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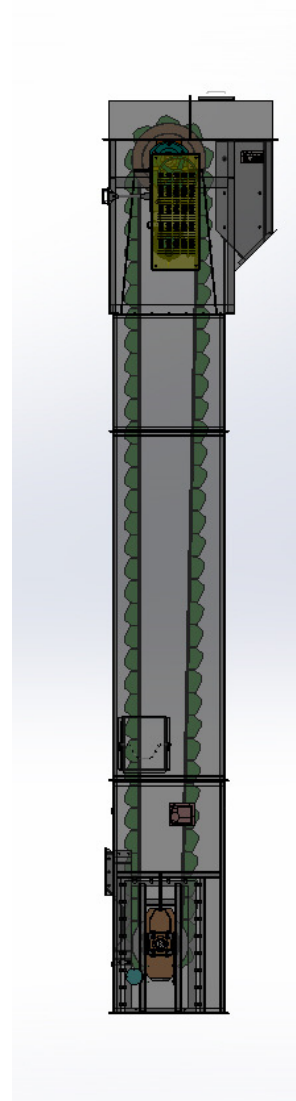
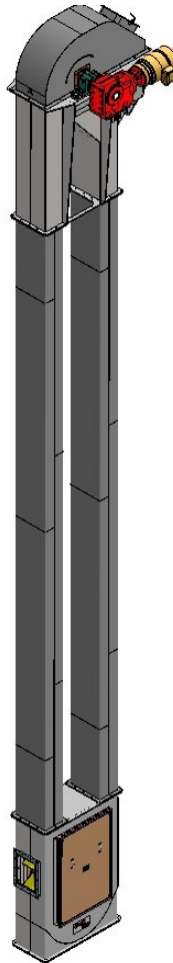
Syntron Material Handling

Service Instructions

Link-Belt® Bucket Elevators

Centrifugal Discharge
Positive Discharge
Continuous Discharge
Internal Discharge

Safety
Operation
Maintenance
Installation
Instructions



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SAFETY

Safety is a basic factor that must be considered at all times in the operation and maintenance of mechanical equipment. Use of proper tools and methods can prevent serious accidents that may result in injury to you and your fellow workers.

A number of safety precautions are listed throughout this manual. Study them carefully and follow them; insist that those working with you do the same. Remember - an accident is usually caused by someone's carelessness or negligence. The precautions listed may not necessarily be all-inclusive and others might occur to the user which are peculiar to a particular operation or industry. In addition, nearly all employers are now subject to the federal Occupational Safety and Health Act of 1970, as amended, which requires that an employer be kept abreast of the myriad of regulations which will continue to be issued under its authority.

At all times - this elevator must be operated in accordance with the instructions and precautions in this manual and on the caution plate attached to the equipment. Only persons completely familiar with the instructions and precautions in this manual should be permitted to operate the elevator. The operator should thoroughly understand these instructions and precautions before attempting to operate this elevator.



CAUTION: FAILURE TO OBSERVE AND FOLLOW THE PRECAUTIONS MAY RESULT IN SERIOUS PERSONAL INJURY OR PROPERTY DAMAGE. (Caution plate is illustrated on Page 20.)

INTRODUCTION

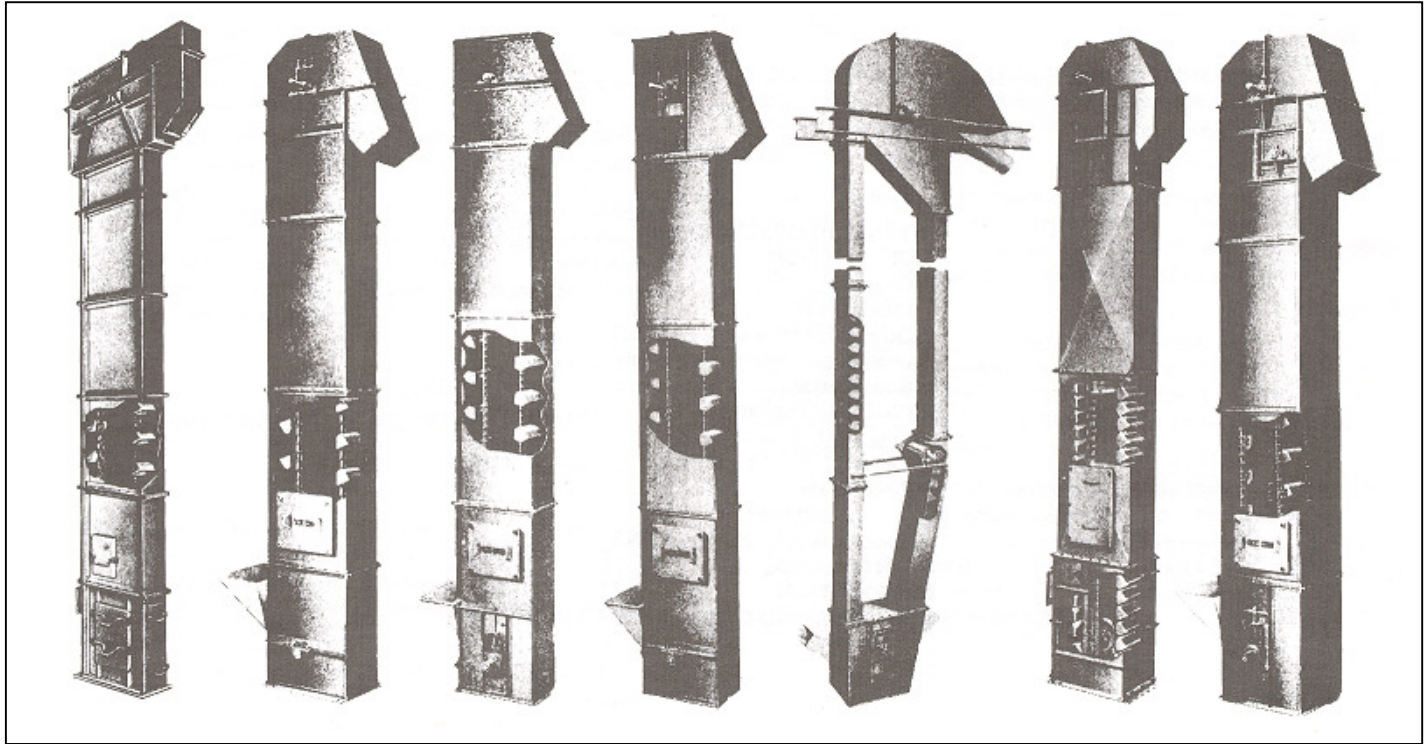
This manual contains complete instructions for the installation, operation, and maintenance of Link-Belt bucket elevators. The reliable operation and long service life of these elevators depend to a great extent on the care taken during installation and operation and the degree of maintenance.

RECEIVING

Check all assemblies and parts against shipping papers, and inspect for damage on arrival. Look for dented or bent casings and casing flanges, buckets, spouts, etc. Minor damage incurred in shipping can often be readily repaired in the field. For severely damaged parts, file an immediate claim with the carrier. Before proceeding with erection, make sure that all supplementary instructions are included. If anything is missing consult Syntron Material Handling, LLC.

Centrifugal Discharge

Positive Discharge



Type 1

Type 2

Type 3

Type 4

Type 5

Types 14 & 15

Type 6

Centrifugal Discharge

Elevators of this group handle bulk material that is fine, loose and free-flowing with small to medium size lumps. Material is discharged from these elevators by centrifugal action as the buckets pass over the head sprockets. The first four types below are generally furnished with AA or HS buckets.

- Type 1 - fixed head shaft - internal gravity takeups on foot shaft.
- Type 2 - similar to Type 1 except - adjustable head shaft - fixed foot shaft.
- Type 3 - fixed head shaft - screw takeups on foot shaft.
- Type 4 - similar to Type 3 except - adjustable head shaft - fixed foot shaft.
- Type 5 - separated runs - takeups on foot shaft - HS buckets.
- Type 14 - fixed head shaft – internal gravity takeups on foot shaft – AC buckets.
- Type 15 - fixed head shaft – internal gravity takeups on foot shaft – ACS buckets.

