

MAGNETIC CHIP CONVEYOR

INSTALLATION / OPERATION

MAINTENANCE MANUAL

Warning:

Oil must be added to conveyor.

Please read instructions.

IIIIHENNIG

**9900 North Alpine Road
Machensey Park, IL 61115
(815)636-9900
(815)636-9737**

Rev 10/2005

PREFACE

Magnetic slide conveyor is a machine that is designed to transfer or evaluate and discharge ferrous machine chips, press slugs, scrap and parts. Each conveyor has been sized to adequately handle the prescribed rate for its particular application.

Magnetic slide conveyor offers distinct advantages over other types of conveyors. Along with these advantages, certain procedures must be followed at installation, operation and maintenance to avoid certain pitfalls. These pitfalls will be covered in subsequent pages.

Every magnetic slide conveyor is "Run In" at the factory to check for loose parts and proper operation. This run in period insures that you have been shipped a conveyor that is in good working order. Prior to installation check for any physical damage to the conveyor that might have been incurred by handling during the shipment process. Installation of a damaged conveyor will automatically and irrevocably void the conveyor warranty.

Given proper maintenance, HENNIG, Inc. magnetic slide conveyor will provide years of satisfactory service. Thoroughly review this manual, be familiar with the conveyor operation and its limitations and you will realize the full benefit of your investment.

INSTALLATION

For the most part installation involves little more than merely placing the conveyor into position and connection of incoming power.

Upon receipt of the conveyor, perform a visual check for obvious damage that might have been caused during shipment. Take note of any damage and consult the factory. If any question exists to whether such damage will impede conveyors are shipped F.O.B. point of origin therefor, any claims for damages must originate from the destination and be made to the appropriate motor carrier.

Remove conveyor from pallet or shipping container. Remove any tape or residual objects from the slider bed and wipe clean with appropriate solvent or detergent. Place conveyor into intended installation position. Magnetic slide conveyors do not generate shock or extreme vibration and do not normally require lagging. If local building codes require that the conveyor be lagged into position then level conveyor and lag at footpads that are supplied with the conveyor. Grout to level if necessary. Some conveyors are provided with adjusting screws for leveling or height adjustment. Leveling for the most part is not critical and is usually recommended for ergonomic considerations only. Extremely long conveyors, however, must be leveled and lagged to maintain straightness and eliminate premature wear from body twist. This is an unusual circumstance and is seldom required.

The magnetic slide conveyor has a closed oil sump for chain lubrication. The conveyor will perform satisfactorily without lubrication however the life of the side chain (1.2-D) and sprockets will increase dramatically when continuously lubricated. The oil bath also keeps a film of oil on the chain side links, which eliminates oxidation. If allowed to rust, the heat-treated side links can fail due to hydrogen embrittlement. The conveyor is shipped without oil. Add oil to the specified level as indicated by the notch on the conveyor dipstick. Any light viscosity lubricating oil will be sufficient, #10wt motor oil will work well. Using a funnel, add oil at the opening of the dipstick tub (1.1-H) or TEE if conveyor is not equipped with a dipstick. The plug on the side of the TEE is used for oil drainage. The oil need never be changed unless it becomes rancid. Please note that the conveyor warranty will be void if the conveyor is run without oil.

Refer to motor (1.1-D) nameplate for correct voltage and wiring information. Wire motor in accordance with federal, state and local electrical codes. If not supplied with the conveyor, it is recommended that the motor be wired to an approved motor with overloads rated at not more than 125% of motor full load amperage. Engage power and place a piece of steel or a handful of chips on the conveyor slider bed to check conveyor direction. If the steel is moving toward the take up (1.0-H) end of the conveyor, the direction is incorrect. Remove power and reverse wire the motor so that when power is again applied, the sample steel will toward the discharge (motor) end of the conveyor.

The conveyor installation is now complete. Engage operation of all associated equipment. Observe the operation of the conveyor to insure that the unit is performing to the specifications as outlined in the original quotation.

