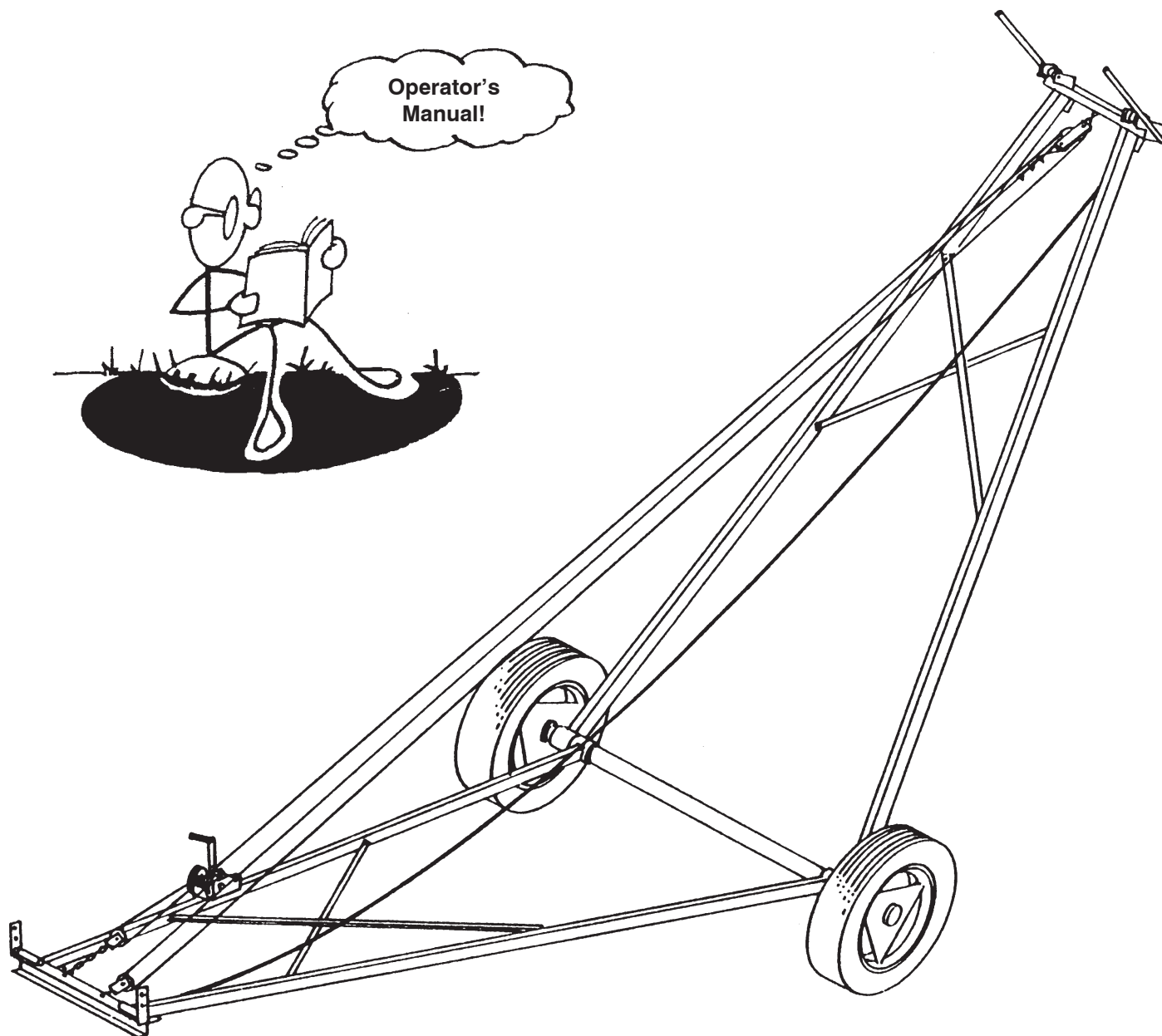


# HST

## Bale-Elevator Transport

### Owner's and Operator's Manual

Read and Understand this manual  
*Before Operating*



#### **Additional Assistance**

If any items covered in this manual are not fully understood by you, contact your dealer or T. R. Metal Crafters, Inc.; 312 E. Industrial Dr.; P.O. Box 248; Loyal, WI 54446 (call Toll Free 1-800-842-5349 for assistance).

# General Safety Statement

It is your responsibility as an owner, operator or supervisor to know what specific requirements, precautions and work hazards exist and to make these known to all other personnel working with the equipment or in the area, so that they too may take any necessary safety precautions that may be required. Failure to read this Owner's and Operator's Manual and its safety instructions is a misuse of the equipment.



## The Operator's Manual



Anyone who will operate or work around an elevator or transport shall first read the Owner's and Operator's Manual!

*Complete sign-off sheet in "Operator Qualifications" section of this Manual to document training.*



## Safety Alert Symbol

This Safety Symbol means:

**Attention!  
Become Alert!  
Your Safety Is Involved!**

The Safety Alert Symbol identifies important safety messages on machines, safety decals, in manuals, or elsewhere. When you see this symbol, be alert to the possibility of personal injury or death. Follow the instructions in the safety message.

This symbol will be used with one of three signal words: **CAUTION** **WARNING** **DANGER** to indicate the degree of hazard.

**CAUTION** — Hazards or unsafe practices which COULD result in minor personal injury or product or property damage.

**WARNING** — Hazards or unsafe practices which COULD result in severe personal injury or death.

**DANGER** — Immediate hazards which WILL result in severe personal injury or death.

## Why is Safety important to You?

- 3 Big Reasons:**
- Accidents Disable and Kill
  - Accidents Cost
  - Accidents Can Be Avoided

# Foreword

This Manual is intended to point out some of the basic situations which may be encountered during the normal operation and service of your machine and to suggest possible ways of dealing with these conditions.

Additional precautions may be necessary, depending on conditions at the worksite or in the service area. The manufacturer has no direct control over machine application, operation, inspection, lubrication, or maintenance. Therefore, it is your responsibility to use good safety practices in these areas.

Other information which may affect the safe operation of your machine may be contained on safety decals, or in insurance requirements; employer's safety programs; safety codes; and local, state/provincial, and federal laws, rules, and regulations.

If you require information not covered in this manual, contact T. R. Metal Crafters, Inc.; 312 E. Industrial Drive; P.O. Box 248; Loyal, WI 54446 (call Toll Free 1-800-842-5349).

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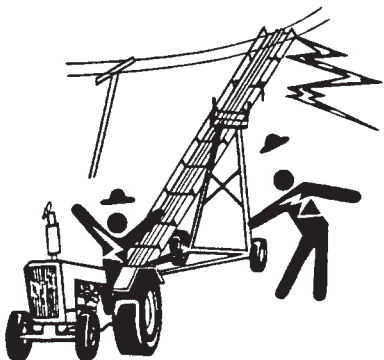
# The Decals Show On This Page Must Be Displayed As Shown Below

FREE REPLACEMENTS ARE AVAILABLE UPON REQUEST

Contact T. R. Metal Crafters, Inc.; 312 E. Industrial Drive; P.O. Box 248; Loyal, WI 54446  
(Call Toll Free 1-800-842-5349)

- Safety decals must be replaced if they are destroyed, missing, painted over, or can no longer be read.
- New equipment components installed during repair shall be equipped with the same safety decals that were affixed to the original components.
- Keep decals wiped clean at all times.

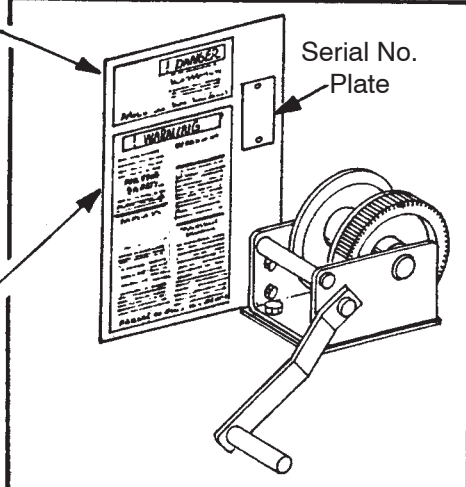
DEC1101-DANGR



**⚠ DANGER**  
THIS MACHINE IS NOT GROUNDED  
**ELECTROCUTION HAZARD**  
Keep at least 10 feet away from overhead electrical wires and devices. Electrocution can occur without direct contact. Measure overall transport height and check for adequate clearance before moving transport.  
**FAILURE TO HEED WILL RESULT IN SEVERE SHOCK OR DEATH**

DEC1101-DANGR

43

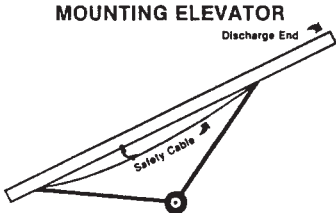


Serial No. Plate

DEC1101-WARNG

**⚠ WARNING**  
AN ELEVATOR TRANSPORT CAN BE HAZARDOUS IN THE HANDS OF AN UNFAMILIAR, UNTRAINED OR CARELESS OPERATOR  
**FOR YOUR SAFETY...**  
Do not operate, service, inspect or otherwise handle this unit without reading the Owner's and Operator's Manual completely and being familiar with the operation of this machine. If the Owner's and Operator's Manual is missing, contact T. R. Metal Crafters, Inc., 312 E. Industrial Drive, P. O. Box 248, Loyal, WI 54446. (Phone 715/255-8518).

**MOUNTING ELEVATOR**  
Discharge End



Safety Cable

Do not mount a longer or shorter length elevator than recommended below on transport. Failure to heed may result in personal injury or death.

Model HST-10T	Fits only Mayrho elevators 20 through 32 long
Model HST-20T	Fits only Mayrho elevators 36 through 48 long
Model HST-40T	Fits only Mayrho elevators 54 through 80 long

Make sure the safety cable is installed onto transport at the correct location. Refer to Owner's and Operator's Manual for instructions. The safety cable prevents transport from being lowered to an unsafe working position. Failure to install safety cable may result in personal injury or death. Note: Elevator weight should never rest on transport safety cable during normal operation. If safety cable is lost or missing, contact T.R. Metal Crafters, Inc. for free replacement.

**FAILURE TO HEED COULD RESULT IN PERSONAL INJURY OR DEATH**

DEC1101-WARNG

WHEN RAISING OR LOWERING

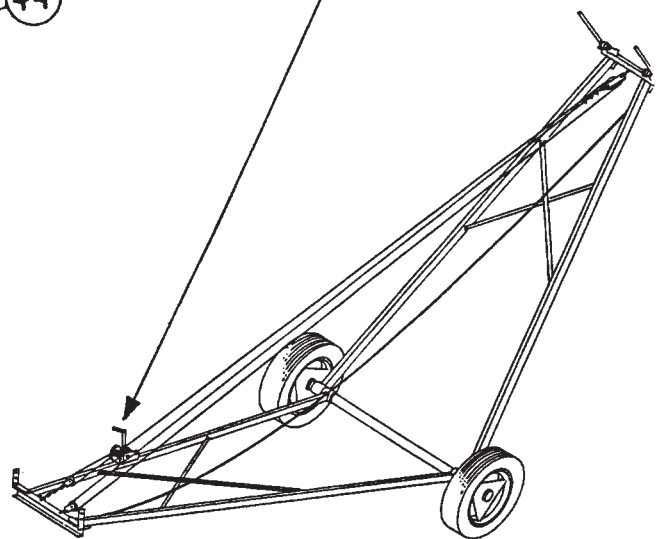


FALLING ELEVATOR CAN INJURE AND KILL

1. Read and follow labels on winch.
2. Make sure transport is on firm, level ground.
3. Never permit anyone to stand on or under the elevator.
4. Never stand alongside winch cable. If cable breaks, it can act like a deadly whip.
5. Always inspect the cable and clamps for damage prior to each use.
6. Never continue turning handle counterclockwise if elevator does not lower — elevator may release and drop suddenly. Return elevator to full raised position if possible. Securely support elevator to prevent it from dropping before repairing cable or transport mechanism.
7. After lowering, turn handle clockwise two clicks to lock brake.

**TRANSPORTING AND POSITIONING**

1. Elevator must be empty and in recommended down position before moving.
2. Lower elevator at least 10 feet below level of power lines before moving. Use a locking hitch pin.
3. Transports are designed ONLY for towing at tractor speeds up to 20 mph between sunrise and sunset. Check and comply with all state and local regulations governing marking, lighting, towing and maximum width.
4. Do not allow anyone to ride on the elevator when transporting or operating.
5. Leave elevator in down position until final positioning requires raising it.
6. Block wheels and secure discharge end to bin or building or anchor intake end to prevent rolling or upending.

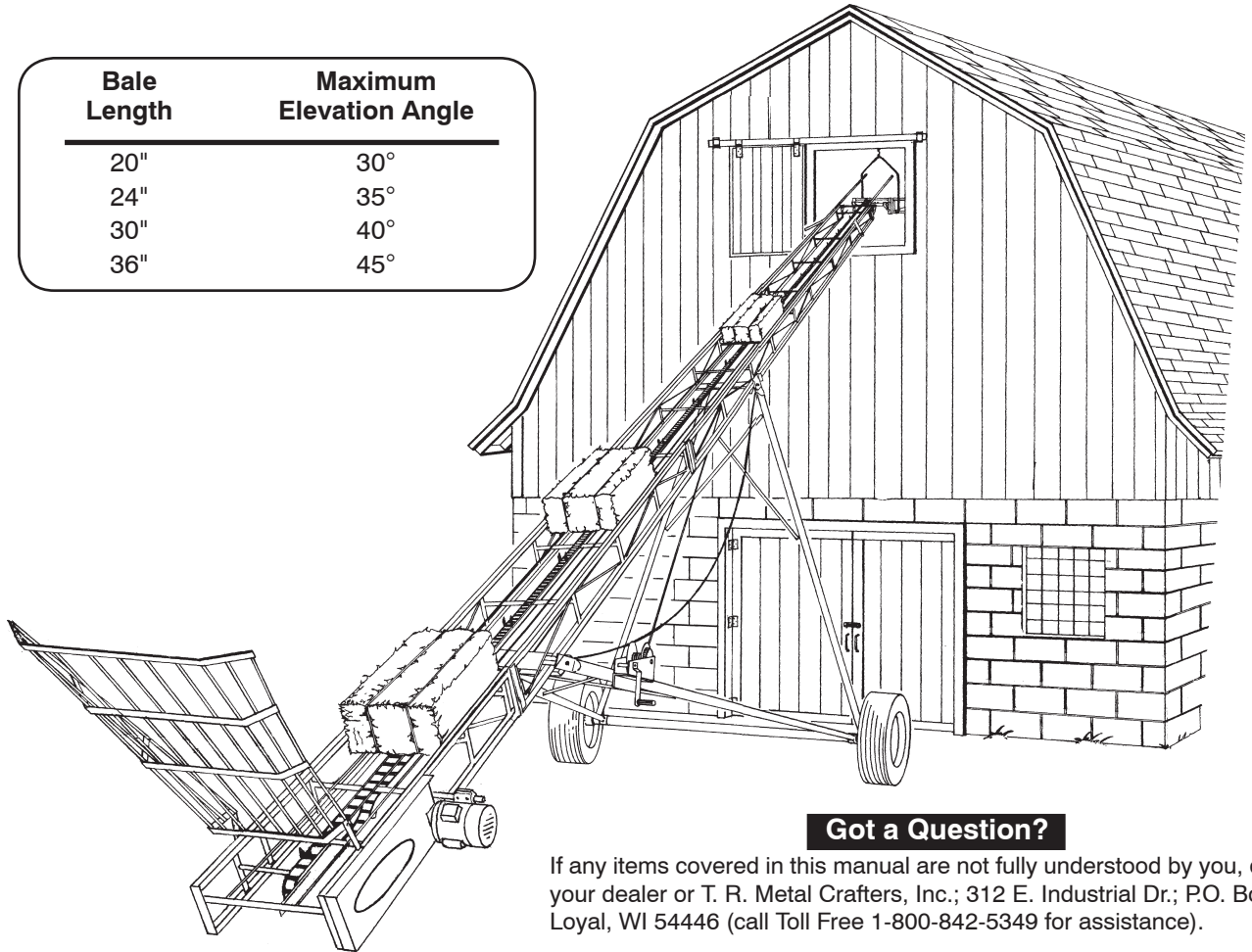


44



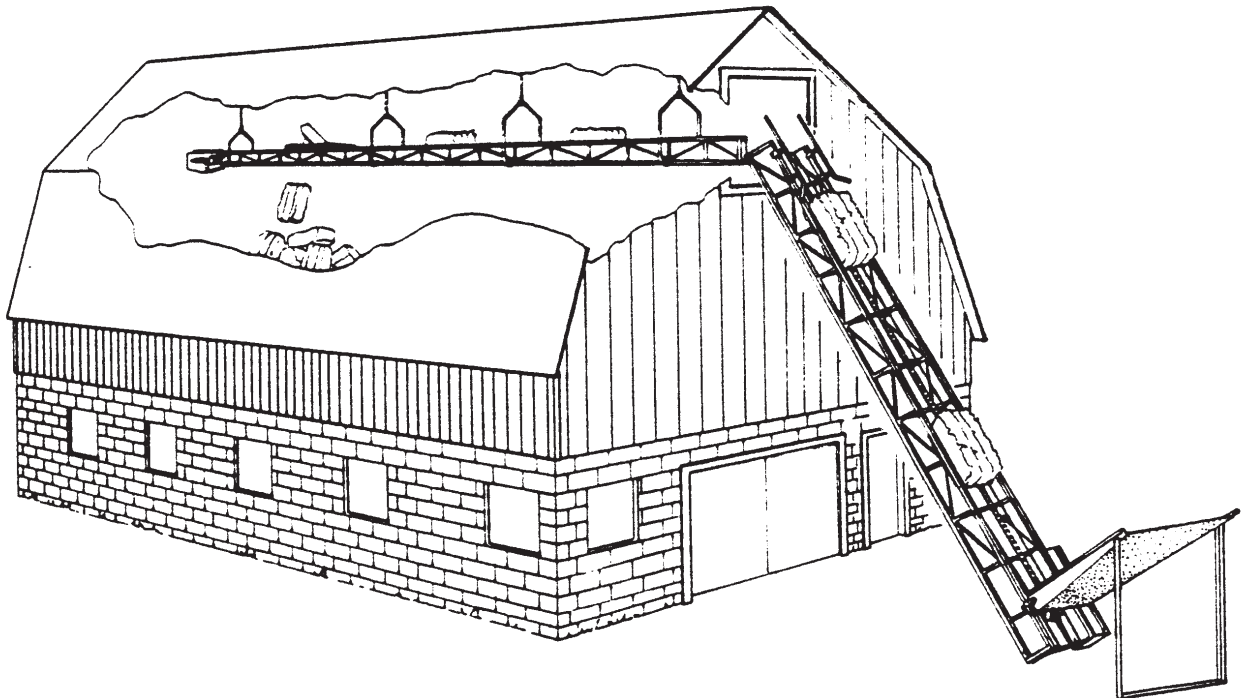
# Maximum Angle of Elevation for Various Bale Lengths

Bale Length	Maximum Elevation Angle
20"	30°
24"	35°
30"	40°
36"	45°



### Got a Question?

If any items covered in this manual are not fully understood by you, contact your dealer or T. R. Metal Crafters, Inc.; 312 E. Industrial Dr.; P.O. Box 248; Loyal, WI 54446 (call Toll Free 1-800-842-5349 for assistance).



# Machine Inspection

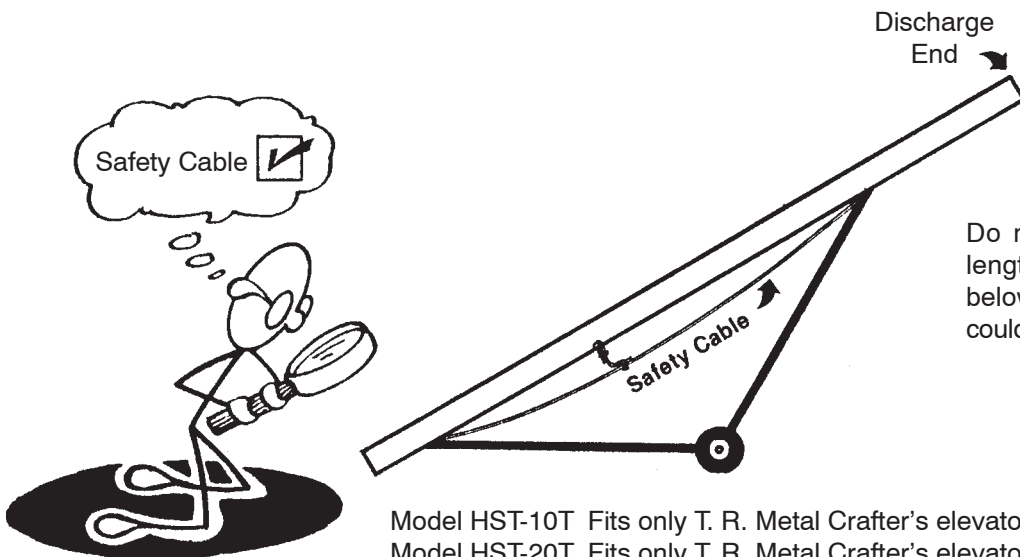
Inspect machine after delivery, upon completion of assembly and before each use. Machine inspection is mandatory.



Check that all guards are in place, secured, and functional. For information about guards, their location and free replacements, see page 41 of this manual.



Check all safety decals and replace any that are worn, missing, or illegible. For information about safety decals, their location, and free replacements, see page 3 of this manual.



**⚠ WARNING ⚠**

Do not mount a longer or shorter length elevator than recommended below on transport. Failure to heed could result in personal injury or death.