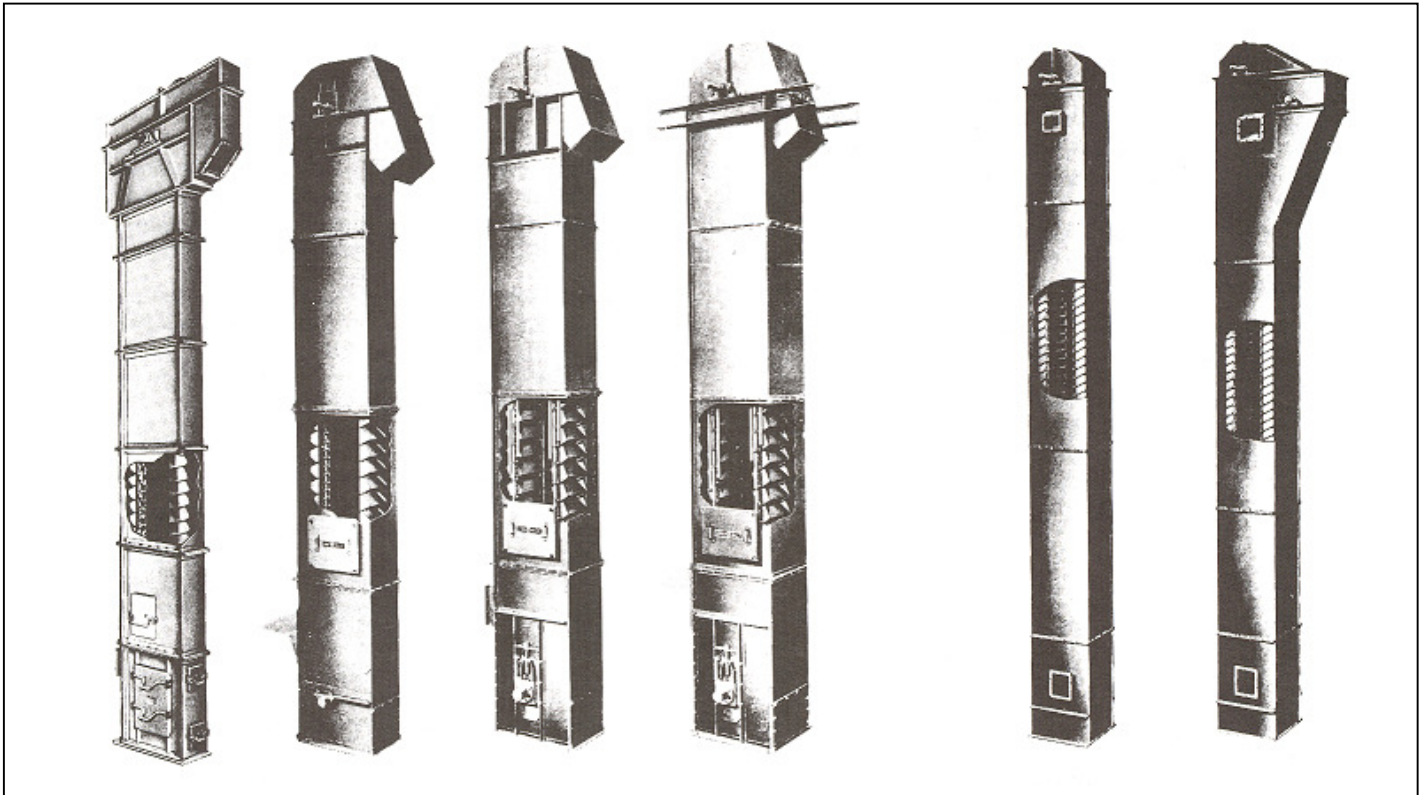
Positive Discharge

Type 6 elevators operate at low bucket speeds and can handle light, fluffy and fragile material. Buckets invert over discharge spout providing positive discharge.

Type 6 - fixed head shaft-screw takeup on foot shaft-buckets mounted between two strands of chain.

Continuous

Internal Discharge



Type 7

Type 8

Type 10

Type 11

Type 12

Type 13

Continuous

Elevators of this group handle bulk material ranging from light to heavy and from fines to large lumps. Buckets are spaced continuously and are loaded by direct feeding.

Type 7 - fixed head shaft - internal gravity takeups on foot shaft.

Type 8 - similar to Type 7 except - adjustable head shaft – fixed foot shaft.

Type 10 - fixed head shaft - screw takeups on foot shaft - super capacity buckets mounted between two strands of chain.

Type 11 - similar to Type 10 except - head terminal machinery and drive equipment are carried on independent supports.

Internal Discharge

These elevators handle small bulk articles such as rivets, plastic chips, or shelled nuts gently and continuously. Buckets are internally loaded and discharged from either side of the elevator.

Type 12 - slow speed unit with fixed head shaft and gravity takeup on foot shaft.

Type 13 - similar to Type 12 except double head shafts for higher speed operation.

The various Link-Belt bucket elevators shown here are typical of those covered by this manual. The component parts of these elevators, as identified on Pages 4 and 5, are similar in design and construction; but their location, method of fastening, and style may vary somewhat between elevator types.

INSTALLATION

Casing

The procedures outlined represent an accepted method for erecting bucket elevators. It is recognized that other procedures may be equally effective and that variations may prove advisable depending on conditions and surroundings.

It is recommended that personnel familiar with elevator erection be used for installation of this equipment.

An adequate foundation for the elevator weight and soil conditions and suitable anchor bolts must be provided.

1. Place boot section on foundation, and make certain feed side is correctly located.
2. Level top flange with steel shims under the boot adjacent to each foundation bolt. Use enough shims to provide for 1 inch of grouting which should be placed after the elevator is completely erected and aligned.
3. Anchor boot section securely using the foundation bolts.
4. If the elevator is specified as requiring a sealing medium at casing joints, apply mastic or gasket material provided to top flange of boot. If gaskets are used, cut and punch them before assembly.
5. Install remainder of elevator casing sections and loading leg (but not the split removable hood) in accordance with drawing provided. Make certain that sections with doors, connecting holes or clips are properly placed. Apply gaskets or mastic, when specified, between casing sections and all connecting chutes.



6. **Important** - plumb each section of intermediate casing when installing, as slight manufacturing variations (within permissible structural tolerances) can be compensated for by inverting some sections or revolving them horizontally. Obviously this procedure cannot be applied to intermediate casing sections with doors, connecting holes or clips.
7. Attach ladders and safety cages to each section of casing as erection progresses. Assemble service platform and secure it to the head section; then plumb and align entire casing using lines hung at center of each side of casing.



Very Important – personnel must not use ladder or platform before lateral bracing is installed.

8. Install permanent bracing. Casings more than 30 feet high should be guyed or braced until permanent bracing is installed. Bracing maintains vertical alignment and prevents twisting of casing. Install bracing at casing joints. Brace in two directions at 90°.
9. All elevators must be braced or anchored to a rigid structure to maintain stability. Elevators should be braced at a point not more than 4 feet below the head shaft and at intermediate points not over 20 feet apart.
10. Small casing openings are unavoidable when manufacturing this class of equipment. Seal with mastic if dust-tight enclosure is required.
11. Install adjustable throat plate in discharge spout. Final adjustment of throat plate must be made after buckets are installed. See Fig. 5851 (Page 9).
12. On factory pre-assembled terminals, realign and level shaft assemblies. Retighten all machinery fasteners including hub setscrews, taper-lock bushing screws and bearing bolts, etc.

13. Mount hood after head shaft, chain and sprockets are installed, all adjustments made, and elevator tested and ready for operation. Bolt the section of hood over discharge spout in place and complete all head shaft dust seal adjustments before assembling rear half of hood.
14. Apply field paint after erection is completed.

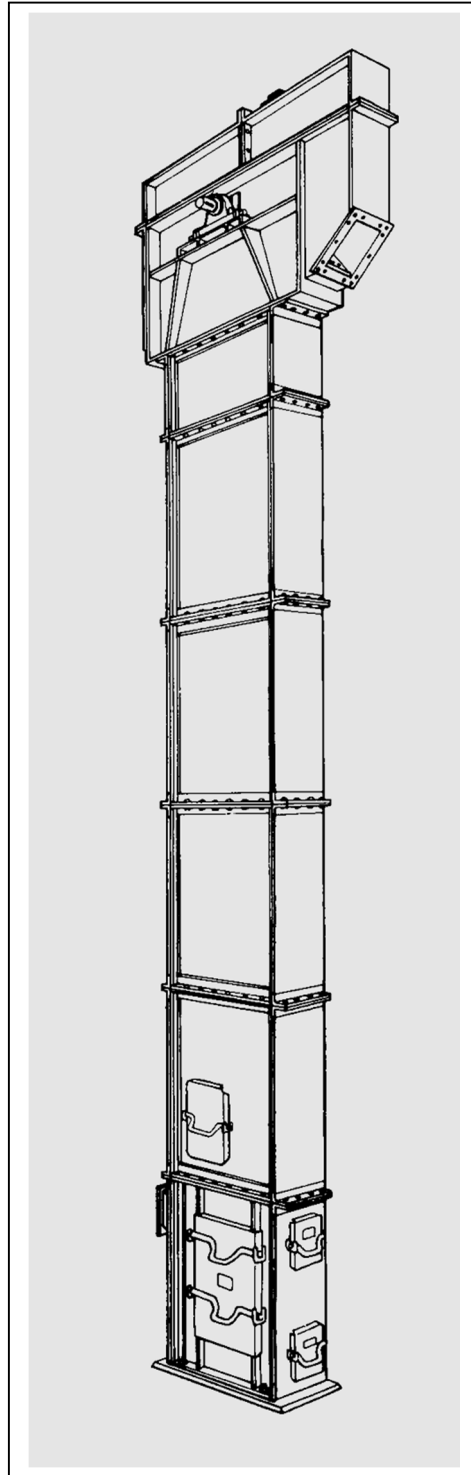


Fig. 601-1

HEAD SECTION

1. If not factory pre-assembled, assemble head machinery in casing as indicated on order drawing. Locate sprocket or pulley on head shaft and lock in place with set screws.
2. Mount head shaft on head section and make sure shaft is level and at right angles to the wide side of casing.
3. Align pillow blocks with shims if necessary so shaft turns freely. Follow separate instructions for mounting and lubricating bearings.
4. Lock adjustable bearing stops on fixed head shaft pillow blocks.
5. If a necked shear pin type drive sprocket is furnished, make sure journalled section of shear pin is located centrally between hubs.
6. When an adjustable type head shaft is used, lower bearing blocks to lowest point and level shaft. Mark takeup frame and bearing blocks with match-marks for reference points when making later takeup adjustments.
7. Install and adjust seals against shaft and clamp in place. When waste-pack seals are used, adjust cotton waste to properly seal shaft opening.
8. If a Link-Belt backstop is furnished, assemble wheel on shaft and cam support on backstop bracket; adjust in accordance with separate instructions.