Always be sure that the conveyor is running before attempting to load with parts, slugs or chips as extensive damage may occur when loading a non-moving conveyor.

OPERATION

Refer to fig 1.0, 1.1, 1.2 & 1.3 for explanation of terms. Magnetic conveyor operates using a magnetic coupling between the magnets (1.2-E) and product to be conveyed. The magnets are mounted to the side chain (1.2-D) which is driven internally by sprockets mounted to head shaft (1.0-I). The side chain is guided by tracking (1.2-F). The product is separated from the magnet by means of a stainless steel (non-magnetic) slider bed (1.0-K & 1.2-A). The slider bed is sealed and mounted to body channel (1.2-C) and keeps contaminants from entering the internal components of the conveyor. The "Sealed" conveyor has many great advantages over other types of conveyors such as totally enclosed moving parts for utmost operator protection, continuous oil lubrication of side chain, no jam up from parts entering belt or chain, operation in coolant tanks, extended conveyor life and more.

Although abundant with advantages over other types of conveyors, the magnetic conveyor is not completely devoid of drawbacks. Specifically, product must be presented to the conveyor in continuous, even flow. A magnetic slide conveyor WILL NOT pull product out of a batch feed situation. Some conveyors are provided with an in-feed hopper (1.1-A). This is intended for coolant containment in wet applications or as a baffle plate to direct product flow in dry applications. The hopper is NOT provided for containment of a batch load.

In a chip/coolant application, a magnetic slide conveyor performs most efficiently when it is provided with reverse flow baffle (1.1-B) as part of the receiving hopper, and in some instances, a forward flow baffle (not shown). The reverse flow baffle system directionalizes (by gravity) the contaminated coolant through a constricted embankment over the slider bed. The magnetic particles are attracted to the magnets and carried off to the discharge end of the conveyor while the cleaned coolant is discharged out the rear or side of the hopper. Without the baffles, some of the contaminant will be carried over the sides of the hopper by the turbulence created by entering coolant.

Impact to the slider bed is a critical problem that will eventually lead to damage, which will impede proper operation resulting on the top surface of the slider bed resulting in a physical bend or bow in the slider bed in the direction of the impacting. If allowed to continue, the bow will become larger creating an ever-increasing gap between the magnet and the product to be conveyed. The ability of the magnet to move the product will be severely limited and completely eliminating in some cases. An impact sheet on the conveyor loading area is highly recommended if a severe impacting condition exists. An impact sheet absorbs the impacting shock. This sheet is to be removed and straightened or replaced when it becomes too damaged to provide satisfactory service.

Special care must be taken to avoid dropping heavy objects on the slider bed. There is a close tolerance gap between the magnets and the slider bed. An inward dent on the slider bed may be rubbed by passing magnets, the result of which is opposite of impacting. The slider bed will bow inward and eventually jam the conveyor causing extensive damage to the slider bed, magnets, drive and possibly even the side chain.

MAINTENANCE

Hennig Magnetic slide conveyors are designed to provide years of satisfactory performance while requiring minimal attention to maintenance.

As outlined previously in the installation section, the sealed oil bath or sump lubricates the internal components of the conveyor. The only reason that the level of the oil bath will drop is because of a breach in the seal of the conveyor. It is recommended that the oil level be checked 24 hours after installation, 7 days after installation then every 6 months thereafter. Check oil level with conveyor SHUT OFF. Leave the conveyor set idle for 10 minutes prior to checking oil to allow oil to drain back to the sump level.

The head shaft bearings (1.0-J) may be equipped with grease fittings. If so equipped, the bearings should be lubricated at installation then every 6 months thereafter using a good quality LITHIUM based grease. If bearings are not equipped with grease fitting, they are of the "lubed for life" variety and do not require lubrication on a routine basis.

Refer to gear reducer (1.1-E) manual for oil level inspection and type of lubricant. Check oil level at installation and every 6 months thereafter.

The condition of the slider bed (1.0-K) is critical to the satisfactory operation of the conveyor. If installed in a wet application, residue build up in the slider bed can occur when left to dry overnight or on weekends which will impede the conveyed material when the conveyor is restarted. Clean slider bed with any acceptable solvent or detergent.

