Orbit

No. 10

March/April 1982

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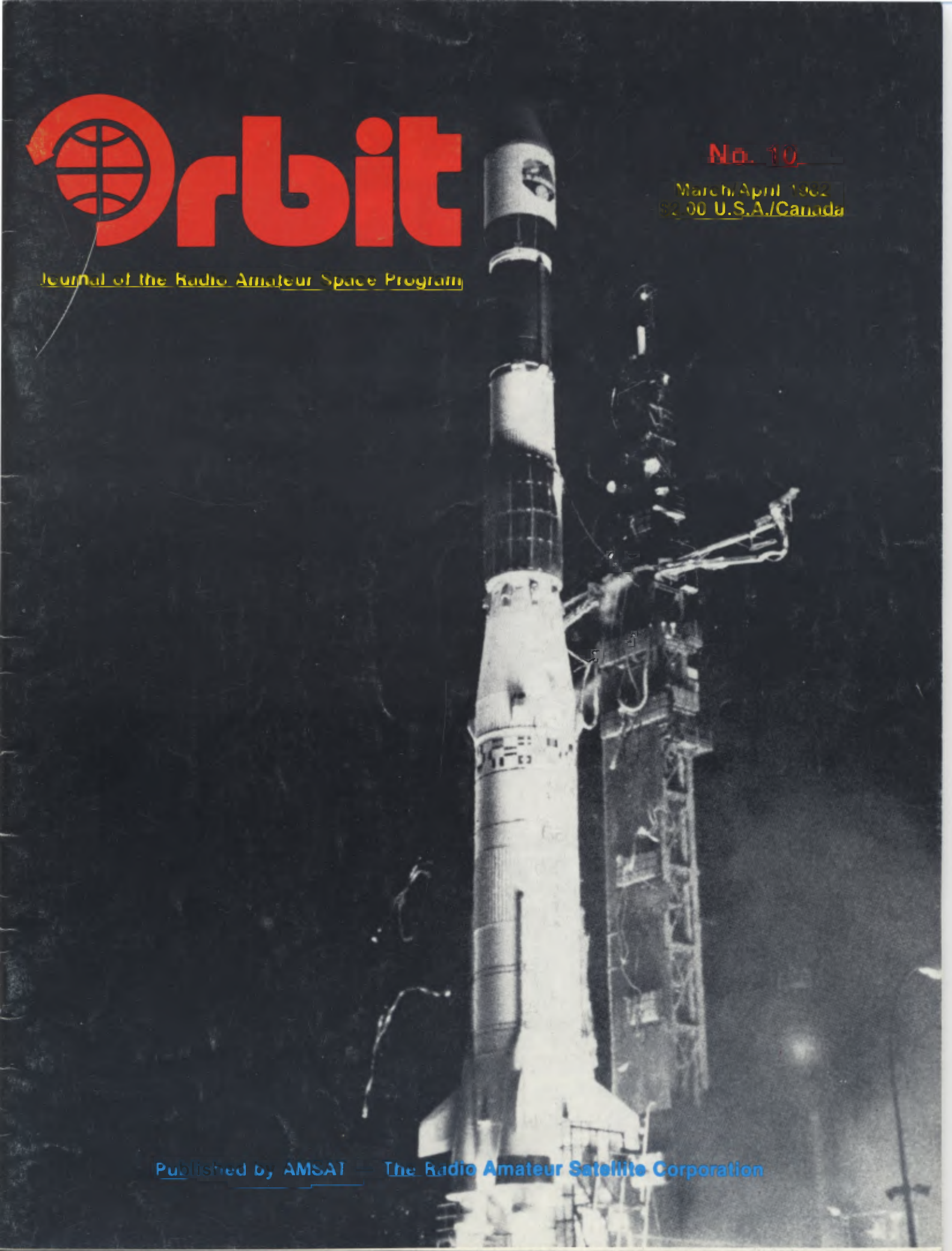
Journal of the Radio Amateur Space Program



