

Jim — Don't burn
me too much!

DESTRUCTION AND CREATION

by

JOHN R. BOYD

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ABSTRACT

To comprehend and cope with our environment we develop mental patterns or concepts of meaning. The purpose of this paper is to sketch out how we destroy and create these patterns to permit us to both shape and be shaped by a changing environment. In this sense, the discussion also literally shows why we cannot avoid this kind of activity if we intend to survive on our own terms.

The activity is dialectic in nature generating both disorder and order that emerges as a changing and expanding universe of mental concepts matched to a changing and expanding universe of observed reality.

DESTRUCTION AND CREATION

GOAL

Studies of human behavior reveal that the actions we undertake as individuals are closely related to survival, more importantly, survival on our own terms. Naturally, such a notion implies that we should be able to act relatively free or independent of any debilitating external influences -- otherwise that very survival might be in jeopardy. In viewing the instinct for survival in this manner we imply that a basic aim or goal, as individuals, is to improve our capacity for independent action. The degree to which we cooperate, or compete with others is driven by the need to satisfy this basic goal. If we believe that it is not possible to satisfy it alone, without help from others, history shows us that we will agree to constraints upon our independent action -- in order to collectively pool skills and talents in the form of nations, corporations, labor unions, mafias, etc. -- so that obstacles standing in the way of the basic goal can either be removed or overcome. On the other hand, if the group cannot or does not attempt to overcome obstacles deemed important to many (or possibly any) of its individual members, the group must risk losing these alienated members. Under these circumstances, the alienated members may dissolve their relationship and remain independent, form a group of their own, or join another collective body in order to improve their capacity for independent action.

ENVIRONMENT

In a real world of limited resources and skills, individuals and groups form, dissolve and reform their cooperative or competitive postures in a continuous struggle to remove or overcome physical and social environmental obstacles.^{8/10/} In a cooperative sense, where skills and talents are pooled, the removal or overcoming of obstacles represents an improved capacity for independent action for all concerned. In a competitive sense where individuals and groups compete for scarce resources and skills, an improved capacity for independent action achieved by some individuals or groups constrains that capacity for other individuals or groups. Naturally, such a combination of real world scarcity and goal striving to overcome this scarcity intensifies the struggle of individuals and groups to cope with both their physical and social environments.^{8/10/}

NEED FOR DECISIONS

Against such a background, actions and decisions become critically important. Actions must be taken over and over again and in many different ways. Decisions must be rendered to monitor and determine the precise nature of the actions needed that will be compatible with the goal. To make these timely decisions implies that we must be able to form mental concepts of observed reality and be able to change these concepts as observed reality itself changes. The concepts can then be used as decision-models for improving our capacity for independent action. Such a demand for decisions that literally impact our survival causes one to wonder: How do we generate or create the mental concepts to support this decision-making activity?

CREATING CONCEPTS

There are two ways in which we can develop and manipulate mental concepts to represent observed reality: We can start from a comprehensive whole and break it down to its particulars or we can start with the particulars and build towards a comprehensive whole. 23/21/ In other words, we can go from the general-to-specific or from the specific-to-general. A little reflection here reveals that deduction is related to proceeding from the general-to-specific while induction is related to proceeding from the specific-to-general. In following this line of thought can we think of other activities that are related to these two opposing ideas? Is not analysis related to proceeding from the general-to-specific? Is not synthesis, the opposite of analysis, related to proceeding from the specific-to-general? Putting all this together: Can we not say that that general-to-specific is related to both deduction and analysis, while specific-to-general is related to induction and synthesis? Now, can we think of some examples to fit with these two opposing ideas? We need not look far. The differential calculus proceeds from the general-to-specific -- from a function to its derivative. Hence, is not the use or application of the differential calculus related to deduction and analysis? The integral calculus on the other hand, proceeds in the opposite direction -- from a derivative to the general function. Hence, is not the use or application of the integral calculus related to induction and synthesis? Summing up once again we see that; general-to-specific is related to deduction, analysis and differentiation. On the other hand, specific-to-general is related to induction, synthesis and integration.

Now keeping these two opposing idea chains in mind let us move on a somewhat different tack. Imagine, if you will, a domain (a comprehensive whole) and its constituent elements or parts. Now, imagine another domain and its constituent parts. Once again, imagine even another domain and its constituent parts. Repeating this idea over and over again we can imagine any number of domains and the parts corresponding to each. Naturally, as we go through life we develop concepts of meaning (with included constituents) to represent observed reality. Can we not liken these concepts and their related constituents, that represent observed reality, to the domains and constituents that we have formed in our imagination? Naturally, we can. Keeping this relationship in mind, suppose we shatter the correspondence of each domain or concept with its constituent elements. In other words, we imagine the existence of the parts but pretend that the domains or concepts they were previously associated with ^{from} do not exist. Result: We have many constituents, or particulars, swimming around in a sea of anarchy. We have uncertainty and disorder in place of meaning and order. Further, we can see that such an unstructuring or destruction of many domains -- to break the correspondence of each with its respective constituents -- is related to deduction, analysis and differentiation. We call this kind of unstructuring a destructive deduction.

Faced with such disorder or chaos, how can we reconstruct order and meaning? Going back to the idea chain of specific-to-general, induction, synthesis and integration the thought occurs that a new domain or concept can be formed if we can find some common qualities, attributes, or operations among some or many of these constituents swimming in this

sea of anarchy. Through such connecting threads of meaning we synthesize constituents from, hence across, the domains we have just shattered.^{21/} Linking particulars together in this manner we can form a new domain or concept -- providing, of course, we do not inadvertently use only those "bits and pieces" in the same arrangement that we associated with one of the domains purged from our imagination. Clearly, such a synthesis would indicate we have generated something new and different from what previously existed. Going back to our idea chain, it follows that creativity is related to induction, synthesis and integration since we proceeded from unstructured bits and pieces to a new general pattern or concept. We call such action a creative or constructive induction. It is important to note that the crucial or key step that permits this creative induction is the separation of the particulars from their previous domains by the destructive deduction. Without this unstructuring the creation of a new structure cannot proceed -- since the bits and pieces are still tied together as meaning within unchallenged domains or concepts.

Recalling that we use concepts or mental patterns to represent reality it follows that the unstructuring and restructuring just shown reveals a way for changing our perception of reality.^{23/} Naturally, such a notion implies that the emerging pattern of ideas and interactions must be internally consistent and matchup with reality.^{11/12/} To check or verify internal consistency we try to see if we can deduce our way back to the original constituents that were used in the creative or constructive induction. If we cannot reverse directions the ideas and interactions do not go together in this way without contradiction.

Hence, they are not internally consistent. However, this does not necessarily mean we reject and throw away the entire structure. Instead, we should attempt to identify those ideas (particulars) and interactions that seem to hold together in a coherent pattern of activity as distinguished from those ideas that do not seem to fit in. In performing this task we check for reversibility as well as check to see which ideas and interactions match up with our observations of reality.^{22/11/12/} Using those ideas and interactions that pass this test together with any new ideas (from new destructive deductions) or other promising ideas that popped out of the original destructive deduction we again attempt to find some common qualities, attributes, or operations to re-create the concept -- or create a new concept. Also once again we perform the check for reversibility and matchup with reality. Over and over again this cycle of Destruction and Creation is repeated until we demonstrate internal consistency and a matchup with reality.^{16/11/12/}

SUSPICION

When this orderly (and pleasant) state is reached the concept becomes a coherent pattern of ideas and interactions that can be used to describe some aspect of observed reality. As a consequence, there is little, or no, further appeal to alternative ideas and interactions in an effort to either expand, complete or modify the concept.^{16/} Instead, the effort is turned inward towards fine tuning the ideas and interactions in order to improve generality and produce a more precise match of the conceptual pattern with reality.^{16/} Toward this end, the concept -- and its internal workings-- is tested and compared against observed phenomena over and over again in many different and subtle ways.^{16/} Such a repeated

and inward-oriented effort to explain increasingly more subtle aspects of reality suggests the disturbing idea that perhaps, at some point, ambiguities, uncertainties, anomalies, or apparent inconsistencies may emerge to stifle a more general and precise matchup of concept with observed reality.^{16/} Why do we suspect this?

On one hand, we realize that facts, perceptions, ideas, impressions, interactions, etc. separated from previous observations and thought patterns have been linked together to create a new conceptual pattern. On the other hand, we suspect that refined observations now underway will eventually exhibit either more or a different kind of precision and subtlety than the previous observations and thought patterns. Clearly, any anticipated difference, or differences, suggests we should expect a mismatch between the new observations and the anticipated concept description of these observations. To assume otherwise would be tantamount to admitting that previous constituents and interactions would produce the same synthesis as any newer constituents and interactions that exhibit either more or a different kind of precision and subtlety. This would be like admitting one equals two. To avoid such a discomforting position implies that we should anticipate a mismatch between phenomena observation and concept description of that observation. Such a notion is not new and is indicated by the discoveries of Kurt Gödel and Werner Heisenberg.

INCOMPLETENESS AND CONSISTENCY

In 1931 Kurt Gödel created a stir in the World of Mathematics and Logic when he demonstrated that it was impossible to embrace mathematics within a single system of logic.^{9/20/} He accomplished this by proving,

first, that any consistent system - that includes the arithmetic of whole numbers - is incomplete. In other words, there are true statements or concepts within the system that cannot be deduced from the postulates that make-up the system. Next, he proved even though such a system is consistent its consistency cannot be determined within the system.

Such a result does not imply that it is impossible to demonstrate the consistency of a system. It only means that such a proof cannot be accomplished inside the system. As a matter of fact, since Gödel, Gerhard Gentzen and others have shown that a consistency proof of arithmetic can be found by appealing to systems outside that arithmetic. Thus, Gödel's proof indirectly shows that in order to determine the consistency of any new system we must construct or uncover another system beyond it.^{24/22/} Over and over this cycle must be repeated to demonstrate the consistency of more and more elaborate systems.^{24/22/}

Keeping this process in mind, let us see how Gödel's results impact the effort to improve the matchup of concept with observed reality. To do this we will consider two kinds of consistency: The consistency of the concept and the consistency of the matchup between observed reality and concept description of reality. In this sense, if we assume -- as a result of previous destructive deduction and creative induction efforts -- that we have a consistent concept and a consistent matchup, we should see no differences between observation and concept description. Yet, as we have seen, on one hand, we use observations to shape or formulate a concept; while on the other hand, we use a concept to shape the nature of future inquiries or observations of reality. Back and forth, over and over again, we use

observations to sharpen a concept and a concept to sharpen observations. Under these circumstances, a concept must be incomplete since we depend upon an ever-changing array of observations to shape or formulate it. Likewise, our observations of reality must be incomplete since we depend upon a changing concept to shape or formulate the nature of new inquiries and observations. Therefore, when we probe back and forth with more precision and subtlety, we must admit that we can have differences between observation and concept description; hence, we cannot determine the consistency of the system - in terms of its concept, and matchup with observed reality - within itself.

Furthermore, the consistency cannot be determined even when the precision and subtlety of observed phenomena approaches the precision and subtlety of the observer -- who is employing the ideas and interactions that play together in the conceptual pattern. This aspect of consistency is accounted for not only by Gödel's Proof but also by the Heisenberg Uncertainty or Indeterminacy Principle.

INDETERMINACY AND UNCERTAINTY

The Indeterminacy Principle uncovered by Werner Heisenberg in 1927 showed that one could not simultaneously fix or determine precisely the velocity and position of a particle or body.^{11/7/} Specifically he showed, due to the presence and influence of an observer, that the product of the velocity and position uncertainties is equal to or greater than a small number (Planck's Constant) divided by the mass of the particle or body being investigated. In other words:

$$\Delta V \cdot \Delta Q \geq h/m$$

where ΔV is velocity uncertainty

ΔQ is position uncertainty and h/m is Planck's constant (h) divided by observed mass (m).

Examination of Heisenberg's Principle reveals that as mass becomes exceedingly small the uncertainty, or indeterminacy, becomes exceedingly large. Now -- in accordance with this relation -- when the precision, or mass, of phenomena being observed is little, or no, different than the precision, or mass, of the observing phenomena the uncertainty values become as large as, or larger than, the velocity and size frame-of-reference associated with the bodies being observed. 7/ In this environment, the character or nature of the observer is little, or no, different than the character or nature of the phenomena being observed. In essence, then, when the observer and observed become essentially one and the same, the uncertainty values hide or mask phenomena behavior; or put another way, the observer perceives uncertain or erratic behavior that bounces all over in accordance with the indeterminacy relation. Under these circumstances, the uncertainty values represent the inability to determine the character or nature (consistency) of a system within itself. On the other hand, if the precision and subtlety of the observed phenomena is much less than the precision and subtlety of the observing phenomena the uncertainty values become much smaller than the velocity and size values of the bodies being observed. 7/ Under these circumstances, the character or nature of a system can be determined - although not exactly - since the uncertainty values do not hide or mask observed phenomena behavior nor indicate significant erratic behavior.

Keeping in mind that the Heisenberg Principle implicitly depends upon the indeterminate presence and influence of an observer, 11/ we can

now see -- as revealed by the two examples just cited -- that the magnitude of the uncertainty values represent the degree of intrusion by the observer upon the observed. When intrusion is total (that is, when the character or nature of the observer and observed become essentially the same) the uncertainty values indicate erratic behavior. When intrusion is low the uncertainty values do not hide or mask observed phenomena behavior, nor indicate significant erratic behavior. In other words, the uncertainty values not only represent the degree of intrusion by the observer upon the observed but also the degree of confusion and disorder perceived by that observer.

ENTROPY AND THE SECOND LAW OF THERMODYNAMICS

Confusion and disorder are also related to the notion of Entropy and the Second Law of Thermodynamics.^{8/17/} Entropy is a concept that represents the potential for doing work, the capacity for taking action or the degree of confusion and disorder associated with any physical or information activity. High entropy implies a low potential for doing work, a low capacity for taking action or a high degree of confusion and disorder. Low entropy implies just the opposite. Viewed in this context, the Second Law of Thermodynamics states that all observed natural processes generate entropy.^{17/} From this law it follows that entropy must increase in any closed system - or, for that matter, in any system that cannot communicate in an ordered fashion with other systems or environments external to itself.^{17/} Accordingly, anytime we attempt ~~to do~~ work or take action inside such a system -- a concept and its matchup with reality -- we should anticipate an increase in entropy hence an increase in confusion

and disorder. Naturally, this means we cannot determine the character or nature (consistency) of such a system within itself, since the system is moving irreversibly toward a higher, yet unknown, state of confusion and disorder.

DESTRUCTION AND CREATION

What an interesting outcome! According to Gödel we cannot - in general - determine the consistency of an abstract system within itself. According to Heisenberg and the Second Law of Thermodynamics any attempt to do so in the real world will expose uncertainty and generate disorder. Taken together these three notions support the idea that any inward oriented and continued effort to improve the matchup of concept with observed reality will only increase the degree of mismatch. Naturally, in this environment, uncertainty and disorder will increase as previously indicated by the Heisenberg Indeterminacy Principle and the Second Law of Thermodynamics respectively. Put another way, we can expect unexplained and disturbing, ambiguities, uncertainties, anomalies, or apparent inconsistencies to emerge more and more often. Furthermore, unless some kind of relief is available, we can expect confusion to increase until disorder approaches chaos - death.

Fortunately, there is a way out. Remember, as previously shown, we can forge a new concept by applying the destructive deduction and creative induction mental operations. Also, remember, in order to perform these dialectic mental operations we must first shatter the rigid conceptual pattern, or patterns, firmly established in our mind. (This should not be too difficult since the rising confusion and disorder is already helping us to undermine any patterns). Next, we must find some common qualities,

attributes or operations to link isolated facts, perceptions, ideas, impressions, interactions, observations, etc. together as possible concepts to represent the real world. Finally, we must repeat this unstructuring and restructuring until we develop a concept that begins to matchup with reality. By doing this - in accordance with Gödel, Heisenberg and the Second Law of Thermodynamics - we find that the uncertainty and disorder generated by an inward oriented system talking to itself can be offset by going outside and creating a new system. Simply stated, uncertainty and related disorder can be diminished by the direct artifice of creating a higher and broader more general concept to represent reality.

However, once again, when we begin to turn inward and use the new concept - within its own pattern of ideas and interactions - to produce a finer grain match with observed reality we note that the new concept and its matchup with observed reality begins to self destruct just as before. Accordingly, the dialectic cycle of destruction and creation begins to repeat itself once again. In other words, as suggested by Gödel's Proof of Incompleteness, we imply that the process of Structure, Unstructure, Restructure, Unstructure, Restructure is repeated endlessly in moving to higher and broader levels of elaboration. In this unfolding drama, the alternating cycle of entropy increase toward more and more disorder and the entropy decrease toward more and more order appears to be one part of a control mechanism that literally seems to drive and regulate this alternating cycle of destruction and creation toward higher and broader levels of elaboration.

Now, in relating this deductive/inductive activity to the basic goal discussed in the beginning, I believe we have uncovered a Dialectic

Engine that permits the construction of feedback decision models needed by individuals and societies for determining and monitoring actions in an effort to improve their capacity for independent action. Furthermore, since this engine is directed toward satisfying this basic aim or goal, it follows that the goal seeking effort itself appears to be the other side of a control mechanism that seems also to drive and regulate the alternating cycle of destruction and creation toward higher and broader levels of elaboration. In this context, when acting within a rigid or essentially a closed system, the goal seeking effort of individuals and societies to improve their capacity for independent action tends to produce disorder towards randomness and death. On the other hand, as already shown, the increasing disorder generated by the increasing mismatch of the system concept with observed reality opens or unstructures the system. As the unstructuring or, as we call it, the destructive deduction unfolds it shifts toward a creative induction to stop the trend toward disorder and chaos to satisfy a goal oriented need for increased order. Paradoxically, then, an entropy increase permits both the destruction or unstructuring of a closed system and the creation of a new system to nullify the march toward randomness and death.

Taken together the entropy notion associated with the Second Law of Thermodynamics and the basic goal of individuals and societies seem to work in dialectic harmony driving and regulating the destructive/creative, or deductive/inductive, action - that we have described herein as a dialectic engine. The result is a changing and expanding universe

of mental concepts matched to a changing and expanding universe of observed reality.^{23/22/} As indicated earlier these mental concepts are employed as decision models by individuals and societies for determining and monitoring actions needed to cope with their environment - or to improve their capacity for independent action.

DESTRUCTION AND CREATION

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first, that any consistent system - that includes the arithmetic of whole numbers - is incomplete. In other words, there are true statements or concepts within the system that cannot be ^{traced} ~~deduced~~ from the postulates that make-up the system. Next, he proved even though such a system is consistent its consistency cannot be ^{demonstrated} ~~determined~~ within the system.

Such a result does not imply that it is impossible to ~~demonstrate~~ ^{potentially determine} the consistency of a system. It only means that such a proof cannot be accomplished inside the system. As a matter of fact, since Gödel, Gerhard Gentzen and others have shown that a consistency proof of arithmetic can be found by appealing to systems outside that arithmetic. Thus, Gödel's proof indirectly shows that in order to determine the consistency of any new system we must construct or uncover another system beyond it. 24/22/ ^{which determine} Over and over this cycle must be repeated to ~~demonstrate~~ the consistency of more and more elaborate systems. 24/22/

Keeping this process in mind, let us see how Gödel's results impact the effort to improve the matchup of concept with observed reality. To do this we will consider two kinds of consistency: The consistency of the concept and the consistency of the matchup between observed reality and concept description of reality. In this sense, if we assume -- as a result of previous destructive deduction and creative induction efforts -- that we have a consistent concept and a consistent matchup, we should see no differences between observation and concept description. Yet, as we have seen, on one hand, we use observations to shape or formulate a concept; while on the other hand, we use a concept to shape the nature of future inquiries or observations of reality. Back and forth, over and over again, we use

this is a known, not a well-

observations to sharpen a concept and a concept to sharpen observations. Under these circumstances, a concept must be incomplete since we depend upon an ever-changing array of observations to shape or formulate it. Likewise, our observations of reality must be incomplete since we depend upon a changing concept to shape or formulate the nature of new inquiries and observations. Therefore, when we probe back and forth with more precision and subtlety, we must admit that we can have differences between observation and concept description; hence, we cannot determine the consistency of the system - in terms of its concept, and matchup with observed reality - within itself.

Furthermore, the consistency cannot be determined even when the precision and subtlety of observed phenomena approaches the precision and subtlety of the observer -- who is employing the ideas and interactions that play together in the conceptual pattern. This aspect of consistency is accounted for not only by Gödel's Proof but also by the Heisenberg Uncertainty or Indeterminacy Principle.

INDETERMINANCY AND UNCERTAINTY

The Indeterminacy Principle uncovered by Werner Heisenberg in 1927 showed that one could not simultaneously fix or determine precisely the velocity and position of a particle or body.^{11/7/} Specifically he showed, due to the presence and influence of an observer, that the product of the velocity and position uncertainties is equal to or greater than a small number (Planck's Constant) divided by the mass of the particle or body being investigated. In other words:

$$\Delta V \cdot \Delta Q \geq h/m$$

where ΔV is velocity uncertainty

ΔQ is position uncertainty and h/m is Planck's constant (h) divided by observed mass (m).

Examination of Heisenberg's Principle reveals that as mass becomes exceedingly small the uncertainty, or indeterminacy, becomes exceedingly large. Now -- in accordance with this relation -- when the precision, or mass, of phenomena being observed ^{are} is little, or no, different ^{from} than the precision, or mass, of the observing phenomena, the uncertainty values become as large as, or larger than, the velocity and size frame-of-reference associated with the bodies being observed. 7/ ~~In this~~

~~environment, the character or nature of the observer is little, or no, different than the character or nature of the phenomena being observed.~~

~~In essence, then, when the observer and observed become essentially one and the same, the uncertainty values hide or mask phenomena behavior; or~~

put another way, the observer perceives uncertain or erratic behavior that bounces all over in accordance with the indeterminacy relation.

Under these circumstances, the uncertainty values represent the inability to determine the character or nature (consistency) of a system within itself.

On the other hand, if the precision and subtlety of the observed phenomena ^{are} is much less than the precision and subtlety of the observing phenomena, the uncertainty values become much smaller than the velocity and size values of the bodies being observed. 7/ Under these circumstances, the character or nature of a system can be determined - although not exactly - since the uncertainty values do not hide or mask observed phenomena behavior nor indicate significant erratic behavior.

Keeping in mind that the Heisenberg Principle implicitly depends upon the indeterminate presence and influence of an observer, 11/ we can

now see -- as revealed by the two examples just cited -- that the magnitudes of the uncertainty values represent ^{the} ~~the~~ degree of intrusion by the observer upon the observed. When intrusion is total (that is, when the character ^{distinction} ~~or nature~~ of the observer and observed ^{disappears} ~~become~~ essentially the same) the uncertainty values indicate erratic behavior. When intrusion is low the uncertainty values do not hide or mask observed phenomena behavior, nor indicate significant erratic behavior. In other words, the uncertainty values not only represent the degree of intrusion by the observer upon the observed but also the degree of confusion and disorder perceived by that observer.

ENTROPY AND THE SECOND LAW OF THERMODYNAMICS

Confusion and disorder are also related to the notion of Entropy and the Second Law of Thermodynamics.^{8/17/} Entropy is a concept that represents the potential for doing work, the capacity for taking action, or the degree of confusion and disorder associated with any physical or information activity. High entropy implies a low potential for doing work, a low capacity for taking action or a high degree of confusion and disorder. Low entropy implies just the opposite. Viewed in this context, the Second Law of Thermodynamics states that all observed natural processes generate entropy.^{17/} From this law it follows that entropy ^{cannot decrease} ~~must increase~~ in any closed system - or, for that matter, in any system that cannot communicate in an ordered fashion with other systems or environments external to itself.^{17/} Accordingly, ^{whenever} anytime we attempt to do work or take action inside such a system -- a concept and its matchup with reality -- we should anticipate an increase in entropy, hence an increase in confusion

and disorder. Naturally, this means we cannot determine the character or nature (consistency) of such a system within itself, since the system is moving irreversibly toward a higher, yet unknown, state of confusion and disorder. 2

DESTRUCTION AND CREATION

What an interesting outcome! According to Gödel we cannot - in general - determine the ^{character or nature} ~~consistency~~ of an abstract system within itself. According to Heisenberg and the Second Law of Thermodynamics any attempt to do so in the real world will expose uncertainty and generate disorder. Taken together these three notions support the idea that any inward oriented and continued effort to improve the matchup of concept with observed reality will only increase the degree of mismatch. Naturally, in this environment, uncertainty and disorder will increase as previously indicated by the Heisenberg Indeterminacy Principle and the Second Law of Thermodynamics, respectively. Put another way, we can expect unexplained and disturbing, ambiguities, uncertainties, anomalies, or apparent inconsistencies to emerge more and more often. Furthermore, unless some kind of relief is available, we can expect confusion to increase until disorder approaches chaos - death.

Fortunately, there is a way out. Remember, as previously shown, we can forge a new concept by applying the destructive deduction and creative induction mental operations. Also, remember, in order to perform these dialectic mental operations, we must first shatter the rigid conceptual pattern, or patterns, firmly established in our mind. (This should not be too difficult since the rising confusion and disorder is already helping us to undermine any patterns). Next, we must find some common qualities,

attributes or operations to link isolated facts, perceptions, ideas, impressions, interactions, observations, etc. together as possible concepts to represent the real world. Finally, we must repeat this unstructuring and restructuring until we develop a concept that begins to matchup with reality. By doing this ~~A~~ in accordance with Gödel, Heisenberg and the Second Law of Thermodynamics ~~A~~ we find that the uncertainty and disorder generated by an inward oriented system talking to itself can be offset by going outside and creating a new system. Simply stated, uncertainty and related disorder can be diminished by the direct artifice of creating a higher and broader more general concept to represent reality.

However, once again, when we begin to turn inward and use the new concept - within its own pattern of ideas and interactions - to produce a finer grain match with observed reality, we note that the new concept and its matchup with observed reality begins to self-destruct just as before. Accordingly, the dialectic cycle of destruction and creation begins to repeat itself once again. In other words, as suggested by Gödel's Proof of Incompleteness, we imply that the process of Structure, Unstructure, Restructure, Unstructure, Restructure is repeated endlessly in moving to higher and broader levels of elaboration. In this unfolding drama, the alternating cycle of entropy increase toward more and more disorder and the entropy decrease toward more and more order appears to be one part of a control mechanism that literally seems to drive and regulate this alternating cycle of destruction and creation toward higher and broader levels of elaboration.

Now, in relating this deductive/inductive activity to the basic goal discussed in the beginning, I believe we have uncovered a Dialectic

Engine that permits the construction of ~~feedback~~ decision models needed by individuals and societies for determining and monitoring actions in an effort to improve their capacity for independent action. Furthermore, since this engine is directed toward satisfying this basic aim or goal, it follows that the goal-seeking effort itself appears to be the other side of a control mechanism that seems also to drive and regulate the alternating cycle of destruction and creation toward higher and broader levels of elaboration. In this context, when acting within a rigid or essentially a closed system, the goal-seeking effort of individuals and societies to improve their capacity for independent action tends to produce disorder towards randomness and death. On the other hand, as already shown, the increasing disorder generated by the increasing mismatch of the system concept with observed reality opens or unstructures the system. As the unstructuring or, as we call it, the destructive deduction unfolds, it shifts toward a creative induction to stop the trend toward disorder and chaos to satisfy a goal-oriented need for increased order. Paradoxically, then, an entropy increase permits both the destruction or unstructuring of a closed system and the creation of a new system to nullify the march toward randomness and death. ~~Comments here suitable~~

Taken together, the entropy notion associated with the Second Law of Thermodynamics and the basic goal of individuals and societies seem to work in dialectic harmony driving and regulating the destructive/creative, or deductive/inductive, action - that we have described herein as a dialectic engine. The result is a changing and expanding universe

* ~~Comments here suitable~~

of mental concepts ^{that mirror} ~~matched to~~ a changing and expanding universe of
observed reality. 23/22/ As indicated earlier these mental concepts are
employed as decision models by individuals and societies for determining
and monitoring actions needed to cope with their environment - or to
improve their capacity for independent action.

DESTRUCTION AND CREATION

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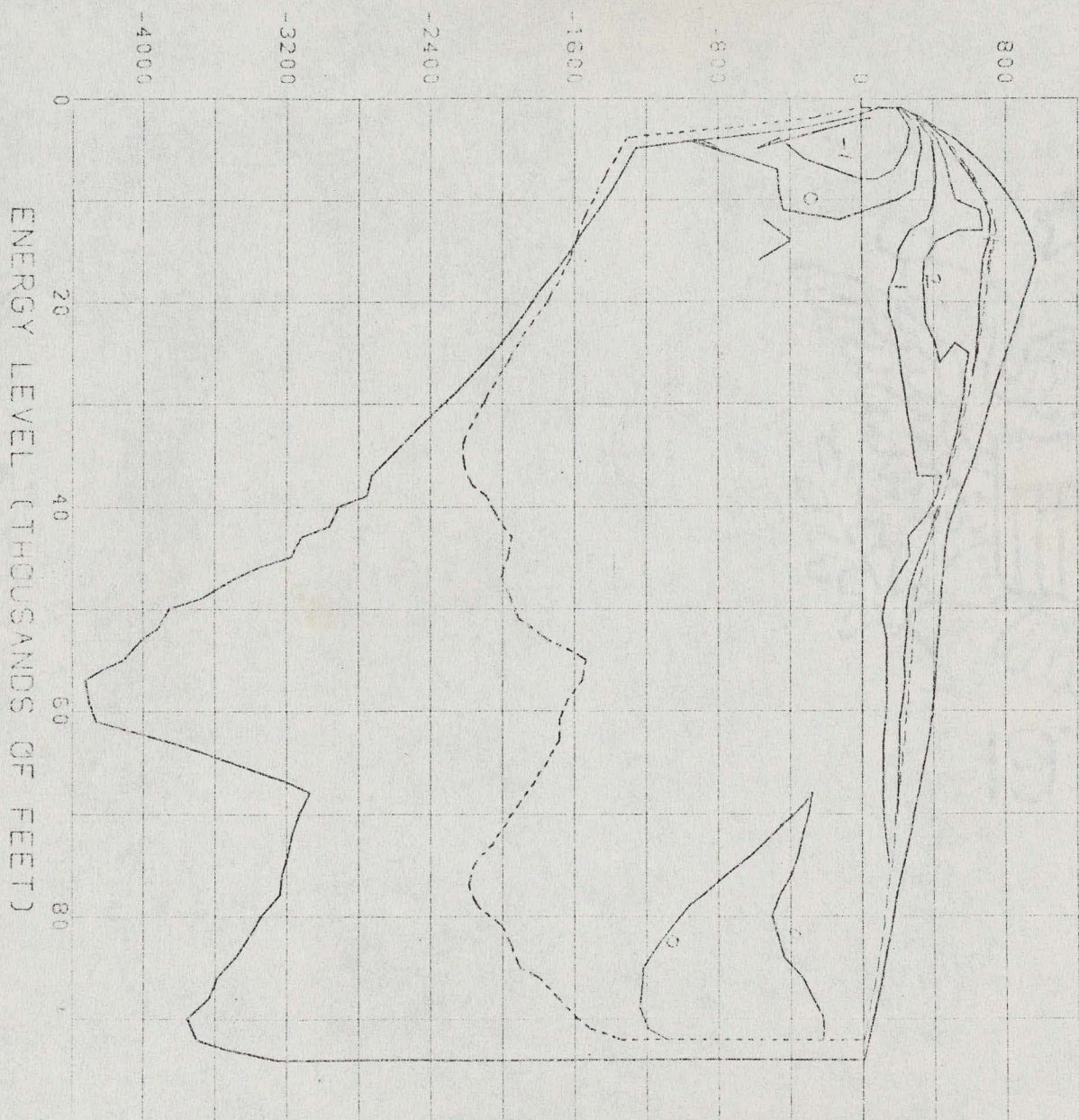
ENERGY RATE (FT/SEC)

MAX MANEUVER DIAGRAM

2-A-9
19000
410XRP - 610XRP
DC1 - MAX PWR-DC1

2-A-9
23000
HORIZONTAL ALTITUDE

31/12/74



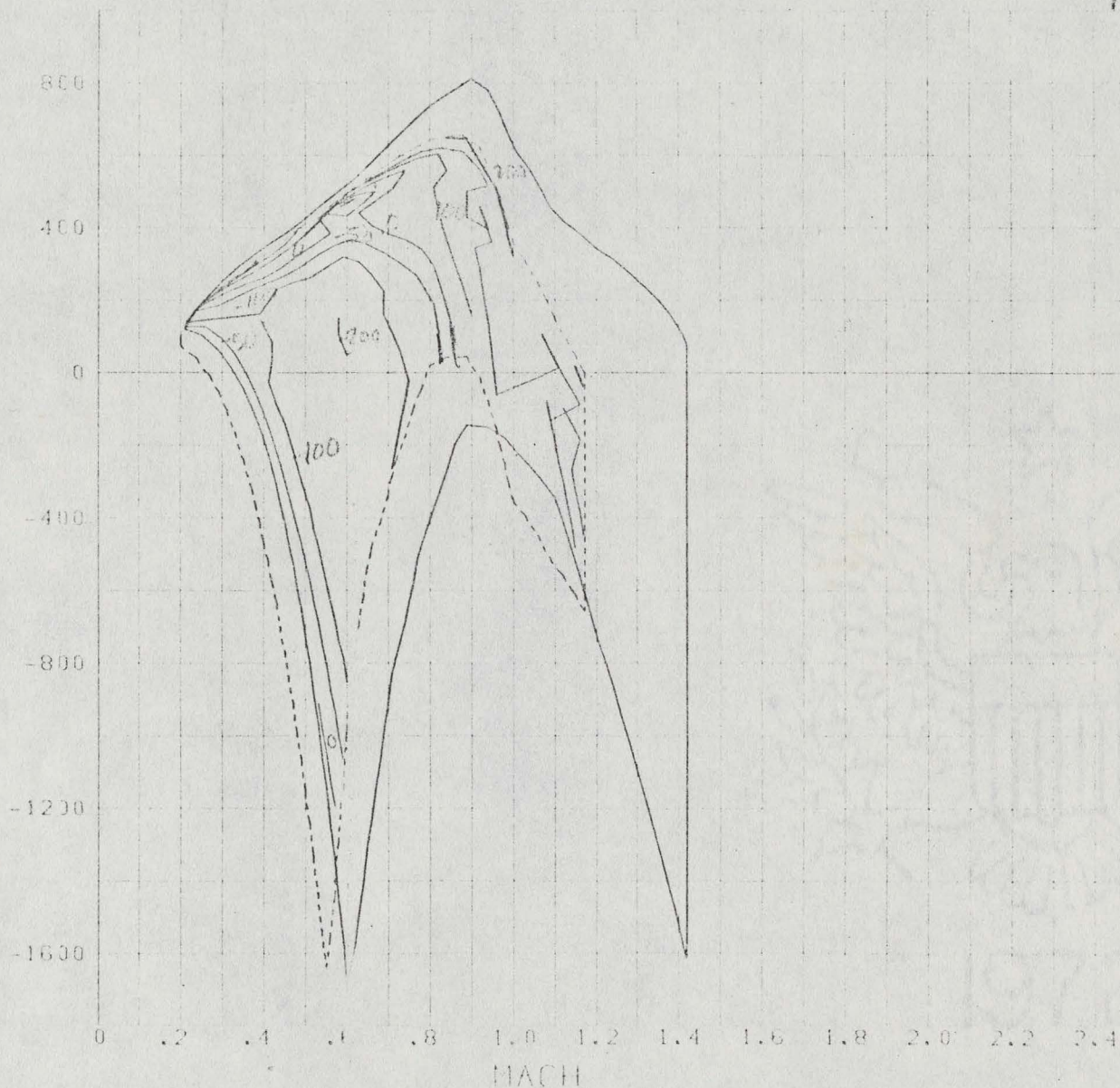
MANEUVER DIAGRAM
ALTITUDE 10000

410XRP 610XRP
DC 1 MAX PWR-DC 1

22/12

49

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/VER-UP

22/12

50

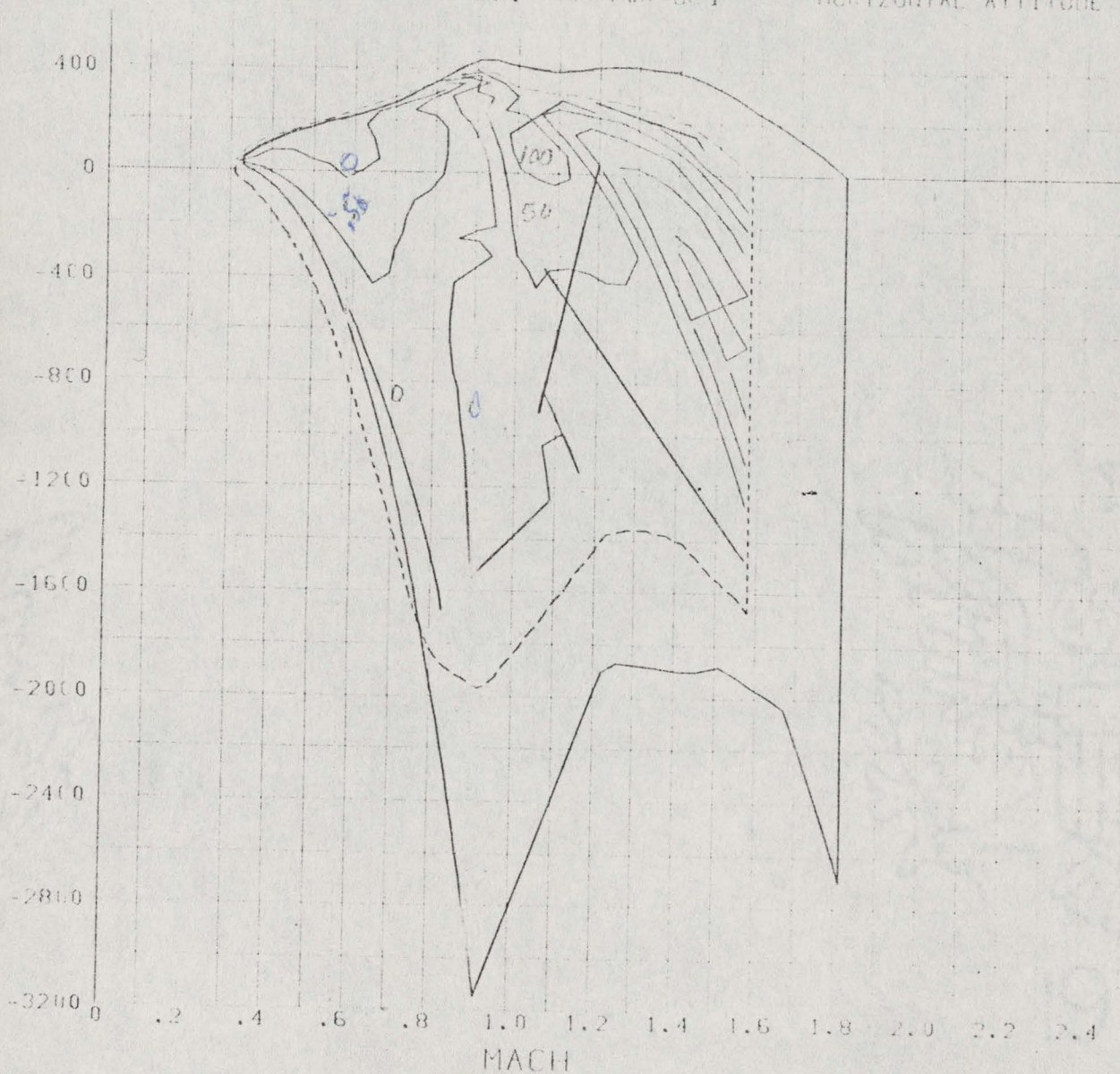
MANEUVER DIAGRAM

ALTITUDE 30000

410XRP - 610XRP

DC1 MAX PWR-DC1

HORIZONTAL ALTITUDE



PLOT PREPARED BY ASD/AFDDP

$$\Delta PS = \frac{410 \times RP}{DC1 - MAX \ PWR - DC1} - \frac{610 \times RP}{OPT \ L/D}$$

DC1 - MAX PWR - DC1
OPT L/D

HORIZONTAL ATTITUDE

2-A-4

2-A-9

22/12

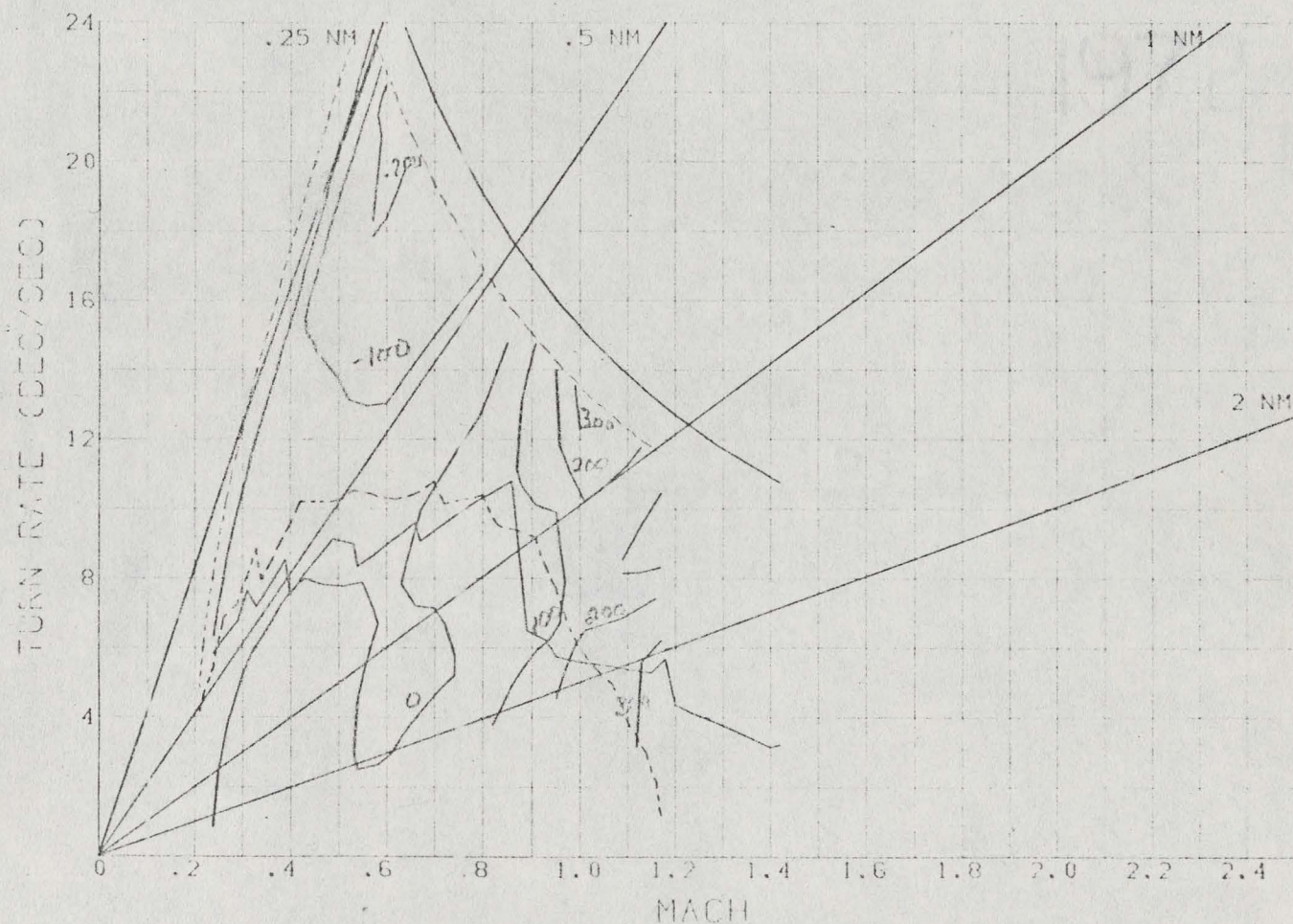
19000

23000

47

MANEUVER DIAGRAM

ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFDP

quality, or ingredient; (of soil, etc.) unproductiveness, late ME. 4. Poor condition of body; leanness or feebleness resulting from insufficient nourishment, etc. 1523.

1. The p. of modern literature 1838. 2. The p. of our understanding WATTS. 3. The p. of north and north-eastern Africa in river-producing power 1880. *Comb.*: p.-grass, (a) a N. American grass, *Aristida dichotoma*; (b) = p.-plant, a small N. American leaf-like shrub, *Hudsonia tomentosa* (N.O. Cistaceae); both plants growing in poor soil.

Poverty-stricken, *a.* 1844. Stricken or afflicted with poverty; extremely poor or destitute. Earlier **Poverty-struck** *a.* (now rare or Obs.) 1813.

Powan (pau'wān, pau'wān). 1633. [*Sc. form* f. POLLAN.] A species of freshwater fish, *perognathus clupeoides*, belonging to the same genus as the vendace and the pollan, with which it was formerly identified, and is still often confused, under the name of *freshwater herring*.

Powder (pau'dər), *sb.* 1. [ME. *a. F. poudre* —OF. *polvre, pulvre* —L. *pulverem* dust. In 15-17th c. usu. spelt *powder*.] 1. The mass of dry impalpable particles or granules produced by the grinding, crushing or disintegration of any solid substance; dust. b. Applied to the pollen of flowers, or the spores of *Lycopodium* 1676. 2. A preparation in the form of powder, for some special use or purpose, e.g. a medicine, for the face or hair, etc. ME. 3. = GUNPOWDER 1. late ME.

1. He shall grynd him to p. TINDALE *Math.* xxi. 44. Such an one has great faith in Ward's pill, or ames' p. 1768. We wore p. in those days THACKERAY. 3. Bothwell with pulder blew him in the air 1705. *P. and shot*, the material expended in warfare; hence, the cost or effort expended for some result. *Food for p.*: see *FOOD* sb. 1. *The smell of p.*, actual experience of fighting. *To keep one's p. dry*, to be prepared for action in any emergency.

Attrib. and *Comb.*: p.-flag, the red flag carried by a ship, or hoisted on a ship when taking in or discharging gunpowder; p.-house, a building for storing gunpowder; p.-hoop, an ordnance vessel expressly used to convey p. from the land magazine to a ship; magazine, a place where gunpowder is stored in a cask or on board ship; p.-mill, a mill for making gunpowder; p.-tax, a tax upon hair-powder.

Powder (pau'dər), *sb.* 2. Obs. *exc. dial.* 1. [Origin unkn.] An impetus, a rush; rage, impetuosity. Chiefly in phr. *with* (dial. *in*) a p., impetuously, violently. *Jordan*, comes down with a p., and at set times effluves all his banks 1650.

Powder (pau'dər), *sb.* 1. [ME. *a. F. poudrier, poudre* POWDER sb. 1. *Exc. dial.* 1. *trans.* To sprinkle (food) with a condiment of powdery ture; to season, spice—1440. *fb. fig.* To mix with some modifying ingredient; to 'season'; to 'alloy'—1790. 2. To sprinkle (meat) with salt or powdered spice; to salt; to cure. *Exc. dial.* late ME. 3. To sprinkle powder upon; to cover with or as with some powdery substance ME. b. To apply powder to the hair, etc. as a cosmetic. Also with the *reason* as obj.; also *absol.* or *intr.* for *refl.* 99. 4. To ornament with spots or small pieces scattered over the surface; to sprinkle or angle (a surface) with. *Usu.* in *pa. pple.* ME. a. b. Powdering their lives with improbable passages to the great prejudice of truth 1661. 2. She asked red veal, and she powder'd lean beef 1715. That Milky way Which nightly as a circling Zone on seest Powderd with Stars MILT. b. A red sea, she can always p. it. 'She would scorn to p.' says Edwin DICKENS. 4. Gold shoes powdered the pearls 1766.

II. To sprinkle or scatter like powder; to spere here and there upon a surface. *Usu.* in *pa. pple.* ME.

III. 1. To reduce to powder; to pulverize. 2. *intr.* To fall to powder, become pulverized 1846. Hence **Powderable** *a.* rare.

Powder, *v.* 3. *collog.* and *dial.* 1632. [*f. POWDER sb.* 2.] *intr.* To rush; to hurry with shing speed: said esp. of a rider.

Powder-blue, *sb.* and *a.* 1707. [*f. POWDER sb.* 1.] *A. sb.* Powdered smalt, esp. for use the laundry. *B. adj.* Having the deep blue colour of smalt. *b. sb.* A name for this colour. 94.

owder-down, 1861. [*f. POWDER sb.* 1. + *OWN sb.* 2.] Name for peculiar down-feathers plumules, found in various birds in definite

tracts or patches; so called from the bluish-white powdery or scurfy substance into which they disintegrate. Also *attrib.*, as in *p. patch*, etc.

Powdered (pau'dəd), *pple.* *a.* late ME. [*f. POWDER v.* 1.] 1. Preserved; cured; corned. *Obs. exc. dial.* 2. Decorated with a multitude of spots or small figures scattered over the surface, late ME. 3. *Zool.* Marked as if dusted over with powder. Said esp. of moths. 1832.

3. Of the hair or skin: Dressed with powder as a cosmetic. Also said of the person. 1655. 4. Reduced to powder or dust 1591.

3. The powder'd footman GAY. 4. *P. glasse* 1646.

Powder-flask, 1753. A case for carrying gunpowder, orig. of horn, later of leather or metal.

Powder-horn, 1533. A powder-flask made of the horn of an ox or a cow with a wooden or metal bottom at the larger end.

Powdering (pau'dərɪŋ), *vb.* *sb.* late ME. [*f. POWDER v.* 1. + *-ING* 1.] The action of *POWDER v.* 1, or the result of this.

Comb.: p.-closet, -room, a room appropriated to powdering the hair; tub, a tub in which the flesh of animals is powdered, or salted and pickled; false *poca*, a sweating-tub used for the cure of venereal disease.

Powder-monkey, 1682. *Joc.* term for a boy employed on board ship to carry powder to the guns.

Powder-puff, 1704. A soft pad, usu. of down, for applying powder to the skin. *b.* An instrument like a small bellows formerly used for powdering the hair.

Powdery (pau'dərɪ), *a.* late ME. [*f. POWDER sb.* 1. + *-Y* 1.] 1. Of the nature or consistence of powder; pulverulent; dusty. 2. Easily disintegrated into powder; friable 1728. 3. Covered with or full of powder; dusty 1708.

1. The p. snow WORDSW. b. A brown, p. Spar 1728. 2. Auriculars with p. leaves and stems 1874.

Power (paʊər, paʊər), [ME. *poër, poeir, power*, *a. AF. poër, poair, powair*, *sb.* use of *vb.* *inf. poir, poair* 1.—late pop. L. *potere*, *repl. posse* to be able.] 1. As a quality or property.

1. Ability to do something or anything, or to act upon a person or thing. *b.* With *a* and *pl.* A particular faculty of body or mind 1483. *c.* *pl.* Power put forth in various directions or on various occasions 1586. 2. Ability to act or affect something strongly; physical or mental strength; vigour, energy; force of character; effect 1440. *b.* Political or national strength 1707. 3. Of things: Active property; capacity of producing some effect 1592. *b.* The sound expressed by a character or symbol; the meaning expressed by a word or phrase in a particular context 1727. 4. Possession of control or command over others; dominion; government, sway; authority over ME. 5. Liberty or permission to act ME. *c.* Personal or social ascendancy, influence 1535. 6. Political ascendancy or influence 1833. 7. Legal ability, capacity, or authority to act; *esp.* delegated authority 1486. *b.* A document, or clause in a document, giving legal authority 1483.

1. Is it not in your p. to open your eyes? 1713. Money is p. 1853. *b.* Memory, reason, & will. And these ben the three powers of the soule. 1526. *c.* His powers of attention 1852. 2. More p. to your elbow LOWELL. *b.* Balance of p.: see *BALANCE* sb. 12. 3. The p. of Herbs can other Harms remove GRAY. The p. of heat to burn JOWETT. 4. The p. and jurisdiction of the Parliament COKE. *b.* The bishops, had no p. to imprison priests 1856. *c.* A man's p. means the readiness of other men to obey him MILL. *d.* The governing party has always come into p. by means of revolution 1878. 5. The borrowing powers of the company 1891. *b.* *P. of attorney*, a document appointing a person or persons to act as the attorney or attorneys of the appointer.

II. As a person, body, or thing. 1. An influential or governing person, body, or thing; in early use, one in authority, a ruler, governor, late ME. *b.* In late use, A state or nation from the point of view of its international authority or influence 1726. 2. A celestial or spiritual being having control or influence; a divinity. Chiefly in *pl.* often in exclams, etc., as *by (all) the powers! merciful powers!* 1596. 3. In med. angelology, the sixth order of angels in the celestial hierarchy; see *ORDER* sb. II. 1. 1667. 4. A force of armed men; a host, an army; in *pl.* = *forces*, i. e. distinct hosts, or different kinds

of troops composing an army. *Orig.* less concrete, without *a* or *pl.* Now *rare* or *arch.* ME. 5. A large number of persons; a large number, quantity, or amount of things; 'a lot'. Now *dial.* or *vulgar collog.* 1661.

1. The powers that be *Rom.* xiii. 1. This, banker, who was something of a p. in Greece 1874. *b.* There was no talk then of being a World P. 1907. 3. Thrones, Dominations, Princedoms, Virtues, Powers MILT. 4. Brutus and Cassius are leuying Powers; We must straight make head SHAKS. *P. of the county*, *Posse Comitatus*. 5. It has done a p. of work DICKENS.

III. Techn. uses. 1. *Math.* The result of taking a quantity (*a*) a given number of times (*x*) as a factor; the number of times being indicated by an exponent (except in the case of 1), thus *a^x*; *gen.* the result of operating on a quantity by any exponent, positive or negative, integral or fractional 1674. *b.* *P. of a point* with regard to a circle: the square of the distance from that point to the point of contact of the tangent drawn from it 1885. 2. *Mech.* An instrument by means of which energy may be applied to mechanical purposes 1671. 3. Any form of energy or force available for application to work. *spec. a.* Mechanical energy (as that of running water, wind, steam, electricity, etc.). *b.* Force applied to produce motion or pressure; the acting force in a lever, etc., as opp. to the *weight*. *c.* The mechanical advantage gained by the use of a machine. 1727. 4. Capacity for exerting mechanical force, as measured by the rate at which it is exerted, or the work done by it (cf. *HORSE-POWER*); also applied to a measurable capacity for producing some other physical effect 1806. 5. *Optics*. The capacity of a lens (or combination of lenses) for magnifying the apparent size of an object; also *ellipt.*, the lens itself 1727.

1. 2 is the root, or 1st p. of 2. 4 is the 2d p., or square of 2. 1827. 2. *Mechanical (mathematical, mechanic) powers*, the simple machines by means of which energy may be advantageously applied; now reckoned as six, viz. the lever, wheel and axle, pulley, wedge, inclined plane, and screw. 3. Plans, for working the weaving loom by the application of p. 1808.

Phrases. *In p.*, in a position of authority. *In one's p.*, within one's ability, under one's control. *To the best, uttermost, or extent of one's p.*, as far as one is able. *P. of pit and gallows*: see *PIT* sb. 1. 9. *Comb.*: p.-gas, coal-gas used for supplying power, not illumination; p. house, p. station, a building in which power (esp. electrical or mechanical) is generated; load *Electr.*, the amount of current delivered for use in driving machinery, as dist. from that used for lighting. Hence **Power v., to supply the power for (an engine, etc.) 1899.**

Powerable, *a.* 1584. [*f. POWER sb.* 1. + *-ABLE*; cf. *comfortable*, etc.] 1. = **POWERFUL** 1632. 2. Extreme, excessive (*rare*)—1596.

Powerful (paʊər-ful, paʊər-ful), *a.* (adv.) late ME. [*f. POWER sb.* 1. + *-FUL*]. 1. Having, or capable of exerting, great (moral, physical, or other) power; potent. 2. Producing great effect. 3. Having power to influence greatly; impressive, convincing, telling. 1596. 4. Great in quantity or number. *dial.* or *vulgar*. 1852. *B.* as *adv.* Powerfully, exceedingly. *dial.* or *vulgar*. 1835.

1. The powerfulest King on the Sea-coast of Malabar 1727. *P. stimulants* 1802. 2. There is a p. force in a father's command DE FOE. *B.* He was p. tired W. IRVING. Hence **Powerfully** *adv.*, *ness*.

Powerless (paʊər-les, paʊər-les), *a.* 1552. [*f. POWER sb.* 1. + *-LESS*]. Without power; devoid of power or ability; helpless. Hence **Powerlessly** *adv.*, *ness*.

Power-loom, 1808. A weaving loom worked by mechanical power (water, steam, etc.), as dist. from a hand-loom.

Powwow, *pow-wow* (pau'wau), pawaw (pawō'), *sb.* 1624. [*Algonkin pow-waw* or *po-wah*]. 1. A priest, sorcerer, or medicine-man of the N. Amer. Indians. 2. A ceremony of the N. Amer. Indians, esp. one where magic was practised and feasting indulged in; also, a council of Indians, or conference with them 1663. 3. *transf.* A political or other meeting, a friendly consultation, or a merry-making; a 'palaver' of any kind. (Chiefly U.S.) 1812.

2. To find the thief the Indians held the Pow-wow 1887. 3. I was not at the Cambridge pow-wow HUXLEY.

Powwow (pau'wau), *v.* 1642. [*f. prec.*]

(Ger. Köln). *ö* (Fr. *peu*). *ü* (Ger. Müller)

ü (Fr. *dâne*). *ö* (curl). *ē* (ēo) (there). *ē* (ēi) (rein). *ē* (Fr. *faire*). *ō* (fir, fern, earth).

1875

HORIZONTAL ATTITUDE

2-A-9

22/12

23000

48

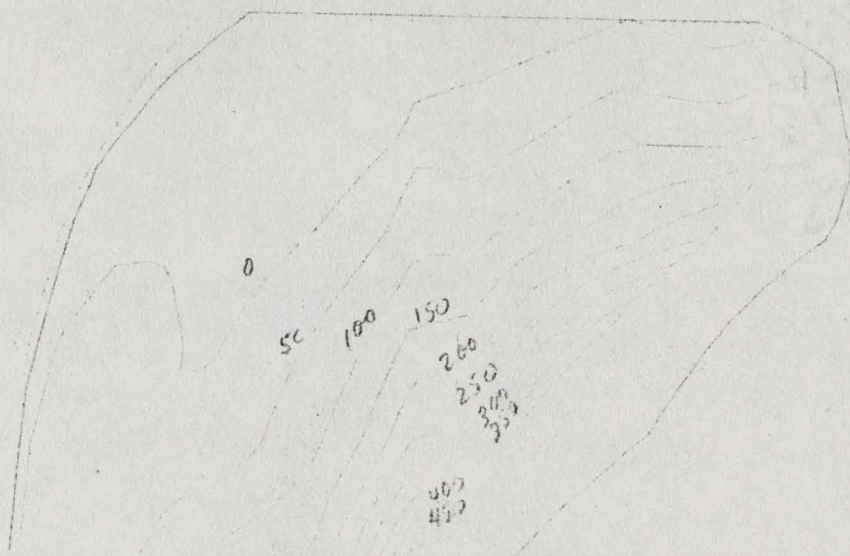
A graph showing Turn Rate (deg/sec) on the Y-axis (0 to 24) versus Mach number on the X-axis (0 to 2.4). The graph includes several curves and lines representing different NM values:

- 0.5 NM:** A straight line starting at (0,0) and reaching approximately 24 deg/sec at Mach 1.0.
- 1 NM:** A straight line starting at (0,0) and reaching approximately 24 deg/sec at Mach 2.4.
- 2 NM:** A straight line starting at (0,0) and reaching approximately 12 deg/sec at Mach 2.4.
- 4 NM:** A straight line starting at (0,0) and reaching approximately 6 deg/sec at Mach 2.4.
- Curves:** Several curves are plotted, some solid and some dashed, representing different NM values. These curves generally peak around Mach 0.9 to 1.0 and then decrease. Some curves are labeled with values like 100, 1000, and 10000.

PLC- PREPARED BY ASD/ENFOP

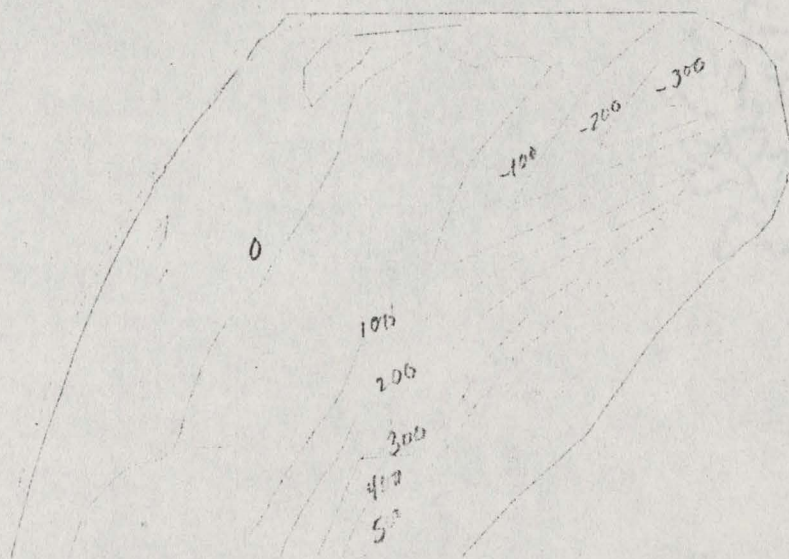
22/12

43



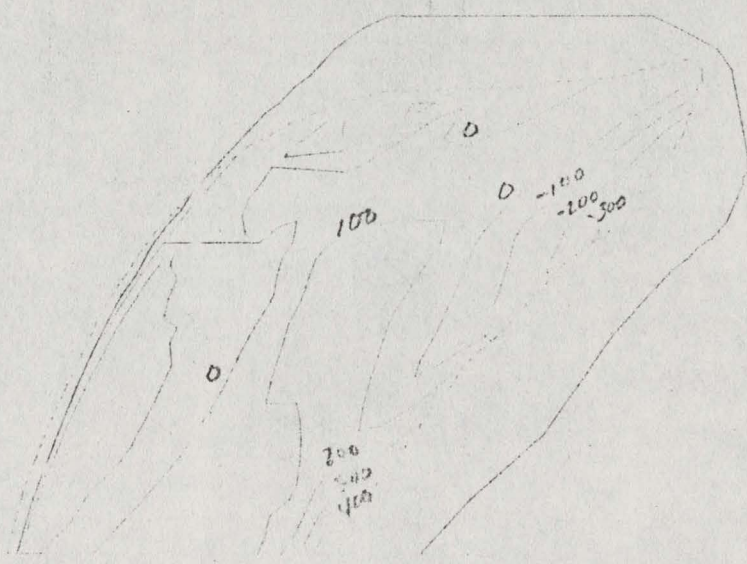
22/12

44



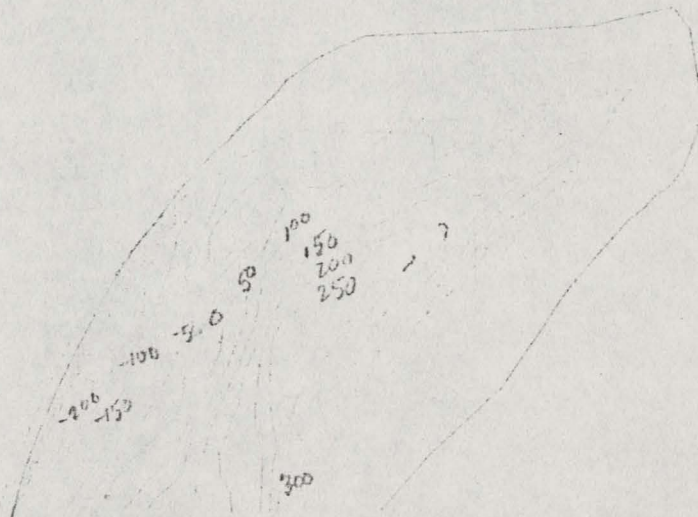
22/12

45



22/12

46



JAN 10 1975

20900

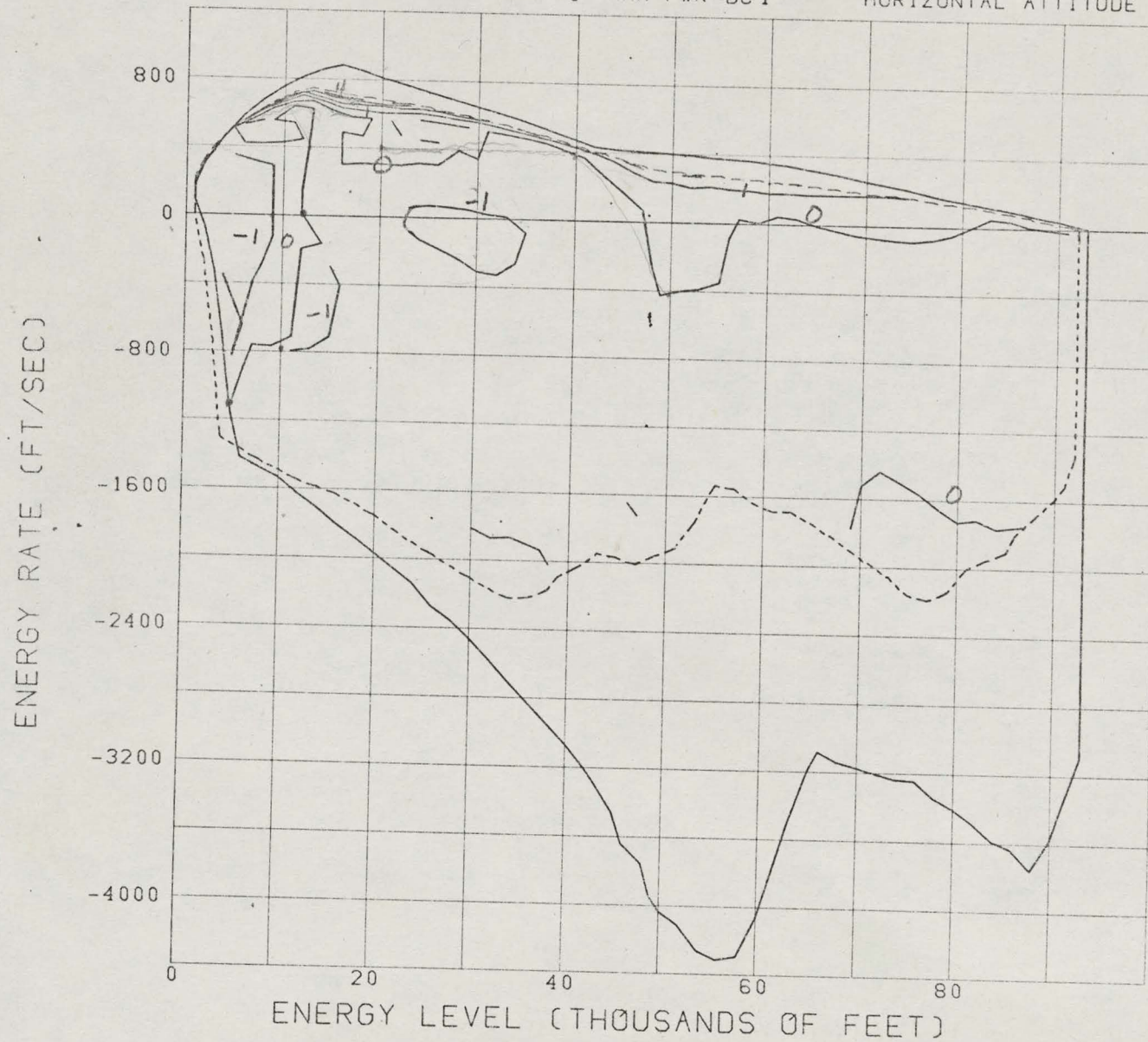
23000

410XRP - 610XRP

MAX MANEUVER DIAGRAM

DC 1 - MAX PWR - DC 1

HORIZONTAL ATTITUDE

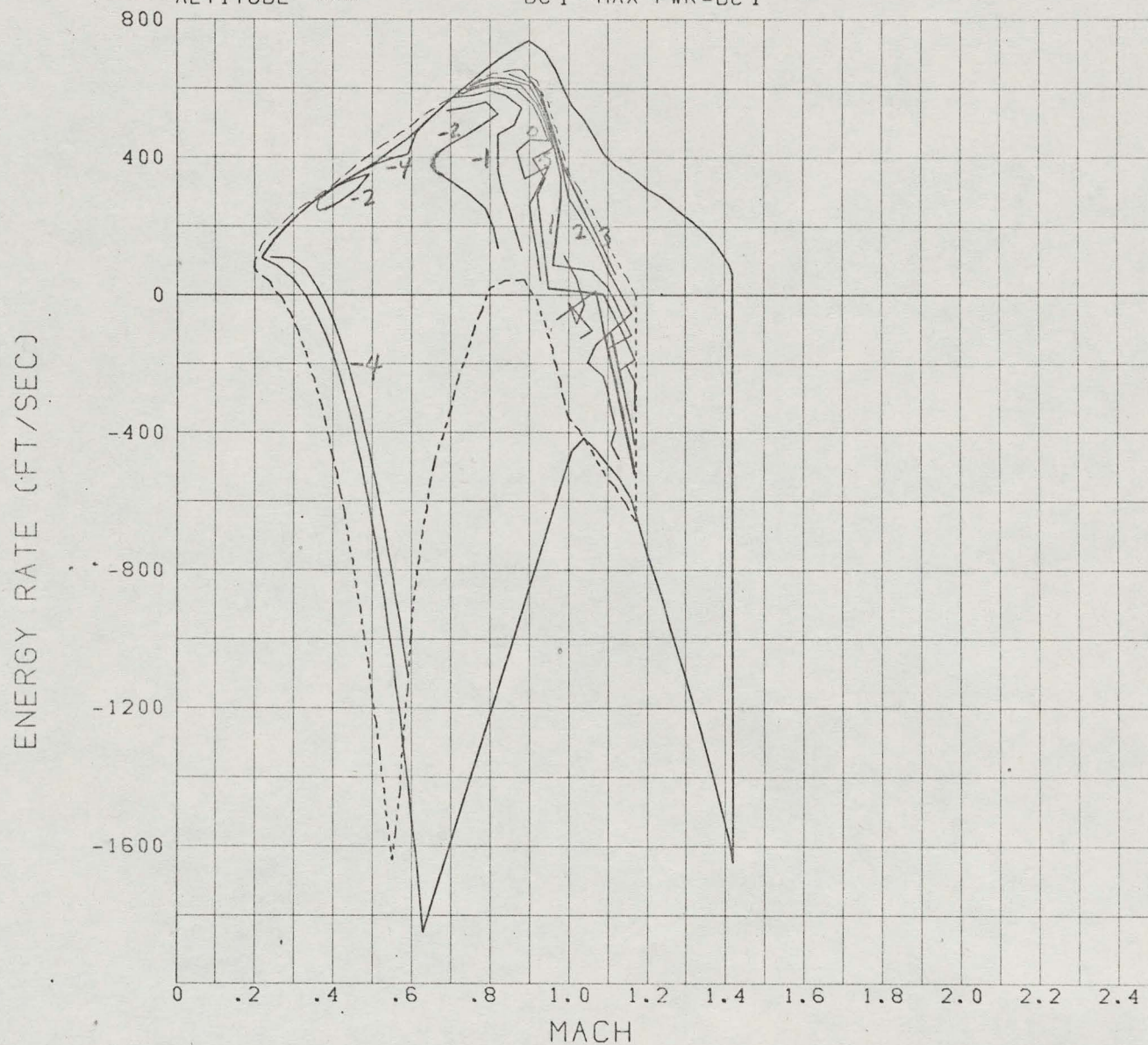


PLOT PREPARED BY ASD/ENFDP

MANEUVER DIAGRAM
ALTITUDE 10000

20900 23000
410XRP - 610XRP
DC 1 -MAX PWR-DC 1

JAN 10 1975



PLOT PREPARED BY ASD/ENFDP

20900

23000

JAN 10 1975

MANEUVER DIAGRAM

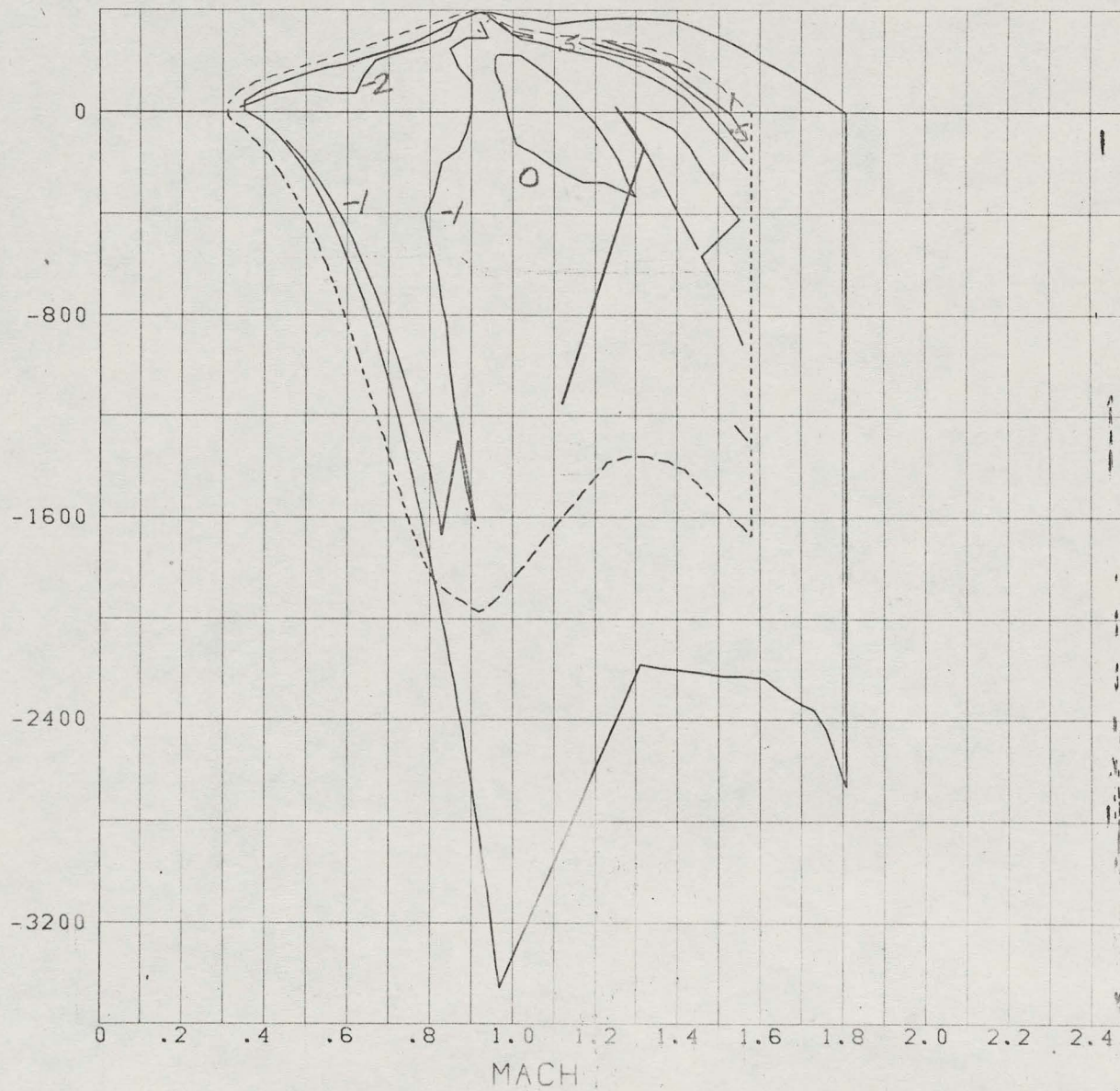
ALTITUDE 30000

410XRP - 610XRP

DC 1 - MAX PWR - DC 1

HORIZONTAL ATTITUDE

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/ENFCP

$$\Delta PS = \frac{410 \text{XRP}}{\text{DC 1 - MAX PWR - DC 1}} - \frac{610 \text{XRP}}{\text{OPT L/D}}$$