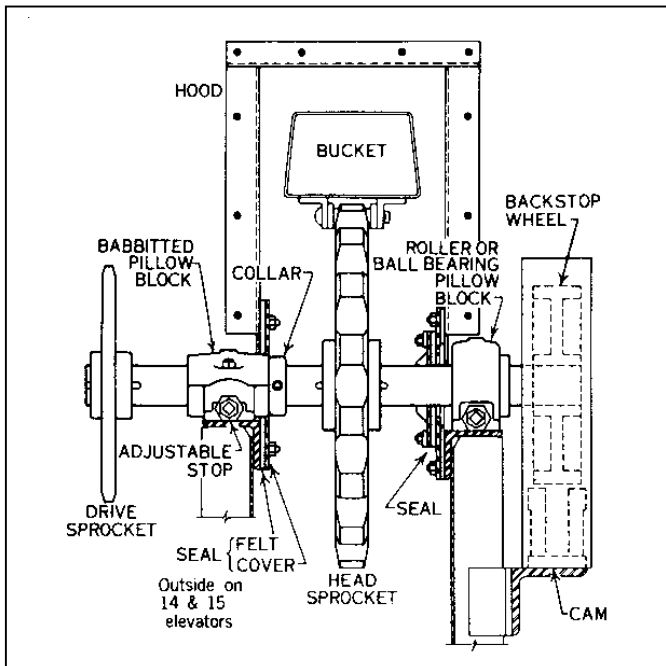


Fig. 5856

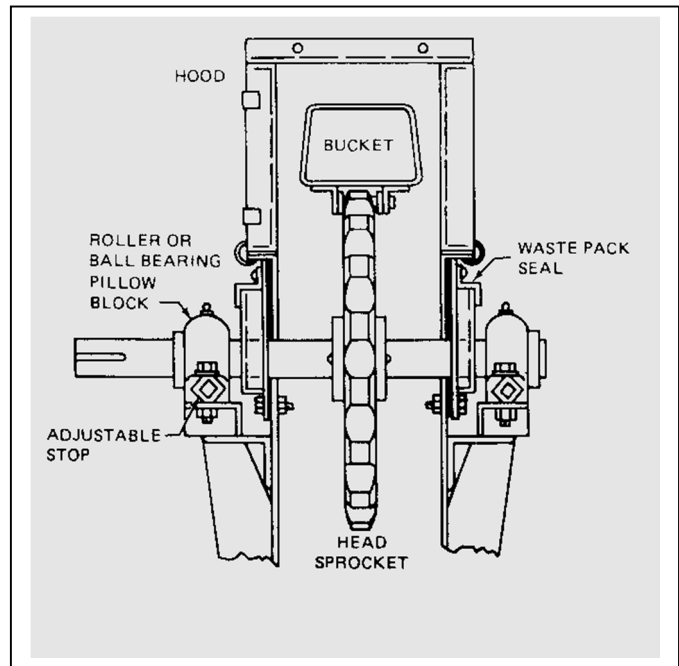


Fig. 601-2

Drive (Motogear or Gearmotor)

1. Install speed reducer on drive bracket or platform as shown on drawing. If drive is furnished with separate motor with feet, use care when aligning motor with drive. Shim or adjust motor so flexible coupling halves are in line and their faces equally spaced at four points on their circumference. If speed reducer is shipped with motor mounted on base, field check alignment of coupling to be sure it has not shifted during shipment. Follow instructions provided for installing flexible coupling.
2. Mount drive chain sprocket on speed reducer output shaft, align with driven sprocket, and assemble drive chain on sprockets with proper amount of sag in slack side. See instructions for drive chains. If a chain casing is provided, install in accordance with casing instructions.
3. Use care when mounting sprockets or flexible couplings on speed reducer. Avoid heavy hammer blows as these may damage internal gears or bearings.
4. When tight fits are encountered, heat parts in oil to 150°F. to expand bore sufficiently for a slip fit on shaft.
5. For installation of backstop see separate instructions.

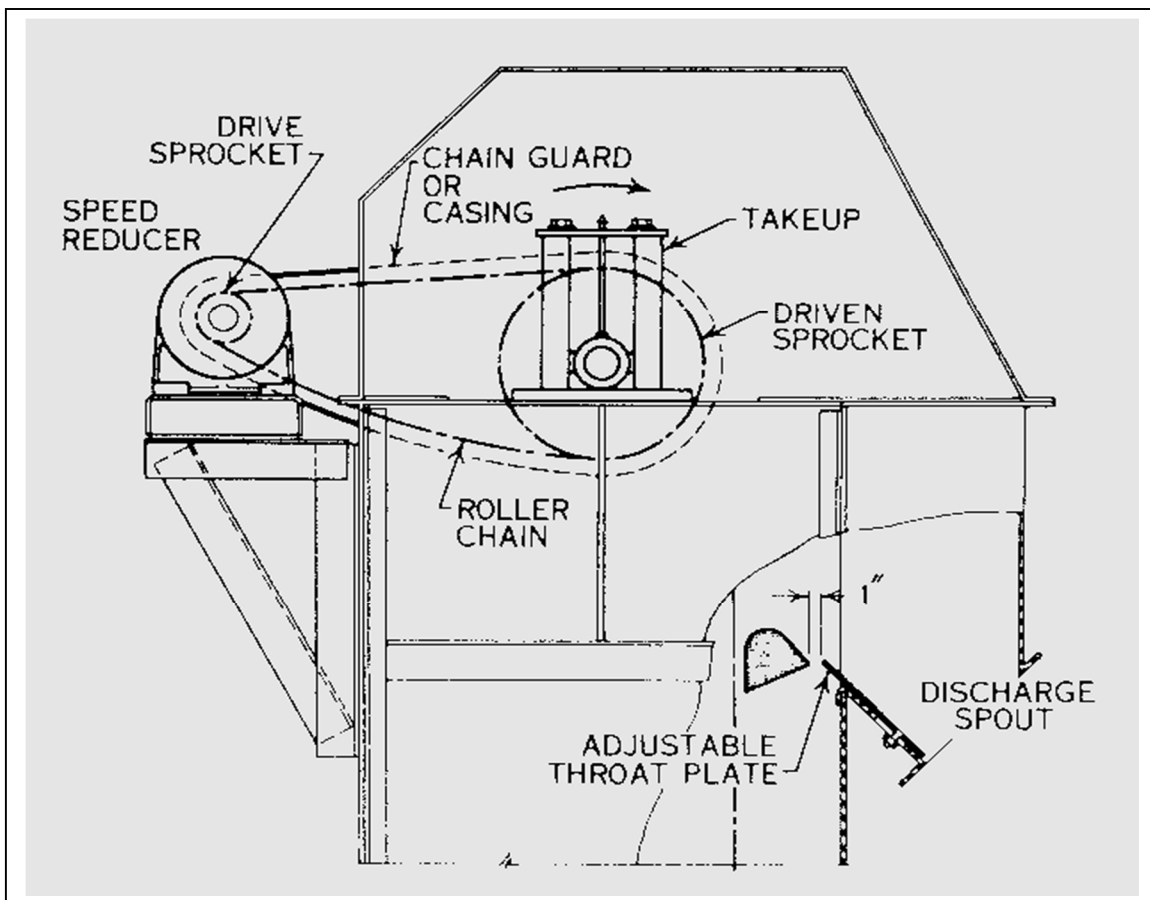


Fig. 5851

Drive (shaft-mounted speed r

1. Install motor mounting bracket on back side of reducer, so that when viewing input shaft it is level with and to the left of the output shaft and motor mounting bracket extends downward. Larger overhang of the bracket must be toward input shaft face of reducer, see Fig. 601-3.
2. For installation of backstop see separate instructions provided.
3. Locate breather, oil level and drain plugs as shown in Fig. 601-4 when viewing input shaft.
4. Install reducer on head shaft using the reducing bushing if required to adapt to head shaft size.
5. Install torque arm between reducer and bracket on head casing. If torque arm is too long, cut off and rethread right hand threaded portion of arm to obtain proper length. Adjust turn buckle as required to maintain input and output shafts on same level.
6. Install driven V-belt sheave on reducer input shaft.
7. Mount motor in inverted position on motor mounting plate. **Motor must be for ceiling mounting.**
8. Install V-belt driver sheave on motor shaft and align sheaves.
9. Back off motor mount jack screws to minimum centers position.
10. Install V-belt or belts and adjust to V-belt manufacturers recommended tension by use of the jack screws.
11. Install V-belt guard.