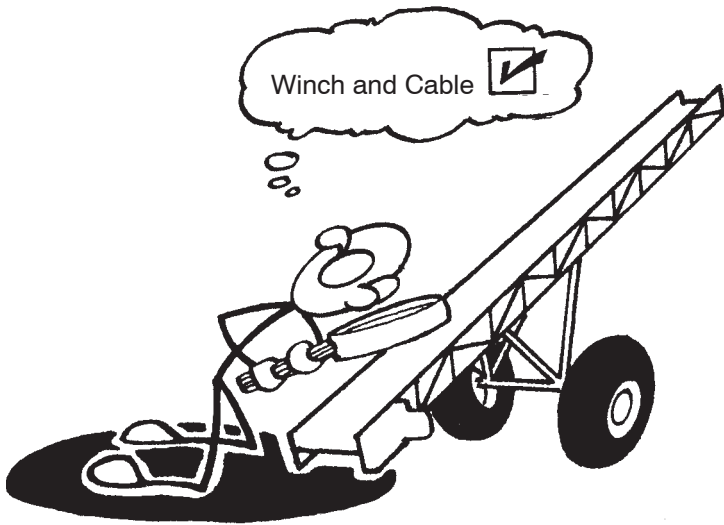
Model HST-10T Fits only T. R. Metal Crafter's elevators  
 Model HST-20T Fits only T. R. Metal Crafter's elevators  
 Model HST-40T Fits only T. R. Metal Crafter's elevators

	HEC Standard Elevator Length	EHD Extra-Heavy-Duty Elevator Length
Model HST-10T	20' - 32'	24' - 30'
Model HST-20T	36'	36' - 48'
Model HST-40T	N/A	54' - 60'

Make sure the safety cable is installed onto transport at the correct location. Refer to Transport Manual for instructions. The safety cable prevents transport from being lowered to an unsafe working position. Failure to install safety cable may result in personal injury or death. Note: Elevator weight should never rest on transport safety cable during normal operation. If safety cable is lost or missing, contact T. R. Metal Crafters, Inc. for free replacement.

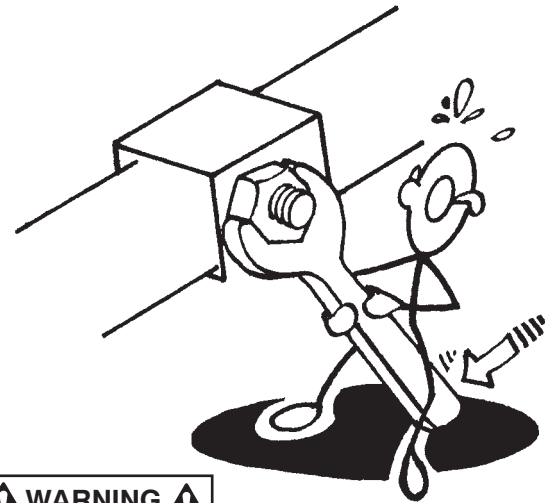


# Machine Inspection



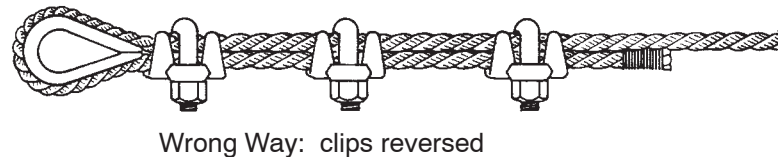
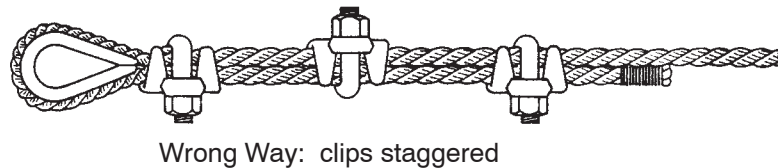
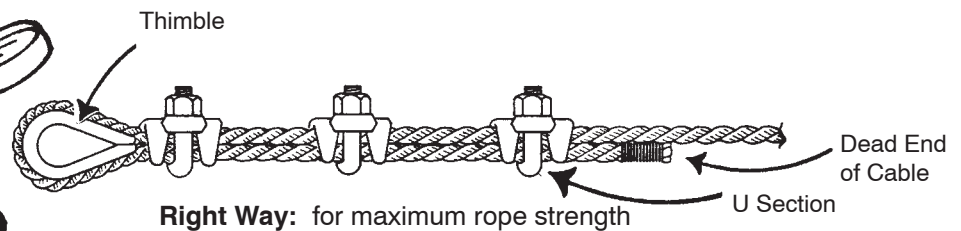
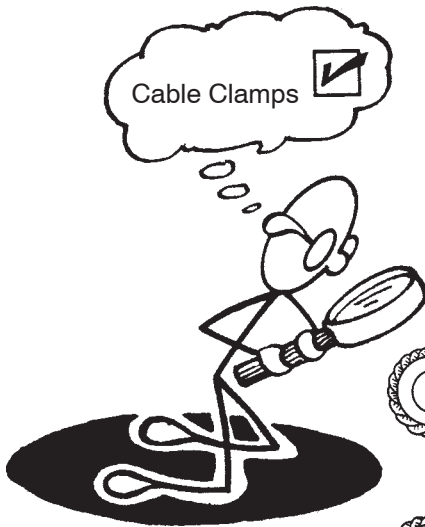
**⚠ DANGER ⚠**

Check winch and cable for condition, security, and operation. There should be at least 3-complete wraps of cable around winch drum in full down position. The cable anchor on the winch drum must be tight.



**⚠ WARNING ⚠**

1. Are all fasteners tight?
2. Are all belts and chains properly adjusted? (See Service and Maintenance Section of this manual).
3. Check all lubrication points. (See Service and Maintenance Section of this manual).



**⚠ DANGER ⚠**

The correct way to attach cable clamps is shown at the top; the "U" section is in contact with the rope's dead end and is clear of the thimble.

# Winch Operating Instructions



**DANGER** *Read Carefully: Instructions for Safer Operation of your Winch*

This winch is of general purpose design. The load rating is based on an intermittent duty cycle. High forces may be created by use of winch, creating potential safety hazards. Do not allow anyone who is not familiar with these operating instructions to operate the winch.



**This winch is not designed to be a human hoist and should never be operated when there are persons positioned on or under the load being moved. The winch is designed for raising the elevator weight only! Do not lift other items with the elevator.**

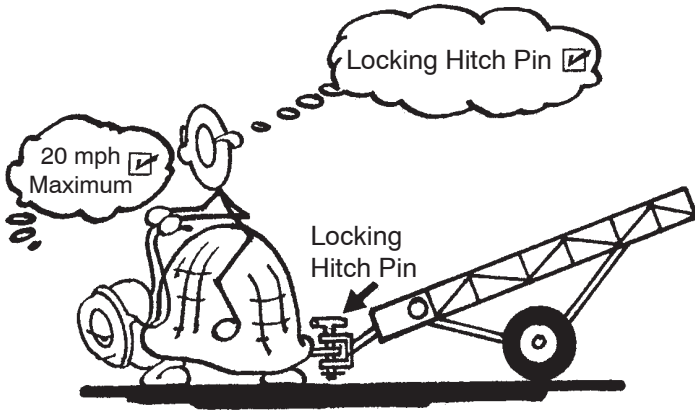
1. The winch must be securely bolted down to its mounting plate. The cable must be securely fastened to the transport and to the winch drum.
2. Never fully extend the cable. Always keep at least three (3) complete turns of cable around the drum. Otherwise cable can pull loose from the drum.
3. Always be sure the cable is pulling straight off the winch—not at an angle. This will prevent the cable from rubbing against the sides of the drum and becoming damaged.
4. Never stand along side the winch cable or guide the cable with your hands. Always inspect the cable and cable clamps for damage before each use. Replace the cable if it is frayed or kinked. If the cable breaks, it can act like a whip and inflict serious injury to anyone in the path of the cable.
5. Never permit anyone to stand on or under the elevator when it is being raised, lowered or pulled. This machine is not grounded. Keep **at least** 10 feet away from overhead electrical wires and obstructions. Electrocution can occur **without direct contact**.
6. Elevator should be in the down position or secured to building when unattended as unauthorized persons may attempt to operate the winch, thereby creating an unsafe condition.
7. Never lower transport to **straight-out** position — transport legs may bend due to increased stress.
8. Always keep the winch lubricated per instructions. Remember, worn-out parts cause unsafe conditions.

**This winch is equipped with a brake that is actuated by turning the handle. The brake is designed to hold the load whenever the handle is released.**

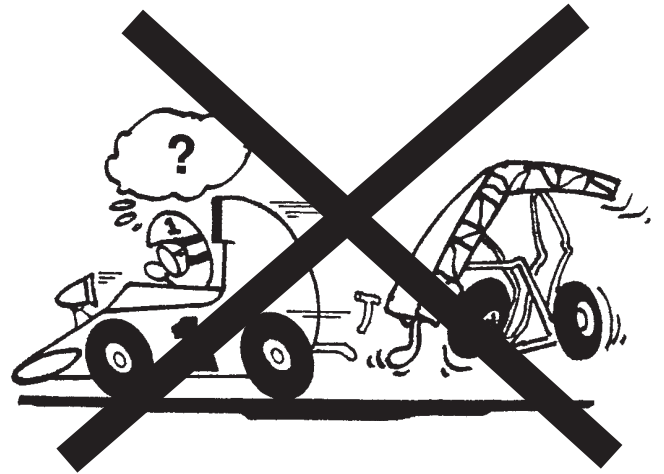
1. Never operate winch with wet or oily hands and always use a firm grip on the handle.
2. To raise the elevator, turn the handle clockwise and listen for the “loud clicking sound” of the ratchet. If the clicking sound stops, keep a firm grip on the handle and return the elevator to the down position by turning the handle counterclockwise. Repair the winch.
3. To lower the elevator, turn the handle counterclockwise (no clicking sound)—the ratchet pawls should be fully engaged into the ratchet gear teeth. To stop while lowering the load, turn the handle clockwise until you hear two clicks (about 6 inch movement of the handle). **Note:** If your hand slips off of the handle while turning it counterclockwise, the brake will prevent the handle from spinning backwards. **The brake is not fully locked until the handle is turned clockwise far enough to hear two clicks.**
4. To pull the cable off the winch without a load, you must pull on the cable and turn the handle counterclockwise at the same time. The Load-Lok brake is always actuated so the winch can not freewheel.
5. Always inspect the brake disc for wear prior to each use. If less than 1/16” thick, cracked or broken, it should be replaced. The brake disc will get hot when lowering the load. If brake is smoking or squeals, stop lowering and let the brake cool for 15 minutes. **Do not touch brake.**

# Movement and Placement

Right

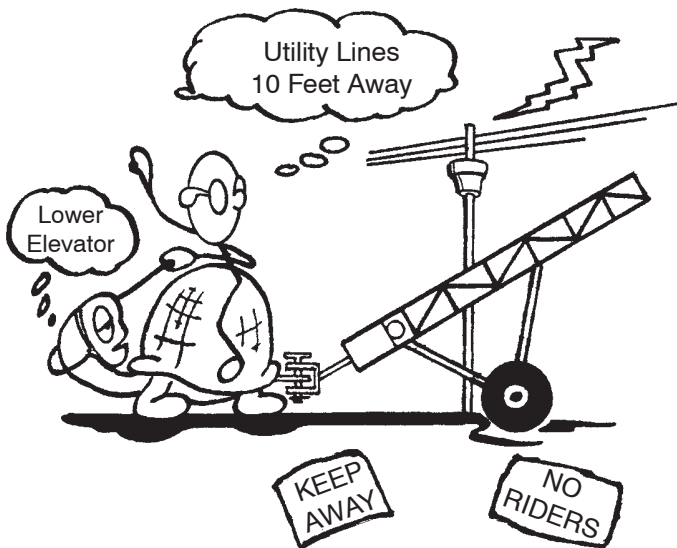


Wrong

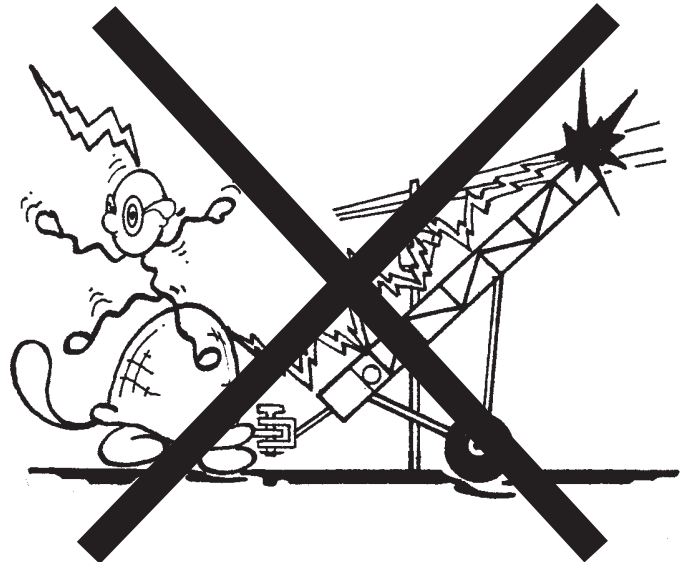


1. Elevator must be empty and in down position (with light tension on safety cable), before moving.
2. Use a locking hitch pin.
3. Transports are designed **only** for towing at tractor speeds up to 20 mph between sunrise and sunset. Check and comply with all state and local regulations governing marking, lighting, towing and maximum width.

Right

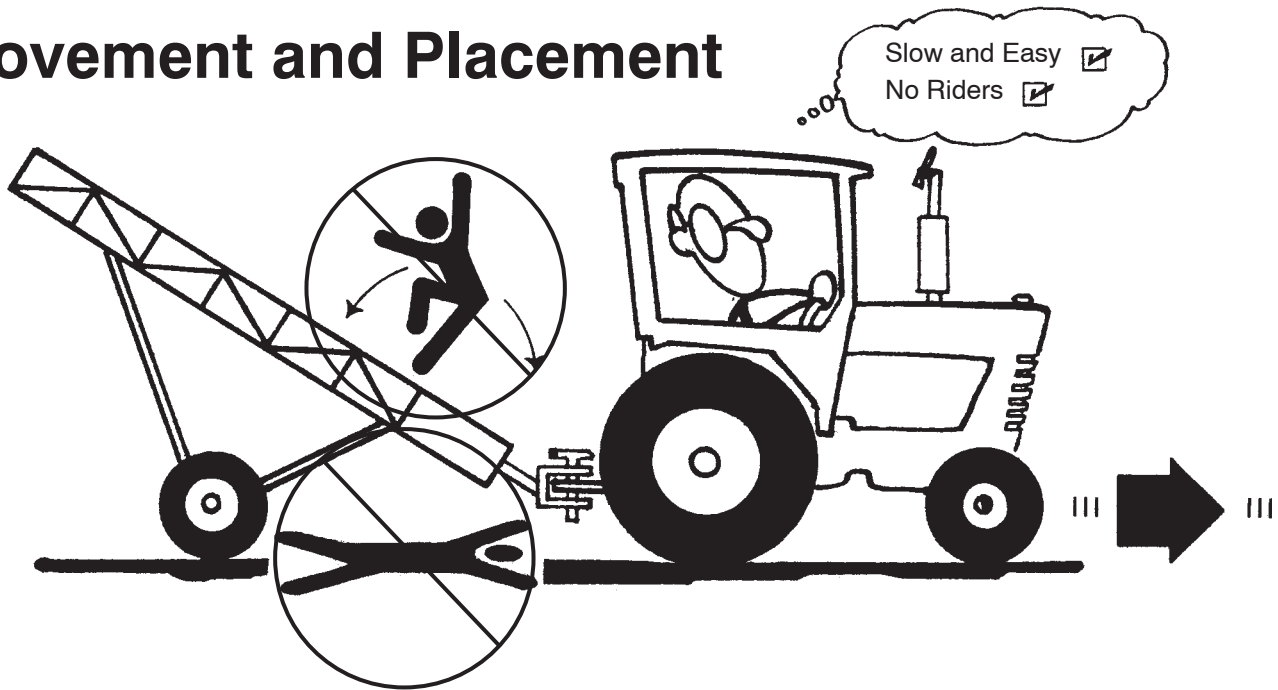


Wrong

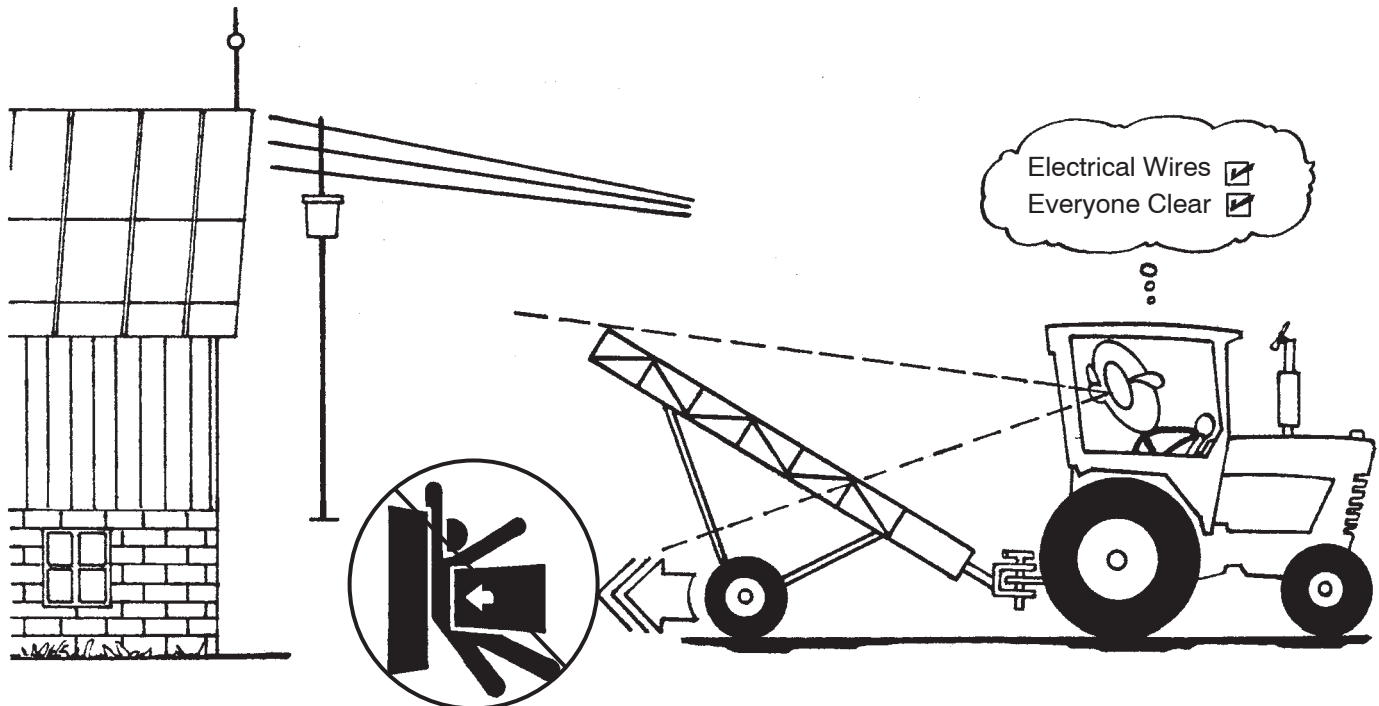


1. This machine is not insulated. When moving, upper end can contact electric utility lines and overhead obstructions.
2. Lower elevator well below level of power lines before moving.
3. Keep at least 10 feet away from overhead electrical wires and devices. Electrocutation can occur without direct contact.

# Movement and Placement

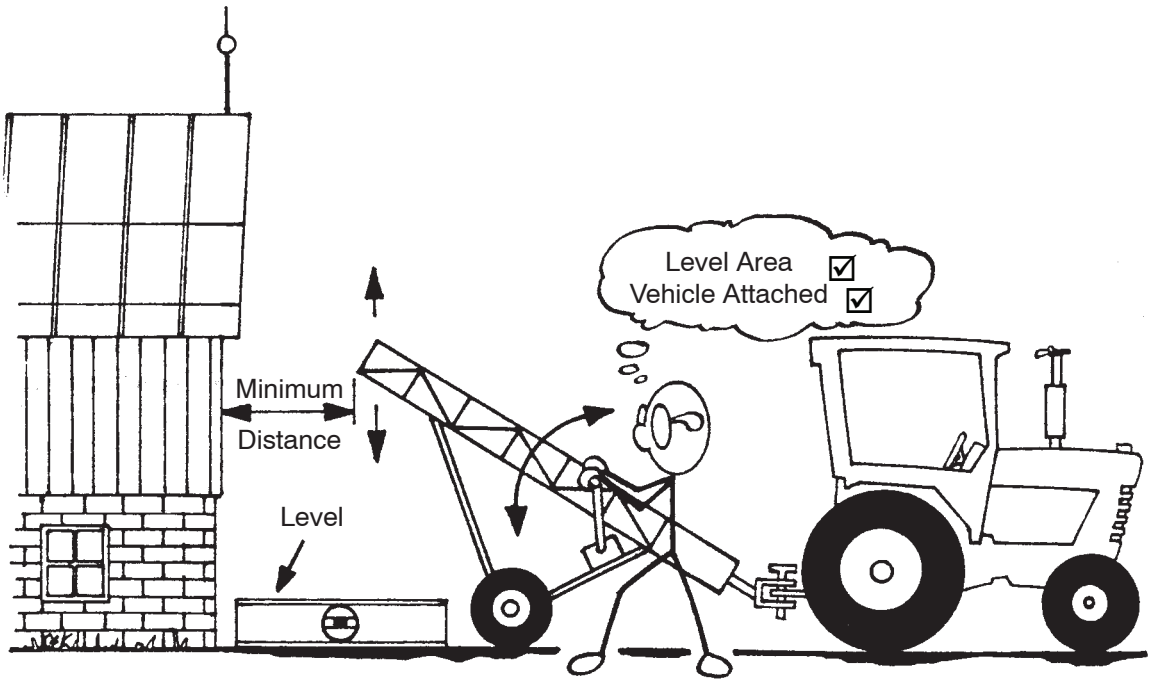


1. Do not allow anyone to ride on or stand below elevator and/or transport at any time.
2. Care should be exercised when traveling on rough and uneven terrain to avoid upsetting.
3. Leave elevator in recommended down position until final positioning requires raising it.