DC 1 - MAX PWR - DC 1
OPT L/D

HORIZONTAL ATTITUDE

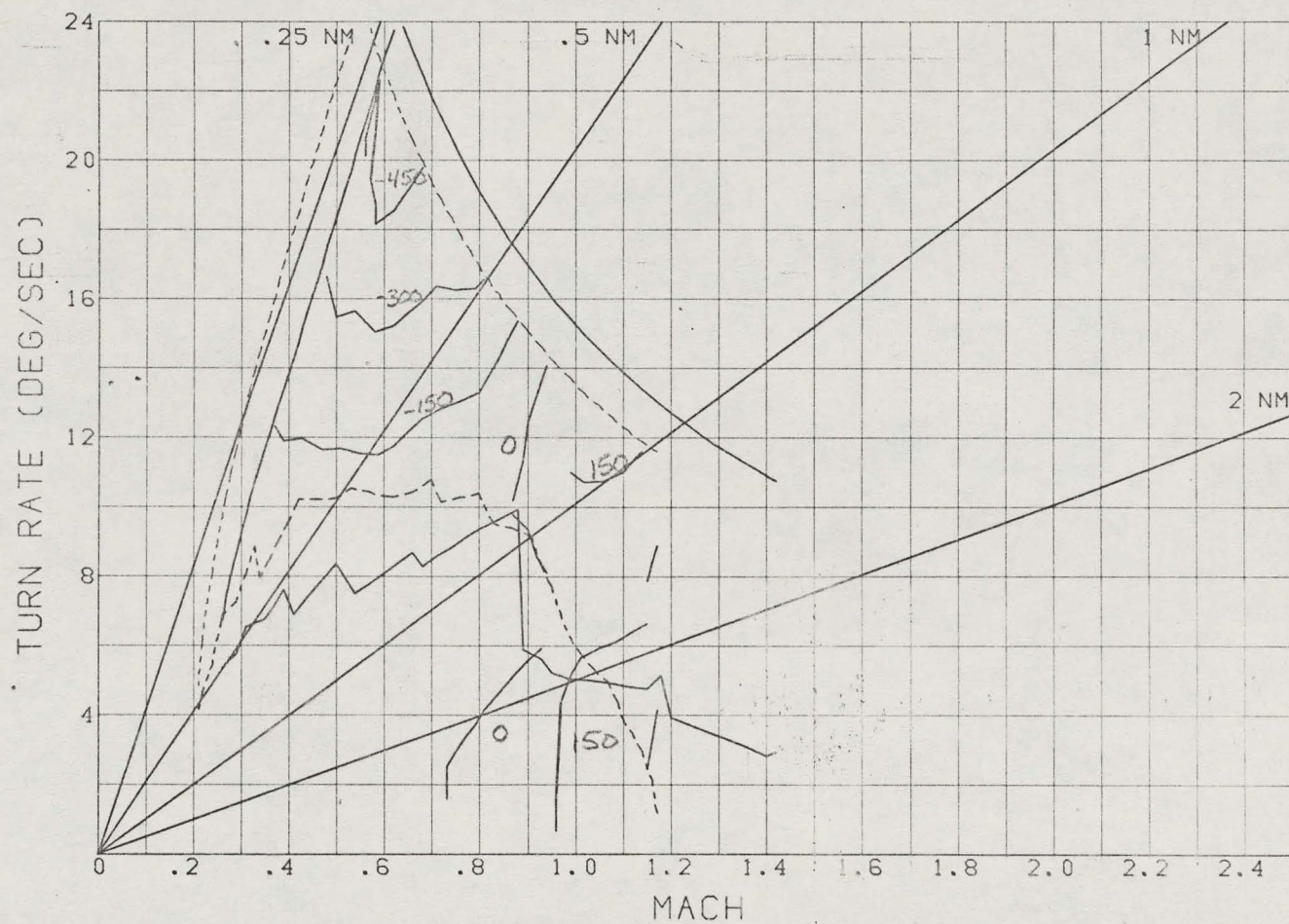
20900

23000

MANEUVER DIAGRAM

JAN. 10 1975

ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFDP

$$\Delta PS = \frac{410XRP}{DC 1 - MAX PWR - DC 1} - \frac{610XRP}{OPT L/D}$$

DC 1 - MAX PWR - DC 1
OPT L/D

HORIZONTAL ATTITUDE

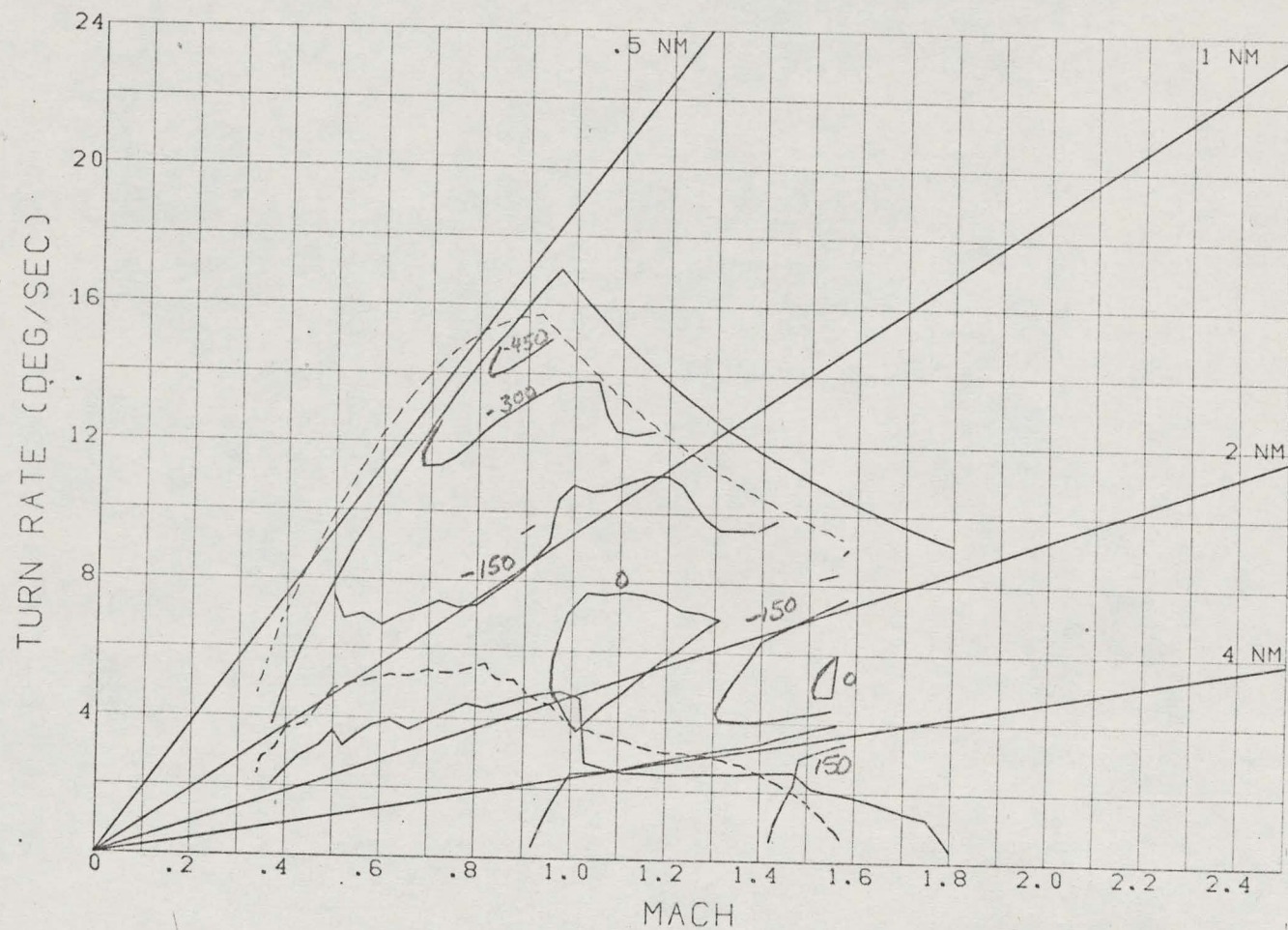
20900

23000

MANEUVER DIAGRAM

JAN 10 1975

ALTITUDE: 30000



PLOT PREPARED BY ASD/ENFDP

D4047

DPS 410XRP -610XRP

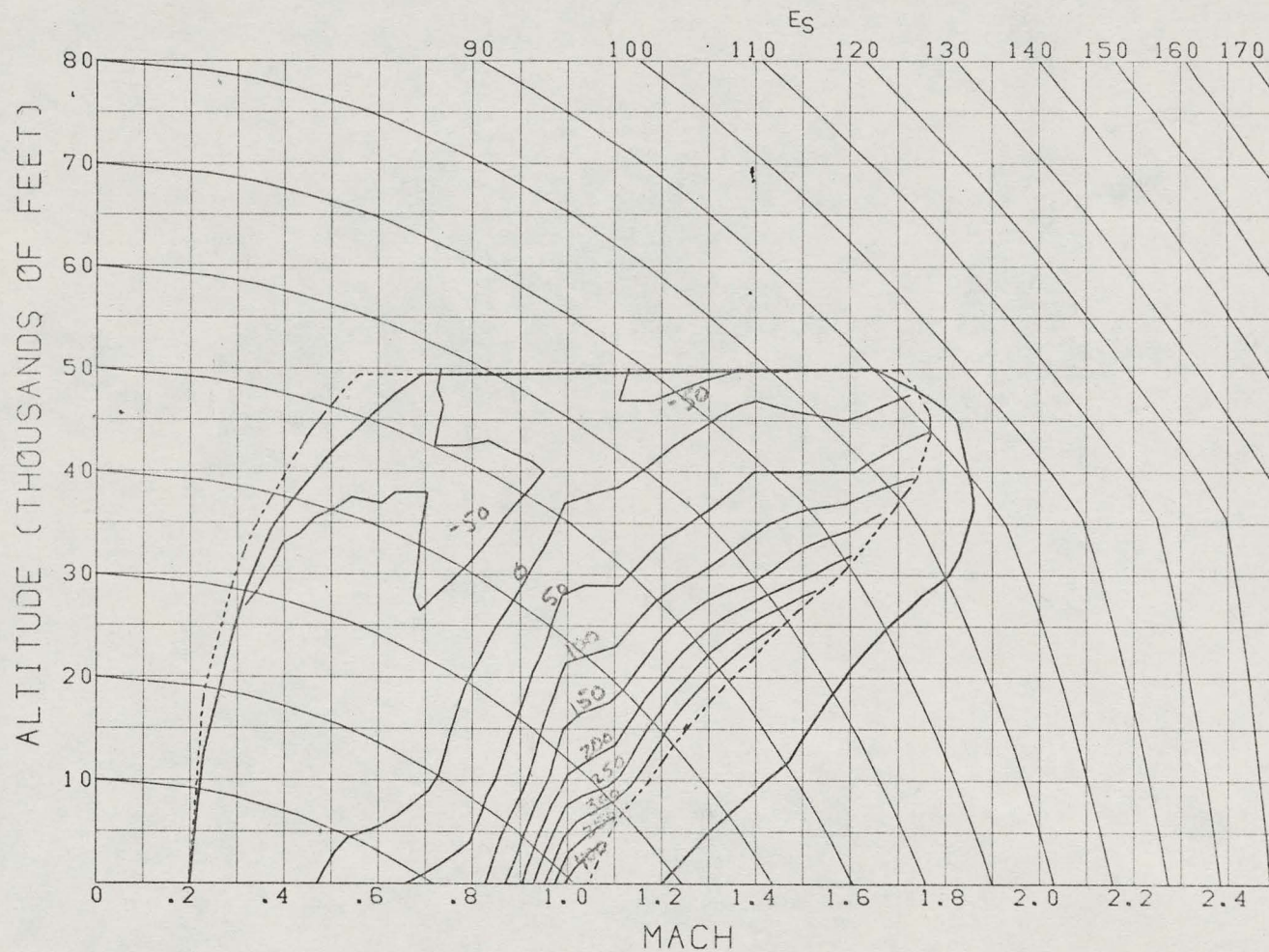
MAXIMUM POWER

D/C 1 D/C 1

20900 23000

1.00 G DIAGRAM

JAN 10 1975



PLOT PREPARED BY ASD/ENFDP

DPS 410XRP -610XRP

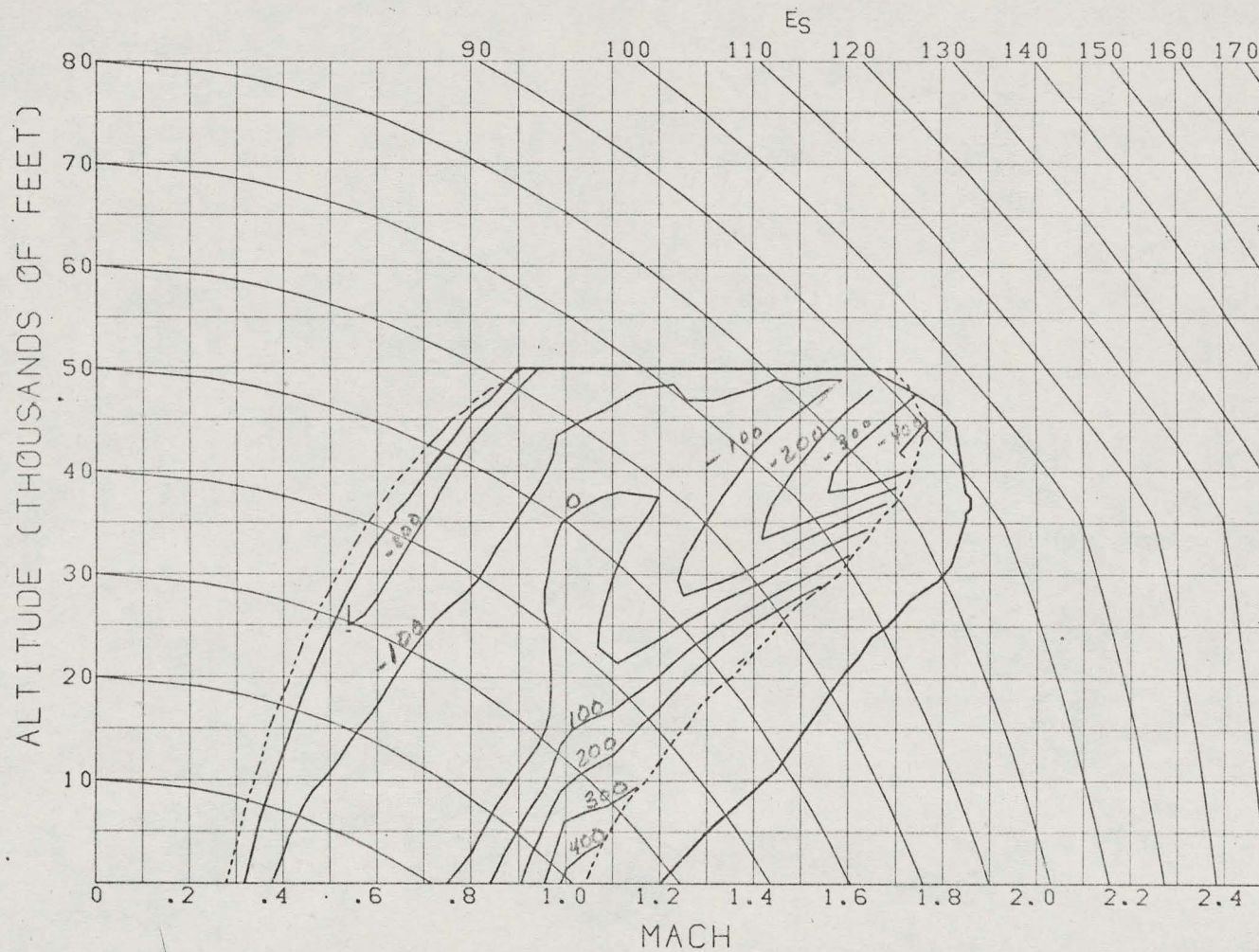
MAXIMUM POWER

D/C 1 D/C 1

20900 23000

3.00 G DIAGRAM

JAN 10 1975



PLOT PREPARED BY ASD/ENFDP

DPS 410XRP -610XRP

MAXIMUM POWER

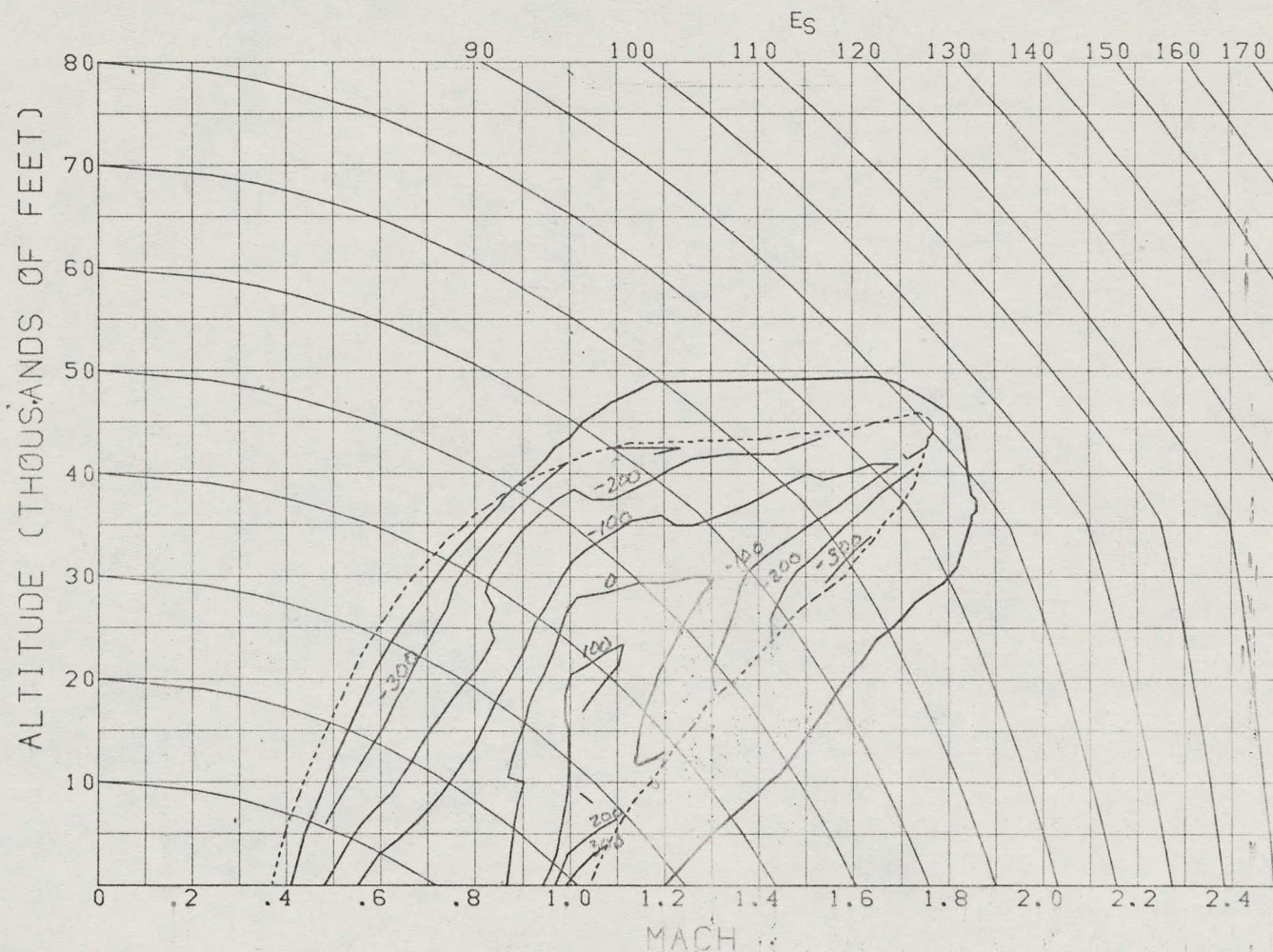
D/C 1 D/C 1

20900

23000

5.00 G DIAGRAM

JAN 10 1975

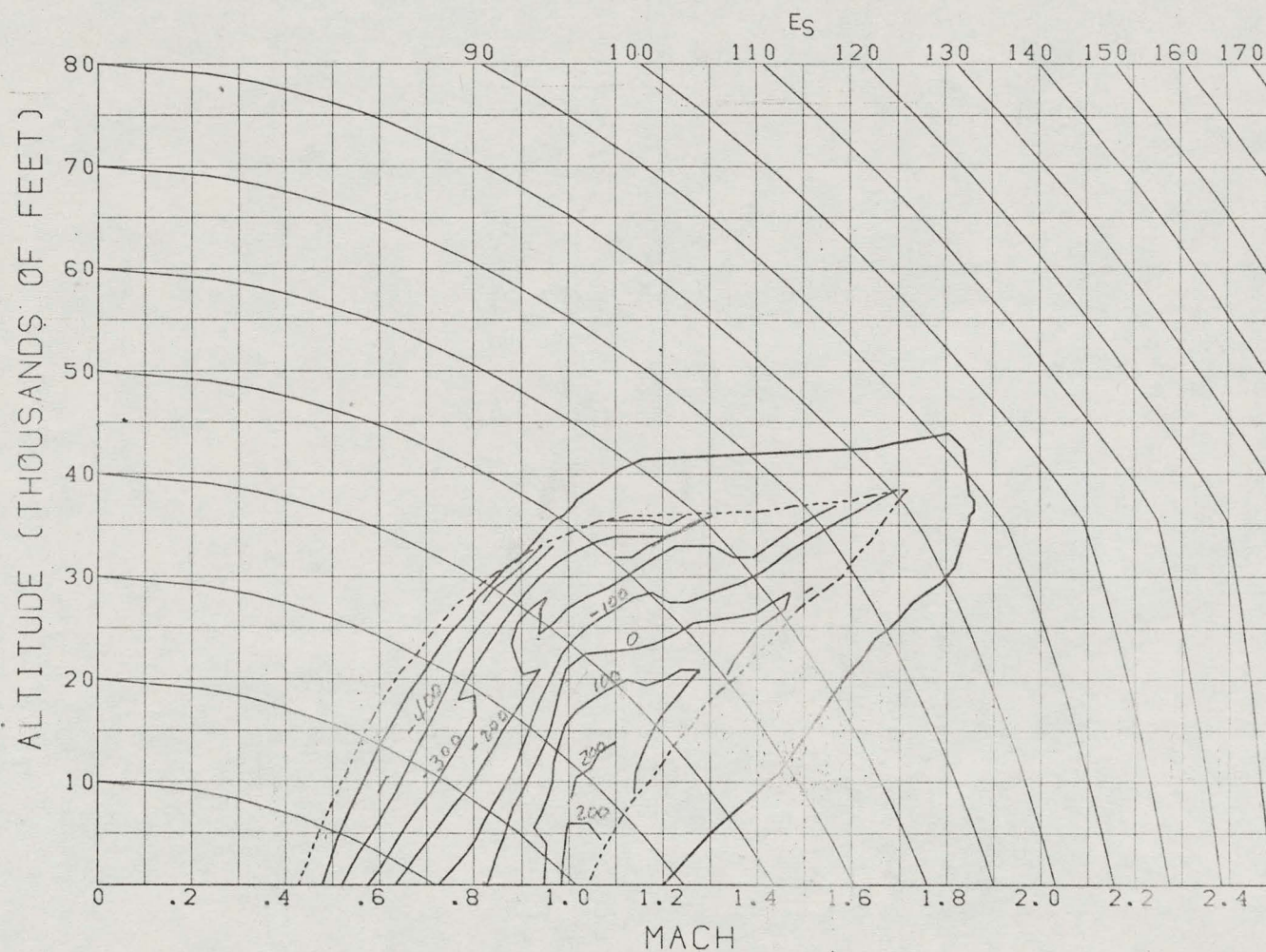


PLOT PREPARED BY ASD/ENFDP

20900 23000

7.00 G DIAGRAM

JAN 10 1975



PLOT PREPARED BY ASD/ENFDP

2-A-9
77000

2-A-9
11015
50.2%

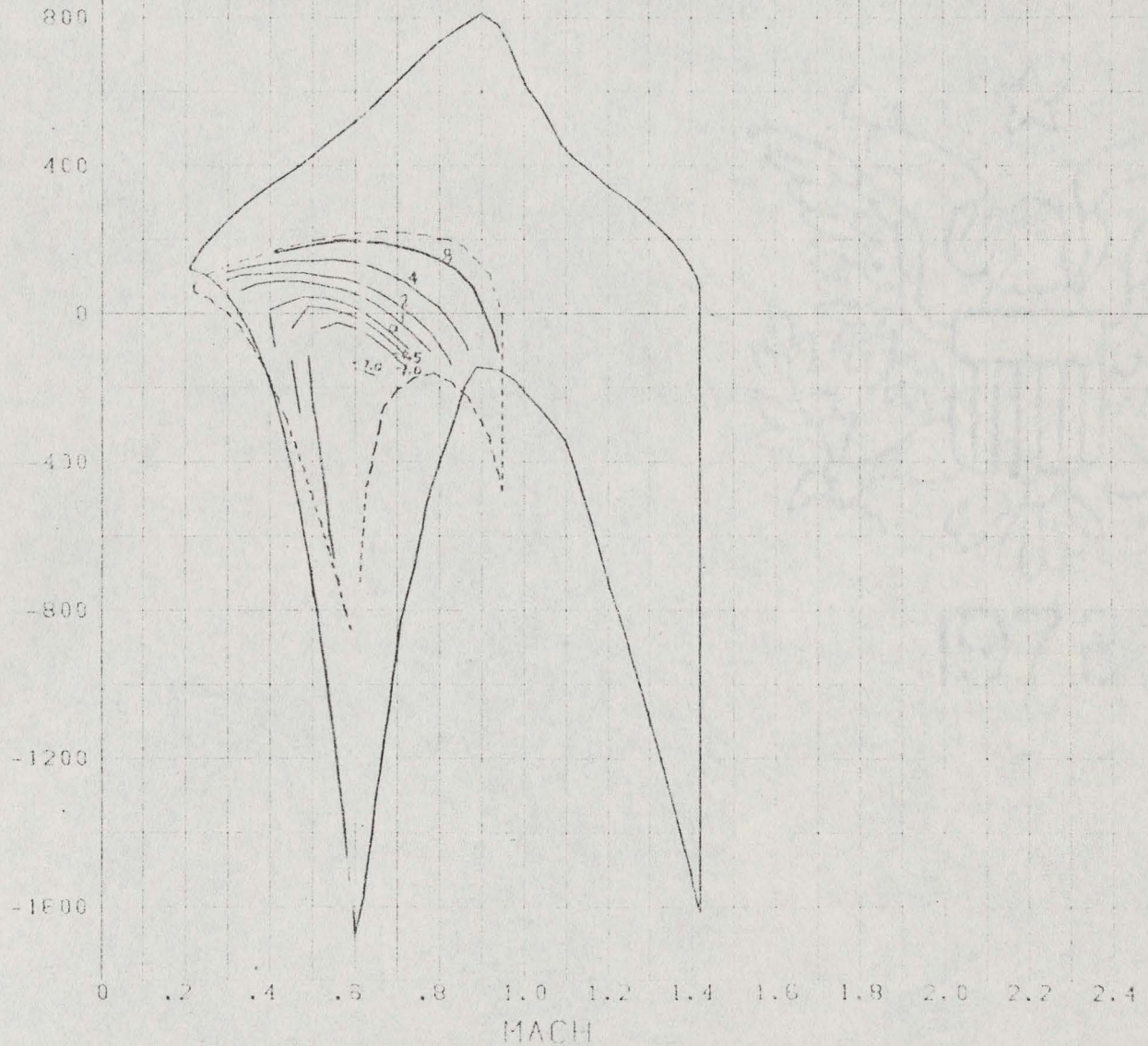
22/12

MANEUVER DIAGRAM
ALTITUDE 10000

410XRF - 311
DC1 - MAX PWR - DC1

21

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/ENEDP

2.9-7
19000

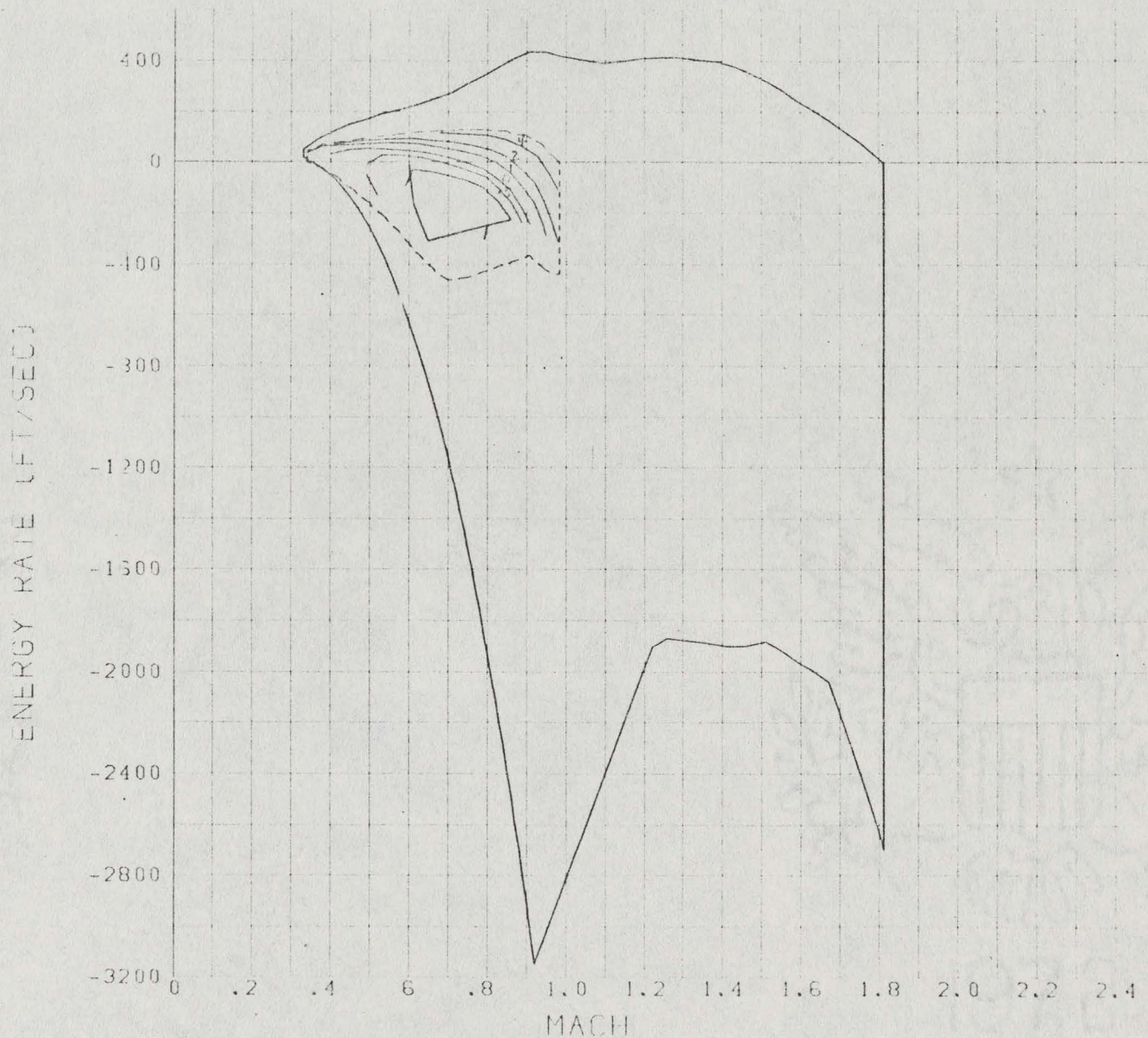
2-AT
11015
50%

22/12

MANEUVER DIAGRAM
ALTITUDE 30000

410XRP - 311
DC 1 MAX PWR - DC 1

22.
HORIZONTAL ALTITUDE



PLOT PREPARED BY ASD/ENEDP

$\Delta'S = 410XRP - 311$

22/12

DC1 - MAX PWR - DC1

HORIZONTAL ALTITUDE

DPT 1.20

2-AT

2-A-9

11015

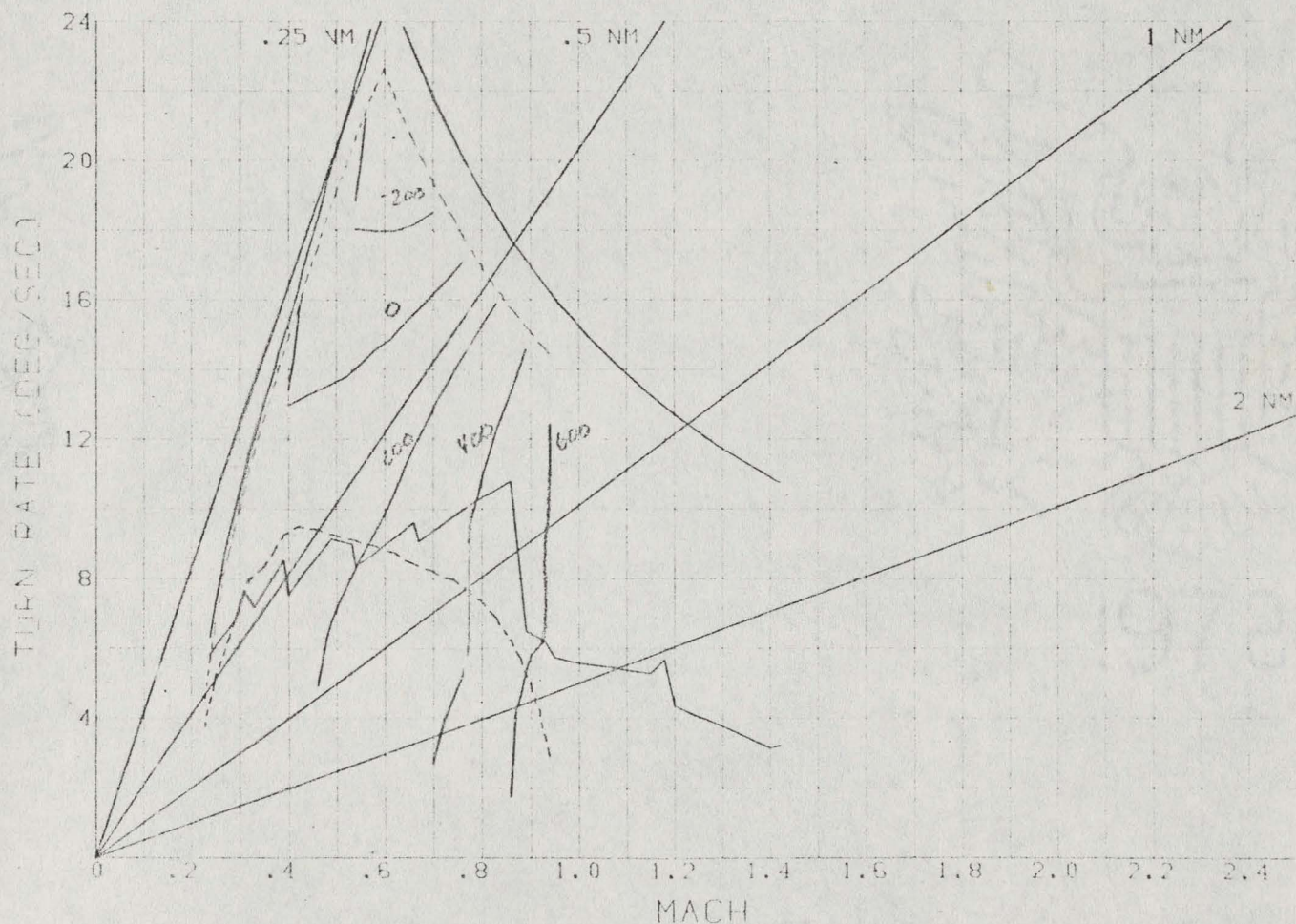
23

19000

50%

MANEUVER DIAGRAM

ALTITUDE: 10000



PLOT PREPARED BY ASD/ENR DP

A

2-10-68

27/17

DC 1 - MAX PWR

100

HORIZONTAL

ALTITUDE

001-1-0

2-AT

2-A-9

4215

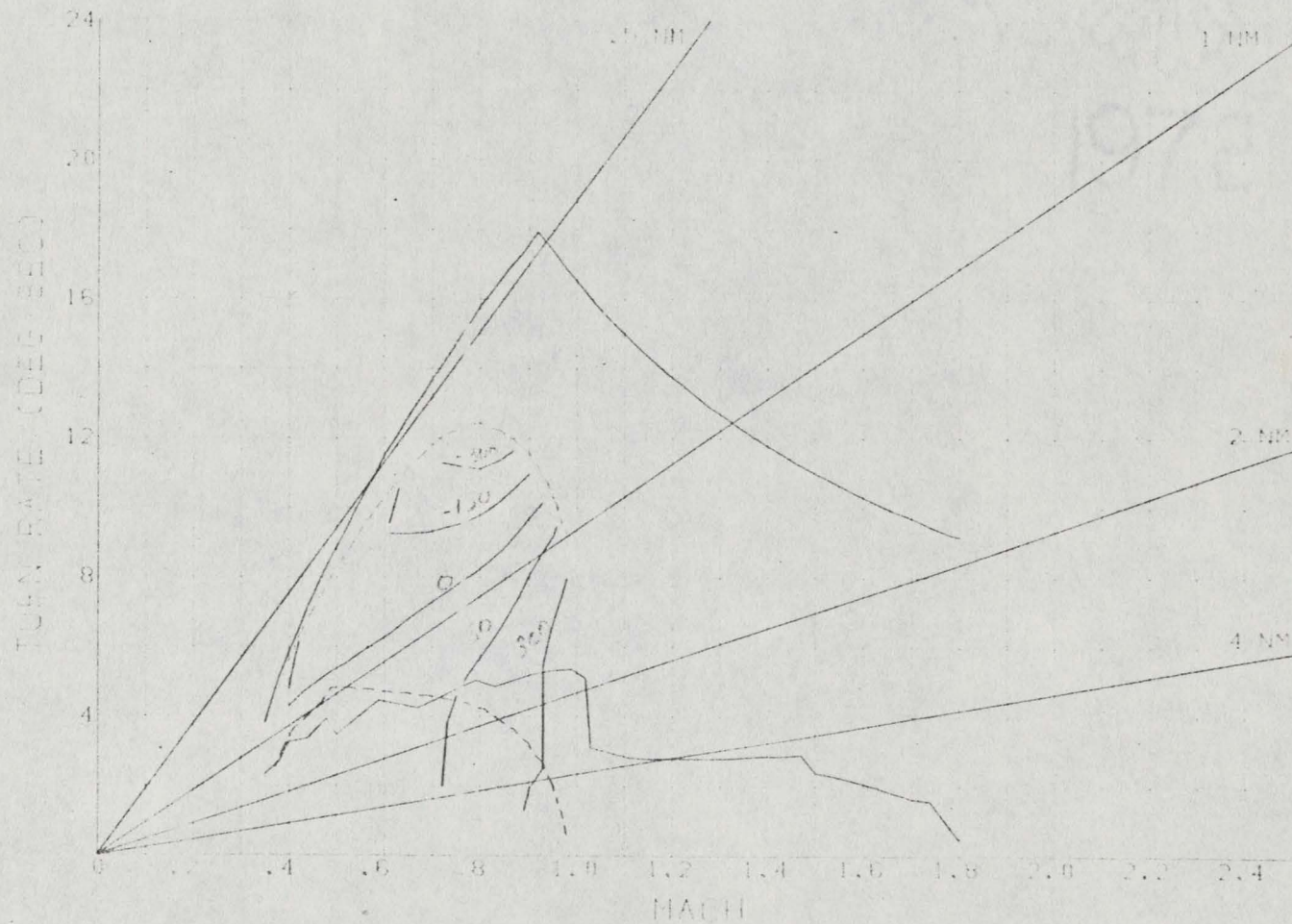
17000

5076

24

MANEUVER DIAGRAM

ALTITUDE: 30000



PLOT PREPARED BY ASD/EN/DP

DPS 410XRP - 311

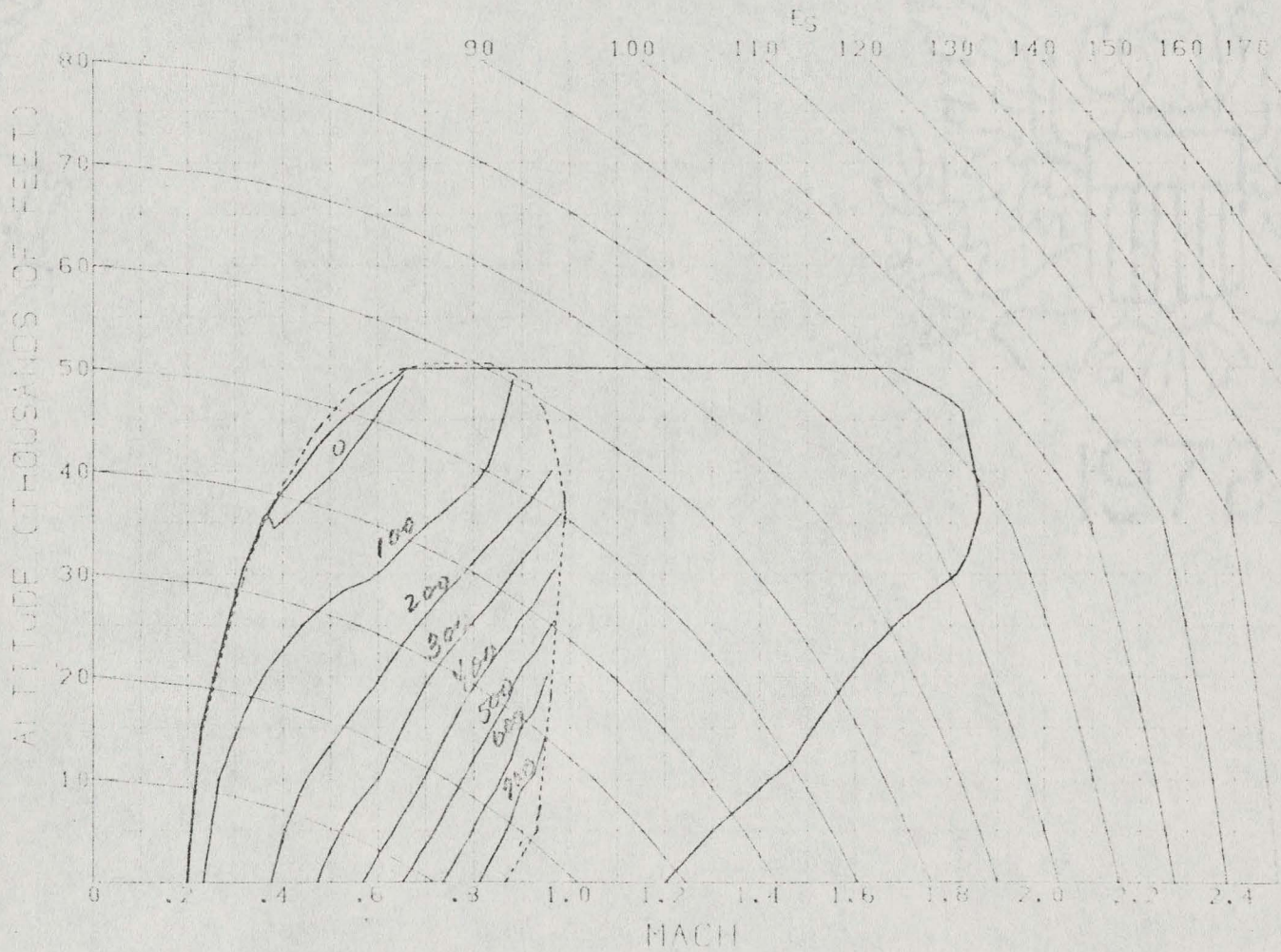
MAXIMUM POWER

D/C 1 D/C 1

22/12

1.00 G DIAGRAM

17



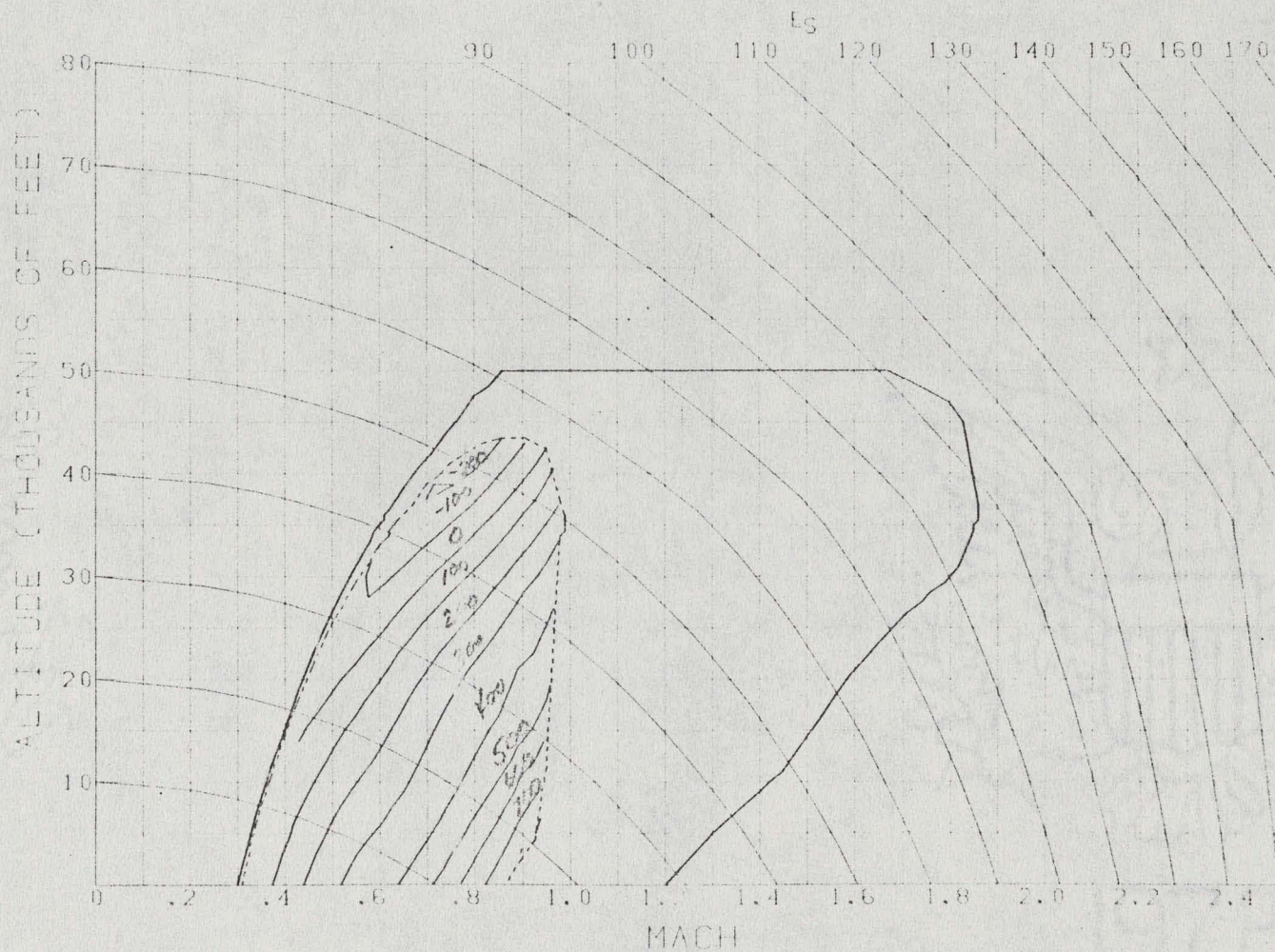
PLOT PREPARED BY ASD/ENEDP

DPS 410XRP 311
MAXIMUM POWER
D/C 1 D/C 1

32/12

3.00 G DIAGRAM

18



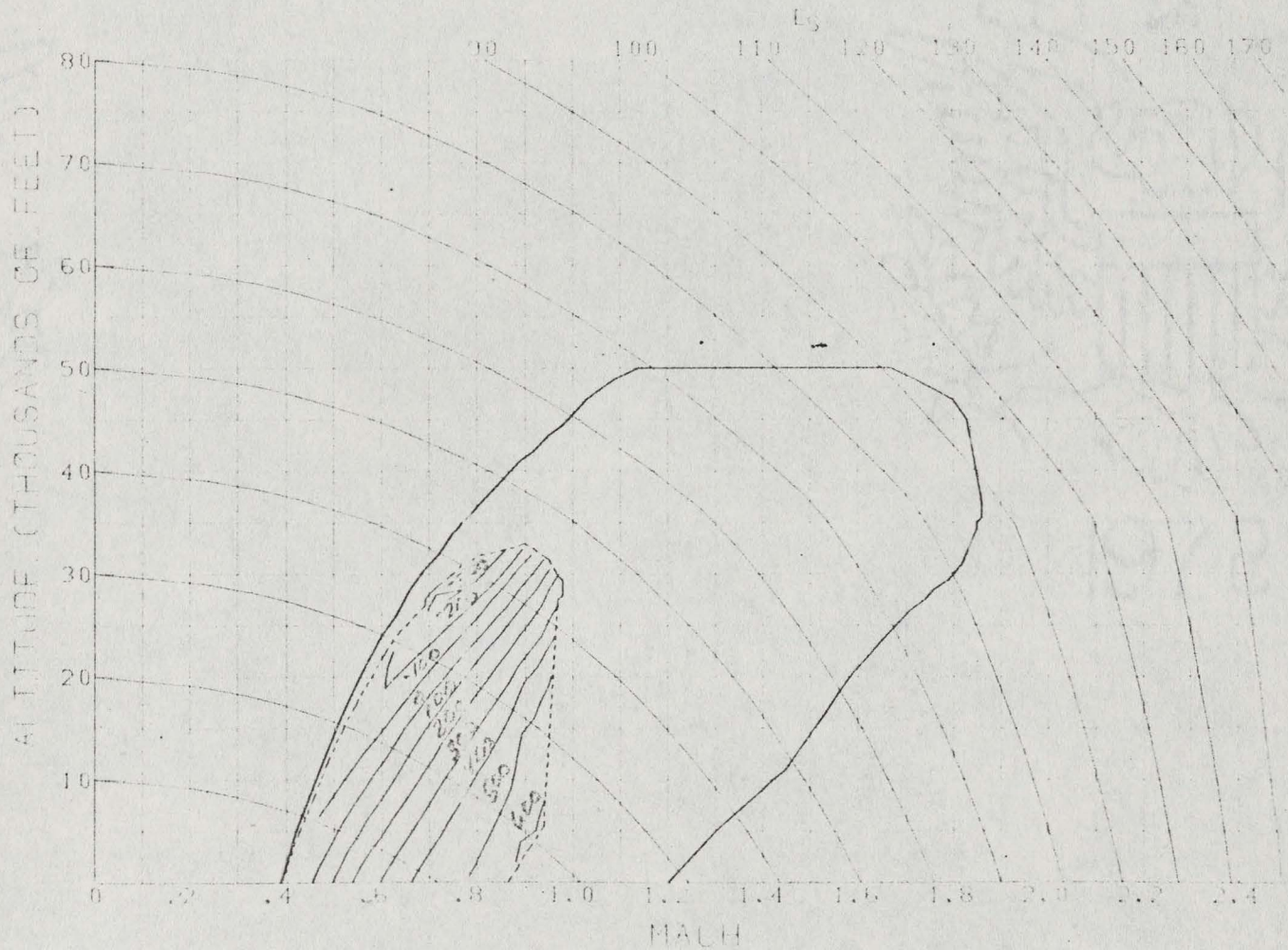
PLGT PREPARED BY ASD, ENEDP

DP'S 410XRP 311
MAXIMUM POWER
D/C 1 B/C 1

22/12

19

5.00 G DIAGRAM



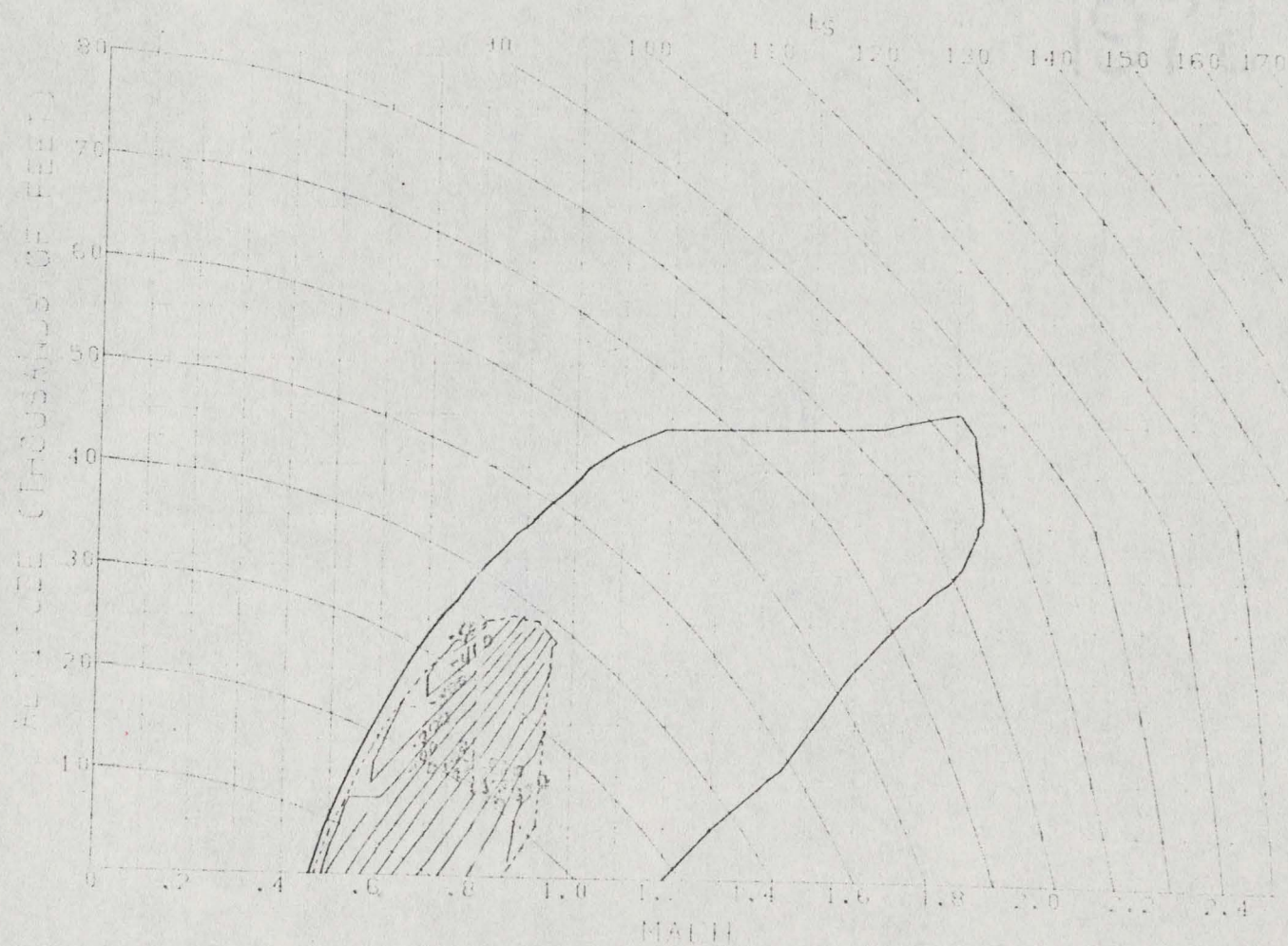
PLOT PREPARED BY ASD/ENEDP

4100R-511
MAXIMUM POWER
D/C 1 D/C 1

22/12

20

7.00 G DIAGRAM



PLOT PREPARED BY ASD (NFI)

2-A-9

2-AF

19000

15762

50%

410XRP

329

DC 1 - MAX PWR - DC 1

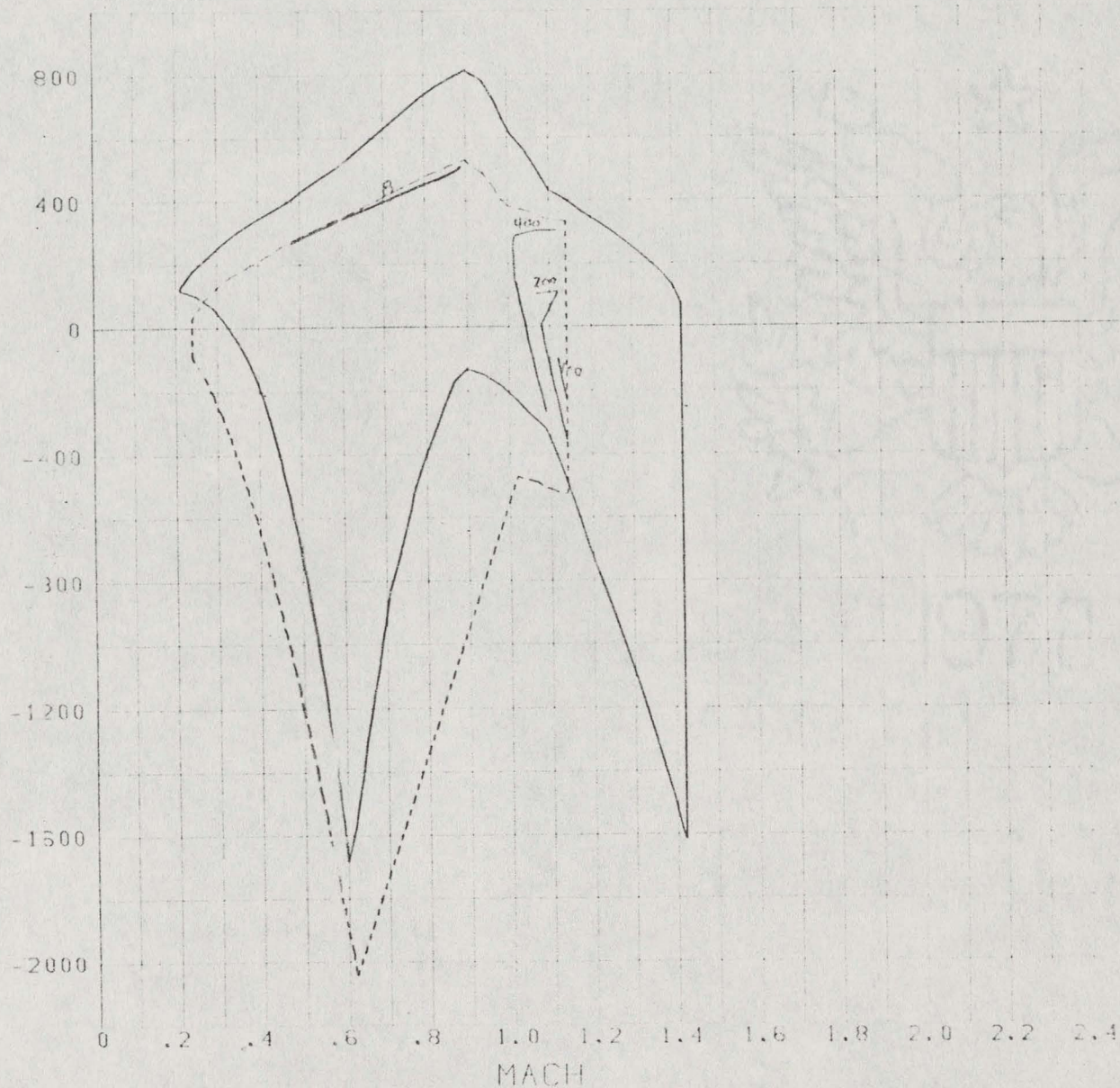
22/12

25

MANEUVER DIAGRAM

ALTITUDE 10000

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/ENEDP

2-A-9
11000

2-A-1
15712
50%

23/12

26

MANEUVER DIAGRAM
ALTITUDE 30000

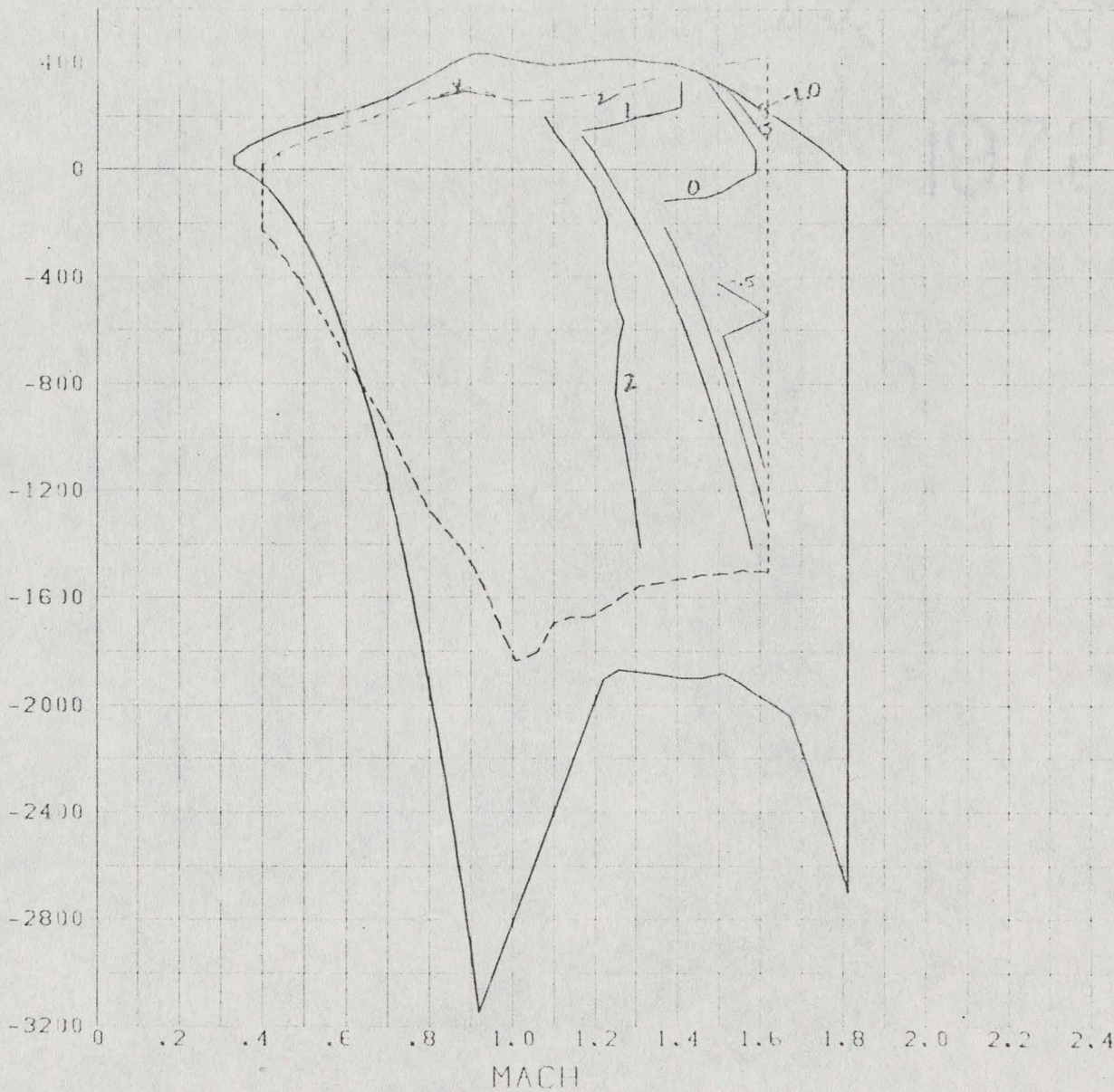
410XRP

329

DC 1 - MAX PWR - DC 1

HORIZONTAL ALTITUDE

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/ENFOP

$$\Delta PS = \frac{410 \times PP}{1000} = 329$$

DC 1 - MAX PWR - DC 1
OPT L/D

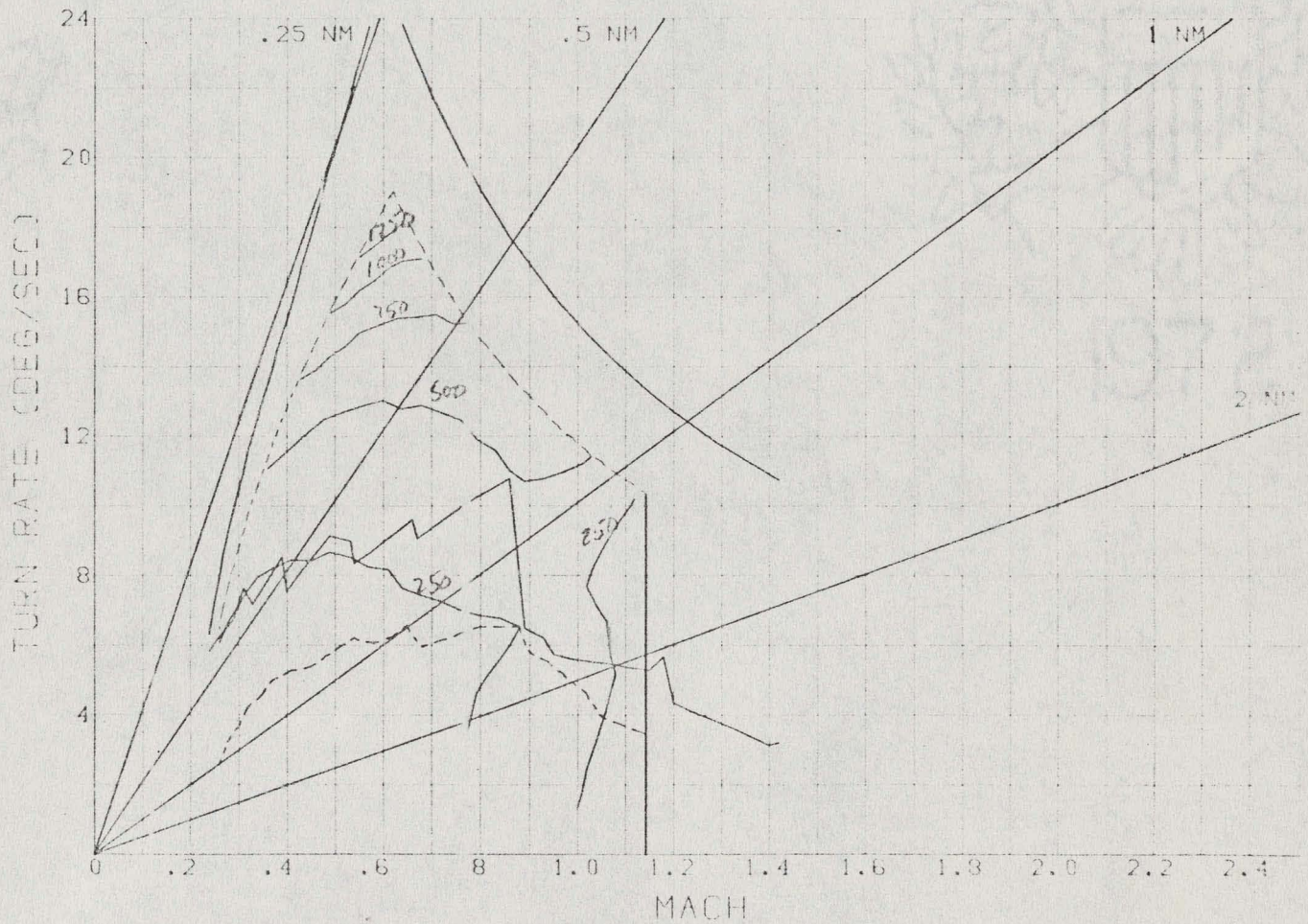
22/12

HORIZONTAL ATTITUDE

27

MANEUVER DIAGRAM

ALTITUDE: 10000



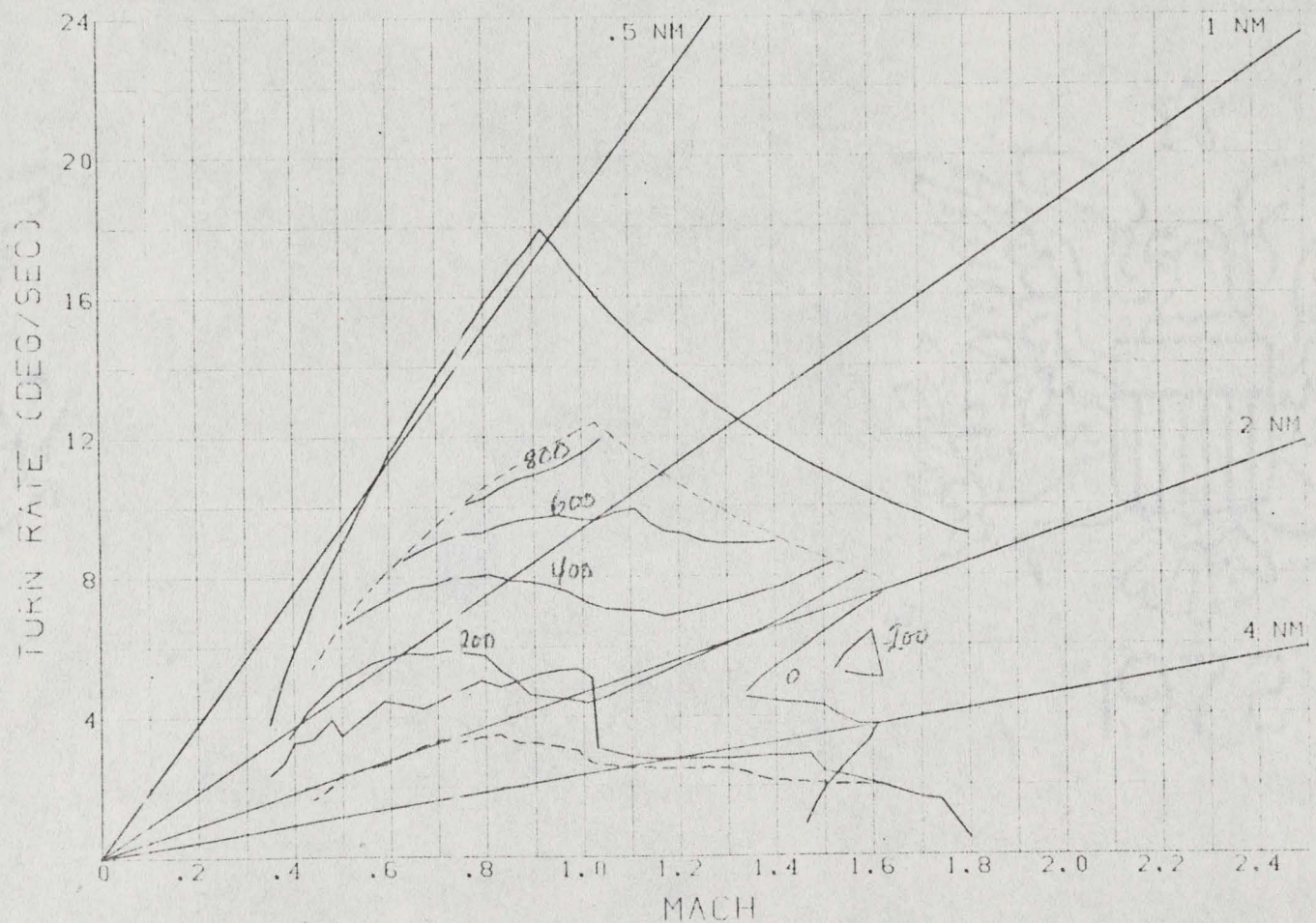
PLOT PREPARED BY ASD/ENFDP

$$\Delta PS = \frac{410 \times RP}{DC1 - MAX \ PWR - DC1} - 329 \quad \text{---} \quad 22/12$$

HORIZONTAL ATTITUDE

28

MANEUVER DIAGRAM
ALTITUDE: 30000



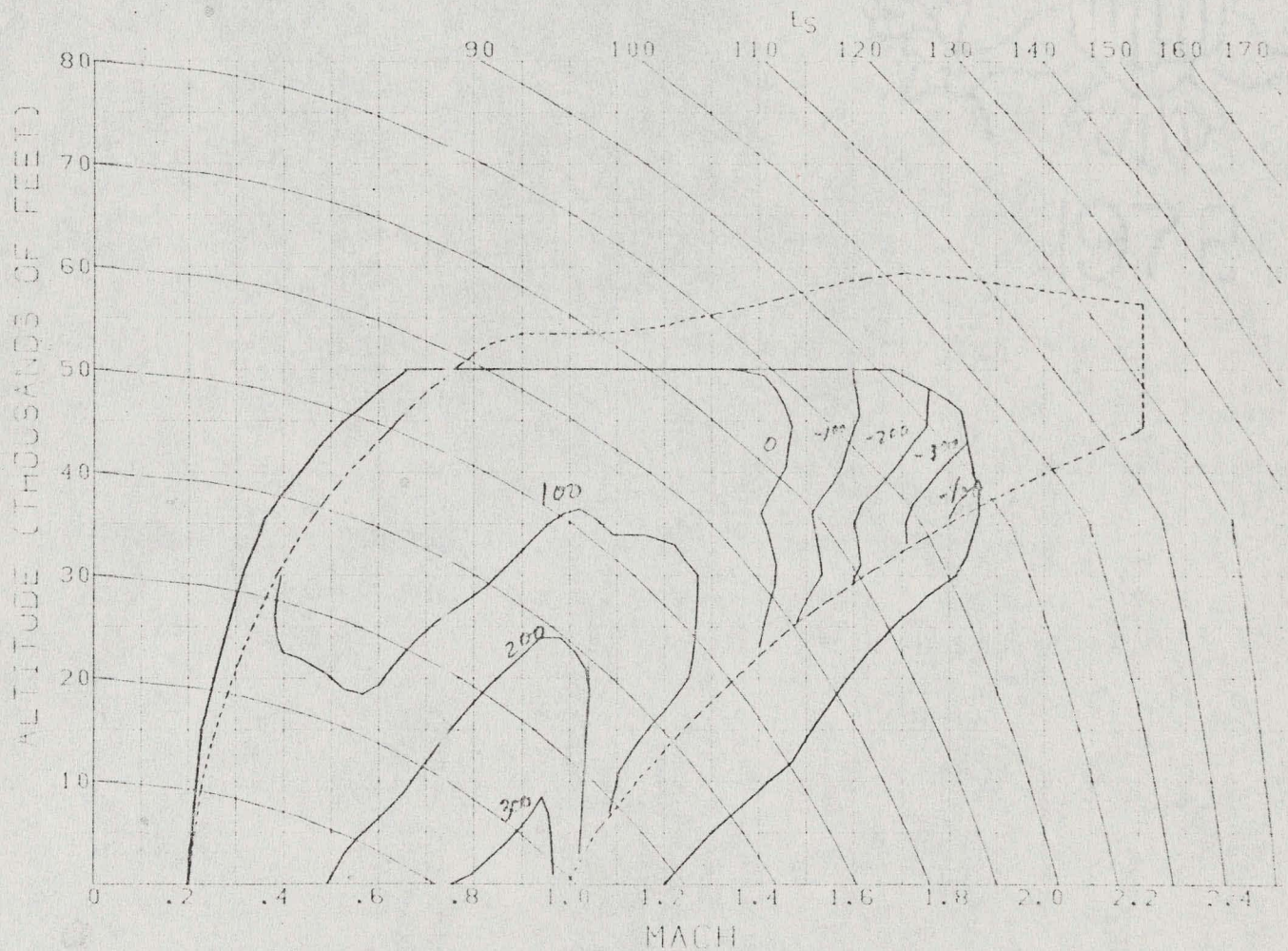
PLOT PREPARED BY ASD/ENFDP

DIS 410XHP - 329
MAXIMUM POWER
D/C 1 D/C 1

22/12

29

1.00 G DIAGRAM



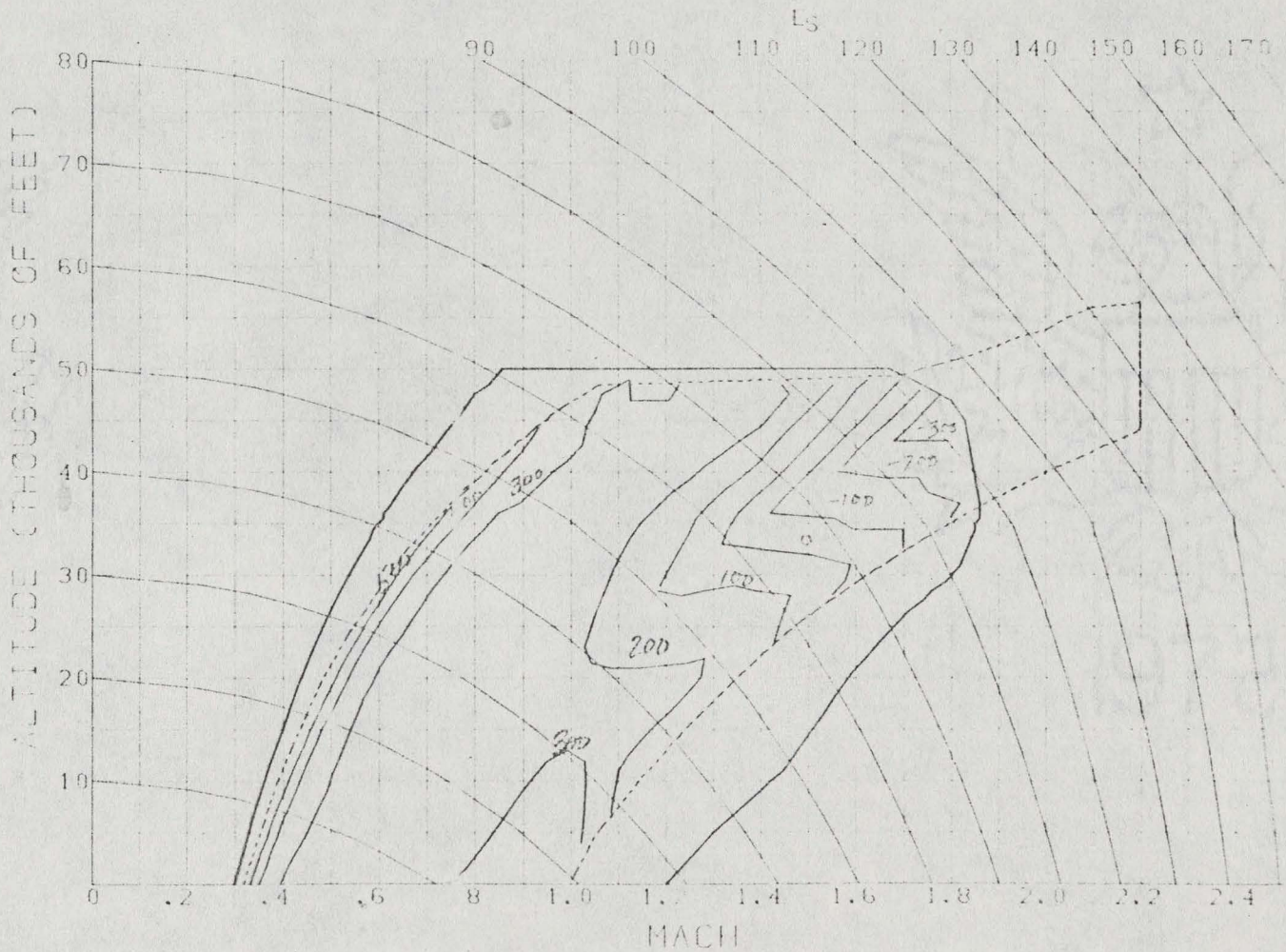
PLOT PREPARED BY ASD/ENR DP

DFS 410XBP - 329
MAXIMUM POWER
D/C 1 D/C 1

22/12

30

3.00 G DIAGRAM

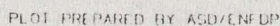


PLOT PREPARED BY ASD/ENR DP

22/12

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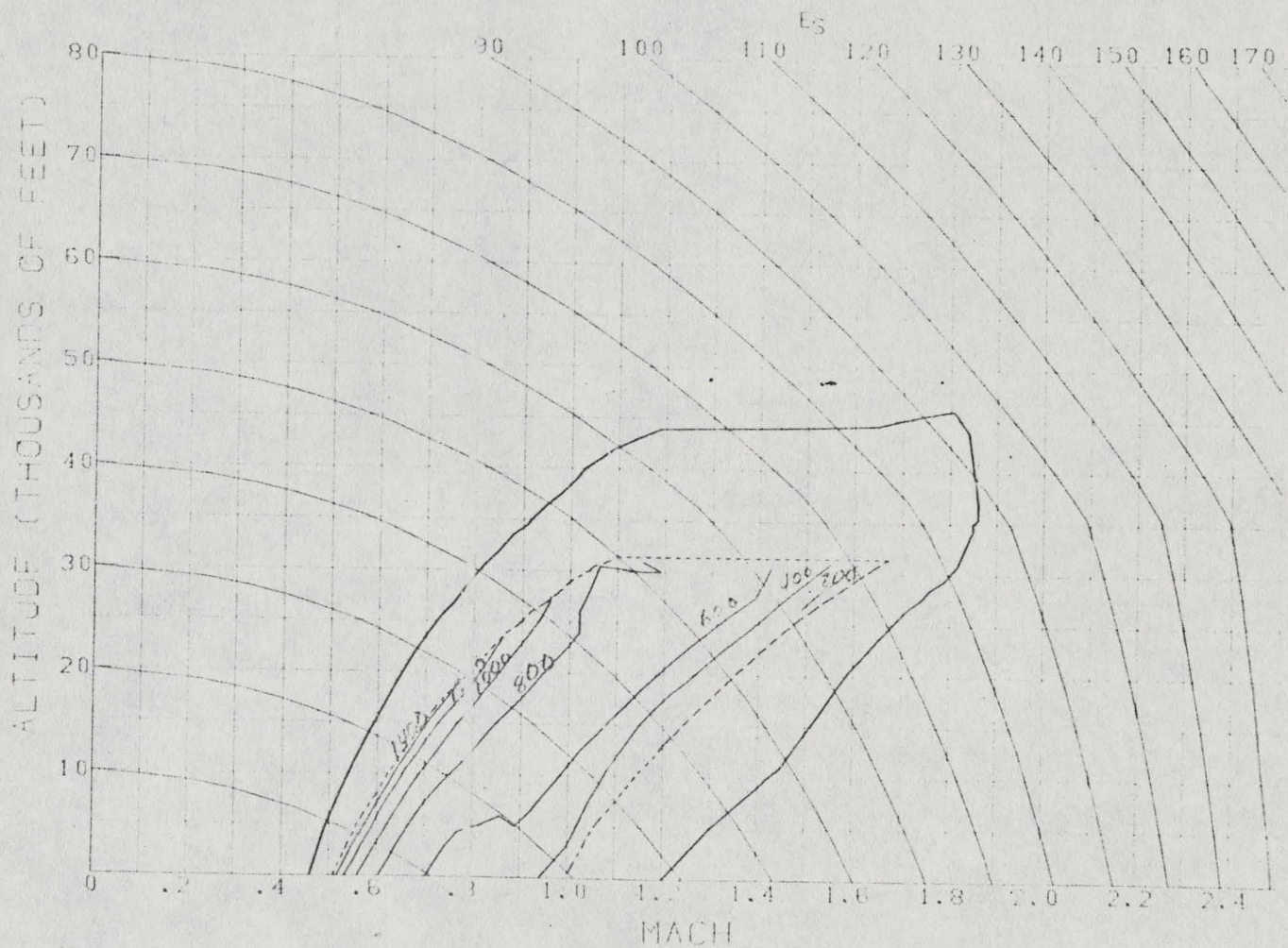
PLOT PREPARED BY ASD/ENFDP

