Survey of Operations and Organization of the
Electrical Equipment Branch, and Proposed
Changes

1. Problem

The total activities of the Electrical Equipment Branch have been surveyed in order to determine:

a. The major problems which are likely to be encountered during the current planning program, and any adjustments which may be indicated.

b. Any modification of current scheduled research (Branch Initiated) which would be of direct benefit to the production of direct support papers during the remainder of FY 58.

c. Any possible alterations in Branch operations and methods which could result in long-term benefits without causing further major dislocation of current responsibilities.

2. Discussion

a. Branch Mission

The mission and functions of the Electrical Equipment Branch are clear and definite, and appear to be fully understood by all Branch personnel.

b. Branch Resources, Analysts

I do not feel that any relevant comments can be made at this time on Branch T/O. The present on board strength of seven professional and two clerical personnel is considered a minimum figure for accomplishing the mission of the Branch. Later statements in this paper are conditioned to this figure. Although intelligence gains could undoubtedly be expected from the addition of professional personnel, I could not justify such an addition in specific terms at this time. In qualitative terms, the varied abilities (background specialties) which are found in [redacted] analysts currently on board provide an over-all situation which is considered quite favorable. There are two commodity specialists (engineers), two economists with commodity backgrounds, one analyst with economic and historical research background and economic defense experience, and two Bloc area specialists with some economic training.

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c. Internal Branch Structure

The internal structure of the Branch does not appear to be as functional to its purpose as might be possible. This is particularly apparent in the manner of apportionment of the Branch research mission to individual analysts. The total effort appears to be too fragmented to permit effective cooperation in research between analysts. I feel that one major reason for this stems from the fact that in order to meet the need of intelligence maintenance the individual analysts responsibilities have been quite narrowly defined on a purely technical basis. Although assurance of continuity is probably served in this manner, the resulting structure has apparently been allowed to dominate the research and reporting effort as well.

Several results appear, on balance, to be detrimental to the Branch work. One result is that the Branch Intelligence files have no cohesion or consistency. They are rather a series of individual working files. Another result is that the industry fragments delineated in this way have more or less become prerogative areas and each analyst tends to specialize to a degree that his ability to handle industry-wide problems is hampered. While basic research papers have been done largely on the specialized segments, the direct support contributions to Area-wide projects are industry-wide statements. In the past they have largely been tailored to fit the terms of reference of the particular project, with no necessary consistency in the underlying method. Research done on each fragment of the industry later becomes a problem of incorporation of material into an over-all industry format which has not been formulated in any rigorous fashion. Following from the above I feel that the quite respectable amount of basic research which has been completed in the Branch suffers from a deficiency of ambiguous communication of the results of the research, particularly in the direct support contributions.

d. Current Research Program

The Branch is currently very heavily committed to Branch initiated projects (52 percent of project research time). Several of these projects are carryovers and extensions from previous years. The FY 57 carryovers have an additional allowance of 200 hours (5 percent) for completion in the current fiscal year. Their status is such that this allowance is not sufficient. In all, there are seven Branch initiated projects which are either overdue at this time or due shortly and in a state of completion which will make it impossible to meet all scheduled due dates. An attempt to meet current schedules would result in a less than satisfactory quality of production and would have a harmful effect on the direct support program.

In the preparation of the proposed new schedule of project research, I was governed by the opinion that the best course of action would be to fulfill the direct support program to the fullest, and to make any readjustments in the remaining committments in such a manner that they will, 1) be of maximum assistance to the direct support preparation, and 2) be instrumental in indicating gaps and deficiencies as a basis for future planning. Consistent with my feeling that the direct support research needs the most attention in the short run, and that in the longer run the Basic research will be most fruitful to the extent that it is conducted in a more carefully formulated frame of reference, the criteria outlined below were followed in making adjustments in the current program.

(1) No alterations may be made in the scheduled direct support projects.

(2) An attempt must be made to remain as close as possible to current schedules on those Branch projects which are of most direct relevance to direct support projects.

(3) Those Branch projects which are industry-wide in scope, and hence of most value in development of Branch capabilities in teamwork research, are placed next in priority.

(4) All necessary slippage of research should be concentrated in the areas in which the research is most fragmentary to the over-all problem.

3. Proposals

a. Branch Mission

Although it is not considered a critical point in this discussion, I feel that one alternative should be noted which would permit a more direct Branch focus of attention on the critical electronics equipment industry. The Electrical Equipment Branch was established at a time when the electric power equipment and electronic equipment industries were probably more closely related than is the case at the present. The sharp increases in complexity and scope of electronics technology has now caused this industry to be considered generally apart from the electric power equipment industry as an intelligence target. No significant corollary gains appear to result from the study of the two industries together. It is therefore pointed out that some gains may be obtained if the responsibility for electric power equipment were included in the more closely related study of the machine building complex.

b. Branch Resources - Analysts

No changes proposed at the present. Two analysts are being encouraged to register for the ORR report writing course when it is next given. One analyst is expect to register for the statistics course.

c. Internal Branch Structure

It is planned to reorganize the internal structure of the Branch along lines which will discourage an extreme degree of specialization of individual analysts, and which will make necessary frequent opportunities for each analyst to act as a project leader for broad scope Branch projects or contributions. With this in mind the Branch mission has been divided into three-sub-categories which are distributed to groups of individual analysts, rather than to individuals.