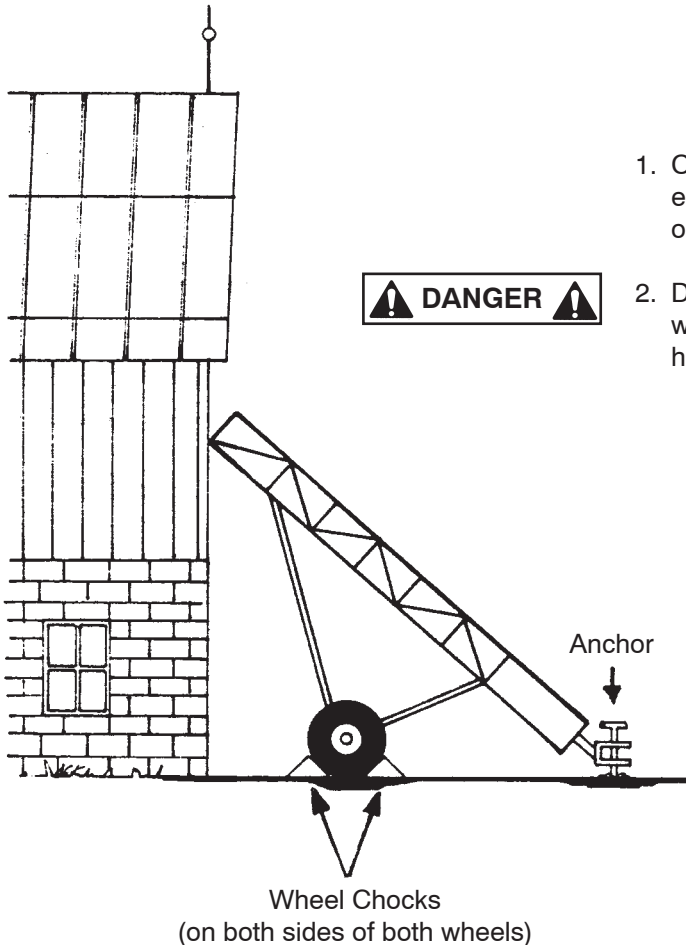


1. Never move the elevator manually. Use a vehicle. When releasing from or attaching to the vehicle, test the hitch end for downward weight. Lift it slowly and keep the hitch end no higher than the tractor tow bar. Be sure elevator is empty before lifting or moving.
2. During placement, make sure entire area above elevator and in line of travel is clear of obstructions and electrical wires. Failure to stay clear of electrical wires will result in electrocution.
3. Move elevator slowly into working position with towing vehicle, not by hand. Make certain everyone is clear of the work area.

# Movement and Placement



Keep distance between elevator and barn to a minimum when positioning a raised elevator. The elevator must be on a level surface, attached to a vehicle, and the wheels must be free to move when raising or lowering.



1. Once in place, the elevator should be anchored at the hitch end and/or supported at the discharge end. The wheels on the elevator should be chocked on both sides.
2. Do not attempt to increase elevator height by positioning wheels on lumber, blocks, or by other means. Failure to heed may result in personal injury or death.

# Electric Motor Drive



1. Electric motors and controls shall be installed by a certified electrician and must meet the standards set by the National Electrical Code and all local and state codes.

2. A magnetic starter should be used to protect your motor.



3. Electric motor must be totally enclosed, fan cooled and have a manual reset overload protector. Use a motor that is rated between 1725 to 1800 RPM.

4. Be sure that the wiring to the electric motor is large enough and the power source is the right voltage and frequency for the motor used. Make certain that all electrical assemblies are grounded and located in a weatherproof dry location.



5. Do not operate equipment without all shielding in place.

6. Keep electric motors and motor fans clean of hay and dust. This will allow motor to cool properly.



7. Be certain to keep all wiring and controls out of reach of livestock and children.

8. Check and determine that the belts are in line.

9. Make certain that the belts are snugged up but not overtightened. Overtightened belts will cause pulley and bearing failure. If belt tension is correct, belt can be depressed about 1/2" to 3/4" at midpoint between pulleys. Replace pulleys when pulley grooves are worn enough to cause belt slippage.



10. You must disconnect and lockout power source before resetting your motor (see lockout/tagout rules on following page).

11. Reset and motor starting controls must be located so that the operator has full view of the entire operation.

12. Use a 2.8" O.D. Type A, cast iron motor pulley (not included).

13. Make certain that the motor horsepower is adequate and is properly matched to the motor pulley.



14. Do not use an electric motor of lower horsepower than specified in our "Horsepower Requirements Guide". Failure to heed these instructions can result in personal *injury* or *death!*

# New Lockout/Tagout Rule Becomes Effective

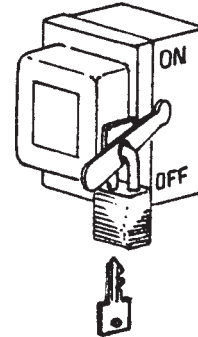


New Occupational Safety and Health Administration (OSHA) regulations on locking out or tagging out equipment prior to maintenance became effective October 31, 1989. The new rule requires that any equipment subject to restarting be locked out — when possible — prior to servicing. When lockout is not possible, equipment must be tagged.

Previous lockout/tagout regulations allowed a choice between locking and tagging. But the new rule permits sole use of warning tags only if the employer can prove that equipment cannot be locked out or that tagging is adequate protection.

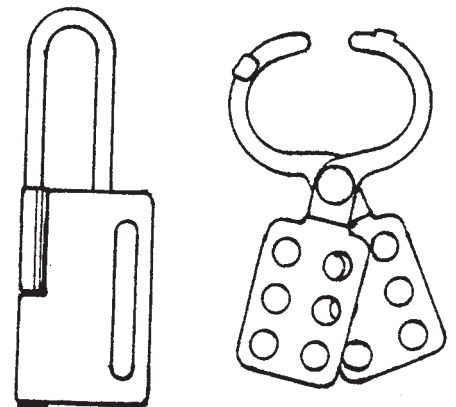
Employers are also required to thoroughly document exactly how workers are to turn off equipment, disconnect it, and verify that it has been de-energized. Workers, including contractors, must be notified of the lockout/tagout procedures.

Main Power Disconnect Switch



**Lockout:** A main power disconnect switch capable of being locked only in the OFF position shall be provided. This shall be locked whenever work is being done on the equipment.

Safety Lockouts Illustrated



## Horsepower Requirements

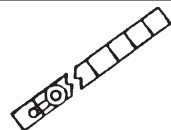
Bales should be “pulled toward” electric-motor drive end. However, if elevator is mounted on a transport, drive end must remain on ground and “push bales”.

### Horizontal Conveyor



1/2 HP	16' – 28'
3/4 HP	30' – 44'
1 HP	48' – 60'
1-1/2 HP	64' – 90'
2 HP	96' – 120'

### Incline Elevator

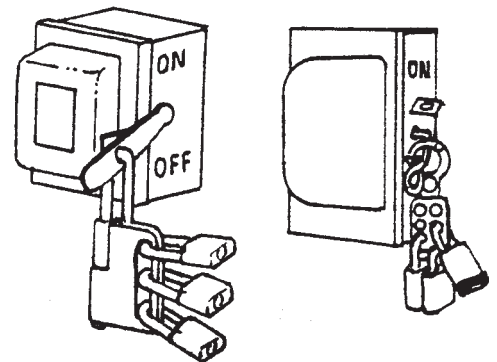


1/2 HP	16' – 24'
3/4 HP	28' – 40'
1 HP	42' – 44'
1-1/2 HP	48' – 60'

Use 2.8" O.D. Type A motor pulley on horizontal conveyor and incline elevator.  
Use a motor that is rated between 1725 to 1800 RPM.

**NOTE:** The above chart is only a guide — the size, shape and weight of your bales; angle of elevator; and desired speed may affect your installation. Remember, bales are more effectively pulled than pushed. Less horsepower is required when pulled!

Safety Lockouts In Use On Switch Boxes

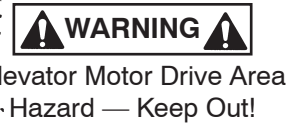
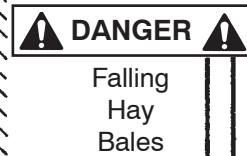
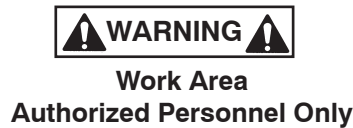
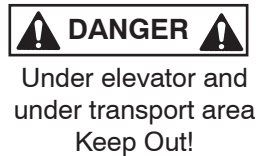


Attaches to main power disconnect switch. Equipment cannot be started until all workmen have removed their personal padlocks.

14 **Work Area Diagram – Unloading Baled Hay**

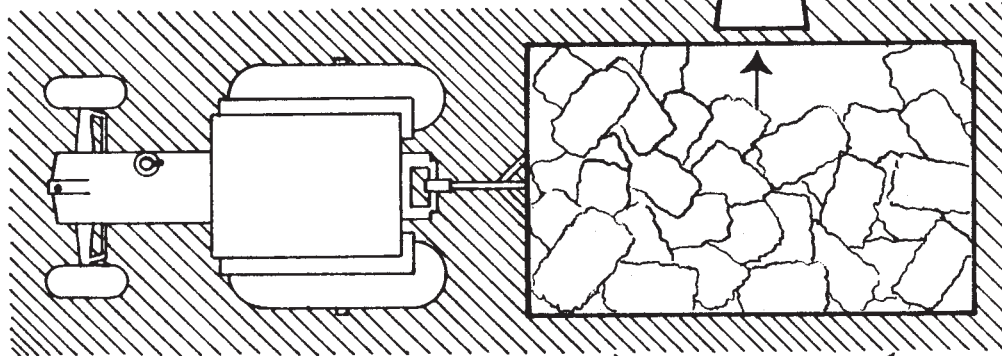


1. The work area shown below should be marked off with barriers.
2. It shall be the duty of the operator to see that children and/or other persons stay out of the work area! Trespass into the work area by anyone not involved in the actual operation, or trespass into a hazard area by anyone, shall result in an immediate shut down by the operator.
3. Prior to start up and during operation, it shall be the responsibility of the operator to see that the work area has secure footing, is clean and free of all debris and tools which might cause accidental tripping and/or falling.



Wheel Chocks

Wheel Chocks



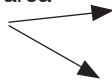
Chock All  
Wheels



# Work Area Diagram – Movement and Placement

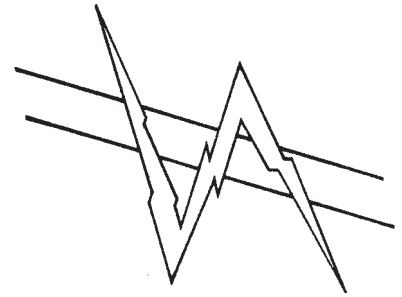
**⚠ DANGER ⚠**

Under elevator and under transport area  
**KEEP OUT!**



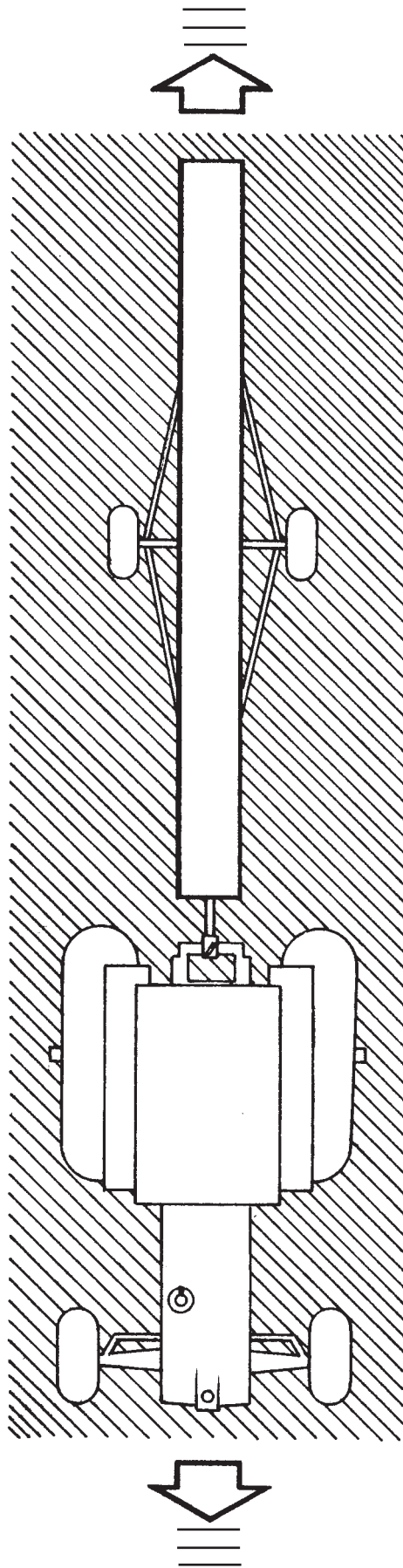
**⚠ DANGER ⚠**

**OVERHEAD WIRES  
KEEP AWAY!**



**⚠ WARNING ⚠**

**HAZARD AREA  
KEEP OUT!**



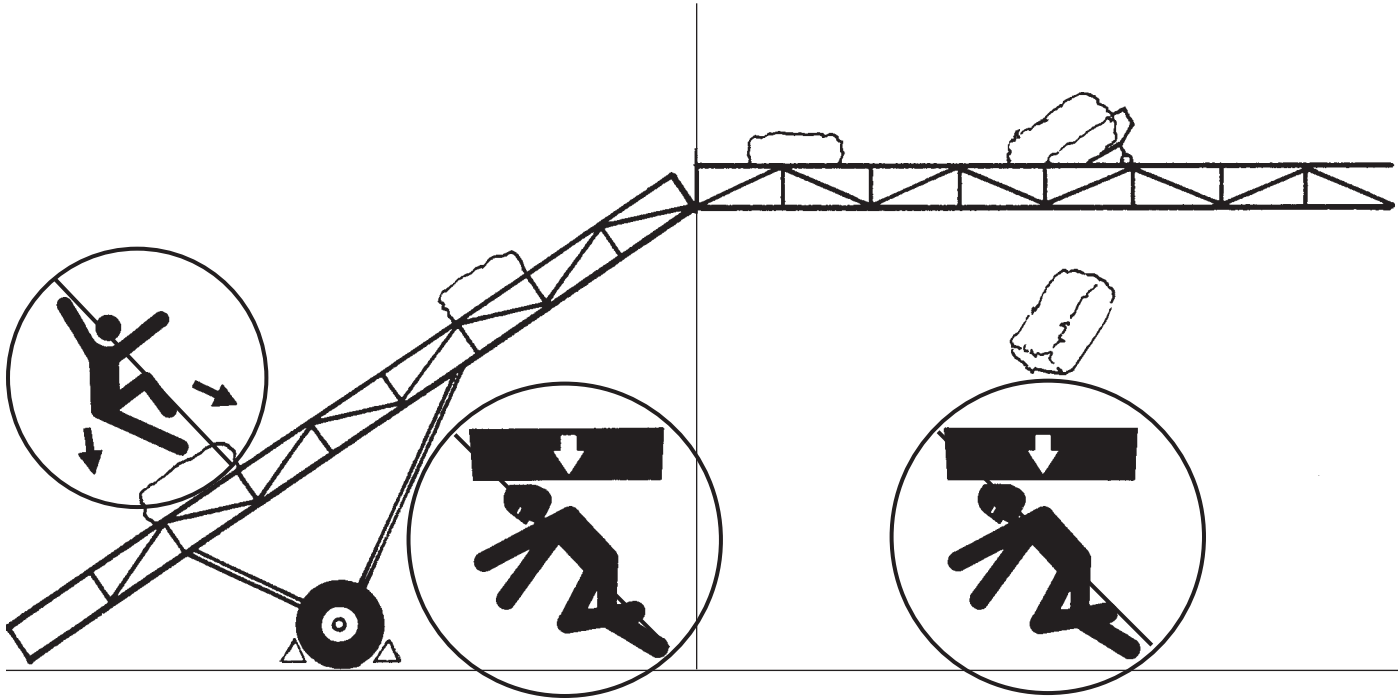
**WARNING**

**KEEP OUT OF SHADED  
HAZARD AREA**

# Elevator Operation



Do not allow persons to stand below or ride bales up elevator at any time.



1. Observe work area restrictions.
2. Keep all safety shields and devices in place.
3. Make certain everyone is clear before operating or moving the machine.
4. Keep hands, feet, hair, and clothing away from moving parts.
5. Shut OFF power and lock out to adjust, service, or clean.

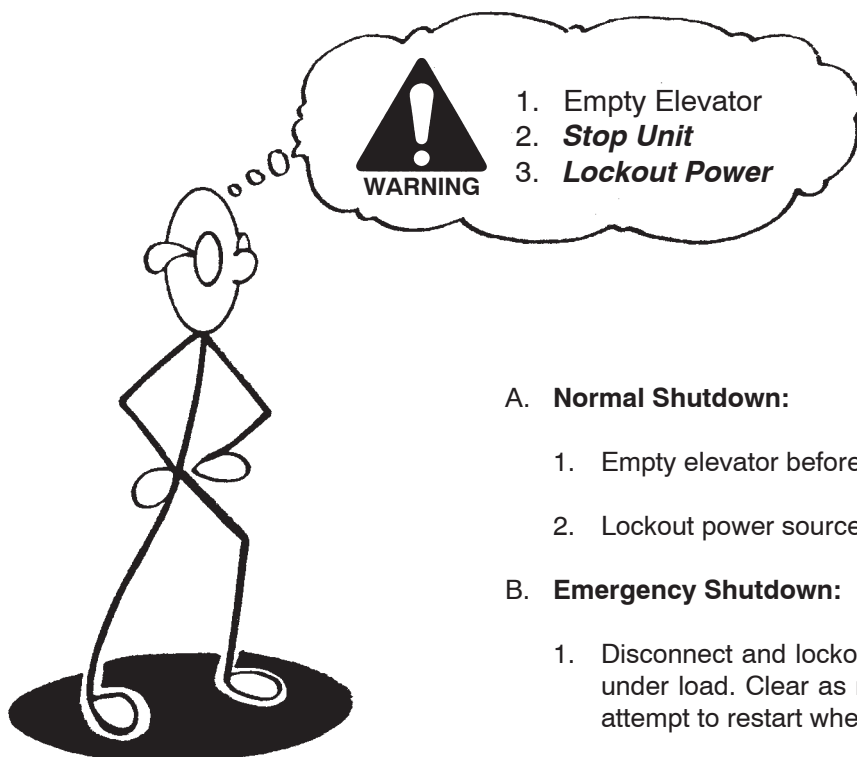
## Important Break-in Instructions

Check and make sure that bearings on drive unit and tightener end contain grease. Pour a light stream of heavy oil onto elevator chain before running elevator. Oil will reduce friction, quiet elevator and greatly extend chain life. Run empty elevator for thirty minutes after final assembly. Because bolts do have a tendency to loosen and chains tend to flex after initial use, this will give you time to make the break-in adjustments and check that elevator functions properly before you start making hay. Check and tighten any loose bolts. Elevator chain will loosen after use and should be readjusted in the following order:

1. Loosen chain tightener and remove extra links from conveyor chain.
2. Connect and retighten conveyor chain until snug.

Important — first remove extra chain links before using chain tightener. Failure to remove extra chain links will result in chain tightener not being able to take up all of the slack chain.

# Elevator Shutdown



## A. Normal Shutdown:

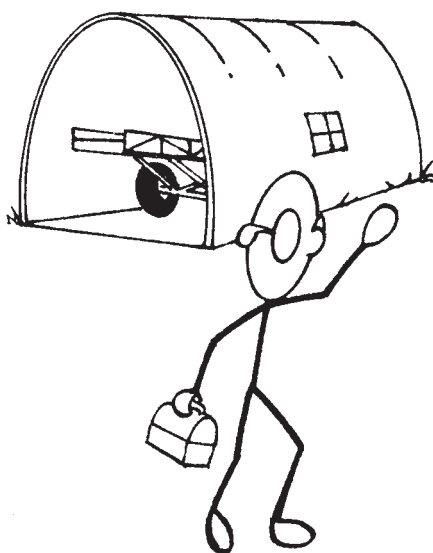
1. Empty elevator before stopping unit.
2. Lockout power source before operator leaves work area.

## B. Emergency Shutdown:



1. Disconnect and lockout the power source if elevator shuts down under load. Clear as much hay from elevator as you can. Never attempt to restart when full.
2. Starting the unit under load may result in damage to the elevator. Such damage is considered abuse of the equipment.

# Cleanup and Storage



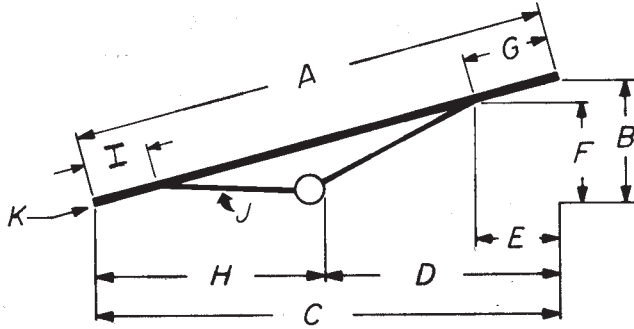
When the operation has been completed:

1. Clean entire work area.
2. Remove anchors, supports, and chocks.
3. Move elevator slowly out of "working" position with towing vehicle - not by hand.
4. If not in "transport" position, lower elevator to the "full down" position immediately upon clearance of any obstructions.
5. Transport to the new work area or storage area. Observe previous movement and placement instructions. Store elevator in the "full down" position with hitch end anchored.