DPS 410XRP - 329
MAXIMUM POWER
D/C 1 D/C 1

22/12

32

7.00 G DIAGRAM



PLOT PREPARED BY ASD/EN/DP

2-A-7
23000

2-AT
11015
5.7

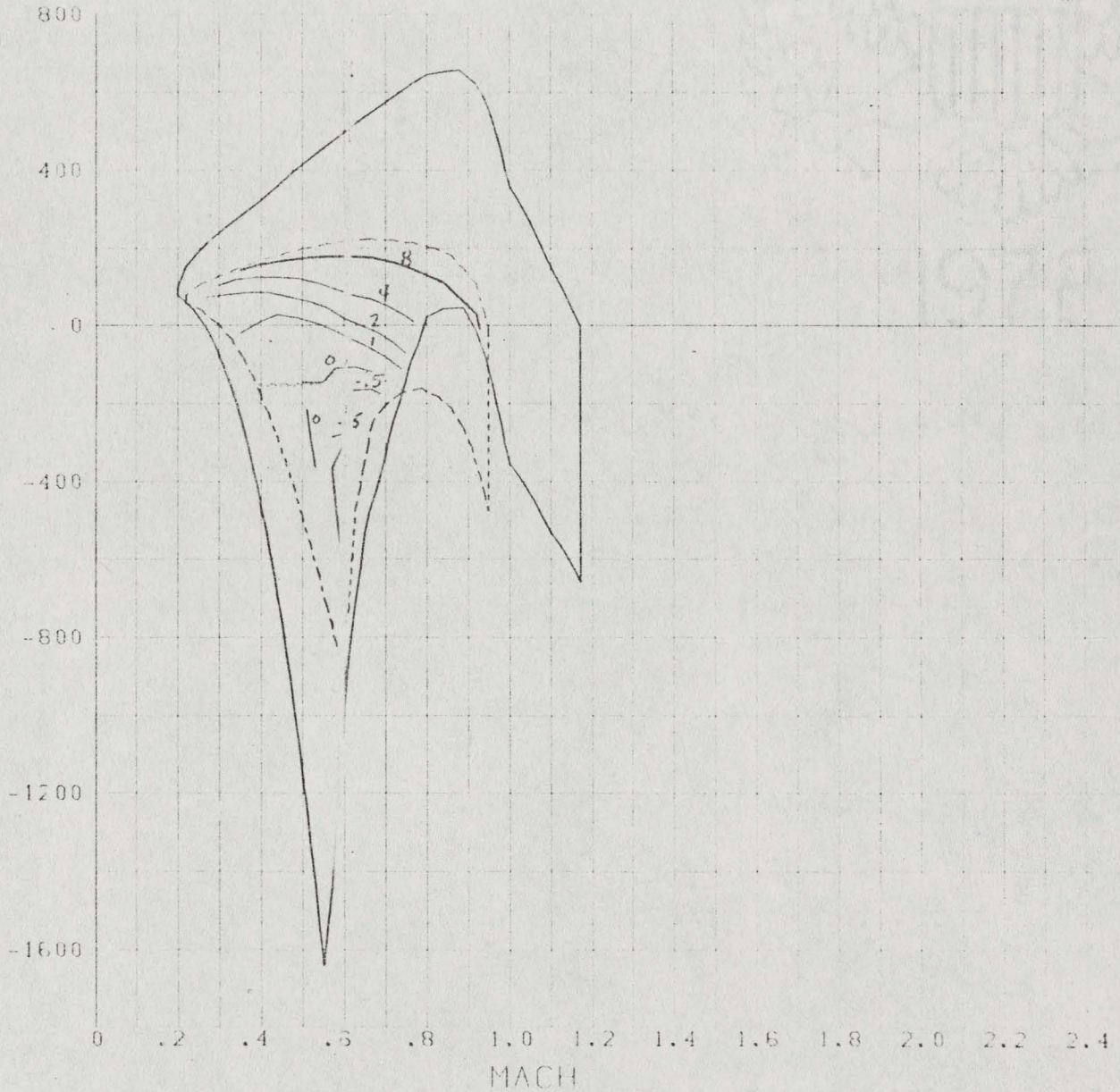
22/12

MANEUVER DIAGRAM
ALTITUDE 10000

610XRP - 311
DC 1 - MAX PWR - DC 1

33

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/EN/DP

2-A-9
23000

2-AT
11015
50%

22/12

34

MANEUVER DIAGRAM 1

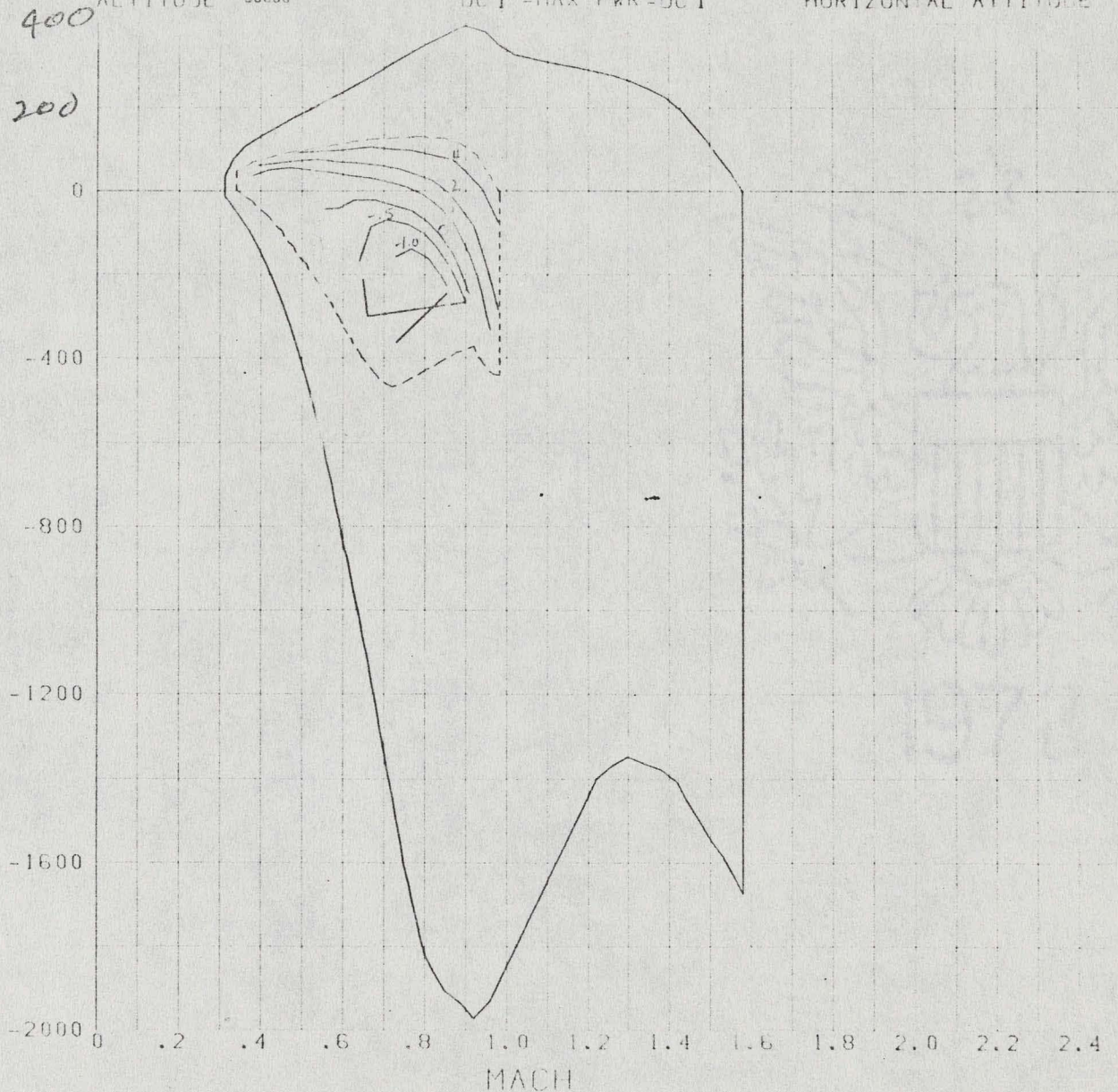
610XRP - 311

ALTITUDE 30000

DC 1 - MAX PWR - DC 1

HORIZONTAL ALTITUDE

ENERGY RATE (FT/SEC)



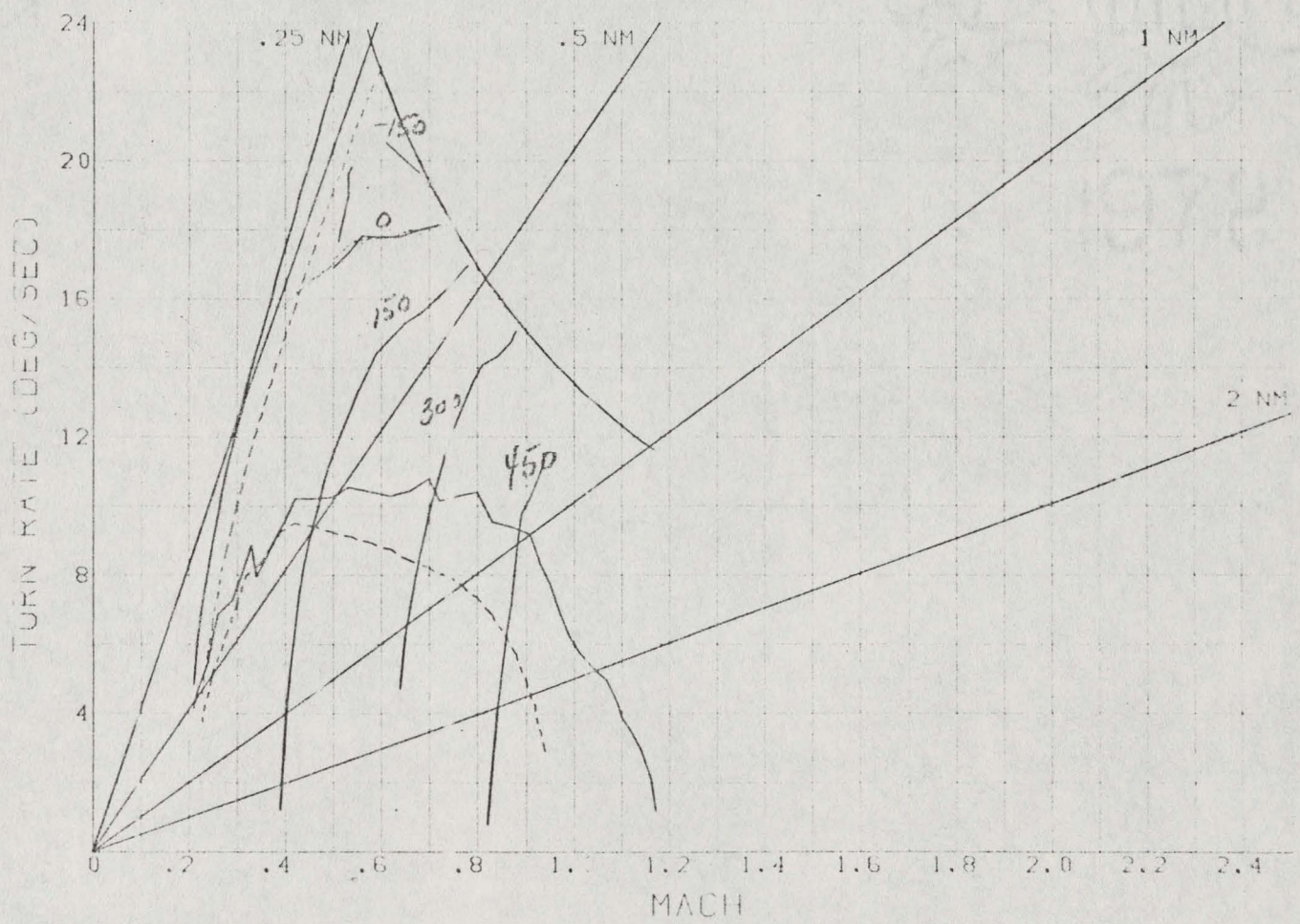
PLOT PREPARED BY ASD/ENRDP

$\Delta PS = \frac{22000}{610 \times RP} - \frac{11015}{311}$ ---
 DC 1 - MAX PWR - DC 1 HORIZONTAL ALTITUDE
 OPT L/D

22/12

35

MANEUVER DIAGRAM
 ALTITUDE: 10000



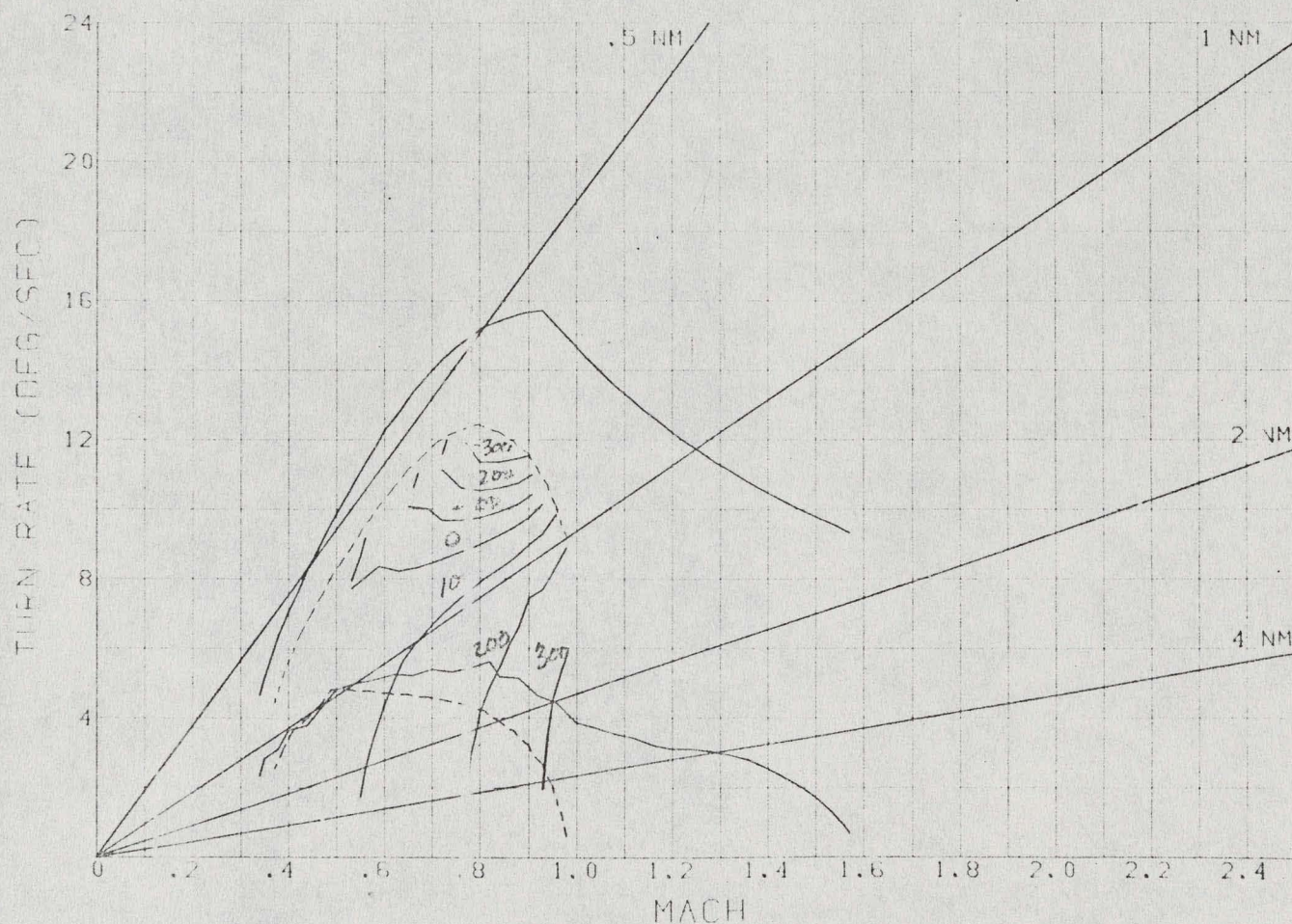
PLOT PREPARED BY ASD/ENEDP

23070 11015 27/12

$$\Delta PS = \frac{610 \times RP}{DC 1 - MAX \ PWR - DC 1} - \frac{311}{OPT \ L/D} \quad \text{--- HORIZONTAL ALTITUDE}$$

36

MANEUVER DIAGRAM
ALTITUDE: 30000



PLOT PREPARED BY ASD/ENFDP

$$\Delta PS = \frac{610 \times RP}{1000} - 329$$

22/12

DC1 - MAX PWR - DC1
OPT L/D

HORIZONTAL ALTITUDE

2-A-9

2-IT

41

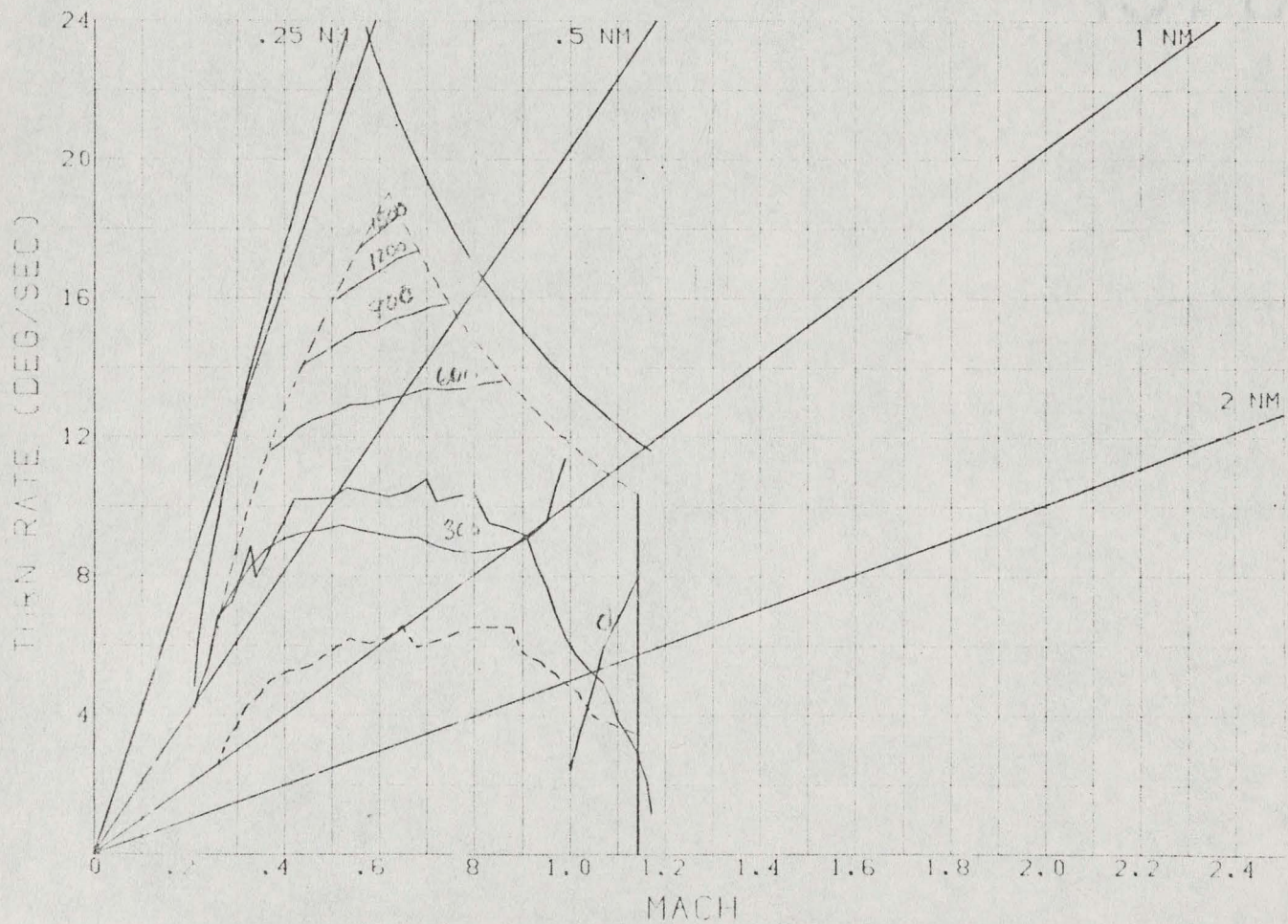
23000

15712

50%

MANEUVER DIAGRAM

ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFDP

$$\Delta PS = \frac{610 \times RP}{DC1 - MAX} - \frac{329}{OPT L/D} \quad PWR - DC1$$

22/12

HORIZONTAL ATTITUDE

2-4-8

2-AT

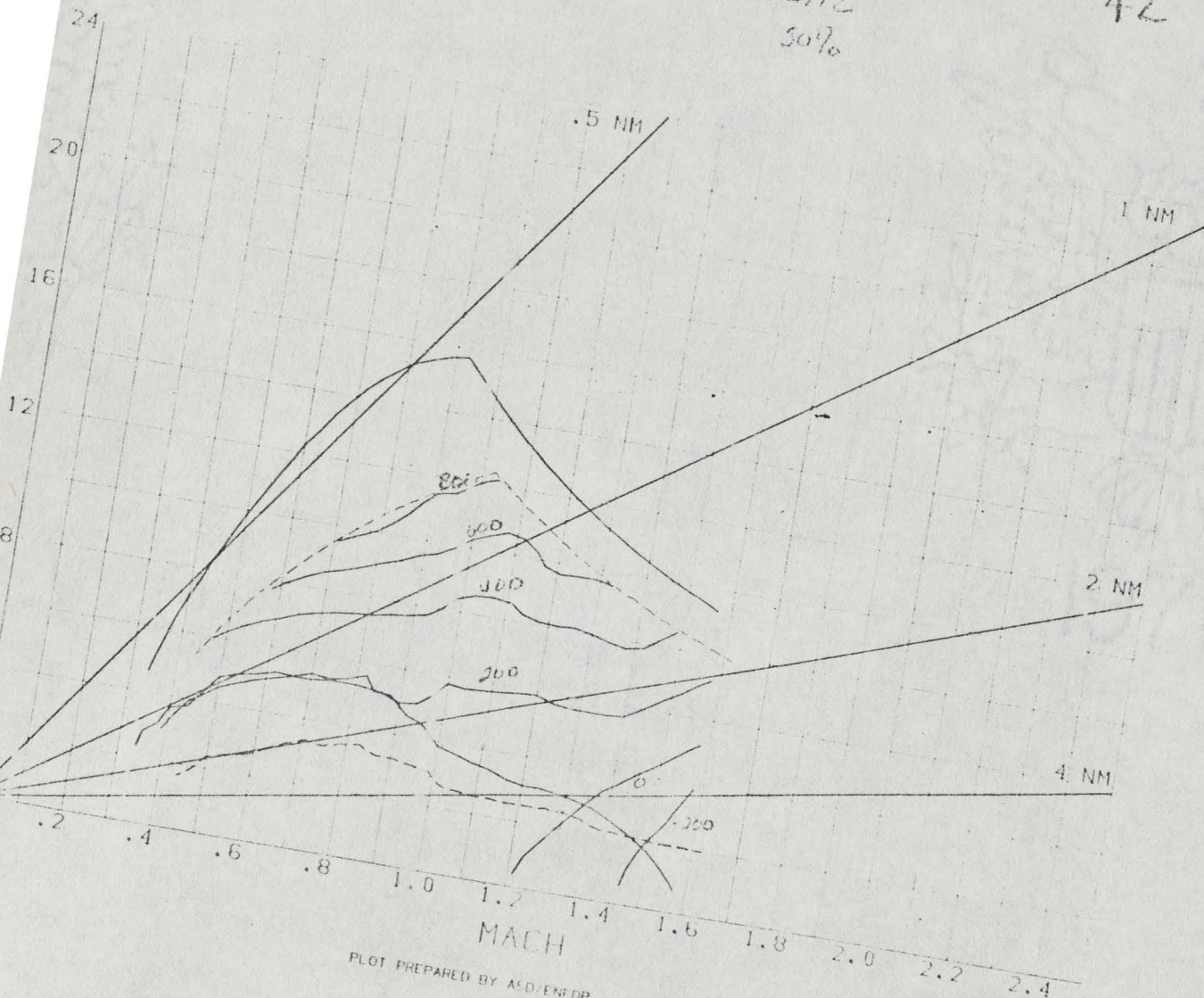
23000

15712

30%

42

PIVER DIAGRAM
ITUDE: 30000

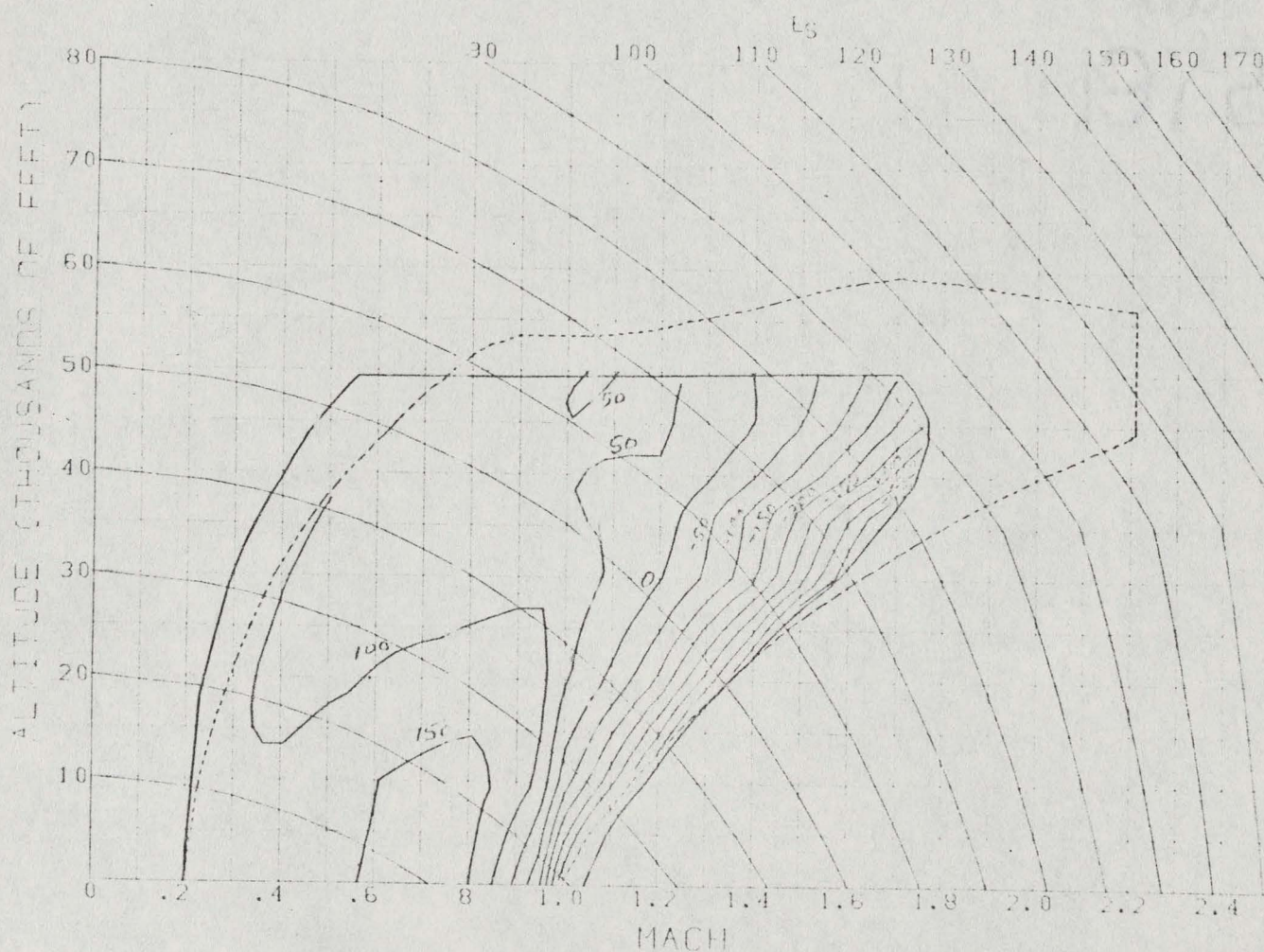


DPS 610XRP - 329
MAXIMUM POWER
D/C 1 D/C 1
23000 15712

22/12

37

1.00 G DIAGRAM



PLOT PREPARED BY ASD/ENEDP

DPS

610XRP - 329

22/12

MAXIMUM POWER

D/C 1

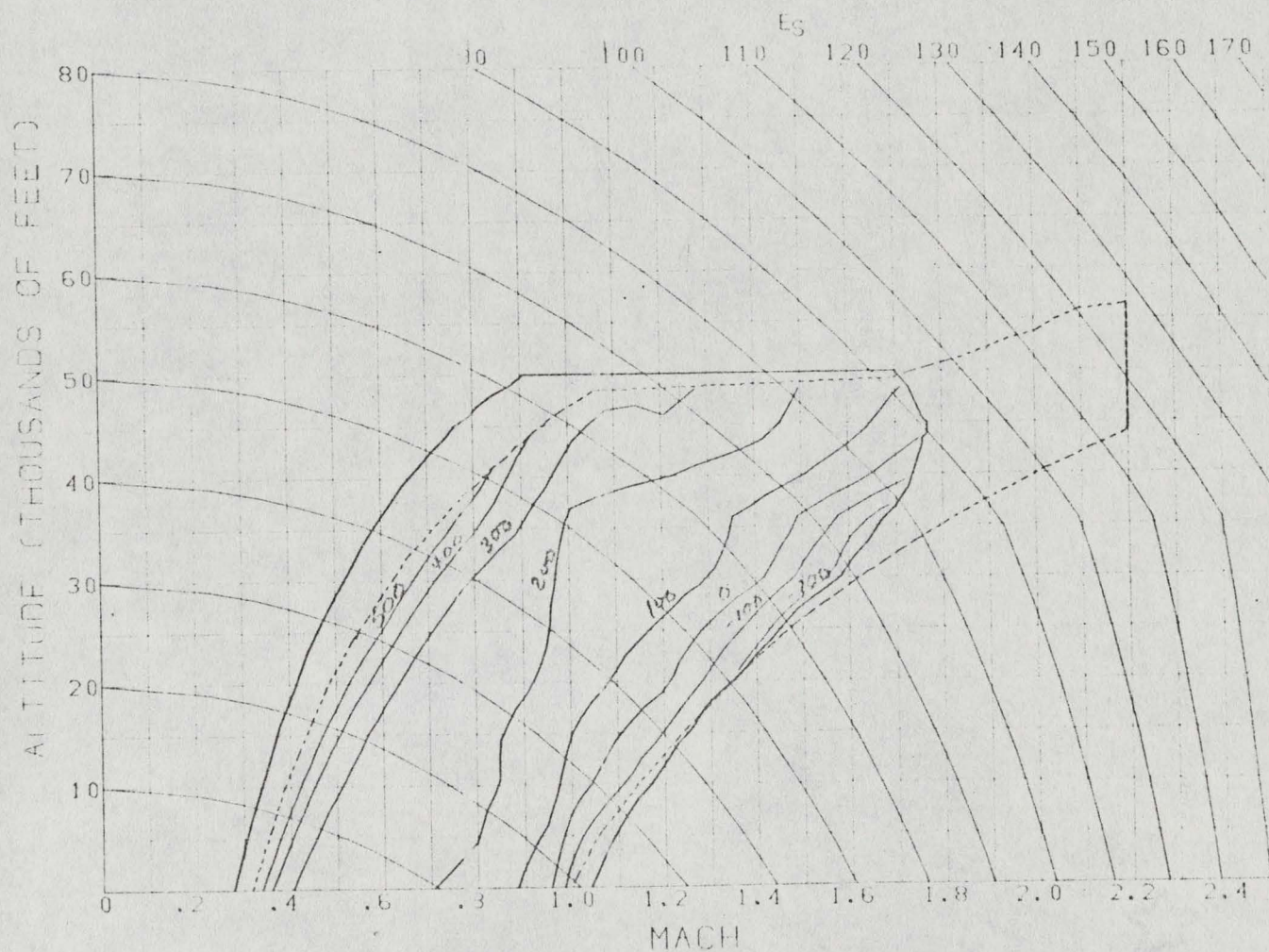
D/C 1

38

23000

15712

3.00 G DIAGRAM



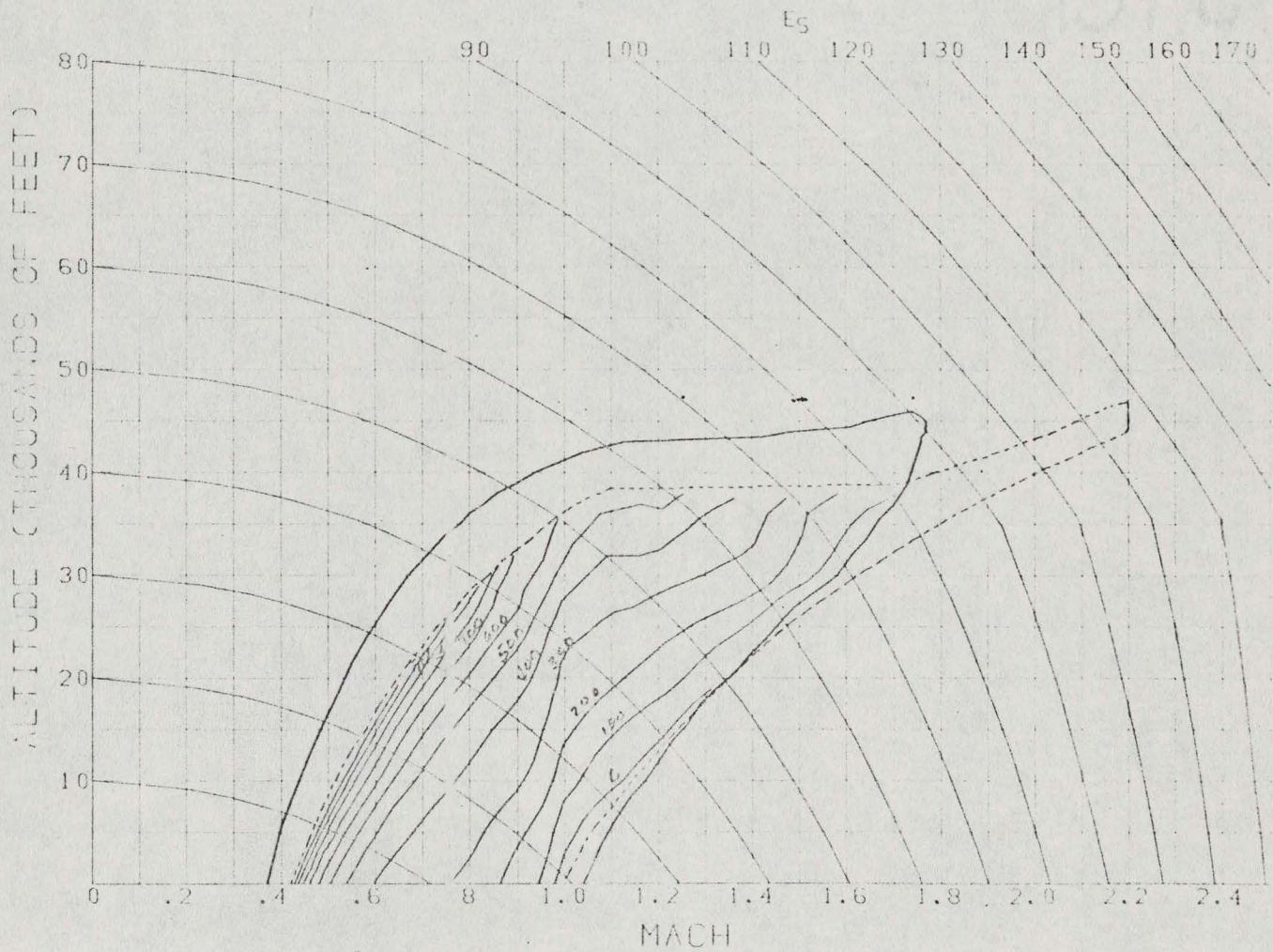
PLOT PREPARED BY ASD/EN/DP

DPS 610XRP - 329
MAXIMUM POWER
D/C 1 D/C 1
23000 15712

22/12

39

5.00 G DIAGRAM



PLOT PREPARED BY ASD/ENF/DP

DPS 610XRP - 329
MAXIMUM POWER
D/C 1 D/C 1

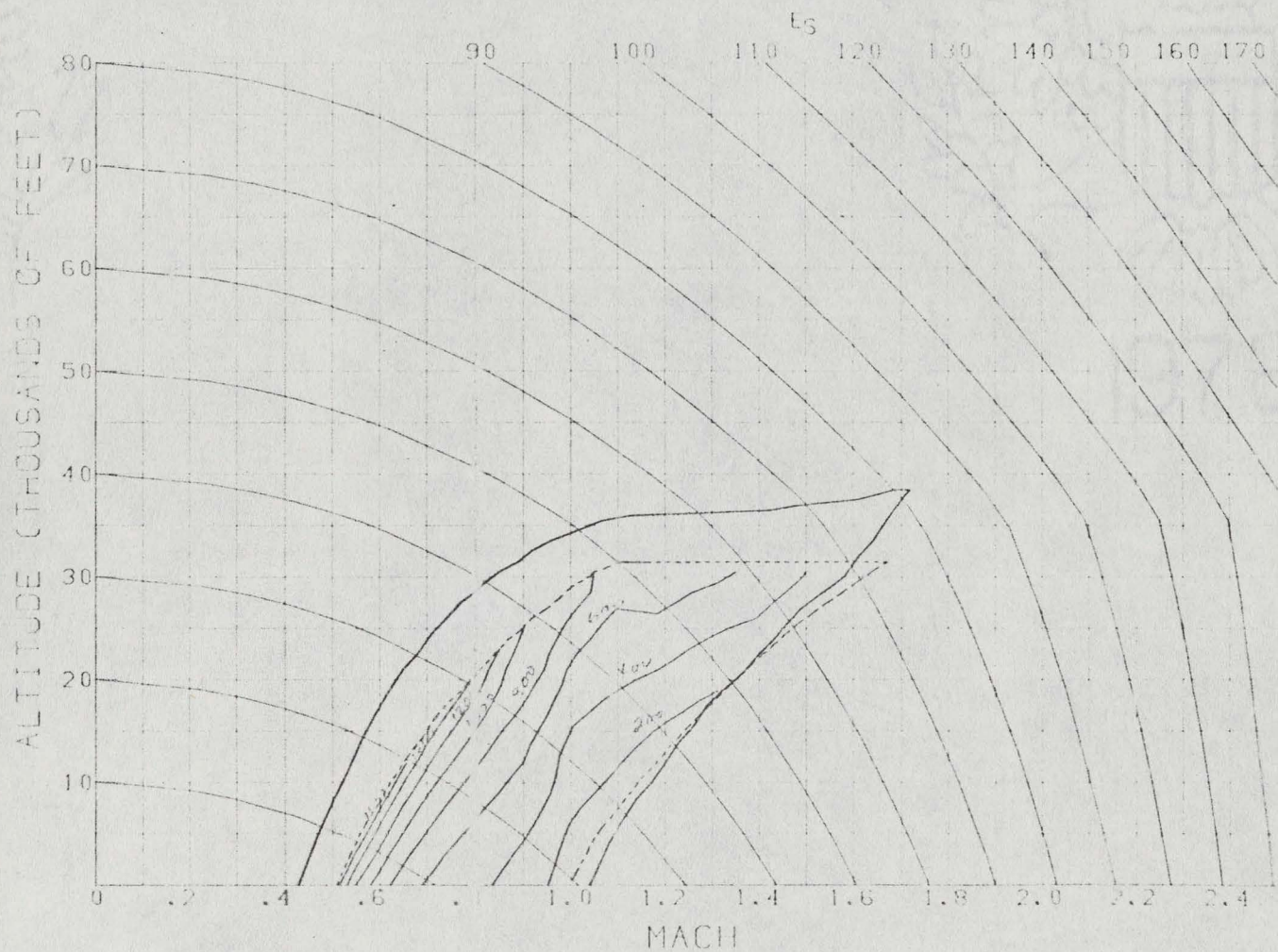
22/12

46

7.00 G DIAGRAM

23000

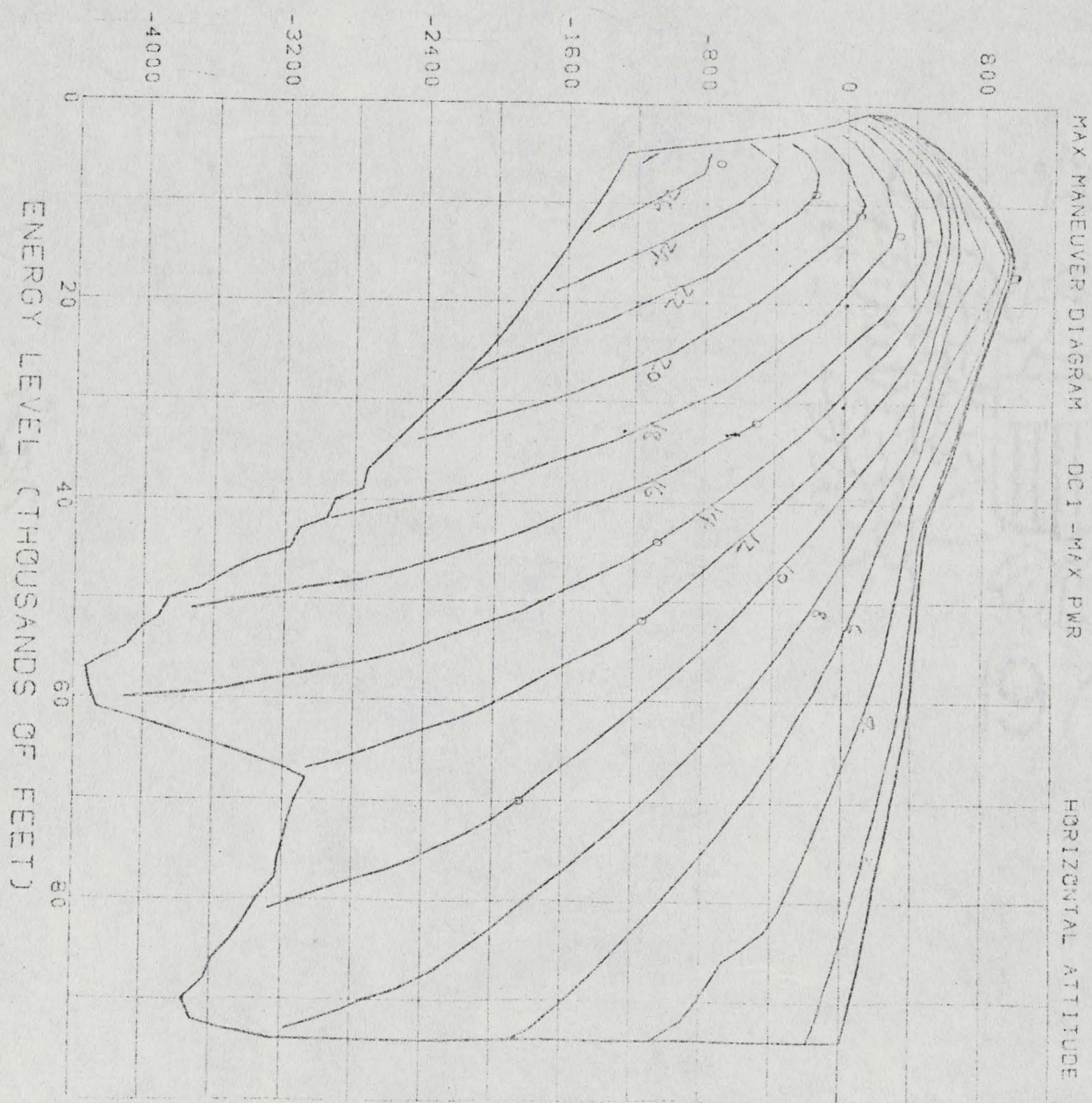
15712



PLOT PREPARED BY ASD/ENRDP

4m/10K
6m/5K

ENERGY RATE (FT/SEC)



22/12

7

MANEUVER DIAGRAM

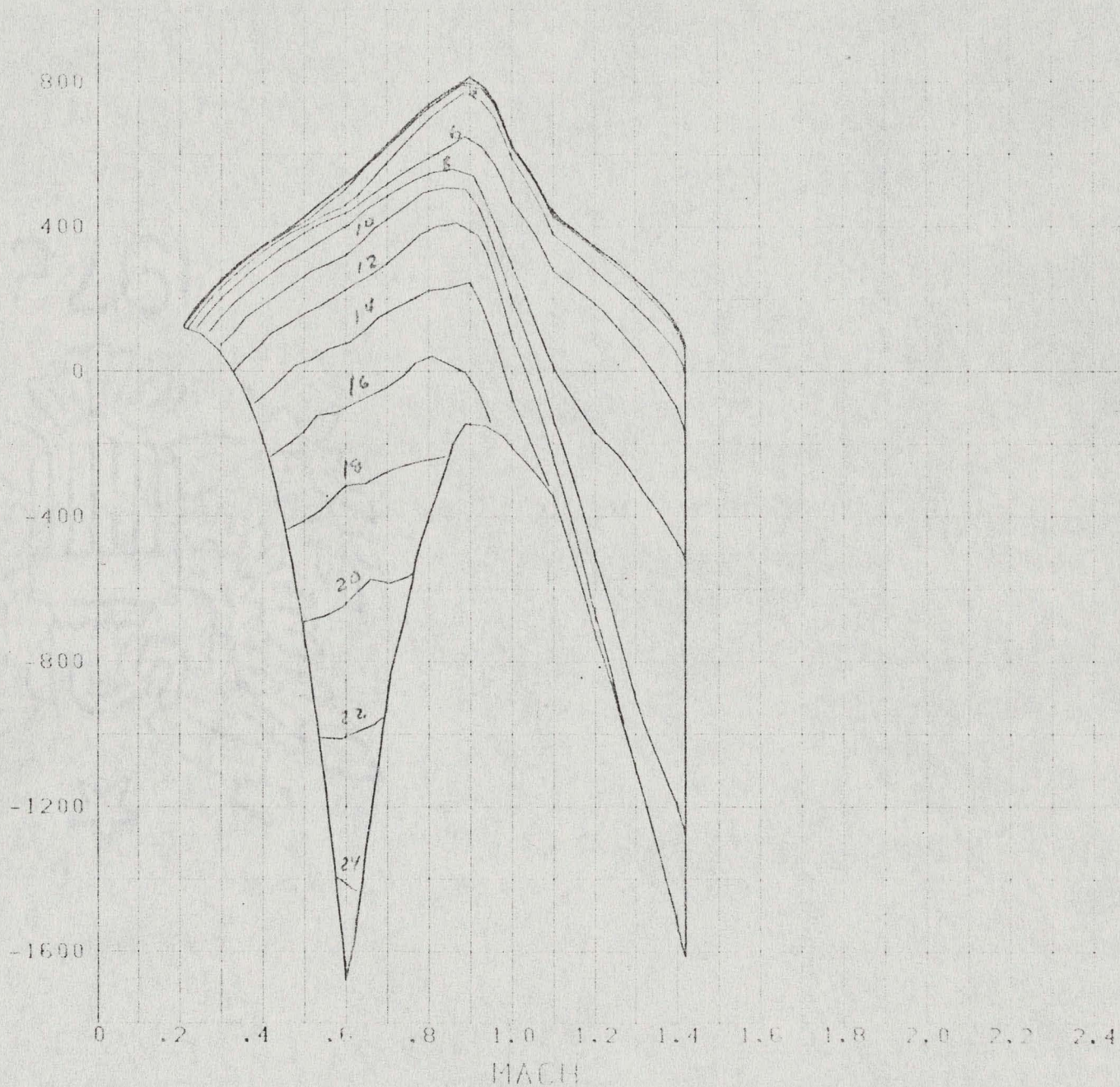
ALTITUDE 10000

410XPP

BC 1 MAX FWP

HORIZONTAL ALTITUDE

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/ENOP

19000

24/12

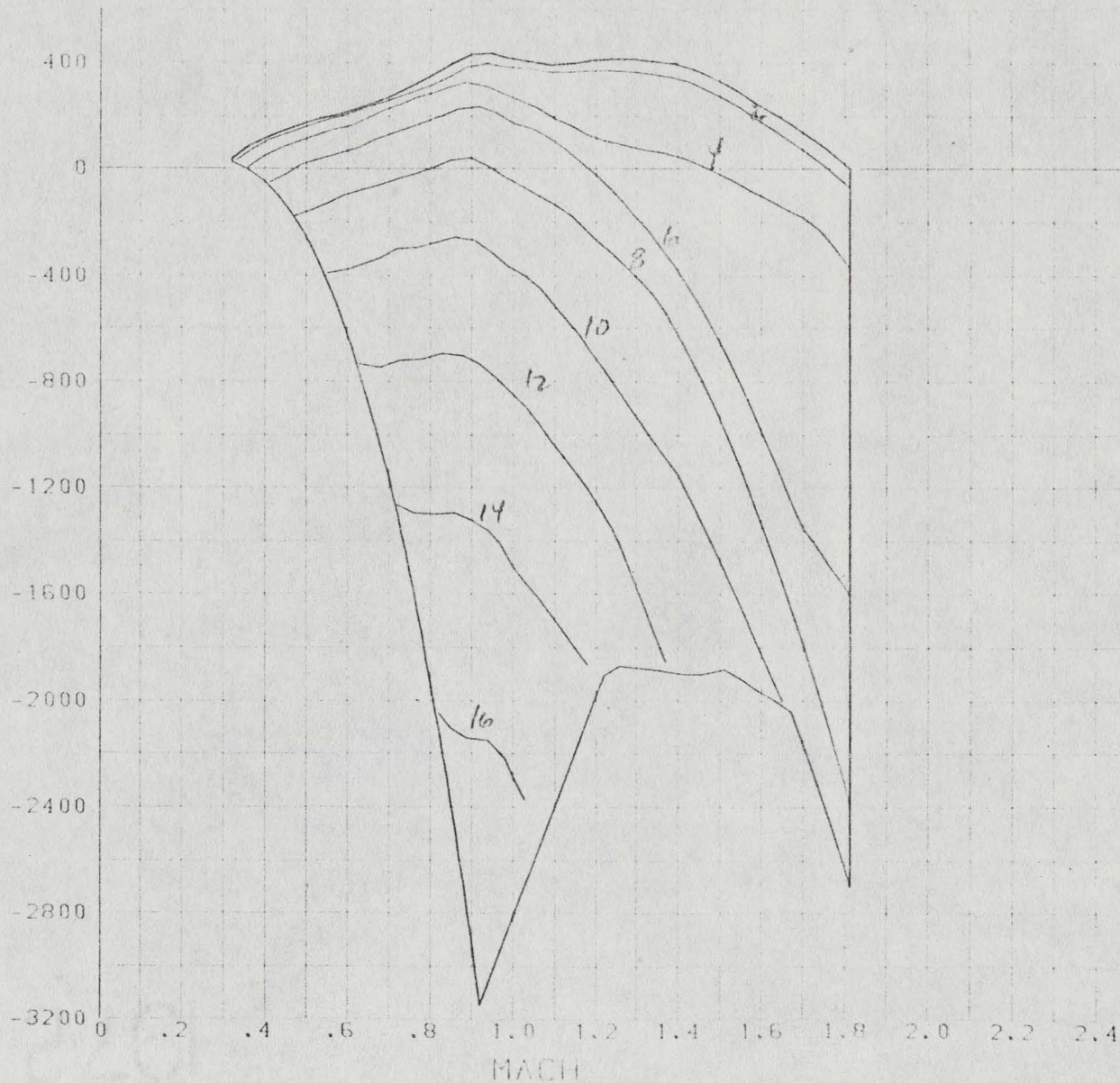
8

MANEUVER DIAGRAM
ALTITUDE 30000

41 EXPP
DC 1 - MAX PWR

HORIZONTAL ATTITUDE

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/EN/DP

410XRP
DC 1 - MAX PWR
OPT/MAX L/D

19000

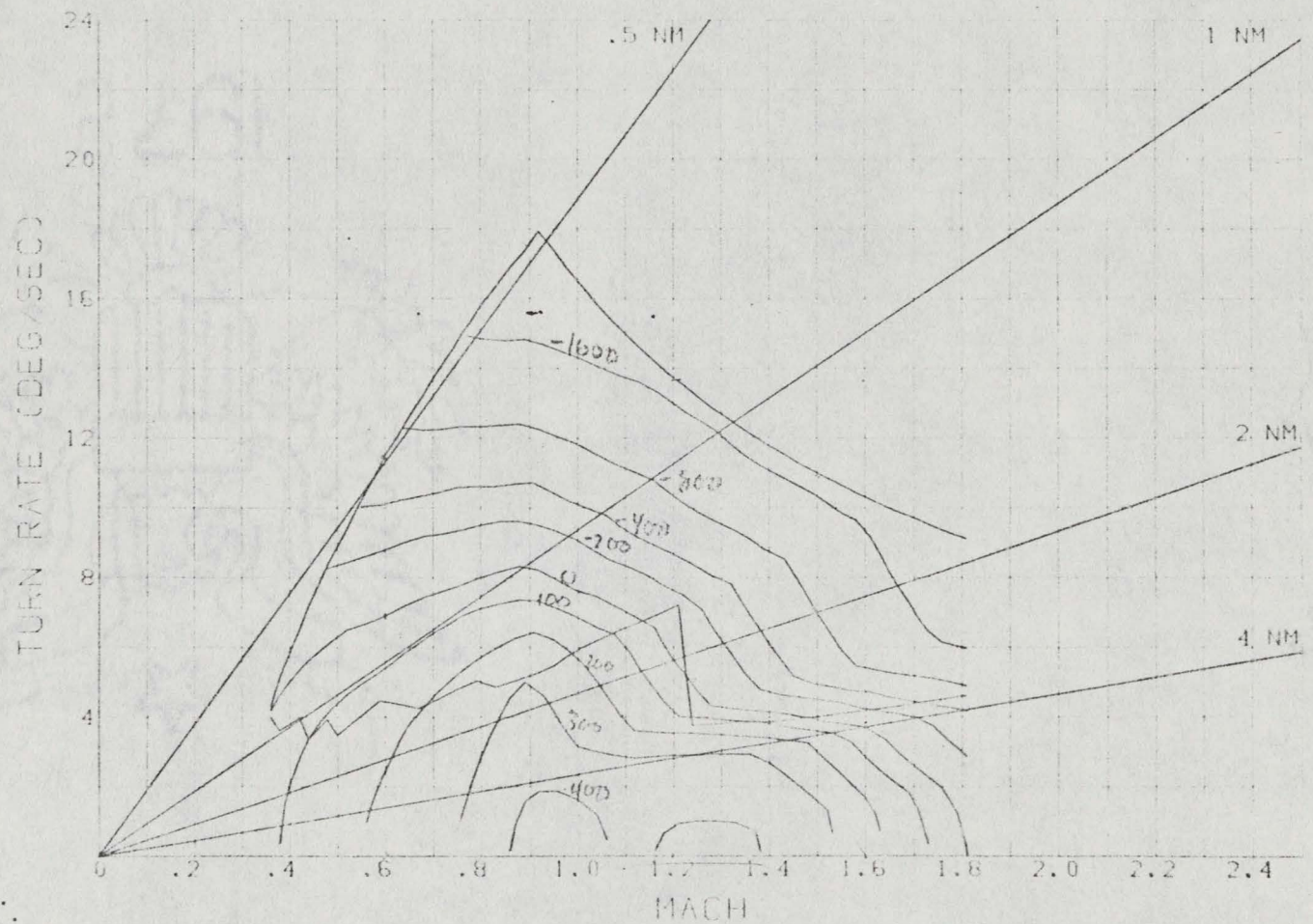
22/12

HORIZONTAL ATTITUDE

6

MANEUVER DIAGRAM

ALTITUDE: 30000



PLOT PREPARED BY ASD/ENR/P

22/12

410XRP
DC 1 - MAX PWR
OPT/MAX LZD

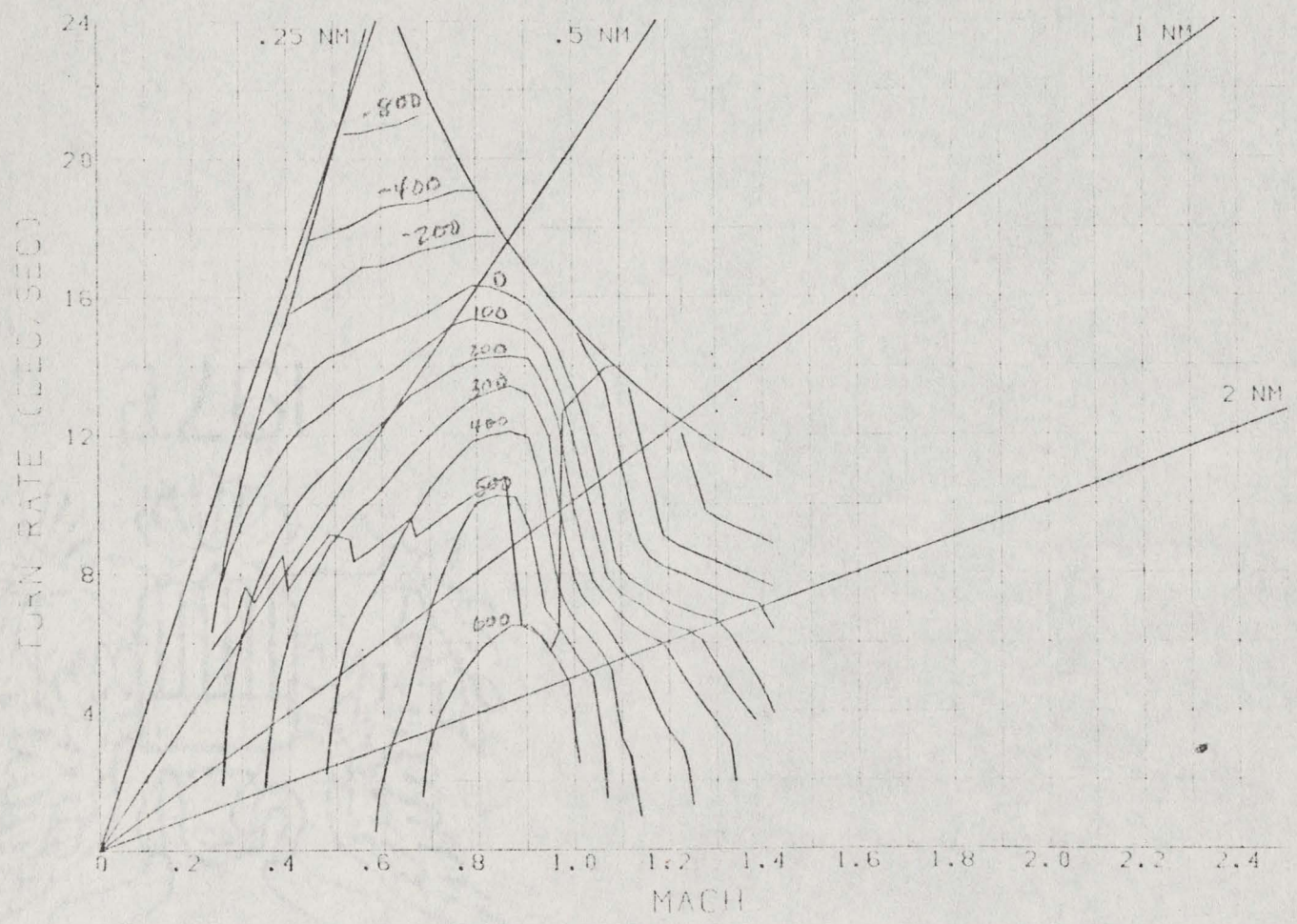
HORIZONTAL ALTITUDE

19000

5

MANEUVER DIAGRAM

ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFDP

1/12

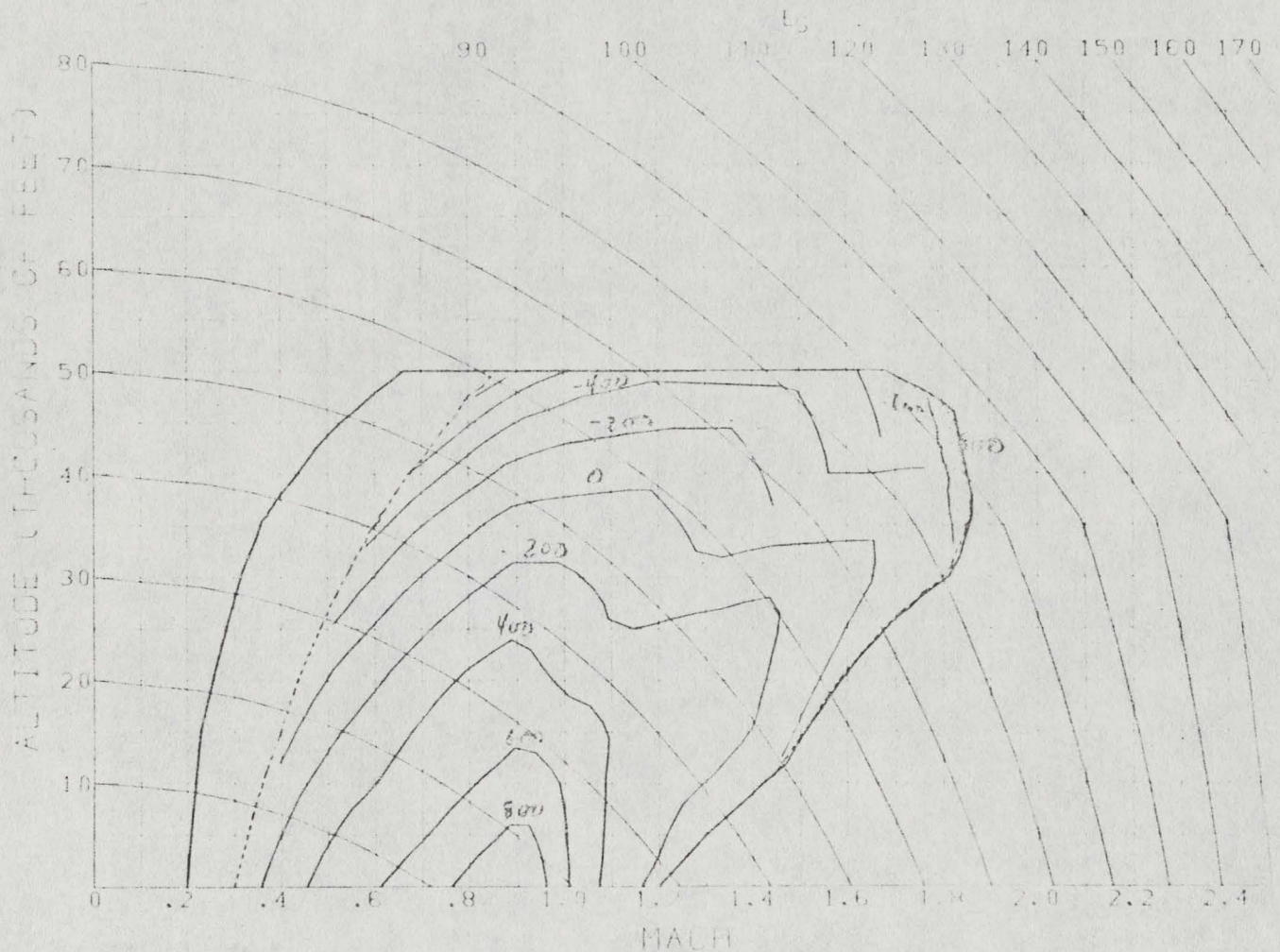
45 120 16

22/12

PS 410XBP
MAXIMUM POWER
E/C 1
2-4-9
19000

2

3.006 DIAGRAM



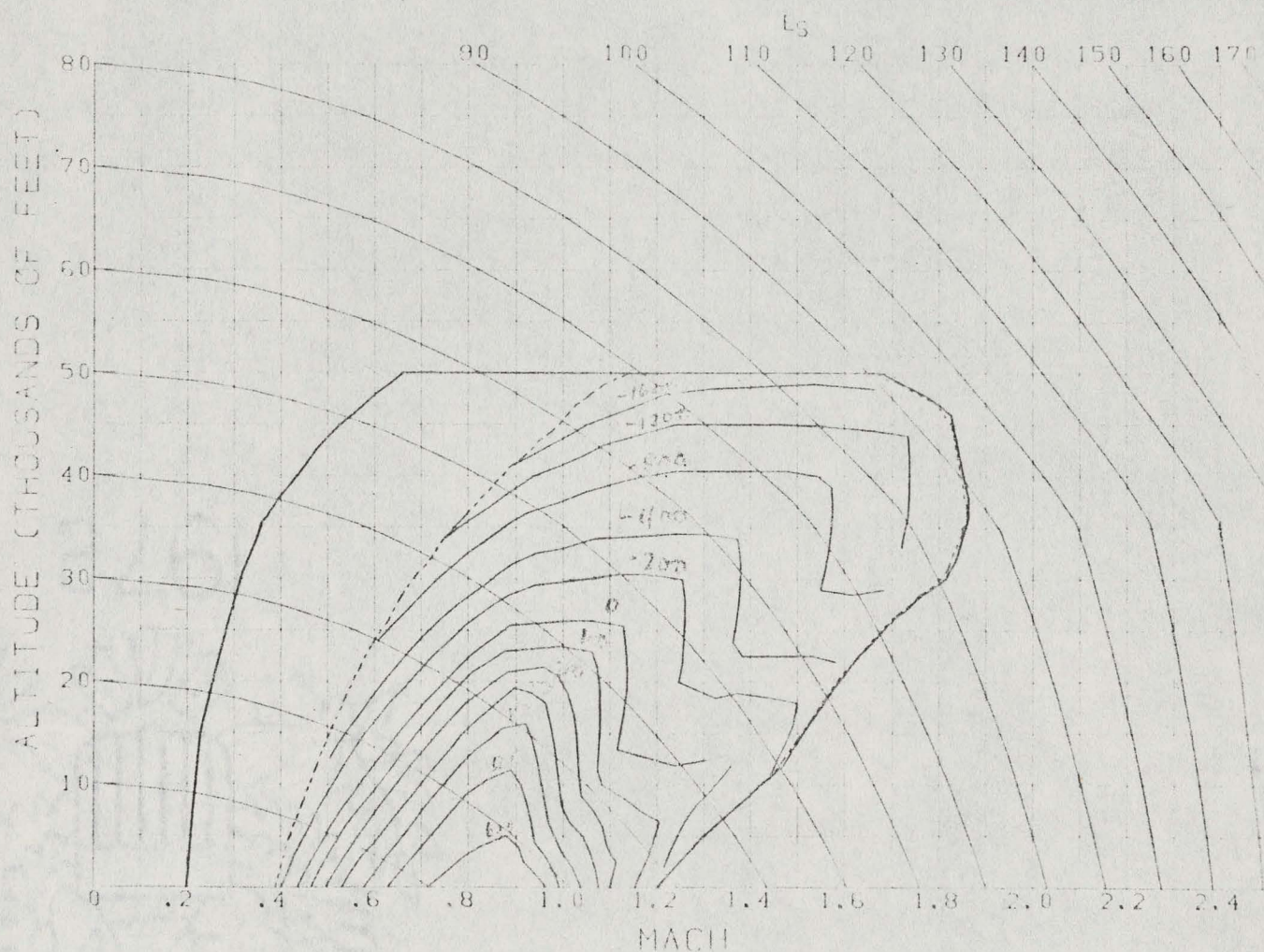
PLOT PREPARED BY ASD/ENFDP

PS 410XRP
MAXIMUM POWER
D/C 1
2-A 9
19000

22/12

3

5.00 G DIAGRAM

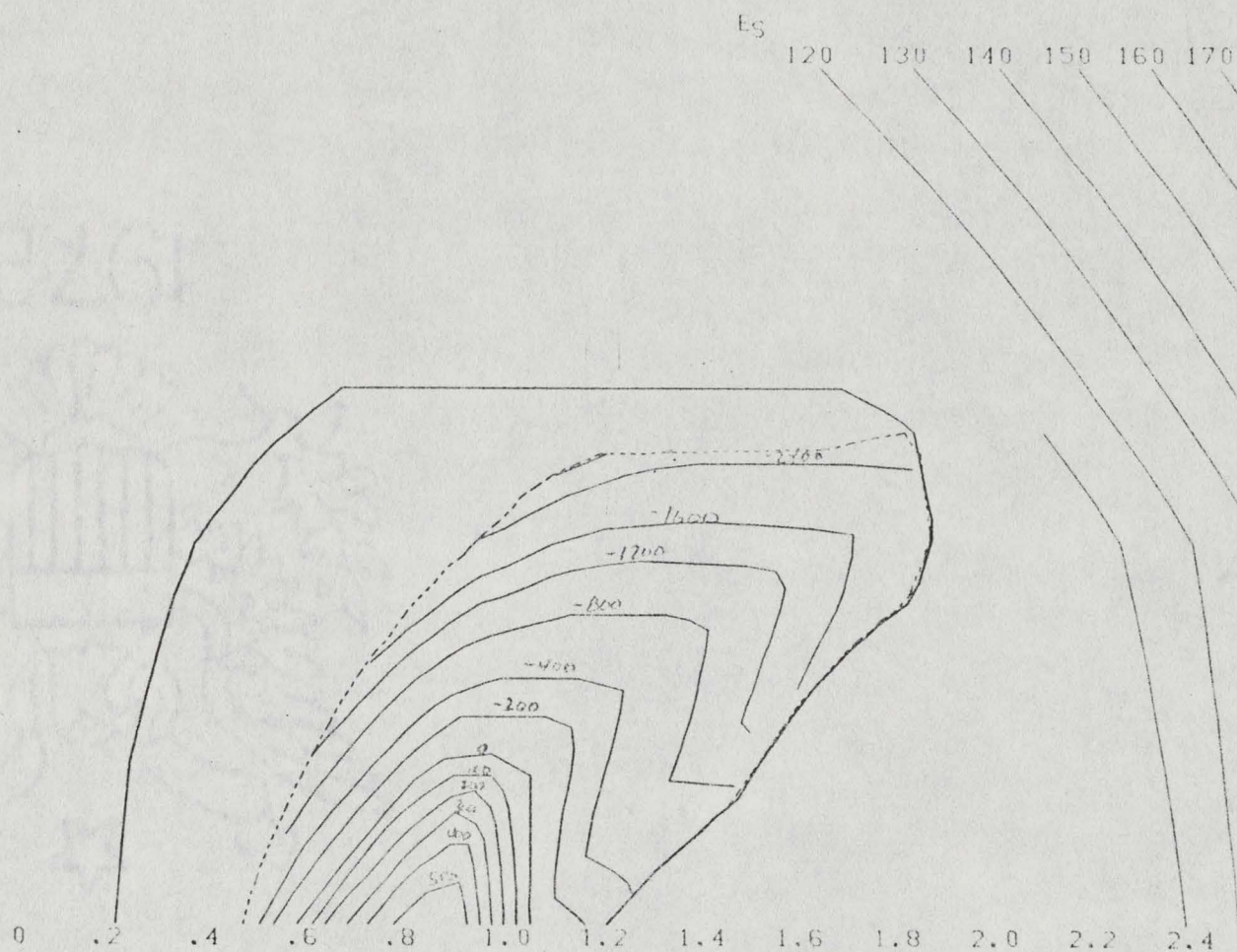


PS 410XRP
MAXIMUM POWER
D/C 1
2-0-9
19000

22/12

4

7.00 G. DIAGRAM



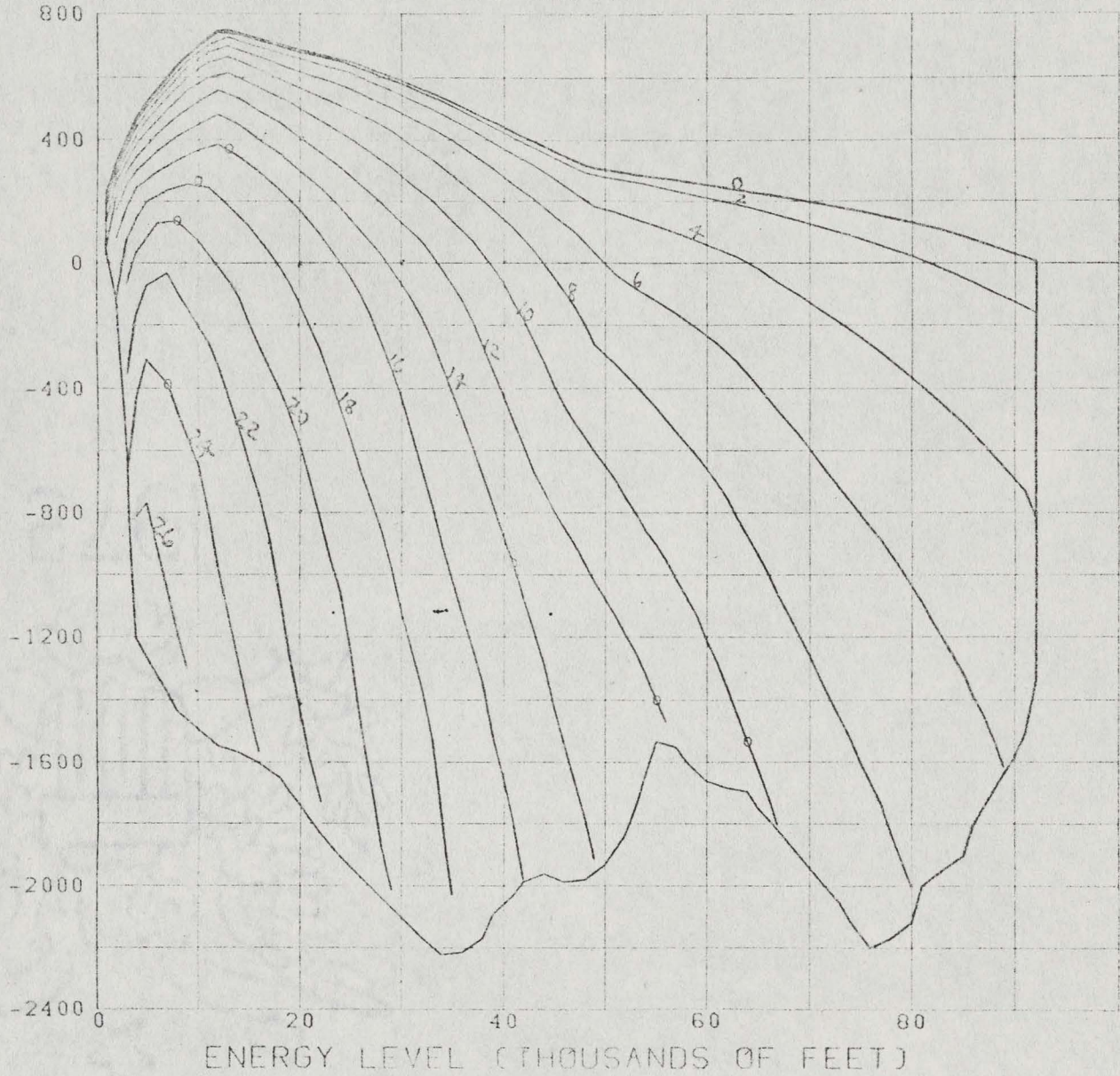
610XRP

MAX MANEUVER DIAGRAM

DC1 - MAX PWR

HORIZONTAL ATTITUDE

ENERGY RATE (FT/SEC)