Continuing intelligence responsibilities for research and reporting are divided into three categories. The first category, electronic components, is handled independently because of its different economic structure, and because the output of the components sector becomes an important index of total production. Electronic equipment is divided into two major categories, equipment for military end-uses, and equipment for industrial and consumer end use.

For purposes of intelligence maintenance the commodity responsibilities are distributed (by Industrial Classification Code Designators) in a manner as consistent as possible with the intelligence production responsibilities, but there is no necessary relationship between intelligence maintenance and production within the Branch.

This manner of organization of research is expected to create a much greater flexibility within the Branch, and reduce the effects of absences of individual analysts. Some overlapping of areas of research will be created, but unnecessary duplication can be avoided through internal planning. Each analyst will be expected to be familiar with the principal problems, methods, and estimates of the entire Branch.

While the assignment of Branch work is divided into three groups of analysts, it is not believed that this division should be formalized into Sections, because this would imply a degree of delegation of authority and responsibility not warranted by the numbers of personnel involved. The need may arise as times to make work assignments not in all ways consistent with the organizational breakdown above. The Branch Chief will retain the authority to make any adjustment of assignments as might become necessary to meet current requirements placed on the Branch.

A definite need exists to adjust the present Branch intelligence files. This must be done on a gradual basis in order to spread the time consumption over a reasonable period. An incidental gain in space will probably result, since it is the feeling of Branch analysts that there is material now in our files which could be discarded or retired to the records center.

d. General Comments on Branch Research Problems

The previous discussion has been directed primarily to a few specific and immediate problems of Branch activity. A more general feeling of the intelligence research problem on the electronic industry is set forth below. These thoughts are not meant to be in any way exhaustive, but rather they attempt to formulate preliminary guidelines for scrutiny of Branch methods, the planning and organization of research, writing requirements, and reviewing completed work. Some value may be obtained from an initial statement of industry characteristics which tend to influence the use of various types of primary data and methods.

Several features of the electronics industry can be singled out as relevant characteristics which in some sense influence the organization and preparation of research. The electronics product line includes a wide variety of items considered critical in almost all activities of target nations. The industry structure, which is complex, vital, extensive, rapidly changing in form, content, and impact, and characterized by a high degree of convertability, is an intelligence problem which requires great skill in research and analysis. This problem is further complicated by the high degree of security maintained over important segments of electronic production, and by the diffusion of the production through several economic and military industrial ministries.

In the production and maintenance of intelligence covering the electronics field the essential elements of information will undergo almost constant change. Methodological approaches may also require revision as the industry develops and grows, as well as when different types of source material becomes available. Even the types of answers required from intelligence will vary with the changing impact exerted by the industry on the capabilities and vulnerabilities of the target countries.

The above mentioned problems are purposefully overstated to a degree, but they are illustrative of the areas in which caution must be exercised in drawing up an industry model for analytical purposes, particularly in the field of predictions. On the more positive side there appear to be several avenues of approach which are particularly useful if formulated into one composite, internally consistent approach.

First the production of electronic components is an industrial sub-sector which may present a basis for analysis of the entire industry in several different ways. Component manufacturing, unlike the assembly process, is a capital intensive industry. It relies heavily on automatic production lines and processes. Total industry output is heavily dependent on component output, and ratios of component output to total output may be calculated for various types of components and compared for consistency. The problem of ratio stability over time is one of the most important ones to solve. Component production will present the most important short run limiting factor on total production, because of tooling problems to increase production. Some newly available national statistical source material can be of considerable assistance in the solution of this type of approach.

Electronic equipment assembly sectors may be considered as a second level of analysis. Fairly reliable and complete information is available which provides a basis for estimating the allocation of electronic goods for consumer uses. Some recently available indexes of industrial electronic end-items will be of assistance in determining the output for this sector. Estimating military electronic programs present a problem of the greatest magnitude. The most apparent approach to this problem remains the one of manipulating existing samples of individual product information (from defectors, returnees, observers, P.I., Elint, etc.) and expanding this sample statistically to obtain measures of minimum production to meet military end-use data. When analyzed in conjunction with other indicators of total military plans and activity, and other ORR estimates, this information will permit an estimate of total requirements for the military electronics program. The individual sector estimates (consumer goods, industrial, military) can then, if converted to value terms, be added and used as a check against the aggregate estimate independently arrived at by computation of estimates based on component manufacture.

e. Proposed Timetable for Carrying Out Proposals Stated Above

Detailed proposals for alterations in the current research program are forwarded in a separate memo. It is planned to carry out the proposed changes in Branch structure and operations on 1 October 1957.

A detailed review of current Branch estimates will be conducted on a relative priority basis as rapidly as possible. This review will be closely related to the schedule of Branch support to the NIE program. Following the review and necessary alterations of estimates on the

high priority problems, the less critical item estimates will be studied. Until that time, however, it is believed necessary to accept current estimates of non-critical items as they now exist in the I/EE estimates files.