Should the slider bed become damaged during normal use i.e. a puncture or dent deeper than 0.045 then pull the unit out of service immediately to prevent further damage to the conveyor. Remove the slider bed and repair the damaged area or replace the slider bed. Reseal the conveyor with closed cell neoprene sealer strip and reinstall slider bed.

The conveyor take-up is a spring-loaded device that is located inside the conveyor. There is no external access to the take-up unit. In most cases the factory setting should last the life of the side chain. If the take-up does require readjustment i.e. when replacing the side chain, use the following procedure:

1. Remove slider bed.
2. Loosen lock nuts at spring adjuster
3. Adjust tension nut until spring length is 3.5" for 4" spring or 5.25" for 6" spring.
4. Observe magnet travel at bottom side of drive sprocket. If magnet transfers from sprocket to bottom tracking without excessive bounce, leave take-up adjustment as set. If the magnet droops or bounces excessively then adjust the springs .063" tighter. Continue this procedure until the magnet transfers smoothly but do not exceed .250" less than recommended setting.
5. Tighten lock nut.
6. Reseal and replace slider bed.

If the take-up has reached the limit of its travel, the side chain has reached limit of its useful life and should be replaced. When replacing side chain, inspect all tracking for wear. The most amount of wear as the chain is pulled tightly against these tracks during normal use. If the tracking is worn more than 0.060" replacement is required. Replacement of conveyor tracking is a factory task and should not be attempted in the field.

If replacement of the side chain is required, be sure to inspect all sprockets, bearings and drive components as normal wear to these items often parallel chain wear. It is recommended that the sprockets be replaced when installing new chain.

