

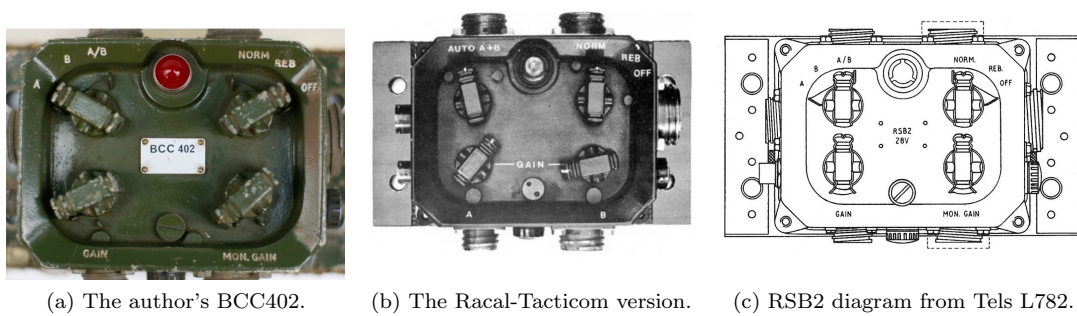
# The Larkspur II and BCC 400-series Radio Control Harnesses.

Mark Lane

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## Abstract

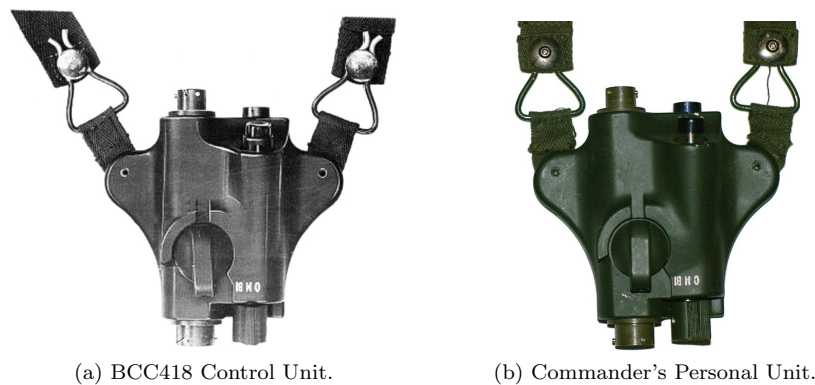
This article presents some interesting observations on the BCC 400 series vehicle harness system and the Larkspur II radio control harness. It was set using the article class of the  $\text{\LaTeX}$ typesetting system.



(a) The author's BCC402. (b) The Racal-Tacticom version. (c) RSB2 diagram from Tels L782.

Figure 1: BCC 402

After acquiring an intercom box labelled BCC 402, but which was not identical to the BCC 402 box shown in the Racal-Tacticom Limited manual of 1st July 1976, I looked at EMER Tels. L782 Part 1 Issue 1 of August 1973 and discovered that it was identical to the Larkspur II RSB2 box (Figure 36 on Page 39 of the EMER). Figure 1(a) shows the author's box, Figure 1(b) shows the BCC402 as pictured in the Racal-Tacticom manual and Figure 1(c) is the diagram of the RSB2 from the EMER.



(a) BCC418 Control Unit. (b) Commander's Personal Unit.

Figure 2: BCC418 and Larkspur II Commander's Personal Unit.

The Larkspur II Commander's Personal Unit also appears to be identical to the BCC 418 Control Communications Unit Personal Three-Radio – see Figure 2. The circuit diagram in the EMER<sup>1</sup> to my eyes, would appear to be the same as the one shown for the BCC 418 as Figure 2 in the Racal-Tacticom brochure of July 1976.

