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CLEANING CASSETTE FOR MAGNETIC
TAPE APPARATUS

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The present invention relates to cleaning de-
15 vices for cleaning the components of magnetic tape
recording and/or play-back apparatus.

20 It is well known that the passage of magnetic
tapes against components such as recording and play-
back heads and driving members creates deposits of
particles of iron oxide, and that the accumulation of
these deposits gives rise to noise and/or to distor-
25 tion of the recorded or reproduced signal. Also such
deposits impair the passage of the tape at the con-
stant speed required for the recording or repro-
duction of signals of good quality because of slip-
ping of the driving members.

30 To eliminate these deposits and to clean such
components of the recording and/or play-back appara-
tus, various means have been proposed including clean-
ing cassettes. One type of cleaning cassette incor-
porates a fixed tank of cleaning liquid which is
35 applied to a tape then used to apply the cleaning

liquid on the tape to the components to be cleaned. However, the use of such cassettes requires attention from the user, and the cleaning liquid while applied continuously to the tape, may not be uniformly distributed thereon, which reduces cleaning effectiveness.

30 The permanent and continuous application of any cleaning liquid on the tape, which is necessary to ensure effective cleaning, tends to make the tape adhesive, to the extent that it sticks to and winds itself around the rotary elements (capstan, 35 pressure rollers, the drum of video heads). The

result of this is, generally, that either the cleaning tape or components of the apparatus are damaged.

This phenomenon is especially a problem in video cassette records in which the play-back and recording heads are mounted on drums having a diameter of 70 to 100 mm and rotating at speeds of the order of 1,500 to 1,800 revolutions per minute. When a tape wetted with liquid is carried against the drum of such VCRs, and sticks to the drum, it is immediately driven at the peripheral speed of the drum, and it will be appreciated that, as a function of the figures mentioned above, the tape will be unwound completely from the reel hubs of the cassette and wrapped around the drum within a few tenths of a second. The major disadvantages of this are that:

- the tape is unwound from the reel hubs of the cassette at high speed whereas it is normally unwound only at a very low speed (a few centimeters per second) which presents a high risk of damage to the tape or components of the apparatus;

- no cleaning has been carried out;
- since the tape is wrapped around the drum in the apparatus, it is impossible to rewind it in the cassette, and the apparatus has to be taken to a repair shop for removal of the tape.

One object of the present invention is to overcome or reduce such problems.

According to the invention, there is provided a cleaning cassette for use in magnetic tape recording and/or play-back apparatus, comprising a pair of reel hubs, a cleaning tape connected for movement between said reel hubs, a source of cleaning liquid, and means for applying said liquid from said source to wet a surface of said tape, said means comprising a roller arranged to be driven by movement of the cleaning tape, said roller comprising absorbent material exposed on a part only of its surface by means of which liquid from said source is arranged to be intermittently applied to

the tape by the rotation of said roller so as to obtain a predetermined intermittent wetting of the cleaning tape.

The invention will be further described in conjunction with the accompanying drawings, in which:

5 Figure 1 is a plan view of a cassette constructed in accordance with the invention;

 Figure 2 is a sectional view taken in the planes of lines 2-2 in Fig. 1;

10 Figure 3 is an enlarged view of the cleaning reel;

 Figure 4 is a sectional view taken in the plane of lines 4-4 in Fig. 3.

Turning now to Figure 1, a cleaning cassette 10 is shown having a cleaning tape 11 connected to a pair of
15 reel hubs 12, 13 rotatably mounted in the cassette housing 14. When the reel hubs are driven in the direction of the arrow, the tape will be unwound from the take-off reel hub 12 and transferred to the take-up reel hub 13. The cleaning tape is preferably made of uncoated poly-
20 ethylene film, and is trained around rods or rollers 18 so as to extend across the front edge of the cassette housing 14, where it is protected by a removable cover 19.

According to the invention, the cassette includes a
25 source of cleaning liquid herein shown as a roller 20 rotatable on a shaft 21 and having a core 22 of absorbent material such as felt or sponge rubber. In order to provide cleaning liquid for applying to the tape, the core 22 of absorbent material may be saturated with clean-
30 ing liquid. To apply the cleaning liquid from the saturated core 22, a segment 23 of the core 22 is exposed on and protrudes from, the periphery of the roller 20, except for this segment 23 the core 22 being enclosed in an

impervious shell 20-A.

To permit the introduction of cleaning liquid to the core 22, the cassette housing has an opening 30 formed by a disc shaped element 32 fixed to the outer wall 34 of the housing 14. To spread the cleaning liquid through the core 22, the device 36 is used providing a ring of spaced holes 36-A through which liquid passes to the core 22.

As the tape is driven from reel hub to reel hub, the roller 20 is driven and during each rotation of the roller, applies liquid from the core to the outer surface of the tape over a sector corresponding to the surface of the protruding segment 23 of the core. The surface of the tape 11 is wet intermittently in order to avoid sticking of the tape to the drum carrying magnetic heads, or to tape driving means, of the tape apparatus being cleaned with the cleaning cassette.

In an exemplary embodiment, the tape is wetted every six centimeters for a length of approximately eight millimeters, but this may be varied as desired by providing a wider or narrower segment 24 through which the core 22 protrudes.

In order to provide a reversible cassette, a duplicate roller 20¹ similar to the first roller 20 is provided on the other end of the cassette to engage the tape 11 near the other reel hub 13. When the tape is driven in the direction from the reel hub 13 to the reel hub 12, the duplicate roller 20¹ serves to apply liquid to the surface of the tape 11 intermittently, for cleaning components of magnetic tape apparatus.

CLAIMS:

1. A cleaning cassette for use in magnetic tape recording and/or play-back apparatus, comprising a pair of reel hubs, a cleaning tape connected for movement
5 between said reel hubs, a source of cleaning liquid, and means for applying said liquid from said source to wet a surface of said tape, said means comprising a roller arranged to be driven by movement of the cleaning tape, said roller comprising absorbent material exposed on a
10 part only of its surface by means of which liquid from said source is arranged to be intermittently applied to the tape by the rotation of said roller so as to obtain a predetermined intermittent wetting of the cleaning tape.
2. A cleaning cassette according to claim 1, wherein
15 said source comprises a core of absorbent material in said roller.
3. A cleaning cassette according to claim 2, wherein an opening in the housing of the cassette permits the introduction of cleaning liquid to said core.
- 20 4. A cleaning cassette according to claim 3, including a device for spreading, through the core, cleaning liquid which has been introduced through said opening in said housing.
5. A cleaning cassette constructed and arranged for
25 use and operation substantially as described herein with reference to the accompanying drawings.