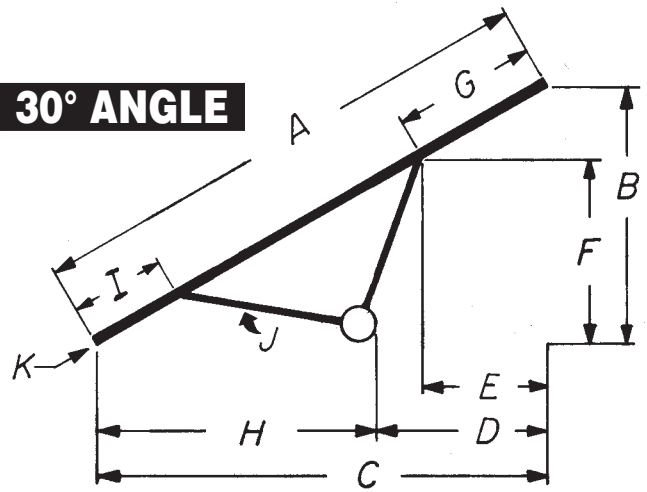
# OPERATING HEIGHTS & GENERAL DIMENSIONS

*Safety Cable Removed for Display Purposes Only*

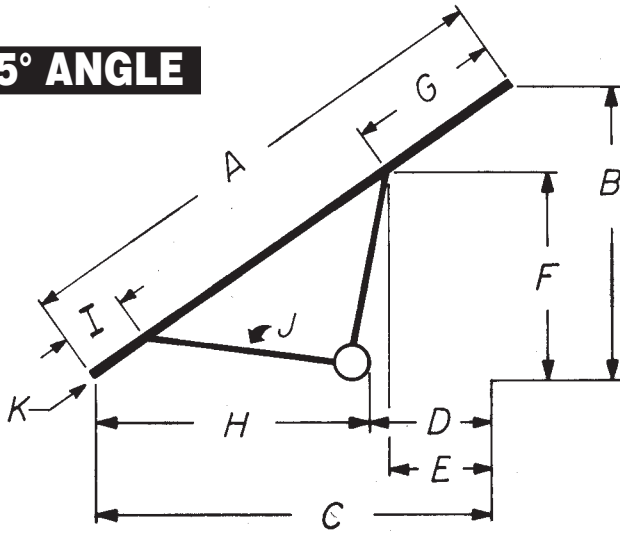
## TOWING ANGLE



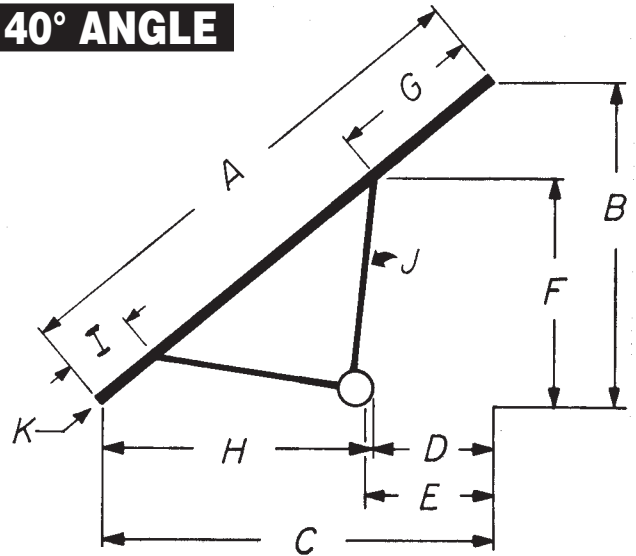
## 30° ANGLE



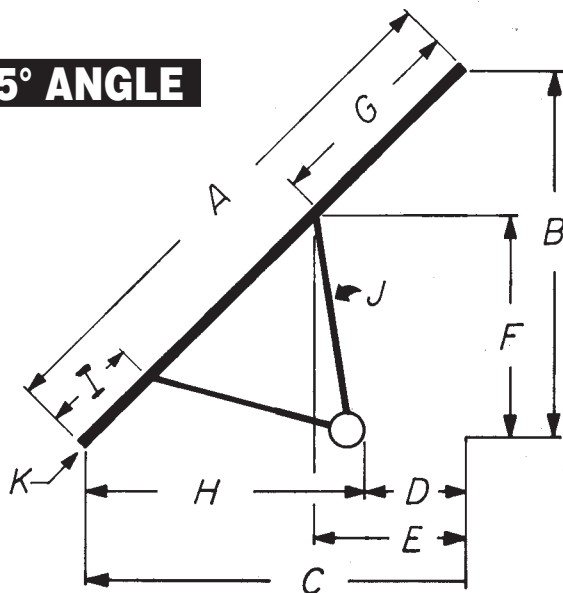
## 35° ANGLE



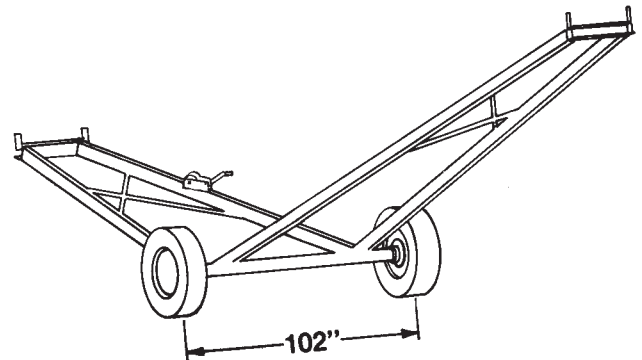
## 40° ANGLE



## 45° ANGLE



## TRANSPORT AXLE WIDTH



*(From center of tire to center of tire - outside width will vary depending on tire width)*

Elevator Length	Discharge Height	Reach	Wheel to Wall	Eave Clearance	Free Clearance	Elevator Overhang	Wheel to Elevator End	Elevator End to Transport Mount	Leg	Weight at Hitch, including Motor & Bale Chute
A	B	C	D	E	F	G	H	I	J	K
<b>TOWING ANGLE — Model HST-10T Transport</b>										
20°	7' 7"	18' 11"	6' 10"	0' 10"	6' 3"	1' 5"	12' 1"	2' 7"	9' 0"	161 lbs.
24°	9' 1"	22' 8"	10' 7"	4' 7"	6' 3"	5' 4"	12' 1"	2' 7"	9' 0"	124 lbs.
28°	10' 4"	26' 6"	14' 5"	8' 5"	6' 3"	9' 5"	12' 1"	2' 7"	9' 0"	81 lbs.
30°	10' 5"	28' 6"	15' 6"	9' 4"	6' 3"	10' 7"	13' 0"	3' 6"	9' 0"	70 lbs.
32°	10' 4"	30' 7"	16' 11"	10' 9"	6' 1"	11' 9"	13' 9"	4' 3"	9' 0"	71 lbs.
<b>TOWING ANGLE — Model HST-20T Transport</b>										
36°	10' 3"	34' 11"	16' 6"	2' 7"	8' 1"	4' 10"	18' 5"	2' 7"	15' 0"	140 lbs.
40°	10' 10"	38' 10"	19' 8"	6' 3"	8' 1"	8' 3"	19' 2"	3' 4"	15' 0"	116 lbs.
42°	11' 3"	40' 9"	21' 4"	8' 11"	7' 11"	9' 9"	19' 5"	3' 7"	15' 0"	97 lbs.
44°	11' 2"	42' 10"	22' 5"	9' 10"	7' 8"	11' 0"	20' 6"	4' 8"	15' 0"	98 lbs.
48°	11' 2"	47' 1"	24' 11"	12' 1"	6' 10"	13' 0"	22' 3"	6' 5"	15' 0"	85 lbs.
<b>TOWING ANGLE — Model HST-40T Transport</b>										
54°	11' 1"	53' 2"	26' 2"	8' 2"	7' 11"	9' 0"	27' 0"	6' 0"	20' 0"	135 lbs.
60°	11' 7"	59' 1"	31' 1"	13' 1"	8' 1"	14' 3"	28' 0"	7' 0"	20' 0"	81 lbs.
<b>30° ANGLE — Model HST-10T Transport</b>										
20°	10' 0"	17' 4"	5' 5"	2' 2"	8' 9"	2' 6"	11' 11"	2' 7"	9' 0"	184 lbs.
24°	12' 0"	20' 9"	8' 11"	5' 8"	8' 9"	6' 6"	11' 11"	2' 7"	9' 0"	158 lbs.
28°	14' 0"	24' 3"	12' 4"	9' 2"	8' 9"	10' 6"	11' 11"	2' 7"	9' 0"	120 lbs.
30°	15' 0"	26' 0"	13' 4"	10' 6"	8' 11"	12' 1"	12' 8"	3' 6"	9' 0"	115 lbs.
32°	16' 0"	27' 9"	14' 5"	11' 11"	9' 1"	13' 10"	13' 3"	4' 3"	9' 0"	112 lbs.
<b>30° ANGLE — Model HST-20T Transport</b>										
36°	18' 0"	31' 2"	13' 0"	6' 7"	14' 3"	7' 7"	18' 2"	2' 7"	15' 0"	205 lbs.
40°	20' 0"	34' 8"	15' 10"	9' 8"	14' 5"	11' 2"	18' 9"	3' 4"	15' 0"	178 lbs.
42°	21' 0"	36' 4"	17' 4"	11' 4"	14' 6"	13' 1"	19' 0"	3' 7"	15' 0"	170 lbs.
44°	22' 0"	38' 1"	18' 3"	12' 8"	14' 8"	14' 7"	19' 11"	4' 8"	15' 0"	167 lbs.
48°	24' 0"	41' 7"	20' 3"	15' 6"	15' 1"	17' 10"	21' 4"	6' 5"	15' 0"	160 lbs.
<b>30° ANGLE — Model HST-40T Transport</b>										
54°	27' 0"	46' 9"	20' 7"	12' 11"	19' 7"	14' 11"	26' 2"	6' 0"	20' 0"	225 lbs.
60°	30' 0"	52' 0"	25' 0"	17' 10"	19' 8"	20' 8"	27' 0"	7' 0"	20' 0"	190 lbs.
<b>35° ANGLE — Model HST-10T Transport</b>										
20°	11' 6"	16' 5"	4' 7"	3' 0"	9' 5"	3' 7"	11' 9"	2' 7"	9' 0"	199 lbs.
24°	13' 9"	19' 8"	7' 11"	6' 3"	9' 5"	7' 7"	11' 9"	2' 7"	9' 0"	180 lbs.
28°	16' 1"	22' 11"	11' 2"	9' 6"	9' 5"	11' 7"	11' 9"	2' 7"	9' 0"	141 lbs.
30°	17' 3"	24' 7"	12' 1"	10' 11"	9' 7"	13' 4"	12' 6"	3' 6"	9' 0"	137 lbs.
32°	18' 4"	26' 3"	13' 2"	12' 5"	9' 8"	15' 2"	13' 0"	4' 3"	9' 0"	132 lbs.
<b>35° ANGLE — Model HST-20T Transport</b>										
36°	20' 8"	29' 6"	11' 6"	7' 7"	15' 4"	9' 3"	18' 0"	2' 7"	15' 0"	240 lbs.
40°	22' 11"	32' 9"	14' 2"	10' 8"	15' 6"	13' 0"	18' 7"	3' 4"	15' 0"	215 lbs.
42°	24' 1"	34' 5"	15' 7"	12' 3"	15' 6"	14' 11"	18' 10"	3' 7"	15' 0"	208 lbs.
44°	25' 3"	36' 0"	16' 5"	13' 7"	15' 9"	16' 7"	19' 8"	4' 8"	15' 0"	200 lbs.
48°	27' 6"	39' 4"	18' 4"	16' 7"	15' 11"	20' 3"	20' 11"	6' 5"	15' 0"	188 lbs.
<b>35° ANGLE — Model HST-40T Transport</b>										
54°	31' 0"	44' 3"	18' 4"	14' 6"	20' 9"	17' 9"	25' 10"	6' 0"	20' 0"	272 lbs.
60°	34' 5"	49' 2"	22' 7"	19' 4"	20' 11"	23' 7"	26' 7"	7' 0"	20' 0"	230 lbs.
<b>40° ANGLE — Model HST-10T Transport</b>										
20°	12' 10"	15' 4"	3' 8"	3' 8"	9' 9"	4' 10"	11' 8"	2' 7"	9' 0"	216 lbs.
24°	15' 5"	18' 5"	6' 9"	6' 9"	9' 9"	8' 10"	11' 8"	2' 7"	9' 0"	200 lbs.
28°	18' 0"	21' 5"	9' 10"	9' 10"	9' 9"	12' 10"	11' 8"	2' 7"	9' 0"	162 lbs.
30°	19' 3"	23' 0"	10' 9"	11' 3"	9' 10"	14' 9"	12' 3"	3' 6"	9' 0"	160 lbs.
32°	20' 7"	24' 6"	11' 9"	13' 0"	10' 9"	16' 11"	12' 9"	4' 3"	9' 0"	154 lbs.
<b>40° ANGLE — Model HST-20T Transport</b>										
36°	23' 2"	27' 7"	9' 8"	8' 6"	16' 0"	11' 1"	17' 11"	2' 7"	15' 0"	261 lbs.
40°	25' 9"	30' 8"	12' 3"	11' 6"	16' 1"	15' 0"	18' 5"	3' 4"	15' 0"	248 lbs.
42°	27' 0"	32' 2"	13' 7"	13' 0"	16' 1"	17' 0"	18' 7"	3' 7"	15' 0"	240 lbs.
44°	28' 3"	33' 9"	14' 4"	14' 6"	16' 2"	18' 11"	19' 4"	4' 8"	15' 0"	235 lbs.
48°	30' 10"	36' 9"	16' 3"	17' 11"	17' 3"	23' 4"	20' 6"	6' 5"	15' 0"	226 lbs.
<b>40° ANGLE — Model HST-40T Transport</b>										
54°	34' 9"	41' 4"	15' 10"	16' 0"	21' 4"	20' 10"	25' 6"	6' 0"	20' 0"	312 lbs.
60°	38' 7"	46' 0"	19' 10"	20' 7"	21' 4"	26' 10"	26' 2"	7' 0"	20' 0"	270 lbs.
<b>45° ANGLE — Model HST-10T Transport</b>										
20°	14' 2"	14' 2"	2' 8"	4' 6"	11' 5"	6' 5"	11' 5"	2' 7"	9' 0"	239 lbs.
24°	17' 0"	17' 0"	5' 6"	7' 4"	11' 5"	10' 5"	11' 5"	2' 7"	9' 0"	228 lbs.
28°	19' 10"	19' 10"	8' 4"	10' 2"	11' 5"	14' 5"	11' 5"	2' 7"	9' 0"	197 lbs.
30°	21' 3"	21' 3"	9' 2"	11' 7"	12' 0"	16' 4"	12' 0"	3' 6"	9' 0"	181 lbs.
32°	22' 8"	22' 8"	10' 2"	13' 2"	12' 6"	18' 8"	12' 6"	4' 3"	9' 0"	173 lbs.
<b>45° ANGLE — Model HST-20T Transport</b>										
36°	25' 6"	25' 6"	7' 9"	9' 7"	17' 9"	13' 7"	17' 9"	2' 7"	15' 0"	300 lbs.
40°	28' 3"	28' 3"	10' 1"	12' 5"	18' 3"	17' 7"	18' 3"	3' 4"	15' 0"	287 lbs.
42°	29' 8"	29' 8"	11' 4"	13' 10"	18' 5"	19' 7"	18' 5"	3' 7"	15' 0"	280 lbs.
44°	31' 1"	31' 1"	12' 1"	15' 5"	19' 1"	21' 9"	19' 1"	4' 8"	15' 0"	277 lbs.
48°	33' 11"	33' 11"	13' 11"	18' 6"	20' 1"	26' 2"	20' 1"	6' 5"	15' 0"	270 lbs.
<b>45° ANGLE — Model HST-40T Transport</b>										
54°	38' 2"	38' 2"	13' 1"	17' 5"	25' 1"	25' 7"	25' 1"	6' 0"	20' 0"	352 lbs.
60°	42' 5"	42' 5"	16' 9"	21' 9"	25' 8"	30' 9"	25' 8"	7' 0"	20' 0"	323 lbs.

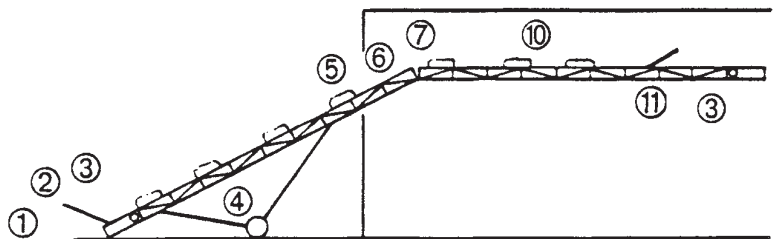
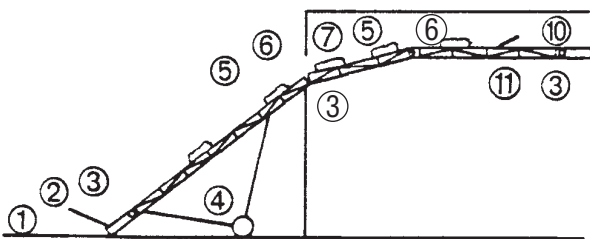
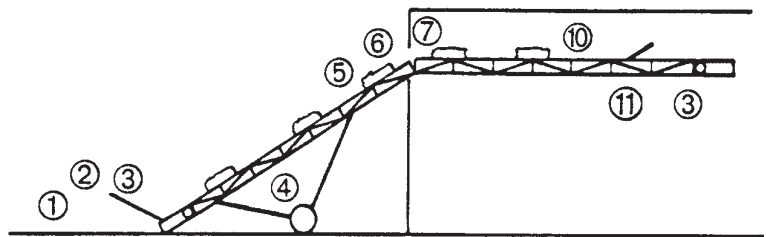
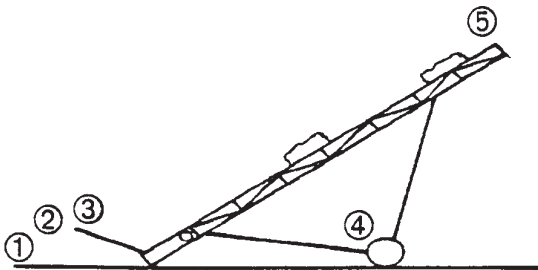
# LAYOUT GUIDE

## BALE HANDLING SYSTEMS

For each Reference No. (#) below, refer to related Reference No. (#) on layout illustrations below.

Reference No.	Component Description and (Model No.)
①	Transport Hitch ( <i>HST-10A</i> or <i>HST-15A</i> )
②	Bale Chute ( <i>HST-5A</i> or <i>HST-12A</i> )
③	Drive Unit and Electric Motor Location
④	Transport ( <i>HST-10T</i> , <i>HST-20T</i> or <i>HST-40T</i> )

Reference No.	Component Description and (Model No.)
⑤	Bale Guides ( <i>HST-7A</i> )
⑥	Connector Plates ( <i>HST-17A</i> or <i>HST-18A</i> )
⑦	Bale Arrangers ( <i>HST-16A</i> )
⑩	Mow Hanger Chain Kit ( <i>HST-2A</i> )
⑪	Automatic Bale Kick-off ( <i>HST-1A</i> or <i>HST-13A</i> )

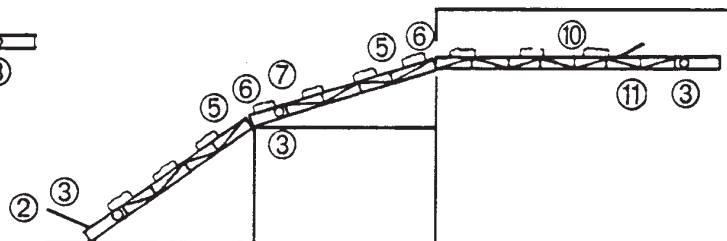
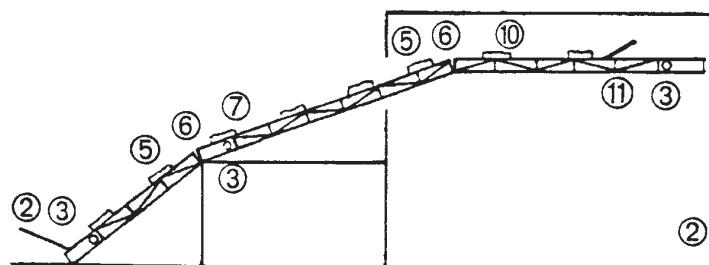
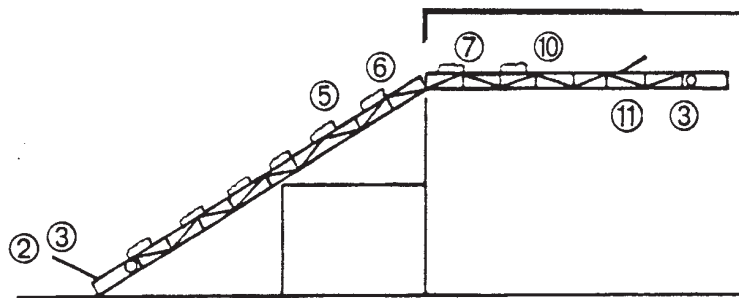
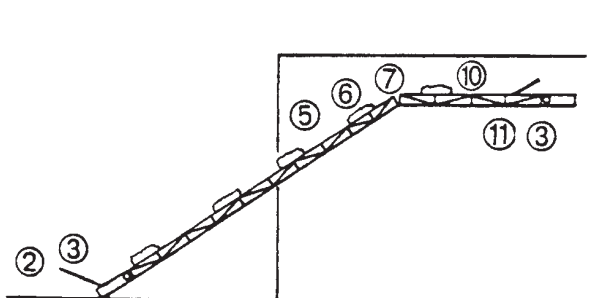


# LAYOUT GUIDE

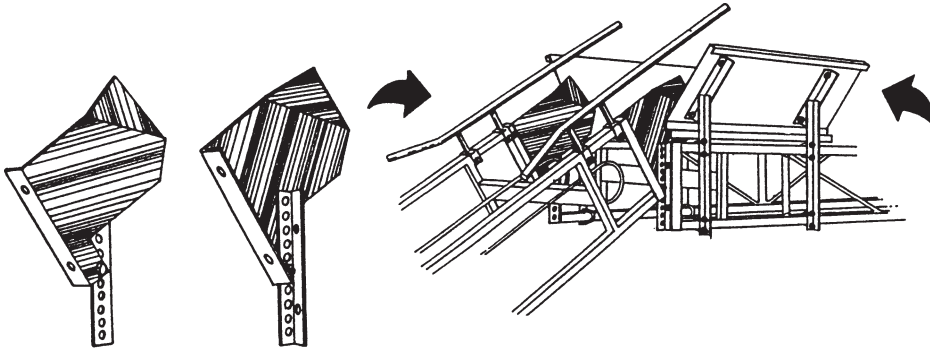
## BALE HANDLING SYSTEMS

For each Reference No. ① below, refer to related Reference No. ② on layout illustrations below.