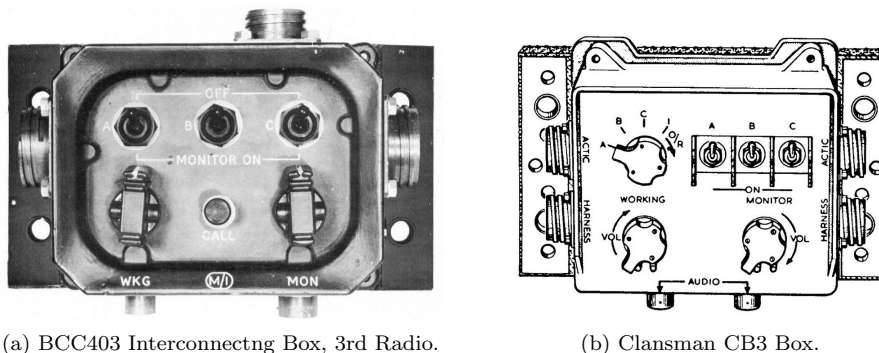
It is interesting to note that the MOD had decided to use the BCC 418 for both three-radio vehicles, using the modified Junction Distribution box No.9 from the Wireless Control Harness Type A<sup>2</sup>, and two-radio vehicles, using the RSB2 of the Wireless Control Harness Type B<sup>3</sup>, rather than using the BCC 410 for two radio vehicles.

In the original Larkspur system the commander of an 'A' vehicle used Microphone, magnetic, SI, No 5 and the commander of a 'B' vehicle used Microphone, magnetic, SI, No 7. Whilst this is, no doubt, a sensible rationalisation in logistical terms, it seems strange that the Clansman Commander's Personal Unit only allows the use of two radios despite the fact the some 'A' vehicles are still fitted with three radios (e.g. the FV432).



Figure 3: Larkspur II Crewman's Personal Unit.

The Larkspur II Crewman's Personal Unit does not appear to be part of the BCC400 Series Vehicle Harness System of 1976 (although the author has to admit he does not have a full listing of all the items of the BCC 400 system, much less a full knowledge of them). The casting for the case would appear to be the same as for the BCC 418, as would some of the components such as the four position switch on the front of the case.



(a) BCC403 Interconnecting Box, 3rd Radio.

(b) Clansman CB3 Box.

Figure 4: Three-radio boxes.

The BCC 403 Interconnecting Box, Third Radio is unlike any item of Larkspur equipment. It

<sup>1</sup>Figure 2049 in EMER Tels L782 Part 2 Issue 1 of August 1973 Page 1057

<sup>2</sup>EMER Tels L777 Mod Instruction No 5.

<sup>3</sup>EMER Tels L782 Parts 1 and 2.

has the ability to connect a third radio into the harness but, like all other boxes in the BCC 400 system, only one member of the crew can connect his headset to it. It has a similar appearance to the Clansman CB3 and, when connected to the BCC 418, has the same functionality. These two boxes are shown in Figure 4.

The differences between the BBC 402 from 1973 that I have and the BCC 402 from 1976 shown in the Racal-Tacticom Limited brochure could suggest one of three things:

1. The BCC 400 Series Vehicle Harness System was a pre-existing proprietary system and some of the components were adapted slightly to fit the Larkspur Radio Control Harness.
2. The BCC 400 Series was designed to satisfy a MOD requirement to upgrade the Larkspur Radio Control Harness (to Larkspur II) and only some of the components from the system where used.
3. The BCC 402, BCC 418 and the Crewman's Personal Unit were designed to satisfy a MOD requirement to upgrade the Larkspur Harness and the rest of the system was created in the following three years before the Racal-Tacticom Limited brochures where printed.

The user handbook for the Clansman Radio Control Harness is dated April 1976 and it is therefore a contemporary of the BCC 400 system. Thus it is suggested that the BCC 400 and the Larkspur II upgrades were a halfway house between Larkspur and Clansman, but the BCC 400 System was still based on Larkspur principles i.e.

- A separate two radio box, the BCC 402.
- A separate Remote control unit, the BCC 404.
- A separate Rebroadcast unit the BCC 412.