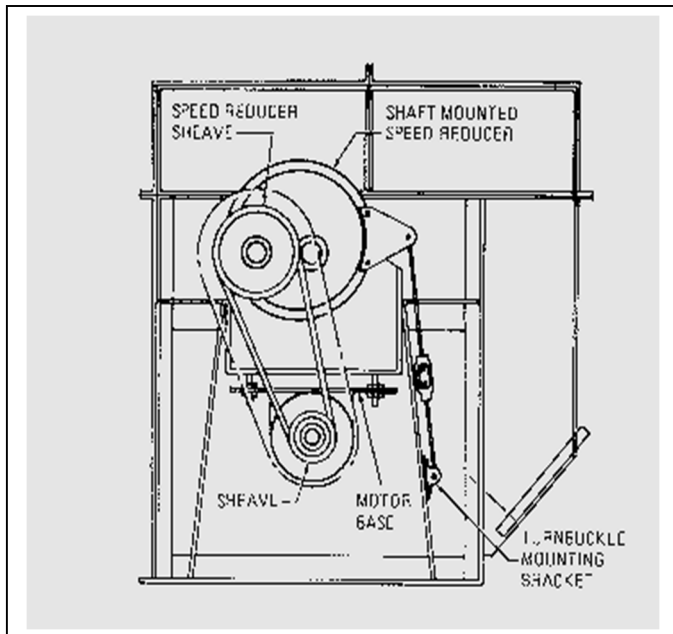


Fig. 601-3

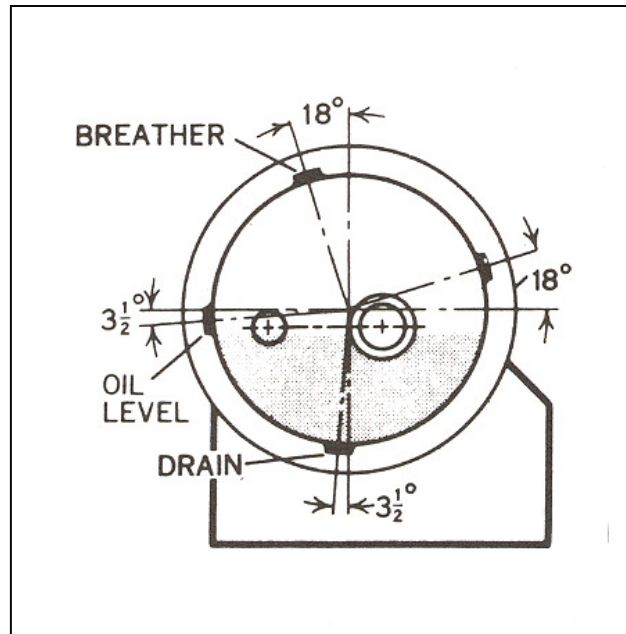


Fig. 601-4

Boot Section

EXTERNAL SCREW TYPE TAKEUP

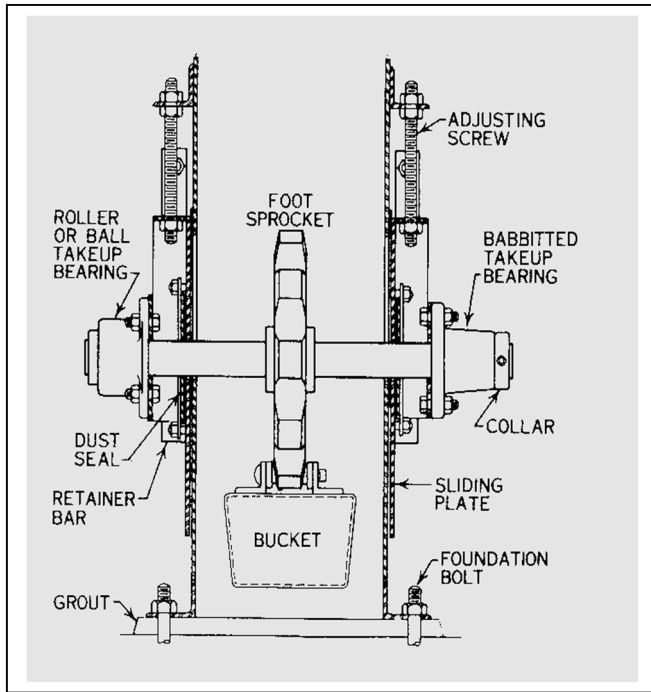


Fig. 5855

INTERNAL GRAVITY TAKEUP

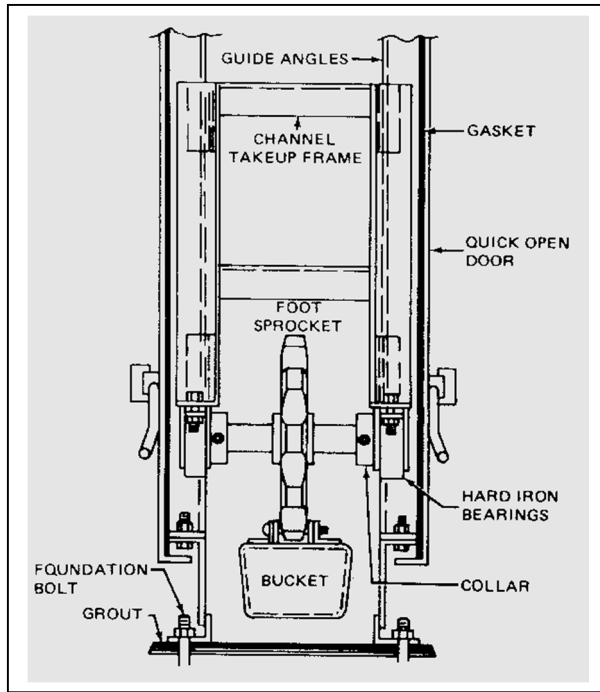


Fig. 601-5

Assemble foot machinery in boot as indicated.

1. Locate foot shaft and foot sprocket or pulley in boot as indicated by the drawing and lock sprocket securely in place using setscrews provided.
2. If foot shaft is screw adjustable, move shaft to top of takeup travel, level shaft, and match-mark casing and sliding portion of takeup for reference points when making later adjustments.
When foot shaft is fixed, locate at right angles to wide side of elevator casing, level shaft, and align bearing blocks, using shims so shaft rotates without binding after bolts are tightened.
3. Align foot sprocket or pulley with corresponding sprocket or pulley on head shaft using a plumb line.
4. After adjusting screw type takeups for proper minimum chain slack or for desired belt tension, tighten retainer bar bolts slightly and drive retainer bars back against casing to draw takeup slider plate against seal; and then tighten retainer bar bolts.
5. Adjust seal plates on takeups to seal shaft opening.
6. On belt type elevators with panel type boot, clamps on side plates of boot must be tight to hold shaft alignment.
7. On internal gravity takeups check for free movement of frame in casing guides and free rotation of foot shaft.

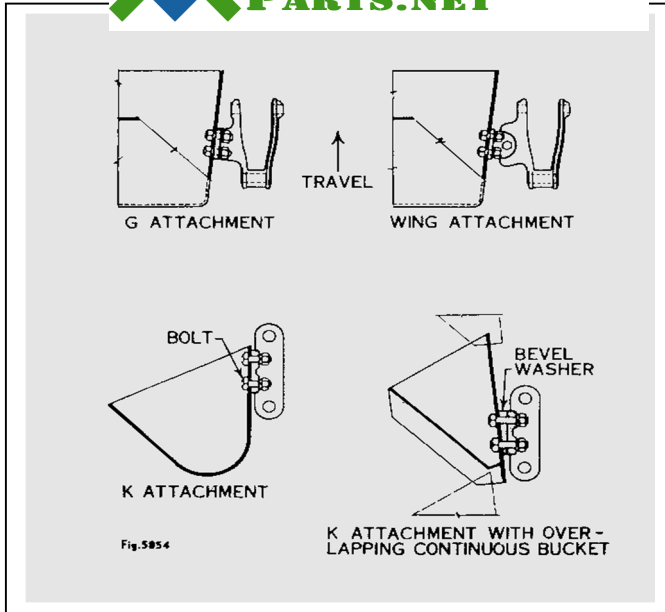


Fig. 5854

Chain and buckets

Handling chain

For convenience in shipping and handling, chains are coiled in segments approximately 10 feet long. For elevators using a single strand of chain, couple the chain segments together and bolt the buckets to the attachments with the chain stretched out. This simplifies handling and installation and also helps to keep the chain straight. Crooked or twisted chain can cause operating difficulties.