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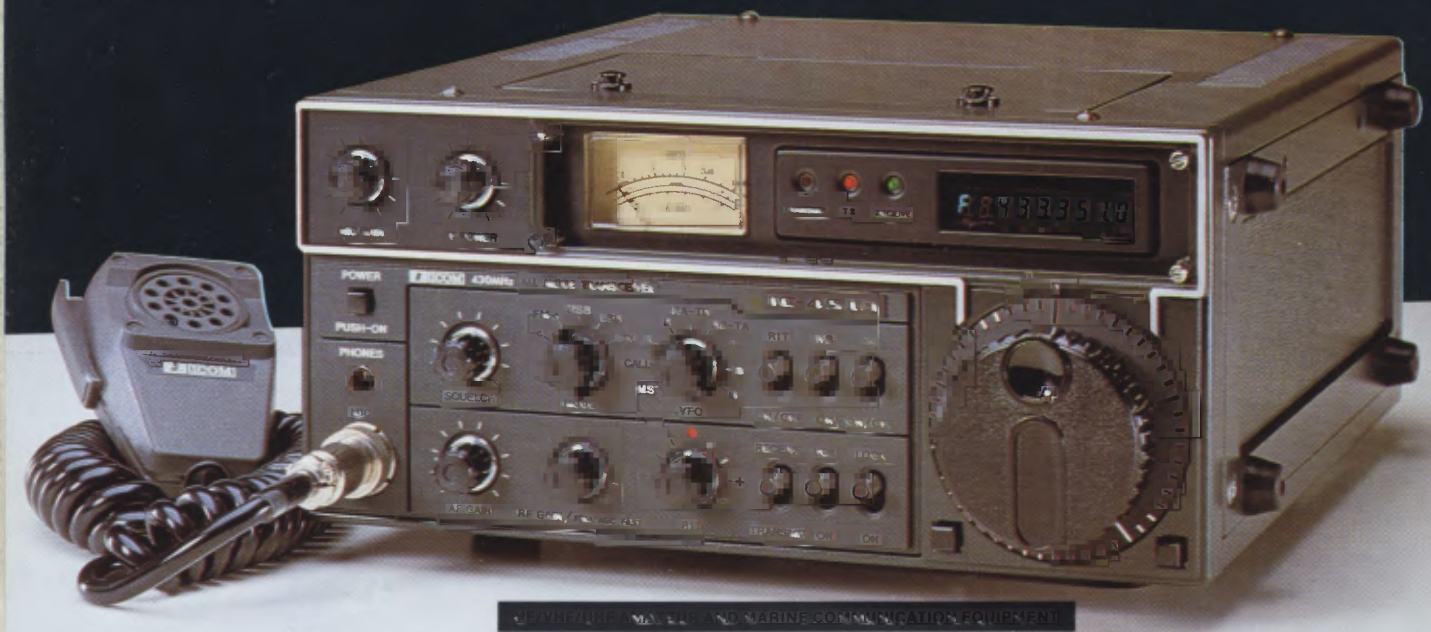

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Orbit

March/April 1982
Volume 3 Number 2

Editorial Office: 850 Sligo Ave., Silver Spring, MD 20910. Telephone: 301 589-6062
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AMSAT: P.O. Box 27, Washington, DC 20044. Telephone: 301 589-6062 Telex: 248-566

Second Class postage paid at Waterbury, Conn. by *ORBIT*, 221 Long Swamp Road, Wolcott, Connecticut 06716.

ORBIT (USPS 041-850) is published six times per year for $10. (inseparable from membership dues of $16).