PLOT PREPARED BY AGO/ENEDP

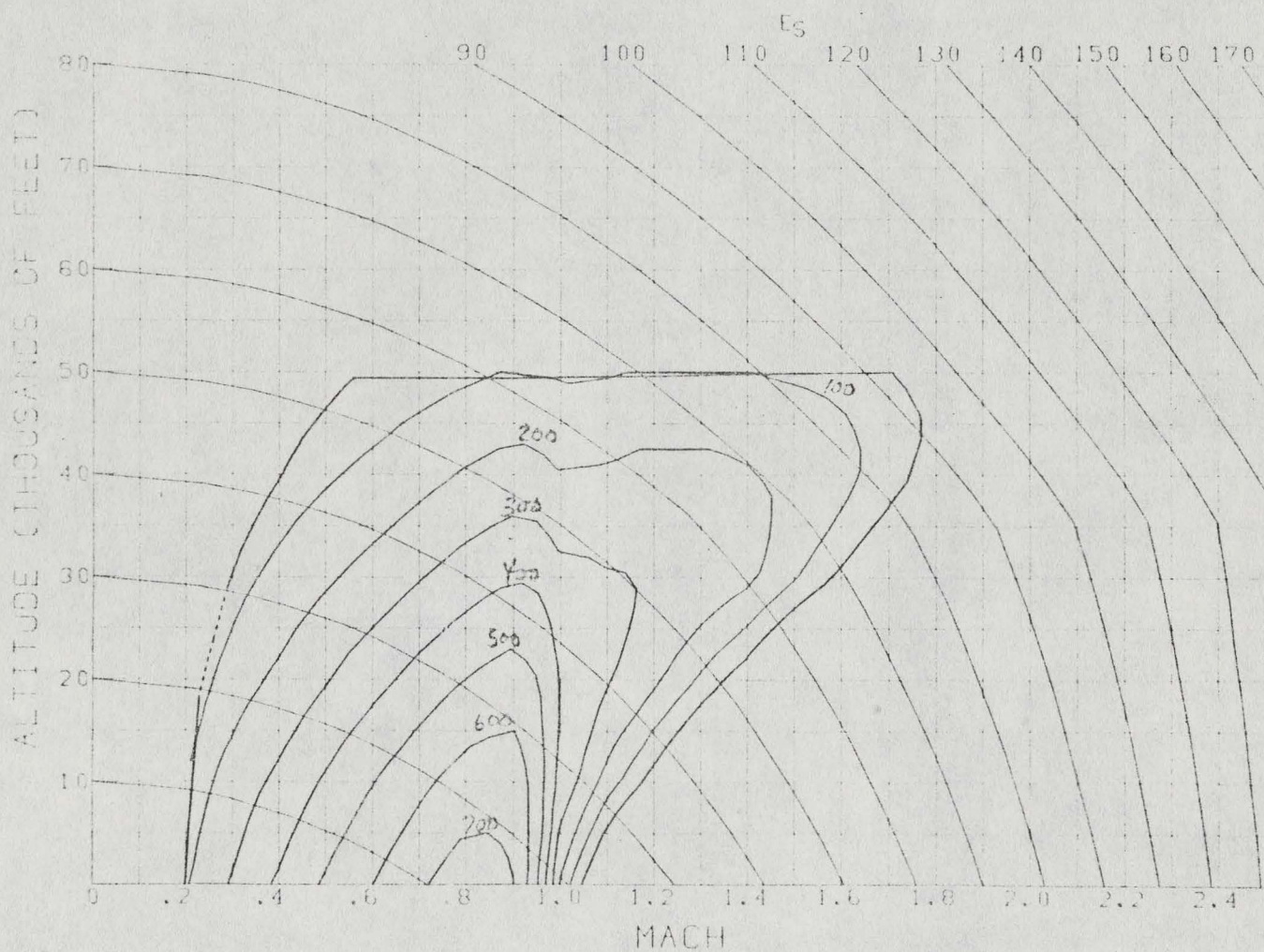
F 610XRP

247

23000

22/12

9



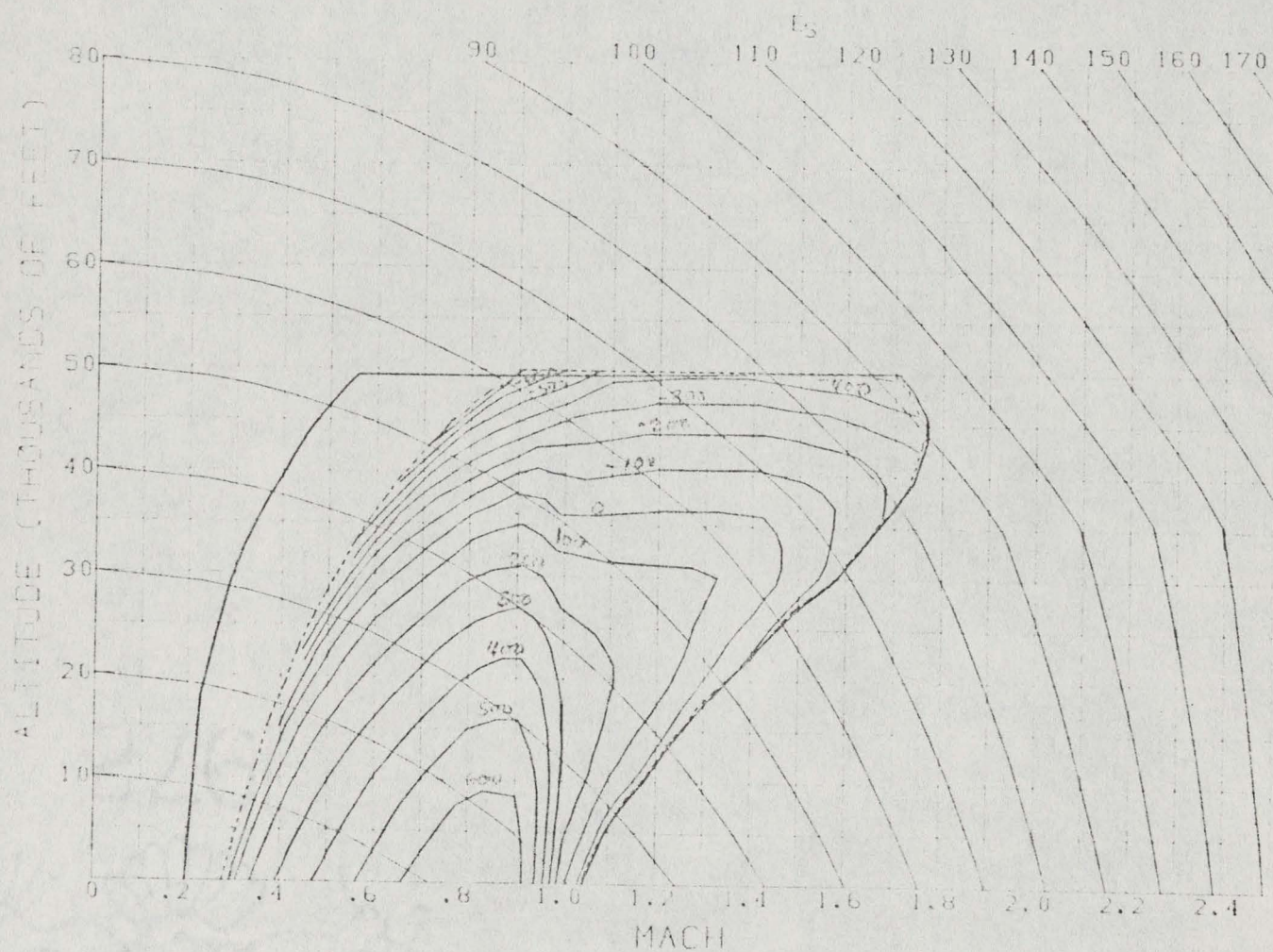
PLOT PREPARED BY ASD/ENFOP

PS 610XRP
MAXIMUM POWER
D/C 1
2-A-7
23000

22/12

10

3.00 G DIAGRAM



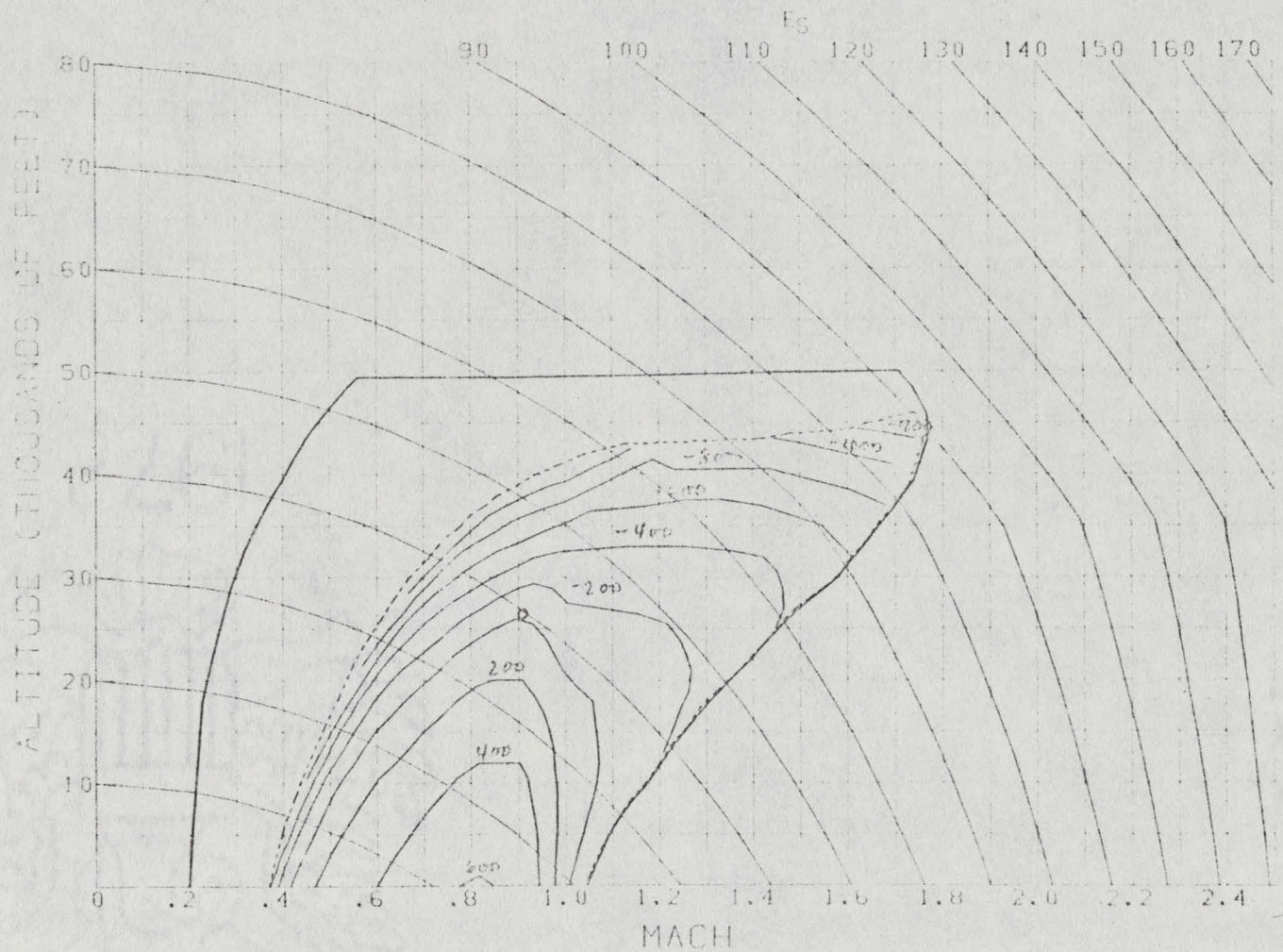
PLOT PREPARED BY ASD/ENRDP

FS 610xRP
MAXIMUM POWER
D/C 1
2-A-9
23000

22/12

11

5.00 G DIAGRAM



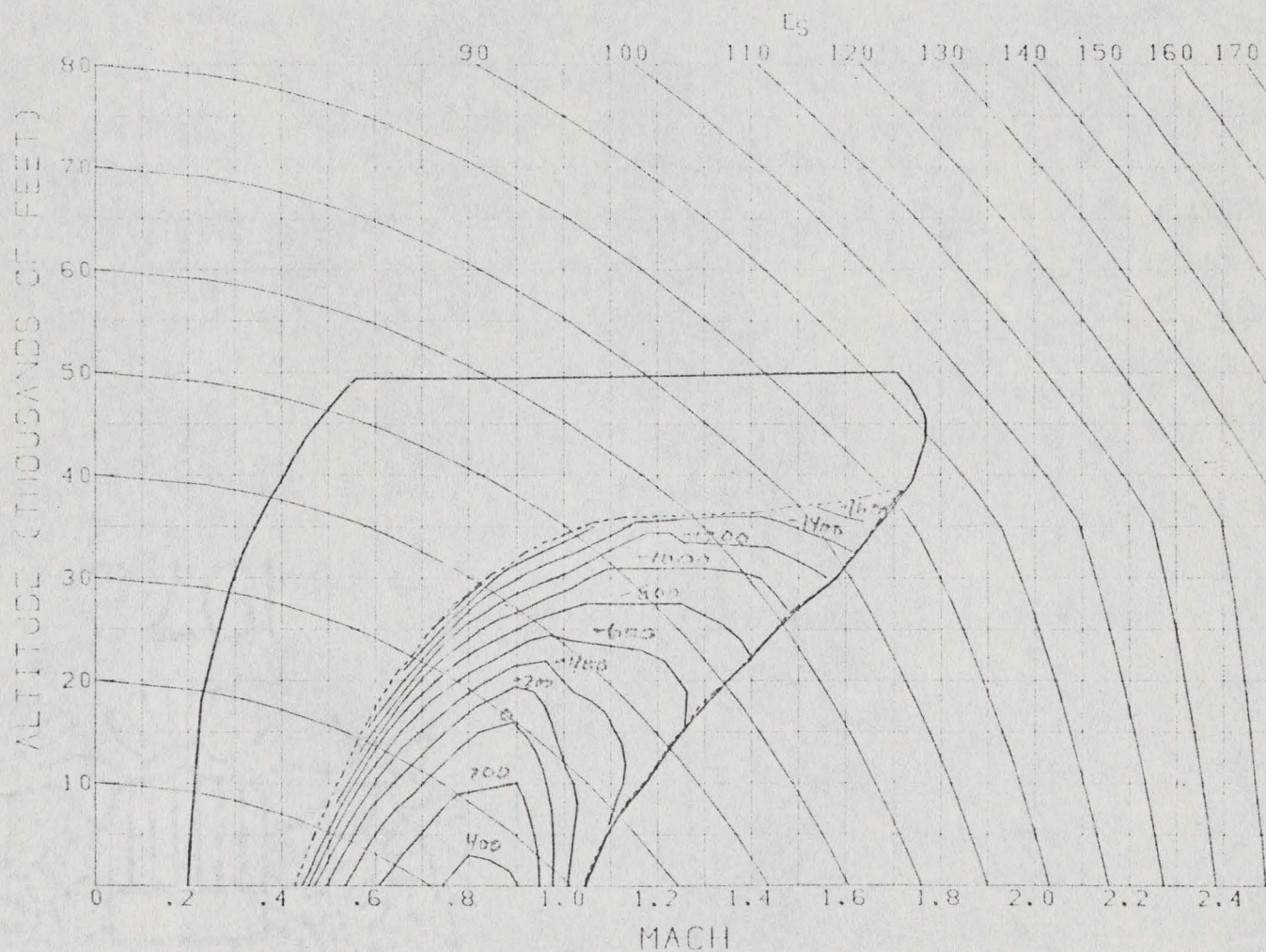
PLOT PREPARED BY ASD/ENFDP

PS 610XRP
MAXIMUM POWER
D/C 1
2-A-9
23000

22/12

12

7.00 G DIAGRAM



PLOT PREPARED BY ASD/ENRDP

23000

22/12

15

MANEUVER DIAGRAM

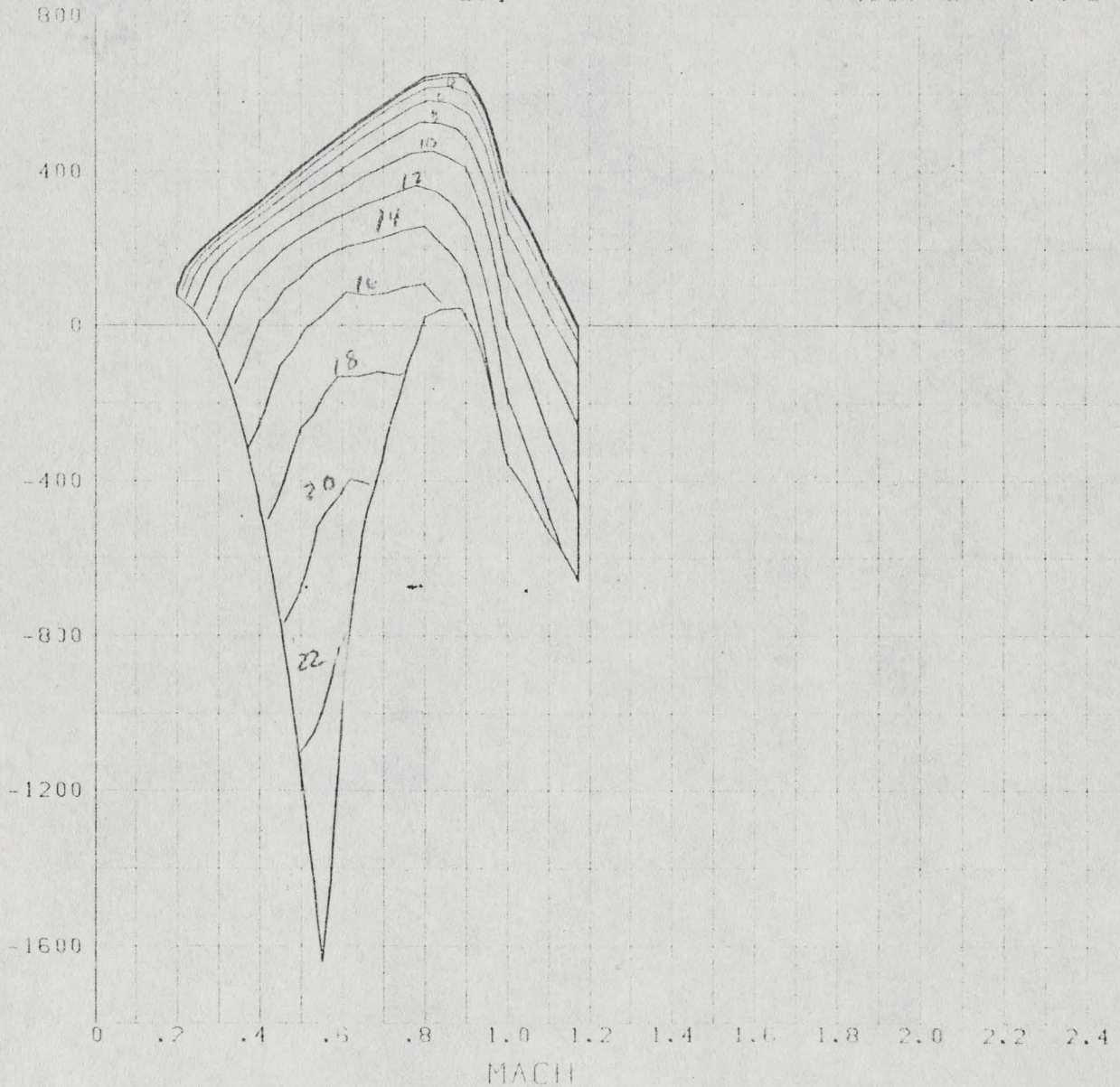
G10XRP

DC 1 - MAX PWP

ALTITUDE 10000

HORIZONTAL ATTITUDE

EXCESS RATE (FT/SEC)



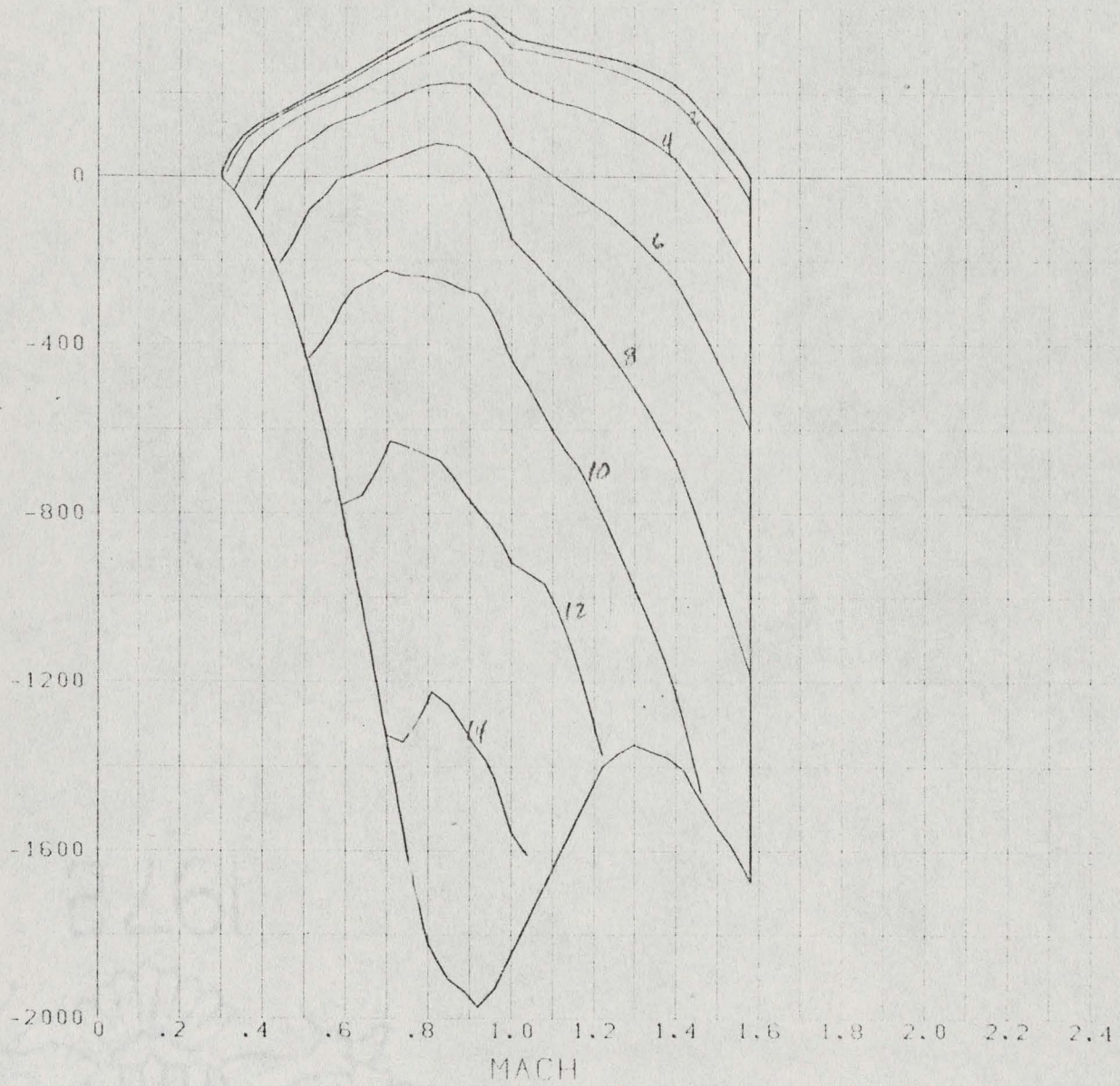
PLOT PREPARED BY ASD/ENFDP

2/01

MANEUVER DIAGRAM
ALTITUDE 30000

23000
G10XRP
DC 1 - MAX PWR

27/12
16
HORIZONTAL ATTITUDE



PLOT PREPARED BY ASD/ENFUP

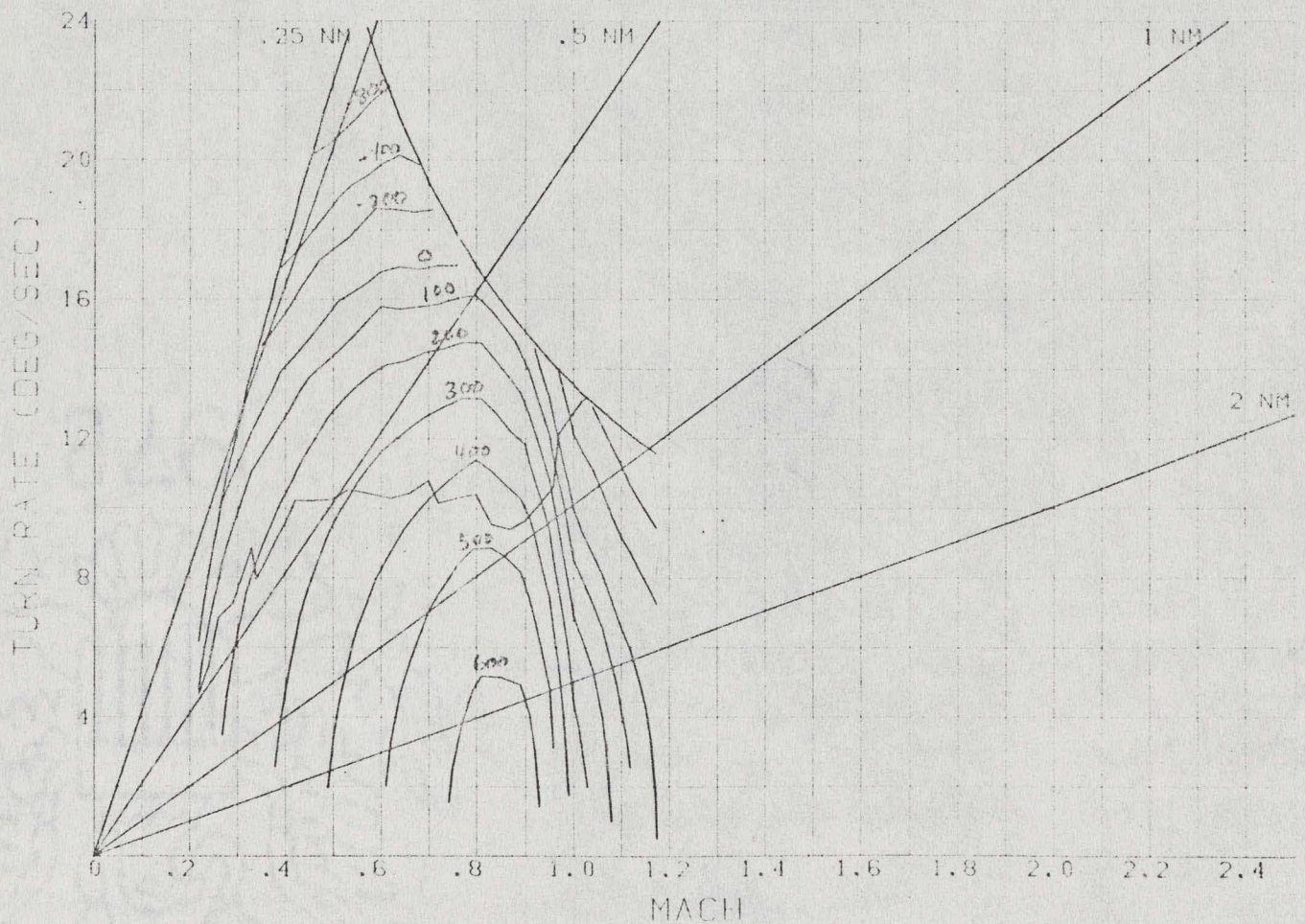
23030

22/12

HORIZONTAL ALTITUDE

13

ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFUP

610XRP
DC 1 - MAX PWR
OPT/MAX L/D

22/12

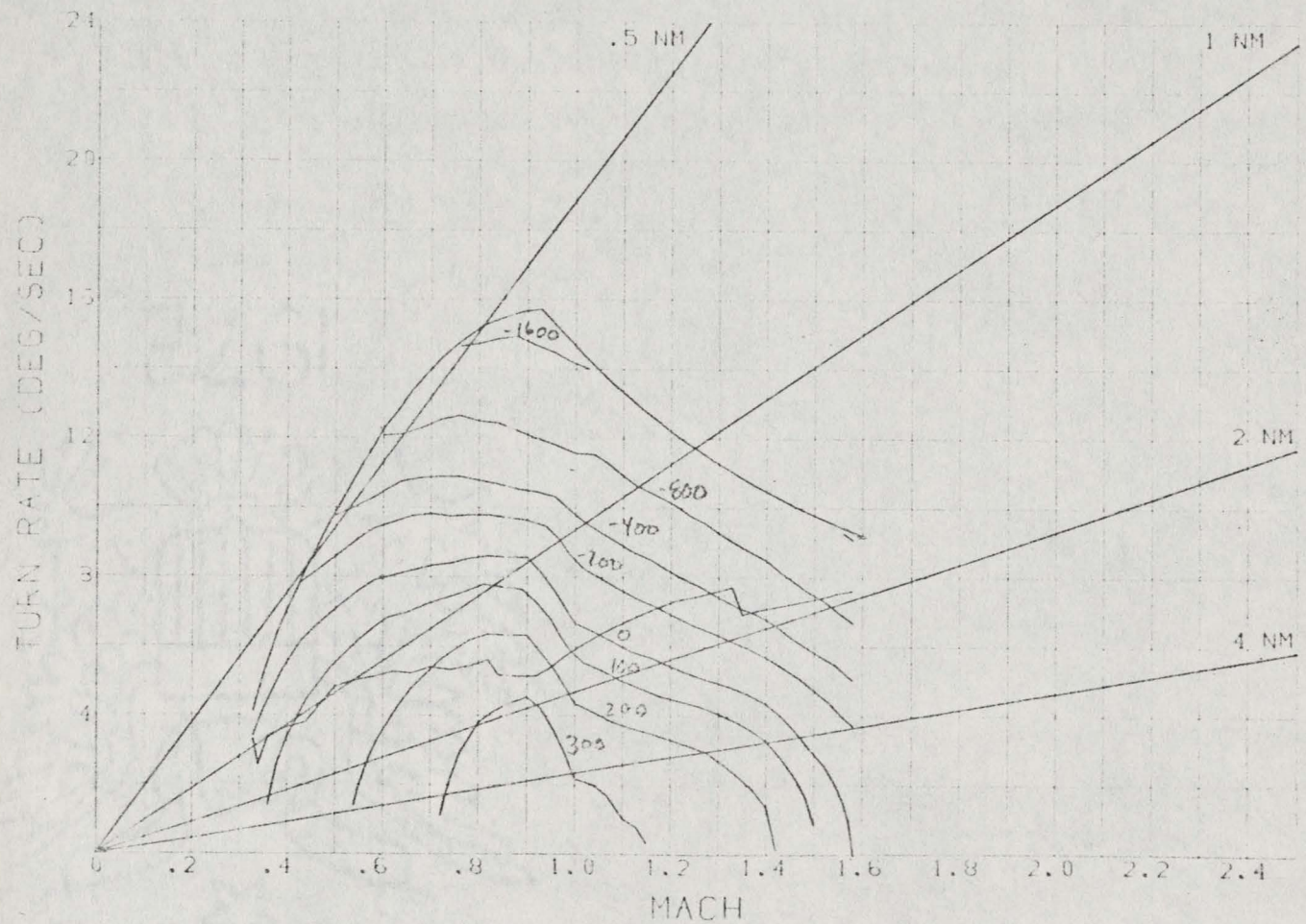
HORIZONTAL ATTITUDE

230000

14

MANEUVER DIAGRAM

ALTITUDE: 30000



PLOT PREPARED BY ASD/ENEDP

1-1-75

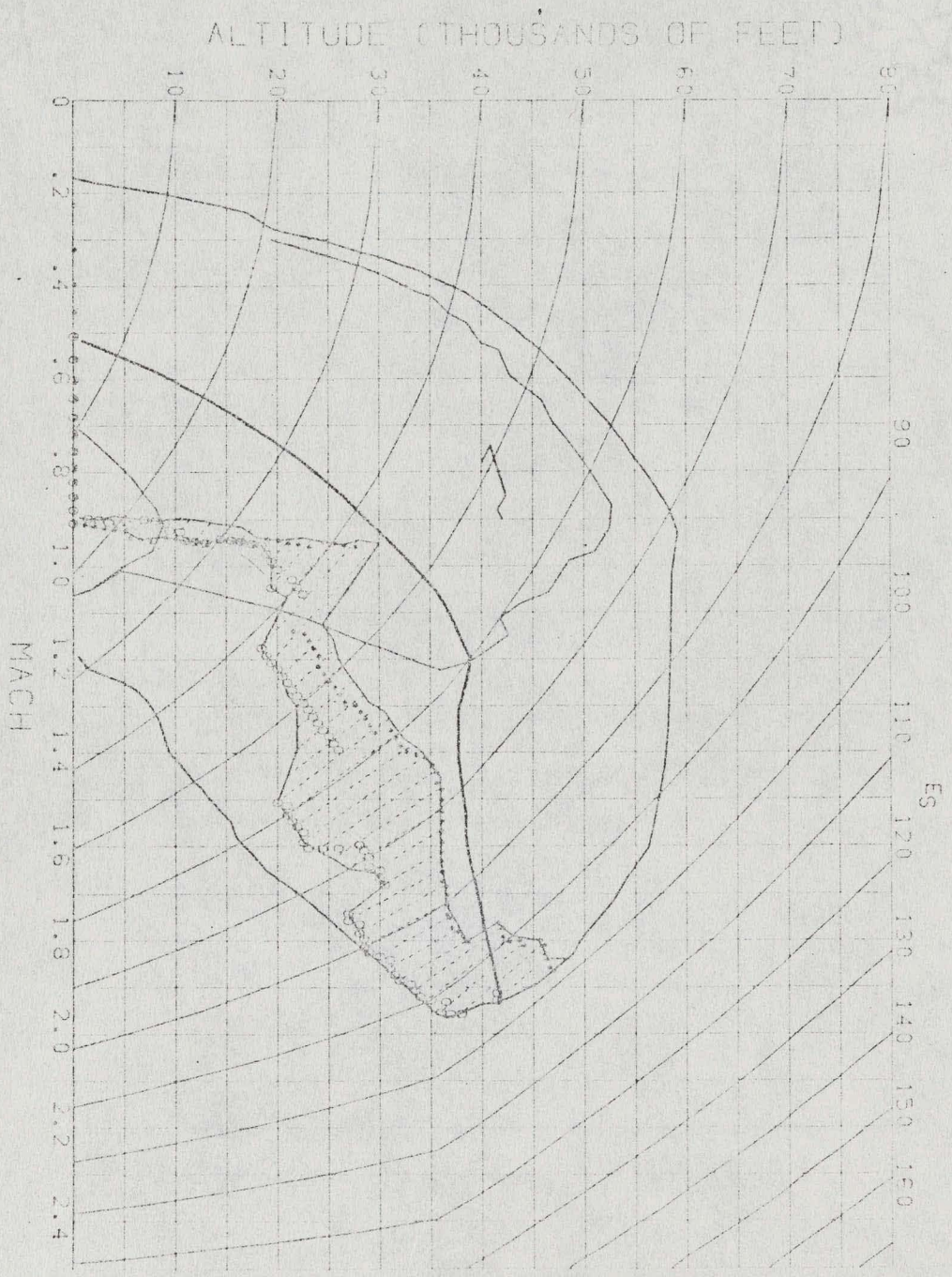
AIR BATTLE ARENA

410234

DCI - MAX PWR

2-4-9

19249



Plot prepared by ASD/ETDP

2-A-9
19249

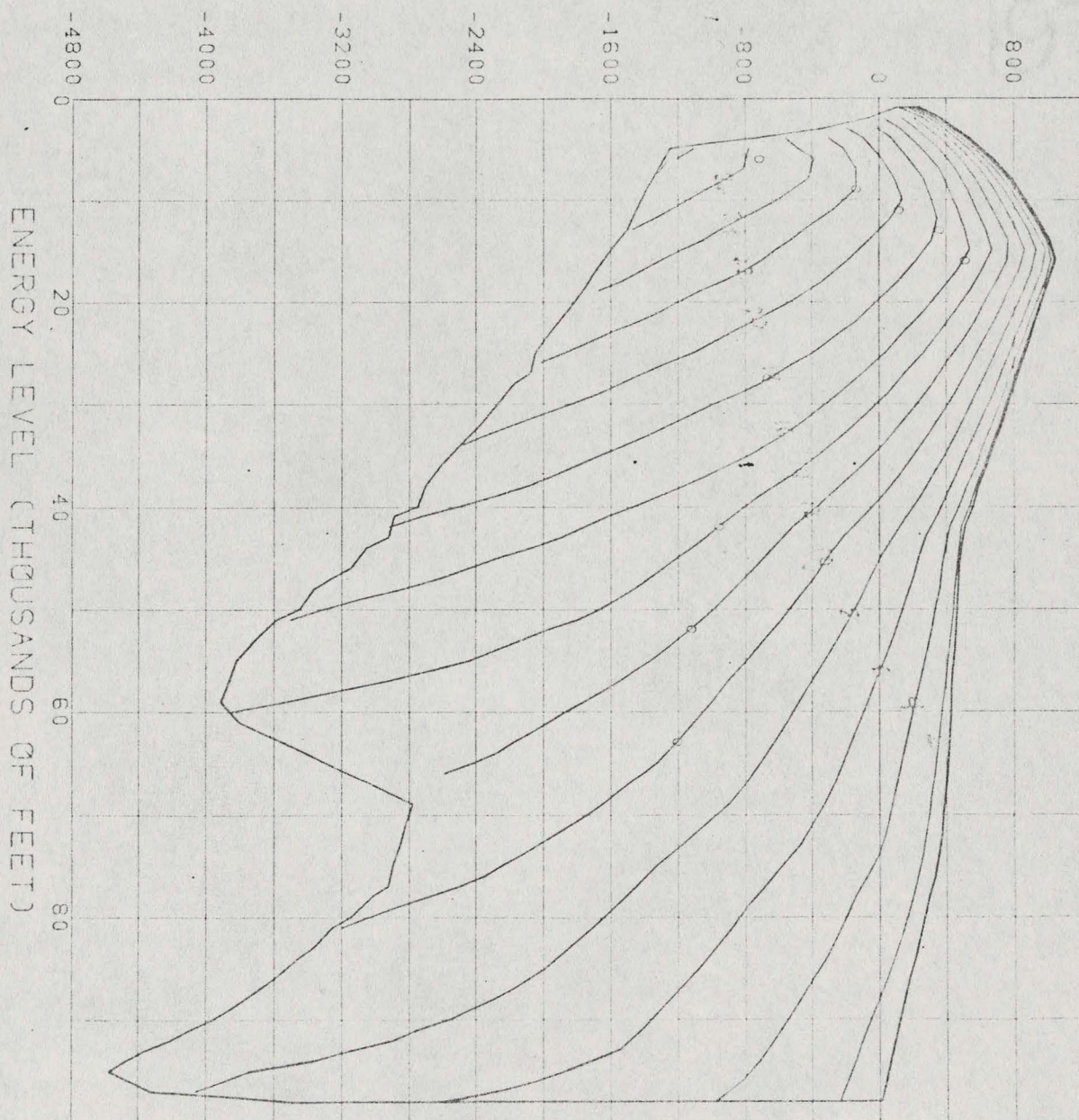
1-1-75

MAX MANEUVER DIAGRAM

410234
DC1-MAX PWR

HORIZONTAL ALTITUDE

ENERGY RATE (FT/SEC)



2-A-9
19249

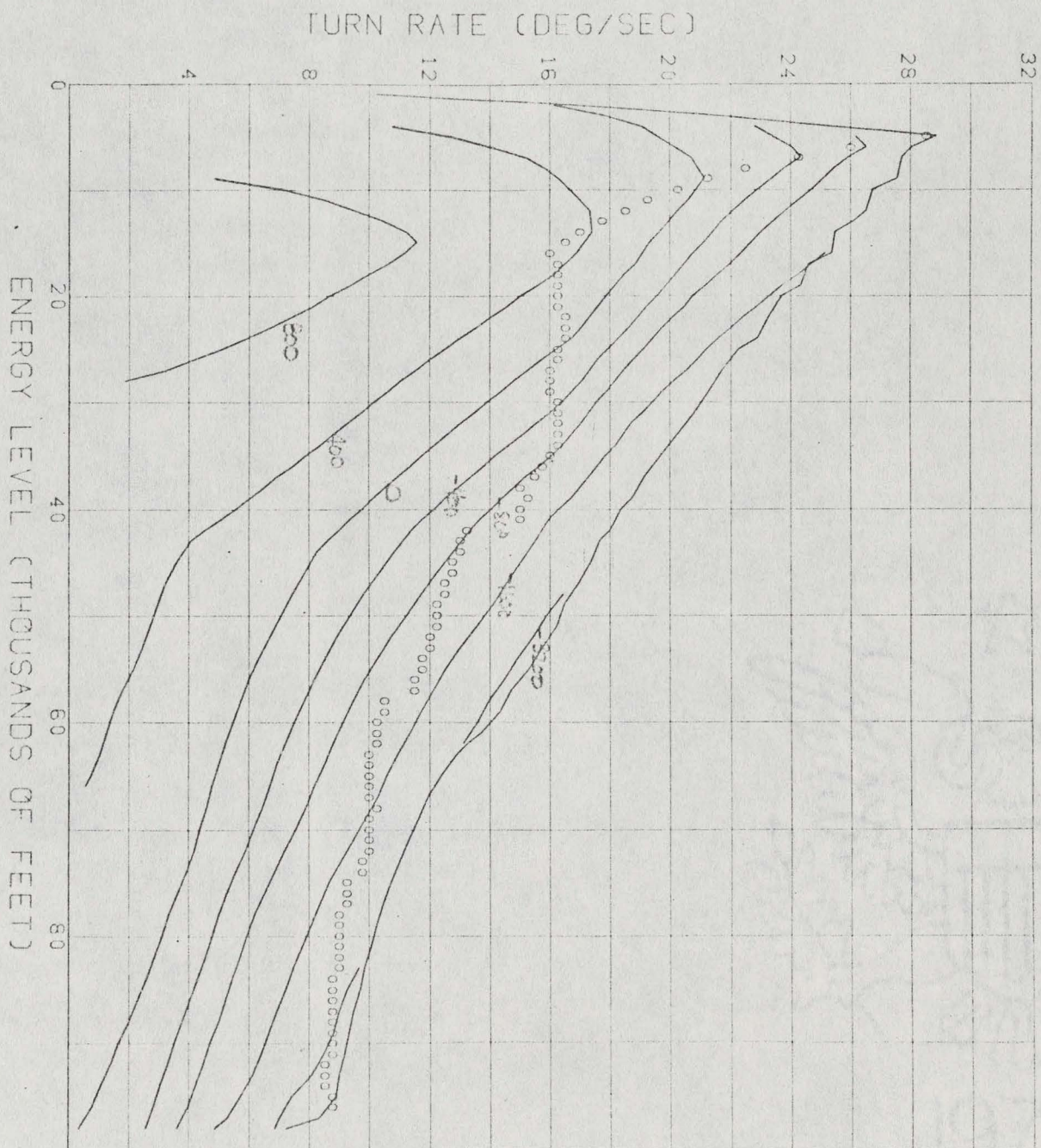
1-1-75

MAX MANEUVER DIAGRAM

410234

DCI -MAX PWR

HORIZONTAL ATTITUDE

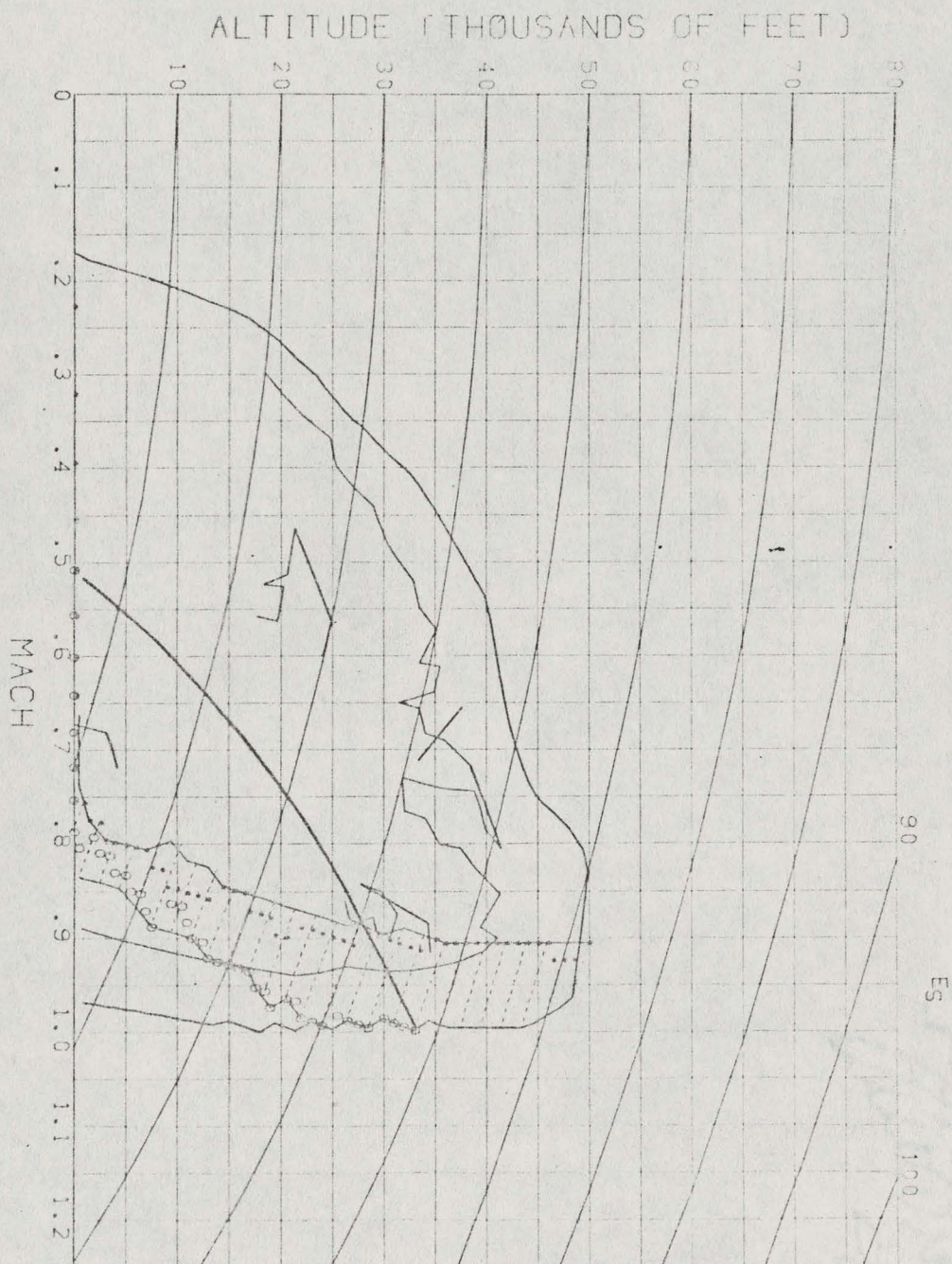


AIR BATTLE ARENA

410234
DCI-MIL PWR

2-A-9
192V3

1-1-75



PLOT PREPARED BY ASD/ENFDP

2-4-7
19249

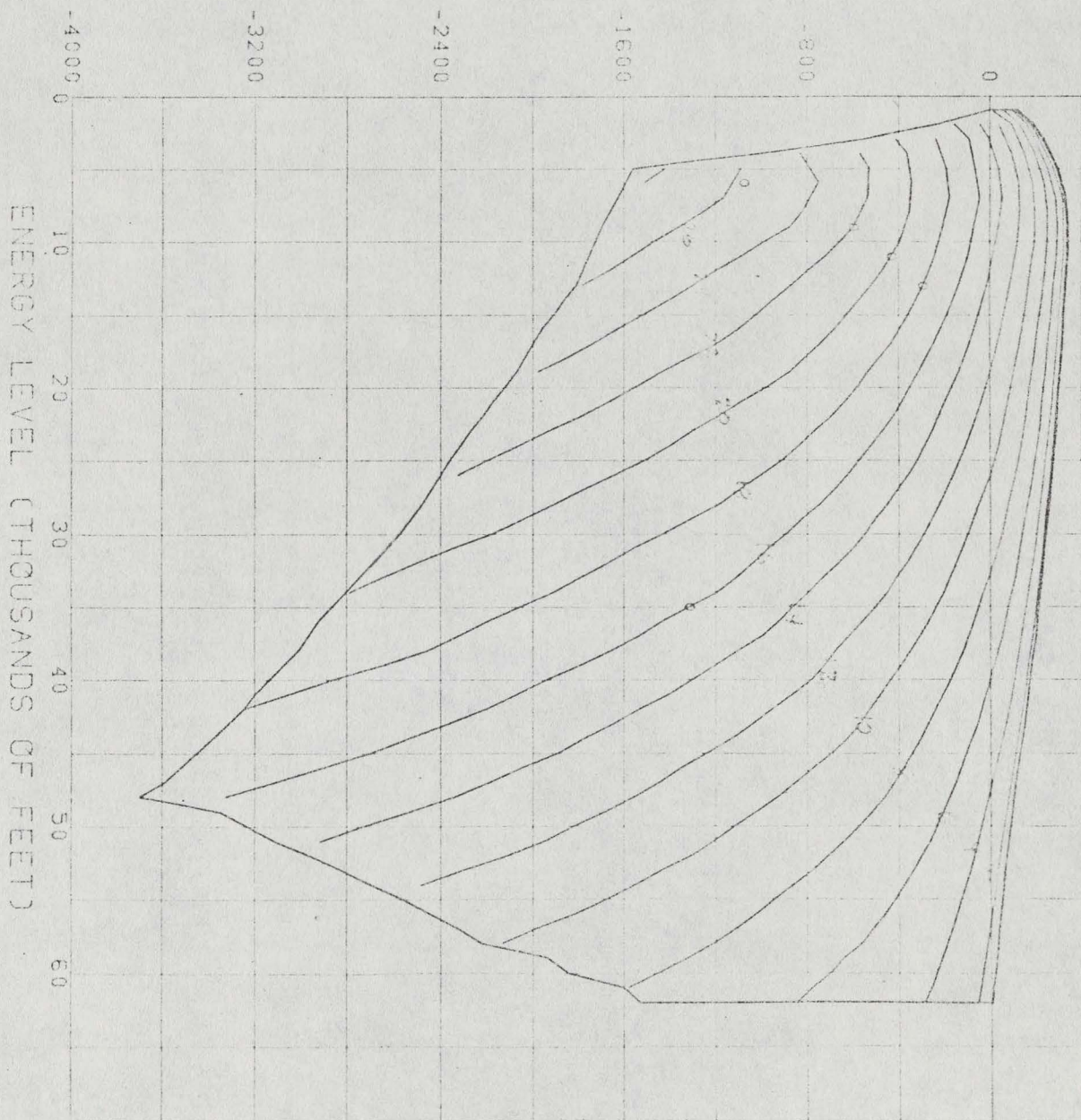
1-1-75

MAX MANEUVER DIAGRAM

410234
DC1-MIL PWR

HORIZONTAL ALTITUDE

ENERGY RATE (FT/SEC)



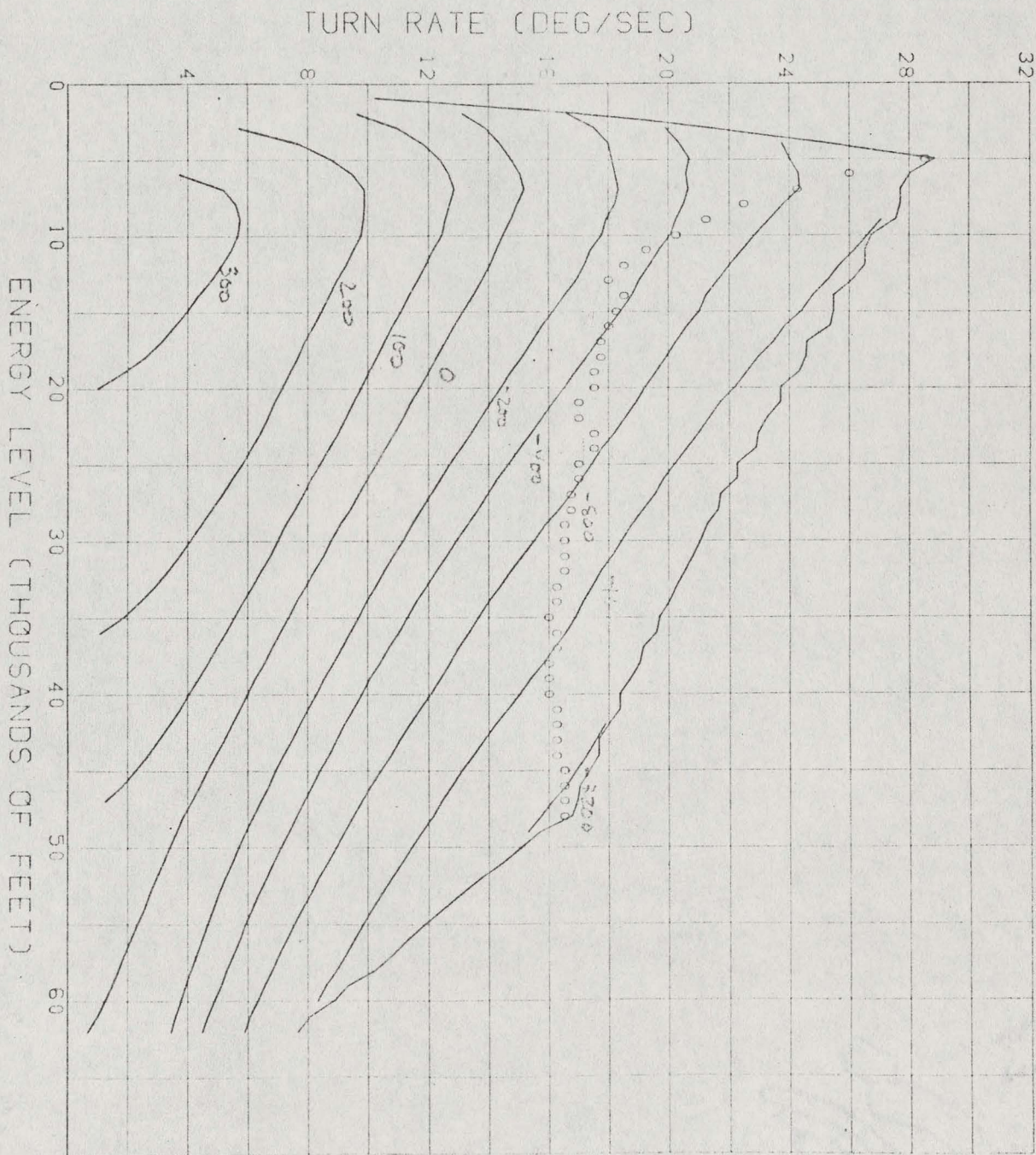
1-1-75

MAX MANEUVER DIAGRAM

DCI - MIL PWR

HORIZONTAL ATTITUDE

2-A-9
19249
410234



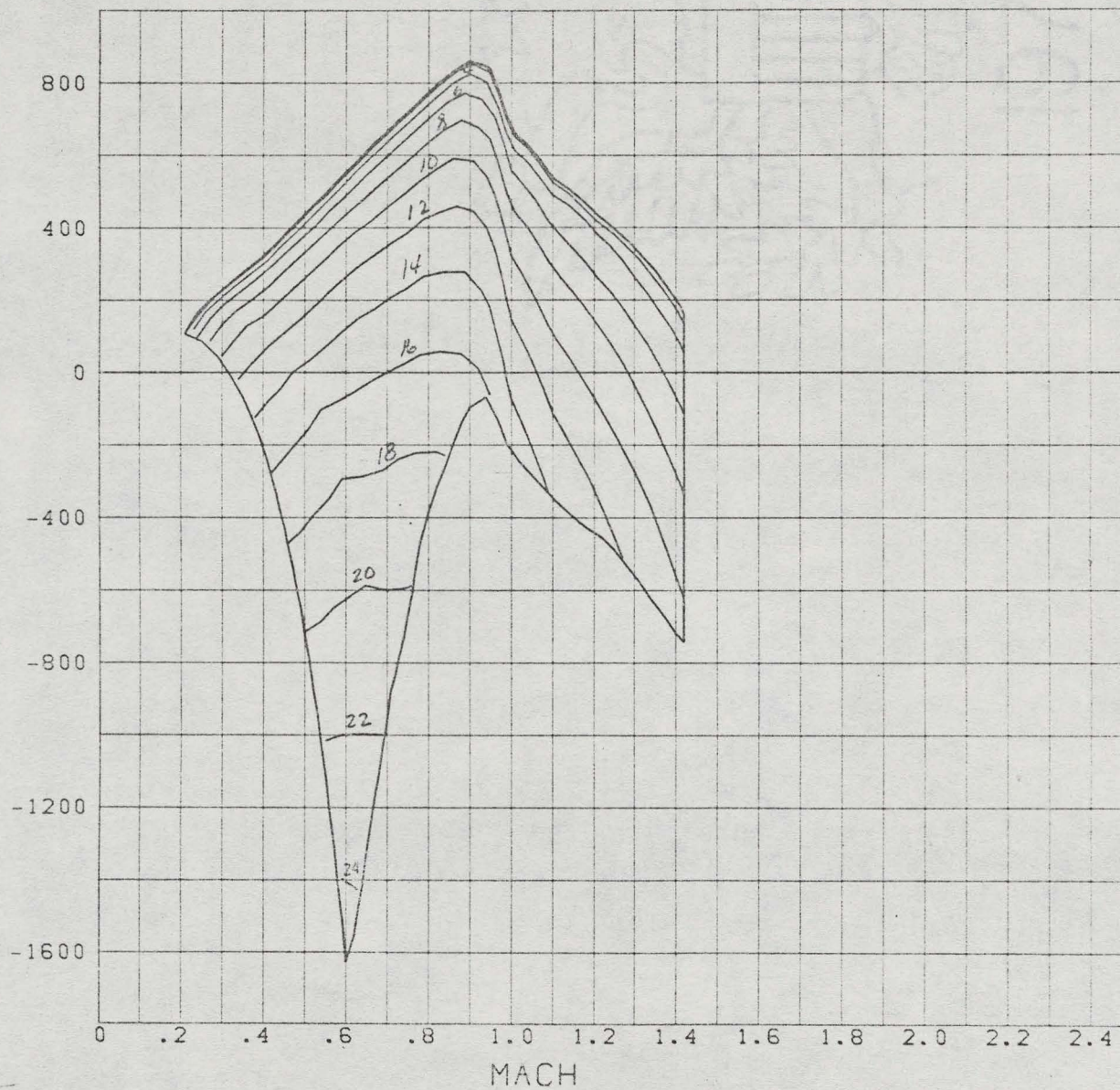
2-A-9
19247

MANEUVER DIAGRAM
ALTITUDE 10000

410234
DC1 -MAX PWR

31/12
HORIZONTAL ATTITUDE

ENERGY RATE (FT/SEC)



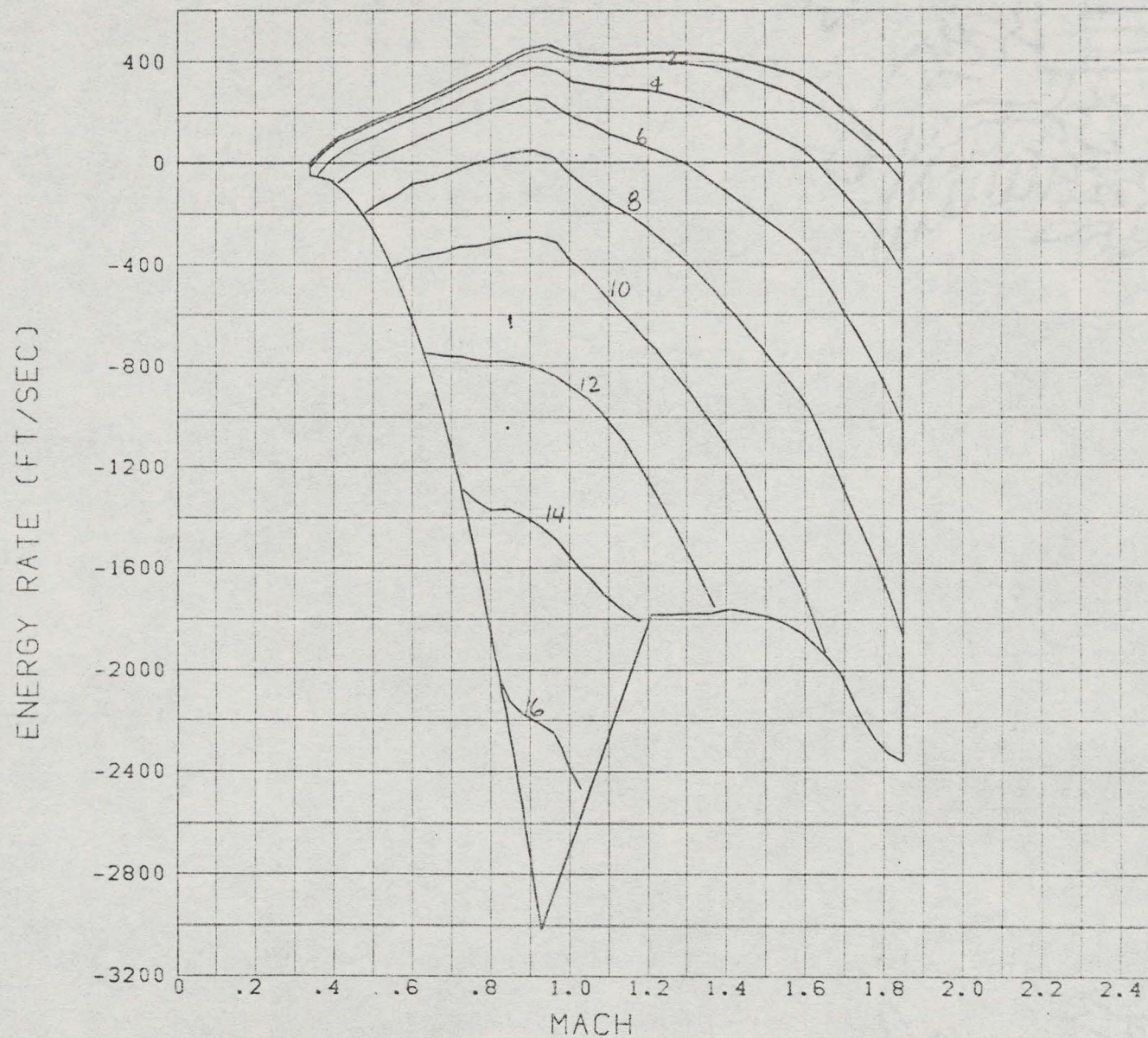
PLOT PREPARED BY ASD/ENFDP

2-A-9
19249

MANEUVER DIAGRAM
ALTITUDE 30000

410234
DC 1 -MAX PWR

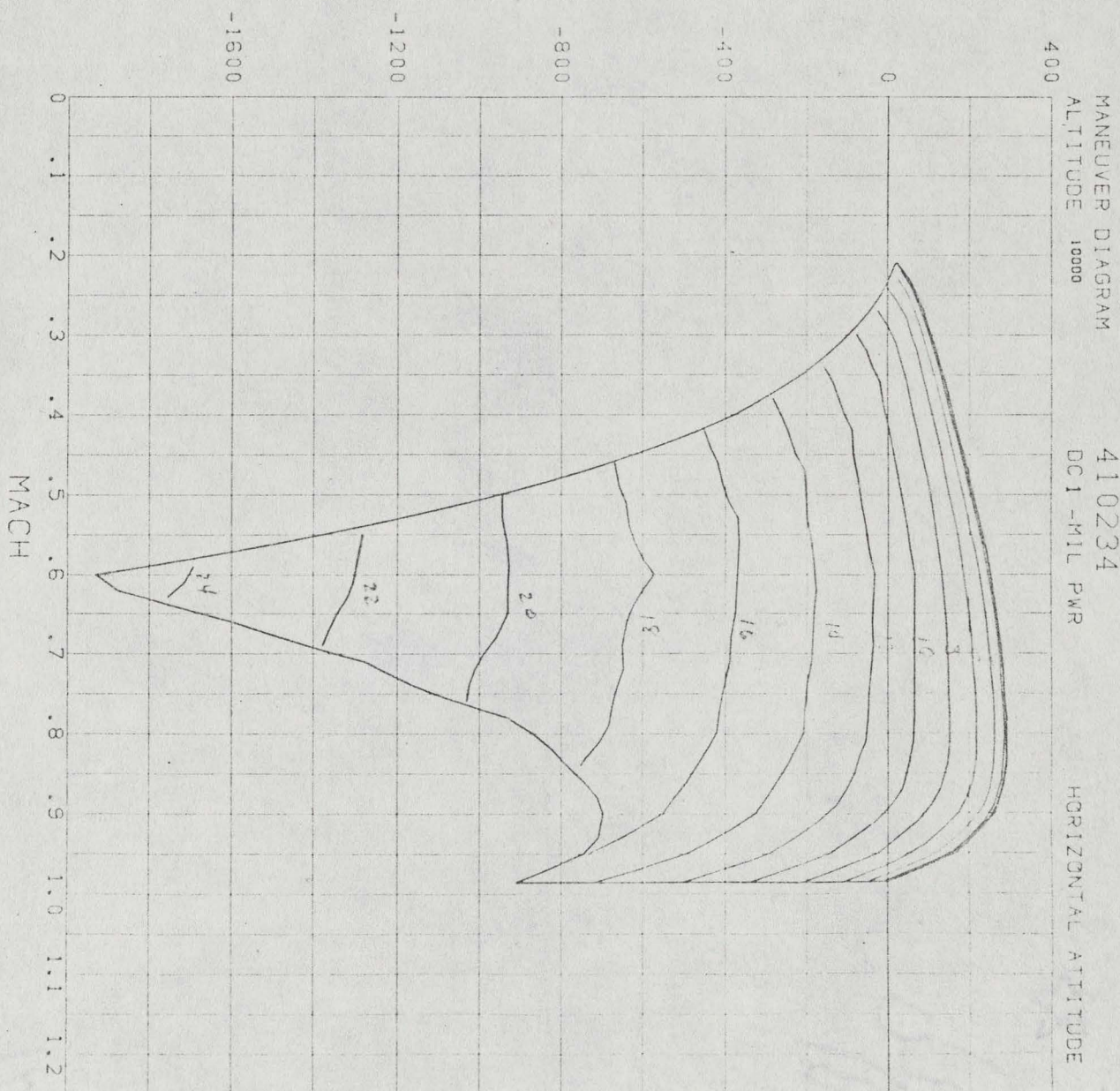
31/12
HORIZONTAL ATTITUDE



2-A-9
19249

1-1-75

ENERGY RATE (FT/SEC)



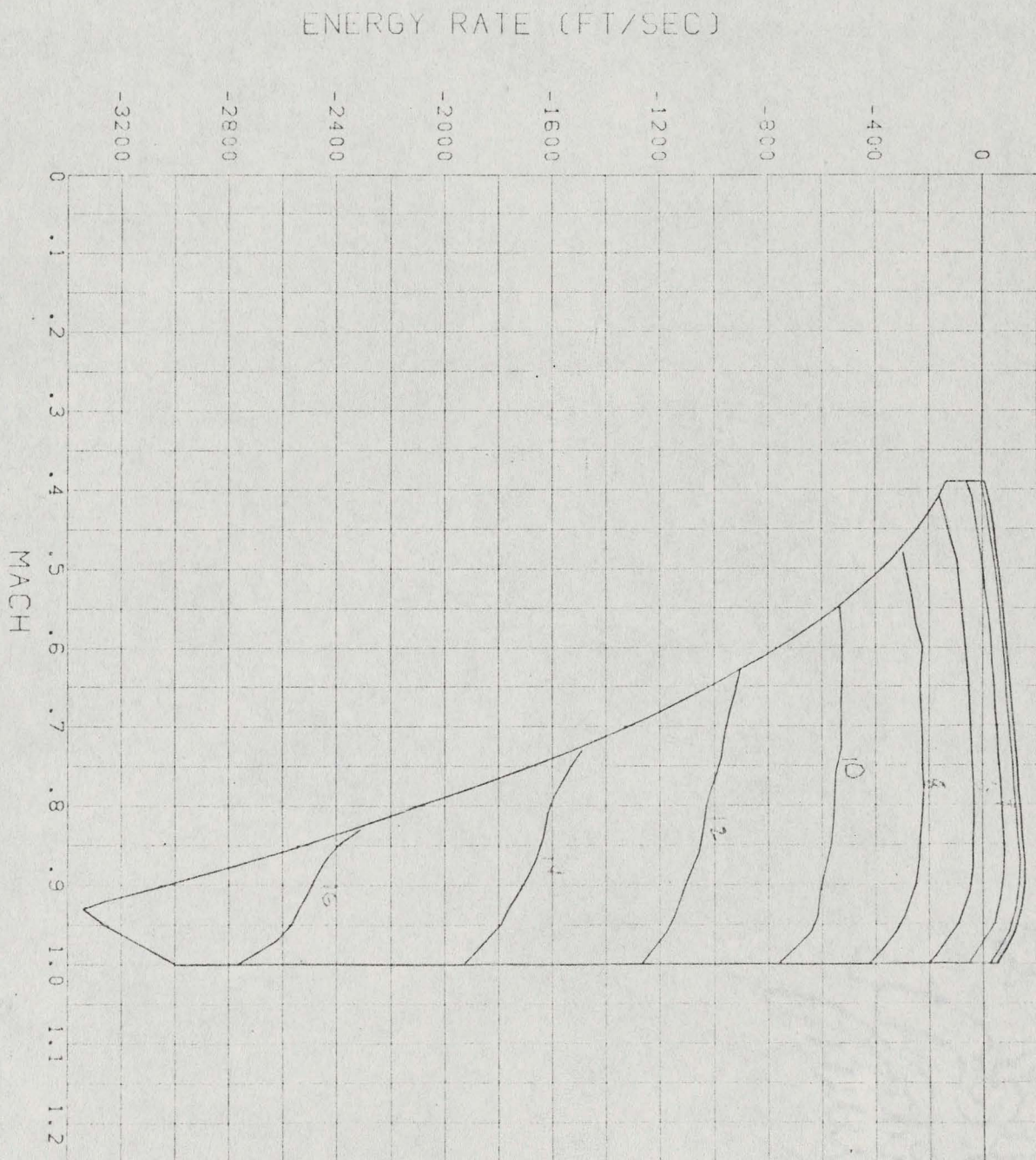
2-A-9
19219

1-1-75

MANEUVER DIAGRAM
ALTITUDE 30000

410234
DC1-MIL PWR

HORIZONTAL ALTITUDE



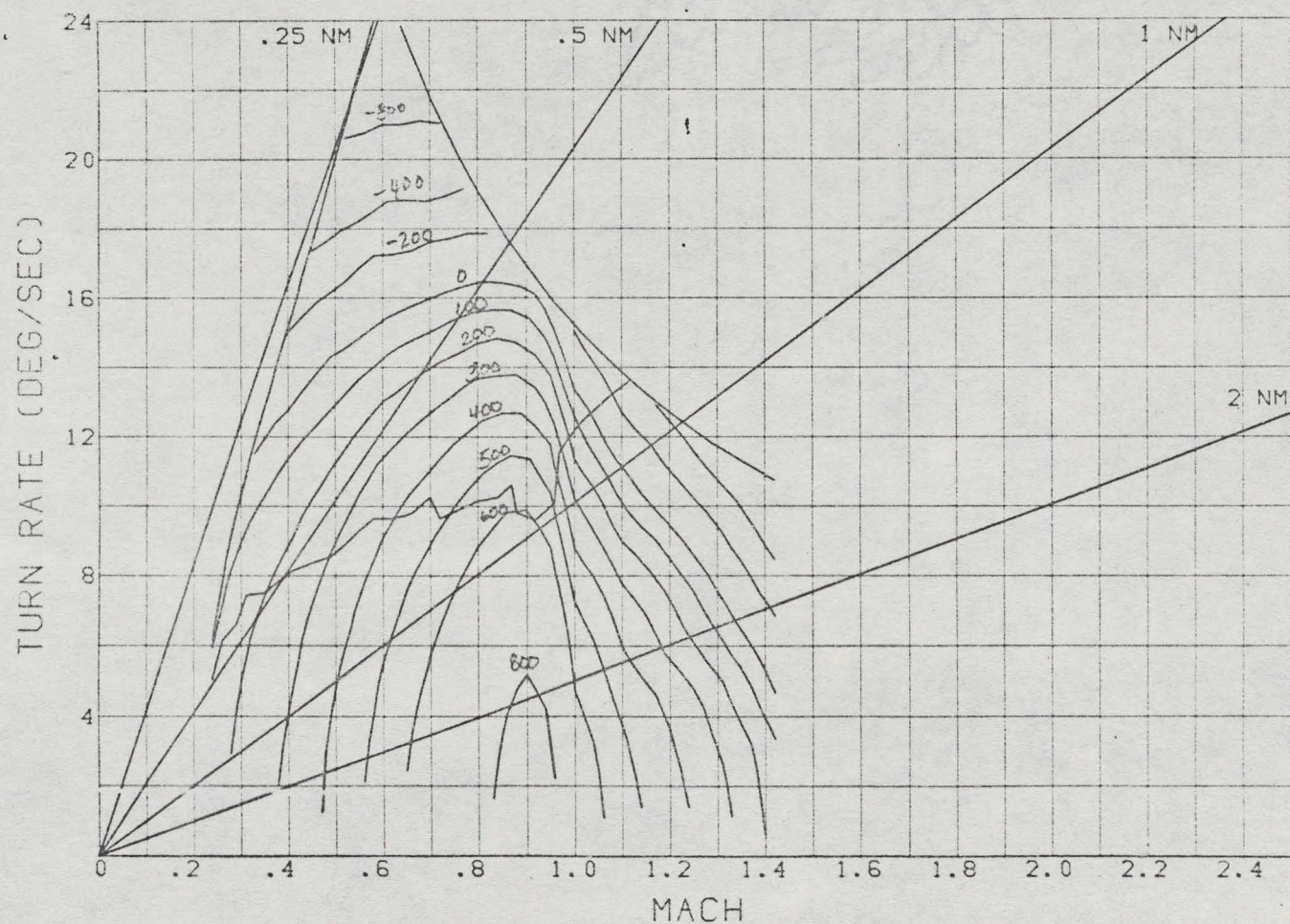
410234
DC 1 - MAX PWR
OPT/MAX L/D

2-A-9
19249

31/12/74
HORIZONTAL ATTITUDE

MANEUVER DIAGRAM

ALTITUDE: 10000



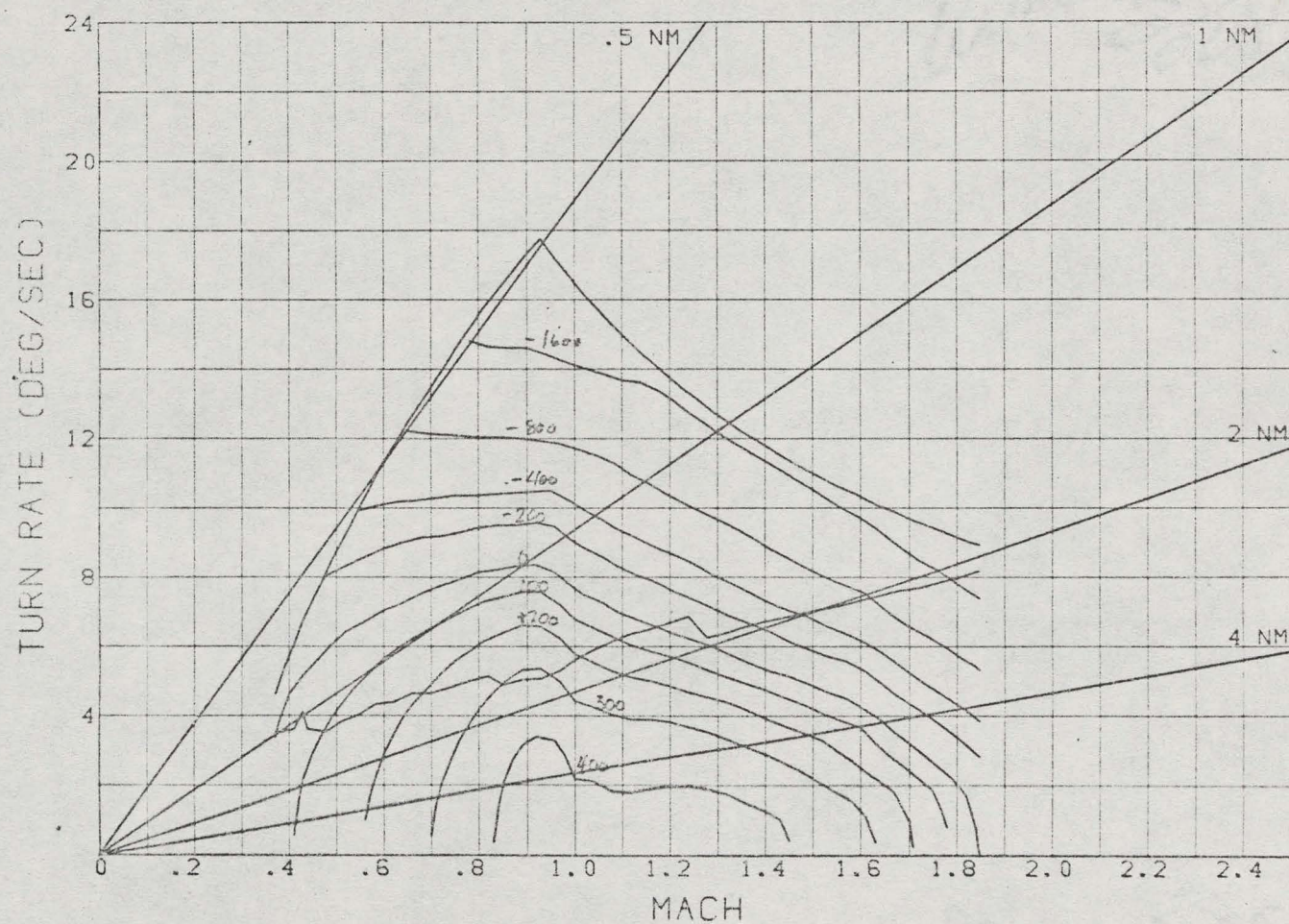
410234
DC1 - MAX PWR
OPT/MAX L/D

31/12
HORIZONTAL ATTITUDE

2-A-9

19299

MANEUVER DIAGRAM
ALTITUDE: 30000



PLOT PREPARED BY ASD/ENFDP

050000

1972

1-1-75

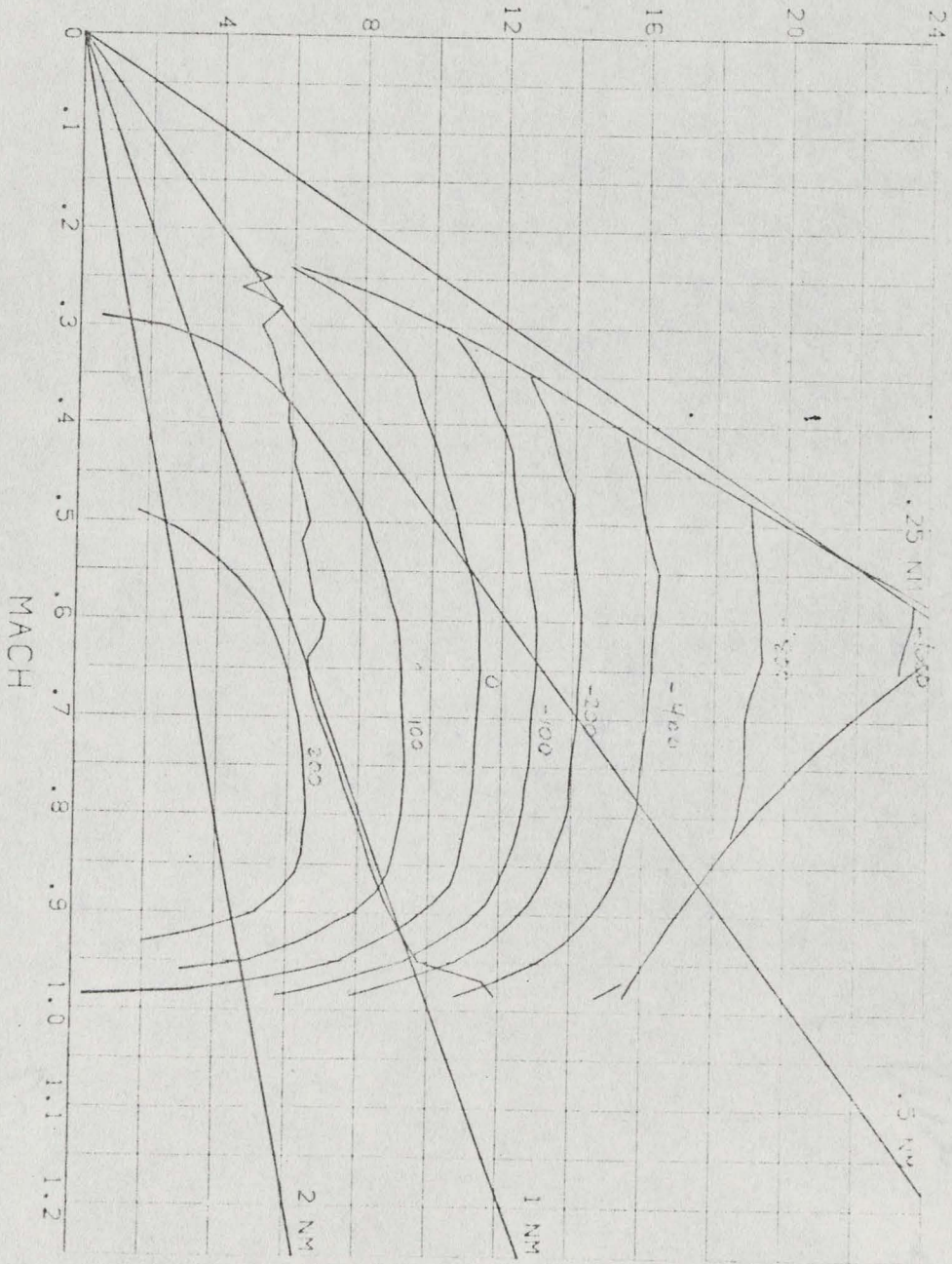
410234
DC1-MIL PWR
OPT/MAX L/D

2-A-9
10347

HORIZONTAL ALTITUDE

MANEUVER DIAGRAM
ALTITUDE: 10000

TURN RATE (DEG/SEC)