SS4851 and SS4852 Chains, 9" Pitch, With Buckets Every 2nd Pitch

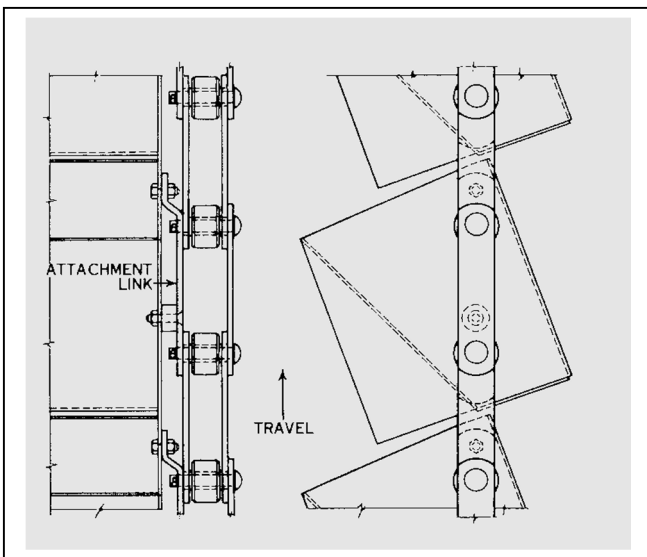


Fig. 5853

SS4850 Chain, 12" Pitch, With Bucket Every Pitch

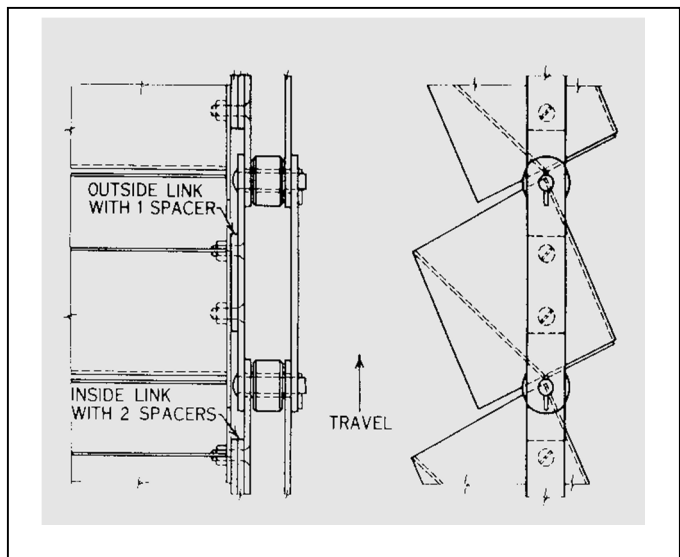


Fig. 5857

Chain can become twisted if impr
Support the entire coil as shown in Fig. 7976.

hooking into the center of a coil.



STAND CLEAR WHEN HOISTING LOADS.

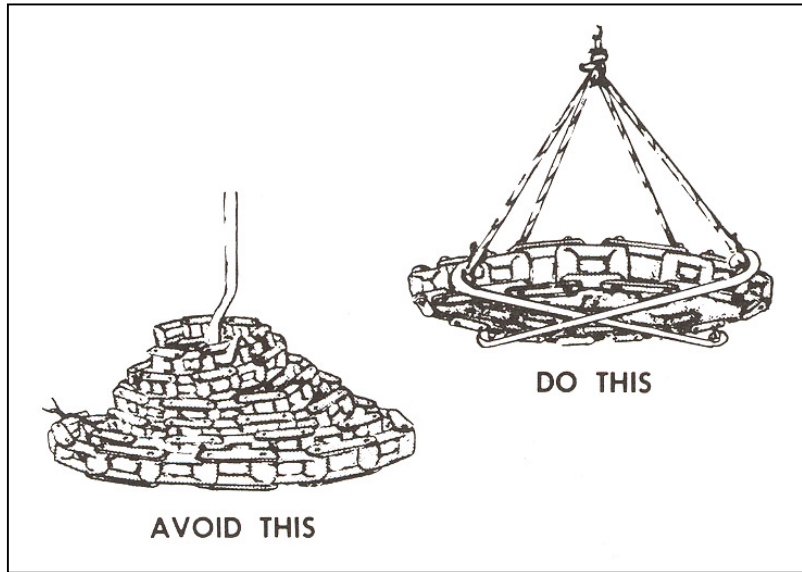


Fig. 7976



Do not feed the chain into elevator on its side. Prevent the possibility of twist by feeding it in the manner shown in Fig. 7975.

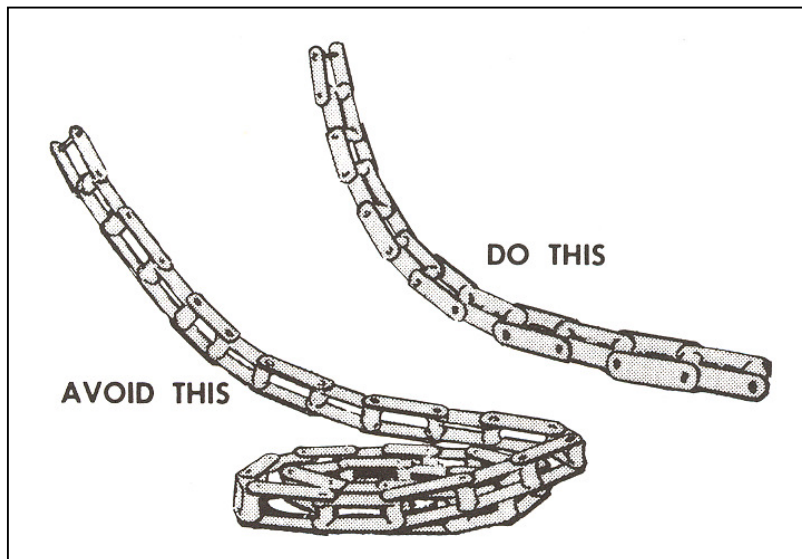


Fig. 7975

If a chain does become twisted, it should be done while the chain is still stretched out on the floor.

reverse twist using crowbars. This

Installing chain

All cast link chains, i.e., cast offset sidebar chains in which all links are the same, must be installed so the open end of link points in the direction of chain travel. Straight sidebar chains, such as class C and SS, are the same at both ends and can operate in either direction.

Chain installation

The quickest and easiest method for installing an elevator chain is to lower it down over the head sprocket as shown in Fig. 7974. The chain ends are then coupled together at one of the lower casing openings. Adequate overhead space and hoisting equipment must be available in order to employ this method of installation.

A more common method, shown in Fig. 7974, is to feed the chain either with or without buckets depending on access opening and working room through one of the lower casing openings, hoisting it in place one end at a time. This is done by hooking the chain several links back from one end. Slowly hoist the chain and place the short "free" end over the head sprocket.

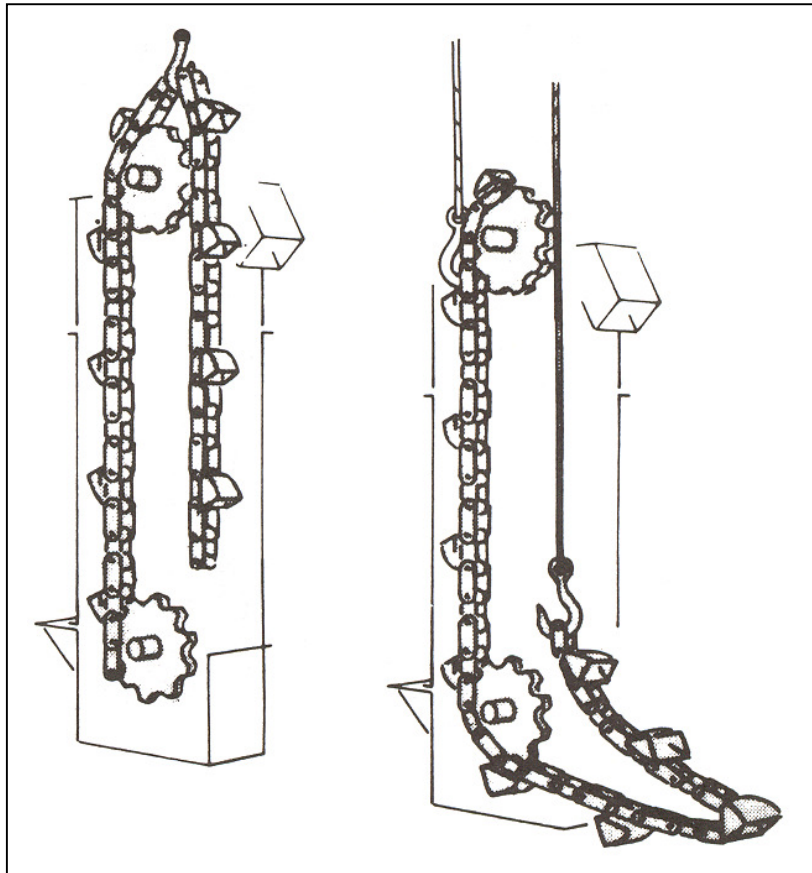


Fig. 7974



CAUTION. Secure the chain in such a way using a hoist or tying off to a structural member laid across the bearing angles so that there is no chance of chain running away and dropping into boot.

