

REMOTE CONTROL UNIT UN3/24

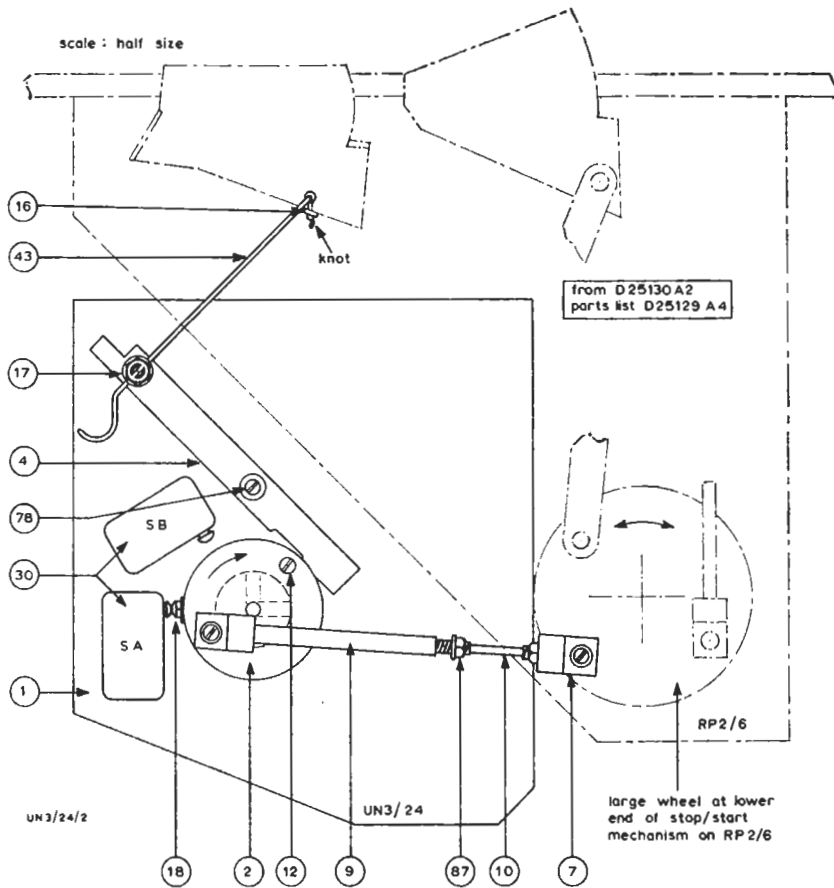


Fig. 1. UN3/24 Mechanism (solid lines) and RP2/6 Stop/Start Mechanism (chain lines): Shown with RP2/6 in 'Run' Condition and UN3/24 in 'Stop' Condition

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|----------------------|--------------------------|------------------------------------------|
| 1. Mounting plate | 10. Connecting rod | 30. Microswitches |
| 2. Cam | 12. Trip cam (behind 2) | 43. Cord (clamped between fibre washers) |
| 4. Trip lever | 16. Cord retaining plate | 78. Fulcrum screw for 4 |
| 7. Gear link | 17. Special screw | 87. Nyloc nut |
| 9. Connecting sleeve | 18. Cam screw | |

General

The UN3/24 is designed specifically for use with disk reproducer RP2/6.* It enables the disk to be stopped and started by means of a simple electrical switch at any remote point. It is relatively easy to fit to an existing reproducer since no mechanical modifications to the reproducer are required; it has only to be fixed in position and coupled mechanically and electrically.

Mechanical System (Fig. 1)

RP2/6 Stop/Start Mechanism

The stop/start mechanism on the RP2/6 is actuated by two keys, a green *Start* key and a red *Stop* key; these cause the turntable footstep cam to rotate in opposite directions through nearly 180 degrees. The large wheel at the lower end of the stop/start mechanism moves through only 60 degrees, and it is to this wheel that the control unit is coupled as shown in Fig. 1. The stop/start mechanism is drawn in the 'disk running' position and in order to stop the disk it is only necessary to rotate the wheel anticlockwise through 60 degrees, when the whole mechanism will latch just as though the red *Stop* key had been pressed manually.

