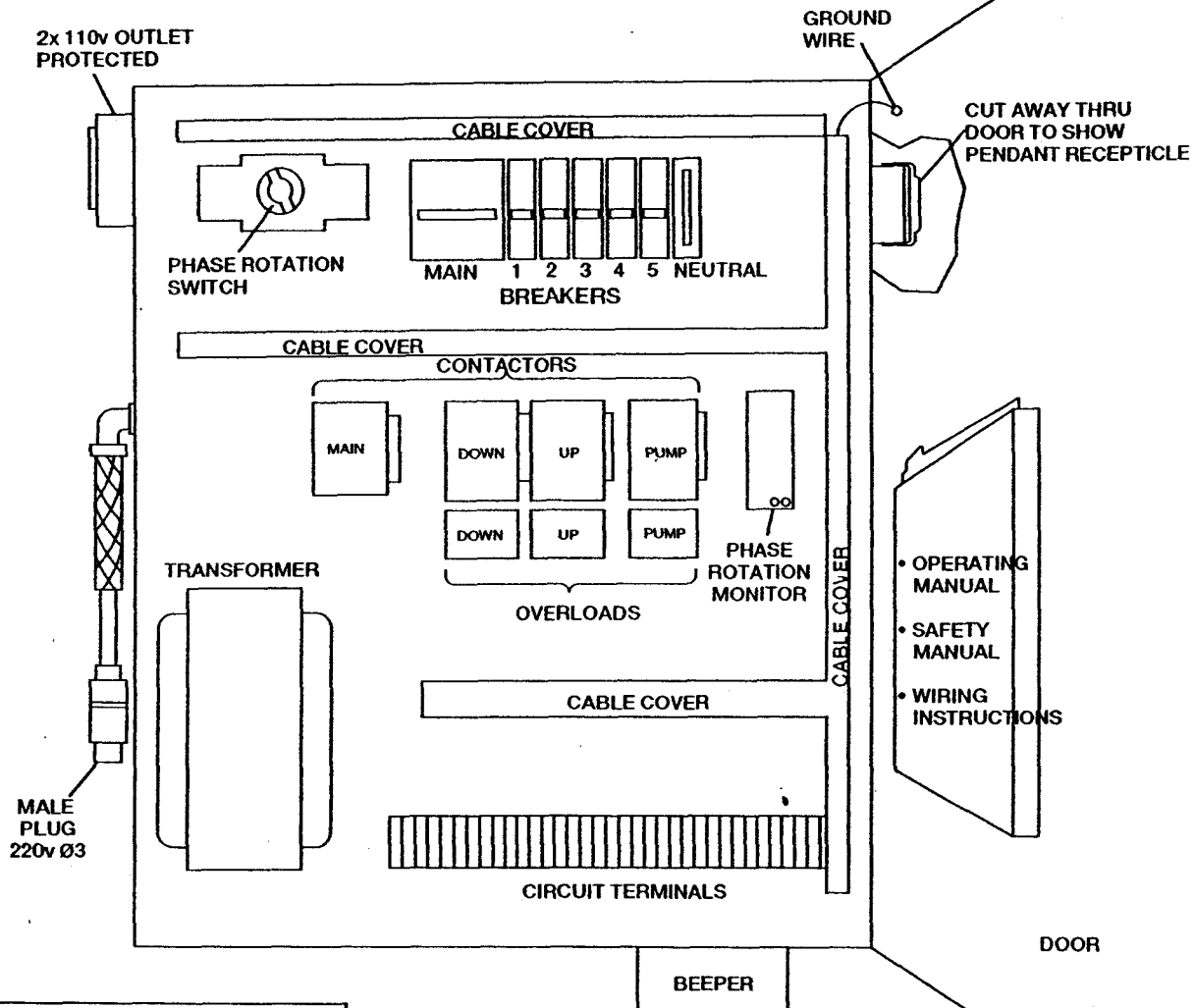
TIE TUBES ATTACHED TO  
AN ANGLE IRON WITH  
3/4" BOLTS