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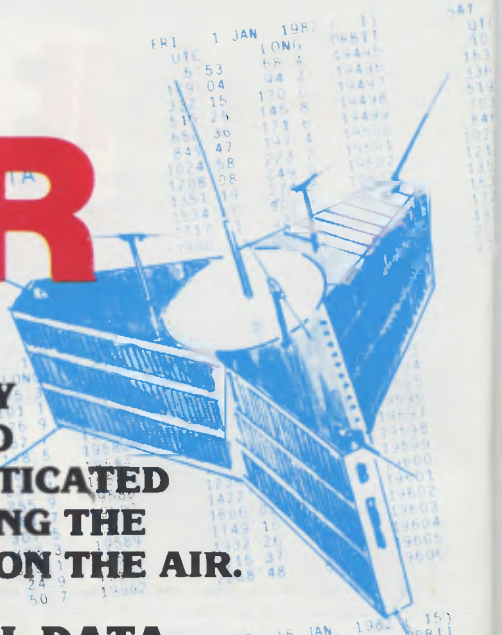
Our Cover: The fourth test launch of the European Space Agency's (ESA) Ariane roars from the pad at Kourou, French Guiana, 19 Dec. 81. LO-4 marked the successful conclusion of the test phase of Ariane and its transition to full operational status beginning with L5. Aboard LO-4 here was Europe's MARECS A Maritime Communications Satellite, a data capsule (CAT) and an electron plasma density experiment provided by a French youth club, Garef-Paris.

LET'S TALK OSCAR



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Ellipsis...

An Editorial By Vern Riportella, WA2LQQ*

Competition for scarce resources has apparently always played a key role in society. The need to secure reliable supplies of tea, nitrates and spices, for example, has driven some men to set sail and others to die on the slopes of the Himalayas. Darwin saw a broader picture. He believed competition to be central to natural selection; virtually evolution's dynamo.

In the amateur radio domain the scarce resource is spectrum. More precisely, the crowding of the available hf and lower vhf spectrum is seriously out of control. This is not news to many. One has merely to witness the cacaphony of 20-meter ssb on a Sunday afternnon to learn all one needs to know about stress in crowds and survival tactics in fierce competition.

What may come as a surprise, however, is the realization that in many regions the vhf spectrum is nearly as saturated. It is against this backdrop that planners of the next generation of amateur radio satellites seek solutions to a classic dilemma.

The dilemma is straightforward; a collision between an immovable object and an irresistible force.

On the one hand we have the immovable object. The present OSCAR user has a sizeable investment in "plant" and "equipment." He is keenly interested in preserving as much of his investment as possible. He thus values highly the continued use of frequencies and modes compatible with his existing equipment suite. Occasionally, the individual's continued access to OSCAR hinges on the preservation of Mode A. For one reason or another he may be unable to acquire Mode B or J capability. To him, higher frequency may mean higher cost and it may mean he is shut out of the newer modes. The hoopla surrounding the new uhf transponders only tends to exacerbate his frustration at being locked into Mode A; an apparently endangered species of bird! Planners explicitly recognize this factor and euphemistically refer to it as the "backward compatibility" factor. They realize that to be acceptable, a new spacecraft should possess a viable component of backward compatibility. Otherwise the instant obsolesence resulting by omitting it would create broad pockets of resentment in the user community.

On the other hand witness the irresistible force. It is the force of progress that says, in effect, "Evolve or perish!" The evoluntionary imperative is here professed by an equally adamant community who argues well that we need to keep moving upward in frequency lest the pack of stalking hyenas overcome us all. In somewhat less guarded moments these progressives confess a more subjective bent for the need to be constantly scouting new turf. Their main joy is not in operating satellites but rather in their creation. Once a spacecraft is flown, it's on to the next plateau. Society at large never really catches up with these fellows.

The planners' dilemma is merely (!?!) to maintain a balance such that all the correct things get done; the entire community functions. That is, the user community should not feel prematurely stampeded to new forage. The progressives must be lightly tethered in their flights of fancy lest they lose sight of the folks who pay the bills; the users. Balance is essential.

How well have the planners responded to the challenge? Have they kept the herd moving yet moderated the sprints of the gazelles up front? It seems an apt question at this juncture now that we are poised for the Phase IIIB launch with its new transponders on 1269 and 436 MHz.