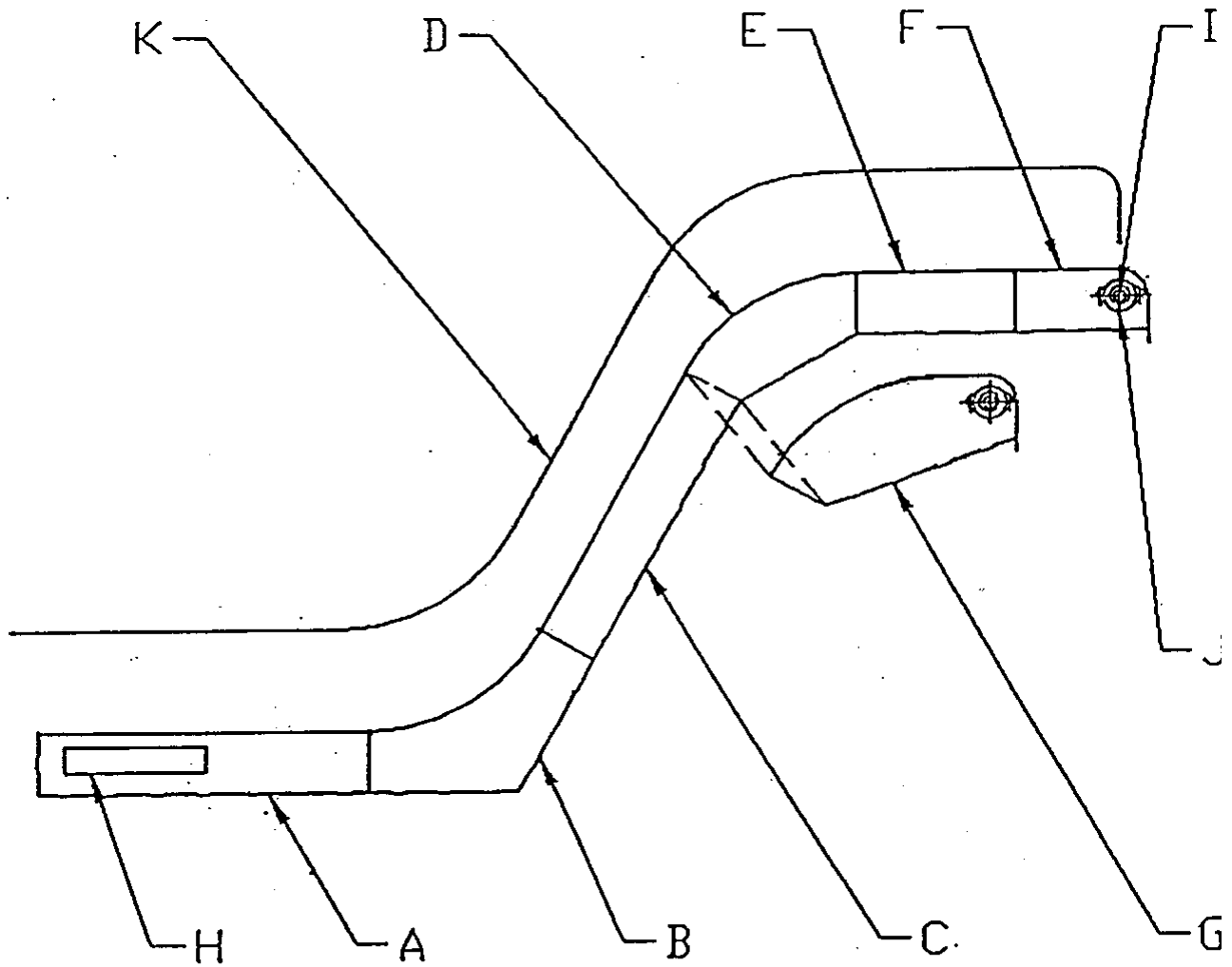


fig. 1.0

BASIC CONVEYOR TERMS

- A - BASE STRAIGHT SECTION
- B - CONCAVE CURVE SECTION
- C - INCLINE SECTION
- D - CONVEX CURVE SECTION
- E - INTERMEDIATE SECTION
- F - STRAIGHT HEAD
- G - CONVEX HEAD
- H - TAKE-UP TRACK
- I - HEAD SHAFT
- J - HEAD SHAFT BEARING
- K - SLIDER BED