Reference No.	Component Description and (Model No.)	Reference No.	Component Description and (Model No.)
①	Transport Hitch (HST-10A or HST-15A)	⑤	Bale Guides (HST-7A)
②	Bale Chute (HST-5A or HST-12A)	⑥	Connector Plates (HST-17A or HST-18A)
③	Drive Unit and Electric Motor Location	⑦	Bale Arrangers (HST-16A)
④	Transport (HST-10T, HST-20T or HST-40T)	⑩	Mow Hanger Chain Kit (HST-2A)
		⑪	Automatic Bale Kick-off (HST-1A or HST-13A)

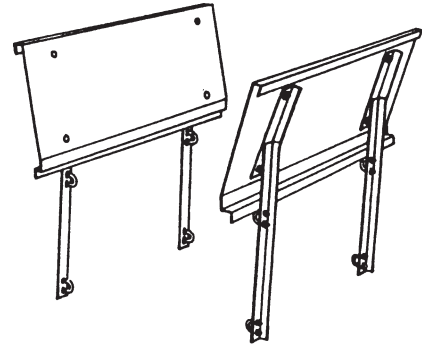


# Optional Accessories

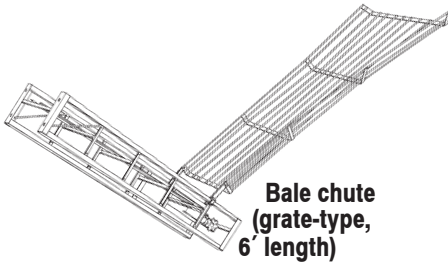


**Connector plates:** Connects incline elevator to horizontal mower conveyor. Prevents bales from turning and tumbling out when transferring.

Above drawing illustrates incline elevator assembled to horizontal conveyor, using Bale Guides (model HST-7A), Connector Plates (model HST-17A or 18A) and Bale Arrangers (model HST-16A).

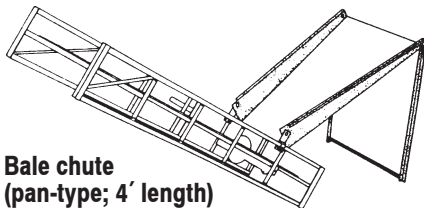


**Bale arrangers:** Directs irregular shaped bales into horizontal conveyor. Made of heavy galvanized steel.



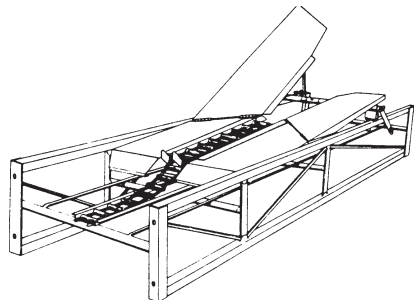
**Bale chute (grate-type; 6' length)**

Hinges to elevator — tips back against wagon or truck for easy unloading. Long-taper design automatically lines up each bale to prevent them from tipping or turning while being conveyed up elevator. Grate-type construction permits loose material to fall through for smoother operation.

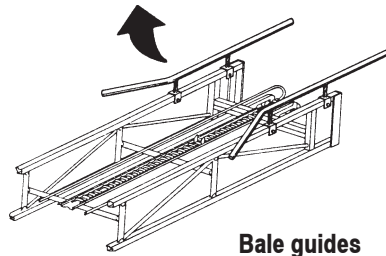


**Bale chute (pan-type; 4' length)**

Hinges to elevator — rests on its own stand or tips back against wagon or truck for easy unloading. Made of heavy, galvanized steel. Short-taper design automatically lines up each bale to prevent them from tipping or turning while being conveyed up elevator.

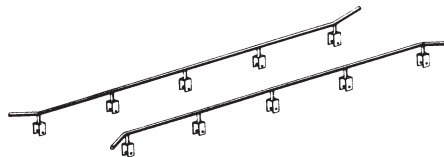


**Bale kickoff** Sturdy, tapered design provides for fast, smooth, accurate unloading to either right or left from any point along conveyor. Pull control rope (rope not included), from mower floor to change direction of unloading or to slide kickoff to any position along full length of conveyor. Bales cannot be conveyed over kickoff and onward toward end of conveyor.



**Bale guides**

Keeps bale twine from catching and breaking when bales are discharging from a steeply inclined elevator. Prevents bales from tipping and turning and then tumbling out when transferring from an inclined elevator to mower conveyor. Pair of sturdy steel tubes clamp onto sides of inclined elevator on top end.

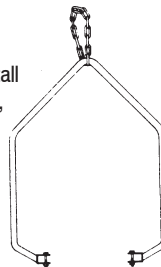


**Bale rails**

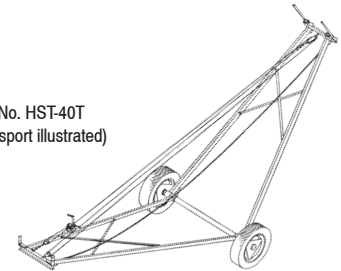
Rails increase height of elevator sides to prevent irregular-shaped bales from tumbling out. Rigid 12' long steel rails clamp onto sides of inclined elevator.

**Mow hangers**

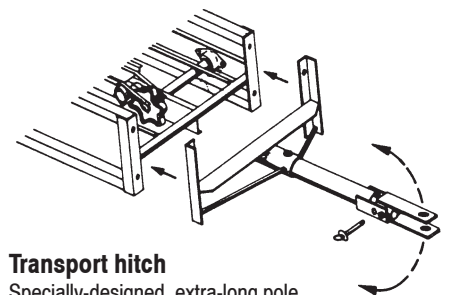
Makes it simple and easy to install conveyor from hay track, rafters, or roof. Sturdy tubular steel hangers are extra wide to prevent bales from snagging. Recommended at ends and every 12' of conveyor length for proper support.



(No. HST-40T Transport illustrated)



**Transports** Engineered for better balance and greater strength — now you can move your elevator with ease to exactly where you want it. Rugged, oversize 2" x 3" x 1/8" steel tubing transports are extra heavy for more strength. Wheels are set far apart for increased stability. Equipped with 15" four-bolt, ag-type wheel rims (less rubber tires) mounted on regreaseable, tapered roller bearings (max. speed — 20 mph). Transport can be quickly raised from towing position up to 45°. Sturdy, easy-to-operate hand winch features double-disc, automatic brake system for positive load control. Winch is zinc plated to resist rust.



**Transport hitch**

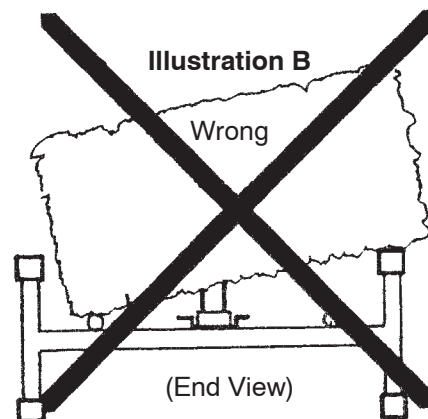
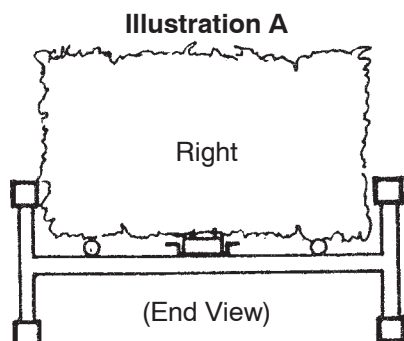
Specially-designed, extra-long pole to prevent elevator from binding against tractor or truck bumper during short turns — pole unpins for easy removal. Pin can be removed from rigid clevis to permit swiveling — prevents tractor or truck hitch pin from binding when elevator is raised.



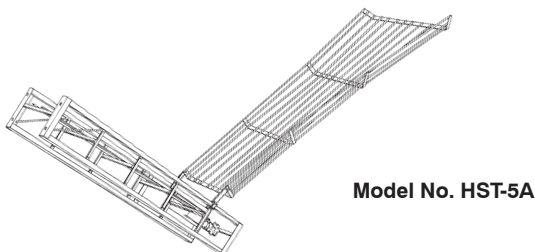
# Trouble Shooting Guide

**Symptom:** Bales fall off elevator before reaching mow conveyor.

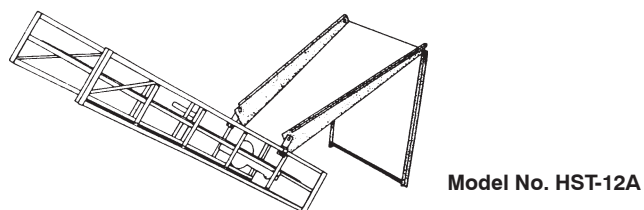
**Problem:** Bales are not loaded onto elevator properly.



**SOLUTION:** Load bales as shown in Illustration A above or use a Bale Chute accessory (*Model No. HST-5A or HST-12A*), as shown below.

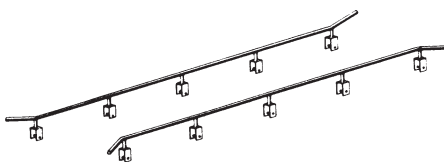


**Bale chute (grate-type, 6' length):** Hinges to elevator — tips back against wagon or truck for easy unloading. Long-taper design automatically lines up each bale to prevent them from tipping or turning while being conveyed up elevator. Grate-type construction permits loose material to fall through for smoother operation.



**Bale chute (pan-type; 4' length):** Hinges to elevator — rests on its own stand or tips back against wagon or truck for easy unloading. Made of heavy, galvanized steel. Short-taper design automatically lines up each bale to prevent them from tipping or turning while being conveyed up elevator.

**SOLUTION:** Use Bale Side Rail accessory (*HST-6A*)



**Bale rails:** Rails increase height of elevator sides to prevent irregular-shaped bales from tumbling out. Rigid 12' long steel rails clamp onto sides of inclined elevator.

**Problem:** Hay possibly not being properly baled.

**SOLUTION:** Operate baler within speed range recommended by manufacturer to obtain properly baled hay.

**Problem:** Bale string knots are breaking.

**SOLUTION:** Repair knot tying mechanism in baler.

**Problem:** Elevator positioned at too steep of an angle.

**SOLUTION:** Decrease elevator angle.

**Problem:** Elevator speed is too fast.

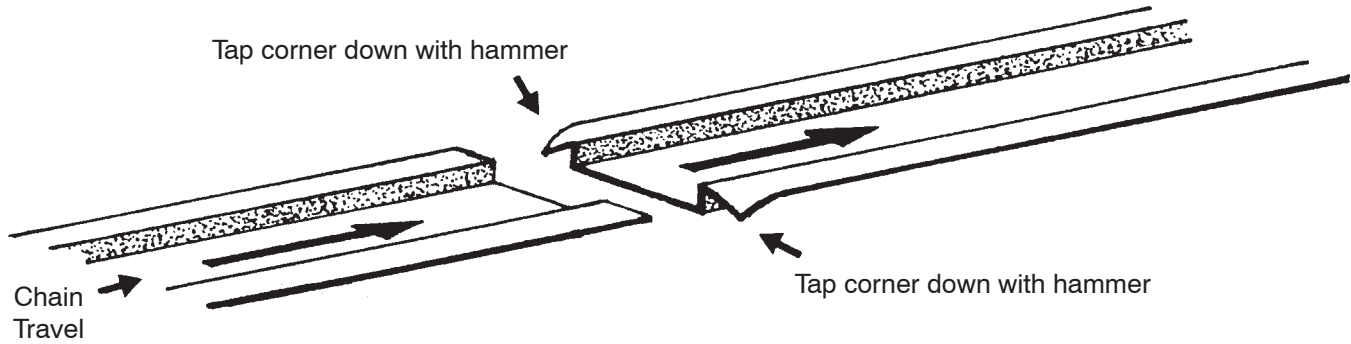
**SOLUTION:** Use a 2.8" O.D. motor pulley.

# Trouble Shooting Guide

**Symptom:** Elevator or conveyor tears hay loose from bottom side of bale.

**Problem:** Elevator or conveyor tracks do not line up properly.

**SOLUTION:** Gently hammer tracks into alignment. Properly aligned tracks will not grab hay from bottom of moving bales.



# Trouble Shooting Guide

<b>Symptom:</b>	Conveyor chain breaks apart during operation.
<b>Problem:</b>	Loose conveyor chain catching on elevator.
<b>SOLUTION:</b>	Tighten chain. Important — first remove extra chain links before using chain tightener. Failure to remove extra chain links will result in chain tightener not being able to take up all of the slack chain.
<b>Problem:</b>	Conveyor chain is worn out.
<b>SOLUTION:</b>	Replace worn chain.
<b>Problem:</b>	Chain return guides are worn out or defective.
<b>SOLUTION:</b>	Replace chain return guides.
<b>Problem:</b>	Elevator sprocket may have a bad tooth.
<b>SOLUTION:</b>	Replace worn sprockets.
<b>Symptom:</b>	Conveyor chain become loose when conveyor is loaded, but snug when conveyor is empty.
<b>Problem:</b>	Elevator chain is not tightened properly.
<b>SOLUTION:</b>	Tighten chain. Important — first remove extra chain links before using chain tightener. Failure to remove extra chain links will result in chain tightener not being able to take up all of the slack chain.
<b>Problem:</b>	Elevator too heavily loaded.
<b>SOLUTION:</b>	Increase space between bales when loading elevator.
<b>Problem:</b>	Elevator positioned at steep angle.
<b>SOLUTION:</b>	Decrease elevator angle.
<b>Problem:</b>	Bales are being “pushed away” rather than “pulled toward” electric motor drive end. This may result in top “pushing” chain becoming slack and bottom “pulling” chain remaining snug.
<b>SOLUTION:</b>	Reassemble elevator to pull bales toward electric motor drive end. Drive end must remain on ground and push bales if elevator is mounted on a transport.

# Service and Maintenance



**Failure to heed these instructions  
can result in personal injury.**

Never service elevator while running or with power source connected. Disconnect and lock out power source before adjusting or servicing to prevent unexpected application of power.

Always replace all safety shields, guards and covers before restarting elevator.

## Lubrication Instructions

**NOTE:** For each # \_\_\_\_\_ below, refer to related # \_\_\_\_\_ on page 28.

1. Oil pulleys #27 so they spin freely in pulley clevises #26 and #35.
2. Oil pulley clevises #26 and #35 so they pivot freely on clevis bolt #24.
3. Apply light coat of oil to winch cable #22 and safety cable #40 to prevent rust and corrosion. Do not get any oil or grease on the winch brake disc fibers.
4. Grease hold down pivots #31 so they spin freely in pivot support #34.
5. Grease wheel bearings #6 and check so the castle nuts #5 are tightened properly and cotter pins #4 are spread, to insure safe travel on road.

## Winch Lubrication and Maintenance

1. Apply automotive type grease to both the pinion and drum gear teeth and to the O. D. of drum bearing, item 23 (refer to winch parts list, page 40).
2. Apply a few drops of automotive engine oil to ratchet pawl pivot, bushings and pinion threads.
3. Check brake disc, item 11, for wear. If less than 1/16 of an inch thick, cracked or broken, it should be replaced (refer to winch owners manual and parts list enclosed).
4. Check for proper ratchet operation as follows: When cranking cable **in**, a loud clicking sound should be heard. When cranking cable **out**, there is no clicking and the ratchet pawls should be fully engaged into the ratchet gear teeth.

## Preventive Maintenance Check List

1. Check the winch cable for fraying or wear. If fraying or wear is discovered, the cable should be replaced immediately.
2. Check the winch brake disc, gears and shaft. Replace worn parts immediately.
3. Keep the tires at the proper inflation at all times. Tires should be inspected before transporting or moving the elevator. Over or under inflation will reduce stability.
4. Check all hardware and make sure all are tightened securely and that cotter pins are properly spread.

# HAY-CONVEYOR TRANSPORT (Model HST) – PARTS LIST

KEY NO.	DESCRIPTION	Model No. HST-10T		Model No. HST-20T		Model No. HST-40T	
		NO. REQD	NEW PART NO.	NO. REQD	NEW PART NO.	NO. REQD	NEW PART NO.
1	BOLT,WHEEL,1/2-20 X 1-3/4",UNF	8	13884	8	13884	8	13884
2	RIM,WHEEL,15" X 5 X 4-BOLT,3/75	2	1012	2	1012	2	1012
3	CAPDUST,15/16" OAL	2	13880	2	13880	2	13880
4	PIN, COTTER,5/32 X 1",PLT	2	F403040	2	F403040	2	F403040
5	NUT,BALE TRAN WHEEL HUB CASTLE	2	1015	2	1015	2	1015
6	CONE, BEARING, 3/4", LM11949	2	13881	2	13881	2	13881
6A	CONE, BEARING, 1-1/4", LM67048	2	13882	2	13882	2	13882
7	HUB, TRANSPORT,4 BOLT	2	13885	2	13885	2	13885
8	SEAL,GREASE,1.9375" X 2.3125"	2	13883	2	13883	2	13883
9	AXLE,BALE ELEV TRANSPORT	1	70537	1	70537	1	70537
10	HHCS,3/8-16 X 1",G5,PLT	4	F1072450	12	F1072450	12	F1072450
11	WASHER,SPRING LOCK,3/8",PLT	4	F805060	12	F805060	12	F805060
12	NUT,HEX,3/8-16,G5,PLT	4	F354050	12	F354050	12	F354050
13	LEG,10T TRANSPORT,9' LONG,3-DOTS	1	10113	—	—	—	—
13	LEG,20T TRANSPORT,15' LONG,3-DOTS	—	—	1	20113	—	—
13	LEG,40T TRANSPORT,20' LONG,3-DOTS	—	—	—	—	1	40113
14	CLAMP,WIRE ROPE CABLE,1/4",PLT	3	70042	3	70042	3	70042
15	FRAME, TRANS ROLLER END	1	70578	1	70558	1	70558
16	PIN,BALE ELEV TRANS ROLLER	2	70555	2	70555	2	70555
17	ROLLER,BALE TRANSPORT	2	10117	2	10117	2	10117
18	PIN,HAIR,120 X 2-3/8",PLT	2	F405063	2	F405063	2	F405063
19	NUT,NY-IN LOCK,1/2-13,G2,PLT	14	F356060	15	F356060	15	F356060
20	HHCS,1/2-13 X 1-1/4",G5,PLT	8	F1072643	8	F1072643	8	F1072643
21	BRACE,TRANSPORT,1/8"X1"X1"X 80"	0	70546	4	70546	4	70546
22	CABLE,GAG FU CT,7/19X1/4"X39'	1	70109	—	—	—	—
22	CABLE,GAG FU CT,7/19X1/4"X93'	—	—	1	70108	—	—
22	CABLE,GAG FU CT,7/19X1/4"X124'	—	—	—	—	1	70107
23	LEG,10T TRANS,9' LONG,4-DOTS	1	10123	—	—	—	—
23	LEG,20T TRANS,15' LONG,4-DOTS	—	—	1	20123	—	—
23	LEG,40T TRANS,20' LONG,4-DOTS	—	—	—	—	1	40123
24	HHCS,1/2-13 X 2",G5,PLT	6	F1072655	7	F1072655	7	F1072655

KEY NO.	DESCRIPTION	Model No. HST-10T		Model No. HST-20T		Model No. HST-40T	
		NO. REQD	NEW PART NO.	NO. REQD	NEW PART NO.	NO. REQD	NEW PART NO.
25	THIMBLE,WIRE ROPE,CLOSED,1/4"	1	43443	1	43443	1	43443
26	HOLDER,TRANS PULLEY,1/4"X2"X8"	0	70556	2	70556	2	70556
27	PULLEY,W/BUSH,WRR,1/2"IDX 3"OD	2	13834	3	13834	3	13834
28	PIN,ROLL,5/16 X 3",PLT	2	F407085	2	F407085	2	F407085
29	LEG,10T TRANS,9' LONG,2-DOTS	1	10129	—	—	—	—
29	LEG,20T TRANS,15' LONG,2-DOTS	—	—	1	20129	—	—
29	LEG,40T TRANS,20' LONG,2-DOTS	—	—	—	—	1	40129
30	HHCS,3/8-16 X 2-1/4",G5,PLT	4	F1072483	4	F1072483	4	F1072483
31	ARM,BALE ELEV TRANS PIVOT	2	70568	2	70568	2	70568
32	BRACKET,PIVOT ARM,1/4"X2" X 3"	2	70569	2	70569	2	70569
33	NUT,NY-IN LOCK,3/8-16,G2,PLT	4	F356050	4	F356050	4	F356050
34	FRAME,TRANS PIVOT END	1	70579	1	70564	1	70564
35	HOLDER,TRANS PULLEY,1/4"X2"X3"	6	70563	4	70563	4	70563
36	WINCH W/DECAL PLATE,1500 LB	1*	70951	1*	70951	1*	70951
37	LEG,10T TRANS,9' LONG,1-DOT	1	10137	—	—	—	—
37	LEG,20T TRANS,15' LONG,1-DOT	—	—	1	20137	—	—
37	LEG,40T TRANS,20' LONG,1-DOT	—	—	—	—	1	40137
38	FLAT,HR,1/4" X 6" X 5"-PUNCH	1	70543	1	70543	1	70543
40	CABLE,SAFETY,1/4" X 15.8"	1*	10140	—	—	—	—
40	CABLE,SAFETY,3/8" X 27.1"	—	—	1*	20140	—	—
40	CABLE,SAFETY,1/2" X 38.1-1/2"	—	—	—	—	1*	40140
41	CABLE,GAG FU CT,7/19X1/8"X2'	1*	70110	1*	70110	1*	70110
42	MANUAL ASSY,BALE TRANSPORT	1*	YA12172	1*	YA12172	1*	YA12172
43	DECAL,TRANSPORT ELECTROG	1*	DEC100-DANGR	1*	DEC100-DANGR	1*	DEC100-DANGR
44	DECAL,WARNING-BALE TRANS	1*	DEC100-WARNG	1*	DEC100-WARNG	1*	DEC100-WARNG
45	CLAMP,WIRE ROPE CABLE,1/8",PLT	2	70043	2	70043	2	70043
46	NUT,TOP-LOCK,3/4-10,G8,PLT	2	F355350	2	F355350	2	F355350
47	HHCS,3/4-10 X 2",G8,PLT	2	F107360	2	F107360	2	F107360

