SESSION 4
PAPER (c)

TRACKS

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INTRODUCTION

Tracks and Undercarriage generally have over many years done hudnreds of thousands of hours in building the logging industry of New Zealand. Although in recent years the rubber tyred machine has replaced many track machines as long as roading, hill country logging and all season logging are with us so then is the crawler tractor.

When we look at the figures of new machine purchase and find that around 20% of that cost is for the undercarriage and over the life of the machine up to 50% of the maintenance costs can be spent on undercarriage. (50 cents in the dollar).

So anything we can do to extend the life of our undercarriage is going to lower our operating costs.

Your tractor's undercarriage is designed to work as a system. Although wear cannot be eliminated, it can be slowed down and life of the system prolonged with proper maintenance and operation by YOU.

WEAR FACTORS

The Track Link is the key component in the undercarriage system in that the wear characteristics determine subsequent action with other components. The biggest single factor determining link life is the Pins and Bushes. To get the best life from our Pins and Bushes we must firstly understand how they wear.

We know that wear is caused by the relative motion of two parts that are contacting each other with some load and that if we increase the load and/or the motion we must increase the wear. What we say here is that the faster we drive our tractor the faster our Pins and Bushes will wear out. When operated in reverse the wear rate on Pins and Bushes is more than doubled because:

1. Reverse speeds always appear faster than our foward ones.
2. We have 100% load on 2/3rds of the Pins and Bushes as they turn.

Pins and Bushes must be turned at the right time. As they wear they become loose within one another allowing tracks to become snaky. The track pitch extends causing accelerated wear on sprockets and this accelerates the external wear on the bushings and if not caught in time can make it necessary to renew Pins and Bushes instead of turning.

PREVENTION

(a) Track Adjustment

It is the simplest to recognise and the easiest to correct. An important factor to remember when adjusting tracks is to adjust them in the conditions in which the machine is working. For if they are adjusted and then put to work where there are packing conditions, the track tension increases creating a "too tight" situation and as a result both load and wear is increased on all mating components in the system.

(b) Shoes

When selecting shoes for your tractor be sure you always select the narrowest shoes possible that can still give you adequate floatation. Unnecessarily wide shoes can cause structural problems on other components i.e. link damage, bush ends breaking.

Apart from the fact that wide shoes or hard ground increases the turning resistance, bent shoes create jamming situations shearing or loosening bolts. Wallowed bolt holes or fretted link surfaces make it impossible to keep shoes tight.

(c) Rollers/Idlers

Keep dirt and debris away from rollers so they can turn freely especially when parking a machine overnight. In colder conditions mud freezes around c/rollers and when shifting machine first thing in the morning it's only a matter of time before flats occur or c/roller faces.