MACH

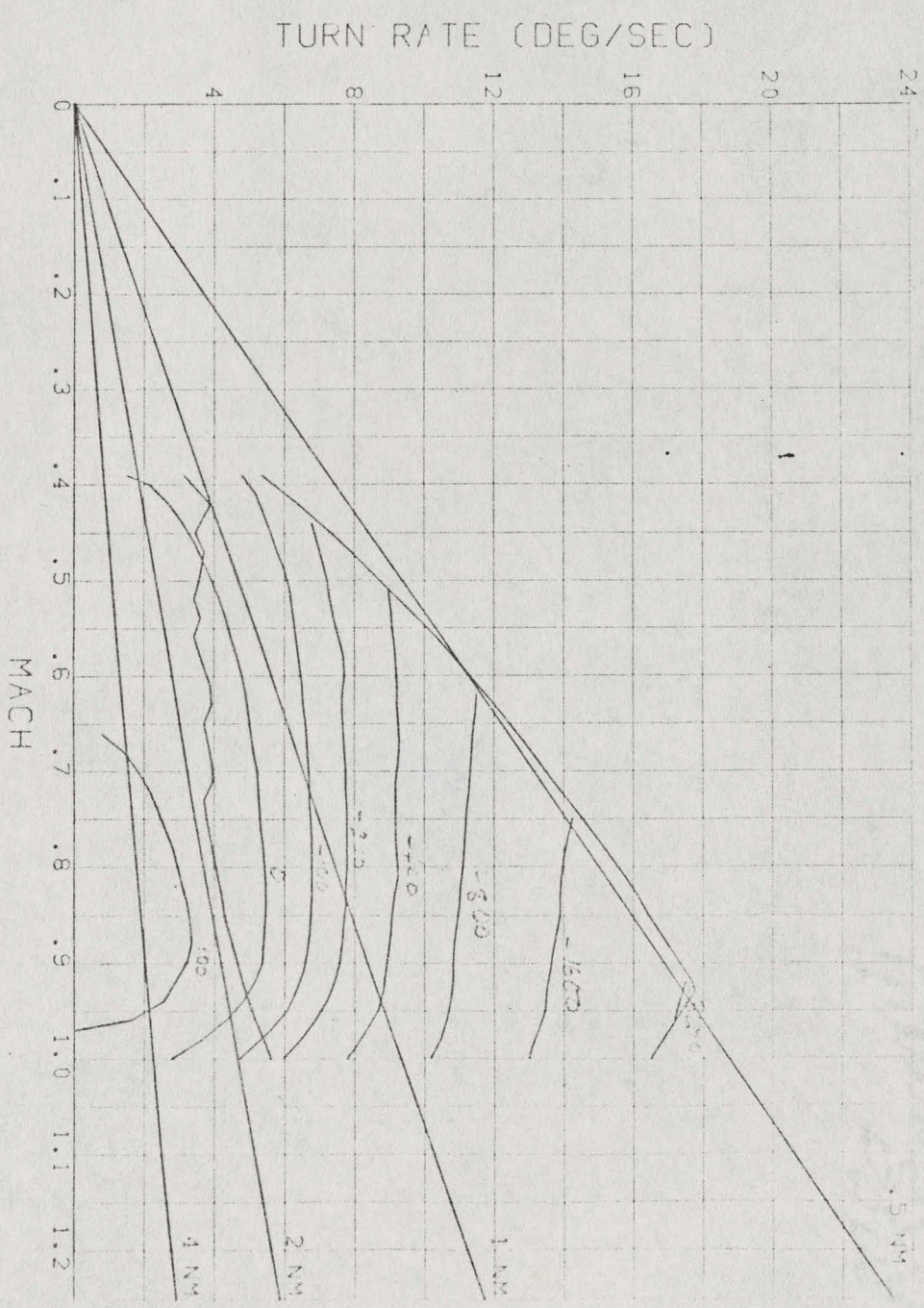
PLOT PREPARED BY ASD-ENFDP

1-1-75

410234
DCI-MIL PWR
OPT/MAX L/D

HORIZONTAL ALTITUDE

MANEUVER DIAGRAM
ALTITUDE: 30000



PLOT PREPARED BY ASD/ENFOP

100-000

1 Jan 75

PS 410234

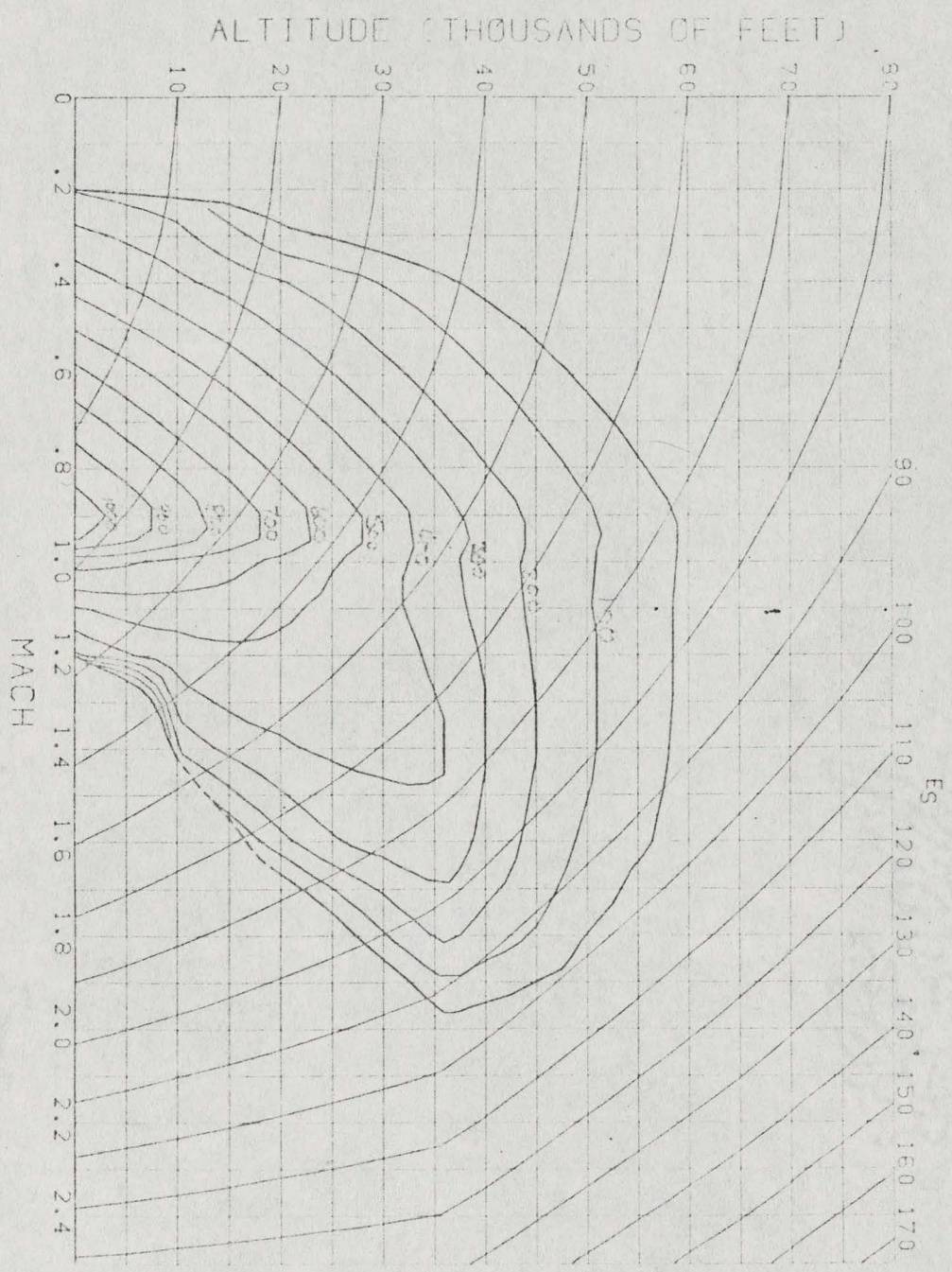
MAXIMUM POWER

D/C 1

2-4-09

10223

1.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

1-1-75

PS 410234

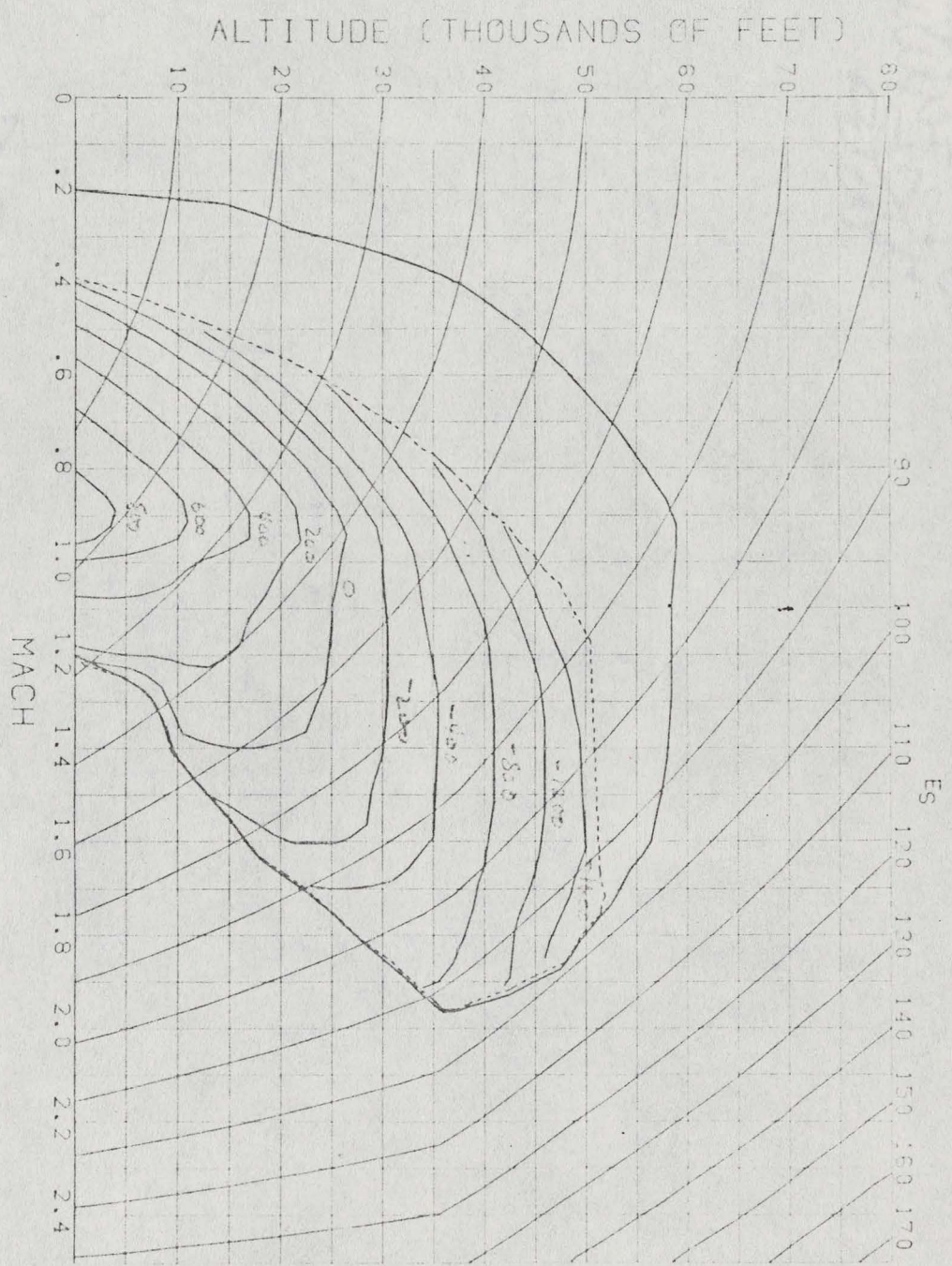
MAXIMUM POWER

D/C 1

2-A-9

19243

5.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

1-1-75

PS 410234

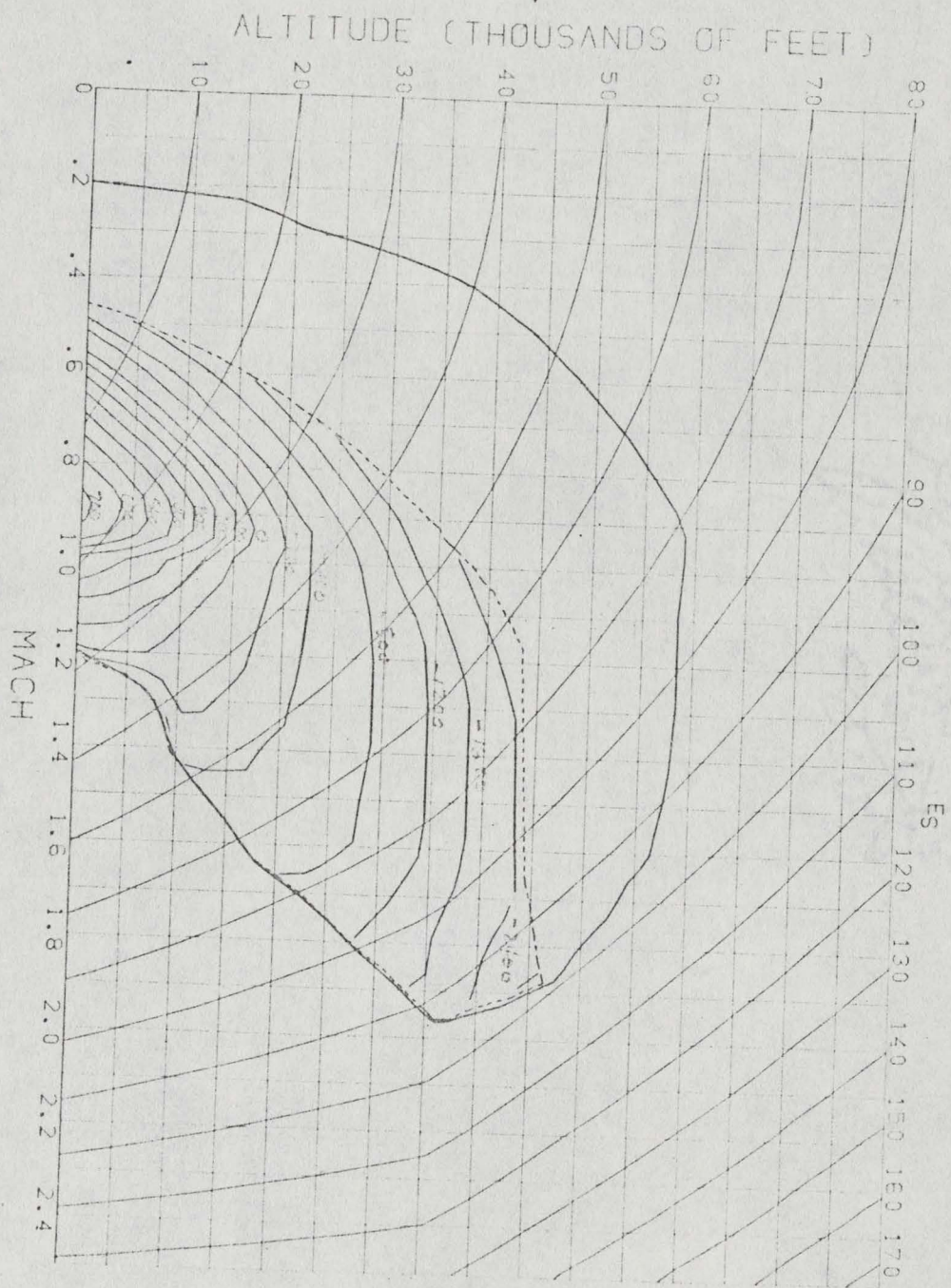
MAXIMUM POWER

D/C 1

2-4-9

19243

7.00G DIAGRAM



PS 410234

MILITARY POWER

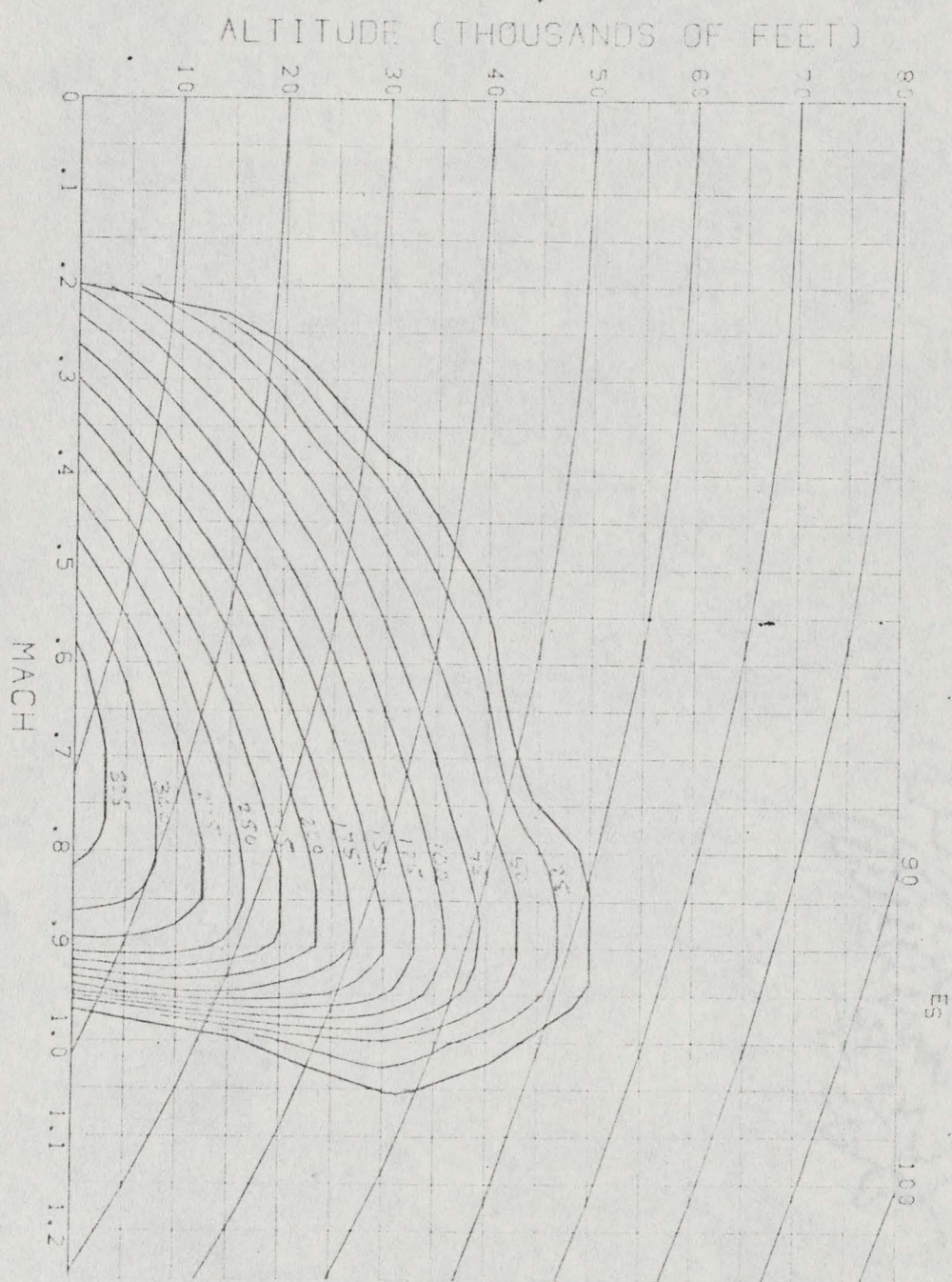
D/C 1

2-4-9

19243

1-1-75

1.00 G DIAGRAM



5.00 G DIAGRAM

PS 410234

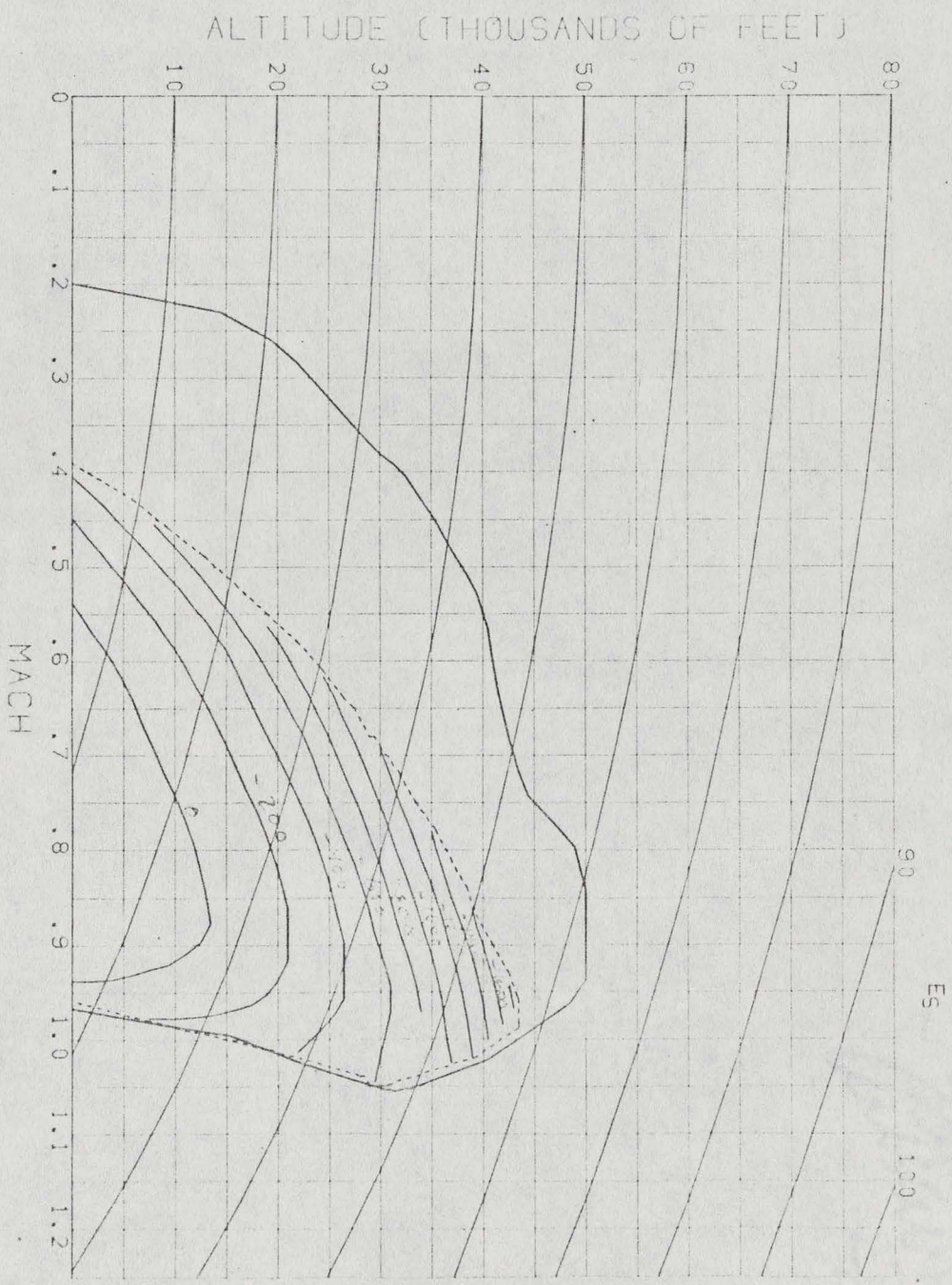
MILITARY POWER

D/C 1

2-4-9

19243

1-1-75



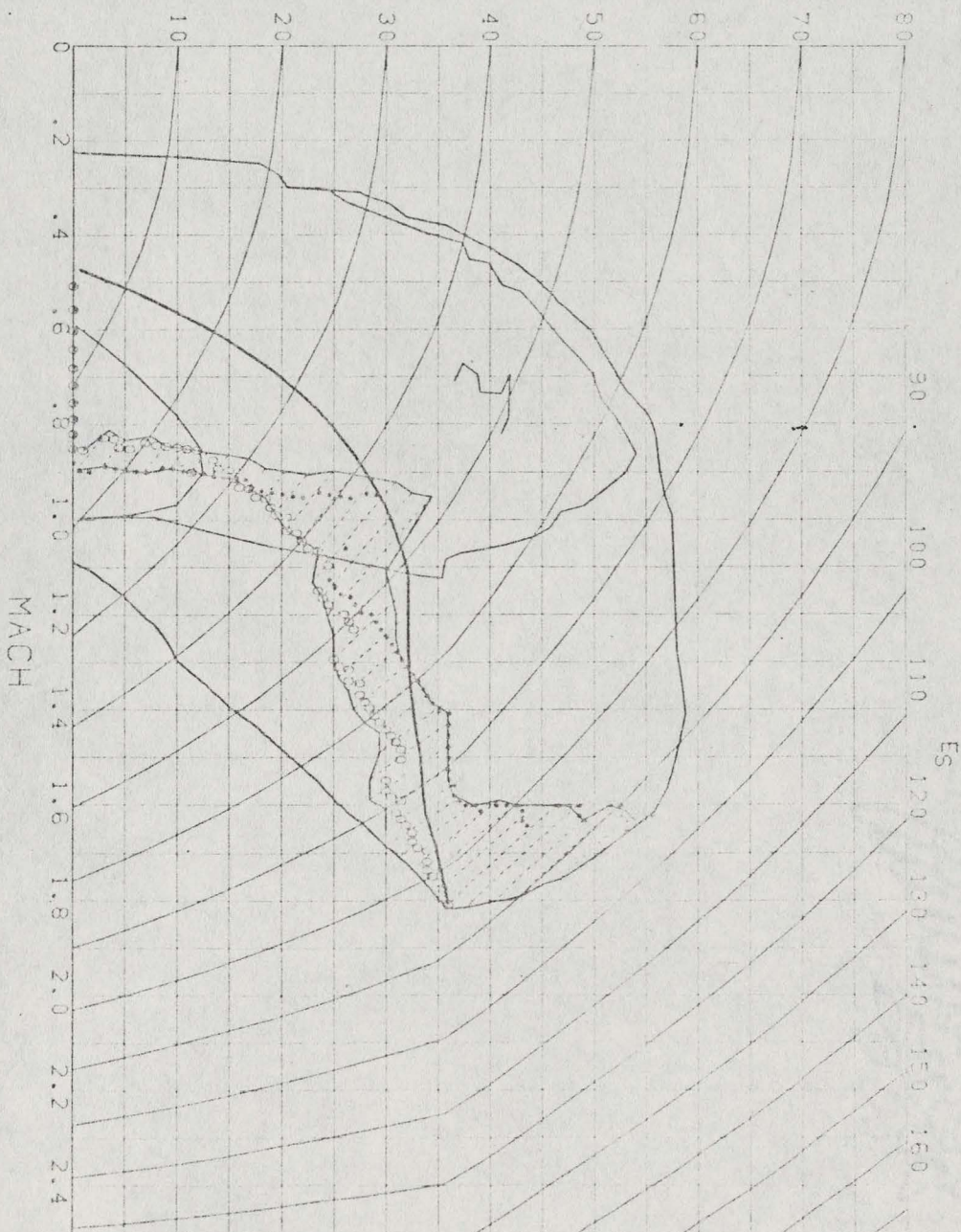
AIR BATTLE ARENA

610333
DCI-MAX PWR

2-4-79
24092

1-1-75

ALTITUDE (THOUSANDS OF FEET)



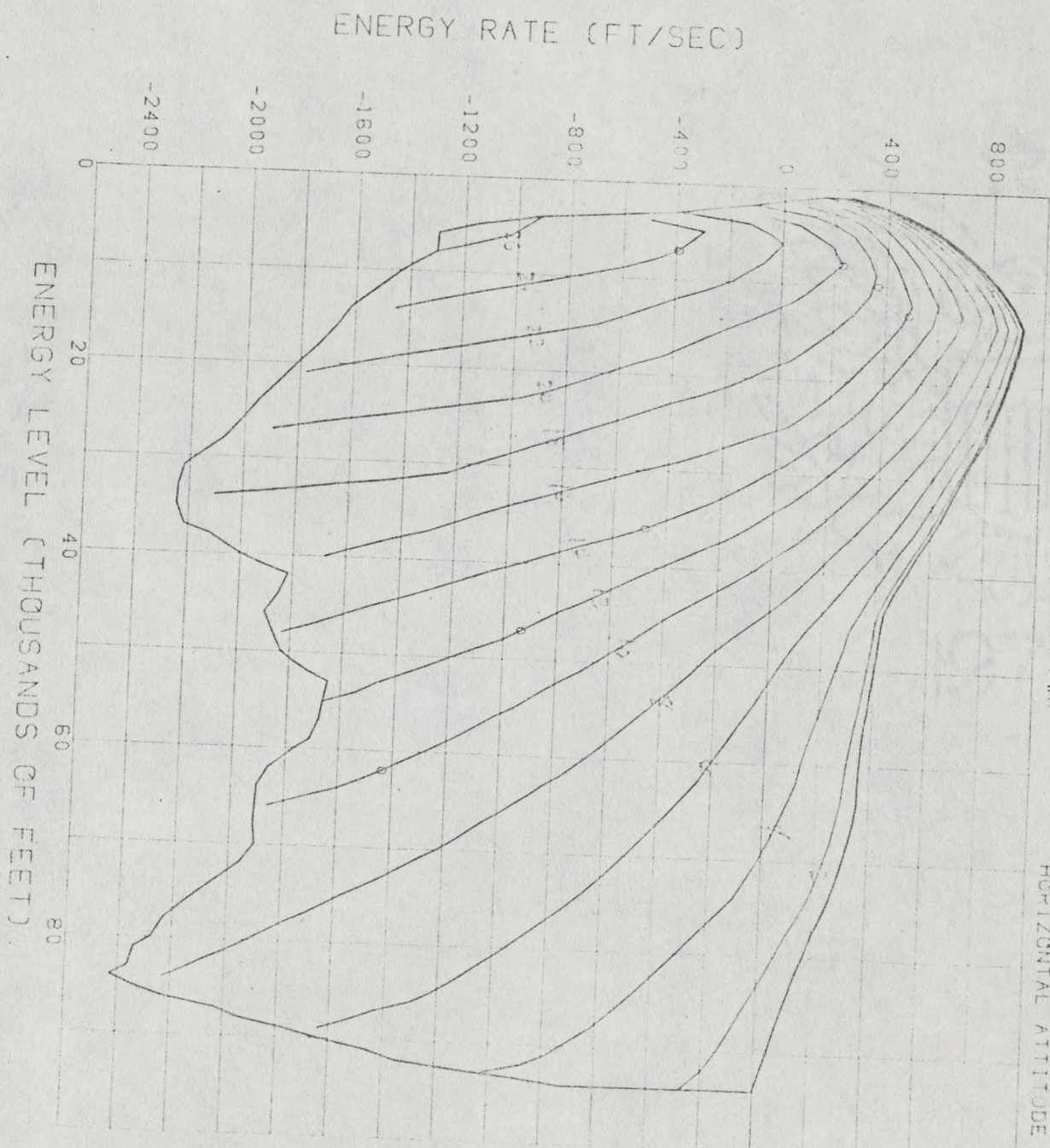
2-A-9
24092

1-1-75

MAX MANEUVER DIAGRAM

610333
DC1-MAX PWR

HORIZONTAL ALTITUDE



PLOT PREPARED BY ASD/ENFDP

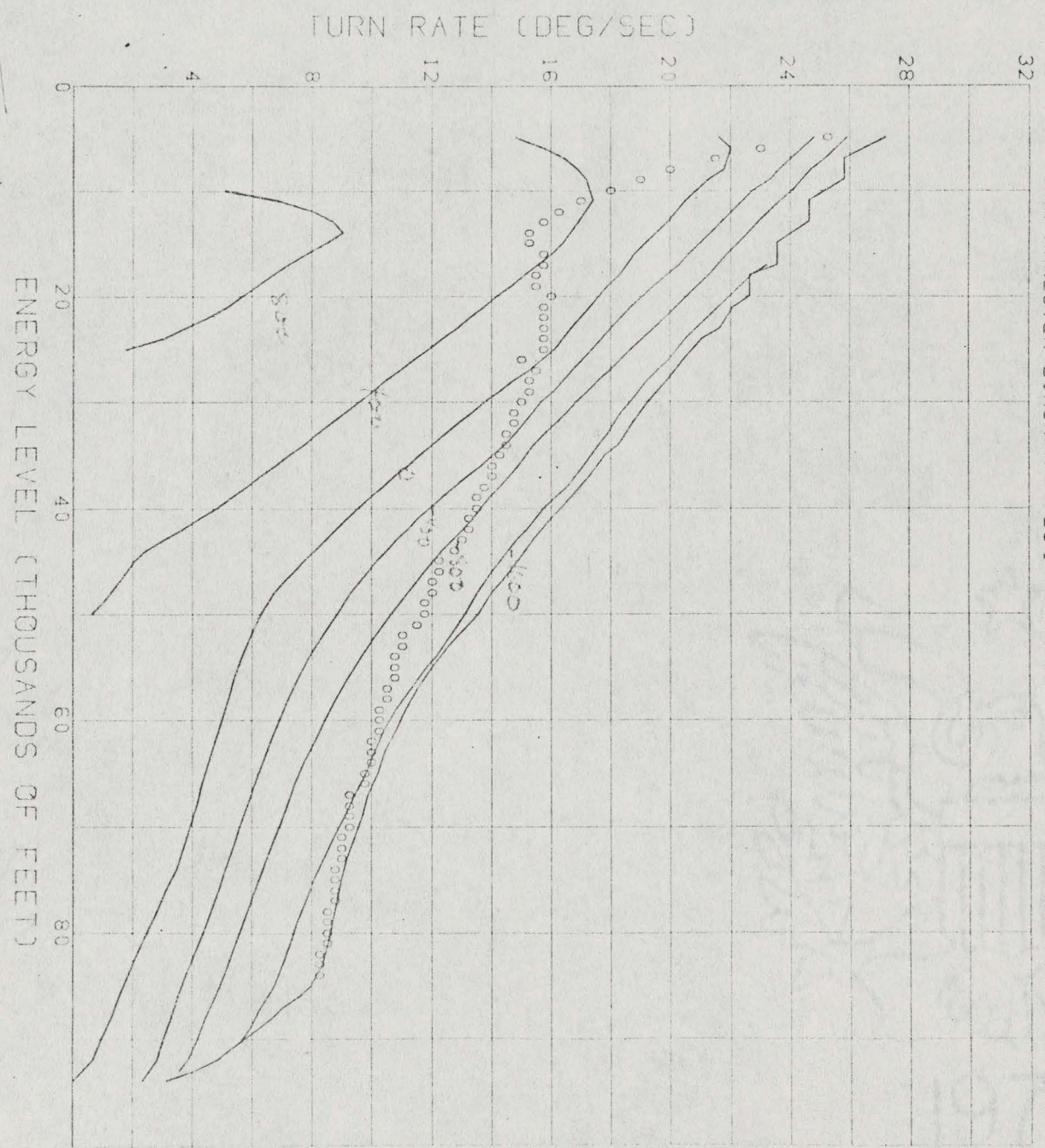
2-A-9
30042

1-1-75

MAX MANEUVER DIAGRAM

610333
DC1-MAX PWR

HORIZONTAL ALTITUDE

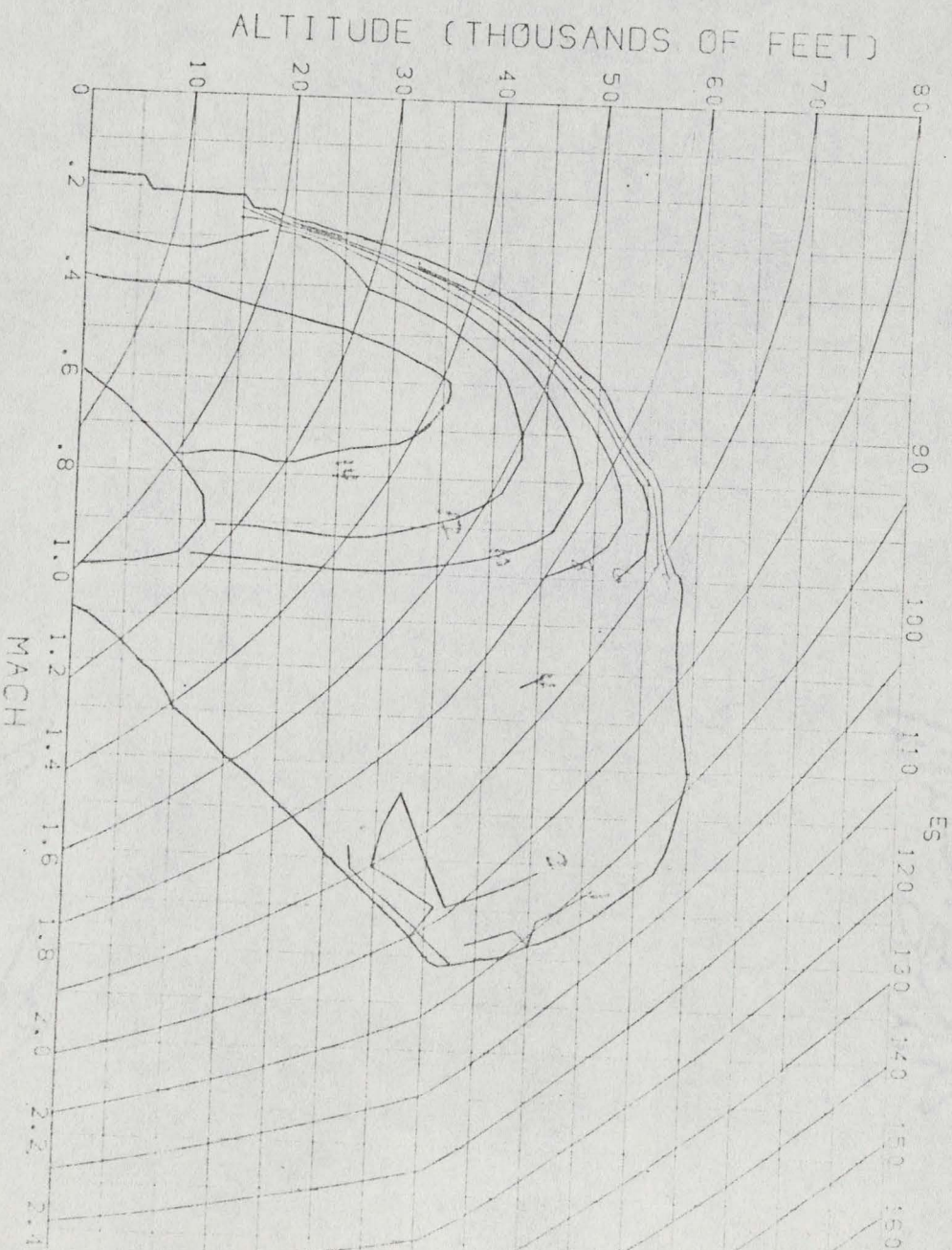


610333
DC1-MAX PWR
2-A-9

HORIZONTAL ALTITUDE

1-1-75

29092



1-1-75

PS 610333

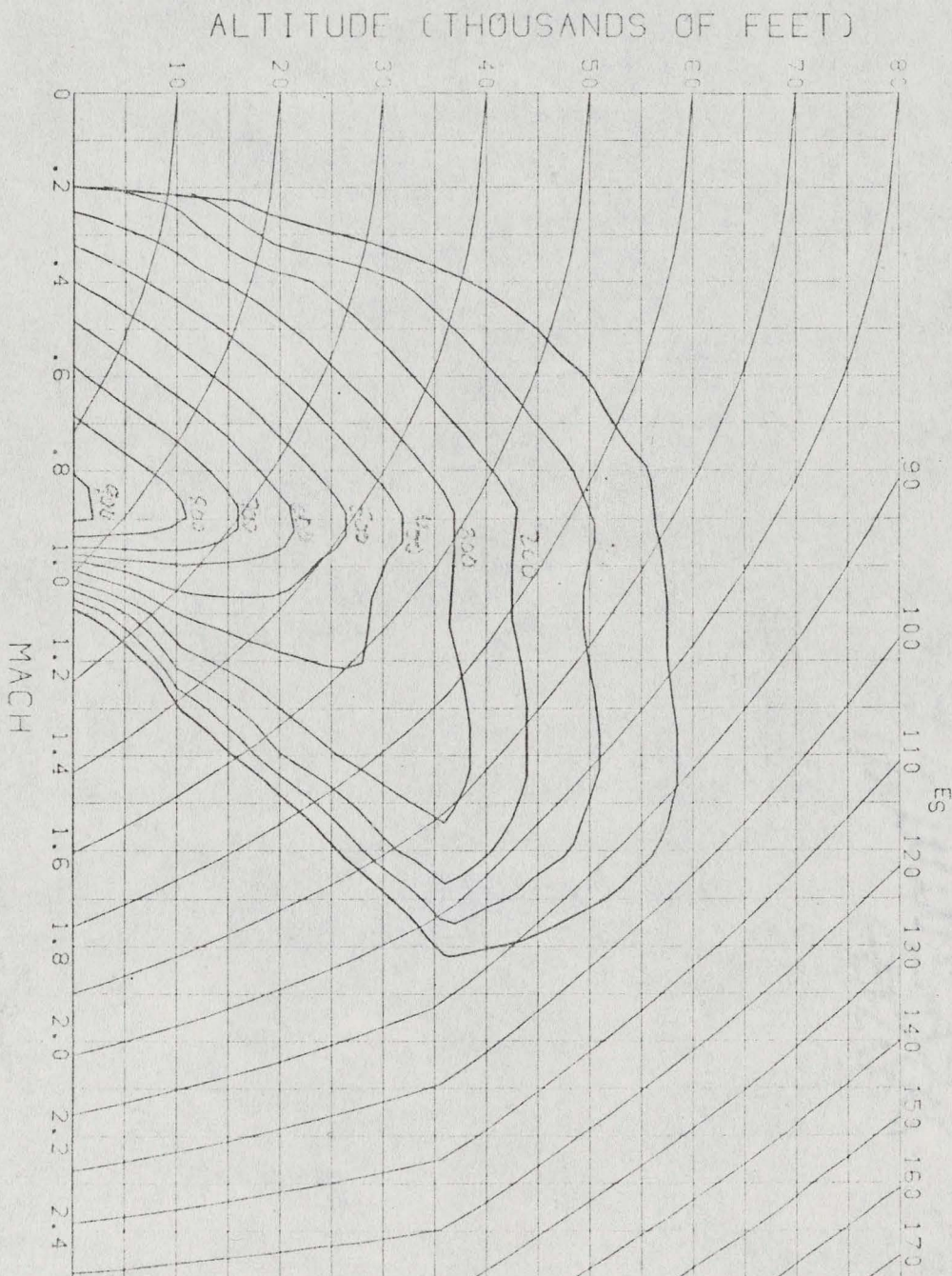
MAXIMUM POWER

D/C 1

2-4-9

24054

1.00G DIAGRAM



1-1-75

PS 610333

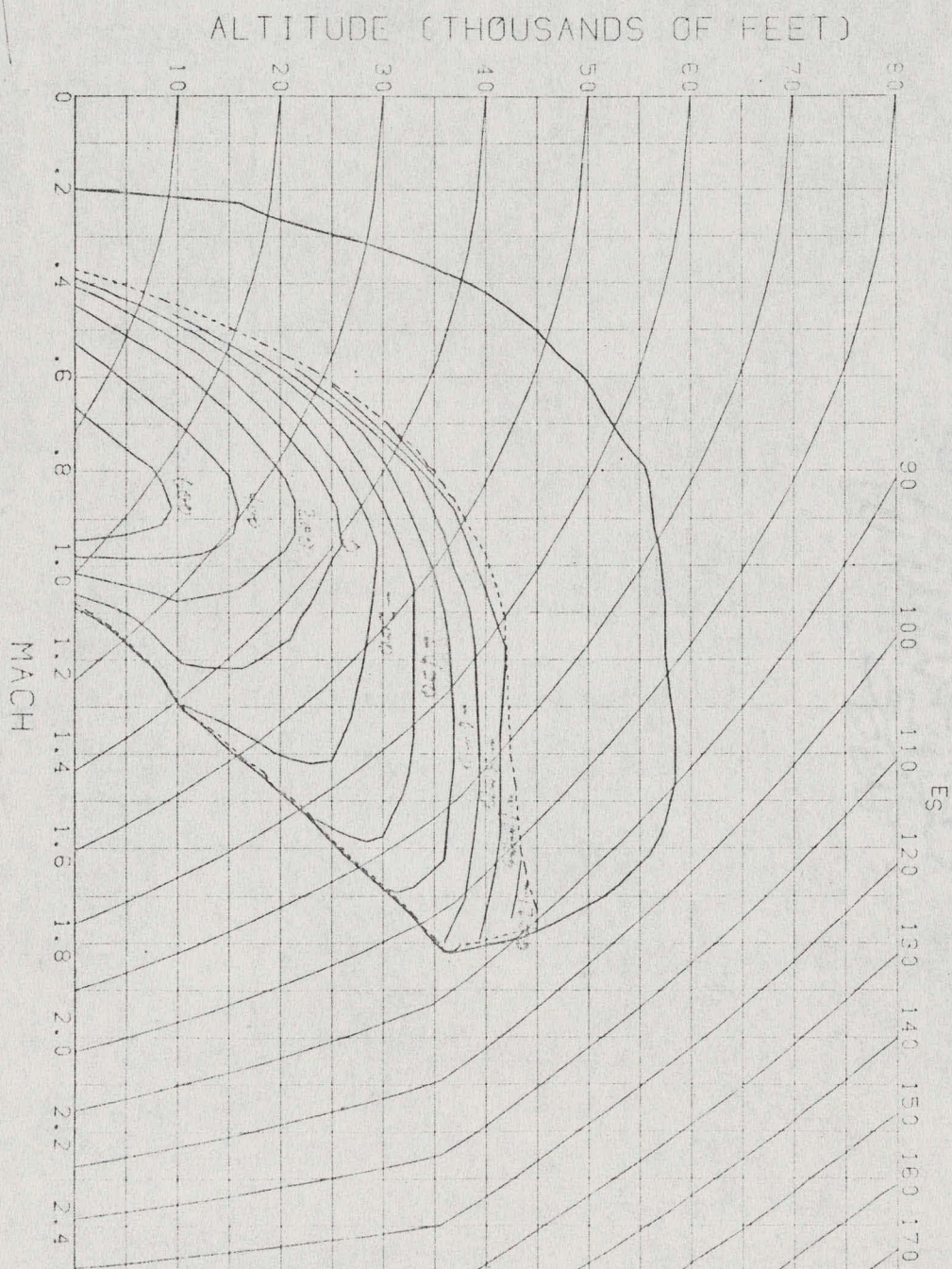
MAXIMUM POWER

D/C 1

3-4-9

24092

5.00 G DIAGRAM



1-1-75

PS 610333

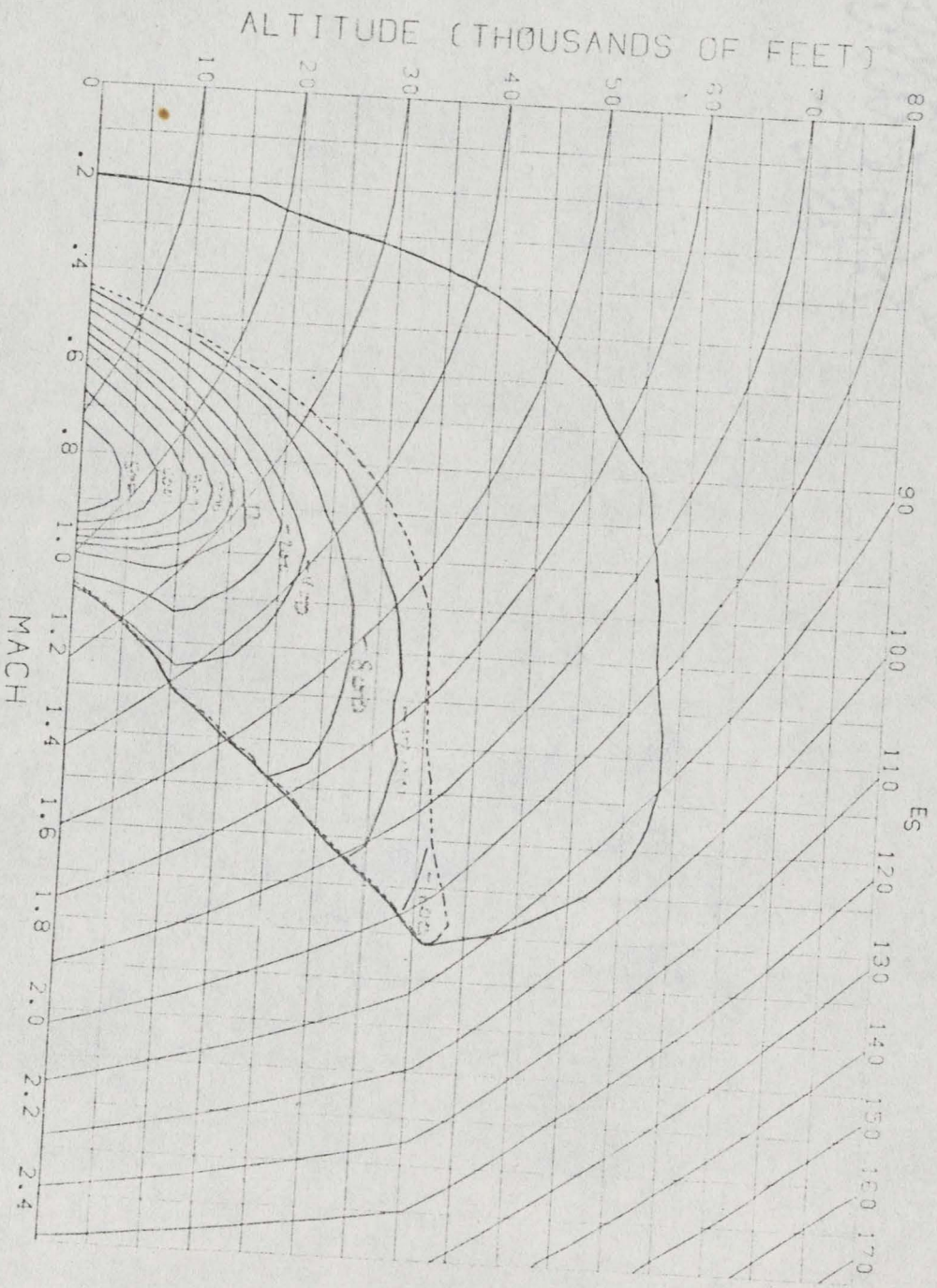
MAXIMUM POWER

D/C 1

2-A-9

21092

7.00 G DIAGRAM



PLOT PREPARED BY ASD/ENDP

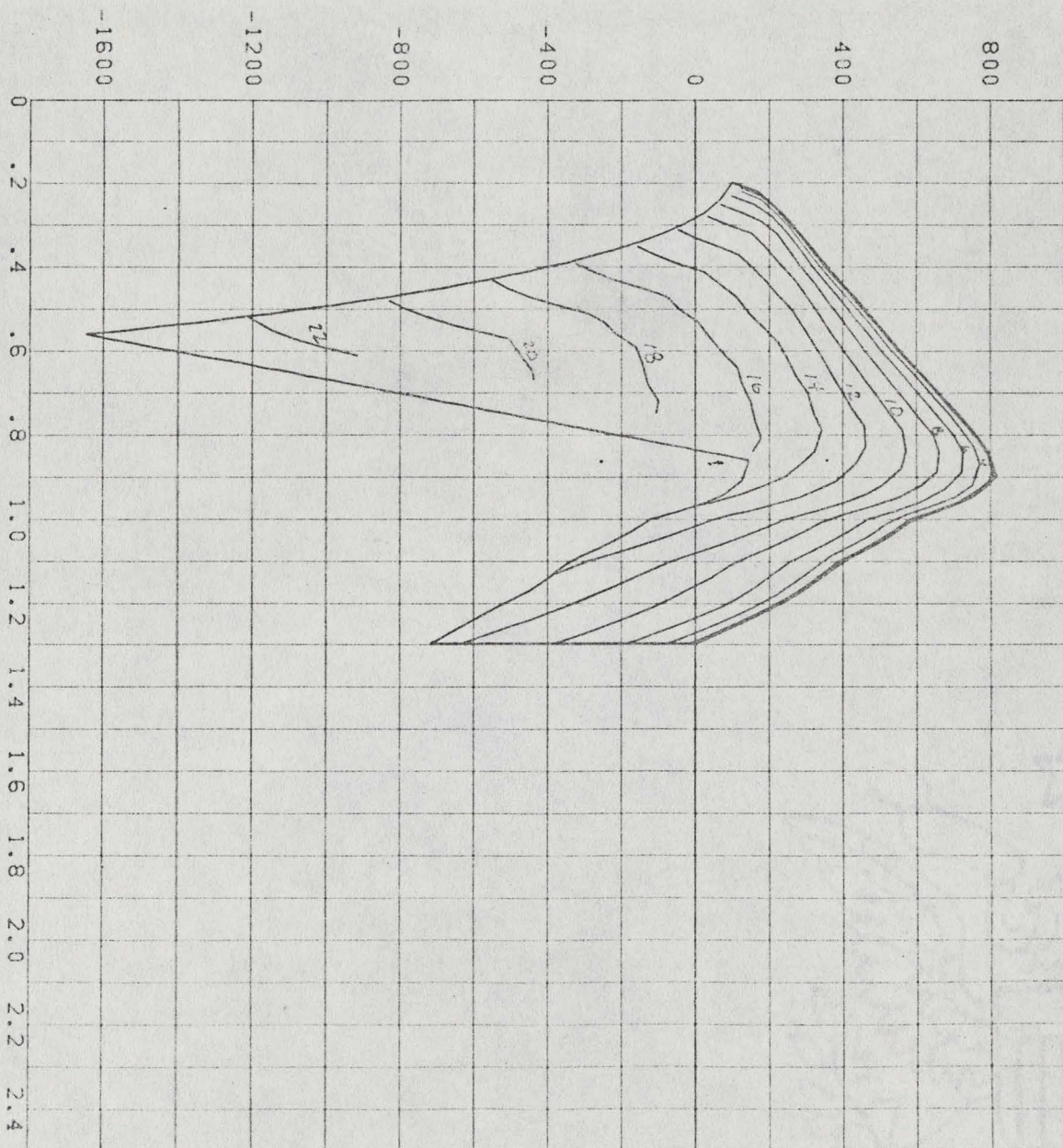
2-A-9
24092

MANEUVER DIAGRAM
ALTITUDE 10000

610333
DC1-MAX PWR

31/12
HORIZONTAL ALTITUDE

ENERGY RATE (FT/SEC)



MACH

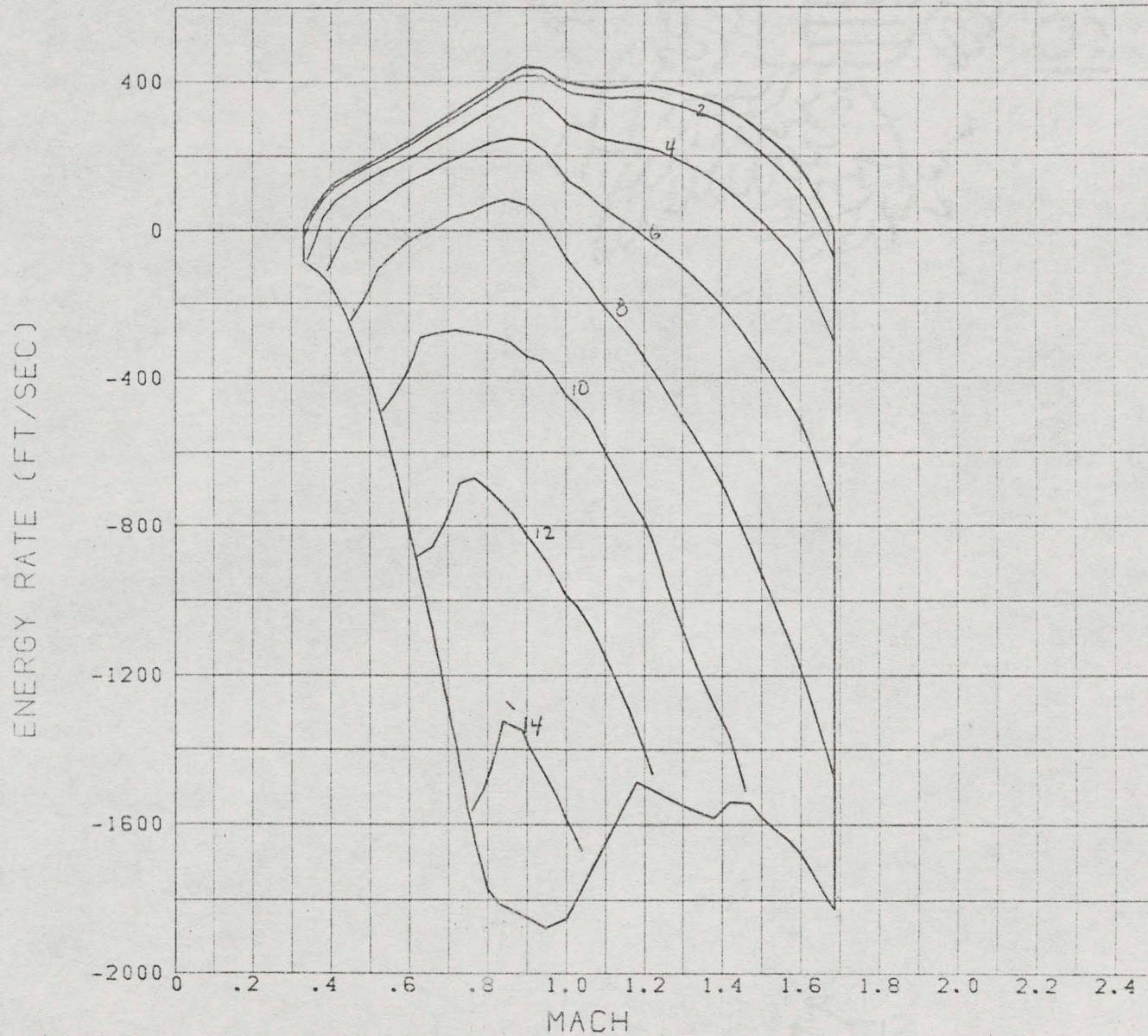
PLOT PREPARED BY ASD/ENF/CP

2-A-9
24092

MANEUVER DIAGRAM
ALTITUDE 30000

610333
DC 1 - MAX PWR

31/12
HORIZONTAL ATTITUDE



PLOT PREPARED BY ASD/ENFDP

610333

DC1 -MAX PWR
OPT/MAX L/D

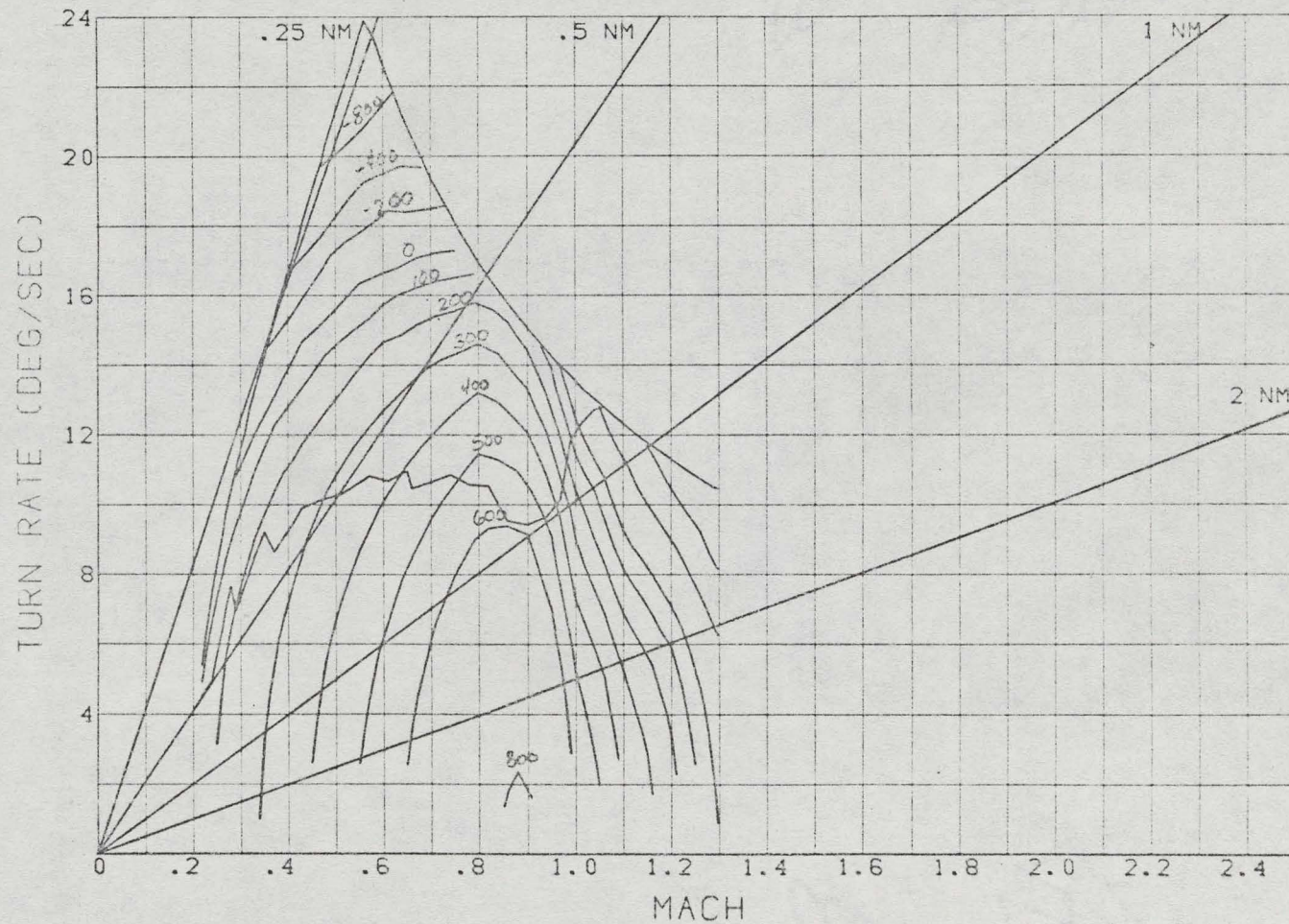
2-A-9

24092

31/12
HORIZONTAL ATTITUDE

MANEUVER DIAGRAM

ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFDP

610333

DC1 - MAX PWR
OPT/MAX L/D

2-4-9

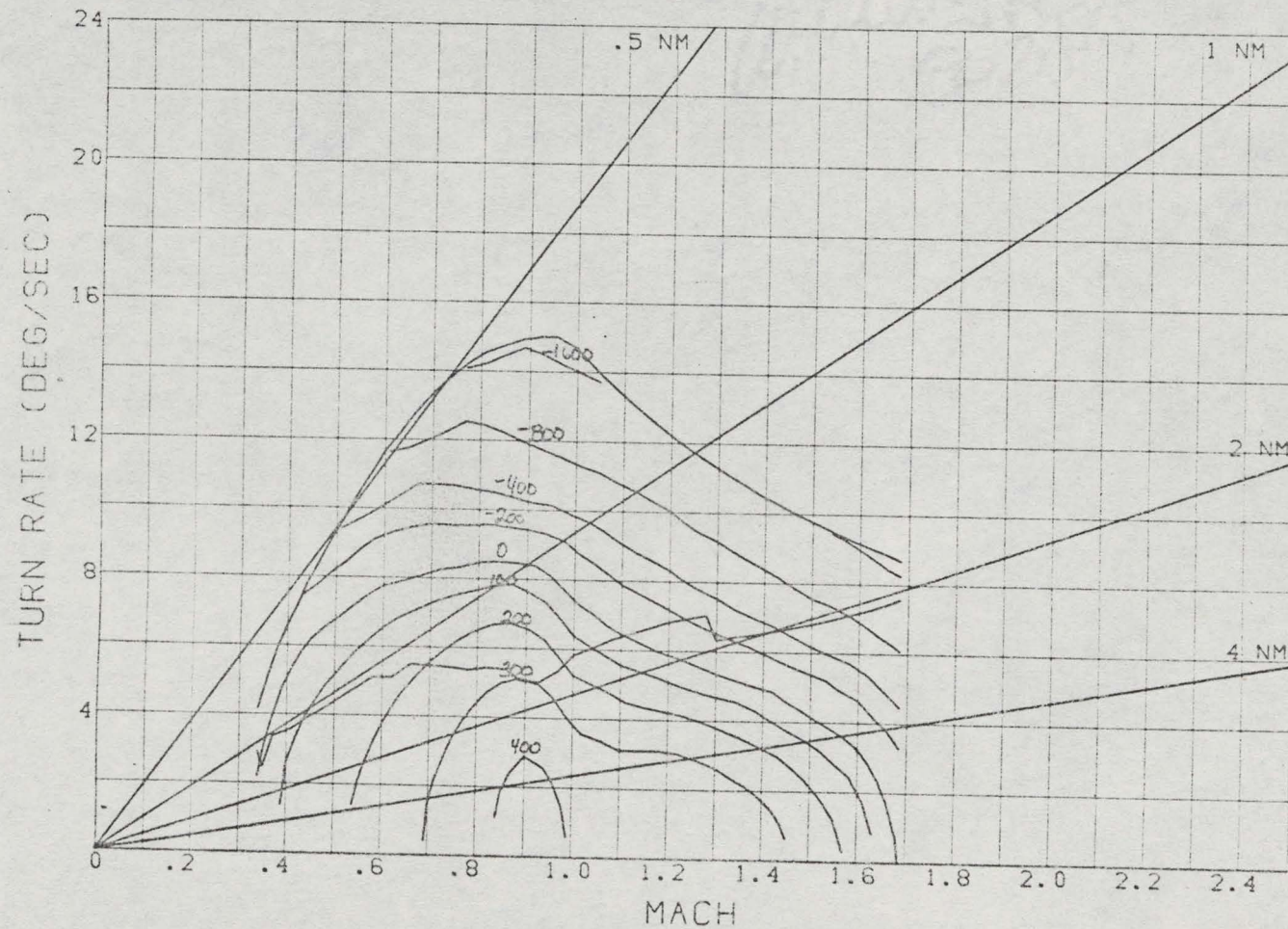
24092

31/12

HORIZONTAL ATTITUDE

MANEUVER DIAGRAM

ALTITUDE: 30000



PLOT PREPARED BY ASD/ENFOP

AIR BATTLE ARENA

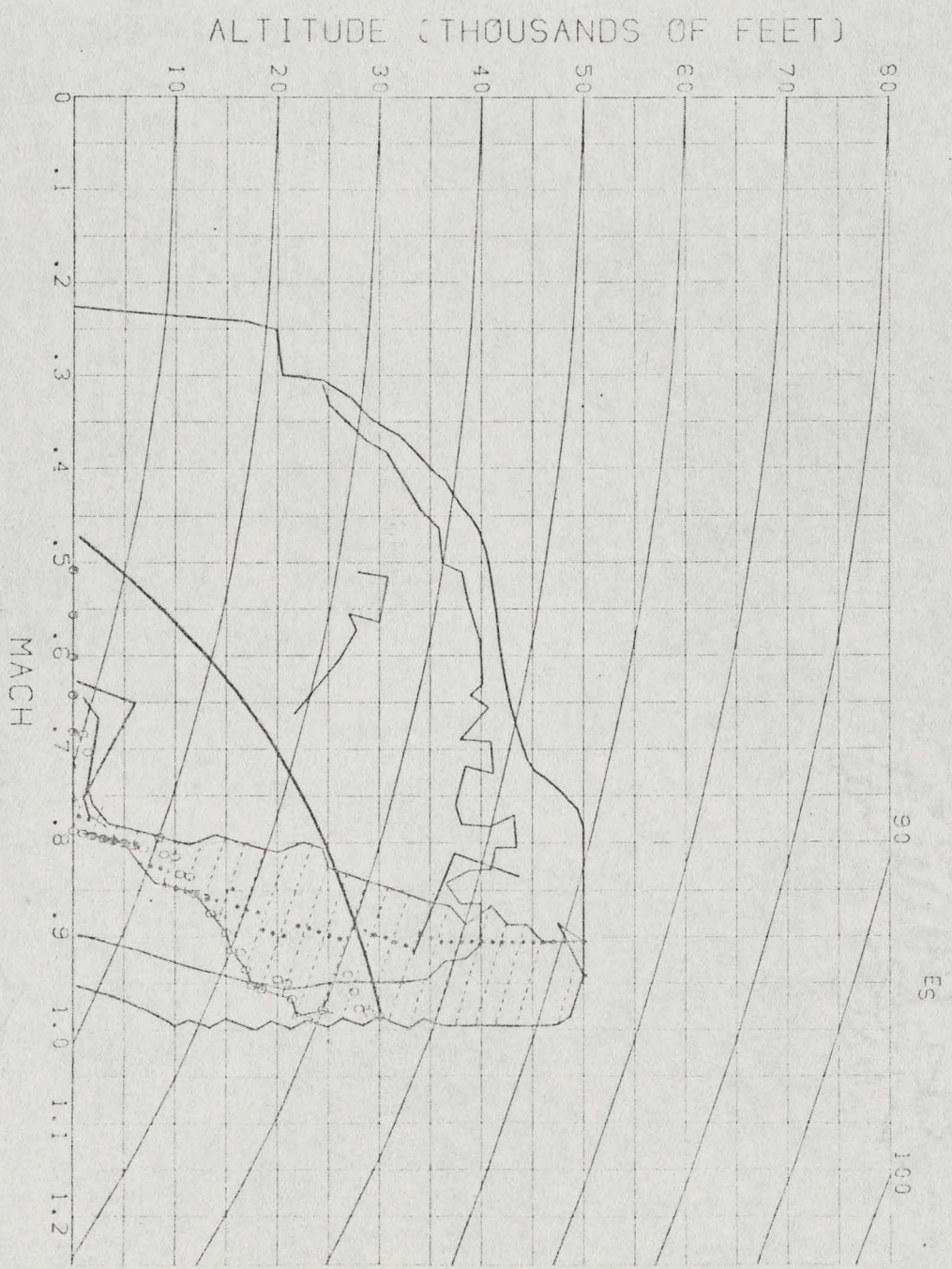
610333

DCI-MIL-PWR

1-4-9

24092

1-1-75



PLLOT PREPARED BY ASD/ENRDP

2-A-9
24092

1-1-75

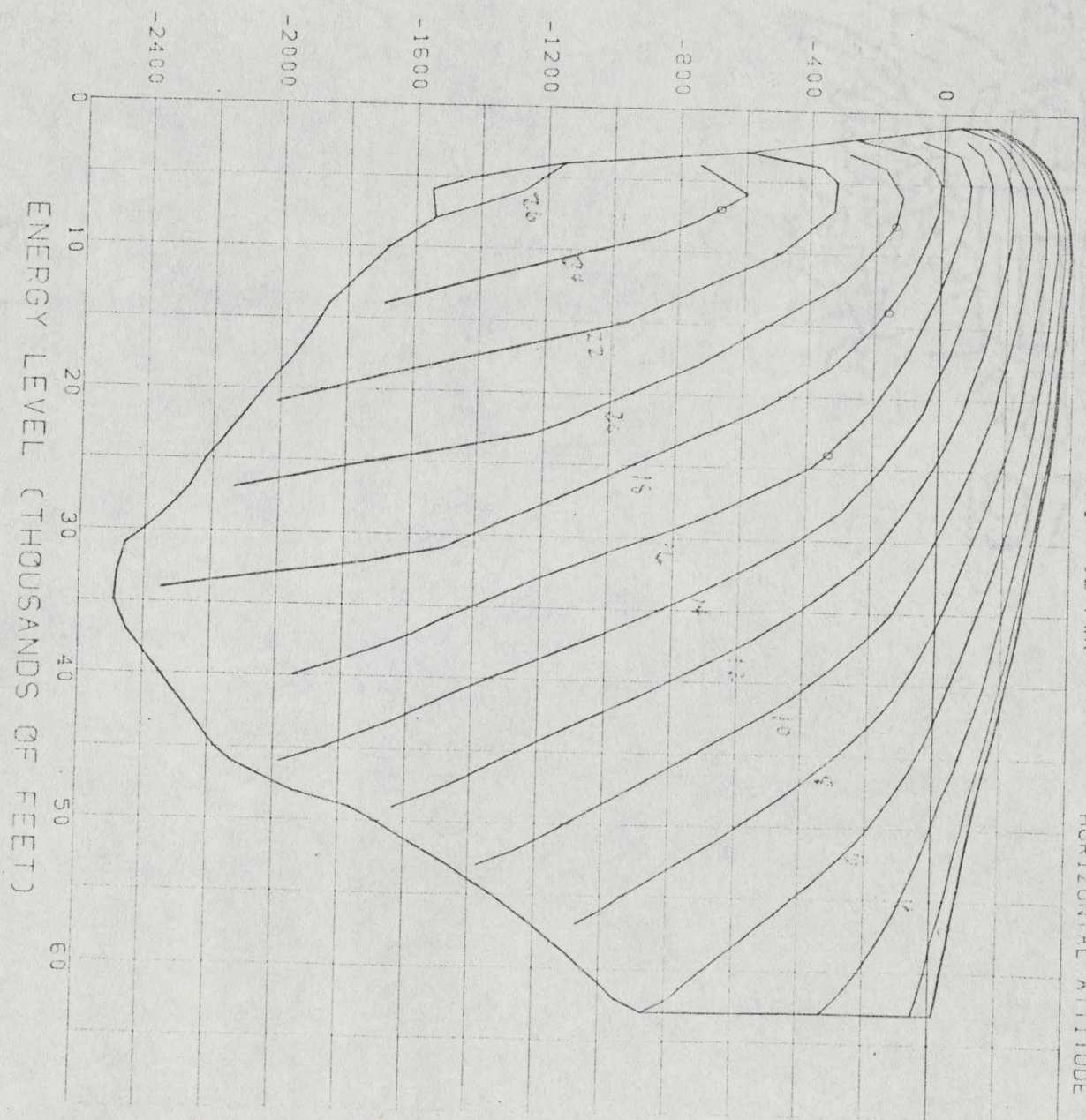
MAX MANEUVER DIAGRAM

DCI-MIL PWR

HORIZONTAL ALTITUDE

610333

ENERGY RATE (FT/SEC)