\* Specify serial number of elevator



**Do not substitute Grade 2 bolts when stronger Grade 5 bolts are specified. Failure to heed could result in personal injury or death!**

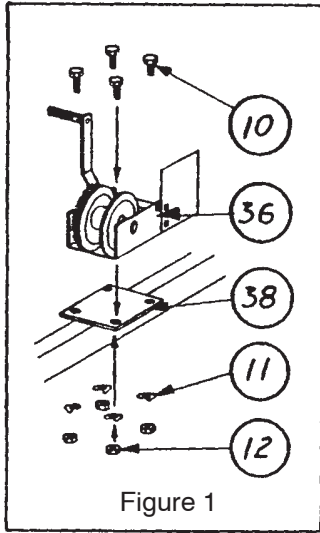


Figure 1

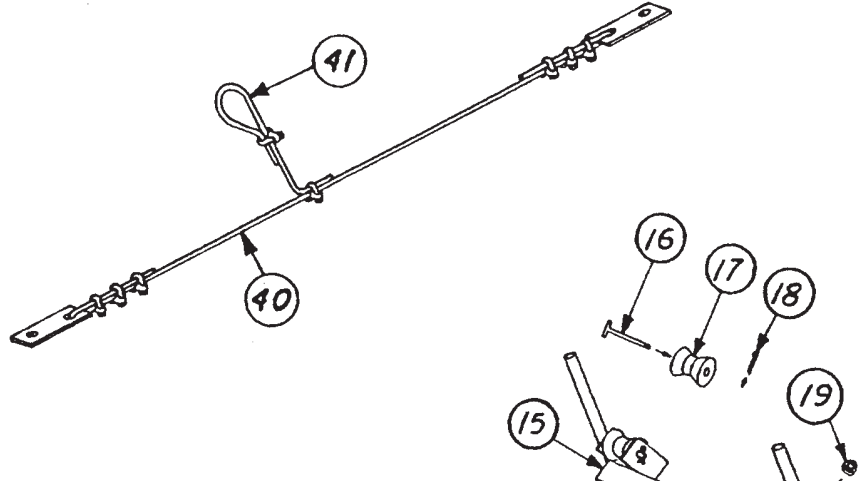


ILLUSTRATION A

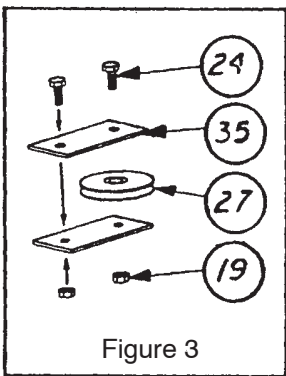
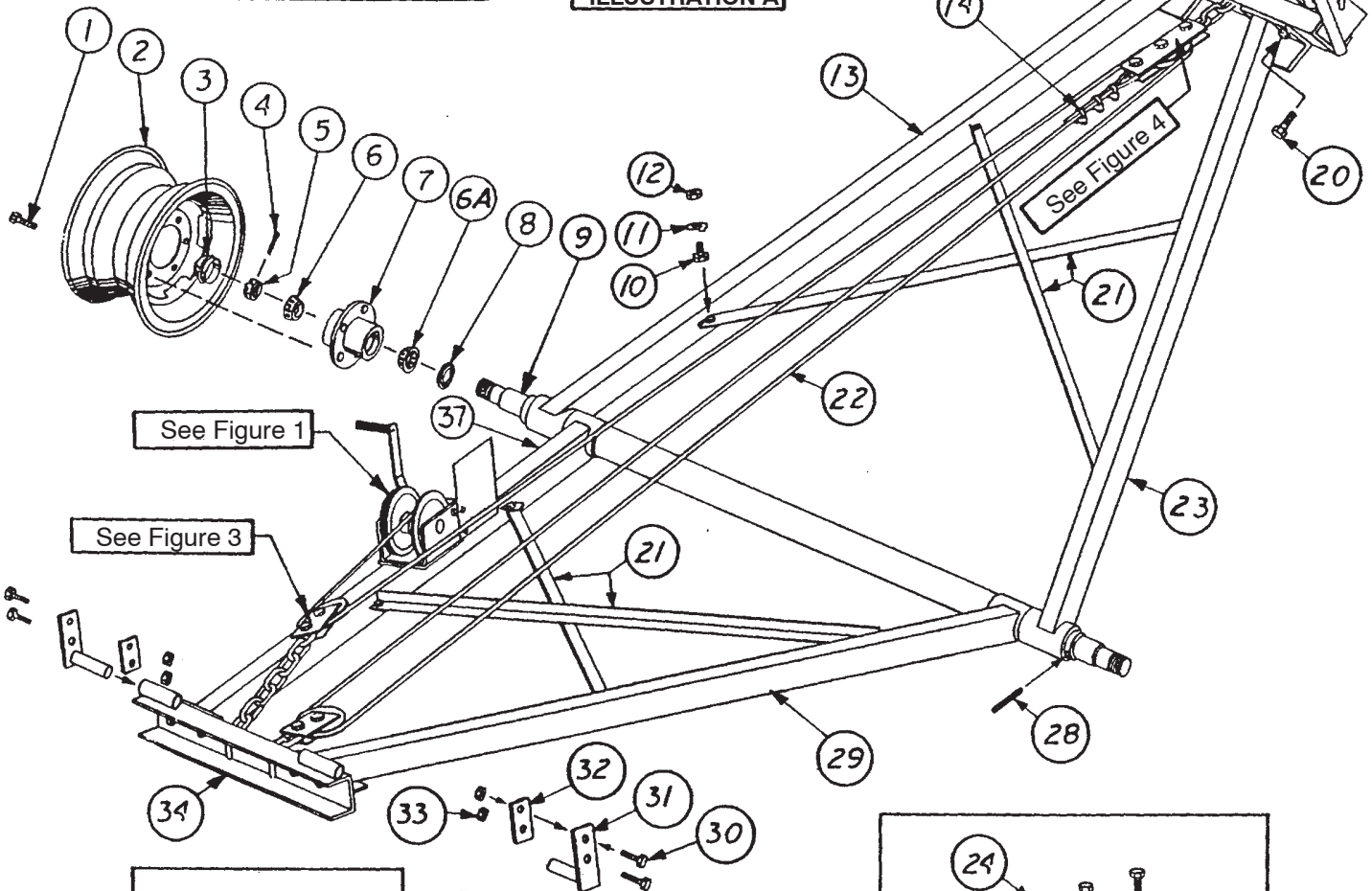


Figure 3

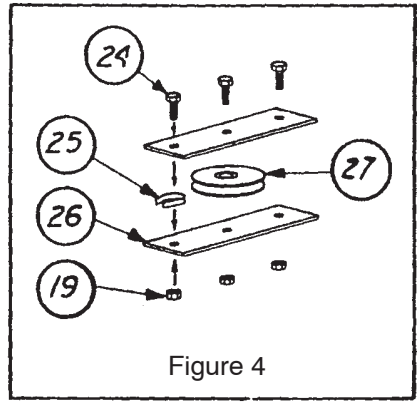
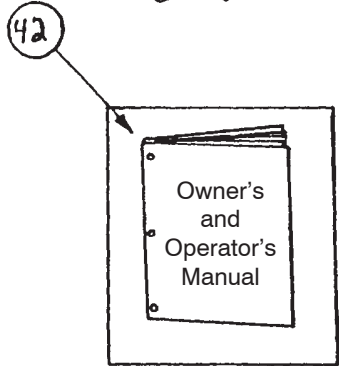


Figure 4

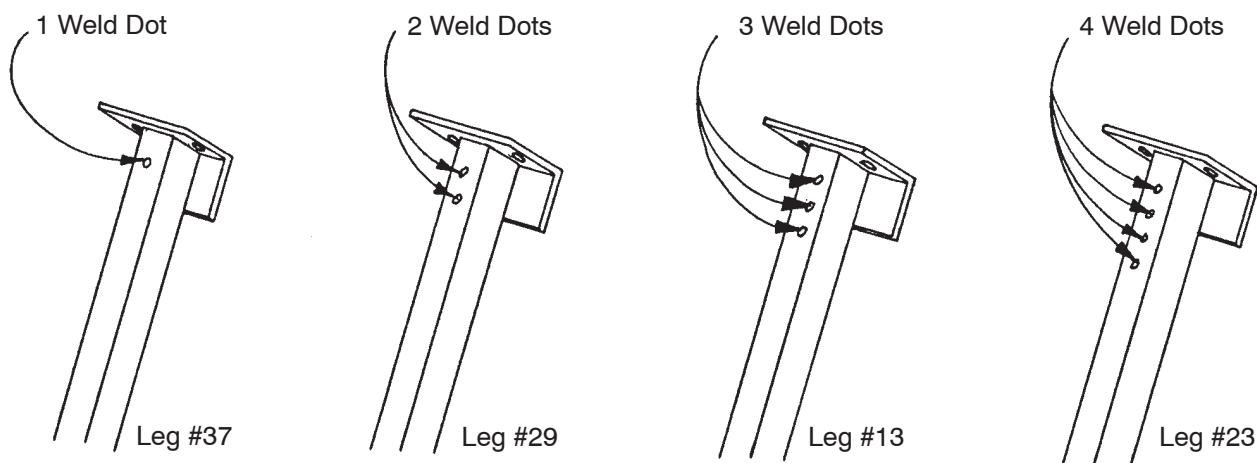
**NOTE:** For each # \_\_\_\_\_ below, refer to related # \_\_\_\_\_ on enclosed drawing.

Cut and remove all packing and shipping wire. Open carton and lay out all parts so they will be available when needed. Open hardware sacks and group like items.

It is important that all transport legs #37, #29, #13 and #23 are installed onto the axle in the correct order, or the roller support #15, pivot support #34 and the crossbraces #21 will not line up.

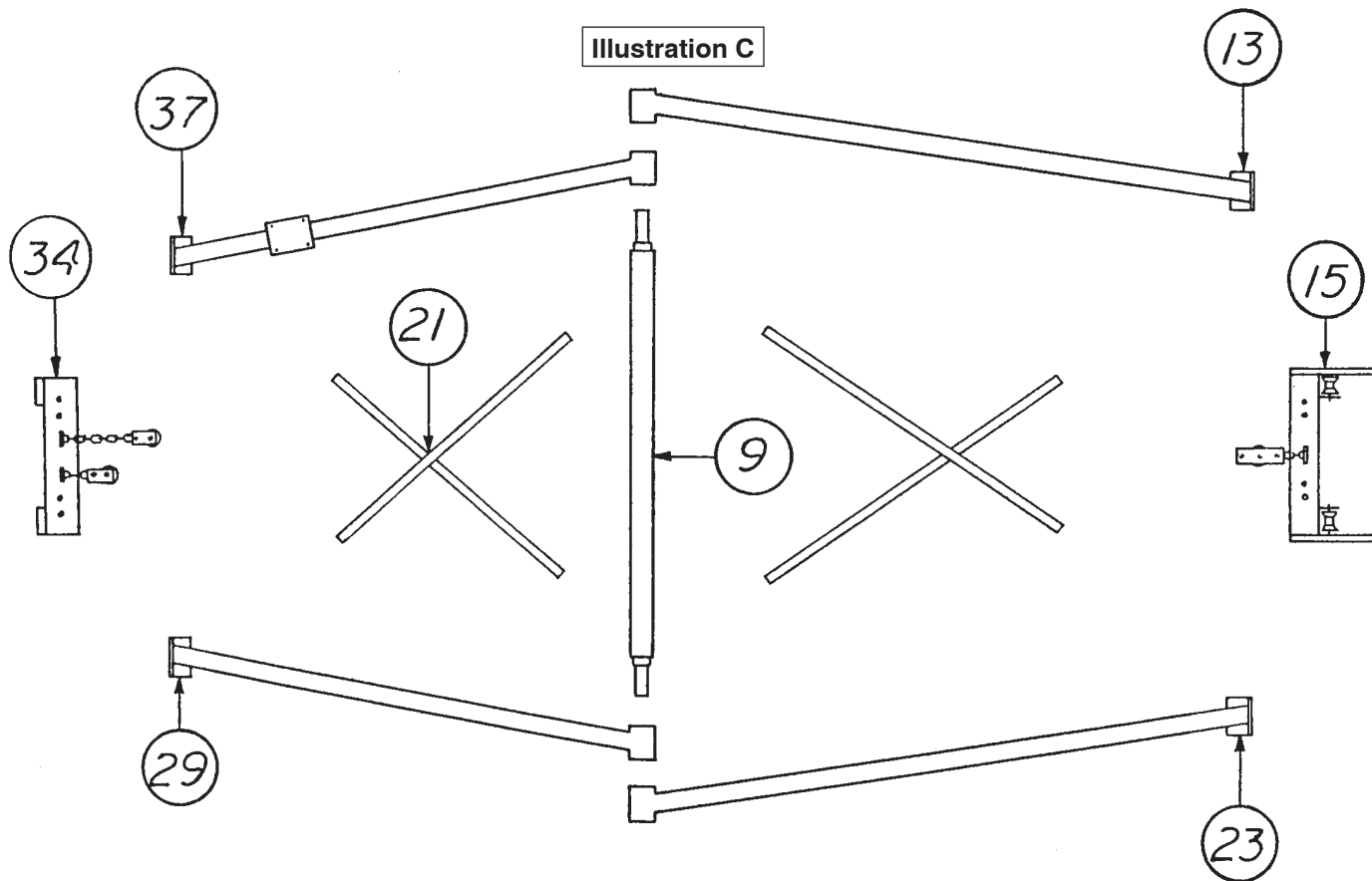
Because the transport legs are similar in appearance, they have been marked with weld dots on the end of each leg that has an angle iron welded onto it. The number of weld dots identifies the leg # (see illustration below).

**Illustration B**



Pick the transport parts shown in the drawing below and arrange as illustrated.

**Illustration C**



Lay axle #9 on flat level surface. First slip lower left winch leg #37 and lower right leg #29 onto axle (to identify these legs, see Illustration B). The top ends of these legs should point toward, not away from each other (see Illustration C).

Next, slip the two remaining upper legs #13 and #23 onto axle (to identify these legs, see Illustration B). It is important that the two pair of legs are installed onto the axle in the order described above, or the roller support, pivot support and crossbraces will not line up.

Drive roll pins #28 into predrilled holes in axle #9 (see illustration below). Failure to install roll pins will result in legs pushing out and damaging wheel bearings.

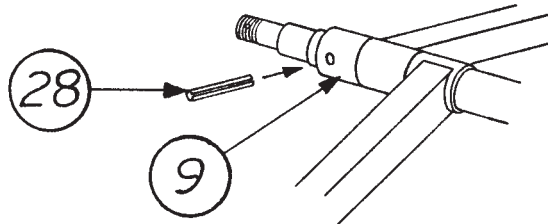


Illustration D

Bolt roller support #15 onto upper legs #13 and #23 using the 1/2 x 1 1/4" bolts #20 and the 1/2" lock nuts #19 from the parts bag (see illustration below).

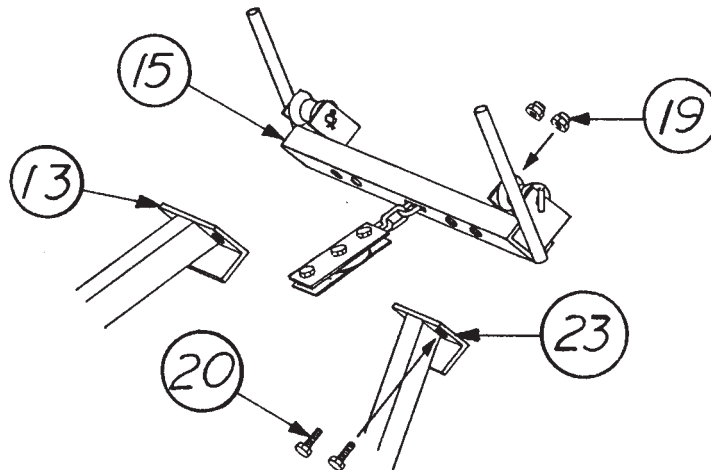


Illustration E

Bolt pivot support #34 to lower legs #37 and #29 using the 1/2 x 1 1/4" bolts #20 and the 1/2" lock nuts #19 (make sure small pipes on ends of pivot support are in up position as shown below).

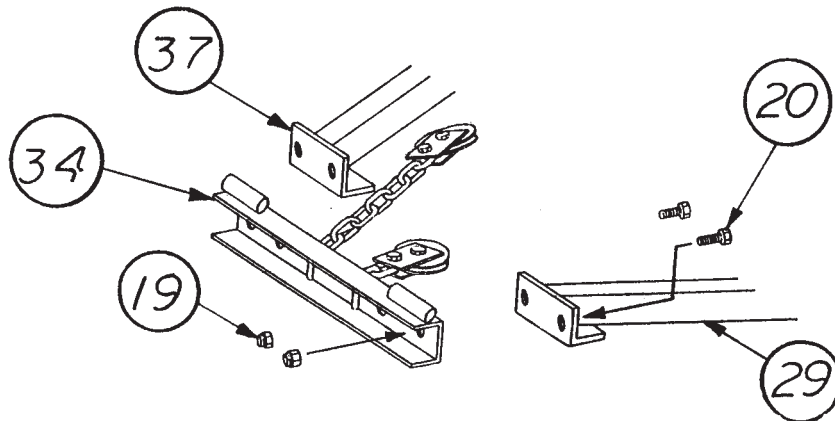
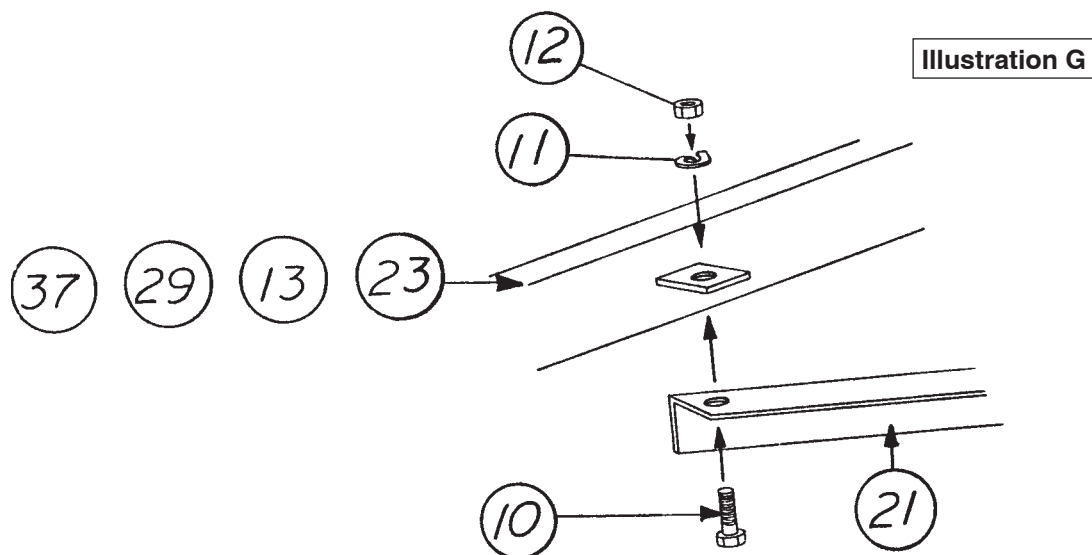


Illustration F



Bolt the four crossbraces #21 TO LEGS #37, #29, #13 AND #23 . On each pair of legs, bolt one crossbrace with the open side facing up and one crossbrace with the open side facing down, using the 3/8" x 1" bolts #10 , 3/8" lock washers #11 and 3/8" nuts #12 . Always install the 3/8" bolt through brace first, then through the tab on transport leg (see illustration below).

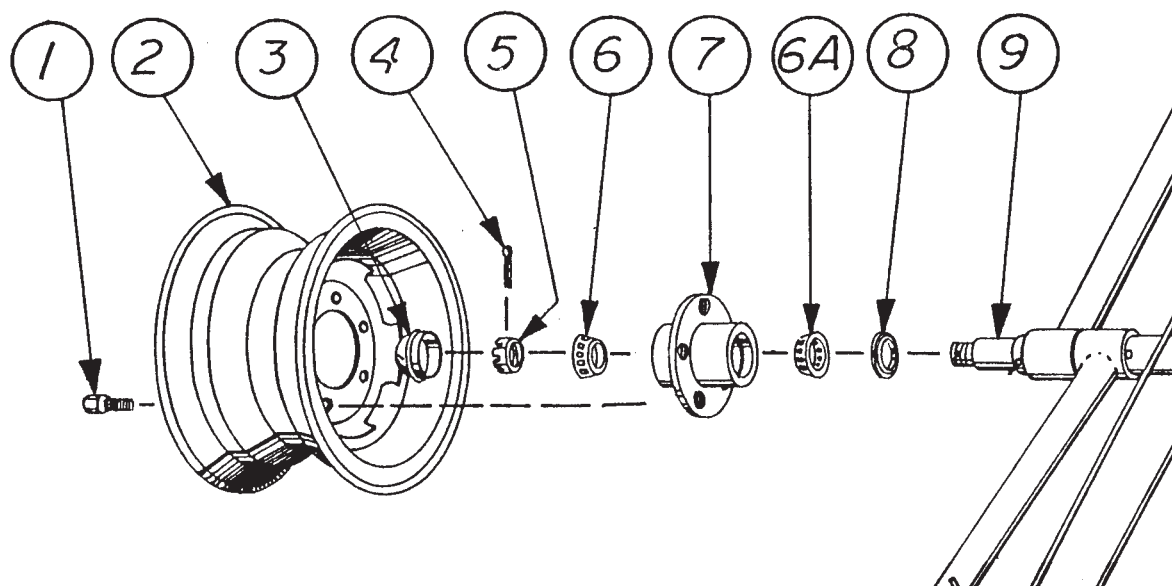
You may have to push on one leg or the other to get the crossbrace holes to line up.



