SERVICE INFORMATION FOR METER ROLLS ON CMS-H AND CMS-J SERIES DRYERS EQUIPPED WITH RECIPROCATING DRIVE

Important Operating Information:

The Meter Roll Drive, as shown in Fig. 1, consists basically of a drive link with means for variable engagement into a cam on one end and pivotally attached to an arm of a torque limiting device that transmits power to the right-hand meter roll through a one way clutch system. To prevent backlash of the meter roll input shaft between strokes, a backstop cage, also equipped with one way clutch bearings, is mounted on the end of the right-hand meter roll drive shaft and has a torque (stud) arm anchored to the dryer bearing plate. With this arrangement, the metering rolls can be rotated in their normal unloading direction (top of rolls move toward outside of dryer) with no drag or restriction from the drive system. However, they are positively locked in the reverse direction and cannot be rotated without proper release, as described later. The left-hand meter roll is chain driven by the right-hand meter roll at the discharge end of the dryer, as shown in Fig. 2.

In the event a foreign object becomes lodged in the meter rolls and jams the system, the following events would normally occur. The unloading auger and connected meter roll input sprockets, cam and reciprocator drive link would stay in motion. However, the friction clutches of the torque limiting device would slip and the meter rolls would not rotate. This condition would cause the following: CMS-H SERIES DRYERS ONLY - In the case of CMS-H dryers, the torque limiter would continue to slip until the grain temperature exceeds the setting of the grain column high limit thermostat. When this occurs, the thermostat will open the safety circuit and cause total dryer shutdown.

> NOTE: If the grain column high limits are improperly set too high, the torque limiter clutch will slip for an excessive length of time, thereby causing possible need for clutch readjustment or replacement of the clutch discs.

CMS-J SERIES DRYERS ONLY - On these dryers, the meter rolls are constantly monitored by two timing devices. If either meter roll fails to make a revolution within a preset time, while unloading is in progress, the timing devices will open the safety circuit and cause dryer shutdown.

How To Determine Metering Problem:

To determine whether metering problem is caused by blockage, perform the following: Place a pipe wrench on the hub of the roller chain sprocket of the RH Meter Roll at the discharge end of the dryer and apply up to 100 Ft.-Lb. of force to attempt to rotate the roll toward the outside of the dryer. If the metering rolls will turn, it can be assumed that no blockage exists and that the problem is due to some other cause. Check for break in power train, belts, chains, pins, etc.

To check torque limiter setting, follow steps described in "Torque Limiter Readjustment".

Make sure drive link tension spring returns drive link into engagement with cam. Adjust tension if required.

