

DIRECTORATE GENERAL BORDER ROADS
GENERAL MAINTENANCE INSTRUCTION NO. 152
ON

CARE OF UNDER CARRIAGE PARTS OF CRAWLER TRACTOR

Introduction

1. Care of under carriage parts of a Crawler Tractor is very essential and to increase the track life of the eqpt to reduce the pair and replacement cost of the highly expensive under carriage components, mostly of imported origin.

Aim

2. To highlight the various precautions and measures necessary to reduce the wear on under carriage parts of Crawler Tractors and to obtain better efficiency from the machine by preventive maintenance.

General

3. The reasons for excessive wear of under carriage parts and precaution necessary to minimize the wear are given below. Following under carriage parts are subject to heavy stress, strain and wear :-

- (a) sprockets
- (b) Carrier rollers
- (c) Links
- (d) Idlers
- (e) Pins bushings
- (f) Rollers
- (g) Guides

4. Ground conditions on which the wear depends

- (a) Rocky ground wears and bends shoes. Severe repeated impact can cause link cracking.
- (b) Wet clay cased soil pack in sprocket teeth and around bushings, which can damage bushings.
- (c) Sand speeds wear on pins and bushings, Sprockets links and rollers.

Guidance for user Units

5. Job that affect under carriage wear

- (a) Dozing or push loading wears front rollers faster. Switching front and rear rollers is one means of balancing wear.
- (b) Working in a pattern that requires consistent turning to right or left will cause on trade to wear faster than the other. Either work pattern has to be changed, or periodically trade assy has to be switched from one side to the other in order to balance the wear.

(c) Side hill work speeds wear of roller flanges and link sides. When such work is required, the machine should be equipped with track guiding guards and roller guards to hold the track in line.

6. Operators can control under carriage wear

High speed operation accelerates under carriage wear, creates violent stresses that damage or misalign the front trade rollers and idlers. Bushings and sprocket wear is greatly increased by high speed reverse operation. Tractors should not be operated faster than necessary to get the job done in time.

7. Spinning tracks

No work should be done by spinning a track which wears shoes rapidly. Teaking a deep cut with a dozer will spin tracks. Spinning track is a waste that should always be avoided.

8. Too loose or too tight trucks

Properly adjusted track sage about 1" to 1 $\frac{1}{2}$ " between the front carrier roller and idler. This adjustment is easy to make and this should be a cheek point in the regular maintenance procedure.

If trade is too loose it whips at high speeds and the resulting impact damages links and carrier rollers. Loose track may also come off under certain conditions.

When truck is too tight every components is over loaded and strained. Friction at track joints is extreme, track assy runs hot, pins and bearings may loose hardness. Draw bar horsepower is reduced and wear is excessive.

Action by Field Workshops

9. Internal pin and bushing wear

Wear of pin and bushings is concentrated in a small area side the bushing. This area is invaniably where the pin and are always in contact whether in forward or reverse operation internal wear occurs, each pin moves off centre in the bushing, increasing the distance between each bushing (Track Pitch). Eventually pitch will increase until bushings no longer mesh properly with sprocket teeth. Bushings are foreed to slide into place, wear on bushings and sprocket teeth is greatly increased. Turning pine and bushings reduce the efforts of internal wear. When pine and bushings are turned they are rotated 180 degree, putting new surface to work where worn surface wore before.

Track pitch is restored to new dimensions and bushings mesh properly with the sprocket. Excessive wear of sprockets and bushings is eliminated. Turning pins and bushings at right time can increase sprocket life up to 100%.

10. Bushing life prolonged by turning

Bus hinge which are turned before they have excessively worn, will have sufficient strength to resist cracking and additional life is gained.

11. When to turn pins and bushings

Pins and bushings should be turned when any of these points is reached.

(a) When increase in track pitch per section of 0.12" (1/8") is reached. (use on average at least 4 track sections).

(b) 0.12" (1/8") wear on the bushing outer surface is reached (forward and reverse drive side wear to be measured which ever is greater)

When the wear line on the sprocket on the forward drive side is Away from sprocket lip. (this is an excellent guide and checked without measuring tools. The wear line may not appear for second set of pins and bushings, now after the pins and pushing have been turned.

12. Tools

Tools and presses recommended for turning the pins and bushes will be communicated separately.