Now hook the other end of the chain and hoist it into position. Couple the two ends together at the head sprocket.



AT ALL TIMES USE EXTREME CAUTION TO RETAIN FIRM GRIP ON CHAIN.

When double strand matched and tagged chain is used, make sure only chains with proper tagging, right and left are used together.

On double strand chain elevators, or when preceding chain and bucket assembly method is not used for single strand elevators, install chains over the head and foot sprockets and couple the ends. **Attach buckets to chain on opposite sides at the top and bottom of elevator at the same time so chain line will be balanced.**

In order to avoid damage to chain if necessary to drive pins in place in making chain couplings, use support blocks if outside casing or bucking bar for connection inside casing.

Adjust screw takeups for minimum slack in order to prevent buckets from striking casing when in normal operation. Level takeup head shaft or takeup foot shaft from reference marks previously placed on side of casing. Make this adjustment carefully on chain elevators, as over tightening resulting in excessive chain tension with all slack removed will result in undue chain and/or sprocket wear. The occasional striking of a bucket, caused by a new, stiff elevator chain or by the action of material in the elevator, should not be confused with excessive slack in the chain.

Gravity takeups are usually shipped with a minimum amount of counterweight, and additional weight may have to be added to obtain proper chain action as described in preceding paragraph for screw takeups.

User should provide suitable safety guard around limit of travel of external gravity takeups to permit full travel yet protect against any injury to personnel. Guard must be suited to physical surroundings for each individual installation.

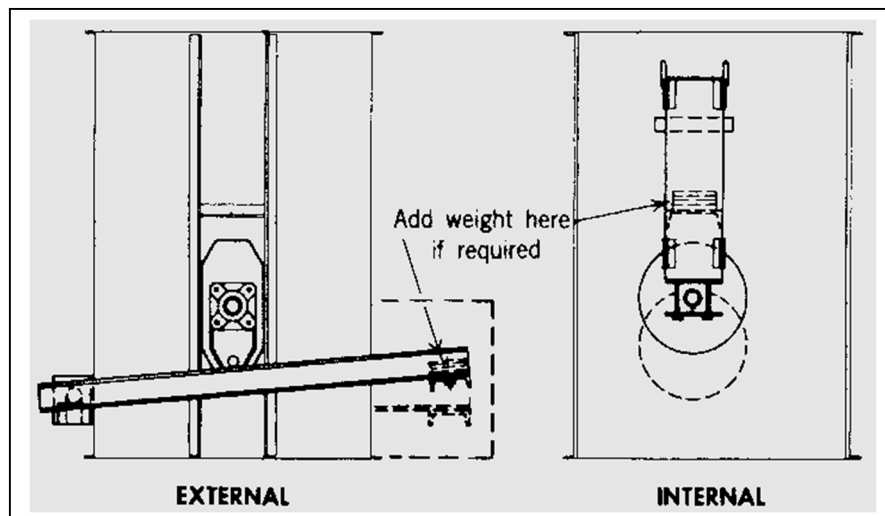


Fig. 8317

Belt and Buckets

Install belt over head and foot pulleys after one end of belt has been squared. Make sure proper side of belt is on pulley and that when in place, the holes for the buckets will be in proper "up" position to receive buckets.

One method of installing belt is as follows:

thread rope or cable around boot and head pulleys. Pull belt through casing with winch. Support roll of belting so it is free to turn. See Fig. 601-6.

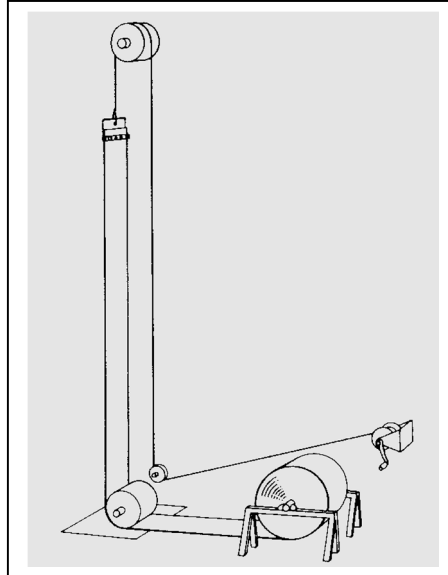


Fig. 601-6

Use a belt clamp arrangement as shown in Fig. 601-7 to pull belt, bolting through last row of bucket bolt holes at squared end of belt. To prevent damage to belt do not use "C" clamps.

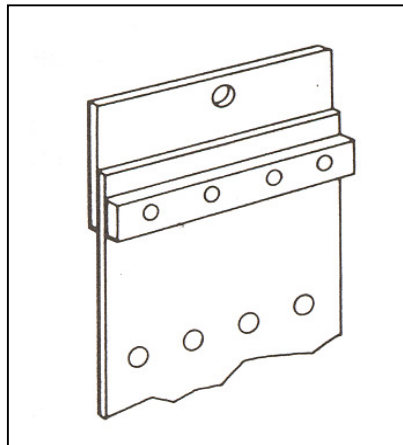


Fig. 601-7

Pull ends of belt together with belt clamps inserted through doors provided and splice belt as instructed on elevator drawing. If metal belt fasteners, such as *Flexco*, are used, follow instructions provided with the fasteners. Takeups should be at minimum elevator centers when belt is spliced.

Other types of splices are s... ts may be used. Lap belt ends two to four times bucket spacing and bolt the buckets through both belt strands. Consult belt manufacturer's recommendations. For centrifugal discharge elevators only the top row of bolts on each bucket should pass through both belt strands. On heavy belting the inside strand end should be tapered for smoother pulley passage.

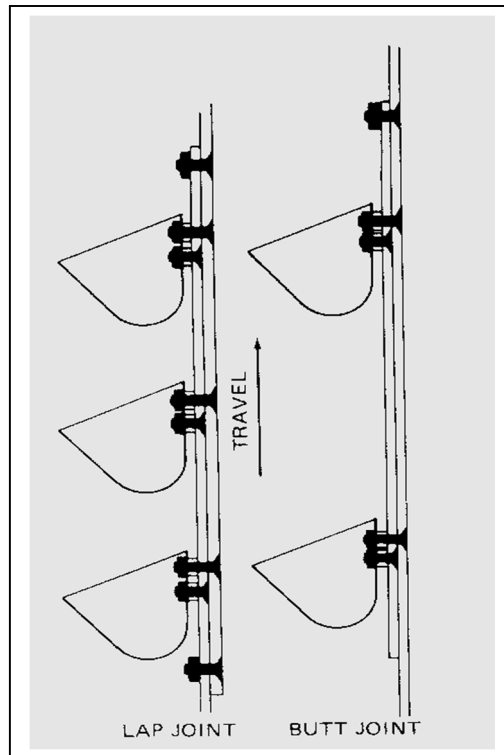


Fig. 601-8

For heavier belts the best joint is a butt splice. Cut belts to proper length and square ends. Butt ends and fasten with butt strap cut from same extra belt. Butt strap should pass under at least two buckets. Consult belt manufacturer's recommendations. Only one row of bolts in each bucket should pass through both strands. Note: shorter projection buckets are used at lap joints where the extra belt thickness requires.

Vulcanized splices generally require temporary belt installation to establish exact length with takeup in minimum position. After marking belt for length, foot pulley is removed to obtain sufficient slack to allow ends of belt to be led out through suitable access opening to permit splicing outside casing. Recommendations and arrangements for vulcanized splices are usually done by belt vendor.

When using the newer synthetic belts, they should be installed using a temporary splice or belt clamps, buckets applied and let hang for 24 hours before making permanent splice.



CAUTION: In splicing operations, make sure belt and/or head pulley is secured so that any imbalance cannot result in belt running away over head pulley and dropping into boot.

Attach buckets to belt on one side of the belt and use the other side of the belt to maintain an even balance on belt. Use leather washers provided, between buckets and belt, as illustrated in Fig. 5852.