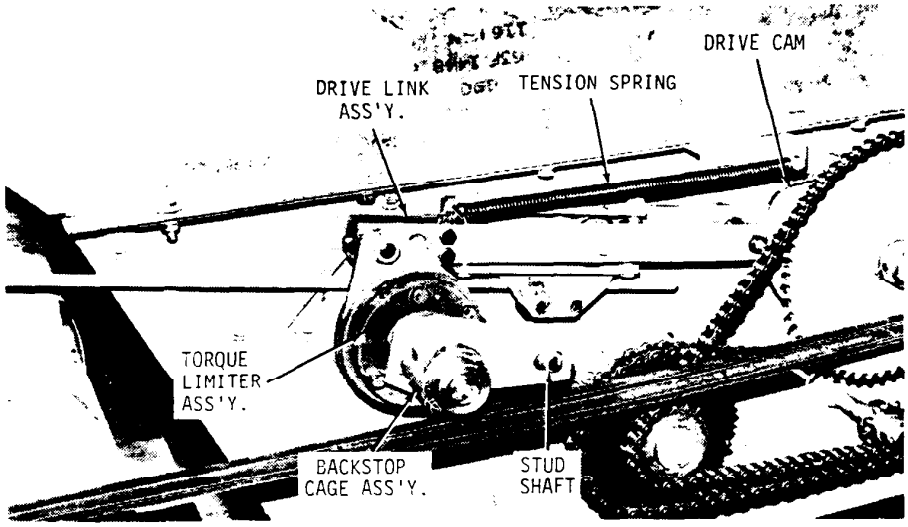

FIG. 1 - VIEW OF METER ROLL DRIVE PARTS

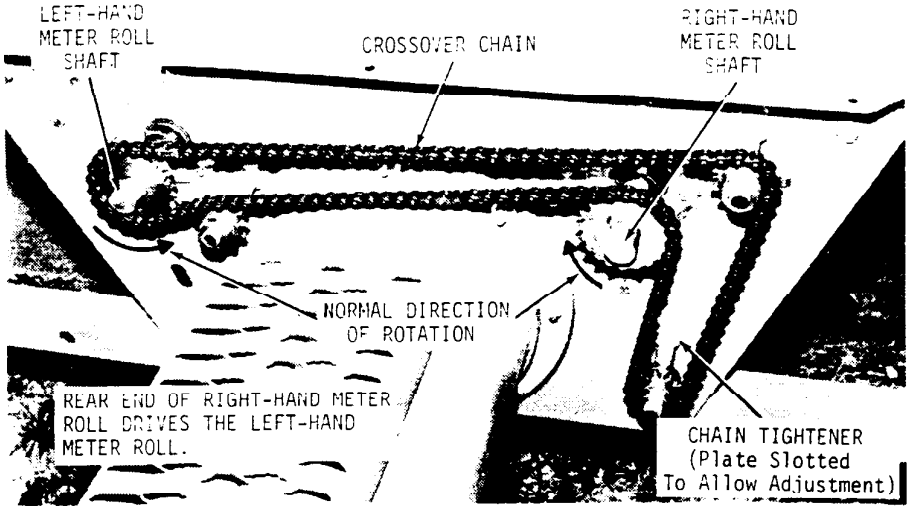

FIG. 2 - DISCHARGE END VIEW OF METER ROLL DRIVE PARTS

To Locate The Jam:

First, determine if the right-hand or left-hand meter roll is jammed. To determine this, go to the discharge end of the dryer and feel the tension in the top and bottom section of the meter roll crossover chain. If the tension is equal in both sections, then it can be assumed that the left-hand roll is clear. However, if the lower section is extremely tight and tension will not equalize when attempting to deflect the bottom section, it can be assumed that the jam is in the left-hand roll.

To Clear Jam From Left-Hand Roll:

Loosen the chain tightener, as shown in Fig. 2, and remove the crossover chain. CAUTION: Keep hands away from sprocket teeth to avoid injury that may result from chain backlash as a result of torsional buildup in the system caused by the jam. At this time, place a pipe wrench on the hub of the sprocket of the LH Meter Roll and turn roll, first backward and then forward several times in an attempt to dislodge the object and clear it through the roll. If this is not successful, then with all fan-heater units shut down for quietness, have an assistant turn meter roll and attempt to locate jam by sound. Once the location is determined, remove a section of bottom plenum closure at jam area and insert a grain column cut off damper above the meter roll. With this in place, access can now be made to the roll from the outside by opening access door to remove foreign object. See Fig. 3.