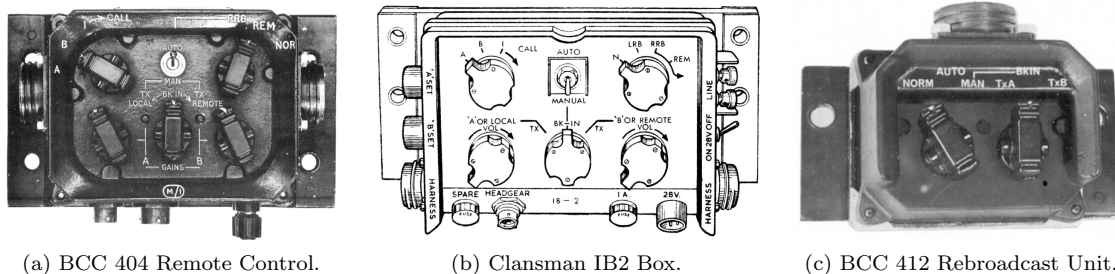
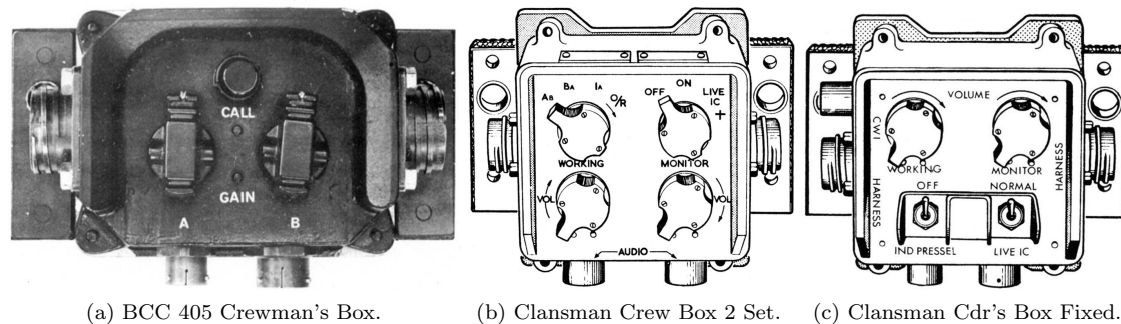


Figure 5

It has to be admitted that the BCC 404 bears a striking resemblance to the Clansman Interconnecting Box 2 radio in terms of the layout of the front panel, though (as mentioned above) without the functionality of the Clansman Interconnecting Box 2 radio unless the BCC 402 and BCC 412 are added.

The BCC 405 Crewman's box has less in common with the Clansman Crew Box 2 Set and much more in common with the Clansman Commander's Box Fixed. In fact the functions of the BCC 405 when combined with the BCC 410 seem identical to those of the Clansman Commander's Box Fixed and Personal Unit. Both systems provide:

- Monitor function.
- Independent pressel.
- Selection of A set, B set or Intercom.
- Battle Intercom / Live Intercom, Call / Over-ride switching.
- Two independent volume controls.



(a) BCC 405 Crewman's Box.

(b) Clansman Crew Box 2 Set.

(c) Clansman Cdr's Box Fixed.

Figure 6

The fact that this means that only one crewman can use the BCC 405 rather than the two that can use either the Larkspur or the Clansman crew boxes probably explains why, if it existed at the time of the Larkspur II, the BCC 405 was not used as part of the Larkspur II system. That and the fact that it was possible to use the existing C and D boxes from the B Harness.

It would appear that vehicles equipped with Larkspur J1 boxes were not catered for by either the Larkspur II Radio Control Harness or the BCC 400 Series Vehicle Harness System. Also, the fact that BCC 400 series boxes only allow one member of the crew to attach a headset to each box has more in common with the American AN/VIC system than the British ones.

It should be remembered by anyone looking at photographs of British AFVs taken between 1973 and approximately 1980 that it was the Larkspur II system that introduced the "Bone dome" or, more properly, the Amplivox Ltd. / Racal-Amplivox Communications Ltd. "Helmguard" into British army use and, therefore, the only way to tell whether the Larkspur II or Clansman system is in use when looking at a member of the crew, is to look at the Personal Unit / Pressel Box.

Larkspur II	BCC 400 Series	Clansman
RSB2/BCC 402(1973)	BCC 402(1976)	No direct equivalent (IB2)
No equivalent	BCC 403	No equivalent
R box	BCC 404	No direct equivalent (IB2)
No equivalent	BCC 405	No equivalent
B box	BCC 412	No direct equivalent (IB2)
No equivalent	BCC 417	Initiate box
Commander's Personal Unit	BCC 418	No direct equivalent (CPU)
Crewman's Personal Unit	No equivalent(?)	No equivalent (pressel box)

Table 1: Series Equivalences

## Bibliography

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