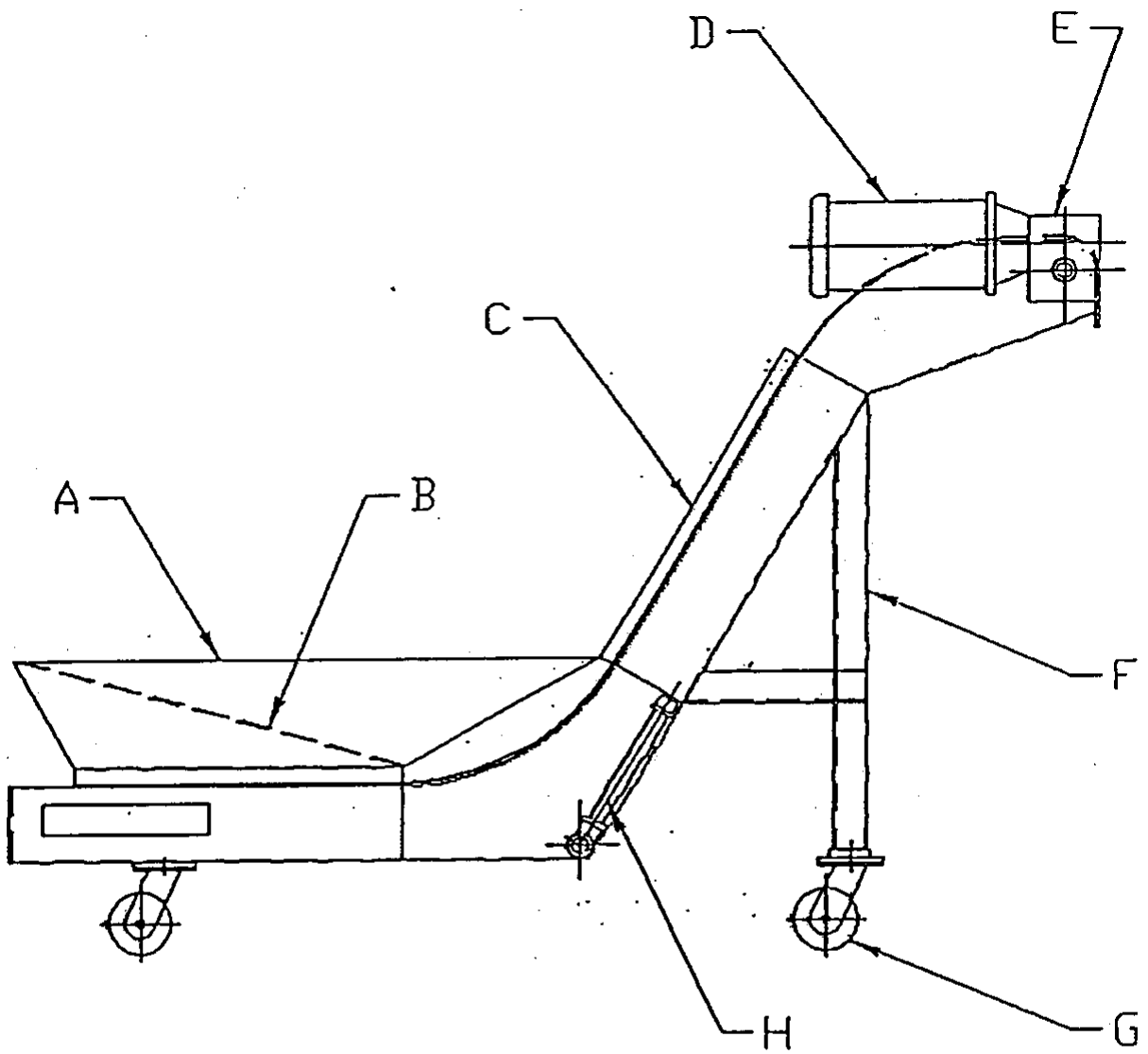


fig. 1.1

CONVEYOR ACCESSORIES

- A - RECEIVING HOPPER
- B - REVERSE FLOW BAFFLE
- C - SIDE GUIDE
- D - DRIVE MOTOR
- E - GEAR REDUCER
- F - LEG SUPPORT
- G - CASTER
- H - OIL FILL, DRAIN & DIPSTICK