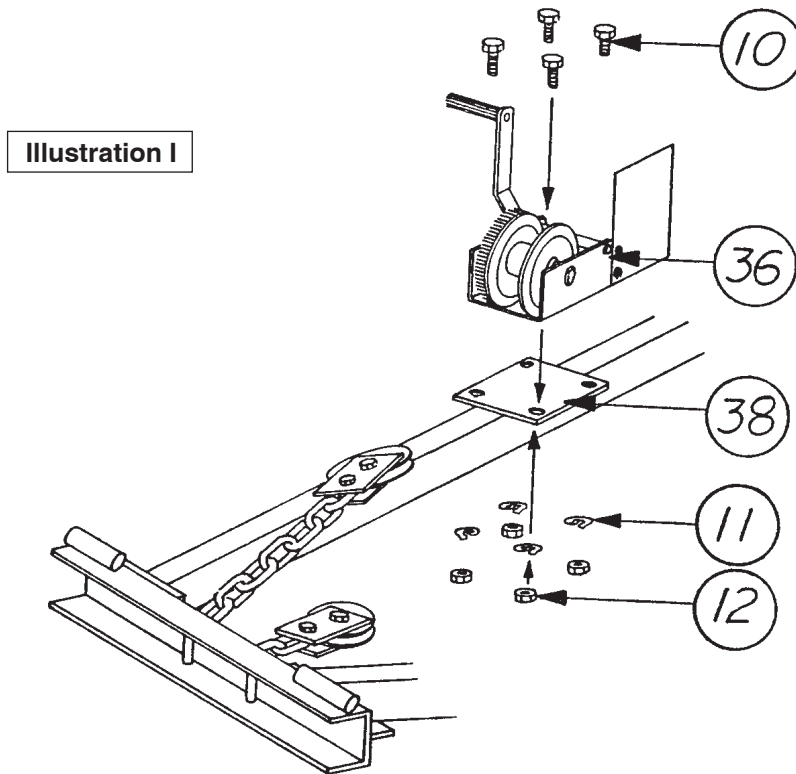
Pack wheel bearings #6 and #6A with wheel bearing grease.

Install hub assembly #6, #6A, #7 and #8 onto axle #9 . Tighten castle nut #5 until snug. Insert and fold cotter pin #4 through castle nut and axle. Install dust cap #3 on hub. Mount your 15" tires on wheel rims #2 . Bolt wheel #2 on hub using 1/2-20 UNF x 1 1/4" wheel bolts #1 (see illustration below).

Illustration H



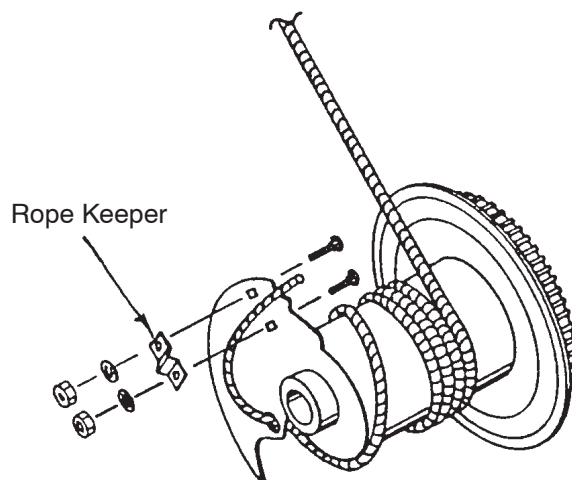
Install winch #36 on the winch mounting plate #38 using the four 3/8" x 1" bolts #10, 3/8" lockwashers #11 and 3/8" nuts #12. Be sure to insert bolts through winch and winch mounting plate. Lockwashers and nuts should be on the bottom of mounting plate (see illustration below).



Mount winch at angle so that the cable #22 does not rub against the sides of the winch drum when there is tension on the cable. Improper alignment of winch may result in winch and/or cable failure.



Install cable into winch as illustrated on drawing below.



The rope keeper alone will not hold the cable with rated load. Never let the cable all the way out. Always maintain at least 3 full wraps of cable around drum. Failure to install cable properly in winch can result in personal injury.



**Do not stand on or below the transport.  
Failure to heed may result in personal injury or death.**

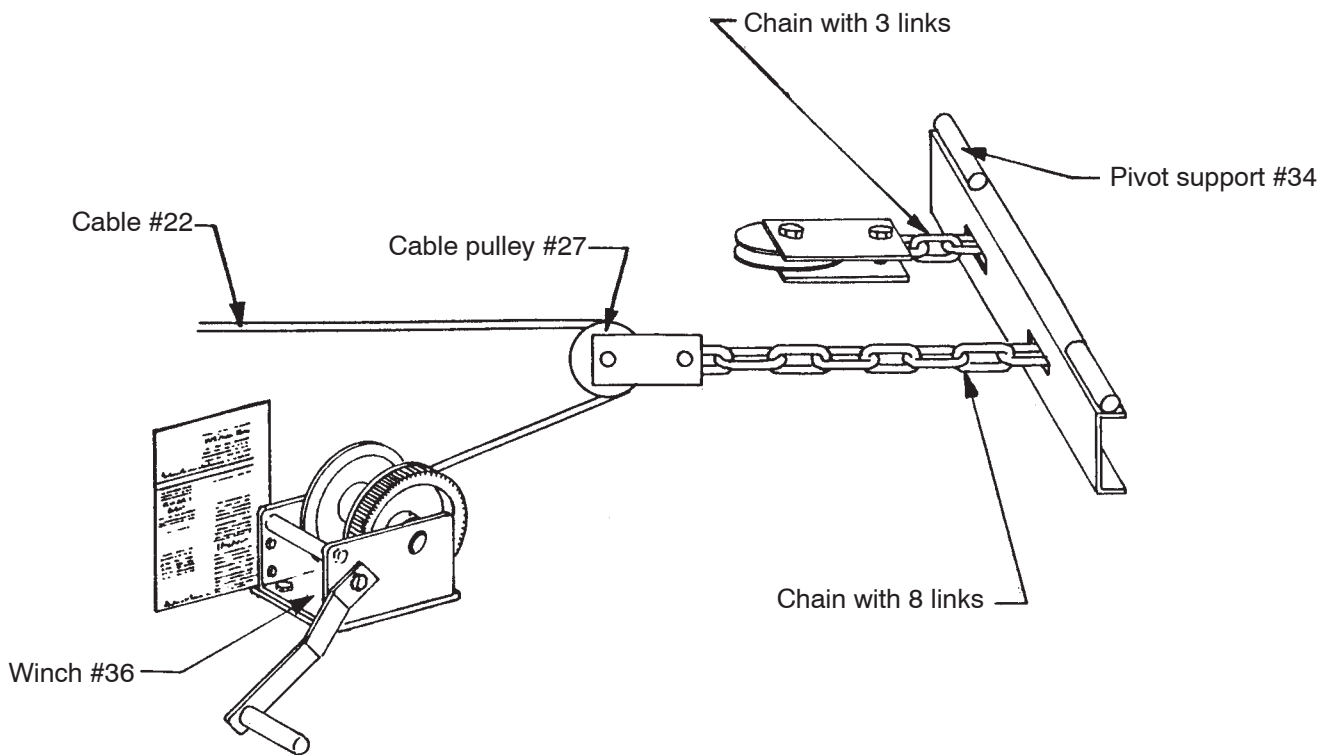
Walk up to the pivot support #34 on the transport. You will note that cable pulley #27 is attached to a chain which is eight links long.

Check and make sure that:

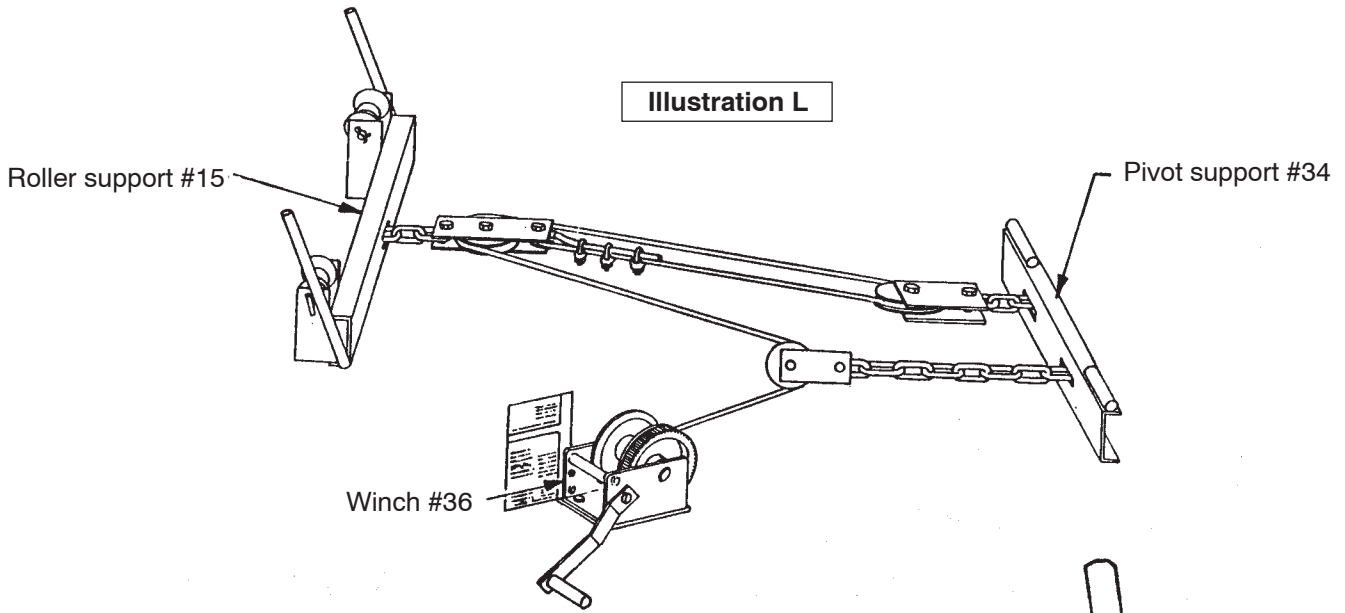
- 1) All chain links are straight.
- 2) Chain does not have any twist in it.
- 3) Pulley #27 is in vertical position (see illustration below).

String the cable #22 through the bottom of cable pulley #27 and out the top side (see illustration below).

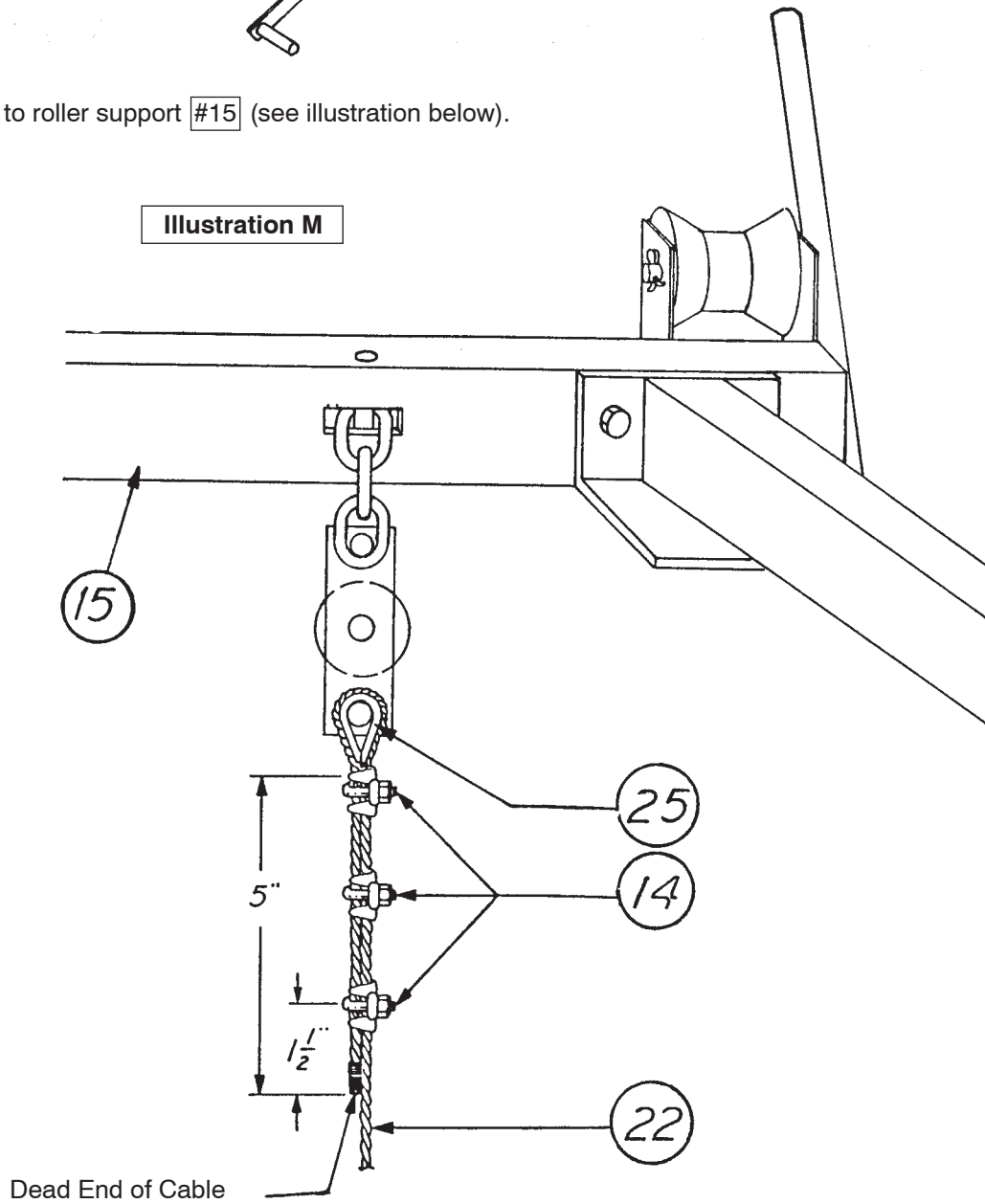
**Illustration K**



Finish stringing cable through the remaining two pulleys (see illustration below).



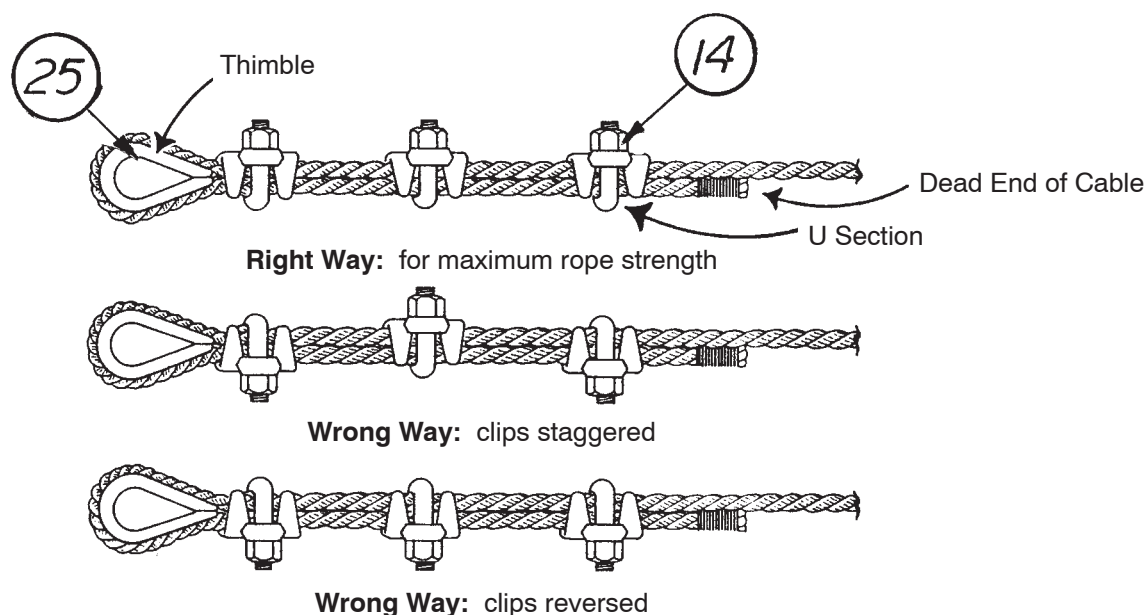
Anchor the cable #22 to roller support #15 (see illustration below).



Clamp cable #22 together using the three cable clamps #14. Listed below is the recommended method of applying cable clamps to get maximum holding power of the clamp.

- 1) Turn back 5 inches of cable from the thimble. Apply the first cable clamp 1½" from the dead end of the cable (see illustration in paragraph #5 below showing correct way to attach cable clamp).
- 2) Apply the second cable clamp as near the thimble as possible.
- 3) Space third cable clamp equally between the first two. Turn on nuts--take up slack--tighten all nuts evenly on all clamps to recommended torque (7.5 lbs.).
- 4) Notice! Apply the initial load and retighten nuts to recommended torque. Rope will stretch and be reduced in diameter when loads are applied. Inspect periodically and retighten to recommended torque.
- 5) Illustration below shows correct way to attach cable clamps.

Illustration N



The correct way to attach cable clamps is shown at the top; the “U” section is in contact with the rope’s dead end and is clear of the thimble.

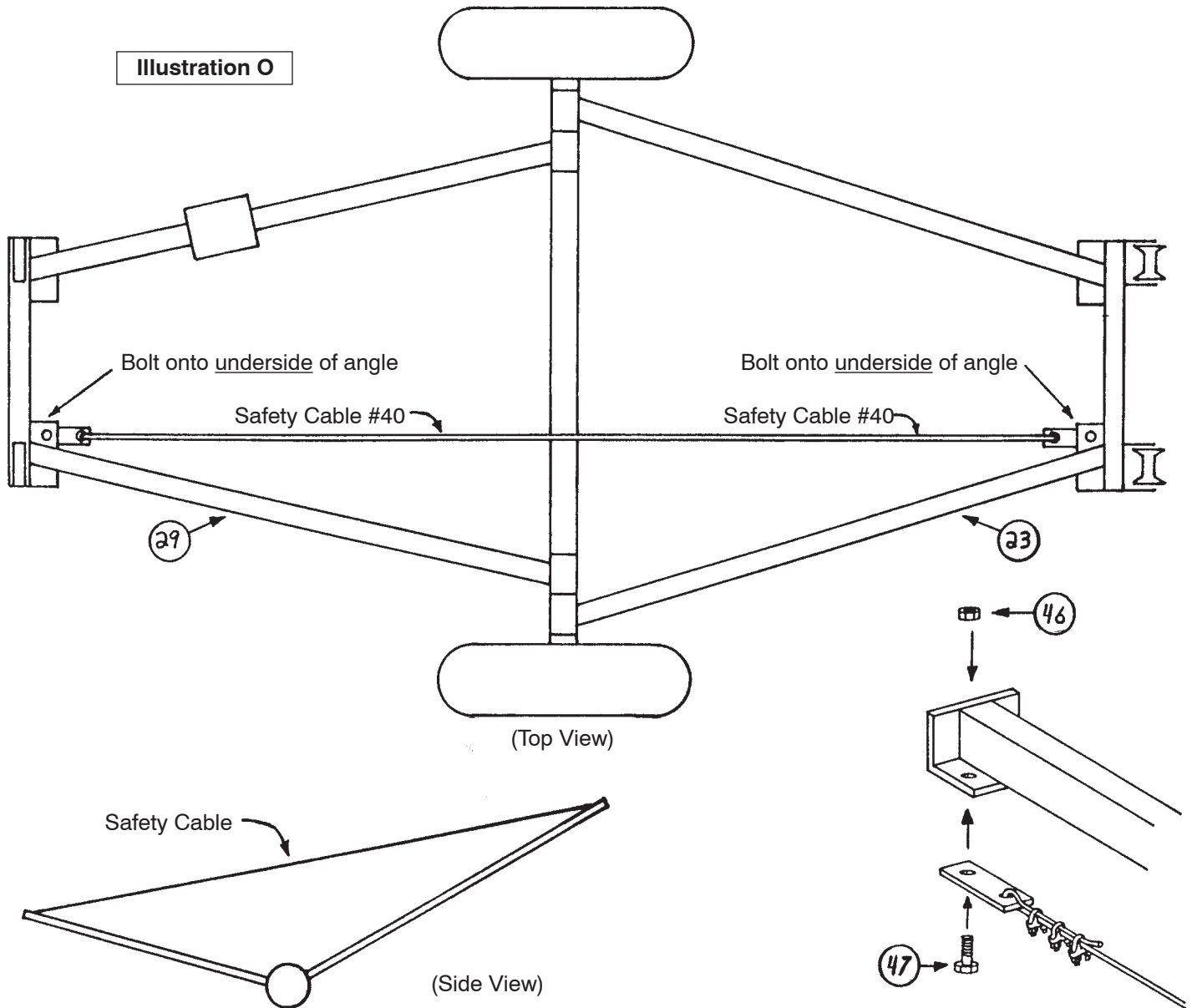
Recheck all hardware to be sure that it is securely tightened and that all cotter pins have been spread. Check assembly instructions over to avoid transport failure and to insure safety of operator.



Never permit anyone to stand on or under the elevator and transport. Failure to heed could result in personal injury or death.

Turn the winch handle clockwise. This will bring the transport ends together for ease of safety cable installation.