Recall that when AMSAT-OSCAR 7 went aloft there were occasional whimpers from those who could not work Mode B. They wanted more Mode A time. Soon Mode B became the most popular mode ever; so popular that it was jammed most of the time. People adapted and joined the fun on B after a time. Then came AMSAT-OSCAR 8 with its "silly" Mode J. A lot of bellyaching and carping was heard until folks found out how much could really be done with this fine mode once they knew what to expect and how to get the most from it. Recently Mode J has shown signs of becoming the most popular mode yet since it yields many of the merits of B but without the crowding. Again many of the Mode A folks, when they managed the transistion, not only found something to like in the new mode, but became staunch defenders of their newly discovered turf.

Phase IIIB will be the first transponder-equipped OSCAR to fly which has not included a 10 meter downlink. Does this mean, as some suggest, that AMSAT will be severing the beginners' access route? Obviously the question presumes that 10-meter equipment is the key. We don't agree. Vhf and uhf equipment abounds in many nations today and is becoming available in the others. So although the question would have been answered quite differently a decade ago, today the beginners' access route might just as well be 2 meters or above. Furthermore, there is ample reason to conclude there are more Mode A birds in the RS roost to serve the firmly immobile Mode A community. This is

(Continued on page 17)

Editor-In-Chief, ORBIT *Magazine*

Utilization of the Phase IIIB Special Service Channels

By Rich Zwirko,* K1HTV and Bob Ruedisueli, W4OWA**

The SSC concept is explained and you're invited to help define future uses for these new resources.

Here is an opportunity to contribute your experience to the Phase IIIB planning process. Your comments concerning the material presented here will assist AMSAT planners with the task of providing a spacecraft optimized to serve the best interests of the world community of radio amateurs.

You may recall that the Phase IIIA transponder passband was wide enough to support three 4 kHz wide channels at each edge in addition to the 124 kHz passband available for general use. (See Phase IIIA Bandplan, *ORBIT* #1, March 1980.) These channels were designated as Special Service Channels (SSCs L1, L2, L3 & H1, H2, H3). Phase IIIA planning included rather rigid specifications for the utilization of these six SSCs. Since then, further discussions and incoming comments conerning the Phase IIIA SSCs from future users has prompted rethinking the use of the comparable portions of the Phase IIIB transponder passband.

Objections to Phase IIIA SSC Plan

Concern was expressed that some of the six SSCs would lie idle a good portion of the time, thus wasting much of the otherwise usable passband. Some AMSAT members felt that the SSCs were not needed at all! Others felt that the "controls" placed upon the use of the SSCs were too structured and perhaps seemed to be a bit dictatorial. International users felt that the SSC plan favored U.S. hams and were of little value to interests elsewhere. Some users took exception to placing so much emphasis on the value of the SSCs to schools, colleges, etc. Still others agreed that some control over the SSCs was necessary.

Apart from the obvious educational and operational value, one of the key arguments for the SSCs orginally concerned the fact that users tend to stay away from the transponder's band edges so, why not put this unused spectra to good use? The SSCs seemed a viable answer to this question.

It would appear that the original Phase III SSC concept left much to be desired in the eyes of many. Phase IIIB presents us with a new opportunity to better plan Special Service Channel utilization.

Proposed Phase IIIB SSC Utilization

These are our proposed views as they exist currently. They are not final. There is still time to make changes. Further discussion and comments are needed to assure an equitable plan. Flexibility is uppermost in our minds during this planning phase. The SSCs must be arranged so as to allow maximum utilization of the available bandpass while providing as many options as possible.

As in Phase IIIA, the Special Service Channels will be placed at each passband edge. At least initially, however, only four channels are being considered: two at the high end and two at the low end. Unlike the SSCs for Phase IIIA the proposed IIIB SSCs would each be 5 kHz wide. In fact, if the need should arise, the two upper channels (H1 and H2) could be combined to provide a single 10 kHz wide channel. Likewise, the two lower channels could be combined to provide a single wide band channel that would support high speed data transmission.

The upper channels (H1, H2) would be utilized for voice transmission while the lower channels (L1, L2)

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