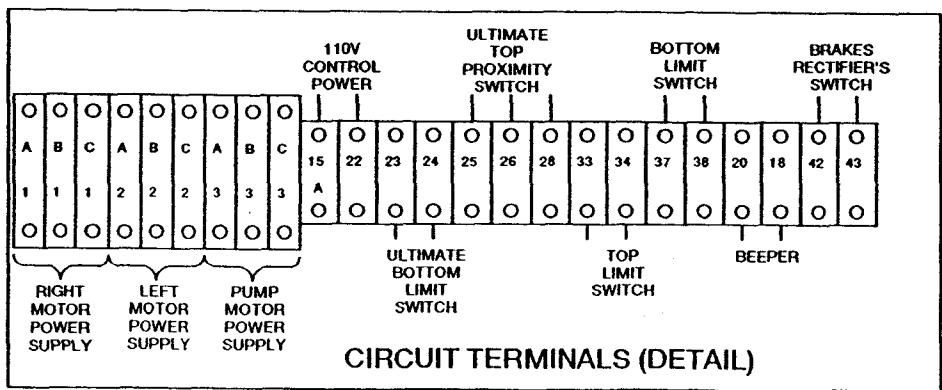
WELDED CONNECTION



# ELECTRICAL CONTROL PANEL

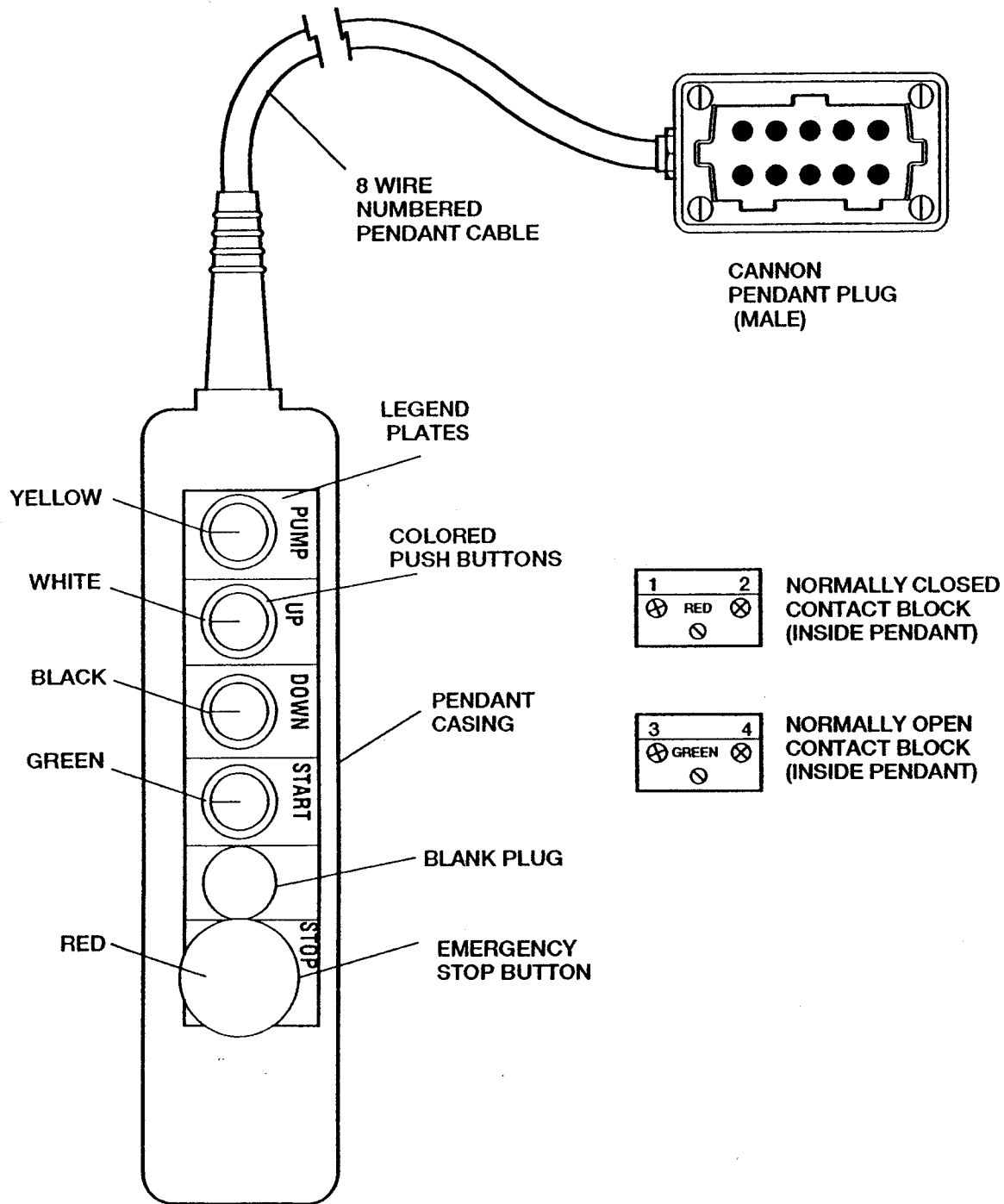


- BREAKERS:**
- 1 } 16 AMP 220v TO TRANSFORMER
  - 2 }
  - 3 10 AMP 110v CONTROL POWER
  - 4 16 AMP 110v OUTLET
  - 5 2 AMP 110v BEEPER



**DUNLOP**

# PLATFORM PENDANT CONTROL

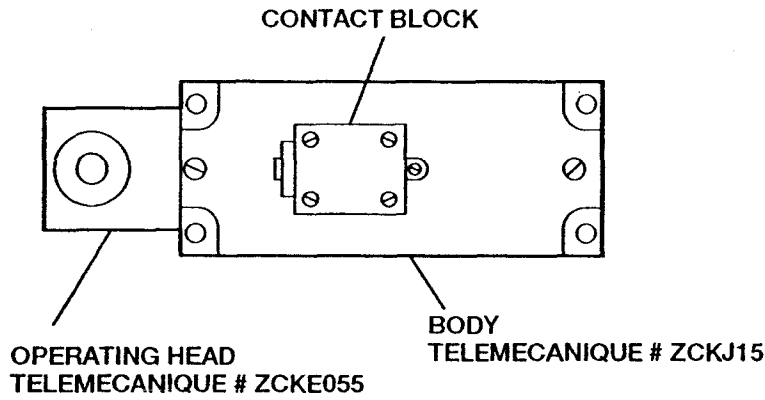


NOTE: WHEN PENDANT CONTROL IS NOT IN USE, STORE IN AN UPRIGHT POSITION WIRES DOWN; ALTERNATIVELY YOU CAN REMOVE THE PENDANT CONTROL.