ENERGY LEVEL (THOUSANDS OF FEET)

PLOT PREPARED BY ASD/ENRDP

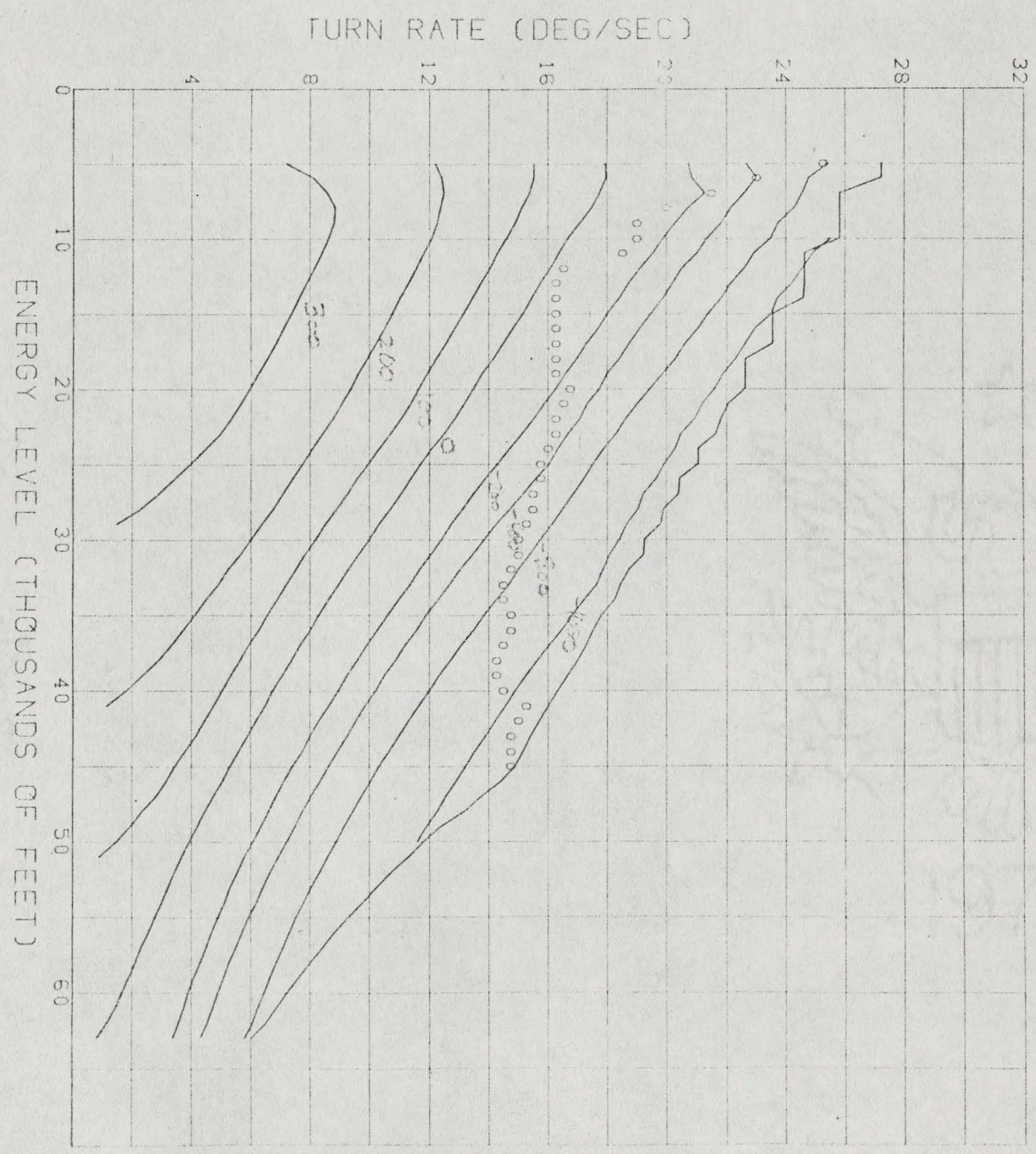
2-A-9
24022

1-1-75

MAX MANEUVER DIAGRAM DCI-MIL PWR

610333

HORIZONTAL ALTITUDE



PLOT PREPARED BY ASD/ENRDP

020000

2-A-9
2/092

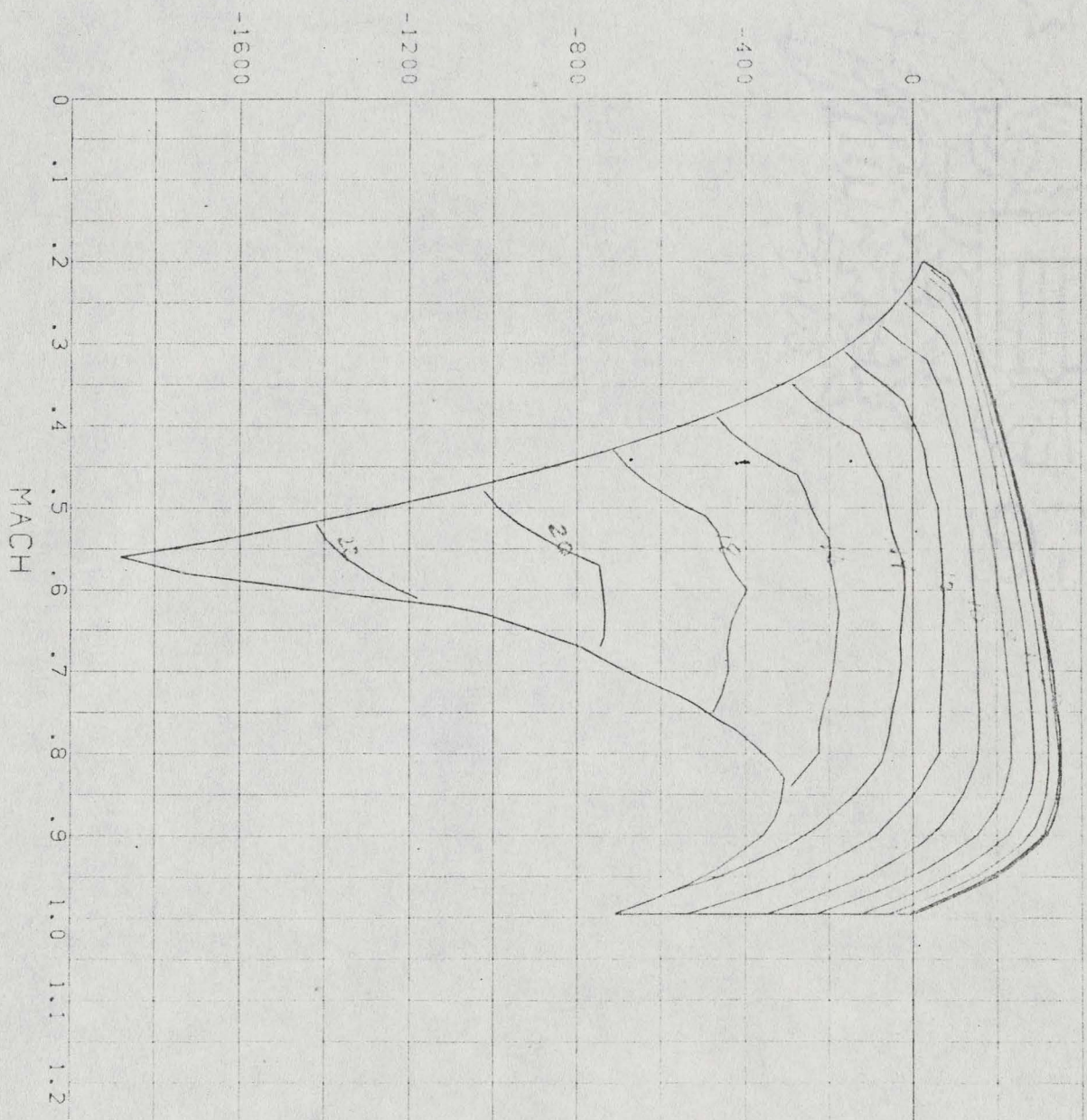
1-1-75

MANEUVER DIAGRAM
ALTITUDE 10000

610333
DC1-MIL PWR

HORIZONTAL ATTITUDE

ENERGY RATE (FT/SEC)



2-A-9
24092

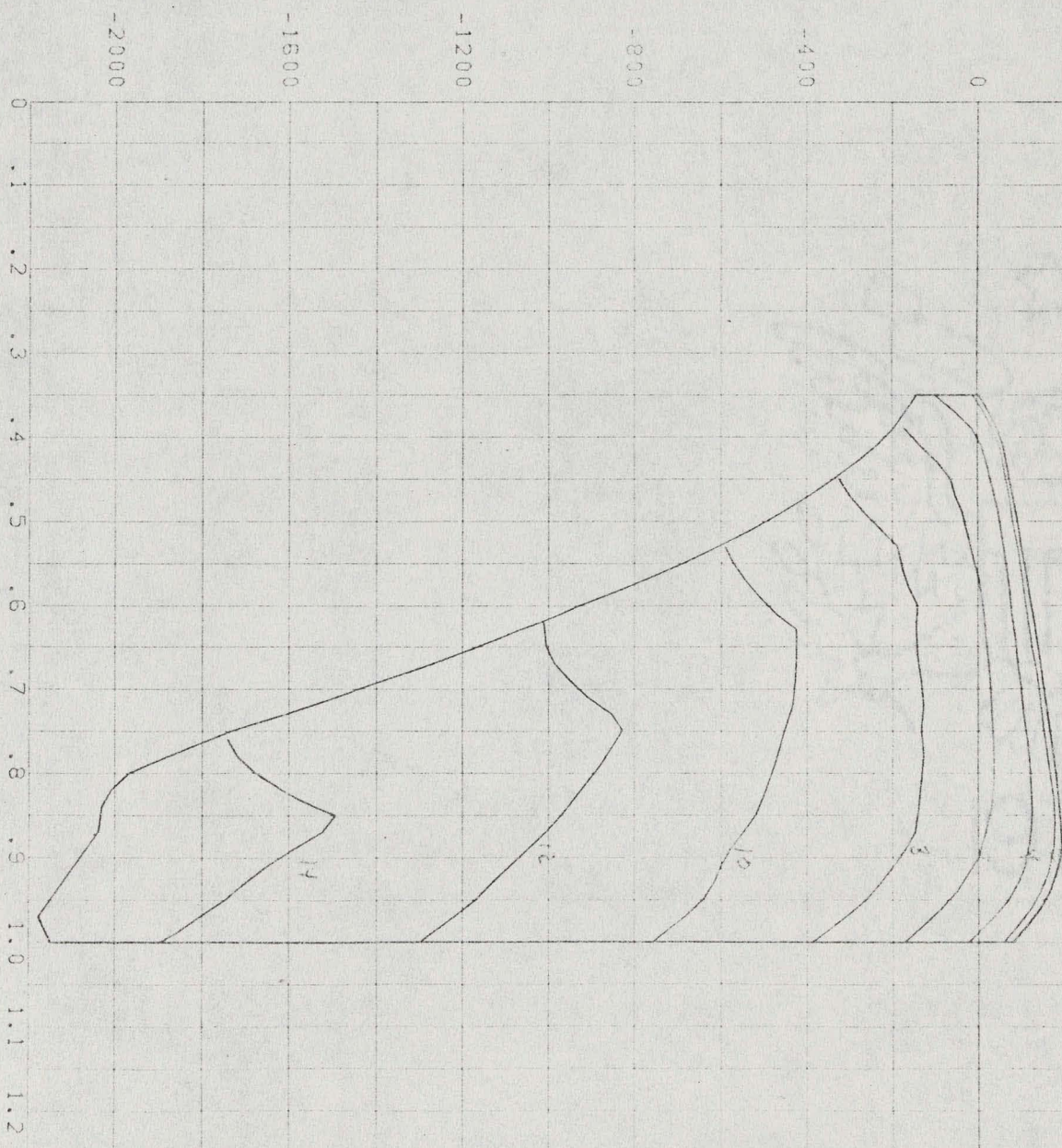
1-1-75

MANEUVER DIAGRAM
ALTITUDE 30000

610333
DC1-MIL PWR

HORIZONTAL ALTITUDE

ENERGY RATE (FT/SEC)



MACH

PLOT PREPARED BY ASD/ENFDP

00000

MANEUVER DIAGRAM
ALTITUDE: 10000

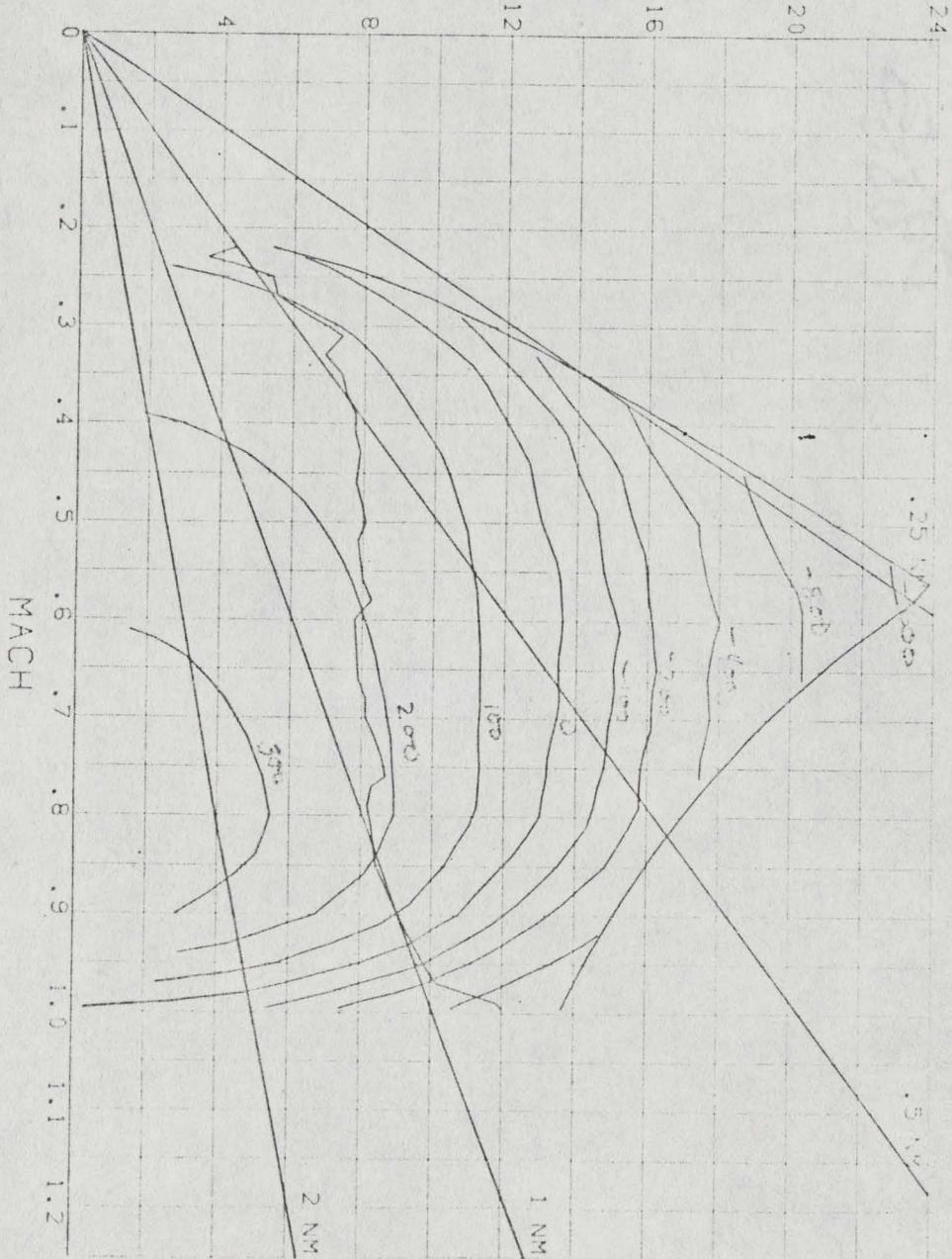
610333
DC1-MIL PWR
OPT/MAX L/D

2-A-9
21092

HORIZONTAL ALTITUDE

1-1-75

TURN RATE (DEG/SEC)



PLOT PREPARED BY ASD/ENFDP

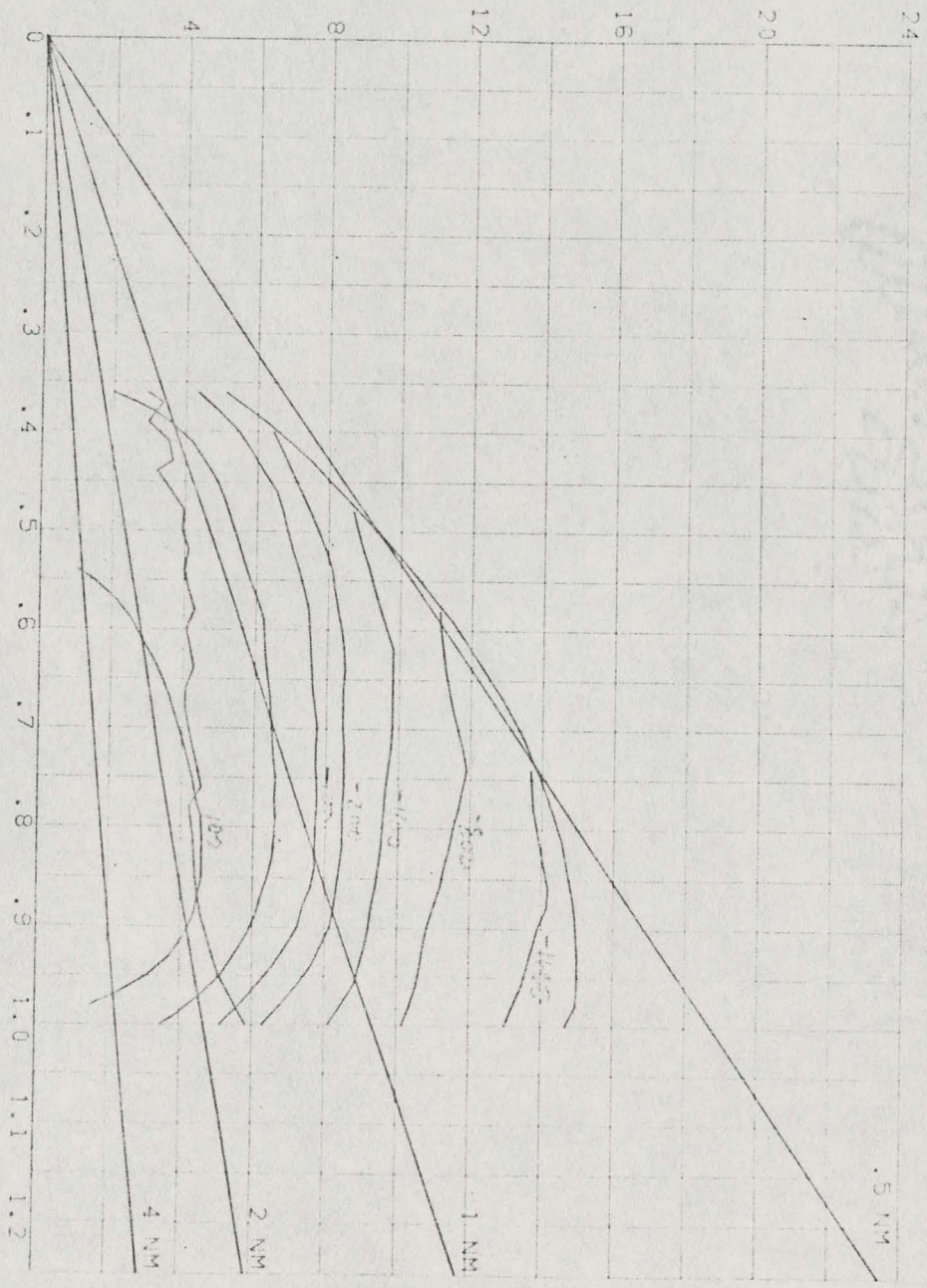
1-1-75

610333
DCI-MIL PWR
OPT/MAX L/D
2-4-9
04092

HORIZONTAL ALTITUDE

MANEUVER DIAGRAM
ALTITUDE: 30000

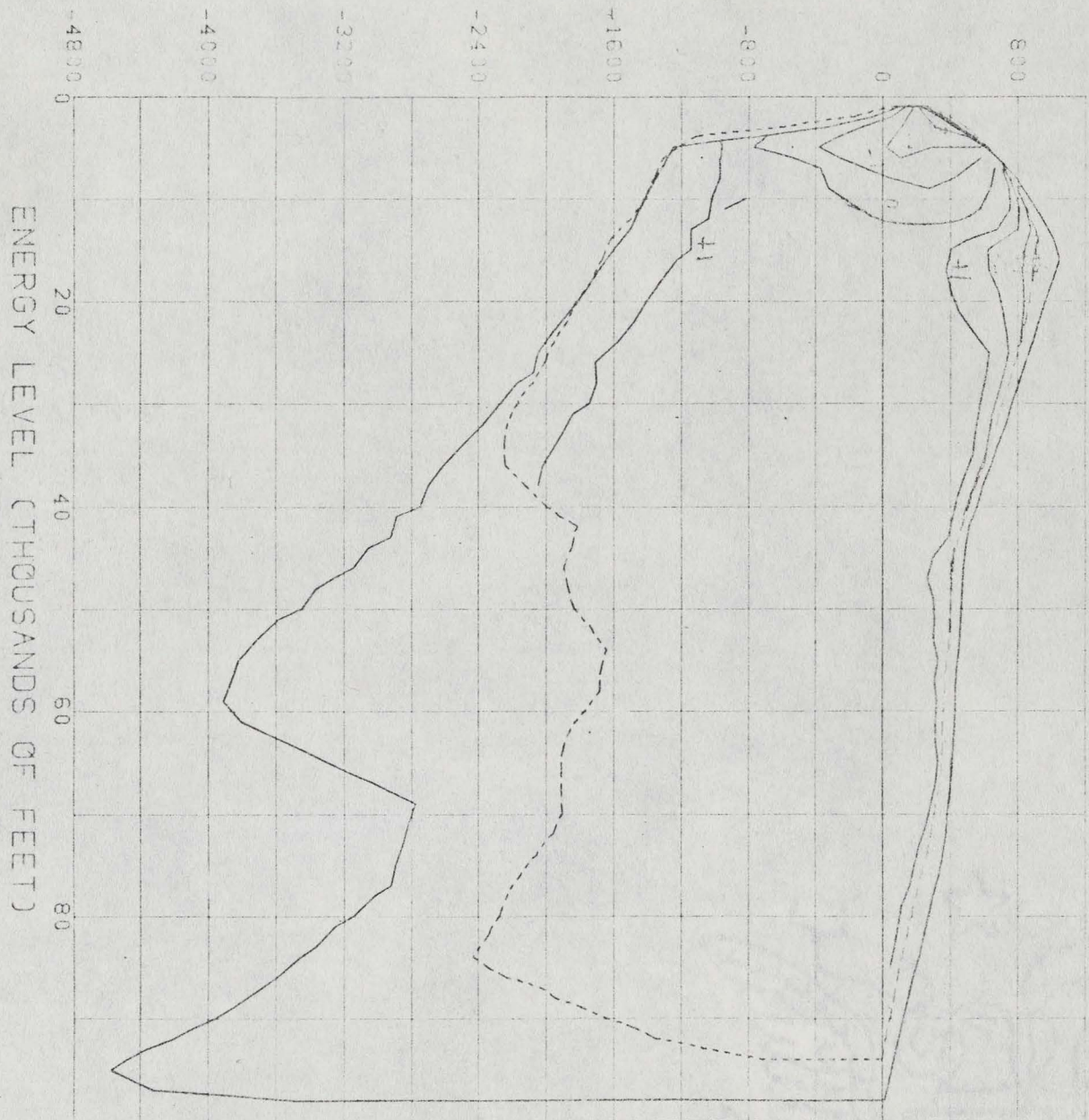
TURN RATE (DEG/SEC)



MACH

PLOT PREPARED BY ASD/ENFDP

ENERGY RATE (FT/SEC)



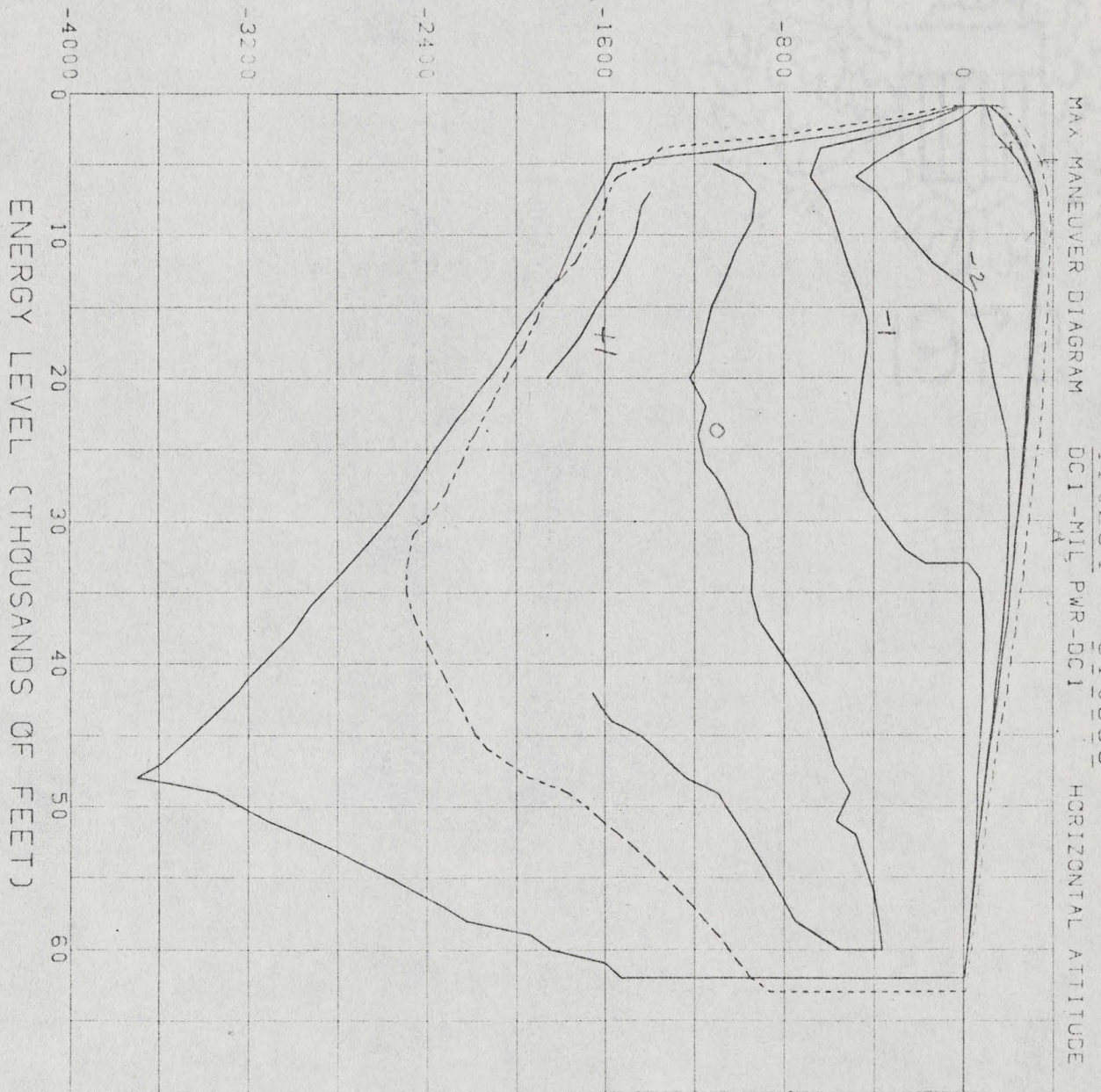
PLOT PREPARED BY ASD/ENFDP

1-1-75
2-A-9
410234 - 610333

HORIZONTAL ATTITUDE

410734 - 610333

ENERGY RATE (FT/SEC)



ENERGY RATE (FT/SEC)

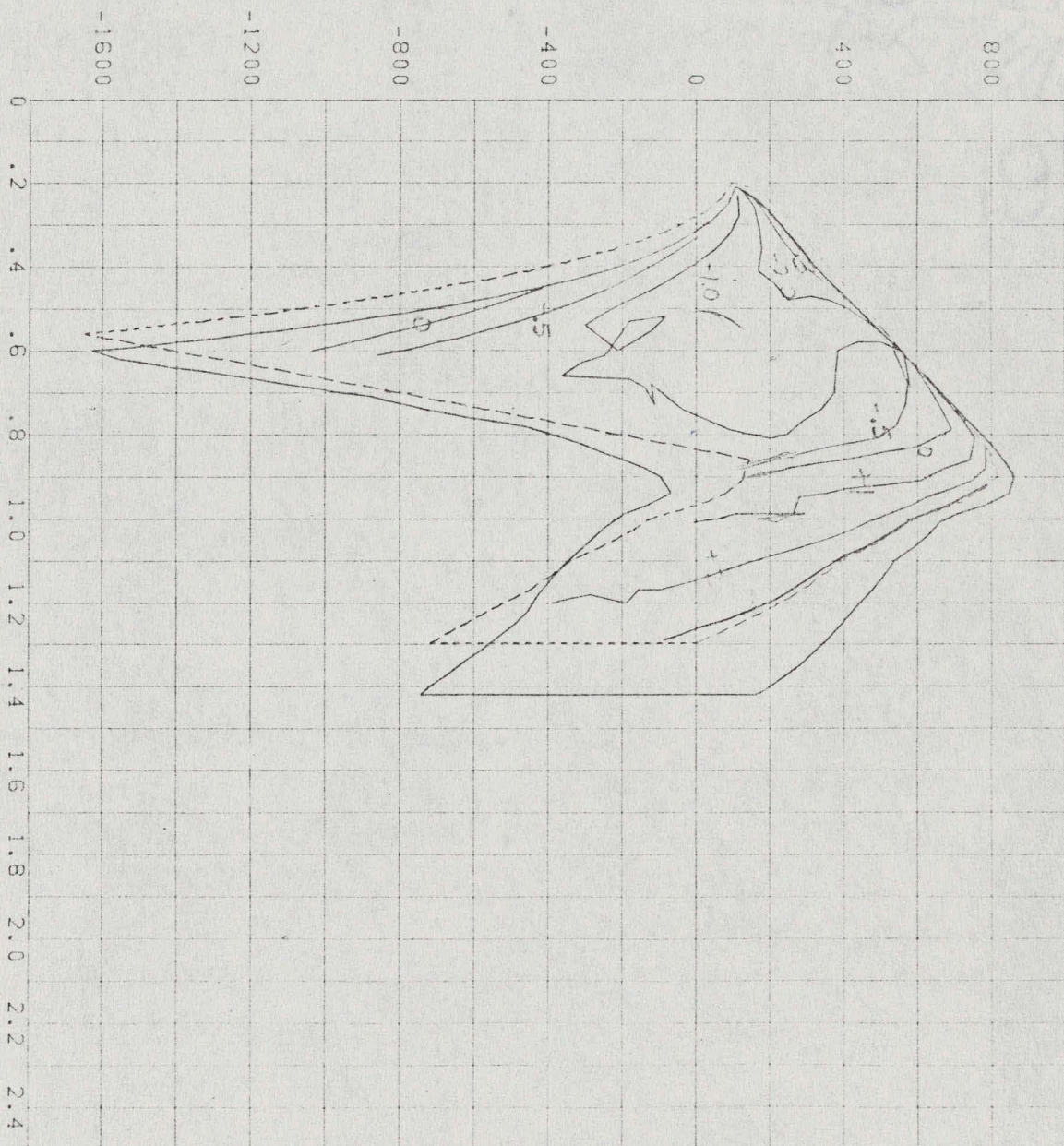
MANEUVER DIAGRAM
ALTITUDE 10000

410234 - 610333
DC1 - MAX PWR-DC1

2-A-9
19249

2-A-9
24072

1-1-75



2-A-7
14249

2-A-7
24092

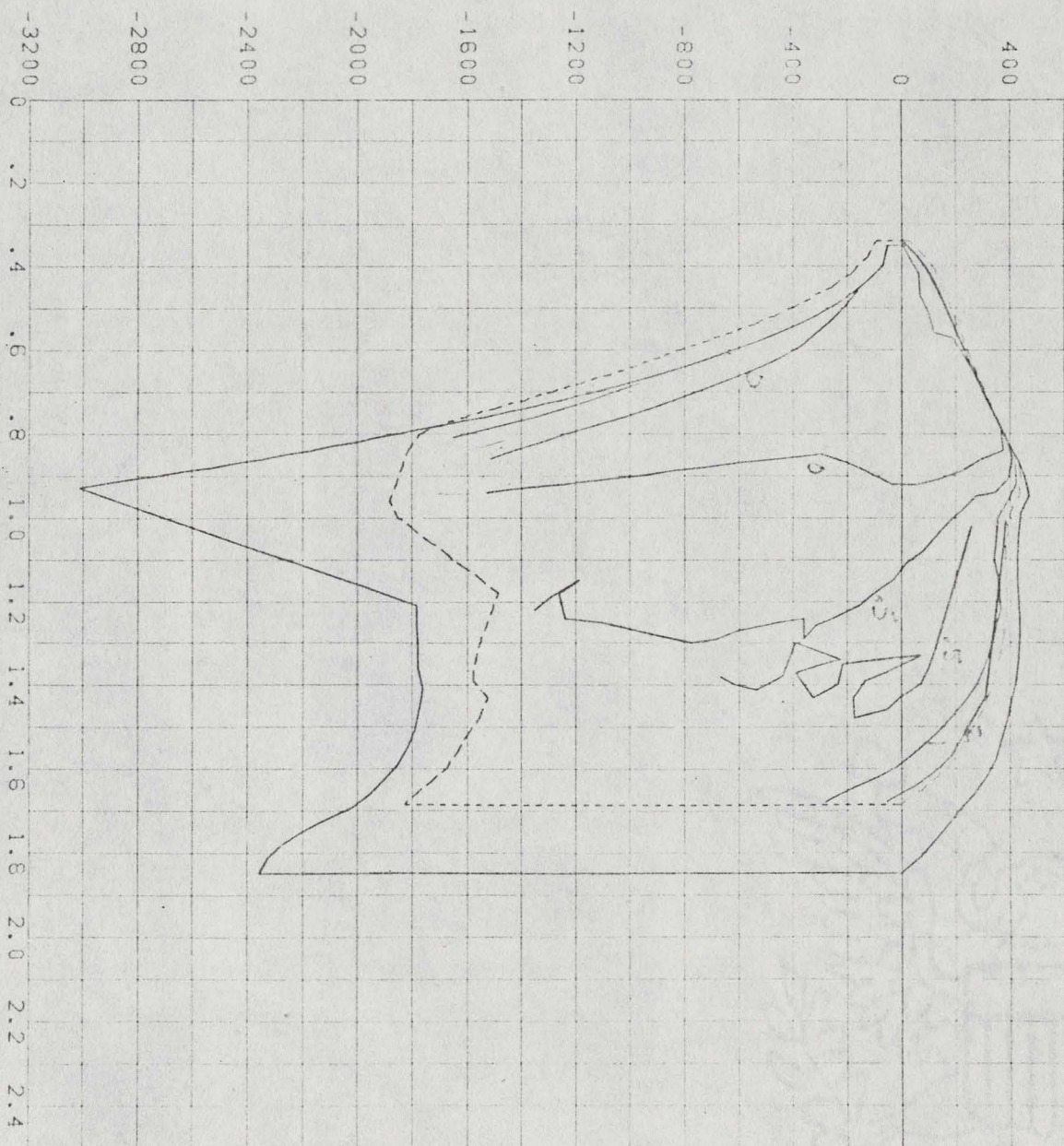
1-1-75

MANEUVER DIAGRAM
ALTITUDE 30000

410234 - 610333
DC1-MAX PWR-DC1

HORIZONTAL ALTITUDE

ENERGY RATE (FT/SEC)



MACH

PLOT PREPARED BY ASD/ENFDP

1972

MANEUVER DIAGRAM ALTITUDE: 10000

$$\Delta PS = \frac{410234}{610333}$$

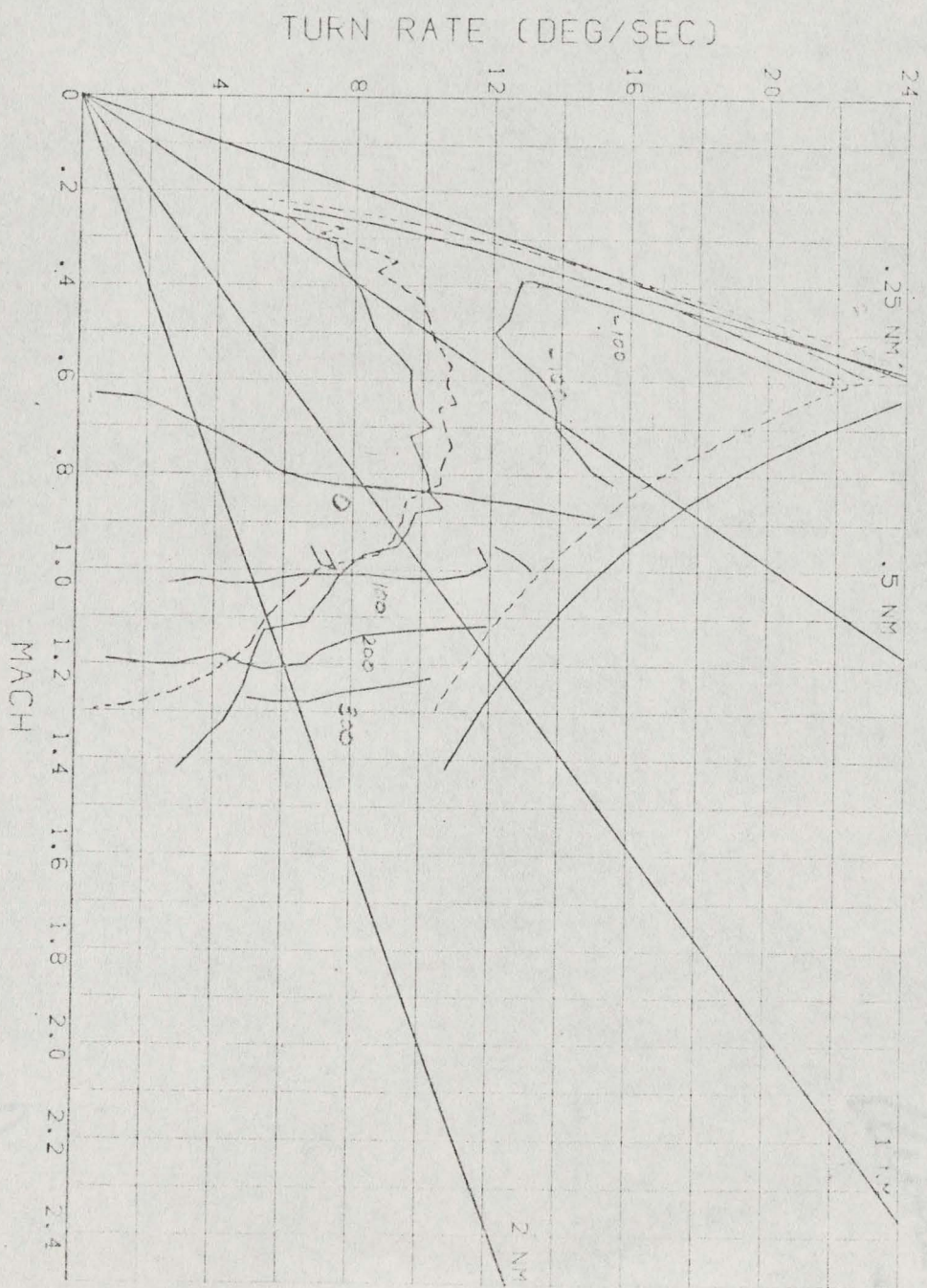
DC1-MAX PWR-DC1
OPT L/D

2-4-9
14249

2-4-9
24072

HORIZONTAL ALTITUDE

1-1-15



00000

1-1-75

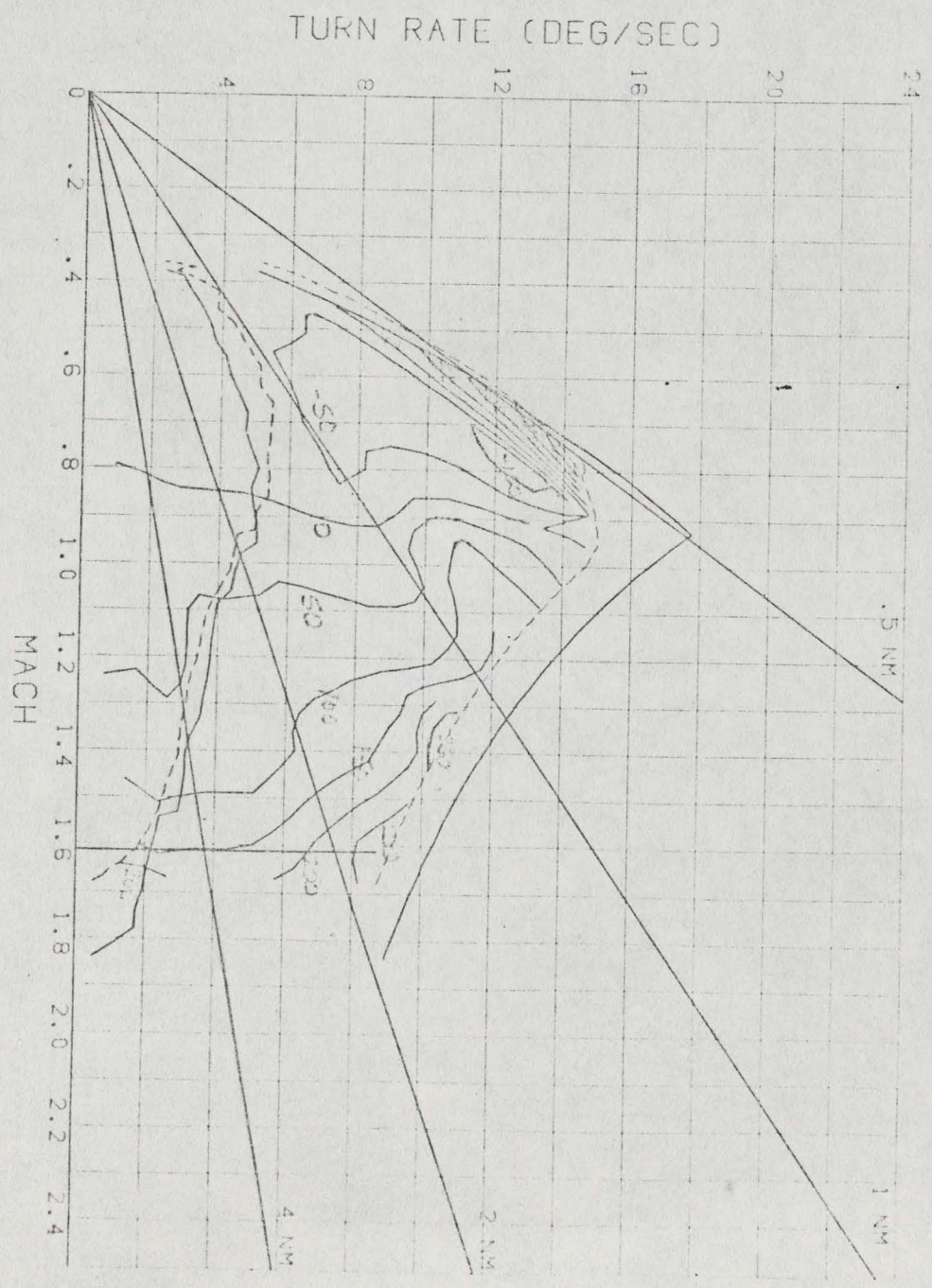
APS = 410234 - 610333

DC1 -MAX PWR-DC1
OPT L/D

HORIZONTAL ALTITUDE

2-A-9 10249
2-A-9 24092

MANEUVER DIAGRAM
ALTITUDE: 30000



PLOT PREPARED BY ASD/ENDP

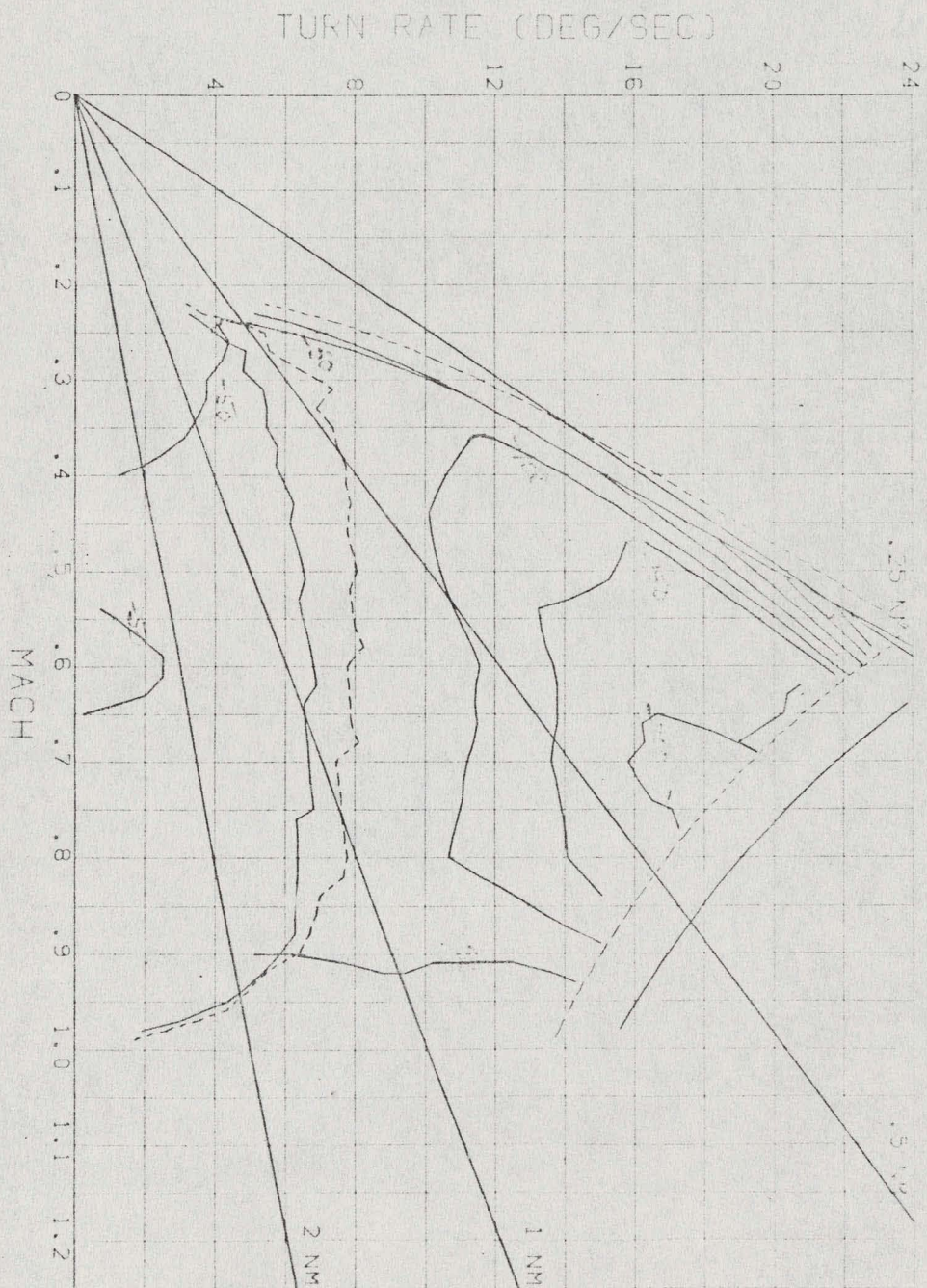
ΔPS = 410234 - 610333

DC1 -MIL PWR-DC1 HORIZONTAL ALTITUDE

OPT L/D 2-A-9

1749 2400

MANEUVER DIAGRAM
ALTITUDE: 10000



$\Delta PS = 410234 - 610333$

DC1-MIL PWR-DC1
OPT L/D

HORIZONTAL ALTITUDE

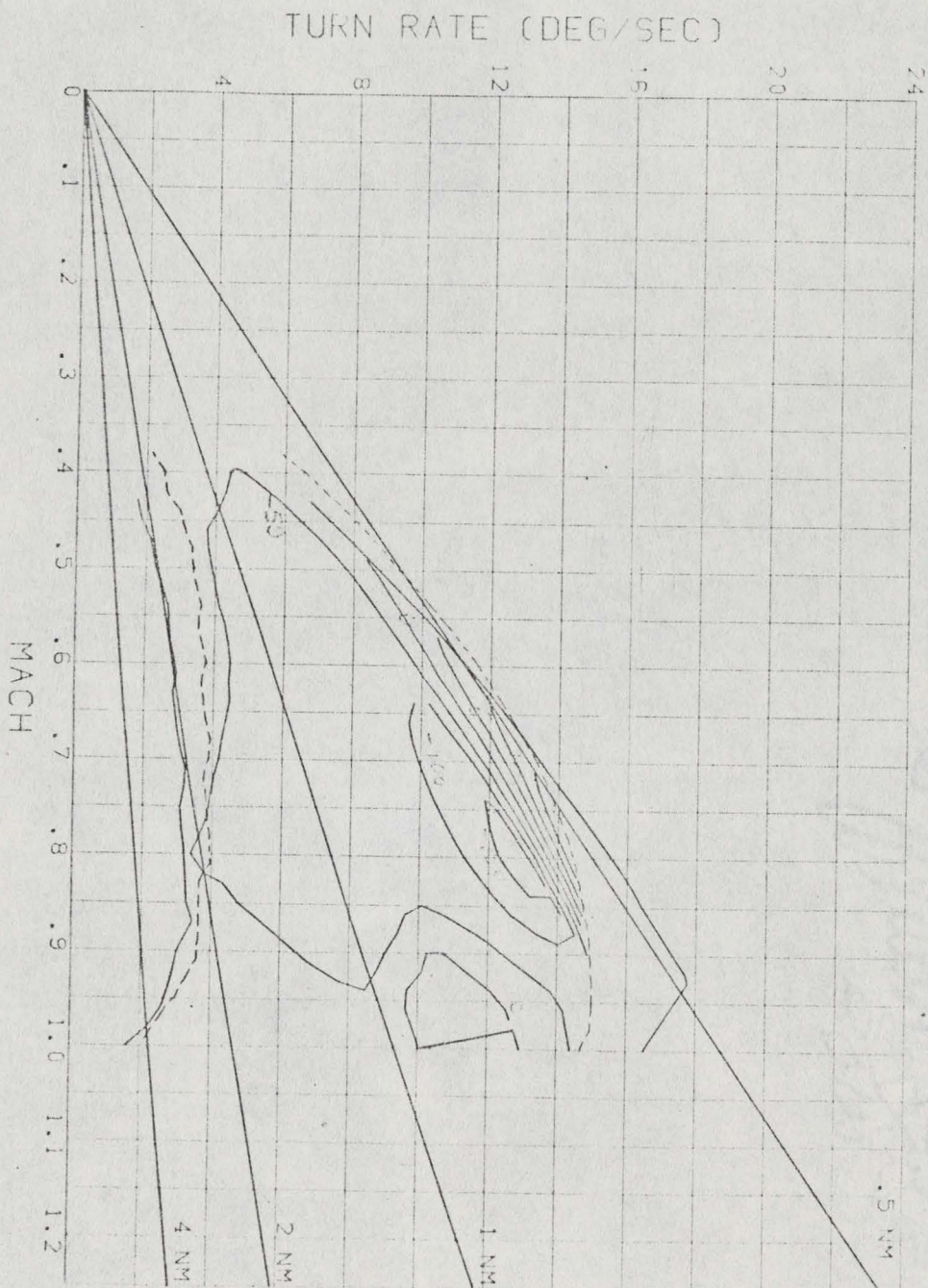
2-A-9

2-A-9

11249

24092

MANEUVER DIAGRAM
ALTITUDE: 30000



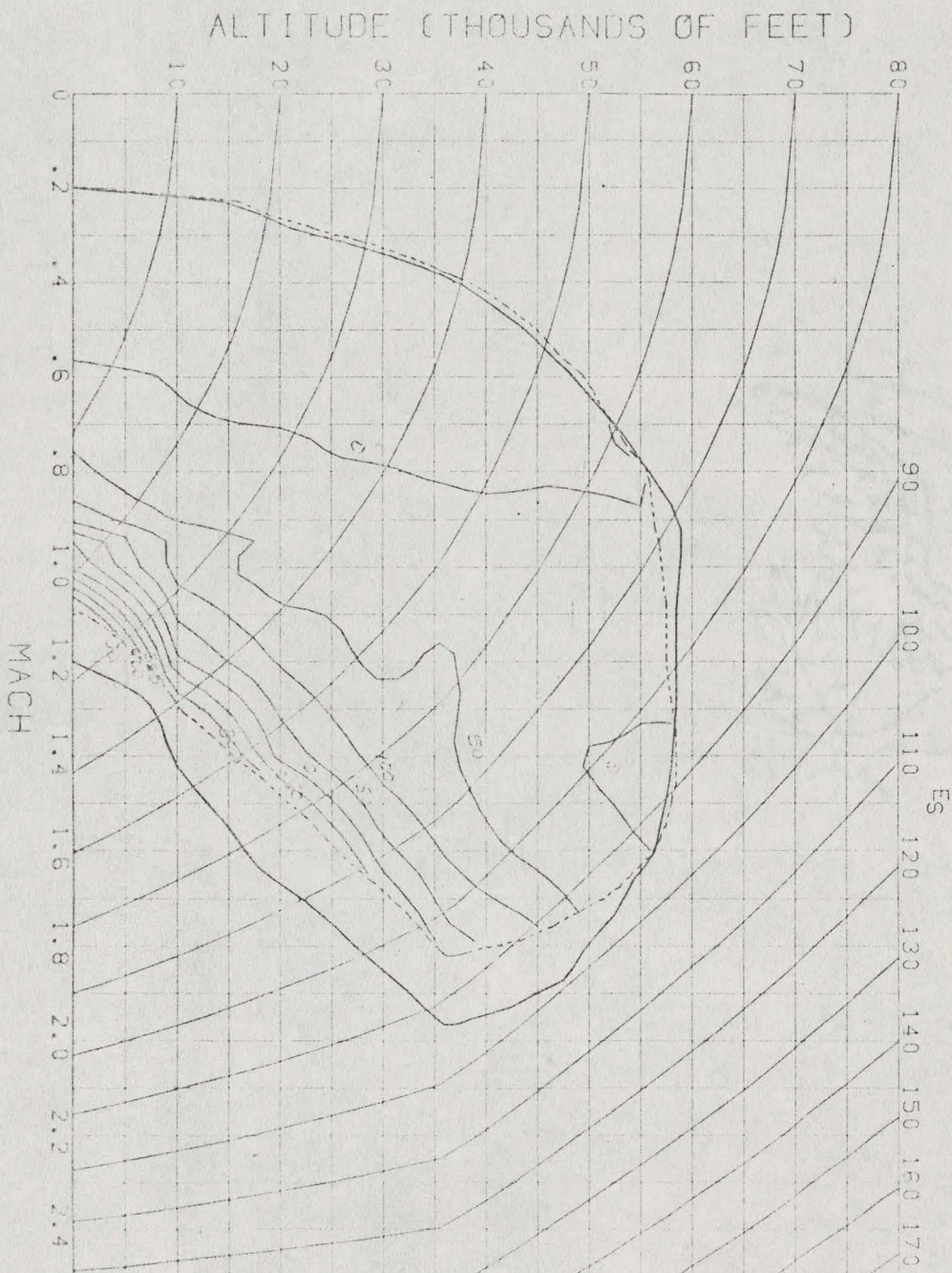
DPS 410234 -610333

MAXIMUM POWER

D/C 1
2-4-1
19243
24051

1-1-75

1.006 DIAGRAM



PLOT PREPARED BY ASD/ENRDP

410234 - 610333

MAXIMUM POWER

D/C 1 D/C 1

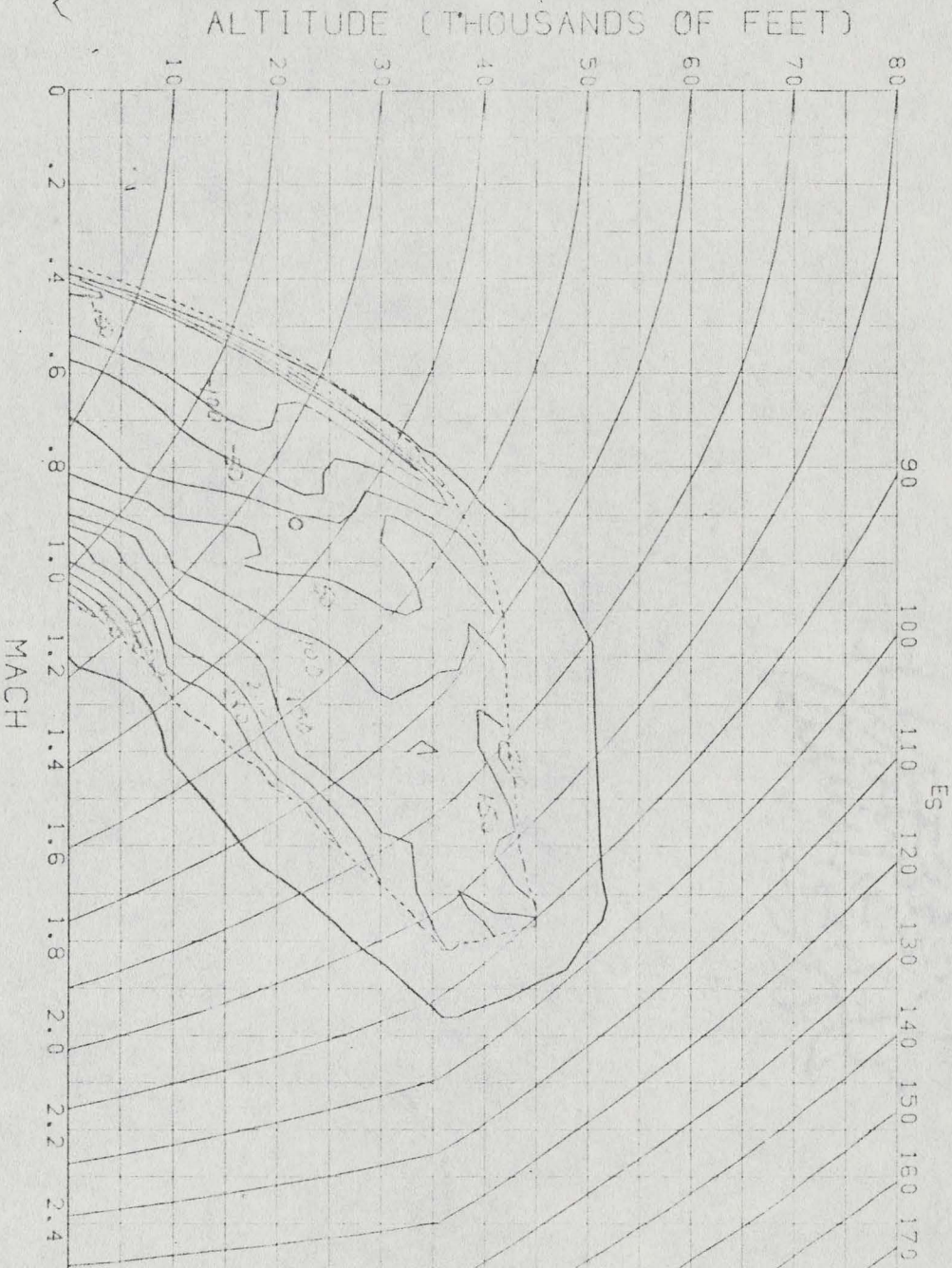
2-1-9 2-1-9

1925

4304

1-1-75

5.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

7.006 DIAGRAM

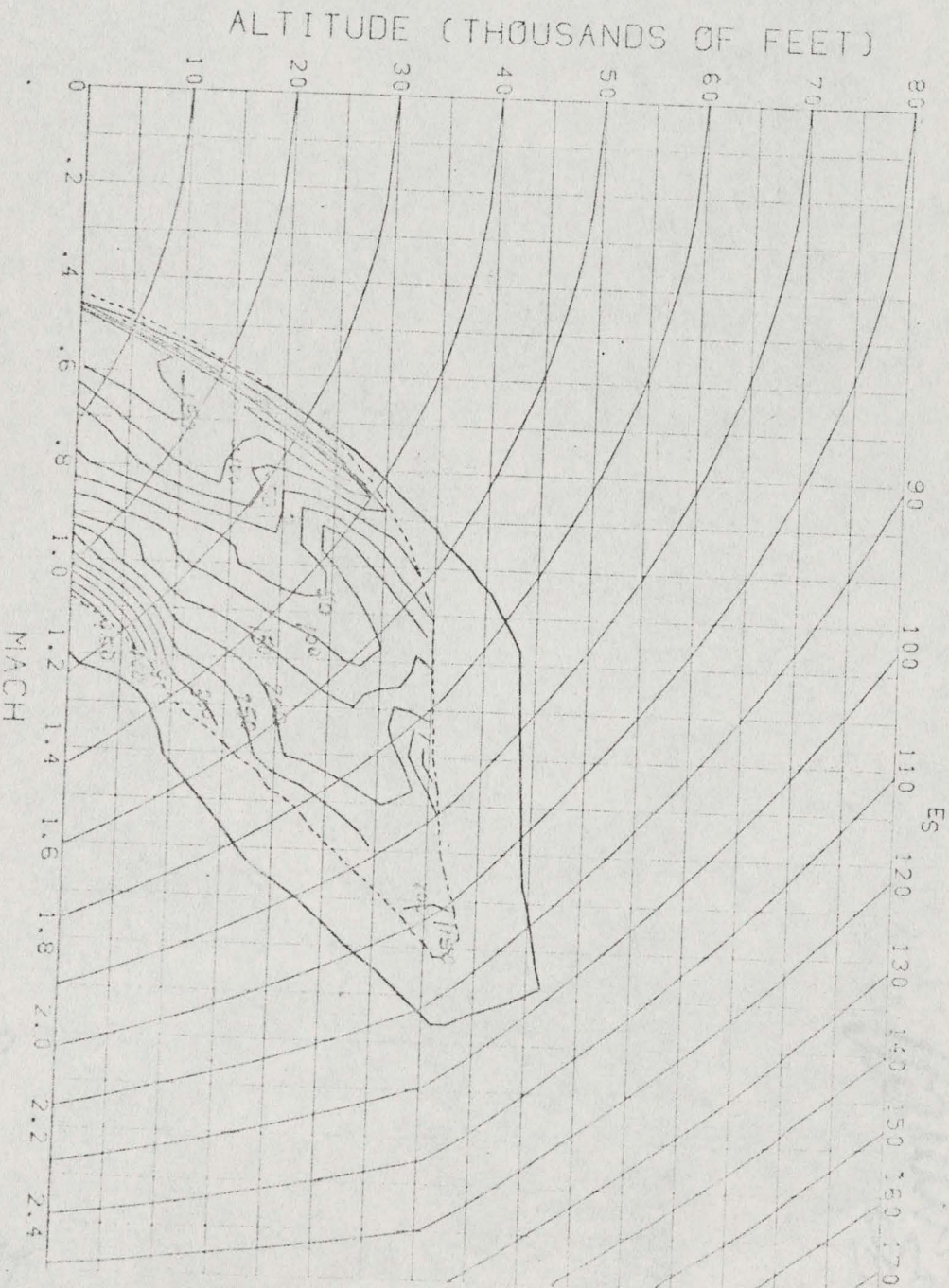
DPS 410234 -610333

MAXIMUM POWER

D/C 1 D/C 1

2-A-9 2-A-9

19243 24054



24346 17249

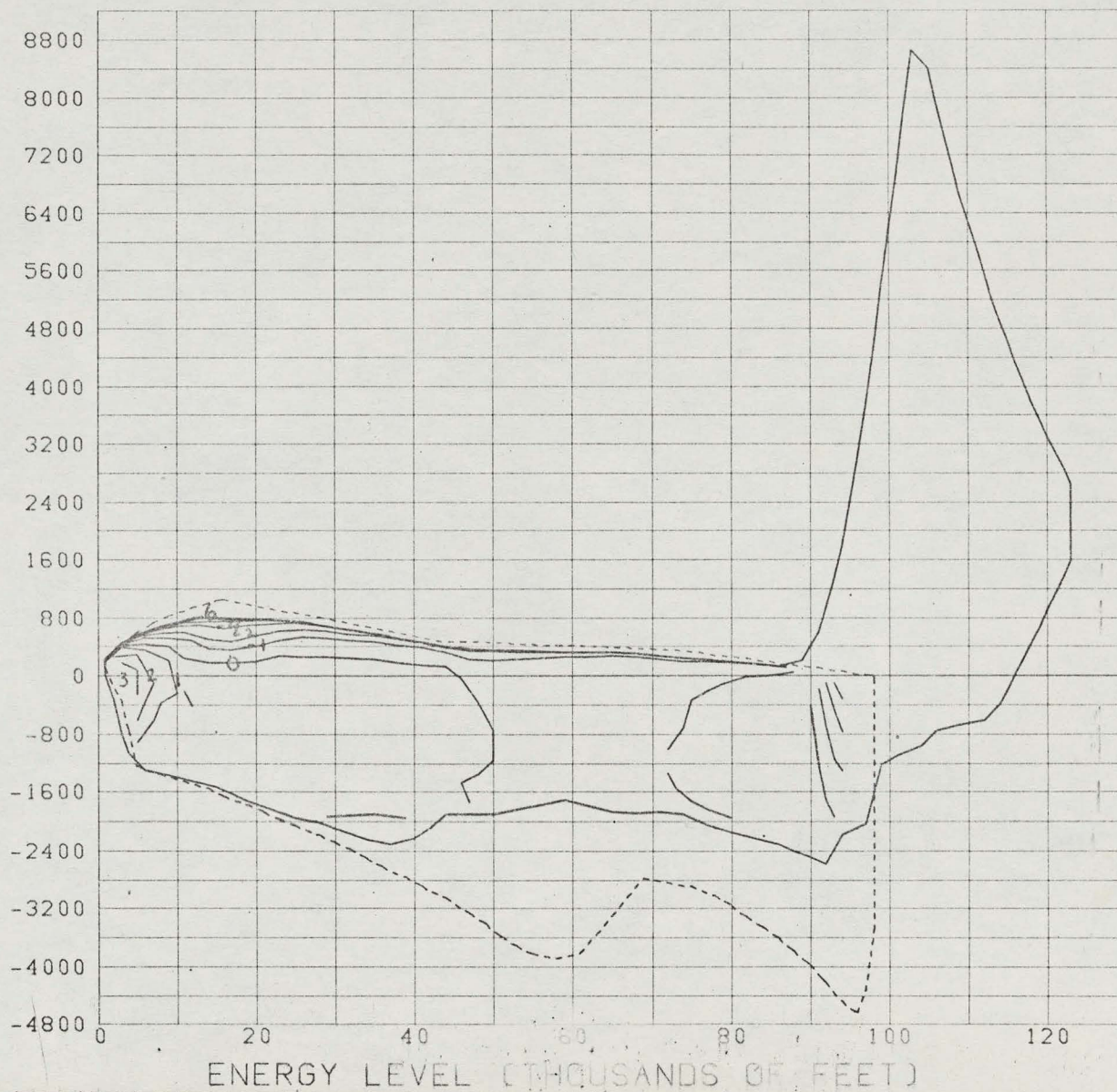
610ECJ - 410234

MAX MANEUVER DIAGRAM

DC 1 - MAX PWR - DC 1

HORIZONTAL ATTITUDE

ENERGY RATE (FT/SEC)



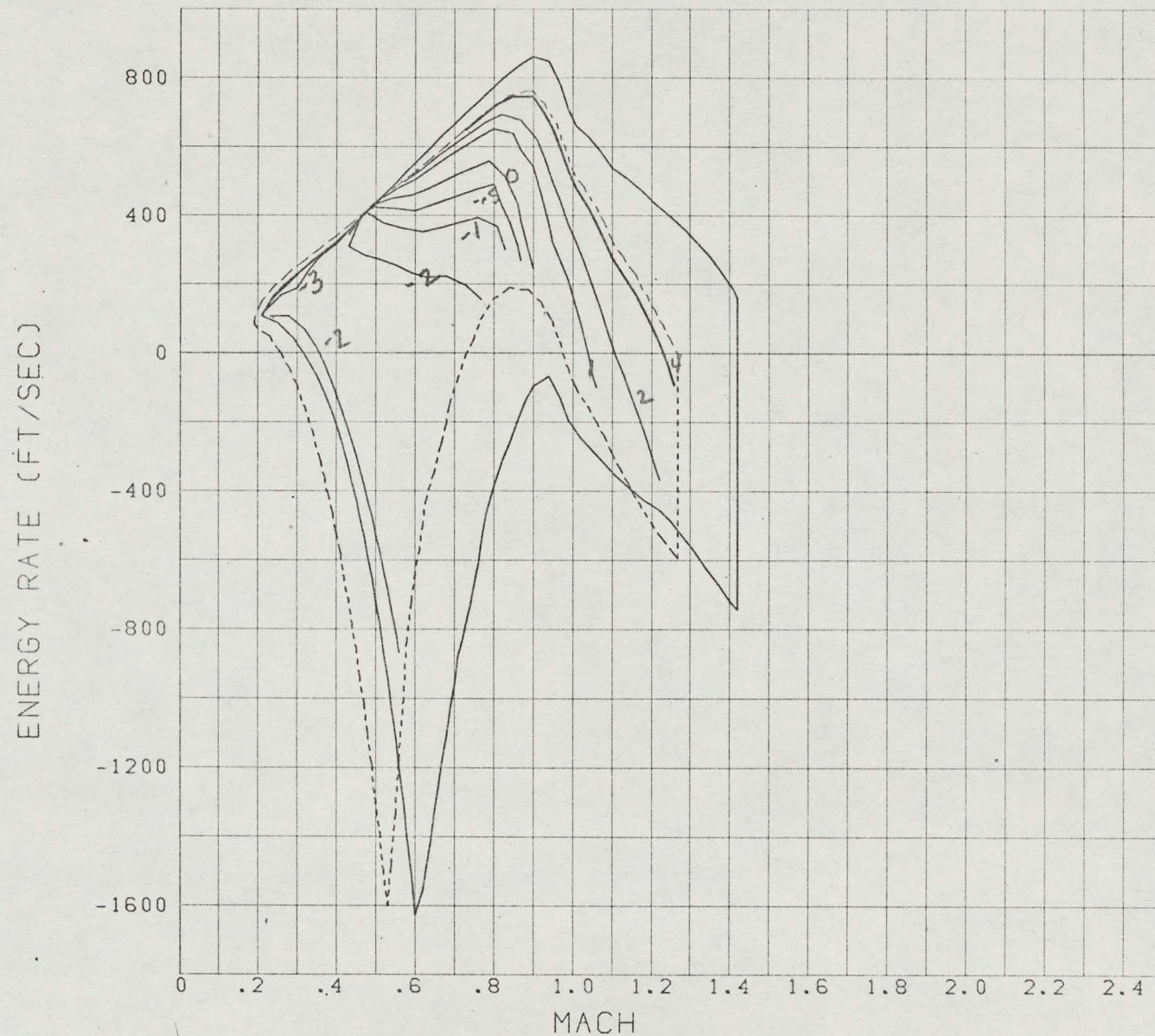
ENERGY LEVEL (THOUSANDS OF FEET)