Install safety cable #40 onto the ends of transport legs #29 and #23 using the 1/2 x 1 3/4" bolts #47 and the 1/2" lock nuts #46 from the parts bag (see illustrations below). Refer to page 29, Illustration B, for leg identification. Bolt onto underside of angle.



The safety cable prevents transport from being lowered to an unsafe working position. Note: Elevator weight should never rest on transport safety cable during normal operation. Failure to follow above operating instructions may result in damage to equipment and create an unsafe working condition.



Failure to install safety cable may result in personal injury or death.

If safety cable is lost or missing, contact T.R. Metal Crafters, Inc. for free replacement.

# Mounting Elevator On Transport

The chart below lists the three different models of transports available and which length elevators fit each model transport. The chart also shows distance from elevator end to transport mount.

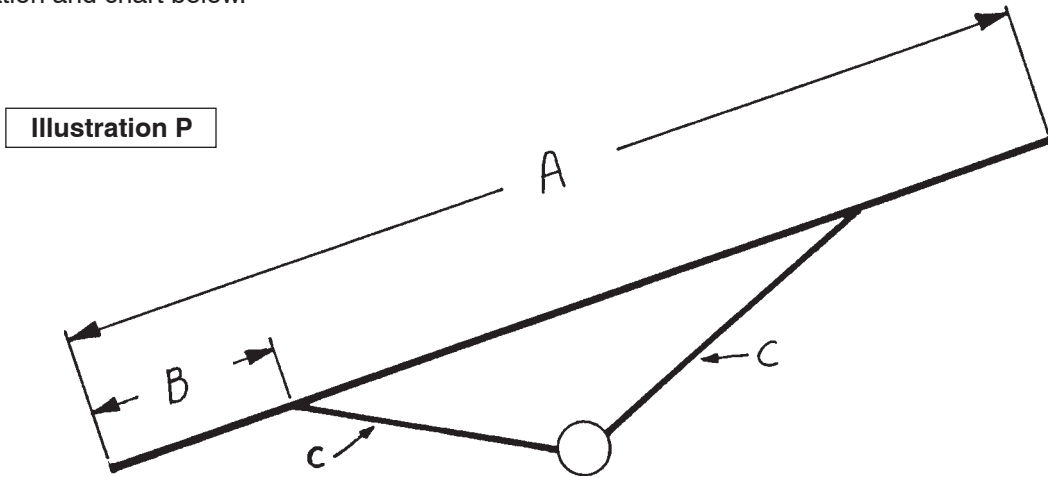
Before mounting elevator onto transport, check the following:

- 1) That safety cable is installed onto transport as shown on page 34.
- 2) That elevator length is not longer or shorter than specified for that model transport. To determine what model of transport you have, check "Leg Length" column on chart below.

**! WARNING !** Never permit anyone to stand on or under the elevator and transport. Failure to heed may result in personal injury or death.

Raise discharge end of elevator 13' off ground using an adequate hoist or sling. Your hoist or sling should be positioned on the discharge end of elevator so it will not interfere with the mounting of the elevator on the transport.

Wheel transport under elevator (with winch end pointed toward bottom end of elevator). Position elevator on transport using illustration and chart below.



<u>Elevator Length</u>	<u>Use Transport Model</u>	<u>Elevator End to Transport Mount</u>	<u>Leg Length</u>
<b>A</b>		<b>B</b>	<b>C</b>
20'	No. HST-10T	2' 7"	9'
24'	No. HST-10T	2' 7"	9'
28'	No. HST-10T	2' 7"	9'
30'	No. HST-10T	3' 6"	9'
32'	No. HST-10T	4' 3"	9'
36'	No. HST-20T	2' 7"	15'
40'	No. HST-20T	3' 4"	15'
42'	No. HST-20T	3' 7"	15'
44'	No. HST-20T	4' 8"	15'
48'	} Except Model HEC	No. HST-20T	6' 5"
54'		No. HST-40T	6' 0"
60'	} Standard Elevators	No. HST-40T	7' 0"
		No. HST-40T	20'

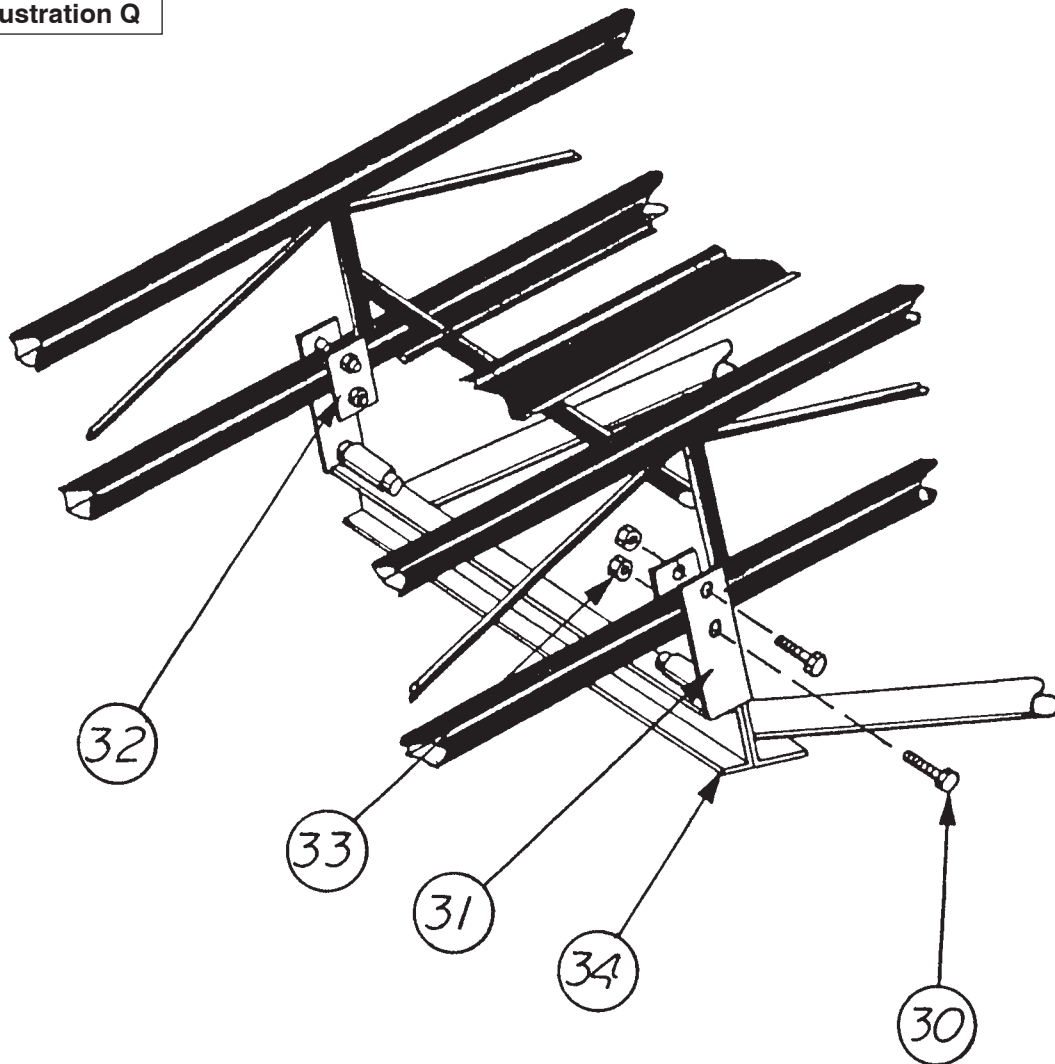
**! WARNING !** Do not mount a longer or shorter length elevator than specified on transport. Failure to heed may result in personal injury or death.



Never permit anyone to stand on or under the elevator and transport. Failure to heed may result in personal injury or death.

Slip hold down pivots #31 into pivot support #34. Bolt hold down pivot #31 to bottom frame tube of elevator, using the 3/8" x 2 1/4" hold down bolts #30, hold down plate #32 and 3/8" nylon insert locknuts #33 (refer to illustration below). It is important to use the 3/8" nylon insert locknuts to prevent nuts from vibrating off. Recheck hold down bolts #30 for tightness. Recheck position of elevator on transport to determine that it is properly balanced.

Illustration Q



Do not mount a longer or shorter length elevator than specified on transport. Failure to heed may result in personal injury or death.

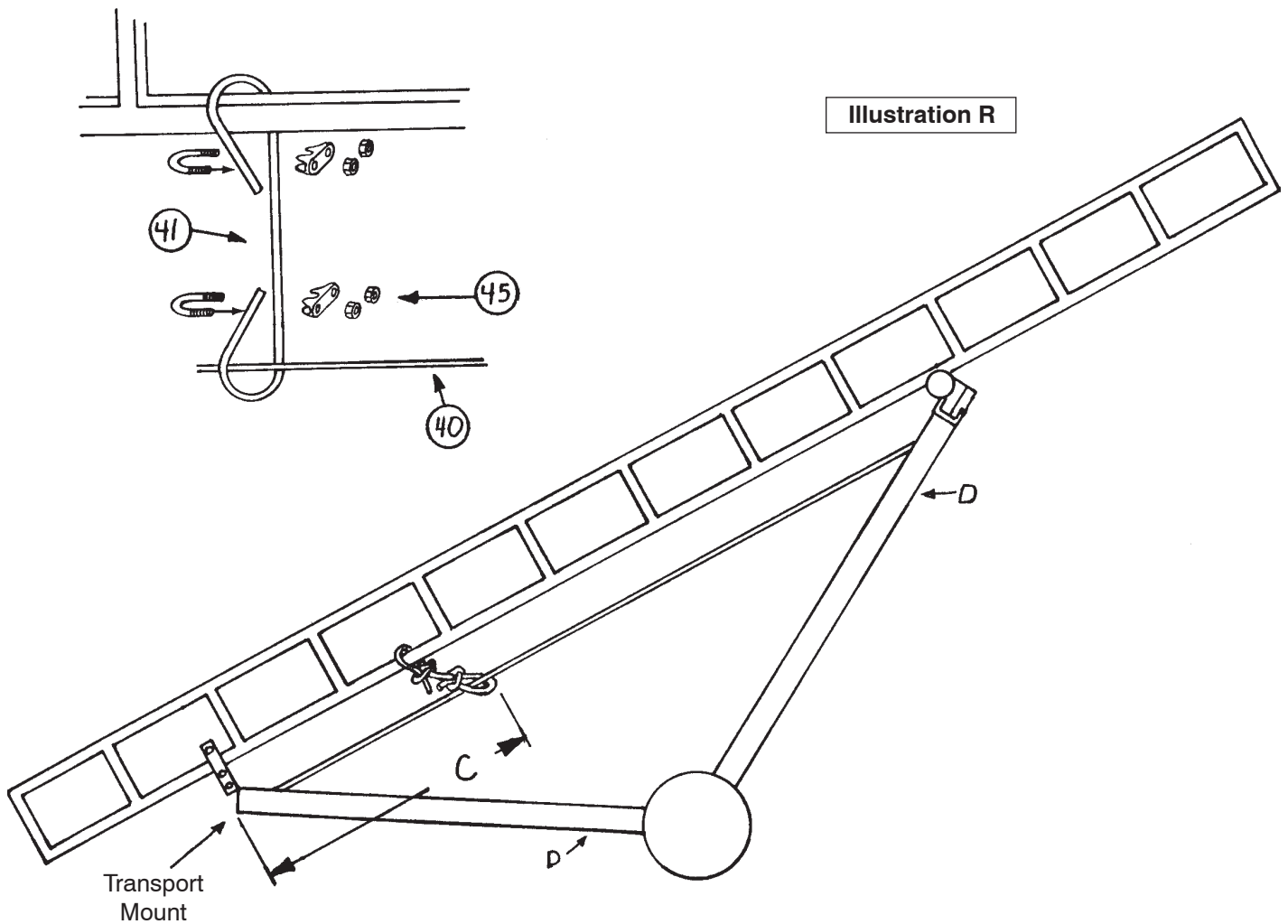


# Installing Safety Cable Tie Onto Elevator

The safety cable tie #41 and cable clamps #45 connect the safety cable onto the elevator. The safety cable tie keeps the safety cable from dragging or catching on ground while moving elevator.

The chart below lists the three different models of transports and location of safety cable tie #41 from transport mount. To determine what model of transport you have, check "Leg Length" column on chart below.

<u>Transport Model</u>	<u>Transport Mount to Safety Cable Tie</u>	<u>Leg Length</u>
No. HST-10T	<u>C</u> 4'	<u>D</u> 9'
No. HST-20T	10'	15'
No. HST-40T	15'	20'

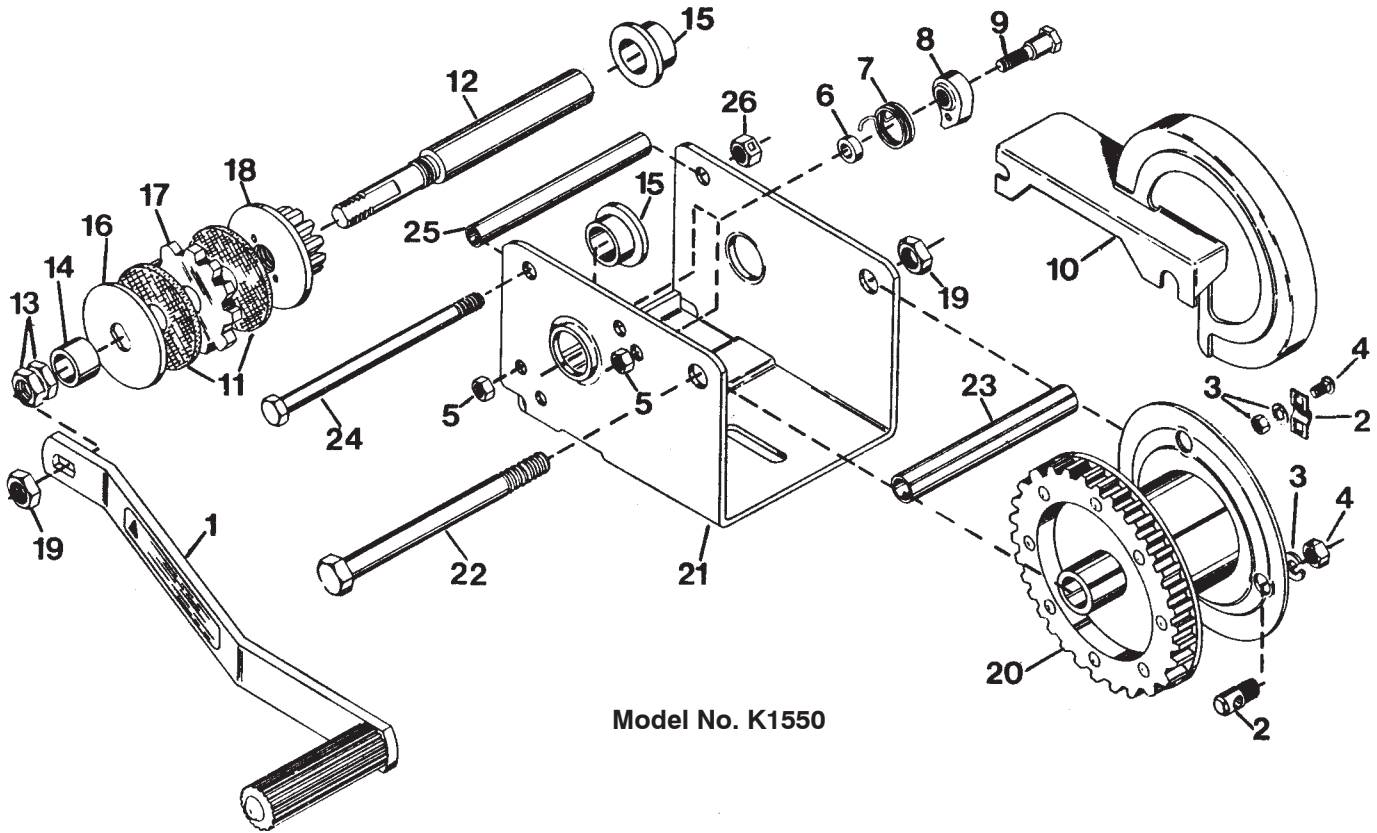


**WARNING**

Failure to install safety cable tie may result in personal injury or death.

If safety cable and/or tie are lost or missing, contact T. R. Metal Crafters, Inc. for free replacements.

# Winch Parts List



Model No. K1550

ITEM	DESCRIPTION	KIT NO.	ITEM
1	Handle Assembly	2461S01	1
2	Cable Clamp	5621S01	2
3	Lockwasher and Nut	Cable Keeper	3
4	Carriage Bolt	Kit	4
5	Locknut - 5/16 - 18 Hex		5
6	Ratchet Spacer	6730S00	6
7	Ratchet Spring	Ratchet Kit	7
8	Ratchet Pawl		8
9	Hex Hd. Shoulder Bolt 5/16-18		9
11	Brake Disc. Kit	1558S00	11
12	Input Shaft		12
13	Locknut - 1/2 - 13 Hex	1563S01	13
14	Spacer	Input Shaft	14
15	Bushing	Kit	15
16	Shaft Brake Disc		16
17	Ratchet Gear		17
18	Pinion and Disc Assembly		18
19	Hex Locknut - 1/2-13	**	19
20	Drum Assembly	*	20
21	Frame	*	21
22	Hex Head Capscrew 1/2-13x5 <sup>3</sup> / <sub>4</sub>	**	22
23	Drum Spacer	*	23
24	Hex Capscrew 3/8-16 x 5 <sup>3</sup> / <sub>4</sub>	**	24
25	Frame Spacer	*	25
26	Hex Locknut - 3/8-18	**	26

\* Not Sold Separately

\*\* Standard Hardware - Purchase Locally

Replacement parts are available from your dealer or the factory. Use **ONLY** Genuine KX parts.

Please order by specifying:

Model Number:

Name of Part or Kit:

Part or Kit Number:

# Limited Warranty

T.R. Metal Crafters, Inc. warrants this unit to be free from breakage or malfunctions due to defects in material and/or workmanship under normal farm use and service, for a period of **one-year** from date of original sale. Should such breakage occur within warranty period, the liability of T.R. Metal Crafters, Inc., its employees, agents, authorized distributors, and dealers (hereinafter collectively referred to as sellers) is hereby expressly limited to repairing or, at its option, replacing free of charge at its factory, any part or parts found upon examination by factory to be defective in material or workmanship or both; this is the exclusive remedy. The purchaser is responsible for transportation cost of the equipment for warranty service or for any service call expense. Sellers liability is further expressly limited with respect to components manufactured by others, such as, but not limited to tubes, tires, bearings, detachable link and roller chains, or other trade accessories; to the extent of such warranties as are extended to sellers by these manufacturers. This warranty shall apply only within the boundaries of the continental United States.

Notice of defect shall be furnished in writing to the Seller and to the agent through whom the unit was purchased, disclosing in full all known defects and failure in operation and use. Reasonable time shall be given to the Seller to remedy any such defects and failures.

This warranty is in lieu of all other warranties, expressed (except as set forth within) or implied, including but not limited to warranties of merchantability and fitness for a particular purpose. Manufacturer makes no warranty as to the design, capability, capacity, nor suitability for use of the unit. The obligation and liability of sellers under this warranty does not extend to loss of crops, loss because of delay in harvesting or any expense or loss incurred for labor, supplies, substitute machinery or rental machinery, transportation, or other charges.

Except as provided herein, manufacturer shall have no liability or responsibility to purchaser or any other person or entity with respect to any liability, loss, or damage caused or alleged to be caused directly or indirectly by the unit including, but not limited to, any indirect, special, consequential, or incidental damages resulting from the use or operation of the unit or any breach of this warranty. Notwithstanding the above limitations and warranties, manufacturer's liability hereunder for damages incurred by purchaser or others shall not exceed the price of the unit.

T.R. Metal Crafters, Inc., reserves the right to make changes in design and components or material or to utilize available materials which it deems satisfactory, in order to improve its products. Also, T.R. Metal Crafters, Inc. reserves the right to make changes in the construction or design of any parts without any incurring obligations to install these improvements or changes on previously delivered units.

This warranty shall be void if any part or parts not manufactured or supplied by T.R. Metal Crafters, Inc., are used either in servicing or maintaining the unit, and sellers obligation to repair or replace parts are then voided. This warranty shall be void if in the judgement of T.R. Metal Crafters, Inc., repairs are made in such a manner to affect this unit in a materially adverse manner or if this unit is operated unsafe or while in a state of disrepair. This warranty shall be void if equipment is used for commercial, industrial, lease, rental, custom operation and non-agricultural use. Any damage to this product as a result of misuse, abuse, neglect, accident, improper installation, alteration, repairs (not out own), improper adjustment, accident, damage by fire, act of God, lack of performing required maintenance or any other use contrary to our instructions will void the warranty. This warranty will be void if the product serial numbers are altered, defaced or removed.

If any provision of this limited warranty shall violate any applicable law and is held to be unenforceable, then the invalidity of such provision shall not invalidate any other provisions herein. Applicable law may provide rights and benefits to purchaser in addition to those provided herein.

The terms and conditions of this warranty cannot be altered, modified, or waived by any seller without the expressed, written consent of an officer of T.R. Metal Crafters, Inc.

## Notice

T.R. Metal Crafters, Inc., disclaims any liability for the operation of the equipment with the safety guards removed or modified. The nature of this product require that it be operated in a safe way only, and in good repair by qualified persons. Each purchaser, through the process of purchasing this equipment, agrees with T.R. Metal Crafters, Inc., to operate it in a safe manner and in accordance with applicable state and federal laws and agrees to indemnify and hold harmless sellers, from any loss to any person or persons caused by purchaser's failure to do so. Each purchaser further agrees to bring to the attention this notice to each subsequent purchaser, and to obtain his agreement thereto as a condition of resale or transfer.

## Important

To make this warranty effective, the Owners "Warranty Registration" card (located inside Owners/Operator's Manual) must be filled out and sent to T.R. Metal Crafters, Inc. within 30-days of purchase.



**WARNING**

**Read and Understand this manual**  
***Before Operating***

**FAILURE TO HEED COULD RESULT IN PERSONAL INJURY OR DEATH**