Remote Control Arrangement

The cam (2) on the UN3/24 is coupled to the wheel on the RP2/6 by a link made in two parts, a rod (10) which slides in a sleeve (9), so that the link can only transmit thrust. Thus, if the cam rotates clockwise through one revolution from the position shown, the stop/start mechanism of the RP2/6 will be latched in the *stop* position as the cam passes top dead centre, and rod (10) will remain behind as sleeve (9) returns to its original position.

With the cam in the position shown and the stop/start mechanism latched in the *stop* position, a trip lever (4) just touches a trip cam (12) which is fixed to and behind cam (2) at about 'one o'clock' as drawn. The lower end of the trip lever is profiled so that as soon as the cam moves clockwise from the position shown the trip lever is caused to move anticlockwise, thus pulling the green *Start* key of the RP2/6 downwards and releasing the mechanism.

The cam is driven by a small synchronous motor through a 12½:1 reduction gearbox. The consumption of the motor is 75 mA at 24 volts 50 Hz and the speed of the cam is 20 r.p.m.

There are two stationary positions of the cam

as governed by the positions of two microswitches, SA and SB; when either of these is operated by cam-screw (18), the supply to the motor is interrupted and the cam stops. The motor is restarted by completing the circuit through relay RLA (Fig. 2), when the cam continues until the other microswitch operates.

When the cam is stopped by either SA or SB, the stop/start mechanism of the RP2/6 can be operated normally by hand, because the cam is near bottom dead centre and rod (10) can move without constraint in sleeve (9).

Circuit Description (Fig. 2)

When RLA is unoperated, the cam homes on to SA. Operating the relay causes the cam to move to SB, thereby starting the disk. Deoperating the relay causes the cam to move right round to SA again and during this motion the disk is stopped.

The a.c. supply is obtained from the 30-volt winding on the reproducer; R1 and R2 drop the voltage on load to about 24 volts.

Capacitor C1 is supplied with the motor and is the usual starting/running capacitor associated with single-phase operation. C2, C3 and C4 are anti-click components.

RLA normally operates on 24 volts, but may be operated from a 50-volt supply through an external 680-ohm resistor.

Maintenance

Switch Adjustment

A small amount of wear may take place initially on the faces of the two microswitch actuators and it may then be necessary to adjust the positions of the microswitches. The procedure is as follows:

1. Remove the d.c. supply to the UN3/24 by opening the remote-control switch.
2. Remove the a.c. supply by switching off the mains input to the RP2/6.
3. Adjust each microswitch, SA and SB, in turn so that it operates satisfactorily when the cam is rotated clockwise.
4. Take care that the switch plunger does not bottom under the action of cam-screw (18) and that the cam-screw initially touches the plunger in a satisfactory manner, i.e., that no undue manual force is required to turn the cam under the microswitches.
5. Restore the a.c. supply by switching on the mains input to the RP2/6. If cam-screw (18) is not already operating SA, the cam should rotate clockwise and stop when SA operates.