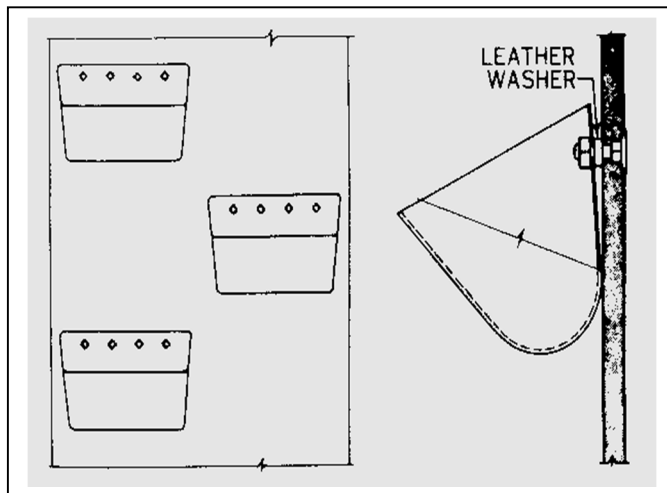


Fig. 5852

Adjust screw takeups or apply only sufficient weight to gravity takeups to keep slack out of belt when elevator is operating loaded and to provide the necessary head pulley traction to drive the elevator under normal operating conditions.

After bucket line is installed, adjust throat plate in discharge spout to clear buckets by 1 inch. See Fig. 5851 on Page 9.

Types 12 and 13 Elevators

Because the construction features of the Types 12 and 13 Internal Discharge Elevators require special erection and maintenance procedures, the following steps should be observed for these elevators - in addition to the preceding instructions.

The inherent rigidity of the bucket and chain assembly requires particular care to assure alignment of the machinery components. This is especially true of the Type 13 elevator with double head shafts. Proceed as follows in erecting these elevators:

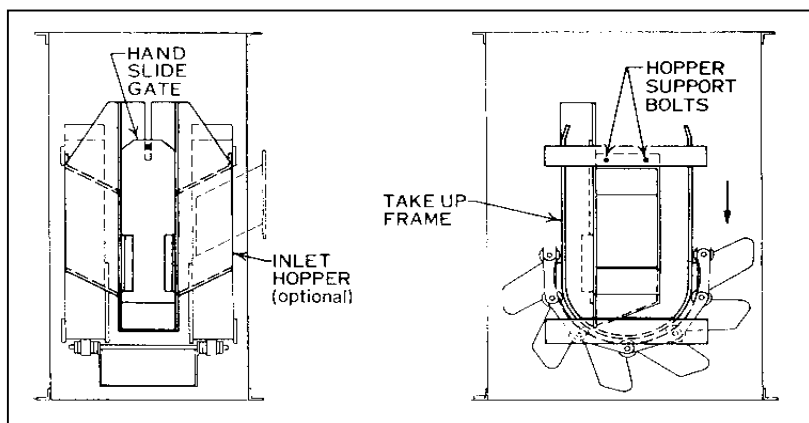


Fig. 8318

1. Assemble boot section with hopper and takeup. (Hopper is optional.)
 - a. Install one takeup frame. Locate hopper and gate assembly in uppermost position.

- b. Install other takeup frames.
- c. Lower hopper assembly and align bolt holes with those in takeup frames.
- d. Bolt hopper to takeup frames.
- e. Raise and lower hopper and takeup assembly to make certain it moves freely.

2. Install wiper blades in discharge hopper as shown in Fig. 8319 below.

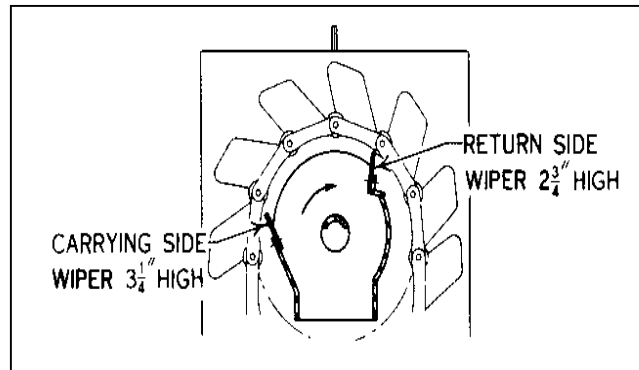


Fig. 8319

3. Assemble the buckets and double strand chain as follows:

- a. Fit buckets together and, by swinging chain to one side, insert rod through buckets only, as shown in Fig. 8320. Stop rod flush with outside of buckets.

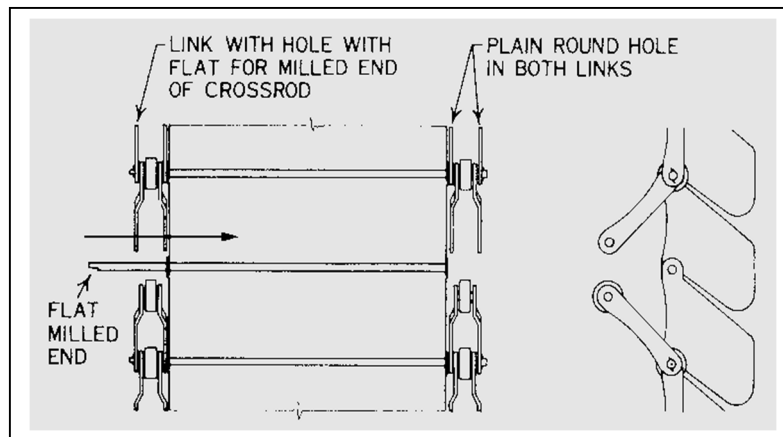


Fig. 8320

- b. Swing chain links into place, and push rod through until it is flush with outside of buckets on opposite side, as shown in Fig. 8321.
- c. Swing other chain into place and push rod through until it is seated against milled shoulder; while pushing, turn rod to align milled flat. Insert pins in ends of rod, and bend them around rod.

CAUTION: If necessary to drive rods into place, use a bucking bar at position "A" in Figs. 8321 and 8322. Use light blows to avoid damage to rods.

- Adjust loading chutes, if furnished, to provide uniform flow of material and to control flow into buckets. Loosen wingnut on hand slide gate on internal (floating) chute, and raise or lower gate to obtain desired performance.

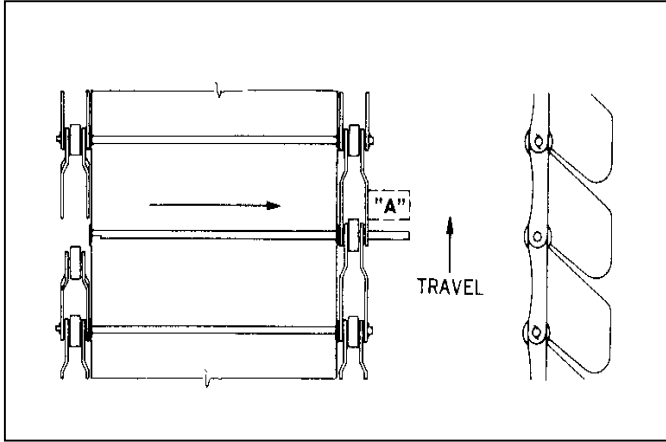


Fig. 8321

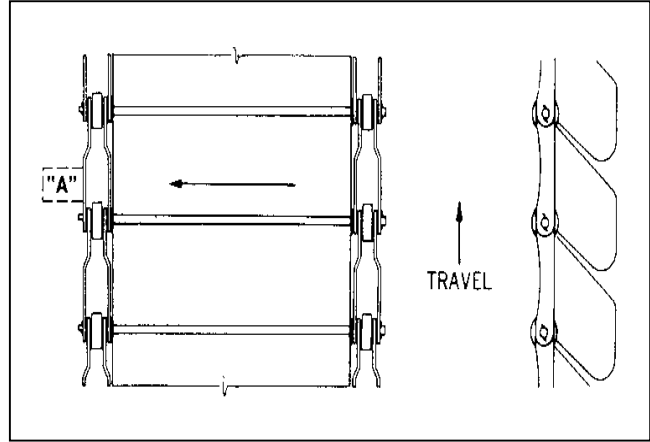
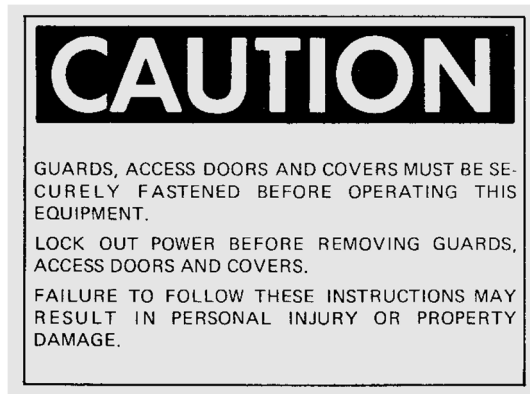


Fig. 8322

OPERATION




GENERAL SAFETY PRECAUTIONS

CAUTION: Taking into consideration all of the physical aspects of the installation, any or all of the following safeguards may be required to protect the operators and those working in the immediate area of the elevator.

- HOPPER GRATINGS.** Open hoppers should be provided with protective grating to prevent contact with moving bucket line by personnel. Maximum opening size to be 2" x 2". Material in feed hopper must not be poked or pushed with any item.