19249 24346

JAN 10 1979

MANEUVER DIAGRAM
ALTITUDE 10000

410234 - 610ECJ
DC 1 -MAX PWR-DC 1



PLOT PREPARED BY ASD/ENFDP

JAN 10 1975

19249

24346

MANEUVER DIAGRAM

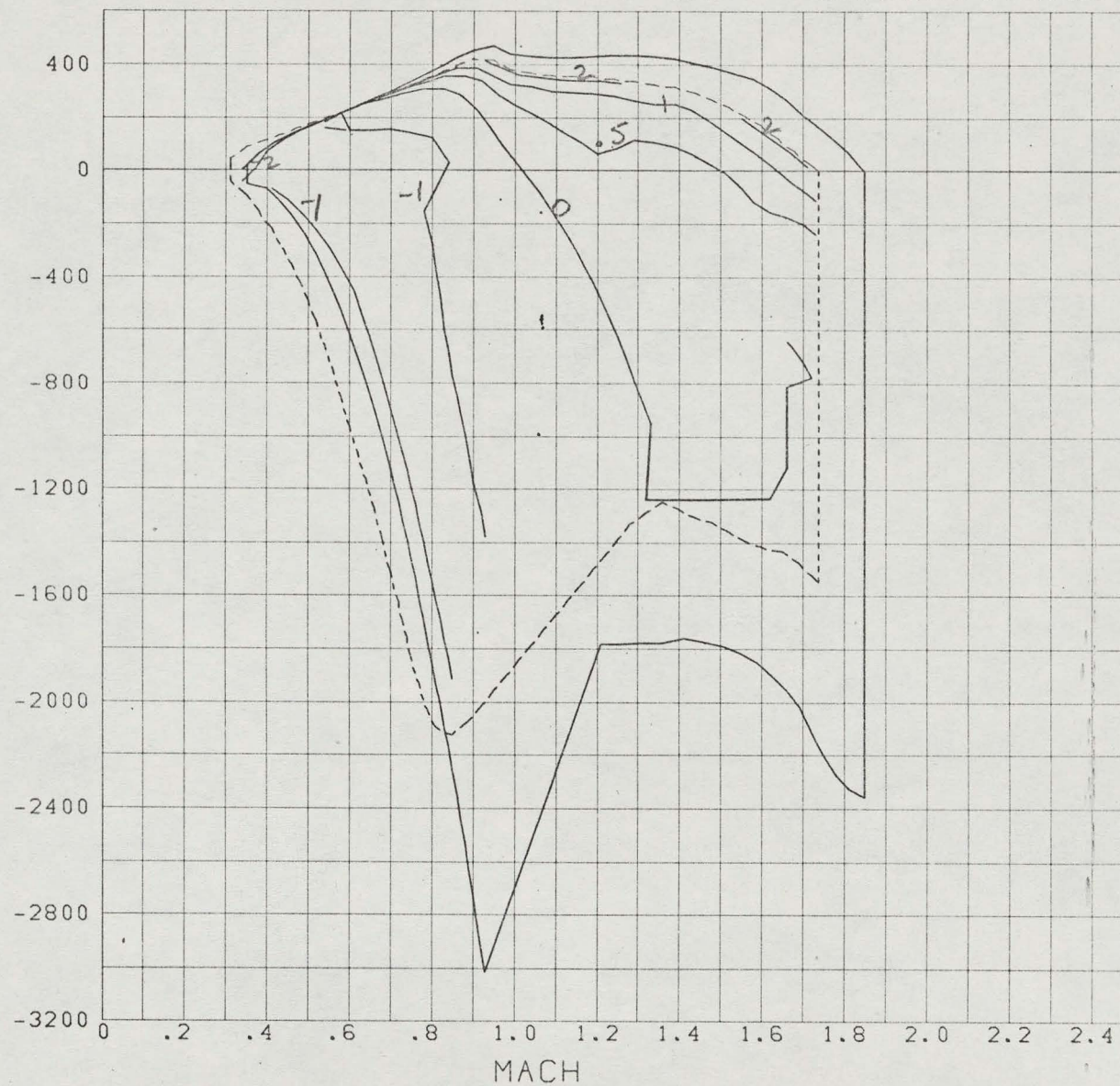
410234 - 610ECJ

ALTITUDE 30000

DC 1 -MAX PWR-DC 1

HORIZONTAL ATTITUDE

ENERGY RATE (FT/SEC)



$$\Delta PS = \frac{610ECJ}{DC1 - MAX} - \frac{410234}{OPT L/D}$$

PWR-DC1

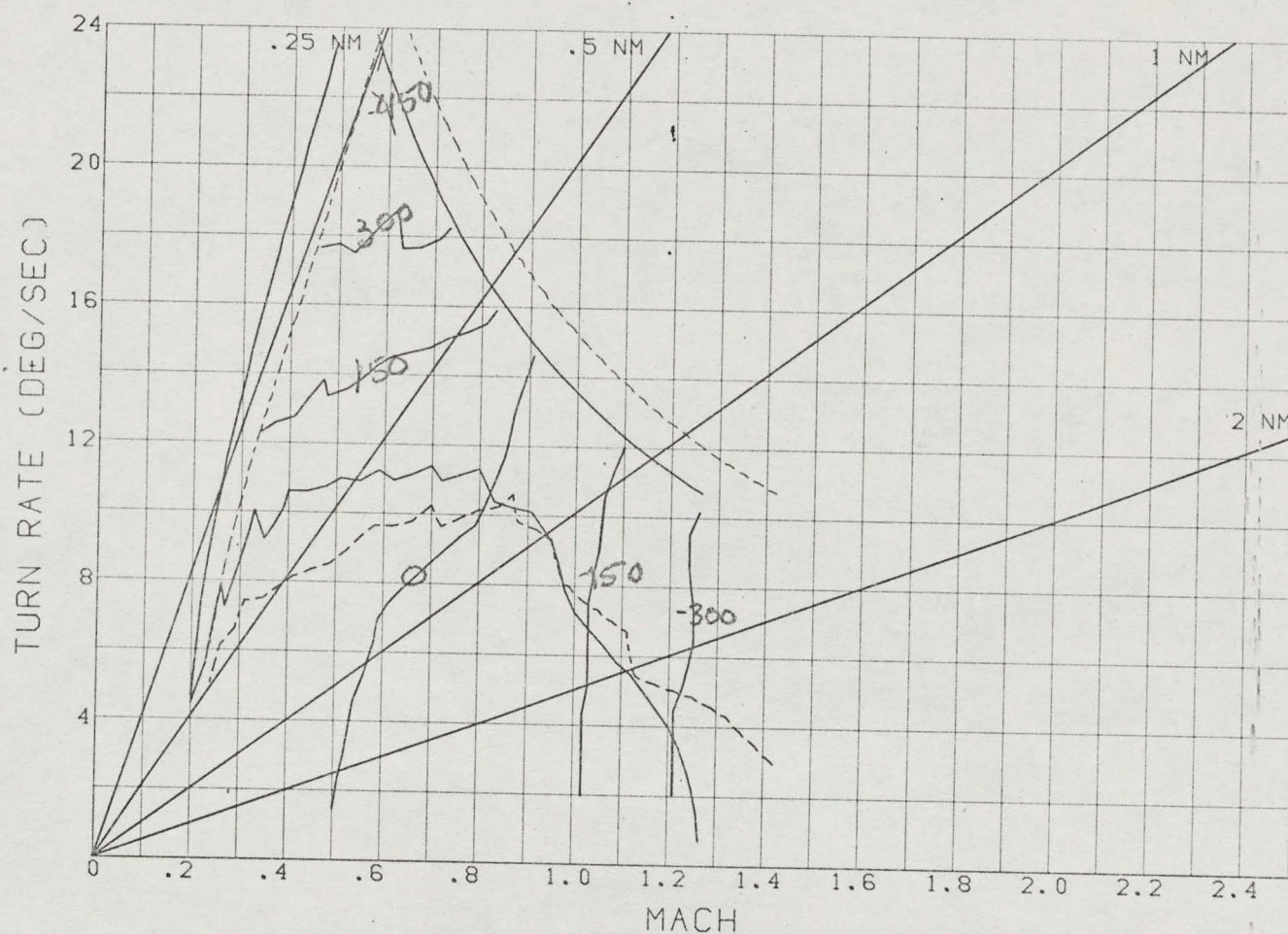
HORIZONTAL ATTITUDE

24346 : 19249

JAN 10 1975

MANEUVER DIAGRAM

ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFDP

$$\Delta PS = \frac{610ECJ}{DC1 - MAX PWR - DC1} - \frac{410234}{OPT L/D}$$

DC1 - MAX PWR - DC1
OPT L/D

HORIZONTAL ATTITUDE

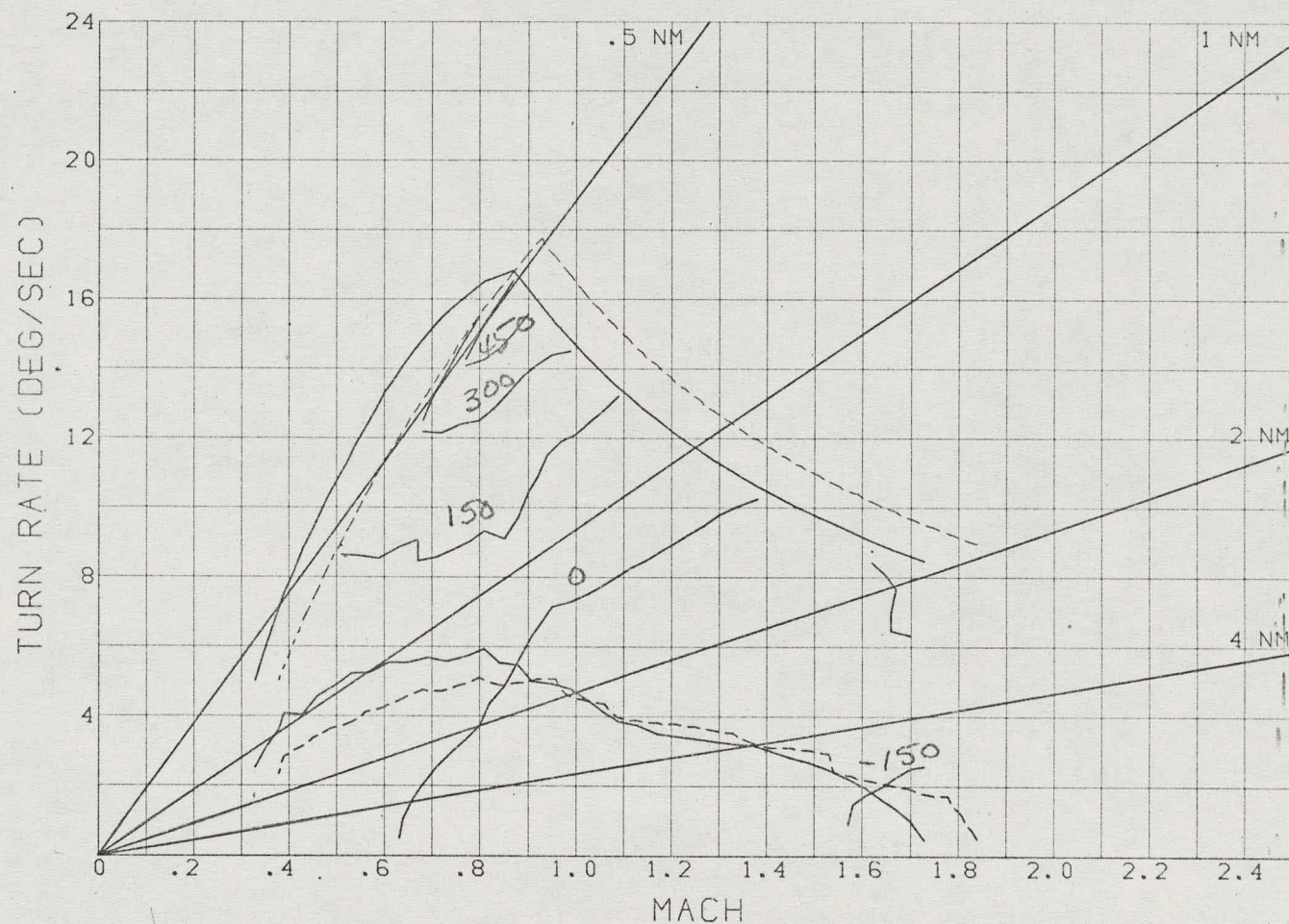
24346

19249

JAN 10 1975

MANEUVER DIAGRAM

ALTITUDE: 30000



PLOT PREPARED BY ASD/ENFDP

DPS 610ECJ -410234

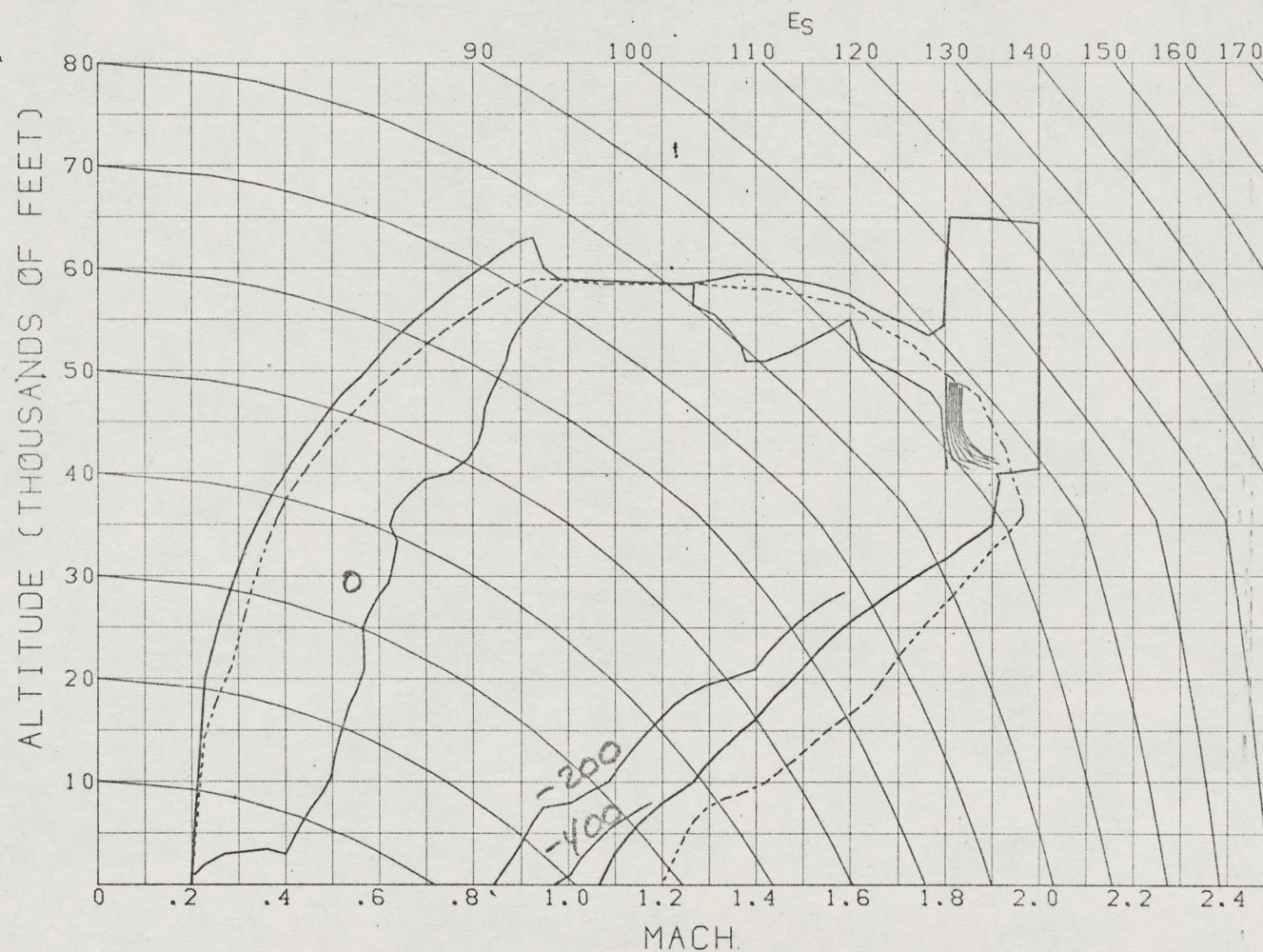
MAXIMUM POWER

D/C 1 D/C 1

24316 19243

1.00 G DIAGRAM

JUN 10 1975



DPS 610ECJ -410234

MAXIMUM POWER

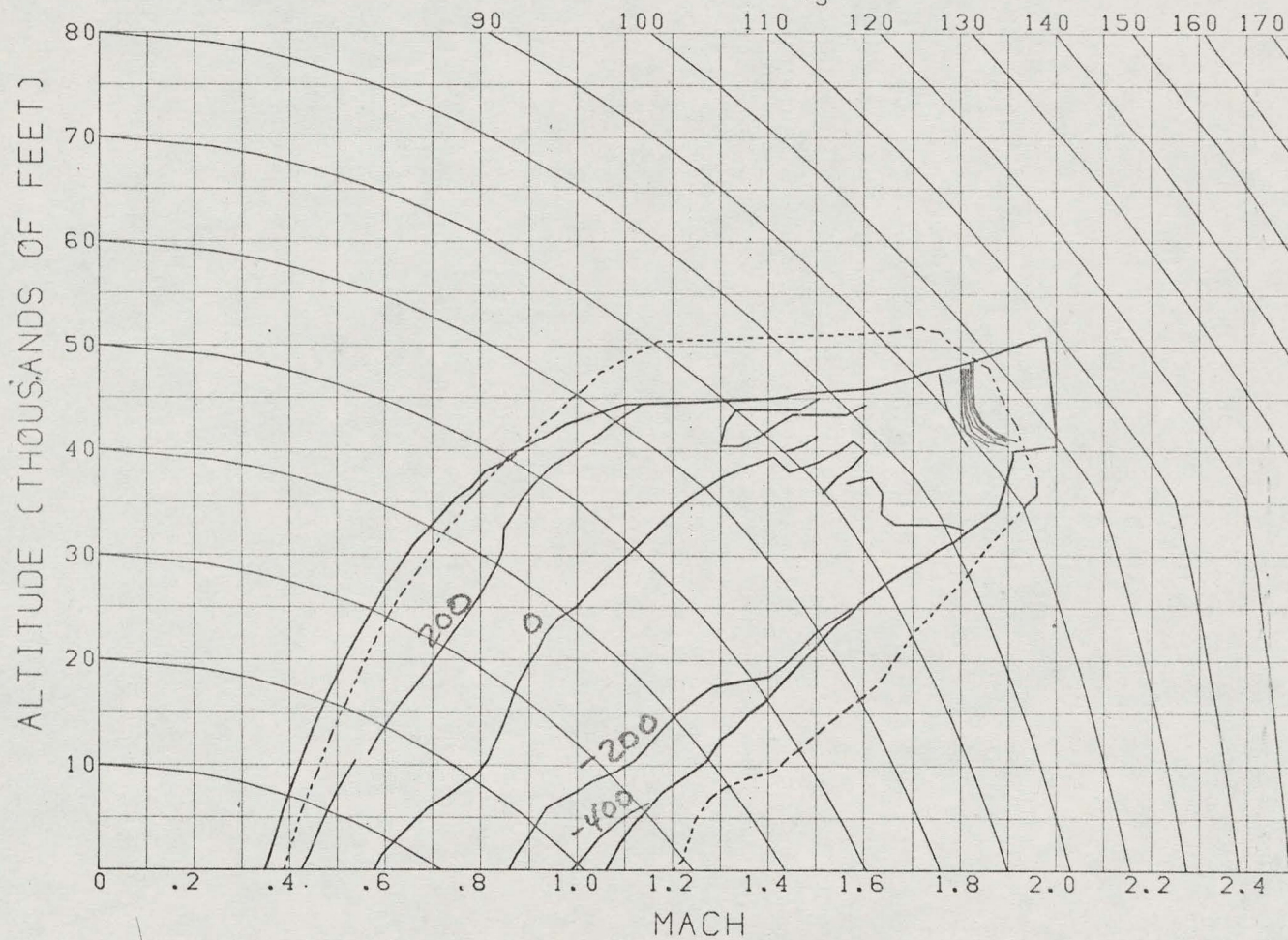
D/C 1 D/C 1

24346 19243

5.00 G DIAGRAM

JAN 10 1975

Es



PLOT PREPARED BY ASD/ENFDP

DPS 610ECJ - 410234

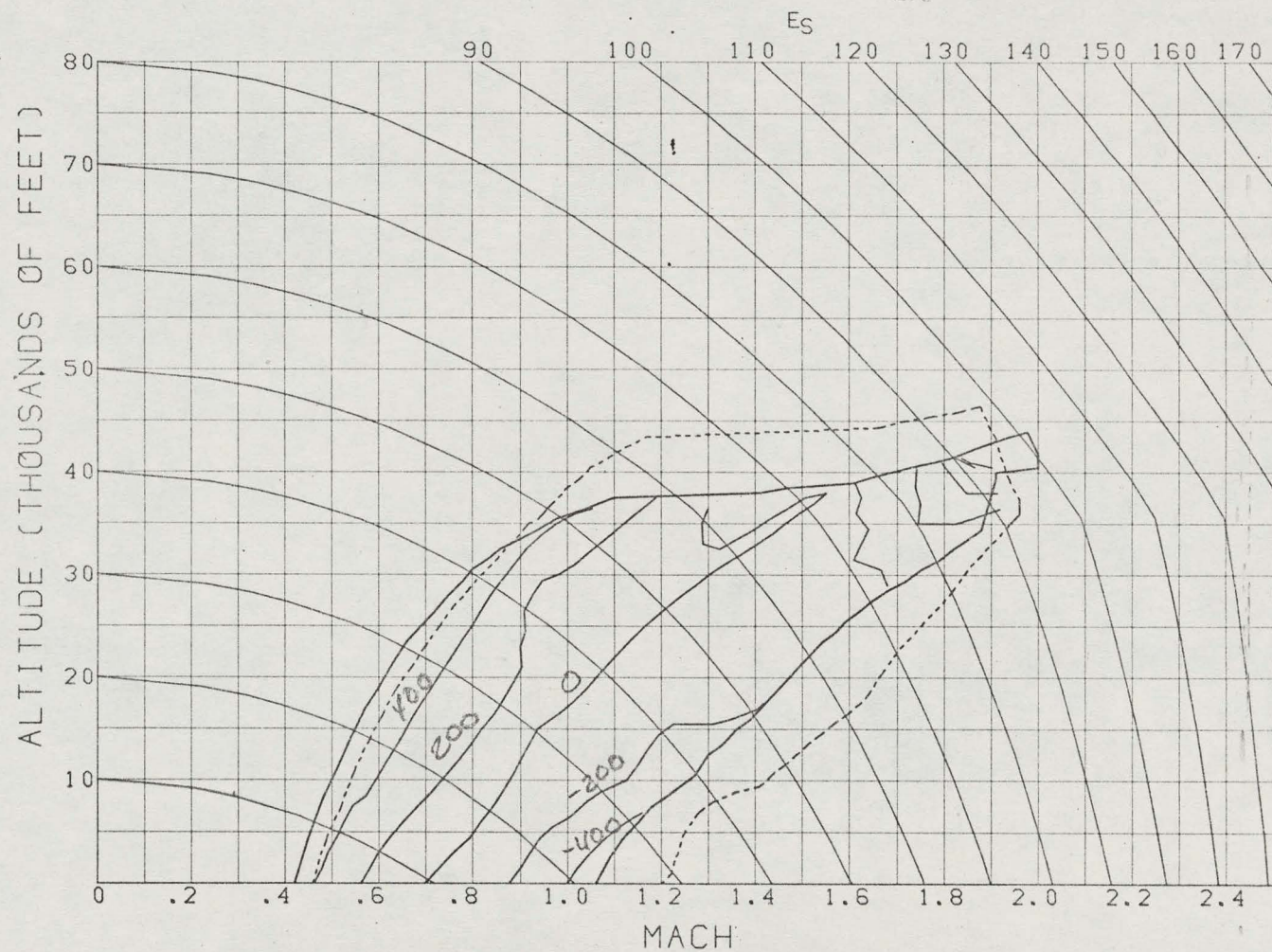
MAXIMUM POWER

D/C 1 D/C 1

24346 19243

7.00 G DIAGRAM

JAN 10 1953



00000

Recheck

JAN 10 1975

24346

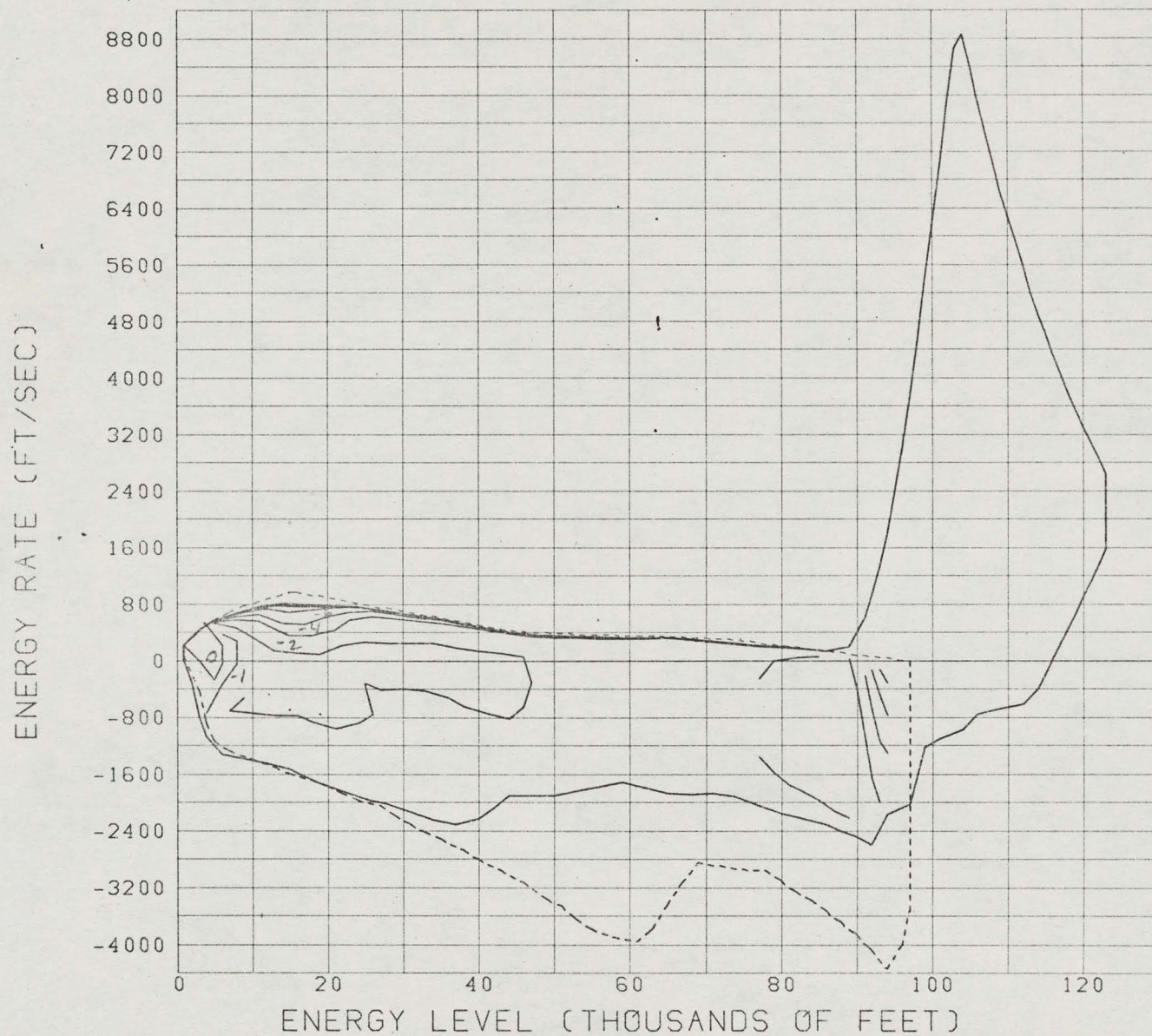
20302

610ECJ - 420032

MAX MANEUVER DIAGRAM

DC1 -MAX PWR-DC1

HORIZONTAL ATTITUDE



JAN 10 1975

20302

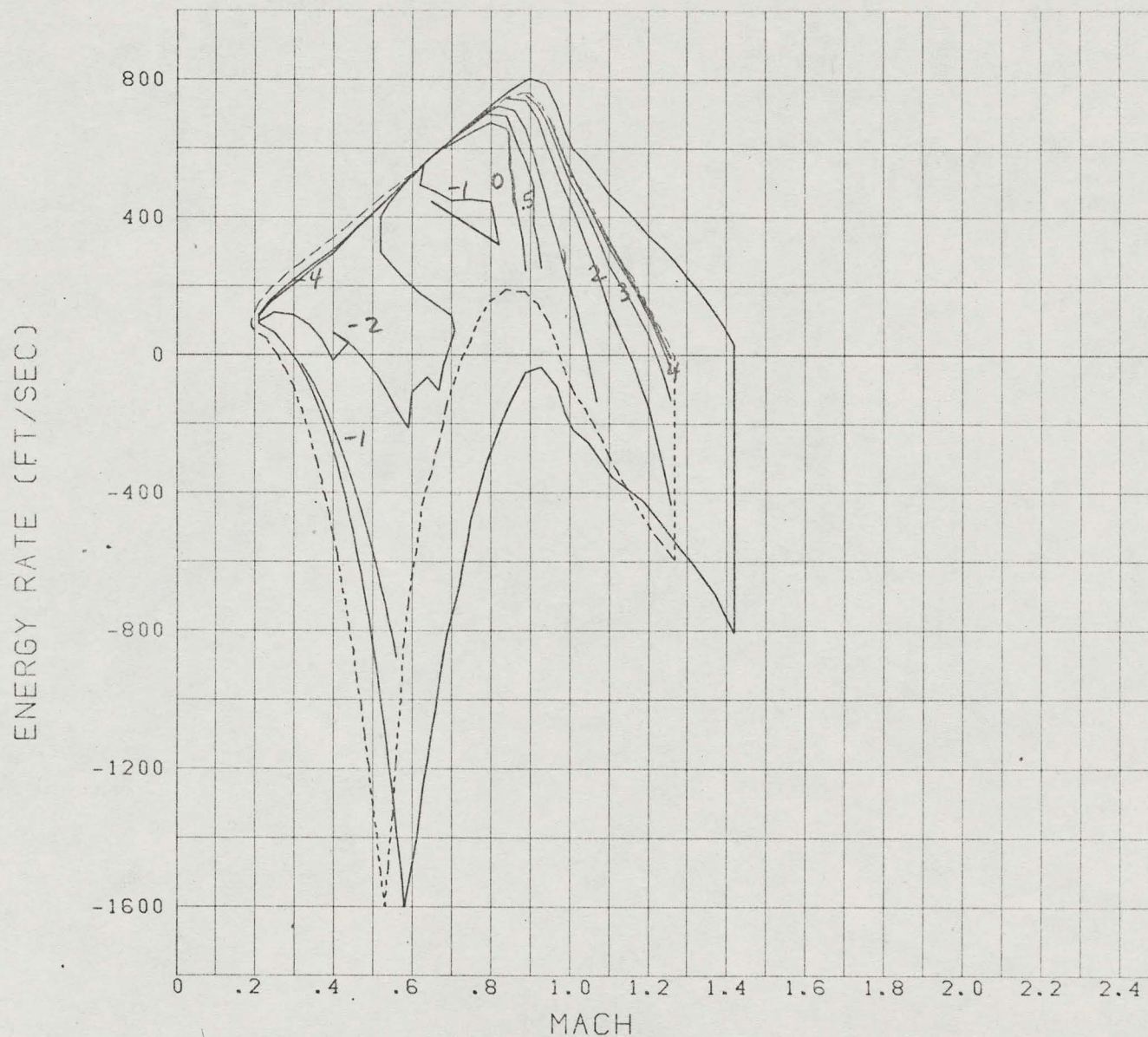
24346

MANEUVER DIAGRAM

ALTITUDE 10000

420032 - 610ECJ

DC 1 -MAX PWR-DC 1



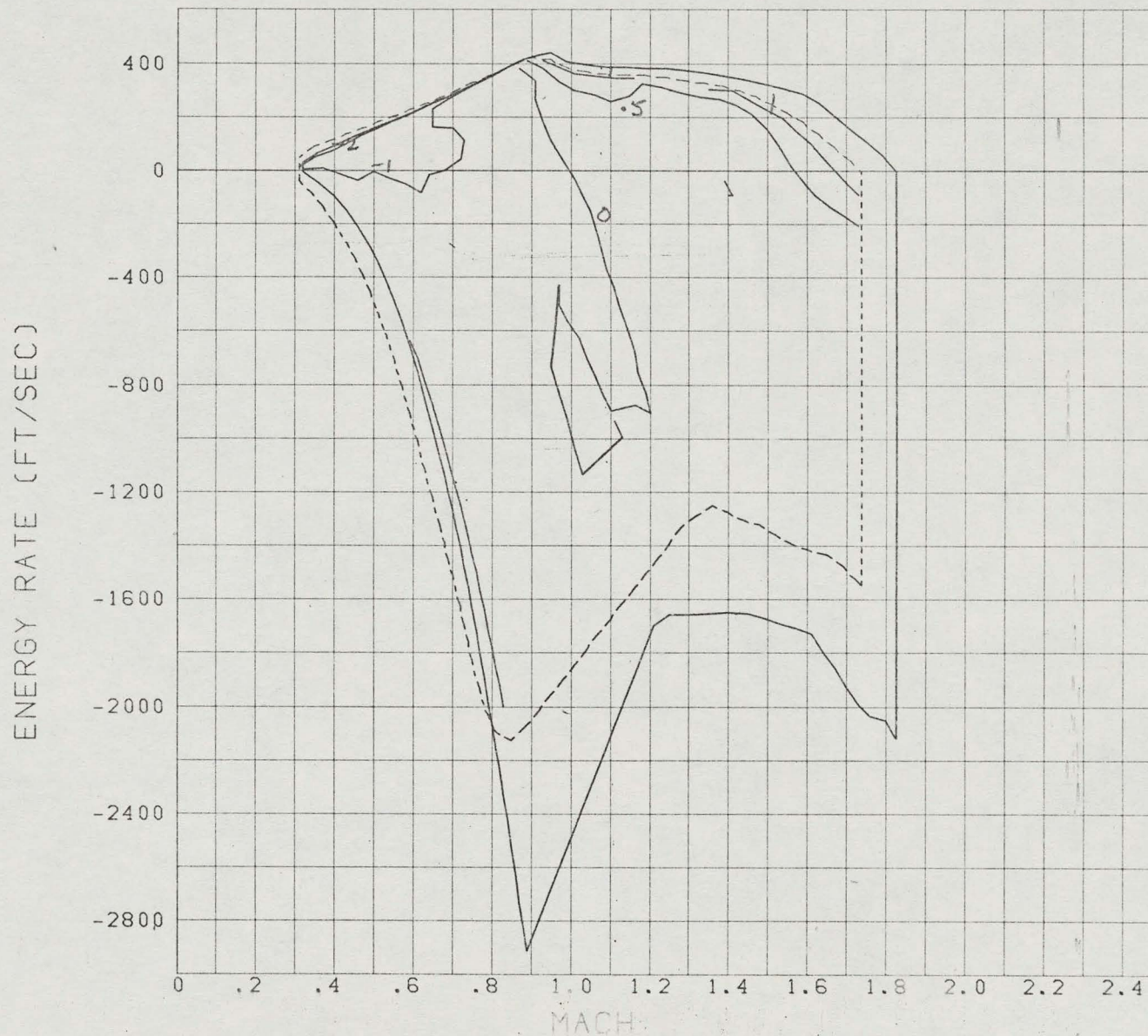
PLOT PREPARED BY ASD/ENFDP

JAN 10 1975 20302 24346

MANEUVER DIAGRAM
ALTITUDE 30000

420032 - 610ECJ
DC 1 - MAX PWR - DC 1

HORIZONTAL ATTITUDE



$$\Delta PS = 610ECJ - 420032$$

DC1 - MAX PWR - DC1
OPT L/D

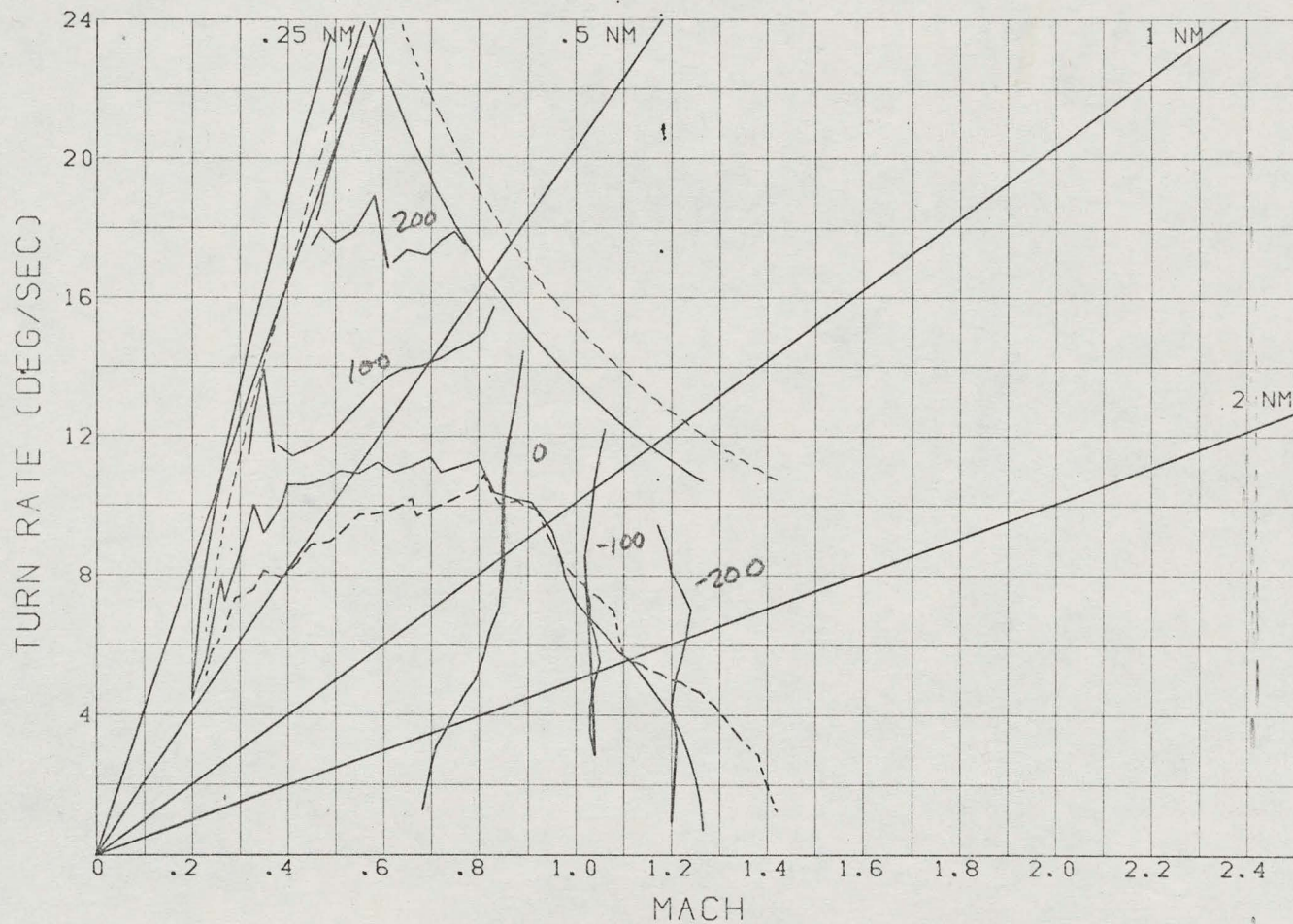
HORIZONTAL ATTITUDE

24346 20302

MANEUVER DIAGRAM

ALTITUDE: 10000

JAN 10 1975



PLOT PREPARED BY ASD/ENFDP

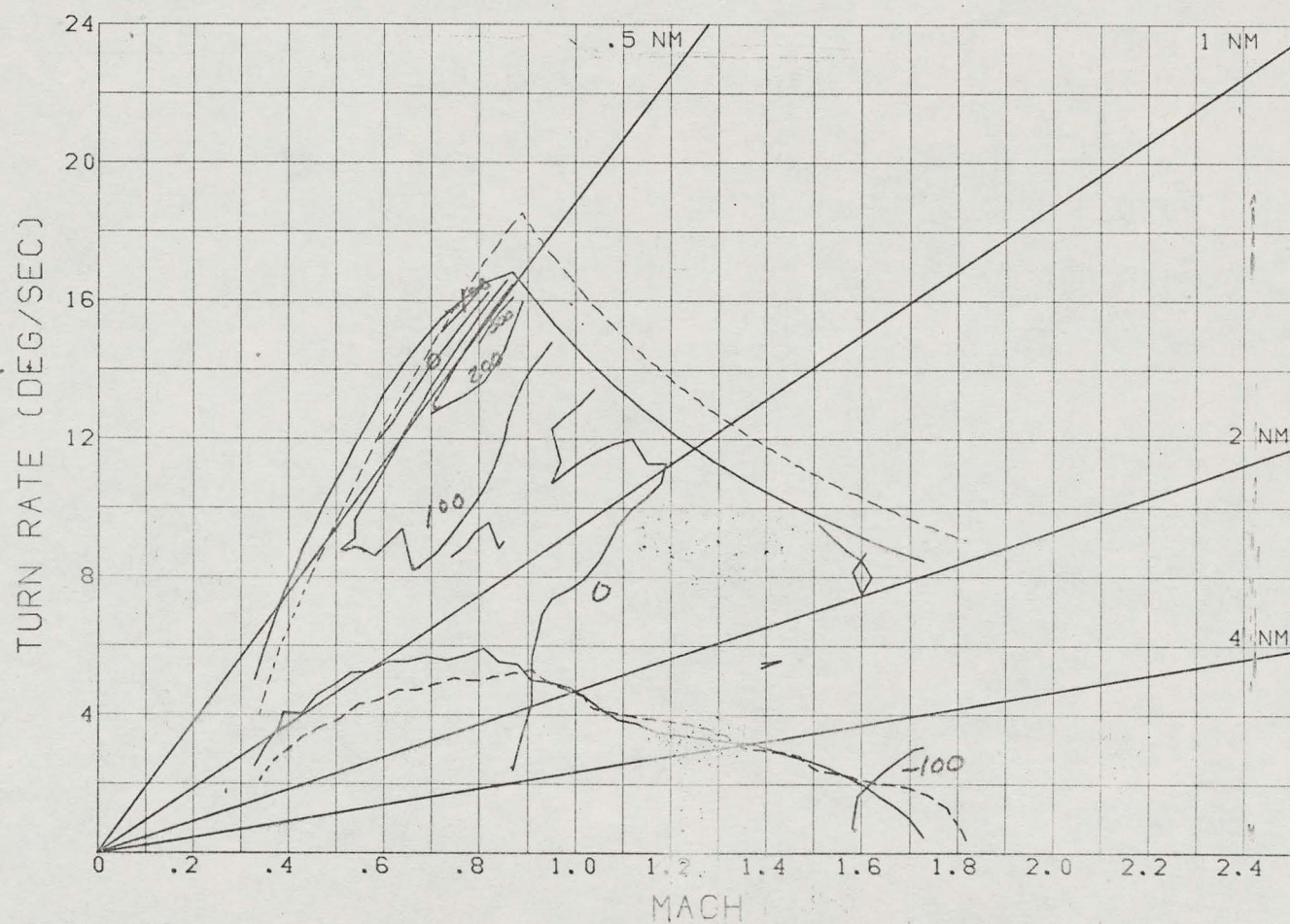
HORIZONTAL ATTITUDE

24346 20302

JAN 5 1975

MANEUVER DIAGRAM

ALTITUDE: 30000



PLOT PREPARED BY ASQ/ENFDR

DPS 610ECJ -420032

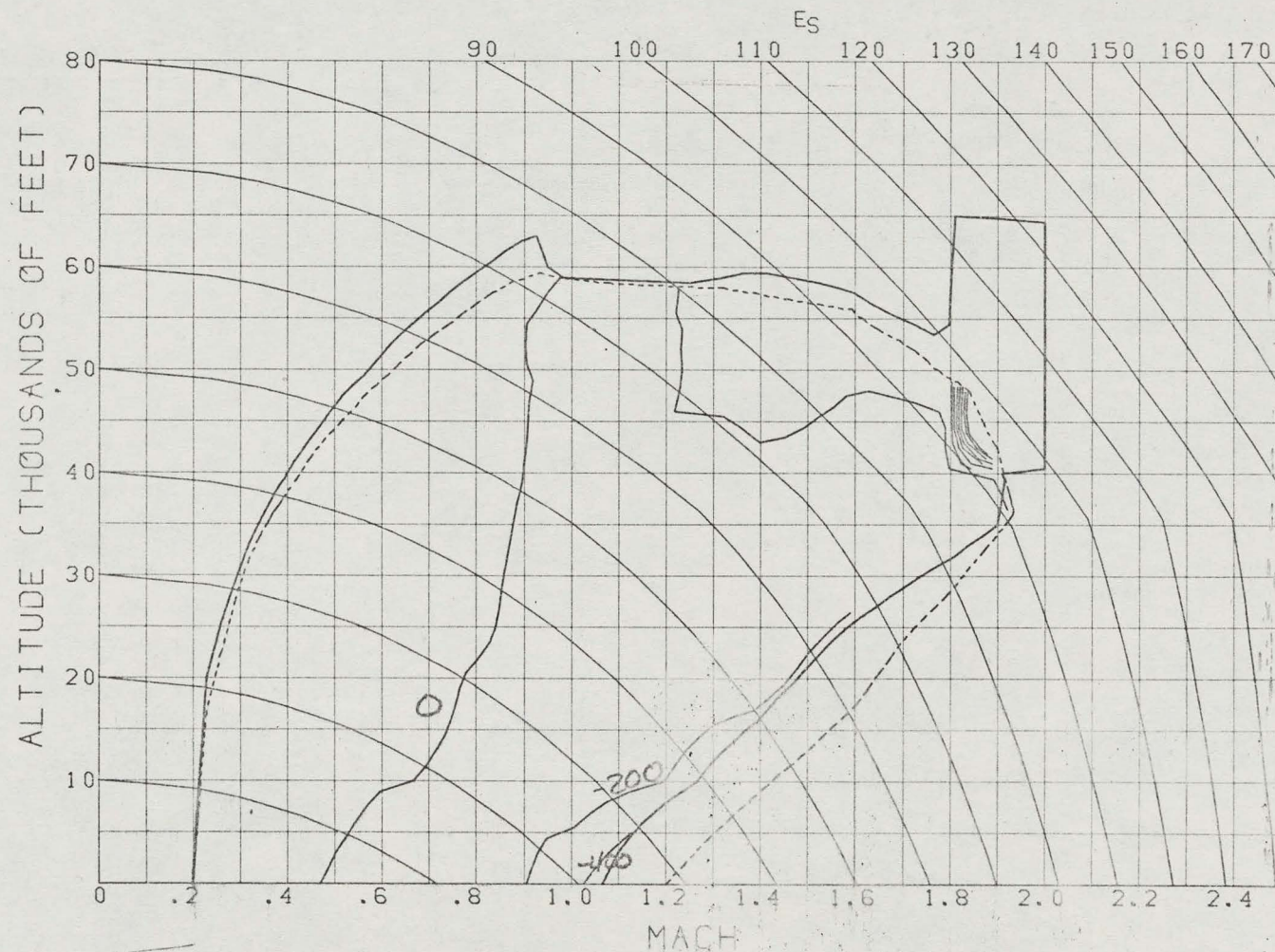
MAXIMUM POWER

D/C 1 D/C 1

24346 20302

1.00 G DIAGRAM

JAN 10 1975



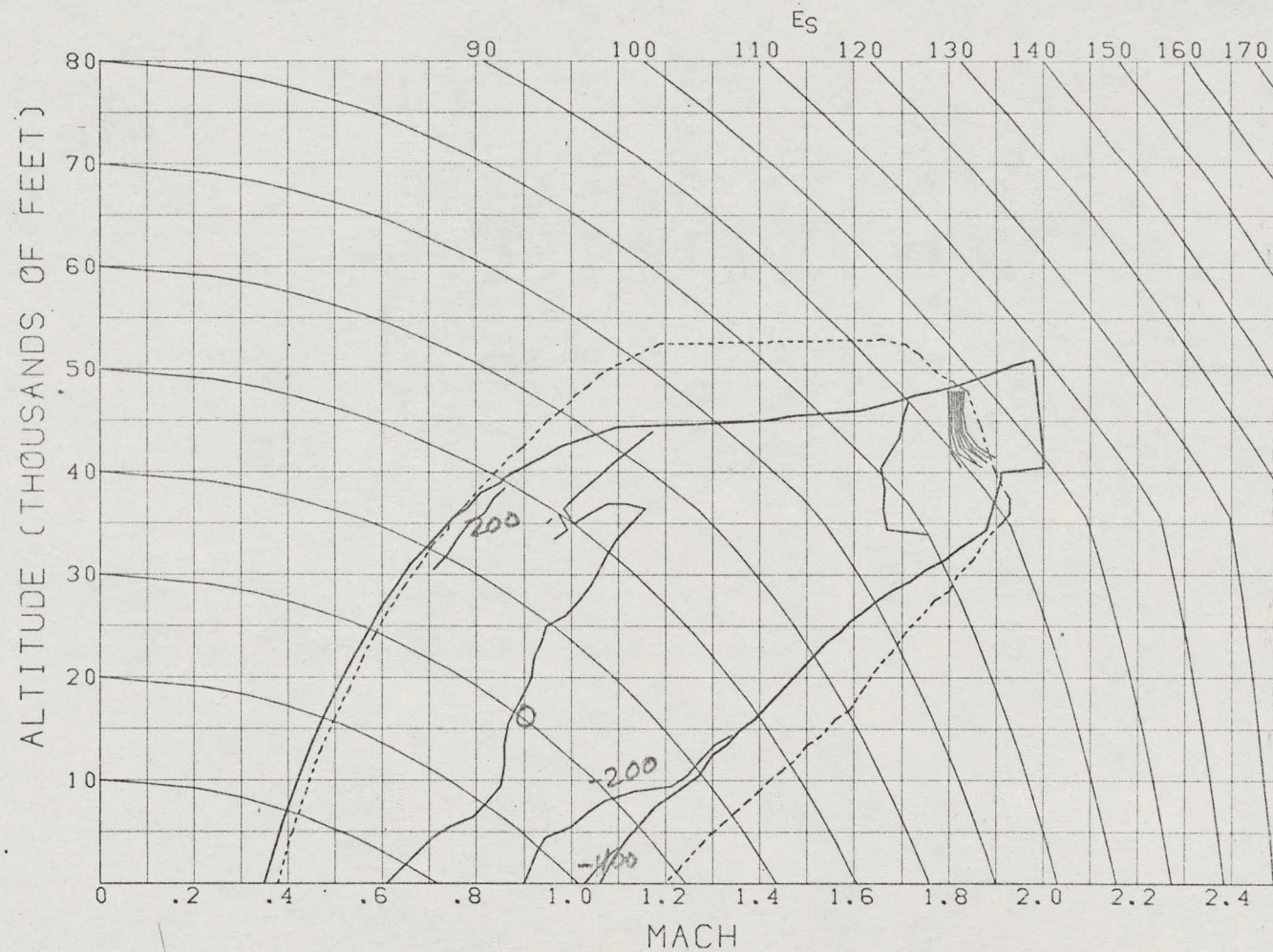
DPS 610ECJ -420032

MAXIMUM POWER

D/C 1 D/C 1
24346 20300

5.00 G DIAGRAM

JAN 10 1975



PLOT PREPARED BY ASD/ENFDP

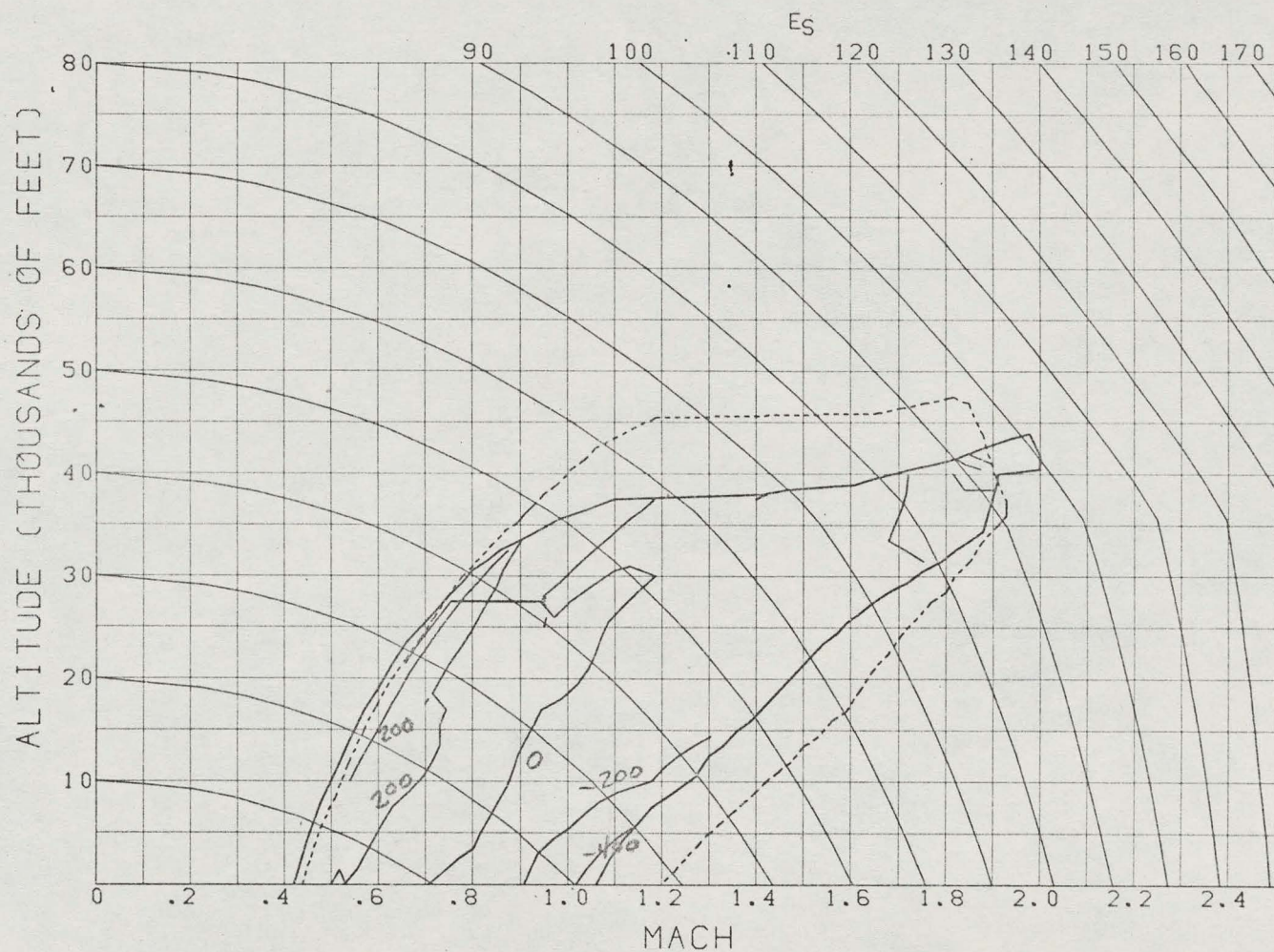
DPS 610ECJ -420032

MAXIMUM POWER

D/C 1 D/C 1

24346 20302
JAN 10 1975

7.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

JAN 10 1975

20302

24598

420032 - 610 ECU

MAX MANEUVER DIAGRAM

DC 1 - MAX PWR - DC 1

HORIZONTAL ATTITUDE



PLOT PREPARED BY ASD/ENFDP

JAN 10 1975

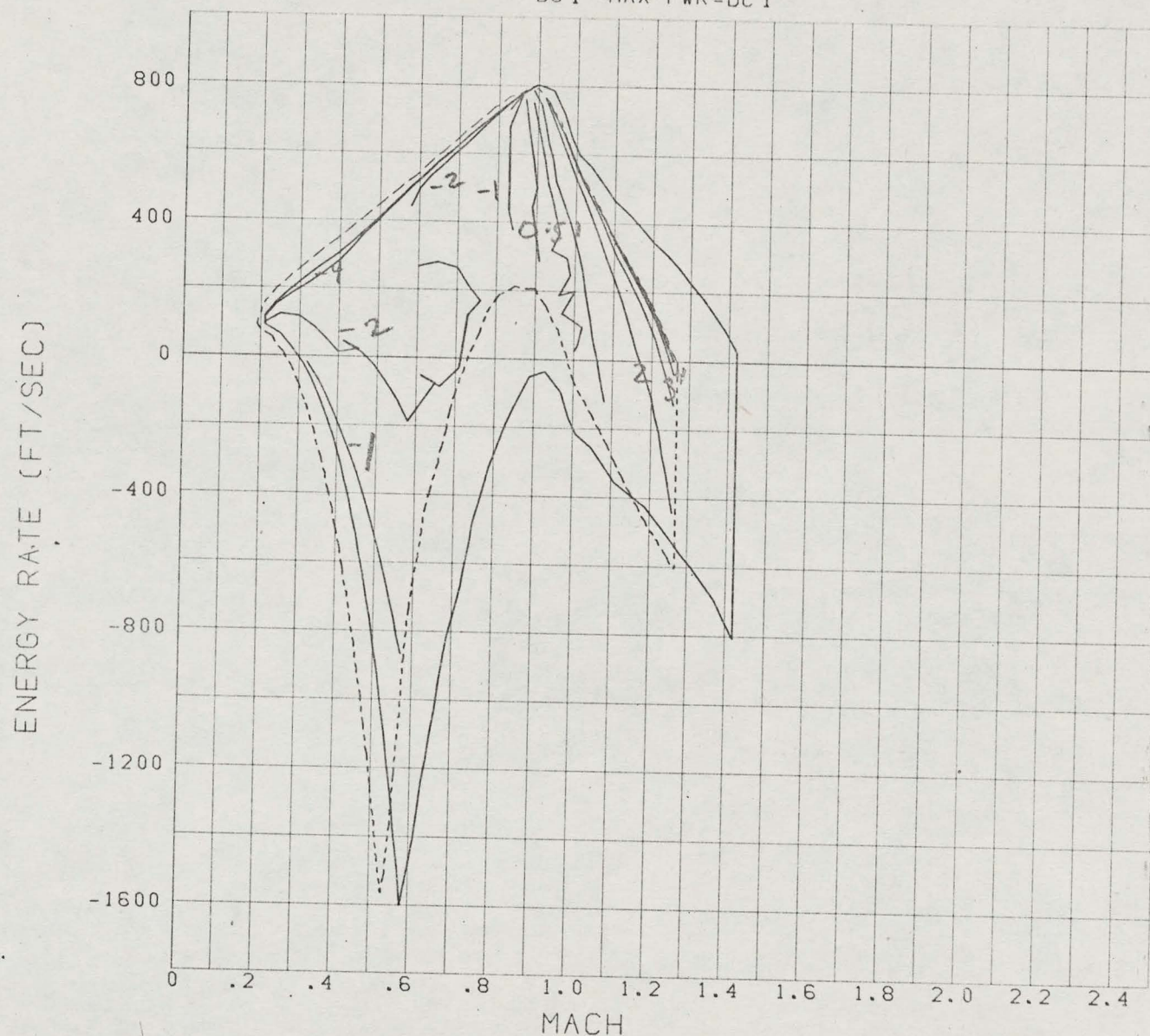
20302 24598

MANEUVER DIAGRAM

ALTITUDE 10000

420032 - 610ECU

DC 1 - MAX PWR - DC 1



PLOT PREPARED BY ASD/ENCF

JAN 10 1975

20302

24598

MANEUVER DIAGRAM

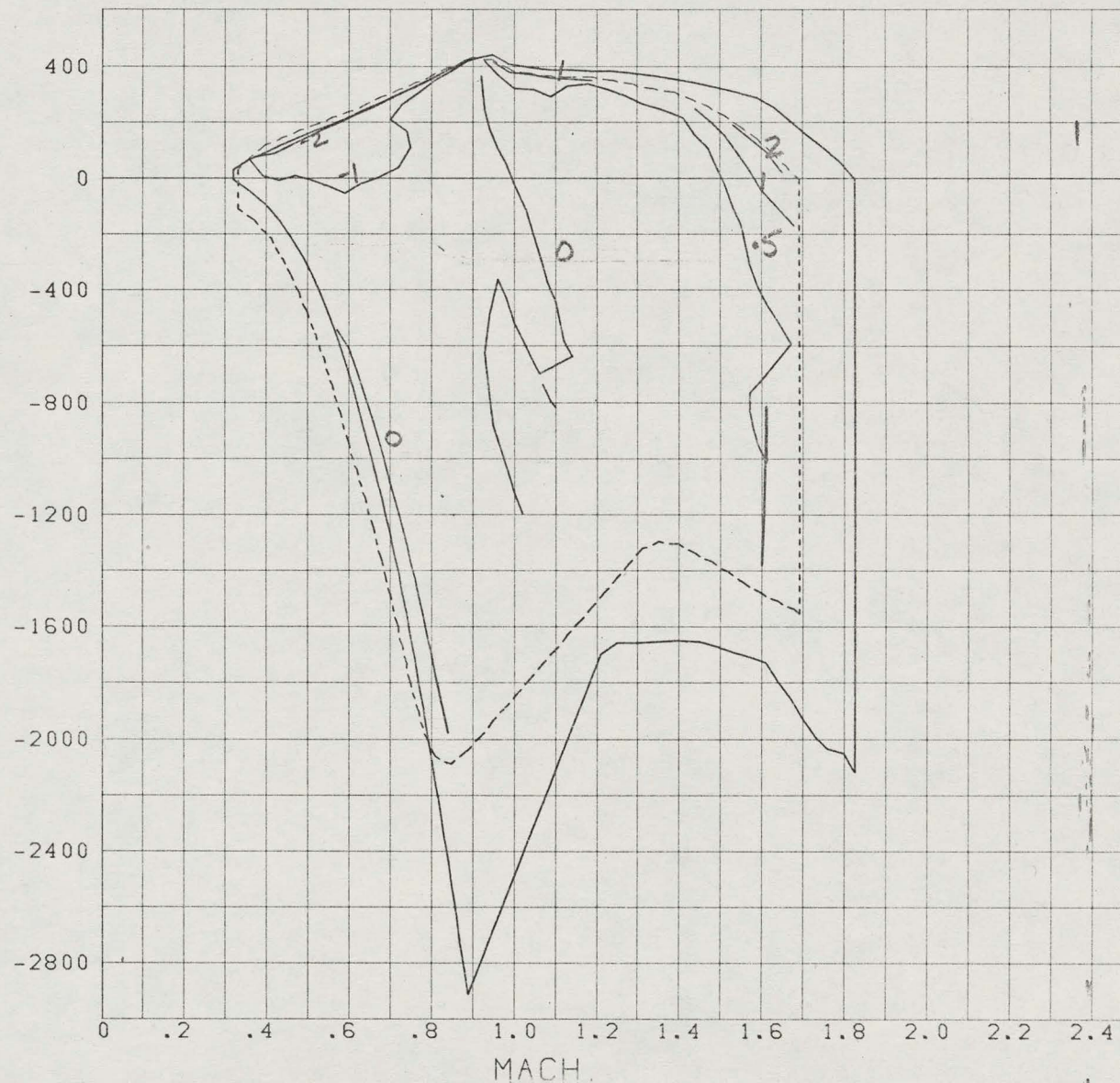
ALTITUDE 30000

420032 - 610 ECU

DC 1 - MAX PWR - DC 1

HORIZONTAL ATTITUDE

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/ENFDP

$\Delta PS = 420032 - 610ECU$

DC 1 -MAX PWR-DC 1

HORIZONTAL ATTITUDE

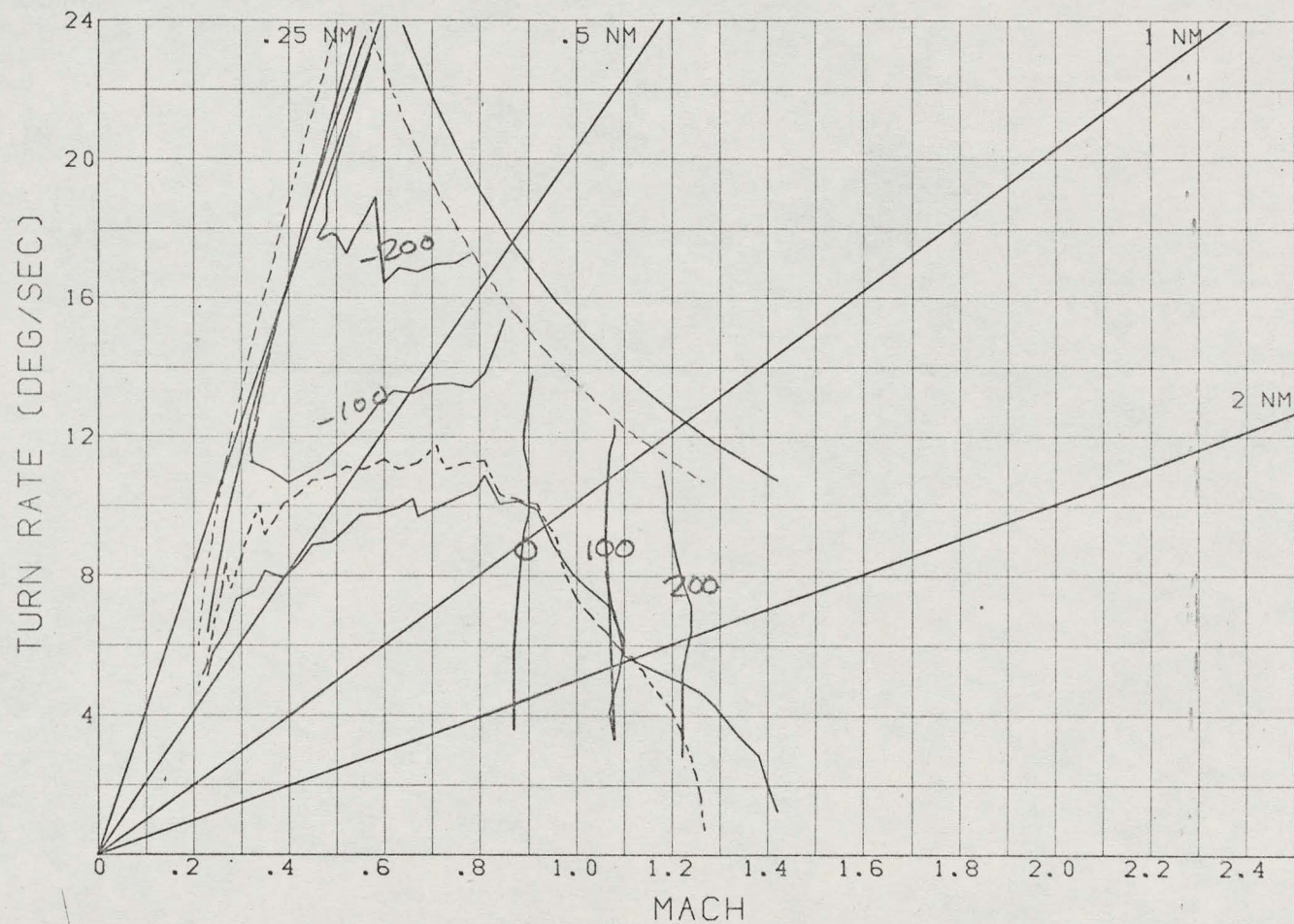
OPT L/D

20302 24598

JAN 10 1975

MANEUVER DIAGRAM

ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFOP

20302

24598

$$\Delta PS = 420032 - 610ECU$$

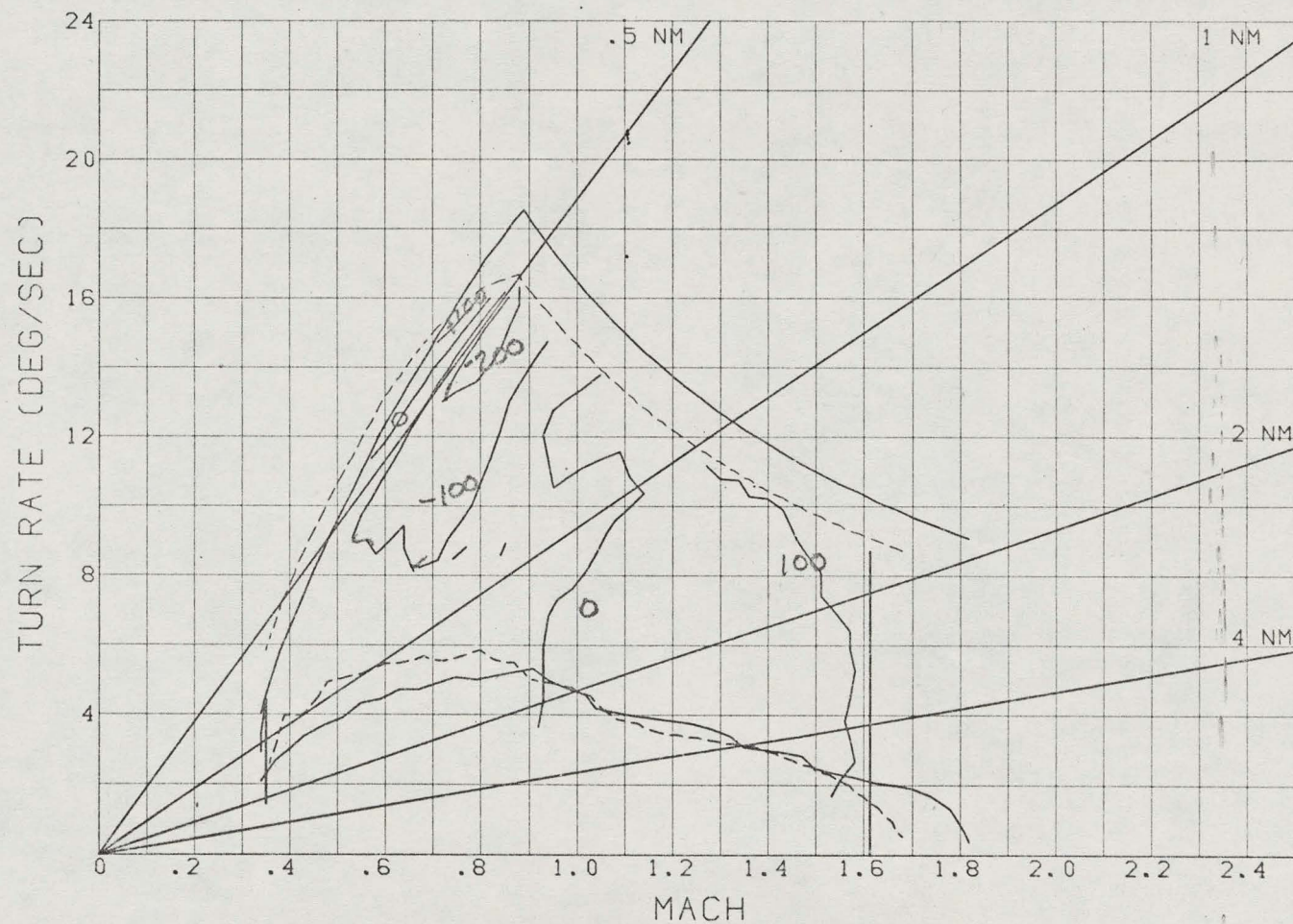
DC 1 - MAX PWR - DC 1
OPT L/D

HORIZONTAL ATTITUDE

JAN 10 1975

MANEUVER DIAGRAM

ALTITUDE: 30000



PLOT PREPARED BY ASD/ENFDP

DPS 420032 -610ECU

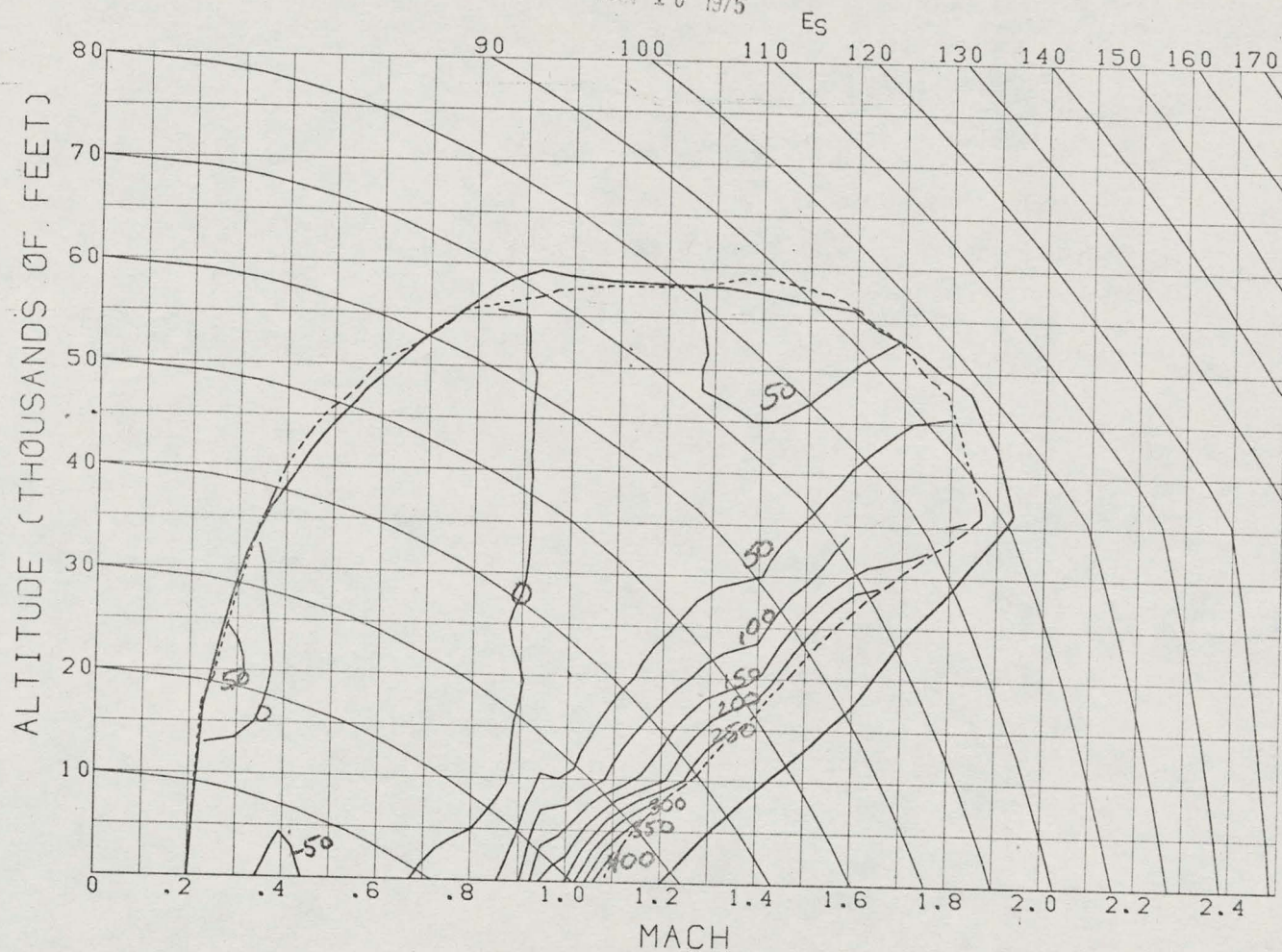
MAXIMUM POWER

D/C 1 D/C 1

1.00 G DIAGRAM

20302 24598

JAN 10 1975



PLOT PREPARED BY ASD/ENFOR

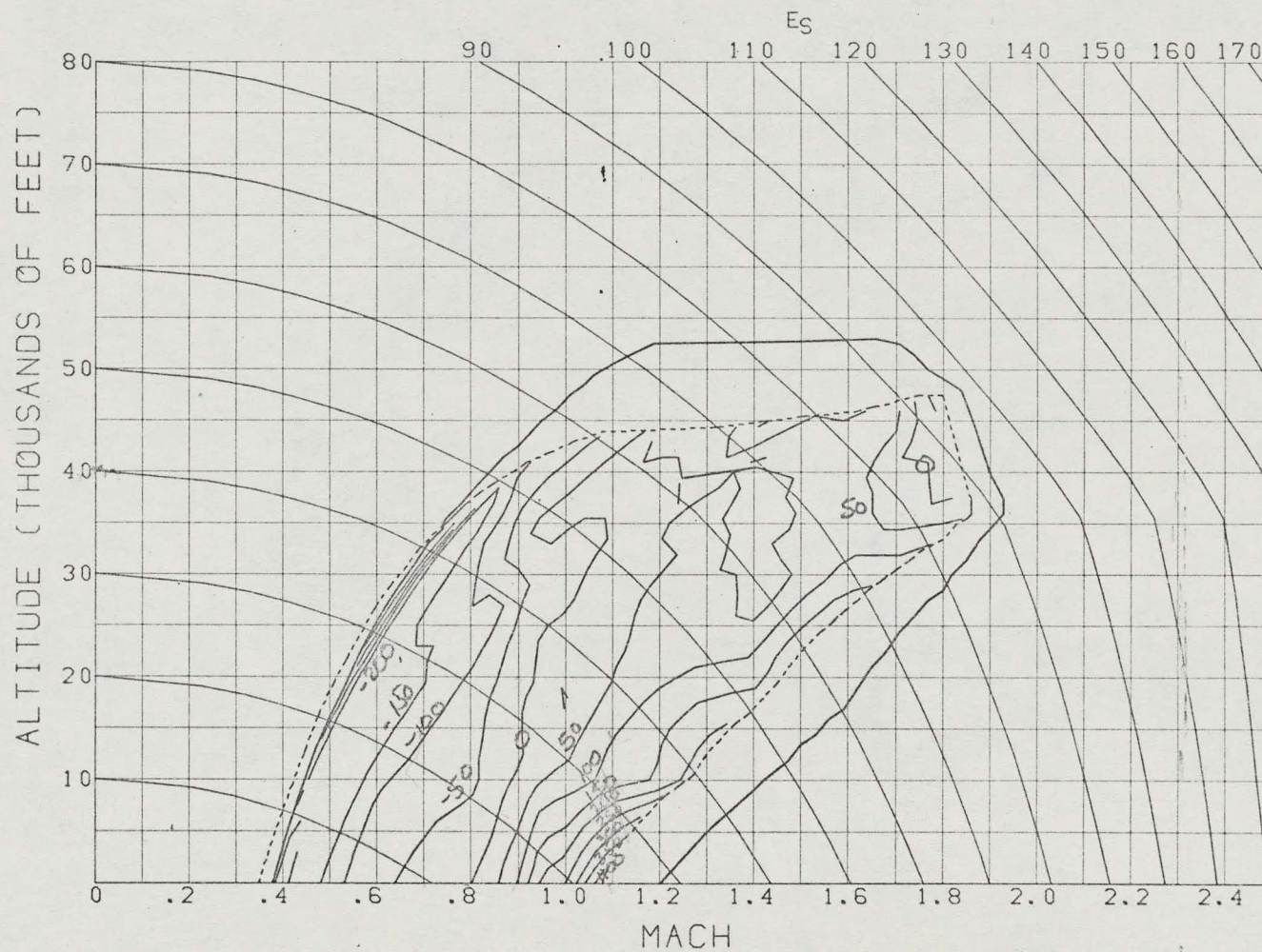
DPS 420032 -610ECU

MAXIMUM POWER

D/C 1 D/C 1

JAN 10 1975

5.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 420032 -610ECU

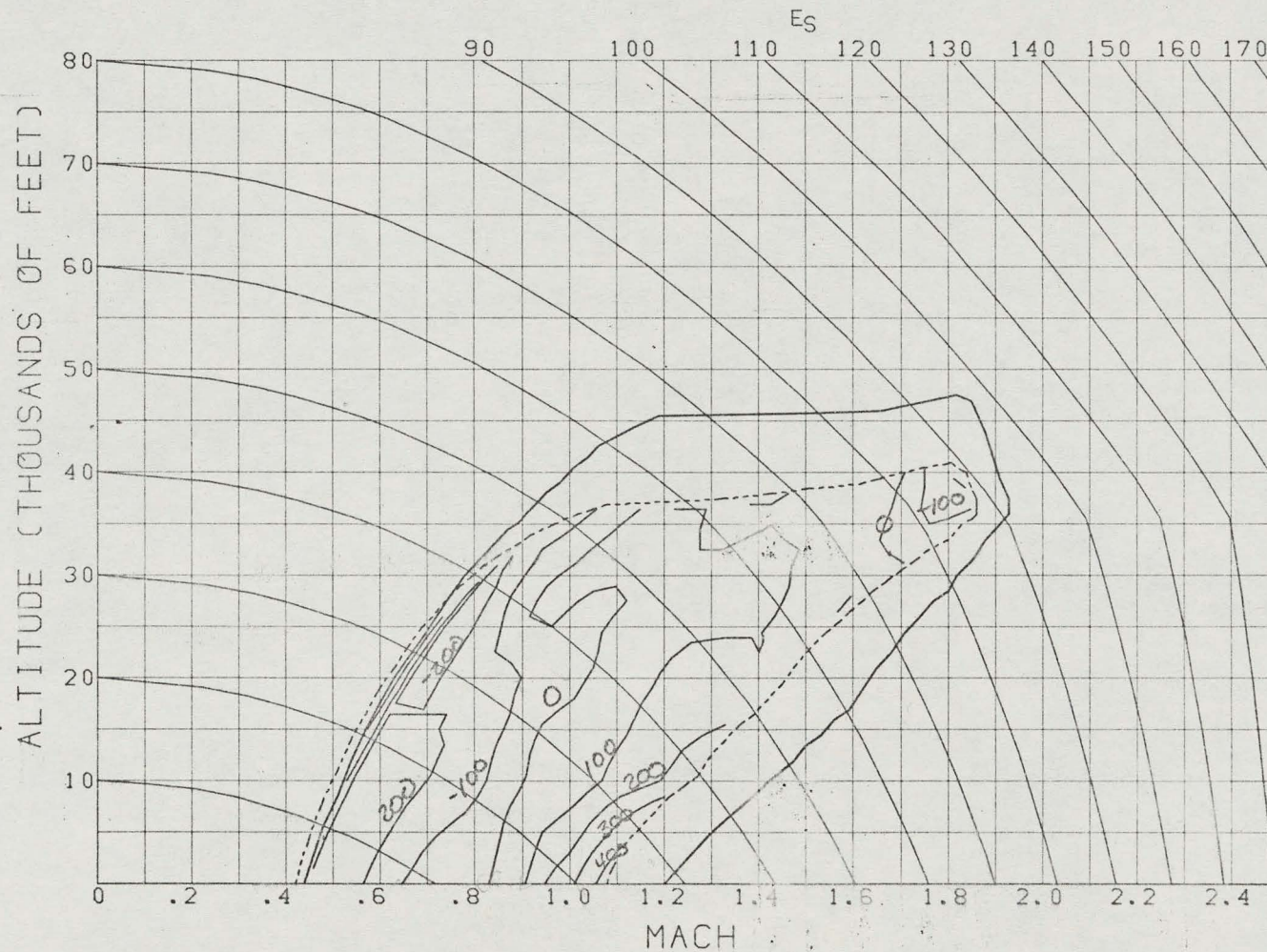
MAXIMUM POWER

D/C 1 D/C 1

20302 24598

7.00 G DIAGRAM

JAN 10 1975



PLOT PREPARED BY ASD/ENRDP

24346

24092

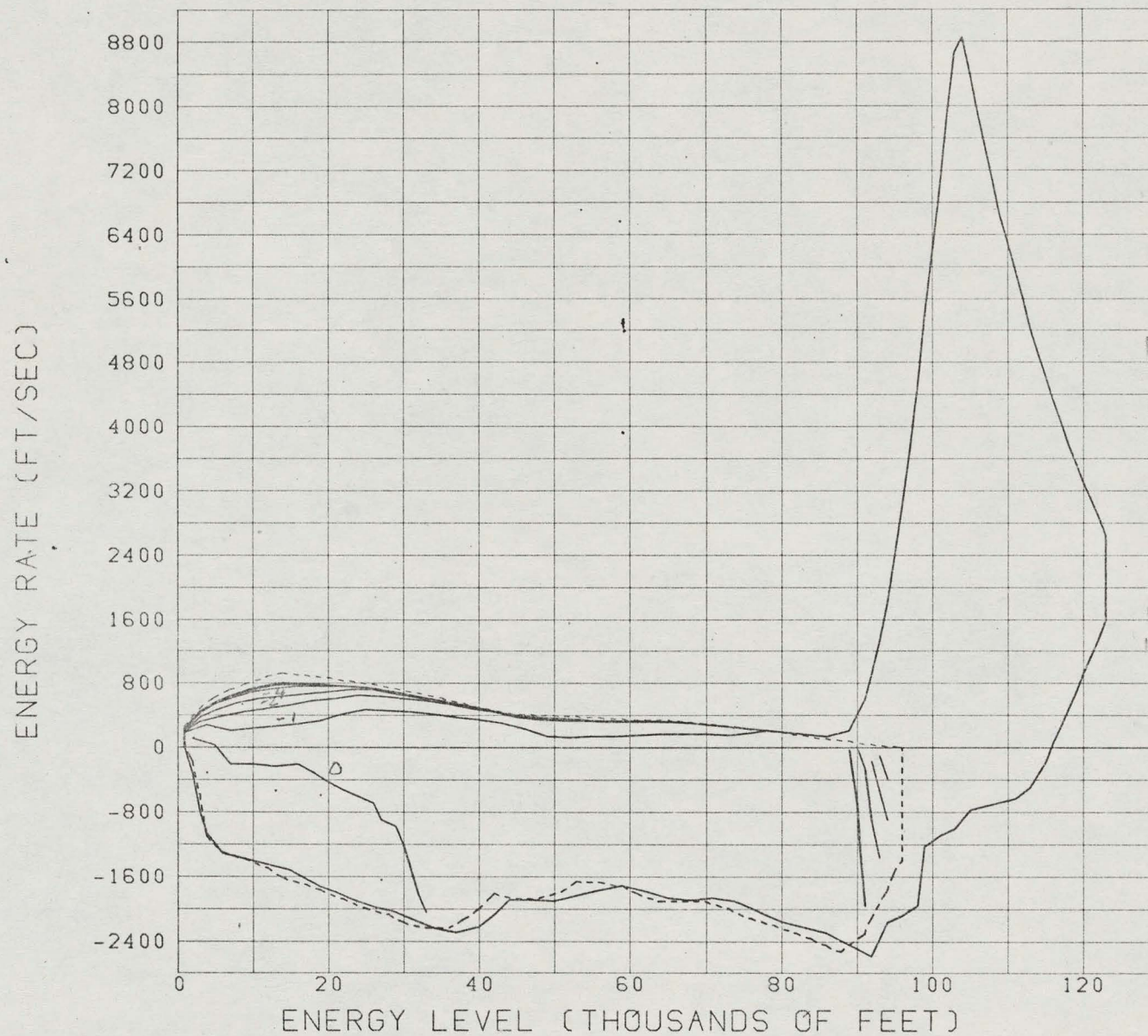
JAN 19 1975

610ECJ - 61033R

MAX MANEUVER DIAGRAM

DC 1 - MAX PWR - DC 1

HORIZONTAL ATTITUDE



$$\Delta PS = \underline{610ECJ} - \underline{61033R}$$

DC 1 -MAX PWR-DC 1
OPT L/D

HORIZONTAL ATTITUDE

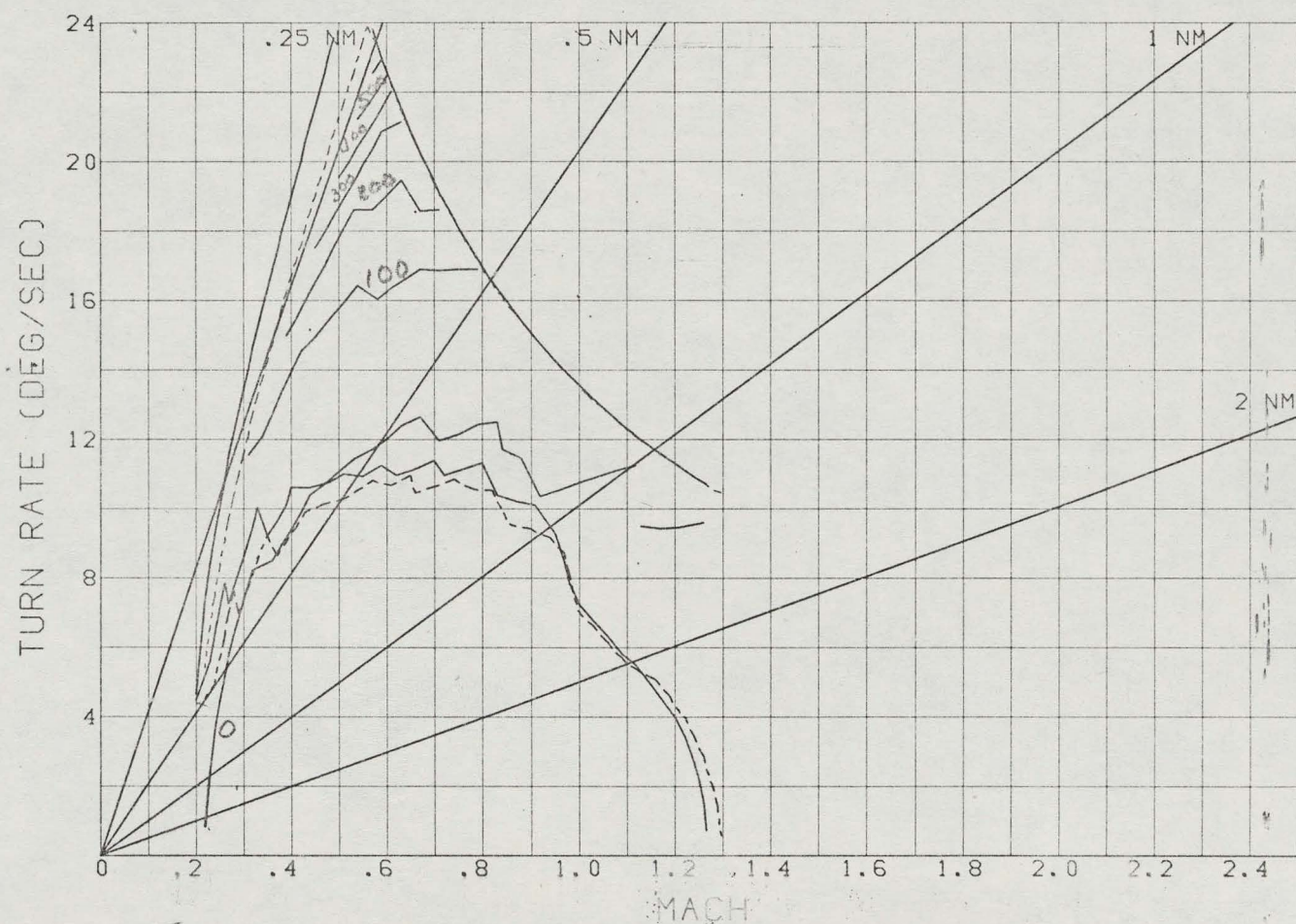
24346

24092

JAN 10 1915

MANEUVER DIAGRAM

ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFOP

$$\Delta PS = \frac{610ECJ}{DC1 - MAX \text{ PWR} - DC1} - \frac{61033R}{OPT \text{ L/D}}$$