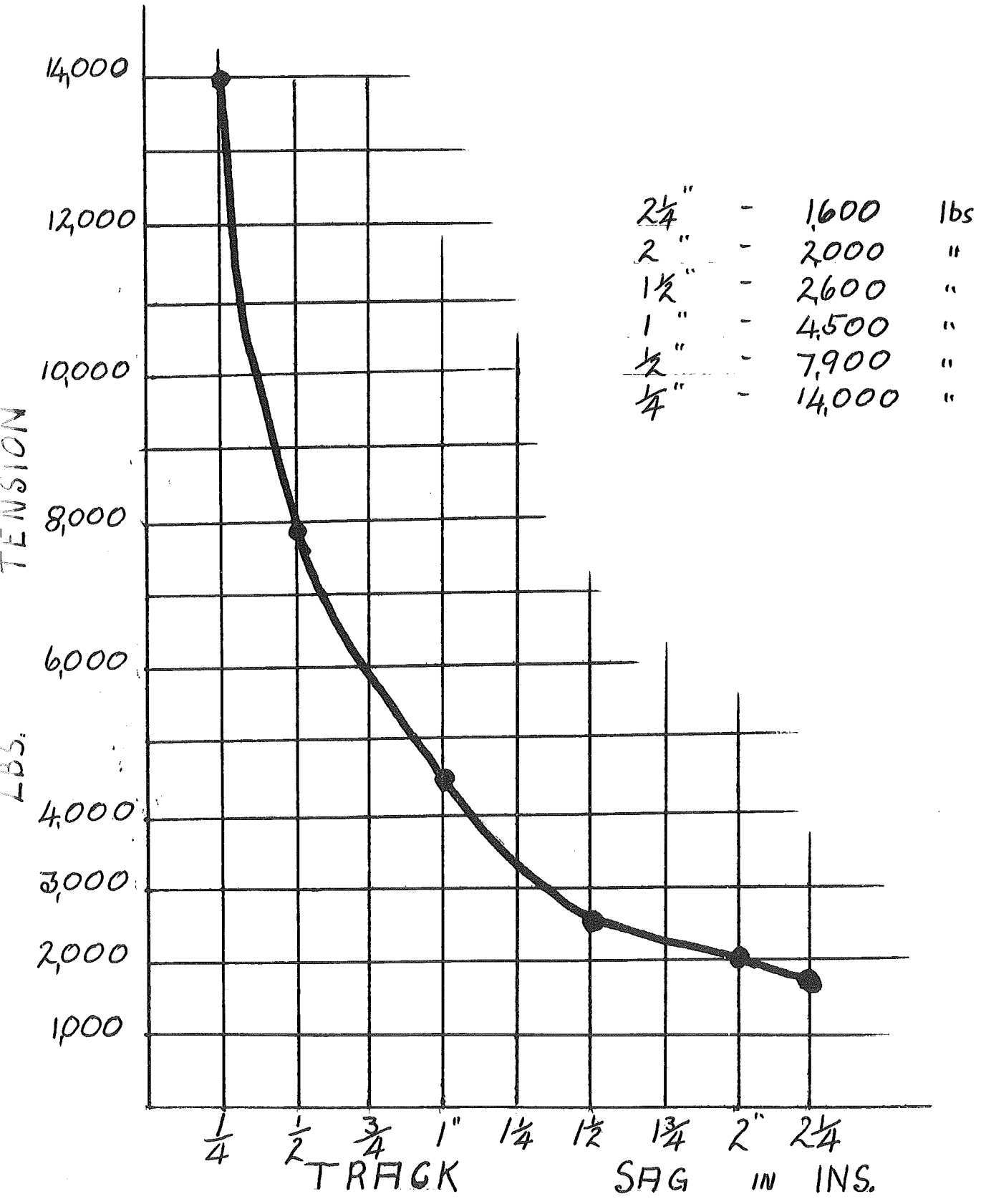
Always park machine on flat ground. Apart from the safety aspect the "lie" of the machine can load and distort the seals in life lubricated track rollers and when first moving off oil can leak out until the seal returns to its orginal shape.

Most crawler tractors have a recoil spring set in the track frame and connected to the front idler. It is imperative that this be well guarded and kept free from packing materials. This spring is the relief valve of the whole system. It takes all the shock or impact loading on the front idler. It also allows the idler to retract if debris jams between the tracks and other components. If this is unable to operate then idler shafts, hydraulic track adjust cylinders and also track links will suffer.

(d) Records

Finally keep good records. It is highly unlikely that you can accurately say how much your undercarraige is costing if you don't have a log book or a time and record book of some type for your machine and also an operative hour meter is a must. To get the best out of what you've got you need to know fairly accurately when to turn Pins and Bushes, at what hours you should put a hard run of welding on the shoes or how long your rebuilt components lasted compared with new. What is the cost per hour of rebuilt undercarriage as against new? Have you been getting value for money? Some Companies offer a measuring and/or advisory service and you as owners are well advised to make use of this service.

Gentlemen, I leave you with these "points to ponder" and remember that the whole undercarriage is a system and anything that affects one component affects the whole system. One damaged shoe or one leaking roller is enough to start the collapse of the whole system. Likewise if you can improve the life of only one component this will help you to get the BEST OUT OF WHAT YOU'VE GOT.



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2"	-	2,000	"
1½"	-	2,600	"
1"	-	4,500	"
½"	-	7,900	"
¼"	-	14,000	"