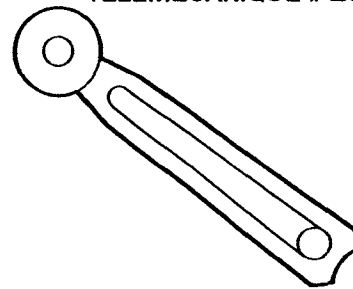


# PLATFORM LIMIT SWITCHES

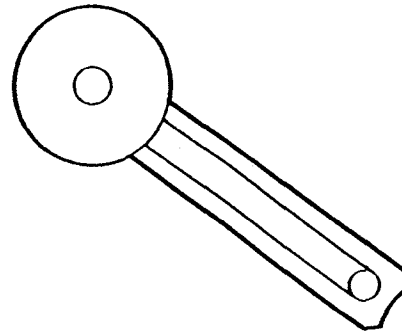
**COMPLETE HEAVY DUTY LIMIT SWITCH**  
TELEMECANIQUE # XCKJ10541



**BOTTOM**  
ADJUSTABLE ROLLER ARM  
0.74" DIA.  
0.2" WIDE  
3.0" LONG  
TELEMECANIQUE # ZCKY41



**TOP**  
ADJUSTABLE ROLLER ARM  
2.0" DIA.  
0.2" WIDE  
3.0" LONG  
TELEMECANIQUE # ZCKY49



**PROXIMITY SWITCH**  
TELEMECANIQUE # XS8C40MP230