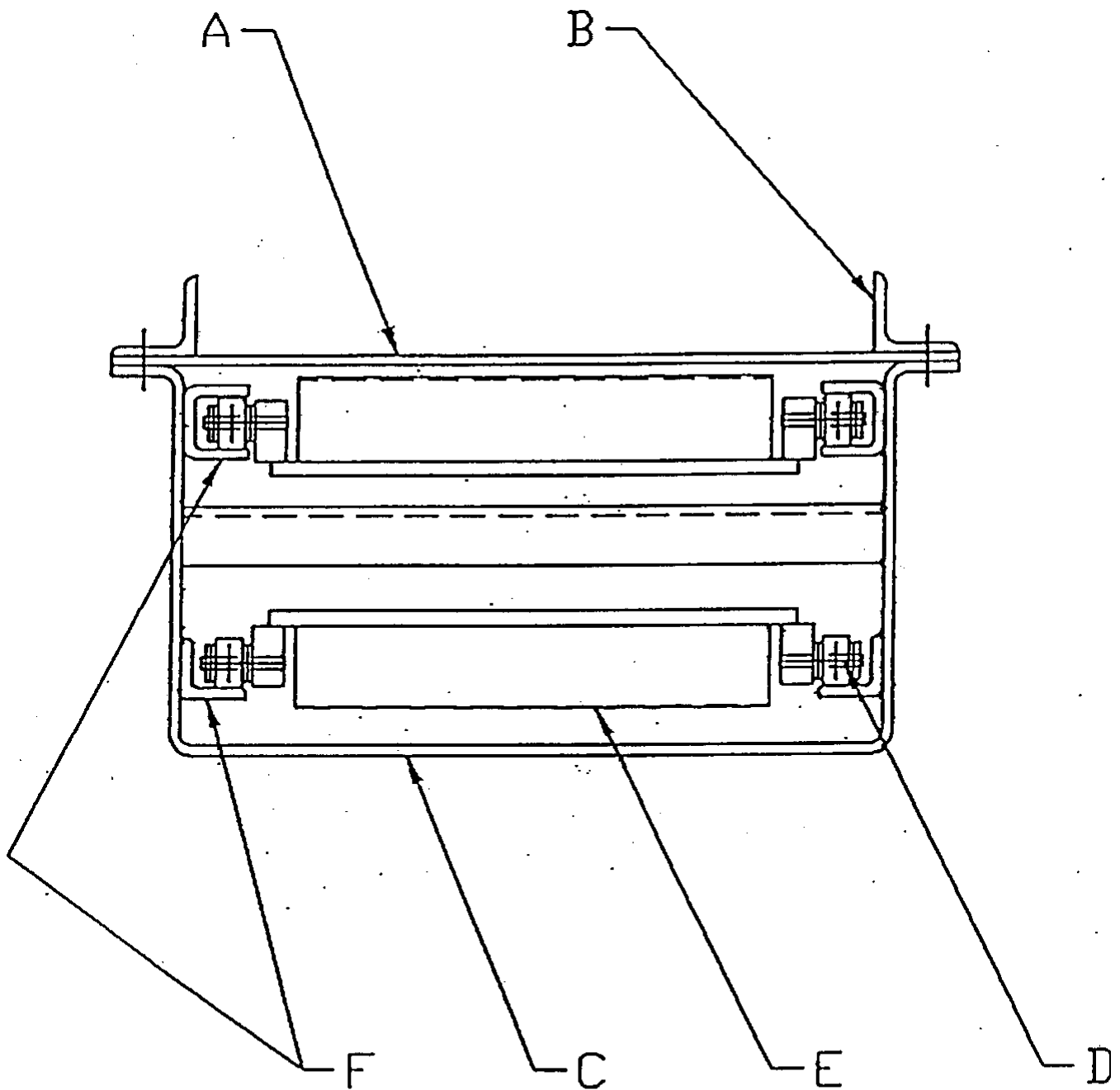


fig: 1.2

TYPICAL CROSS SECTION

- A - SLIDER BED
- B - SIDE GUIDE
- C - BODY CHANNEL
- D - SIDE CHAIN
- E - MAGNET ASSEMBLY
- F - TRACKING

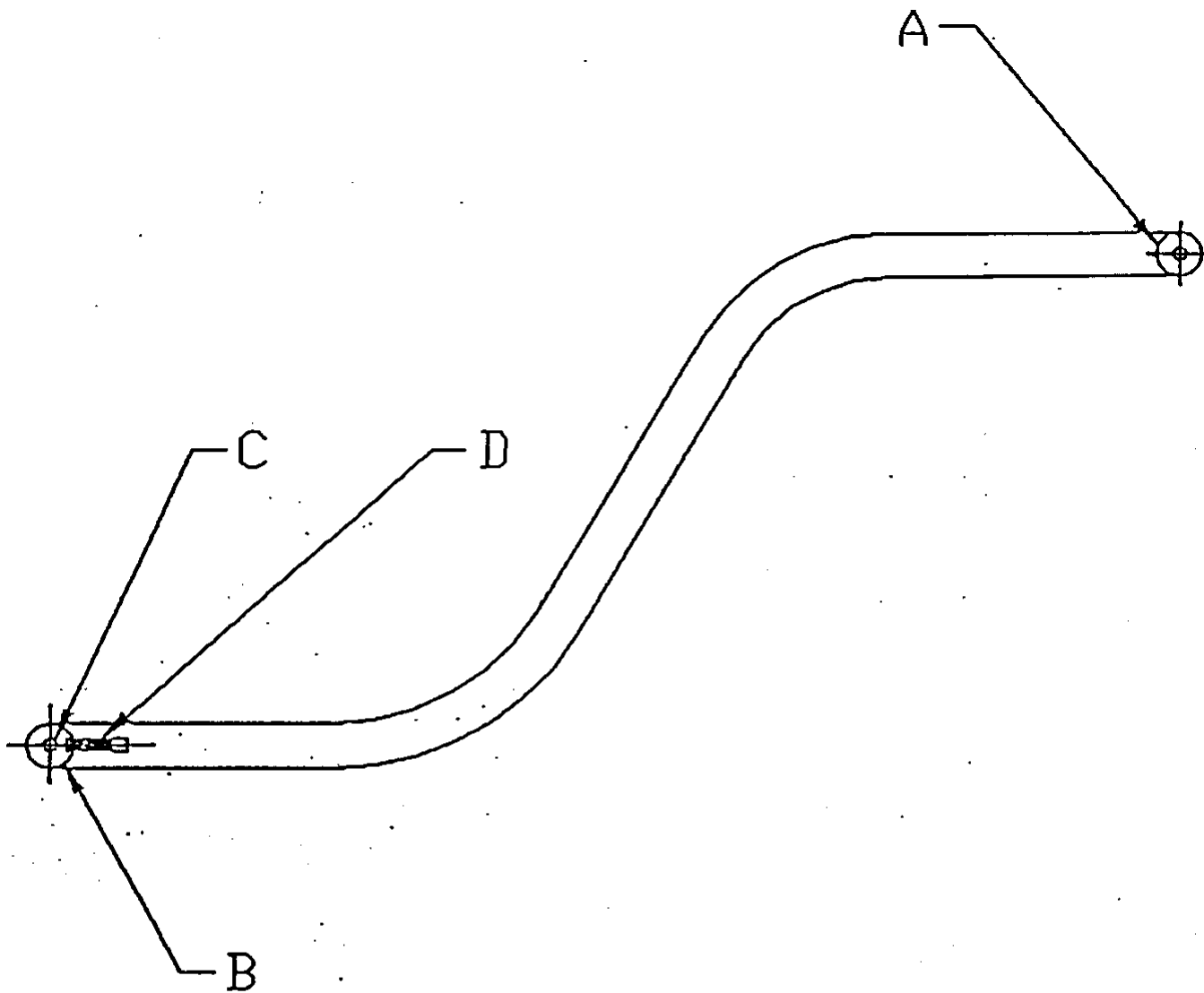


fig. 1.3

INTERNAL COMPONENTS

- A - DRIVE SPROCKET
- B - TAKE-UP SPROCKET
- C - TAKE-UP SHAFT
- D - TAKE-UP SPRING

REPLACEMENT PARTS

When ordering spare parts, make a photocopy of this sheet and provide ALL requested information. FAX or MAIL a copy for pricing and availability

to:

HENNIG, INC.
 9900 North Alpine Road
 Machesney Park, IL 61115
 Phone: (815) 636-9900
 Fax: (815) 636-9737

FROM:

Company Name: _____

Address: _____

Phone: _____ Date: _____

Fax: _____

CONVEYOR MODEL NO. _____

SERIAL NO. _____

PART NO.	DESCRIPTION	QTY PER CNVYR	REQ'D
-1.0-I	Head Shaft	1	
-1.0-J	Head Shaft Bearing	2	
-1.0-K	Slider Bed	1	
-1.1-D	Drive Motor	1	
-1.1-E	Gear Reducer	1	
-1.1-G	Caster (Rigid)	2	
-1.1-G	Caster (Swivel)	2	
-1.1-H	Dipstick	1	
-1.2-D	Side Chain	2	
-1.2-E	Magnet Assembly (standard)	Per	
-1.2-E	Magnet Assembly (wiper)	Per	
-1.3-A	Drive Sprocket	2	
-1.3-B	Take-up Sprocket	2	
-1.3-C	Take-up Shaft	1	
-1.3-D	Take-up Spring	2 or 4	