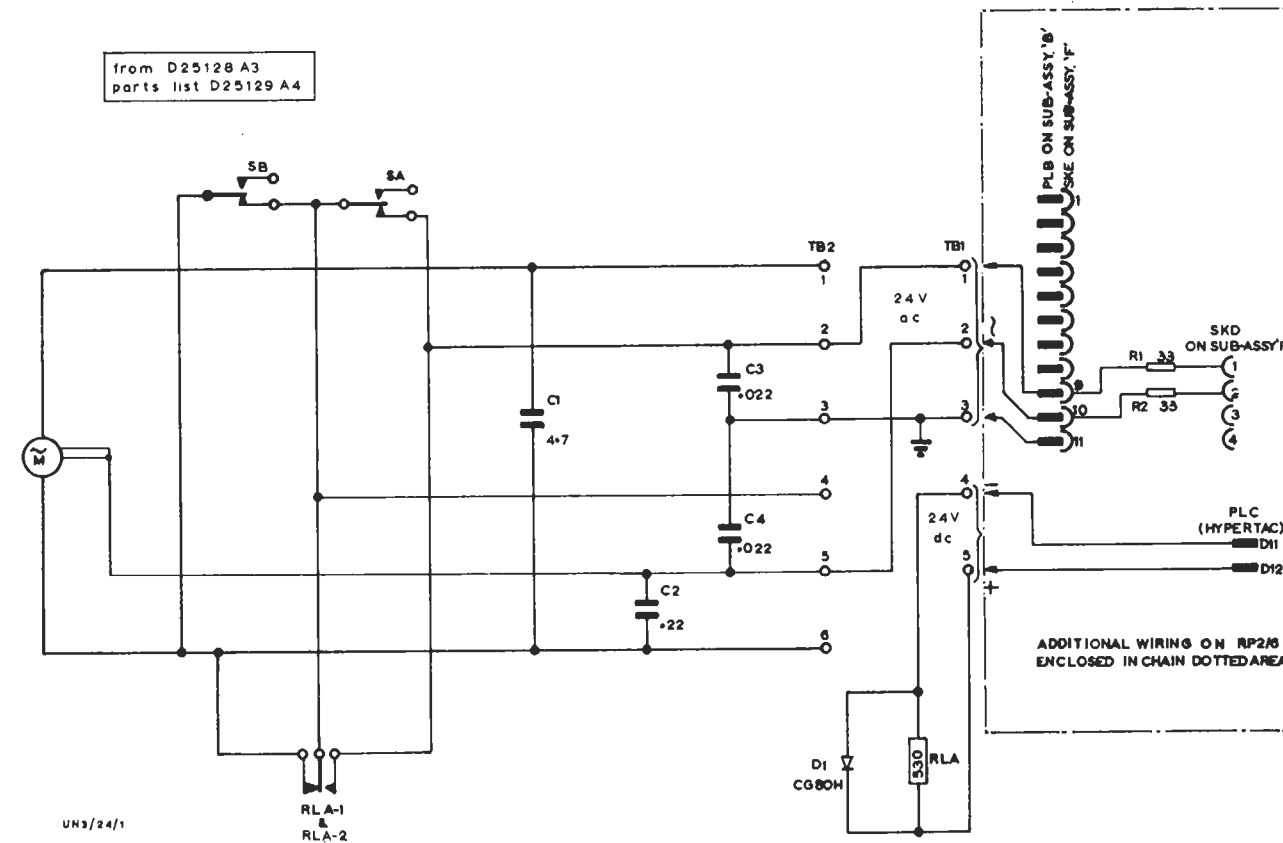


Fig. 2. Circuit of the UN3/24

* Designs Department Technical Memorandum No. 1.51(70).

6. Close the remote-control switch. RLA should now operate and the cam should again rotate clockwise and should stop when SB operates.
7. Open the remote-control switch again. The cam should rotate clockwise and stop when SA operates.

Trip Adjustment

Some initial stretch may take place in nylon cord (43), and the cord should then be retensioned as indicated below:

1. With the reproducer switched off, turn cam (2) clockwise until SA just operates.
2. Slacken the two nuts on special screw (17) which clamp the cord between two fibre washers to the trip lever.
3. Press down the red *Stop* key on the RP2/6 to set the stop/start mechanism in the tensioned condition.
4. Clamp the nylon cord so that it is taut, but not so taut that the green *Start* key is pulled down from its uppermost position. Not more than $1\frac{1}{2}$ inches of cord should protrude beyond the clamp.
5. Turn the cam clockwise and check that the mechanism trips.

Connecting Rod Adjustment

1. With the reproducer switched off, turn the cam past SB to tension the stop/start mechanism, and check that the mechanism just latches satisfactorily as connecting rod (10) passes

top dead centre. If it does not, adjust Nyloc nut (87).

2. Switch on the reproducer, and check that the mechanism works properly.

It may be necessary to make a slight adjustment to the Nyloc nut. In normal operation, gear link (7) should move a further 0.01 to 0.02 inch beyond the point at which the mechanism just latches in the tensioned condition.

Lubrication

1. Lubricate the crank pins at each end of the link assembly (9) and (10) with a good quality light oil.
2. Apply a good quality medium grease to the following points:
 - (a) along connecting rod (10) where it slides in connecting sleeve (9),
 - (b) to the head of cam-screw (18), and
 - (c) to trip cam (12).

Lubrication is normally required about every two months, but the need will vary with the amount of use to which the unit is put.

Assembly and Initial Adjustments

Instructions for assembling the UN3/24 to the RP2/6 and for carrying out various initial adjustments not described here are given in Designs Department Specification No. 1.72(69).

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