2. GUARDS. For protection of operator and other persons in working area, purchaser should provide guards for all exposed equipment such as drives, gears, shafts, couplings, etc.
3. COVERS AND GRATINGS. Use rugged gratings or checkered plate covers over pits unless OSHA * approved handrail, ladder and / or cage is used. Handrail must be provided with toe plates.
4. PLATFORMS, LADDERS AND CAGES. Platforms, ladders and cages should conform to the OSHA * requirements as relates to handrail construction, step across distances, maximum ladder heights between platforms, ladder and cage dimensions, toe plates, etc.

* Federal Occupational Safety and Health Act of 1970, as amended and future amendments as may be forthcoming.

-  5. ELECTRICAL EQUIPMENT. Electrical equipment conforming to the National Electrical Code or the National Electrical Safety Code, including requirements for the environment should be considered for the following functions –
 - a. Overflow devices. Electrical interlocks to warn personnel and shut off power whenever discharge of elevator is interrupted.
 - b. Overload protection. To shut off power whenever operation of elevator is stopped as a result of excessive material, foreign objects, excessively large lumps, etc.
 - c. No-speed protection. Devices such as zero-speed switches to shut off power in the event of any incident, which might cause elevator to cease operating.
 - d. Safety shut-off switch with power lock-out provision at elevator drive.
 - e. Emergency stop switches readily accessible wherever required and known to proper personnel.
 - f. Electrical interlocking to shut down feeding conveyors whenever a receiving elevator stops.
 - g. Signal devices to warn personnel of imminent start up of elevator, especially if started from a remote location.

PRECAUTIONS FOR HAZ

The standard Link-Belt bucket elevator is normally not equipped to operate in hazardous conditions and locations or with hazardous materials. Consult Syntron Material Handling, LLC if any of the following circumstances are involved in your operation.

Hazardous conditions - when product area is pressured or casing is equipped with jackets for heating or cooling material. Provision must be made to keep pressures within design limits. Check local, state, and federal codes for unfired pressure vessels. *Standard components are not designed for this service.*

Hazardous materials - can be explosive, flammable, toxic, or noxious, etc. Provide safeguards to prevent personal injury, especially while loading or unloading.

Explosive conditions - may require spark-proof bronze chain, sprockets and buckets. Spring-loaded blast relief doors may be required.

Handling foodstuffs - subjects elevators to special codes for construction, location, accessibility. Investigate before using standard components! Food elevators often require hinged access doors for cleaning.

INITIAL STARTUP (WITHOUT MATERIAL)

1. Remember - drives are shipped WITHOUT oil. Add oil to drive in accordance with drive nameplate or separate service instructions.
2. Lubricate all bearing units in accordance with separate instructions.
3. Adjust takeups for proper belt tension or chain slack.
4. Guards must be in place on chain or belt drives, back stops and all moving or rotating parts to protect the operator or other personnel from possible injury.
5. Be sure all debris, foreign objects and tools are removed from the elevator and adjacent area.
6. All removable plates and inspection doors must be in place before operating elevator.



CAUTION: INSPECTION DOORS SHOULD ONLY BE OPENED BY AUTHORIZED AND COMPETENT PERSONNEL WHEN UNIT IS OPERATING AND ONLY IF ABSOLUTELY NECESSARY TO INSPECT PERFORMANCE OF UNIT. DO NOT PUT HEAD, HANDS OR OTHER OBJECTS INTO OPENING.

7. Jog drive to check for proper rotation. If rotation is not correct, have electrician change motor rotation. Incorrect rotation can result in serious damage to the unit and related equipment.
8. Have operation of interlocking controls, overflow or over load devices and safety controls checked by qualified personnel who thoroughly understand the manner of operation and the function of every item of equipment.



THESE DEVICES SHOULD NEVER BE REMOVED OR BYPASSED. SHOULD ANY ITEM BE FOUND TO MALFUNCTION IT SHOULD BE REPLACED OR REPAIRED BEFORE ELEVATOR IS PLACED IN SERVICE.

9. Complete one cycle of the bucket line by jogging the drive to check for proper assembly and throat plate clearance. If no difficulties are experienced during jogging, run without load for four hours to break in unit. After break in and before operating unit with material re-check all bolts for tightness.

INITIAL STARTUP (WITH MATERIAL)

1. Before startup, make sure there is no obstruction to free discharge of material.

2. Start elevator with buckets elevator before feed to it begins.
3. Stop elevator only after feed has been halted and elevator allowed to discharge all material.
4. The successful operation of any elevator is dependent on controlled feed. Material must be fed at a controlled rate within rated capacity or boot will flood and stall elevator. If the unit is manually fed, deliver material to loading hopper in a continuous and uniform manner.
5. Should a stoppage occur for any reason, shut off and lock out drive. Remove boot access doors or back plate, using caution in the event material has built up sufficiently to create a hazard to personnel. Empty boot and determine and remedy reason for flooding before restarting elevator.
6. After initial twenty-four hours of operation under load, retighten bucket bolts and check position of takeups for correct chain slack or belt tension. On belt elevators using the newer synthetic belts it may be found necessary at this time to resplice belt if additional excess stretch has occurred. **FOLLOW PREVIOUSLY STATED PRECAUTIONS TO PREVENT LOSING GRIP ON BELT ENDS.**

EXTENDED SHUT DOWN

1. If an elevator is to be shut down, for an extended period of time, run it until material discharge stops. Many materials if allowed to stand tend to become hard or sticky in boot or buckets. If material is corrosive, hygroscopic, can deteriorate or set in a hard cake during the shut down, the elevator should be thoroughly cleaned by authorized personnel only. All possible loose material should be removed from unit.



CLEANING WORK SHOULD BE DONE WITH DRIVE LOCKED OUT.

2. Elevators should be run for brief periods at regular intervals during extended shut downs to prevent chain joints from stiffening or binding as a result of rust, corrosion, hardening of material in joints, etc.



3. **LOCK OUT POWER DURING EXTENDED SHUT DOWNS TO PREVENT ACCIDENTAL STARTING AND POSSIBLE INJURY TO PERSONNEL OR DAMAGE TO EQUIPMENT.**

MAINTENANCE

Chains

Inspect chains regularly for loose pins, missing cotter pins, excessive roller wear and for wear on inside bar faces, which indicates sprocket mis-alignment. These conditions all indicate that corrective steps must be taken immediately.

Do not use new chain on old sprockets or new sprockets with old chains. On double strand elevators do not replace one strand of chain; order in pairs, and specify matched and tagged right and left hand.

When replacing an elevator chain, uncouple the worn chain at the lower sprocket and attach the new chain. Thread the new chain into the elevator casing by jogging the elevator drive or by pulling on the loose end of the old chain. **MAINTAIN SECURE GRIP ON CHAIN WHEN UNCOUPLING AND COUPLING SO A LOOSE END CANNOT RUN AWAY OVER HEAD SPROCKET AND COLLAPSE IN BOOT. PERSONAL INJURY OR PROPERTY DAMAGE CAN RESULT.**

Belts

On belt elevators, check regularly for alignment and for condition of splice. Mis-alignment of head or foot shaft and build-up of material on either pulley will cause belt to run off. The belt and casing will be damaged if mis-alignment is not quickly remedied. Avoid material build-up on pulleys.

Repair cuts or tears in belt in accordance with belt manufacturer's recommendations.

Buckets

Keep bucket bolts tight. Replace bent, worn or damaged buckets, and remedy cause of such damage. Inspect bucket wipers occasionally and replace when worn; this applies to Types 12 and 13 elevators only.

Bearing Blocks

Maintain shaft and bearing block alignment. Keep all sprockets tight on shafts. Correct any interferences that develop.

Casing

Paint casing and framework periodically to avoid rusting and corrosion. Keep aligned and plumb if vertical. Inspect hoppers, chutes, loading legs, etc., regularly and replace when wear becomes excessive.

Takeups

Adjust takeups as elevator chain wears or belt stretches. When all adjustment is used remove one or more chain links or a section of belt and retract the takeups.

Frequent checks of chain for proper slack and belt for proper tension with appropriate adjustment of takeups is important to long chain or belt life.

Housekeeping

For safety to personnel and equipment, keep areas around loading and discharge points, drives, controls, and safety devices clean and free from obstructions.

LUBRICATION

Courtesy of:



Most elevator chains are designed do not oil or grease elevator chains except where particular provision has been made for this purpose. Do not use lubricant when handling abrasive materials or materials which would be harmed by oil or grease contamination.

Lubricate motors, drives, drive chains and bearing blocks in accordance with individual instructions provided.

LOCATING AND ORDERING PARTS

When ordering bucket elevator parts, refer to the drawing furnished for the elevator. If a drawing is provided, specify Link-Belt order number, part identification number, and complete specifications in material list. When a drawing is not provided, order replacement parts by giving a complete description of the parts required.

Syntron Material

Courtesy of:



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