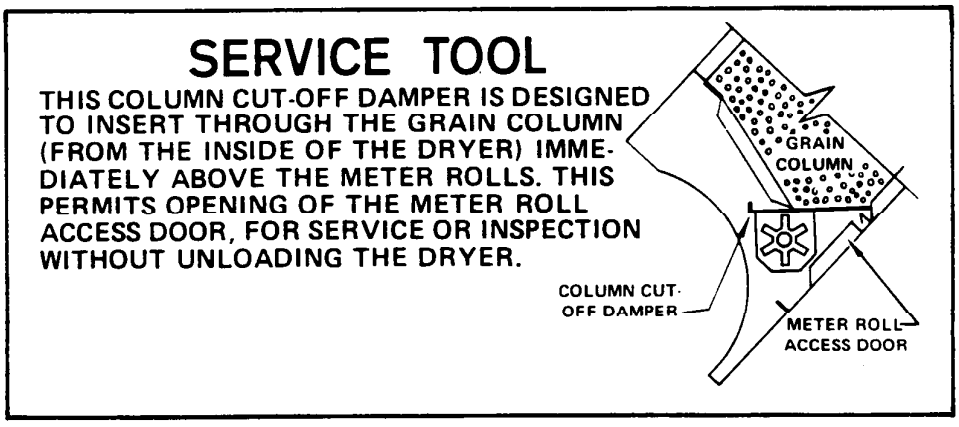

FIG. 3 - GRAIN COLUMN CUT-OFF DAMPER - DECAL SHOWING INSTRUCTIONS

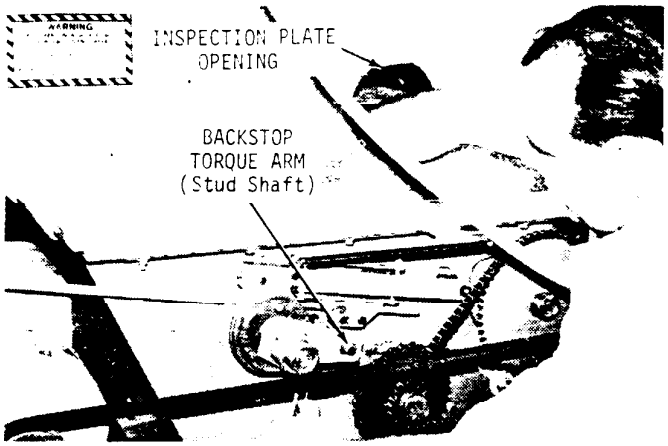

FIG. 4 - REMOVING THE BACKSTOP TORQUE ARM

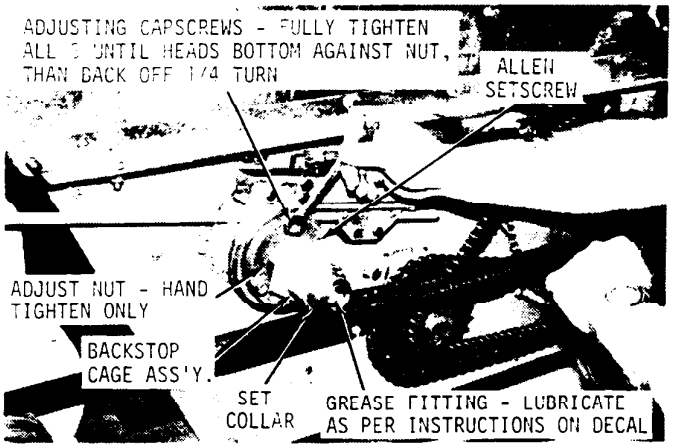

FIG. 5 - ADJUSTING THE TORQUE LIMITER ASSEMBLY

To Clear Jam From Right-Hand Roll:

As mentioned earlier, the right-hand meter roll is positively locked against backward rotation and must be properly released before it can be turned backwards. In the case of a jam in the RH Roll, it is necessary that inspection plate be removed from the front panel and the backstop torque arm be removed from the bearing plate, as shown in Fig. 4, to relieve any torsional buildup in the system. After the torque arm has been removed, the backstop will be free to rotate. Next, loosen (four turns each), the three adjusting capscrews and the allen setscrew located in the large nut on the front side of the torque limiter. With these parts loosened, the roll is now released and can be reversed. Follow the same steps for locating and removing object as described for LH Roll.

To Readjust Torque Limiter:

Inspect clutch facings for excess wear or breakage. Replace or readjust as required. To properly set clutch torque: (1) With the three fine adjust capscrews still loose, rotate the main nut by hand to take up all slack between clutch facings but do not apply pressure to facings. (2) Then turn the fine adjust screws all the way in until their heads bottom against the large nut. (3) Back each adjust screw off 1/4 turn and tighten the allen setscrew. This should give a torque setting of approximately 1,700 In.-Lb. See Fig. 5.

Reinstall the backstop torque arm and relubricate drive per instructions on lube decal.

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