24346

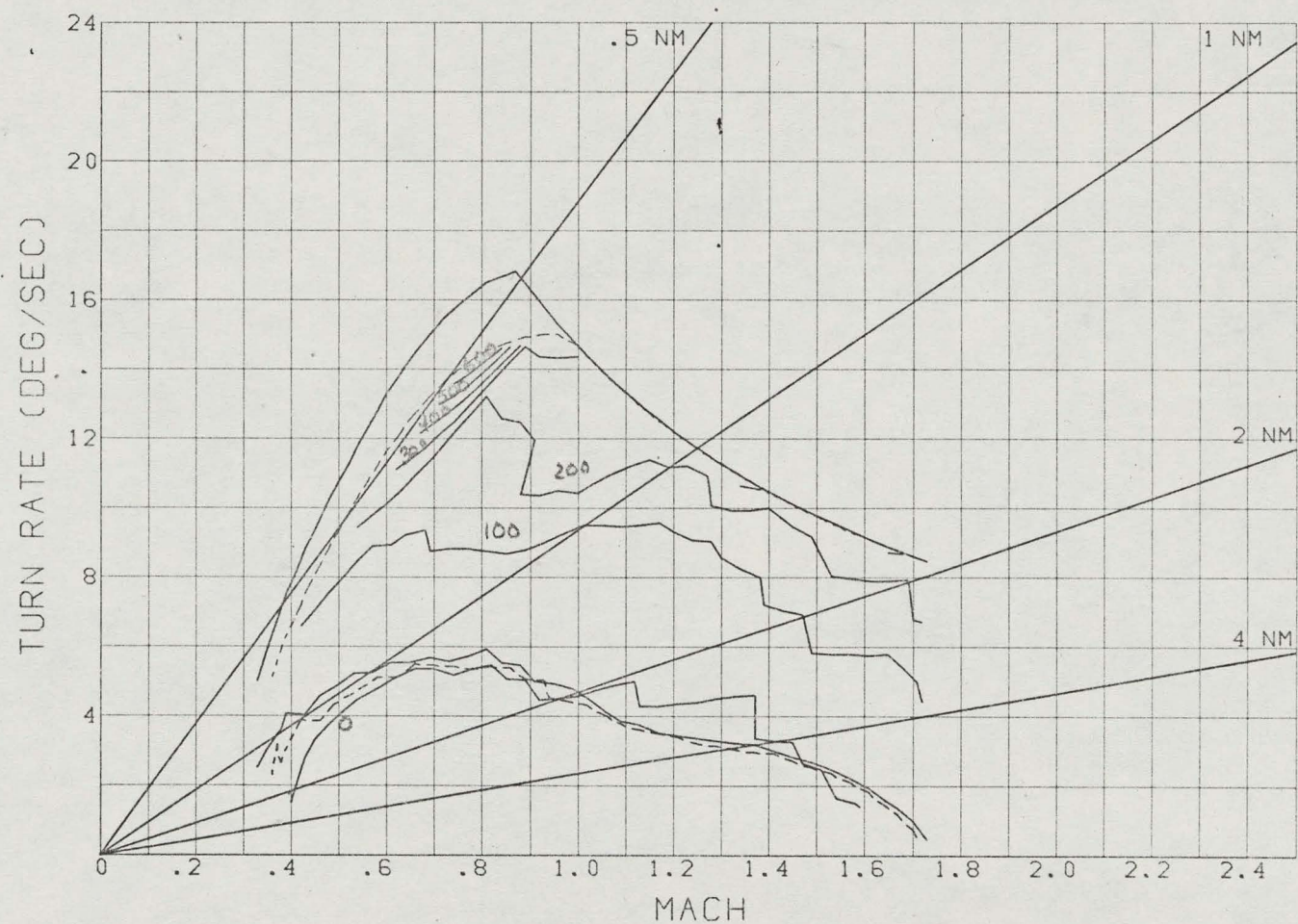
HORIZONTAL ATTITUDE

24092

JAN 10 1975

MANEUVER DIAGRAM

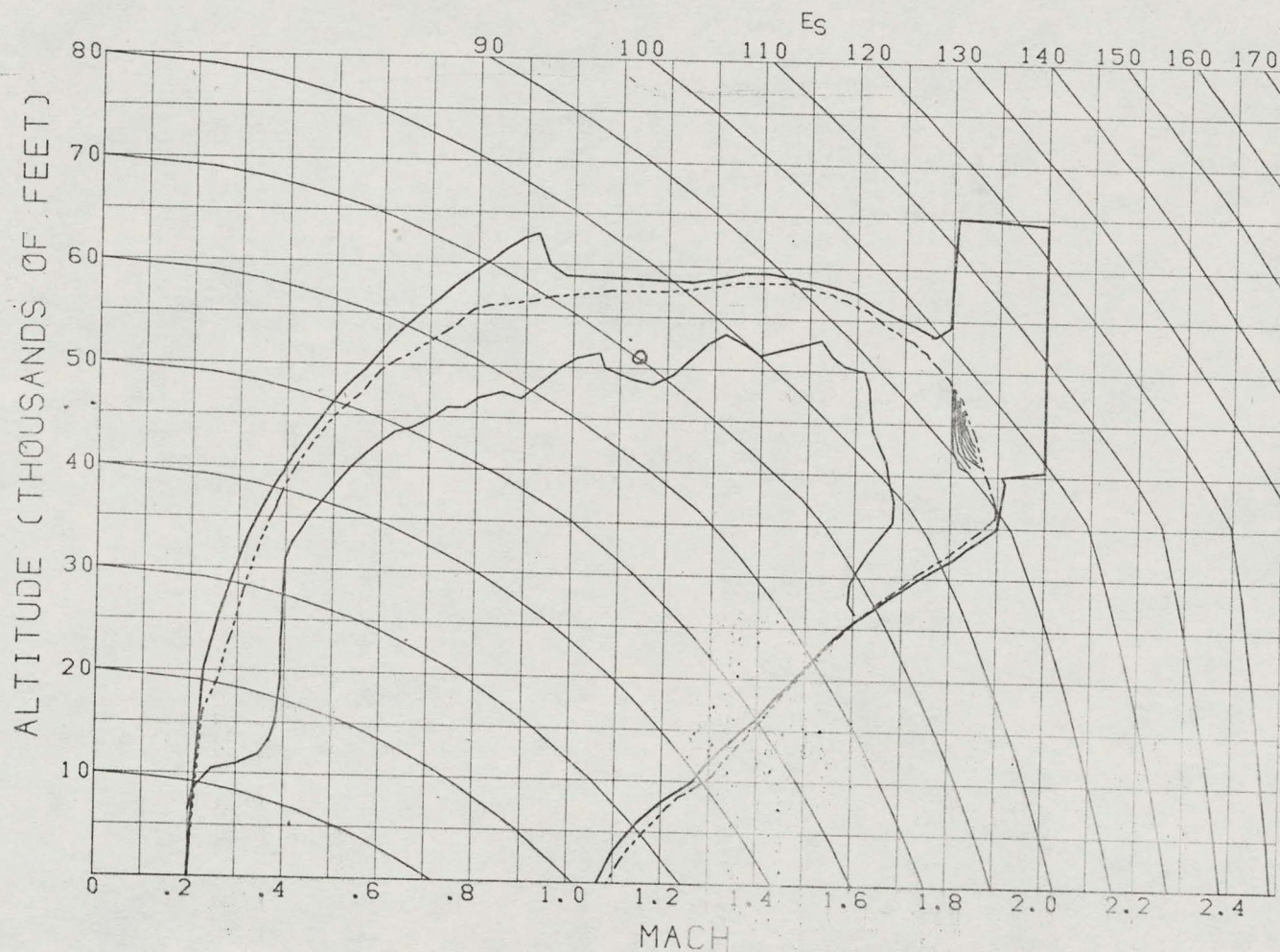
ALTITUDE: 30000



DPS 610ECJ -61033R
MAXIMUM POWER
D/C 1 D/C 1

1.00 G DIAGRAM

JAN 10 1975



PLOT PREPARED BY ASD/ENTD

DPS 610ECJ -61033R

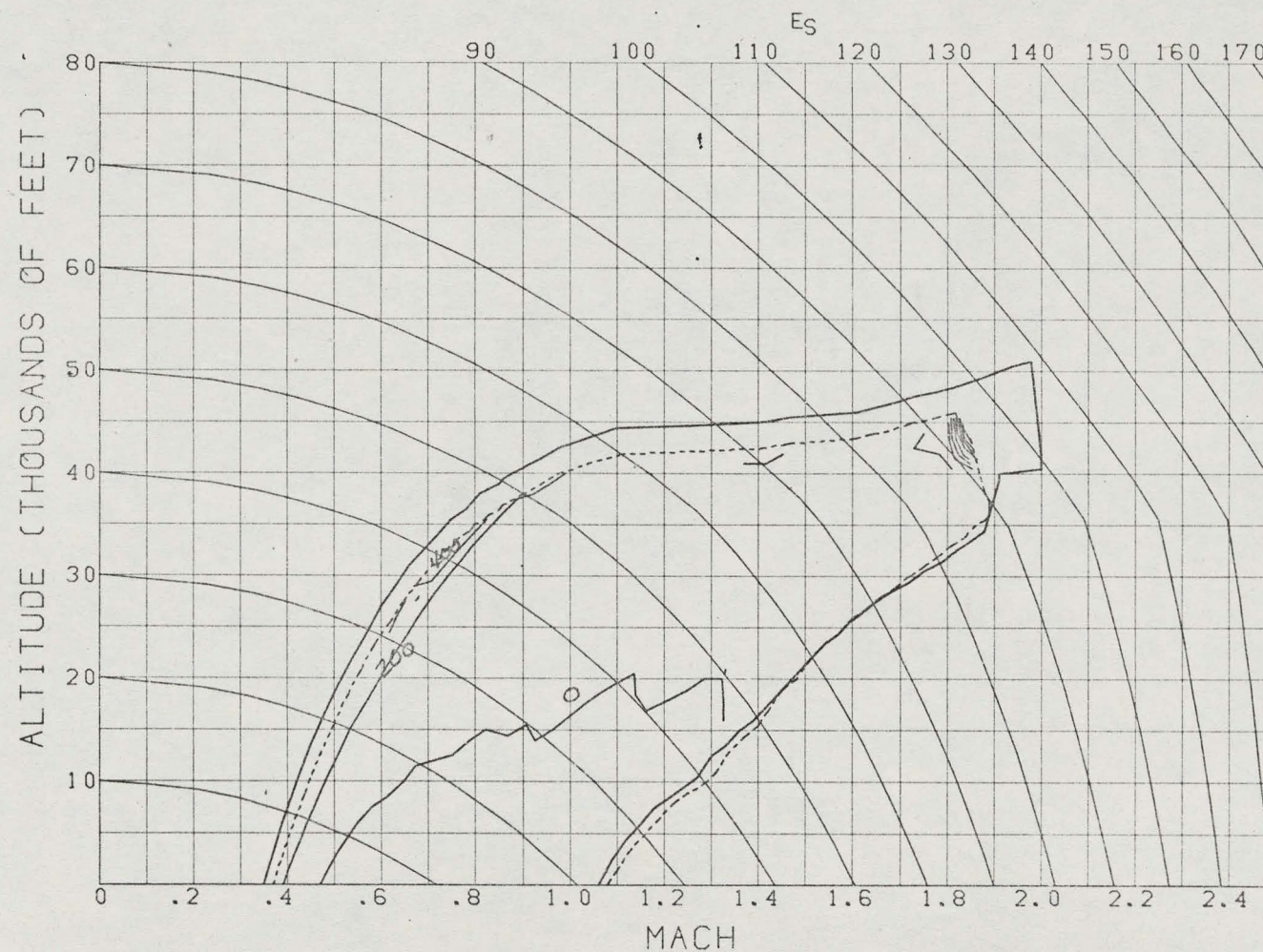
MAXIMUM POWER

D/C 1 D/C 1

24346 24054

5.00 G DIAGRAM

JAN 10 1975



PLOT PREPARED BY ASD/ENFDP

DPS 610ECJ -61033R

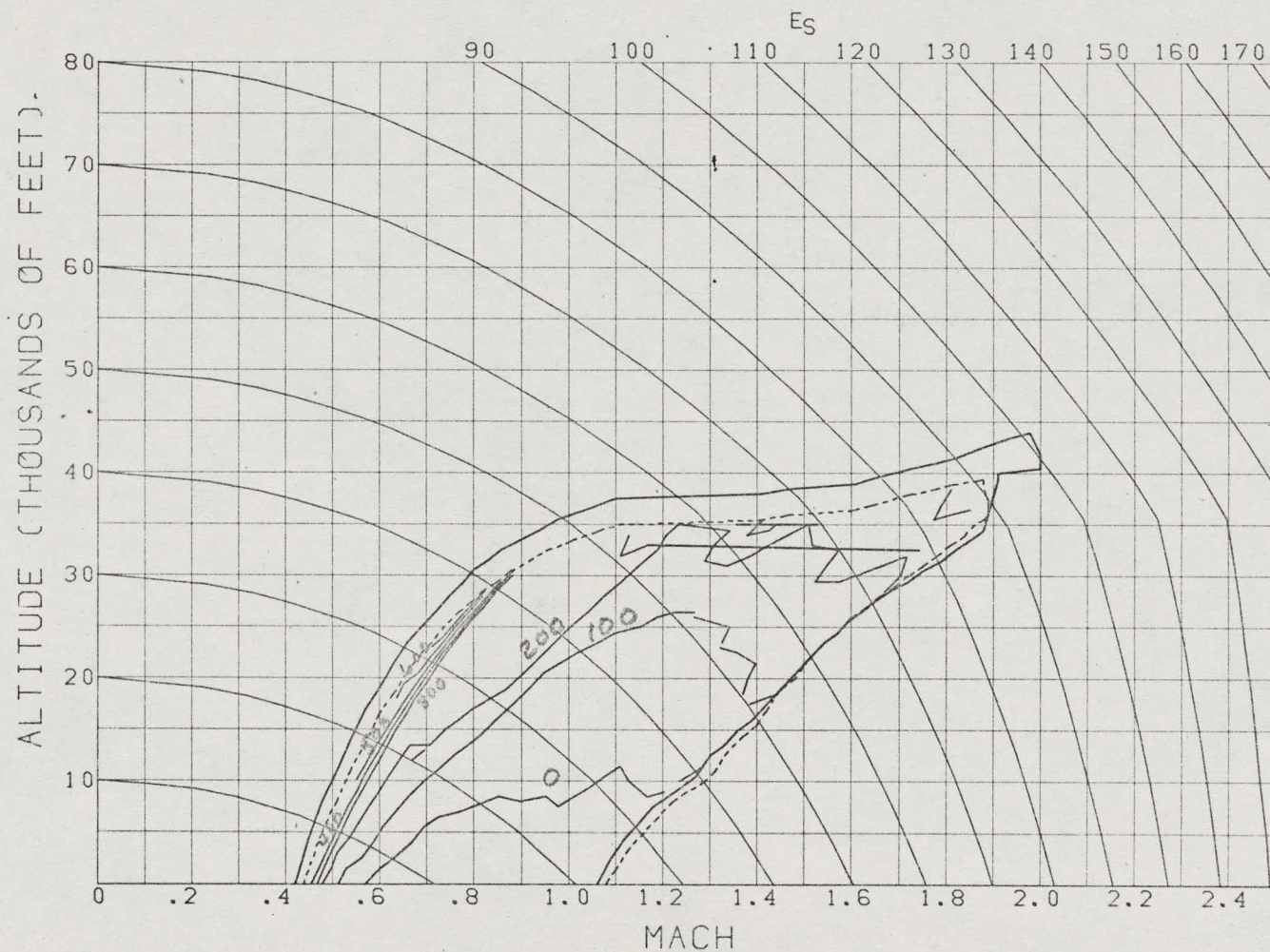
MAXIMUM POWER

D/C 1 D/C 1

24346 24054

7.00 G DIAGRAM

JAN 10 1975



PLOT PREPARED BY ASD/ENFDP

JAN 10 1975 22126 24598

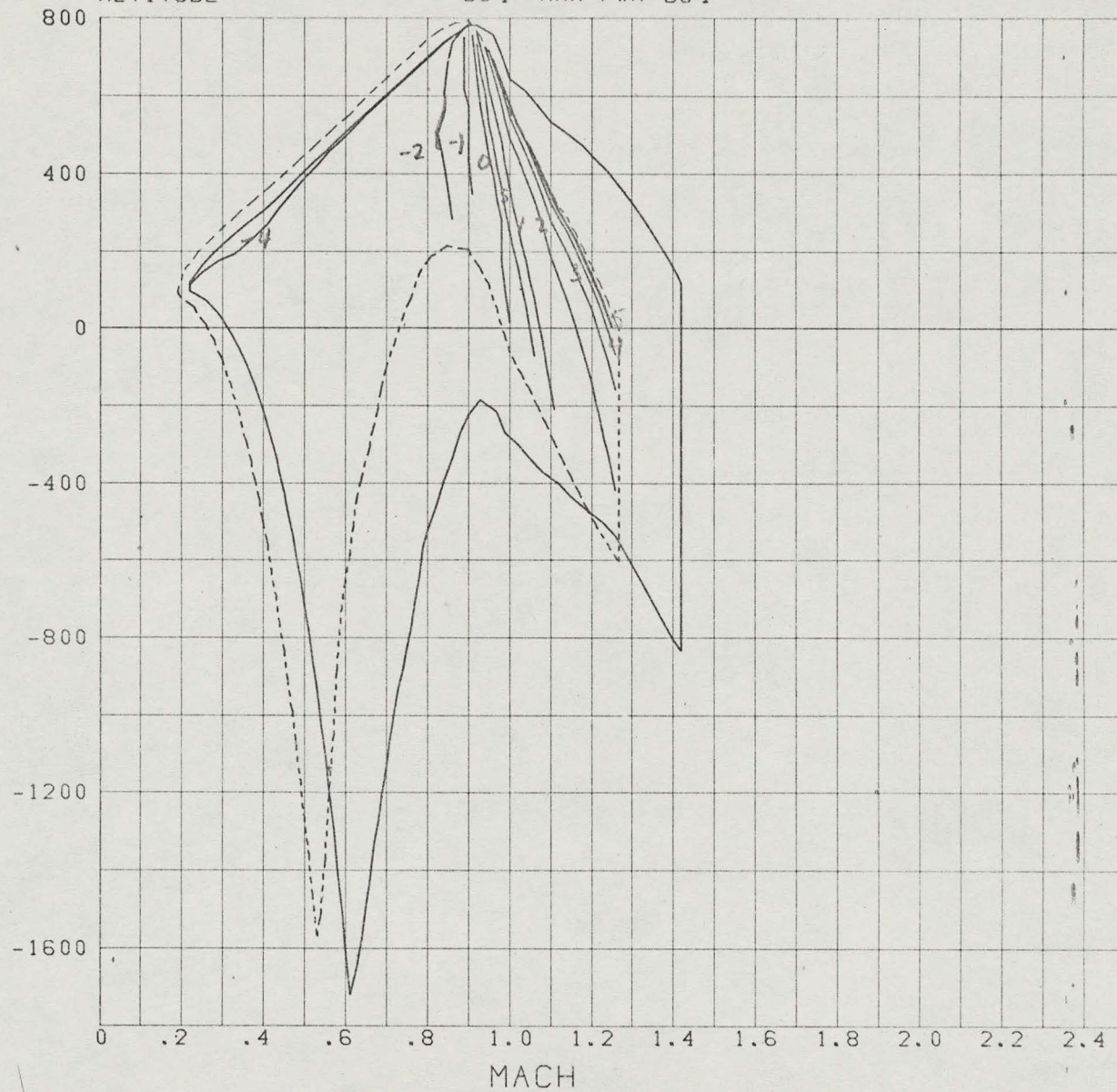
MANEUVER DIAGRAM

ALTITUDE 10000

416A31. - 610ECU

DC 1 - MAX PWR - DC 1

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/ENFDP

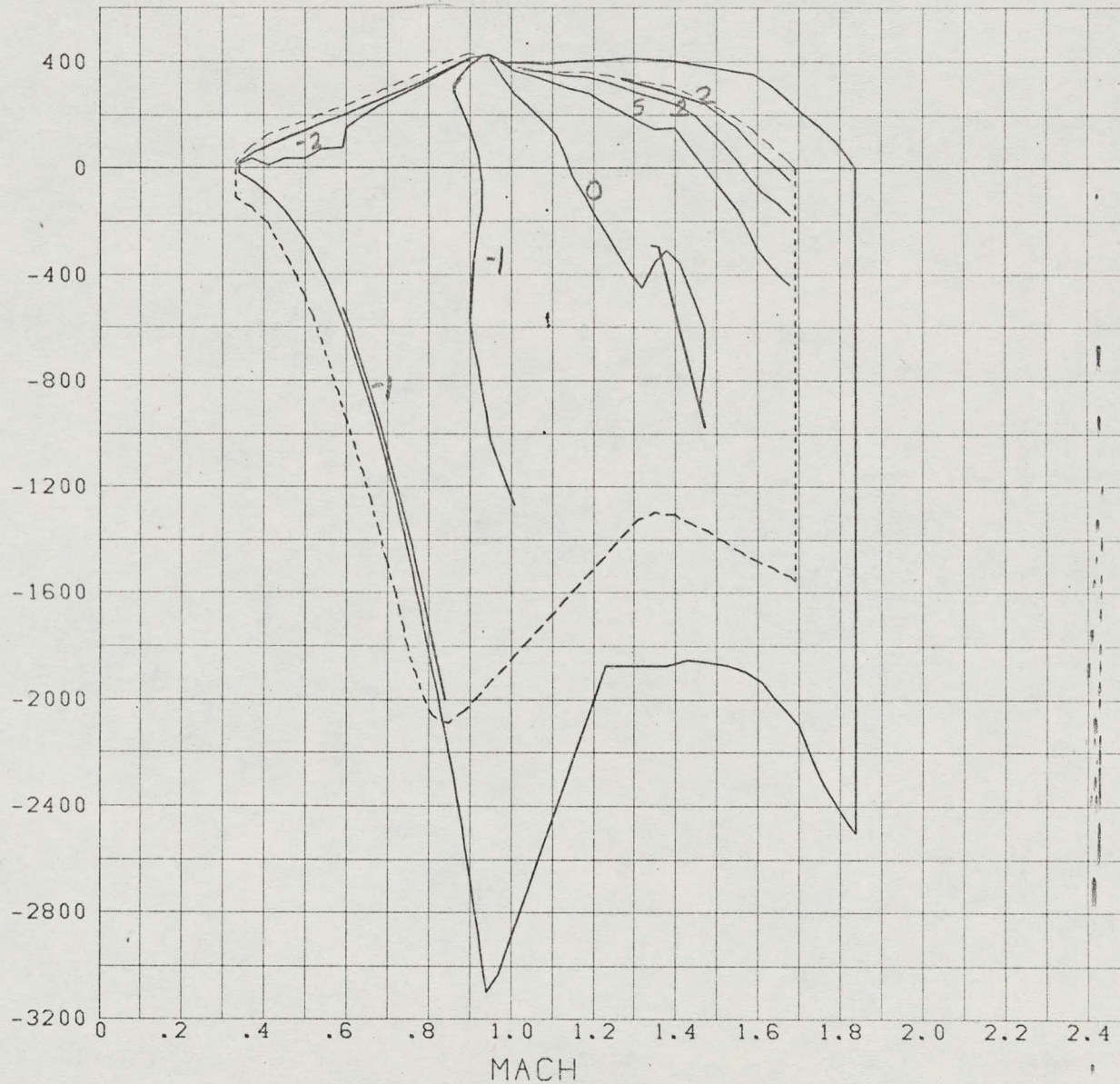
22126

24578

MANEUVER DIAGRAM JAN 10 1975 416A31 - 610ECU
ALTITUDE 30000 100/ DC 1 - MAX PWR - DC 1

HORIZONTAL ATTITUDE

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/ENFDP

$$\Delta PS = \frac{416A31}{DC1 - MAX PWR - DC1} - \frac{610ECU}{OPT L/D}$$

22126

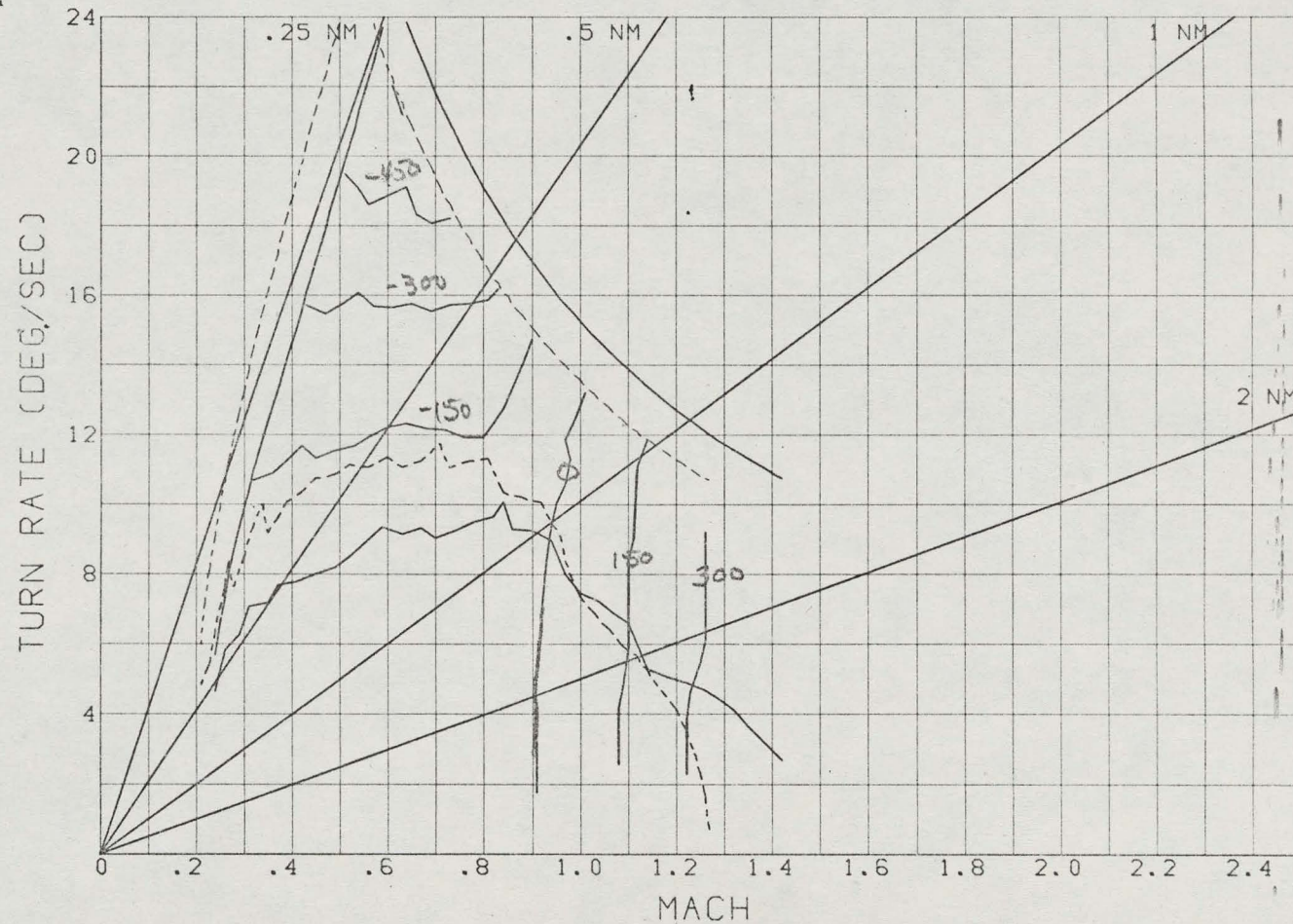
HORIZONTAL ATTITUDE

24598

JAN 10 1975

MANEUVER DIAGRAM

ALTITUDE: 10000



$$\Delta PS = \frac{416A31}{DC1 - MAX PWR - DC1} - \frac{610ECU}{OPT L/D}$$

22126

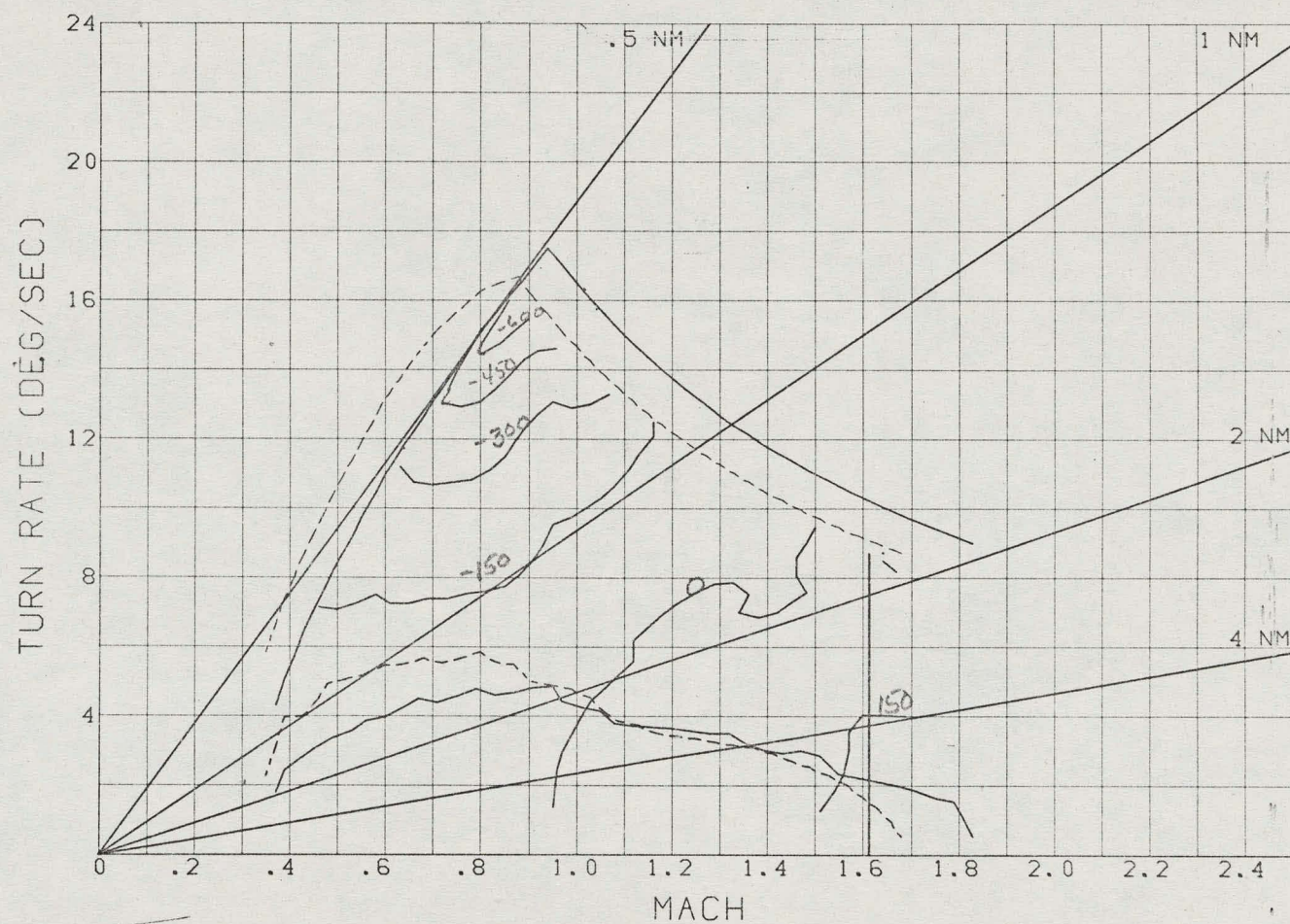
24598

HORIZONTAL ATTITUDE

JAN 10 1975

MANEUVER DIAGRAM

ALTITUDE: 30000



PLOT PREPARED BY ASD/ENFDP

DPS 416A31 -610ECU

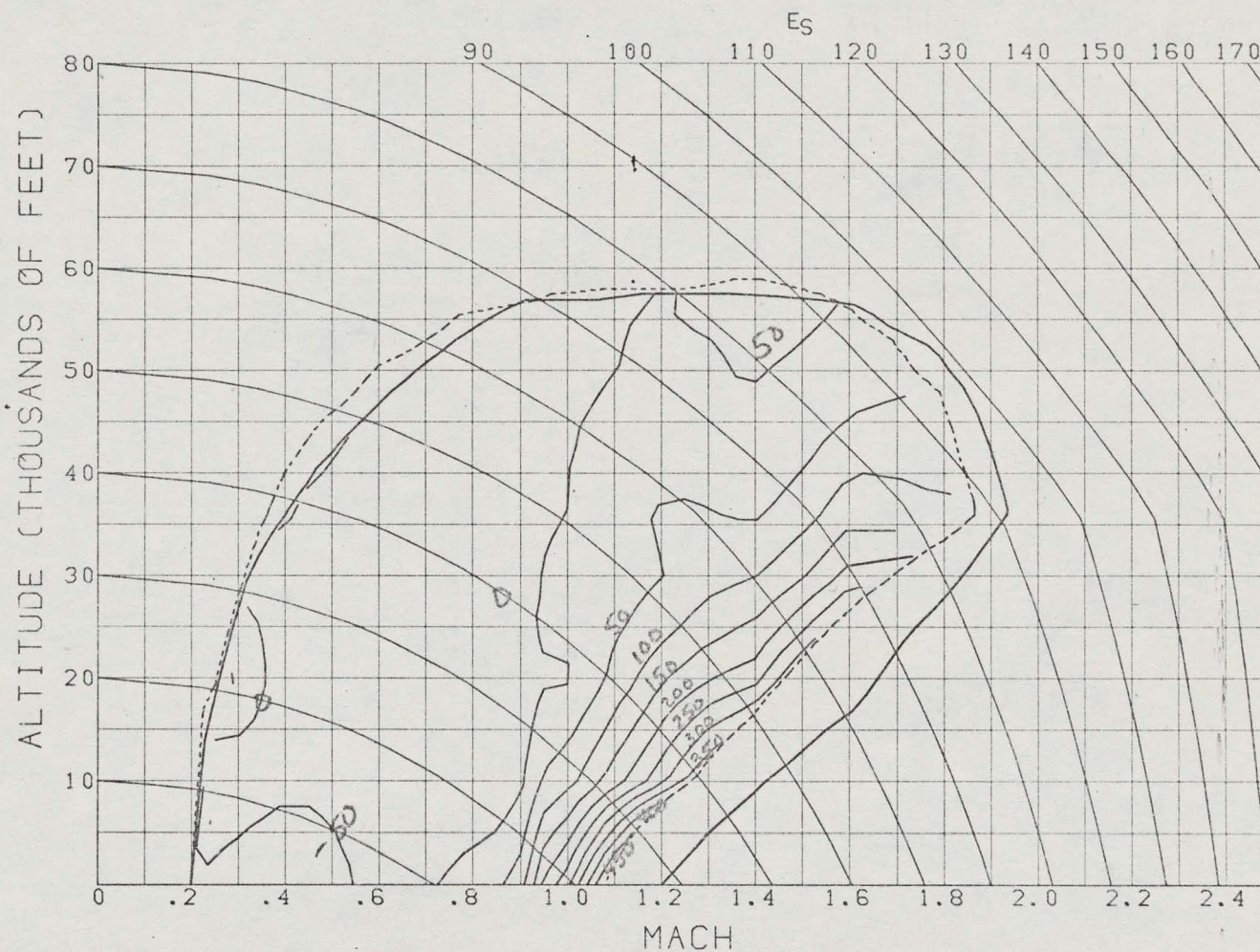
MAXIMUM POWER

D/C 1 D/C 1

JAN 10 1975

22126 24598

1.00 G DIAGRAM



DPS 416A31 -610ECU

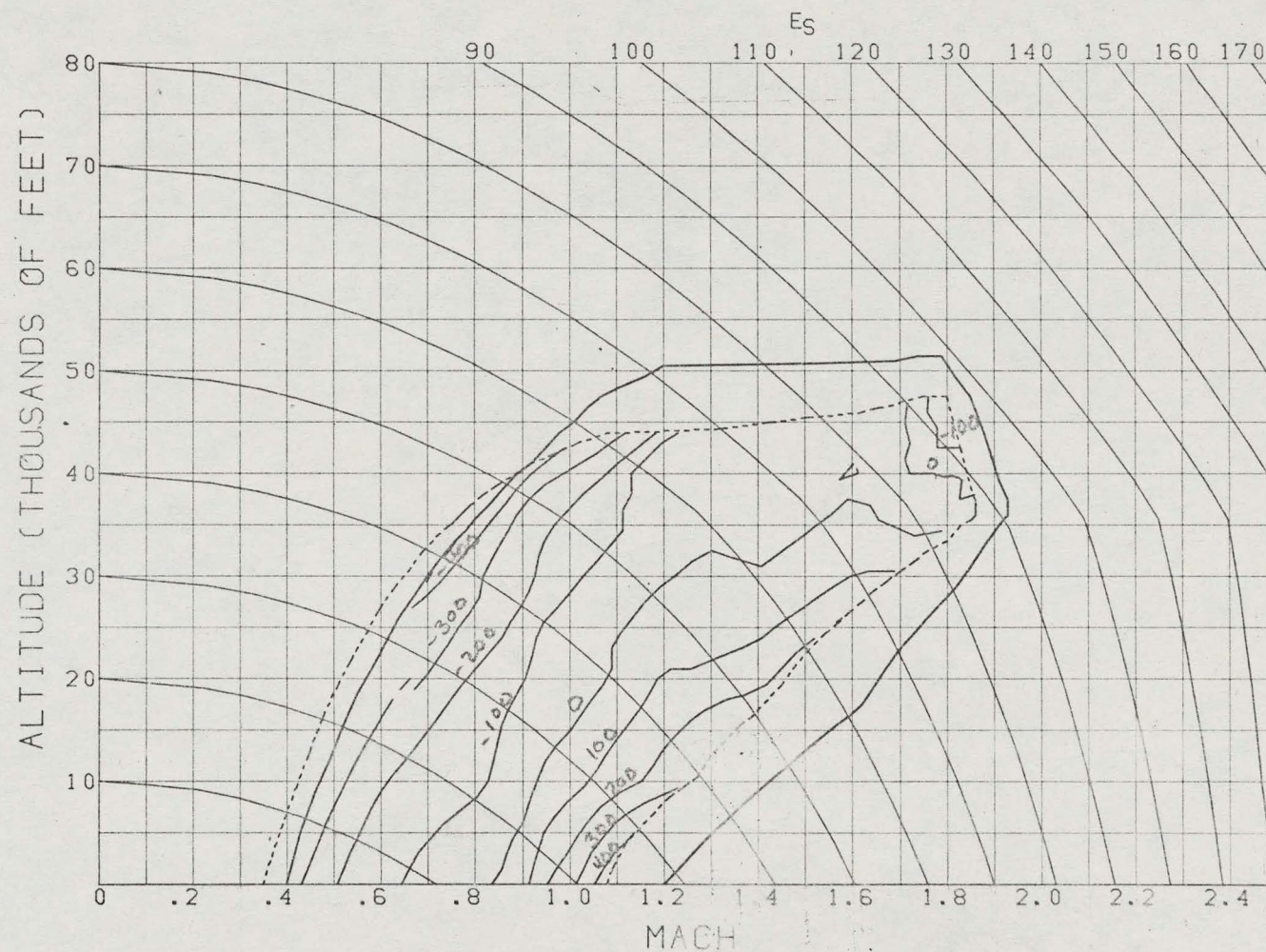
MAXIMUM POWER

D/C 1 D/C 1

22126 24598

5.00 G DIAGRAM

JAN 10 1978



PLOT PREPARED BY ASD/ENRDP

DPS 416A31 -610ECU

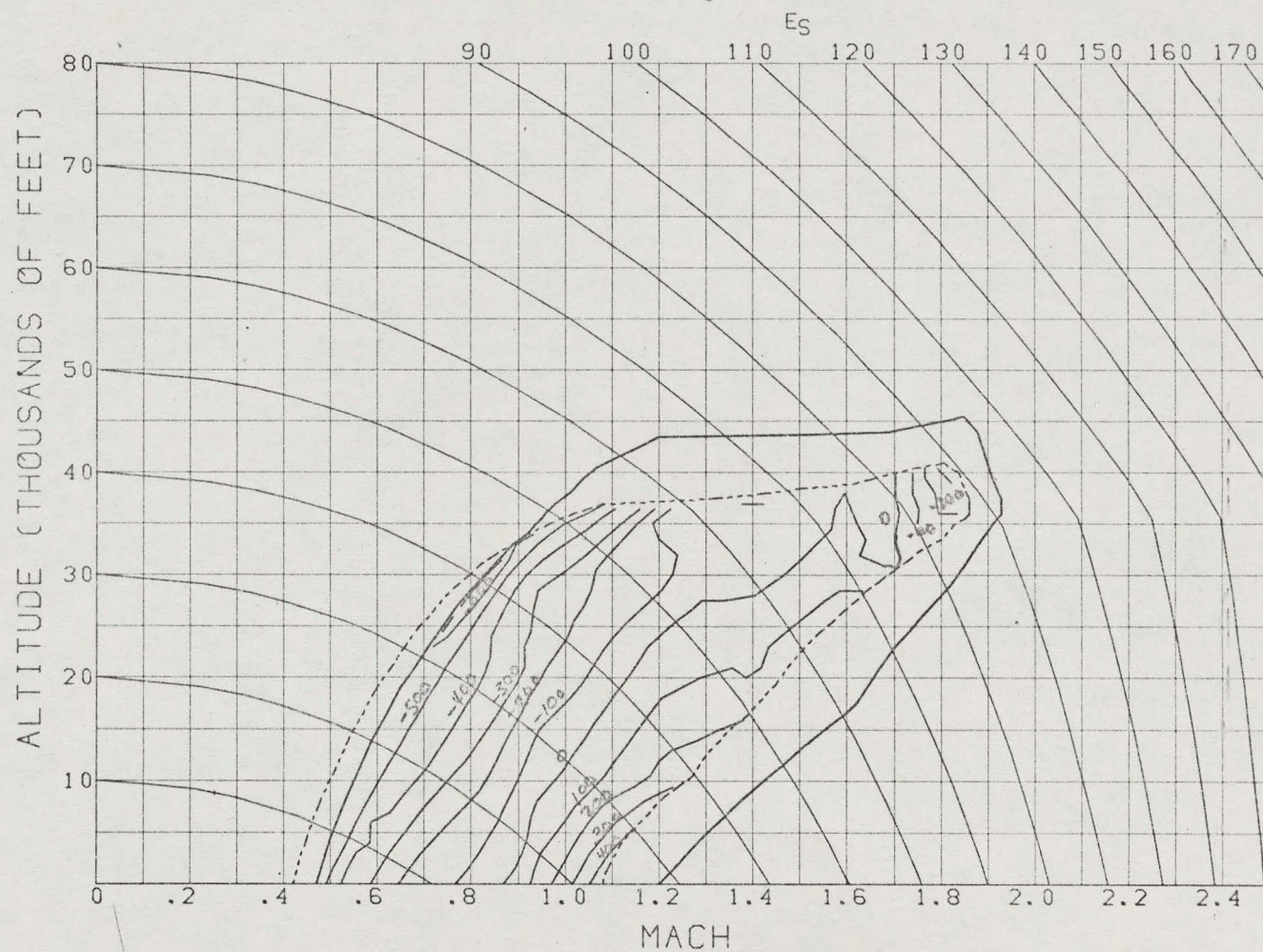
MAXIMUM POWER

D/C 1 D/C 1

22126 24598

7.00 G DIAGRAM

JAN 10 1975



2-A-9
19249

4-A-7
41322
50% (6029)

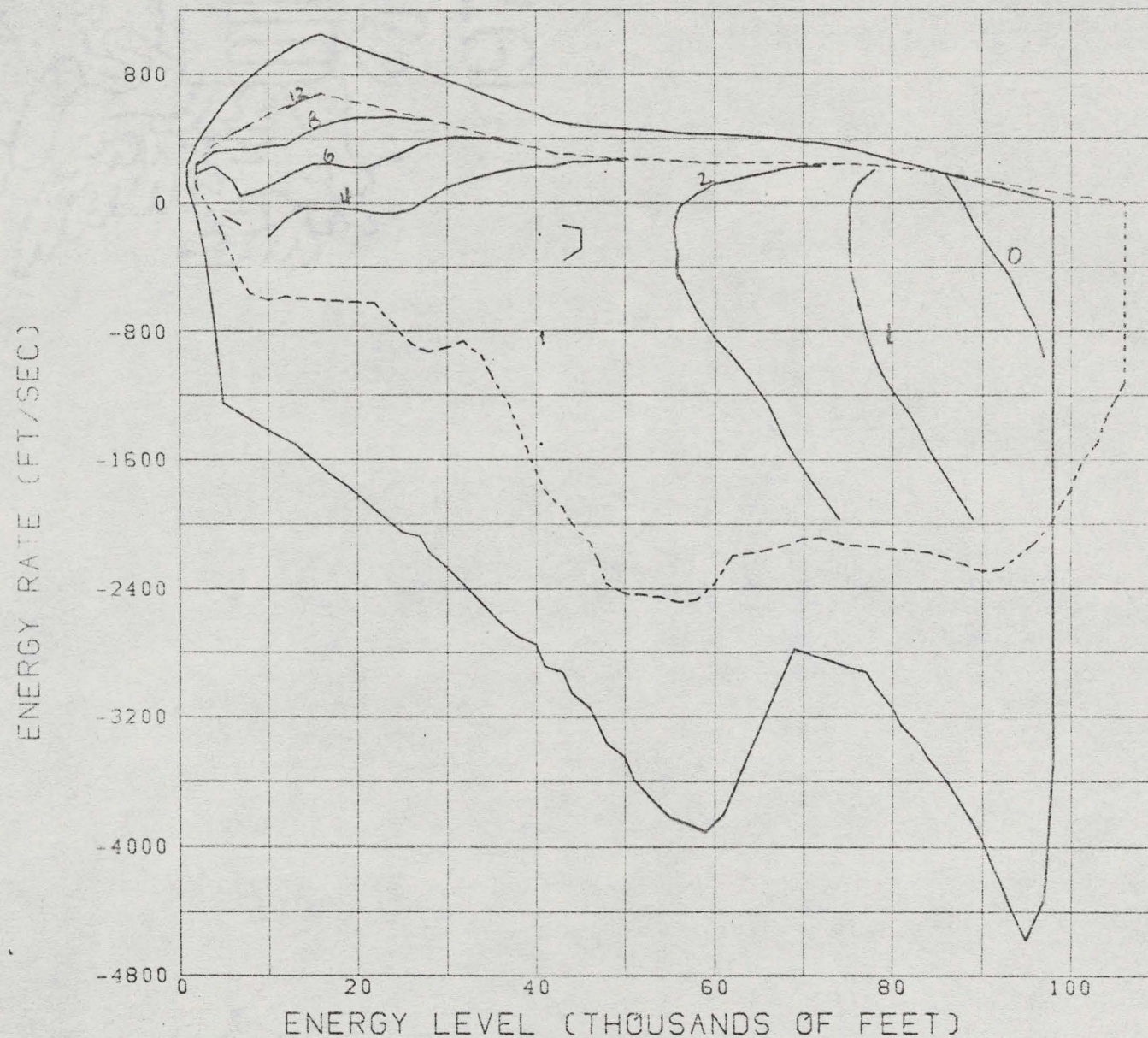
1-1-75

410234 - F4ES

MAX MANEUVER DIAGRAM

DC 1 -MAX PWR-DC 2

HORIZONTAL ATTITUDE



PLOT PREPARED BY ASD/ENFDP

$\Delta PS = 410234 - F4ES$

DC 1 - MAX PWR - DC 2

HORIZONTAL ATTITUDE

OPT L/D

2-A-9

4-A-7

19249

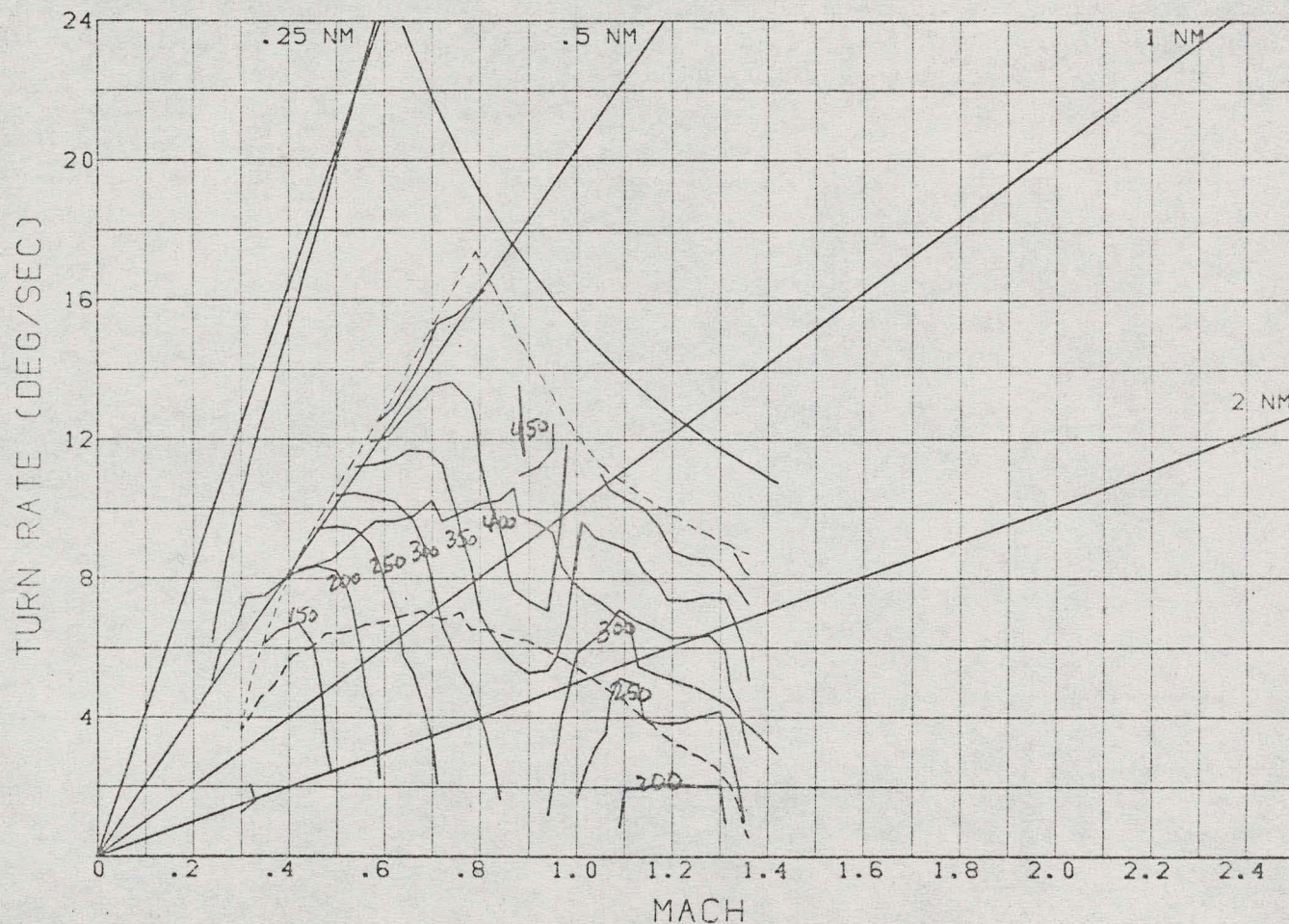
41322

JAN 5 1975

50% (6029)

MANEUVER DIAGRAM

ALTITUDE: 10000.



PLOT PREPARED BY ASD/ENFDP

$\Delta PS = 410234 - F4ES$

DC1 - MAX PWR - DC2
OPT L/D

HORIZONTAL ATTITUDE

2-A-9

4-A-7

JAN 3 1975

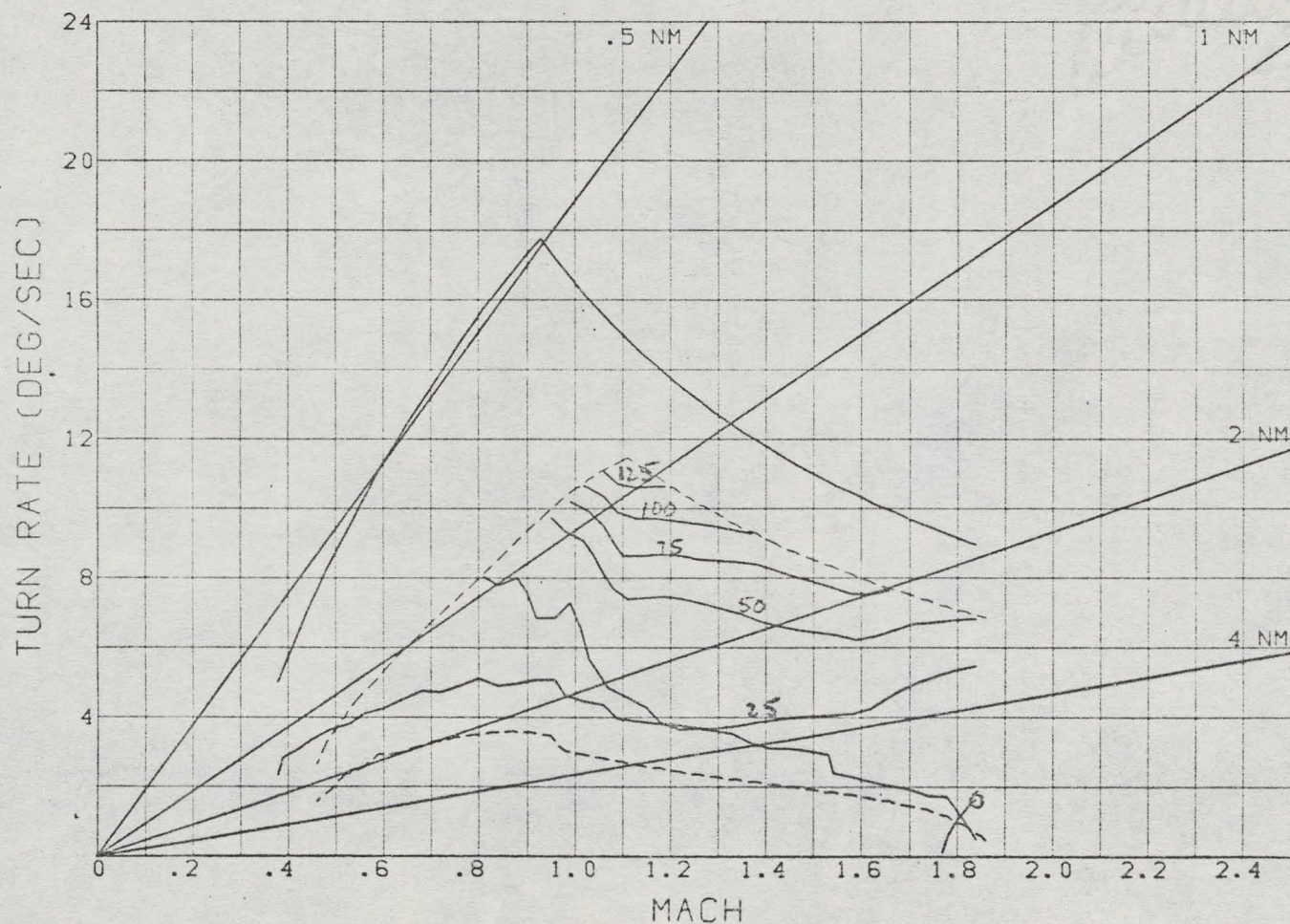
19249

41322

5070(6029)

MANEUVER DIAGRAM

ALTITUDE: 30000



PLOT PREPARED BY ASD/ENFDP

DPS 410234 -F4ES

MAXIMUM POWER

D/C 1 D/C 2

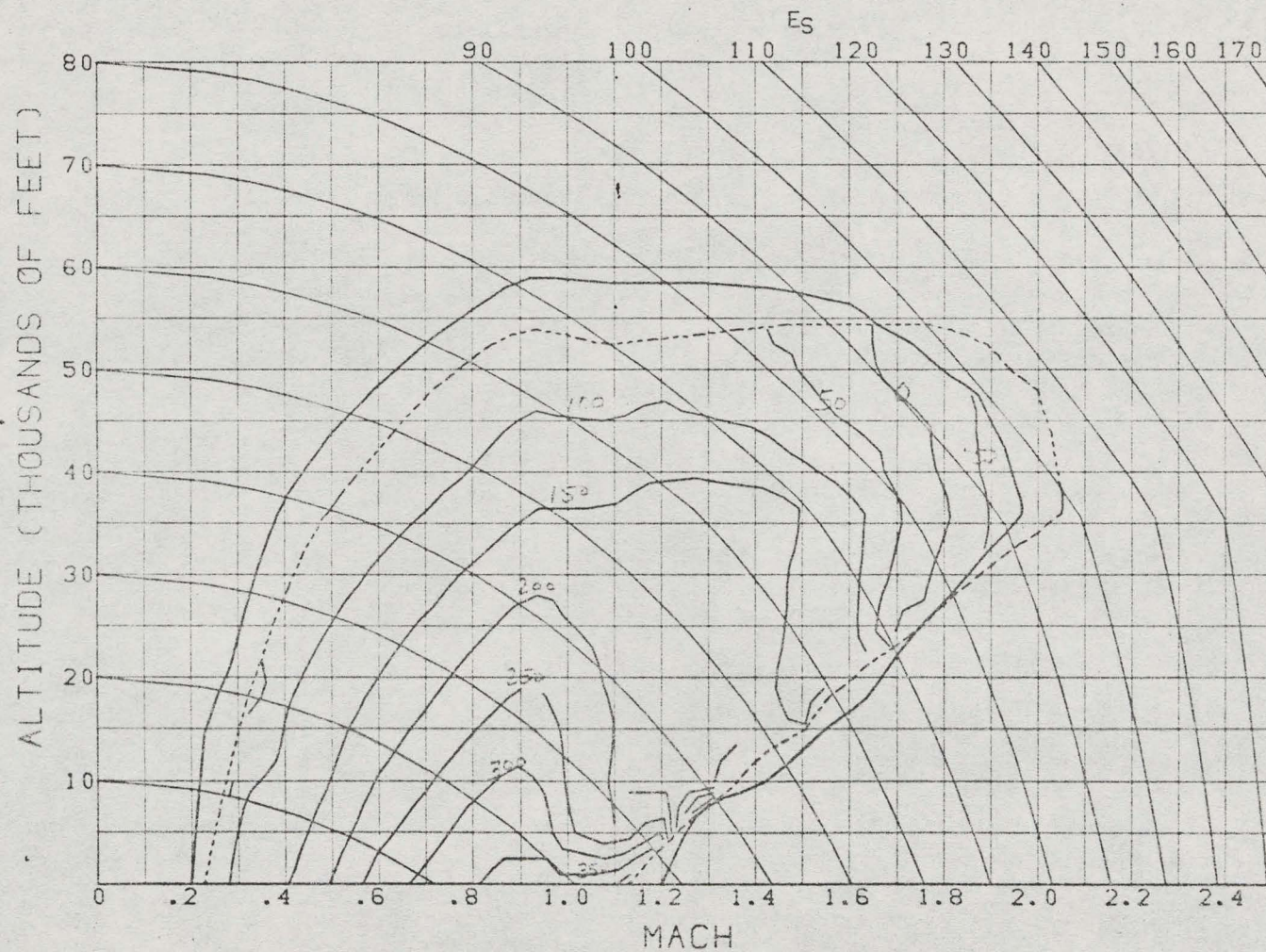
JAN 6 1975

2-A-9 4-A-7

19243 41322

5070(6029)

1.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 410234 -F4ES

MAXIMUM POWER

D/C 1

D/C 2

JAN 3 1975

2-4-9

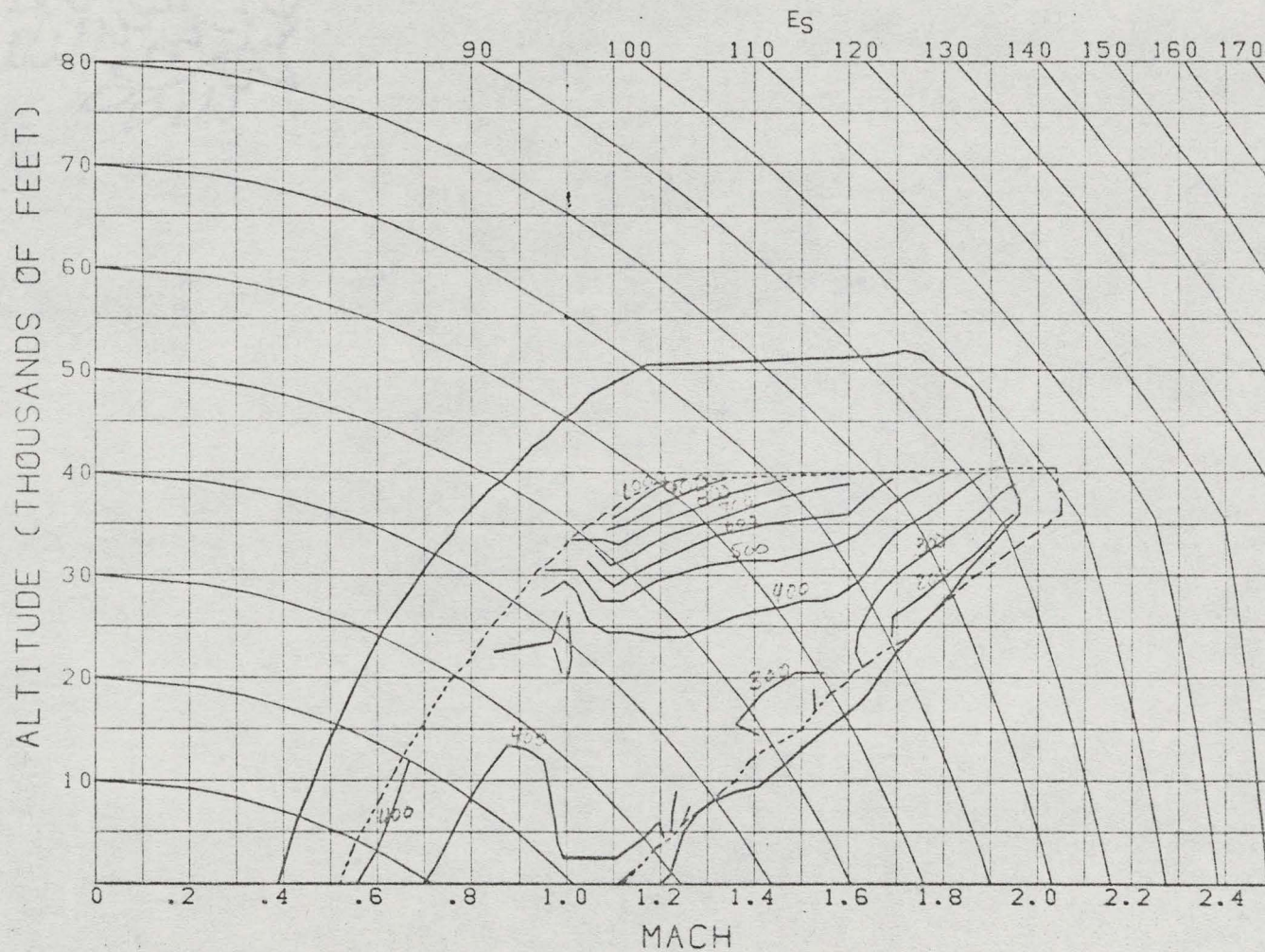
9-4-7

19243

41322

5070 (6029)

5.00 G DIAGRAM



DPS 410234 -F4ES

MAXIMUM POWER

D/C 1 D/C 2

2-A-9

4-A-7

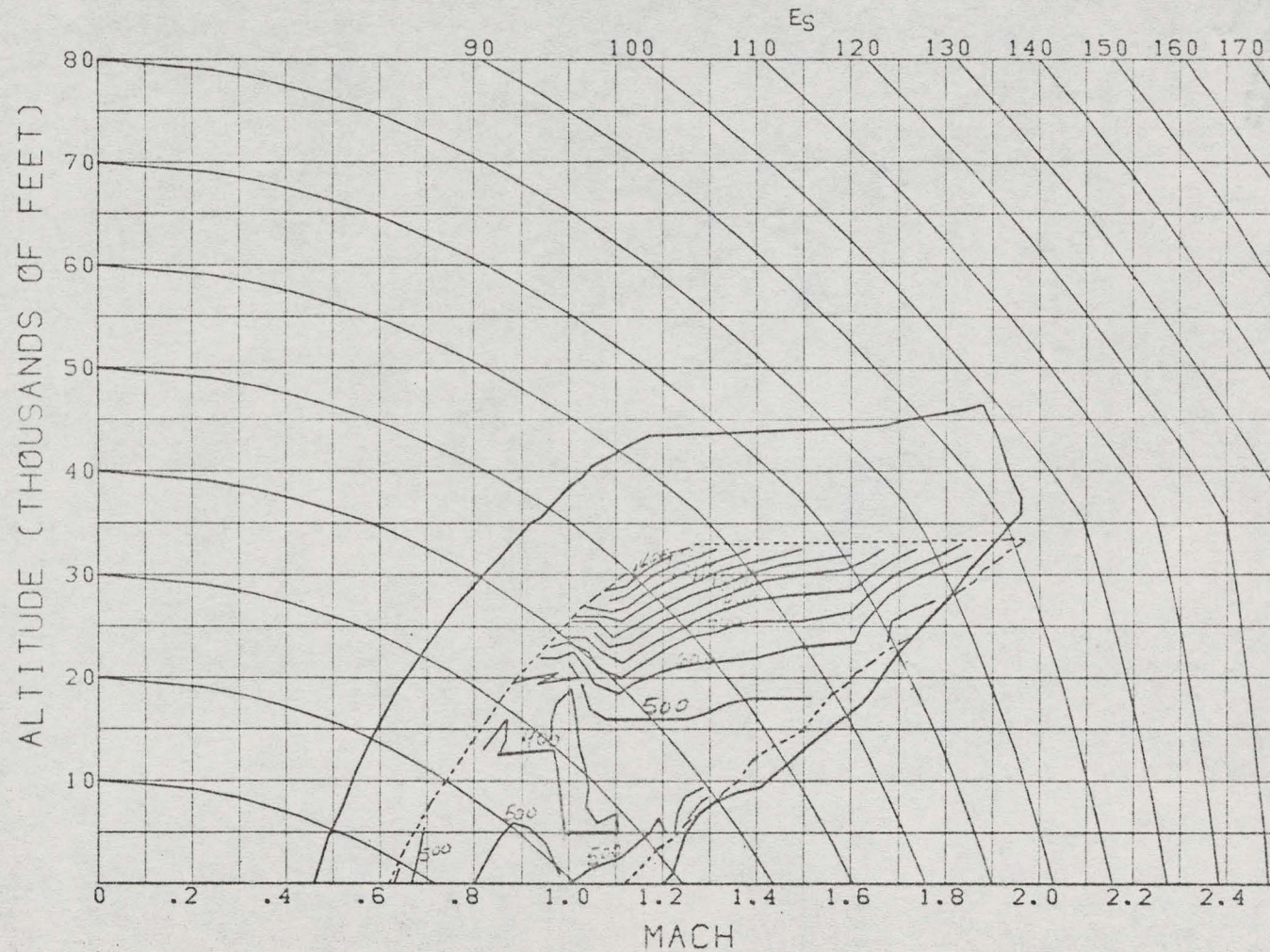
JAN 8 1975

19243

41322

5070 (6029)

7.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 410234 -F4ES

MILITARY POWER

JAN 3 1975

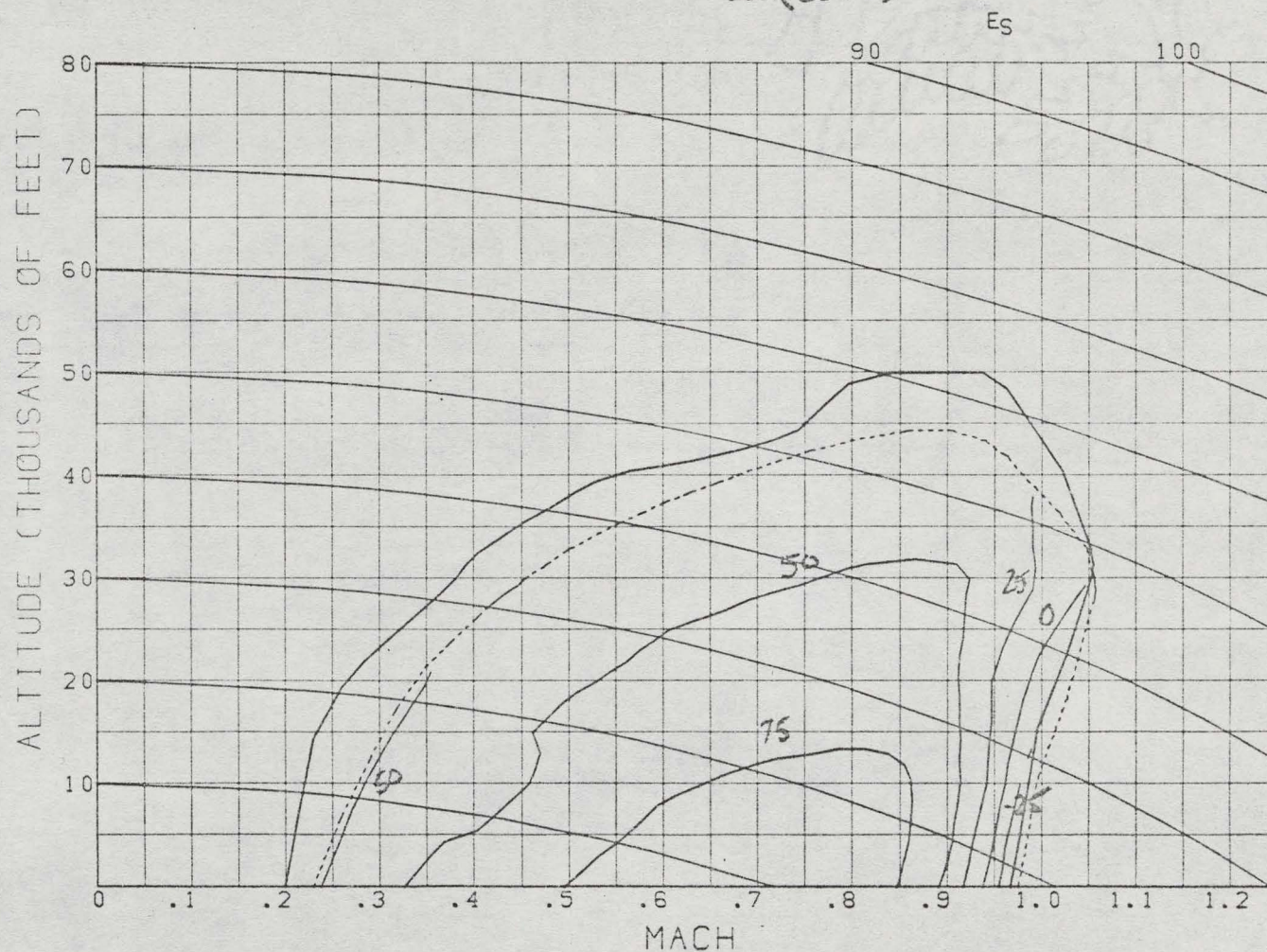
D/C 1 D/C 2

2-A-9 4-A-7

19249 41322

50% (6029)

1.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 410234 -F4ES
MILITARY POWER

JAN 3 1975

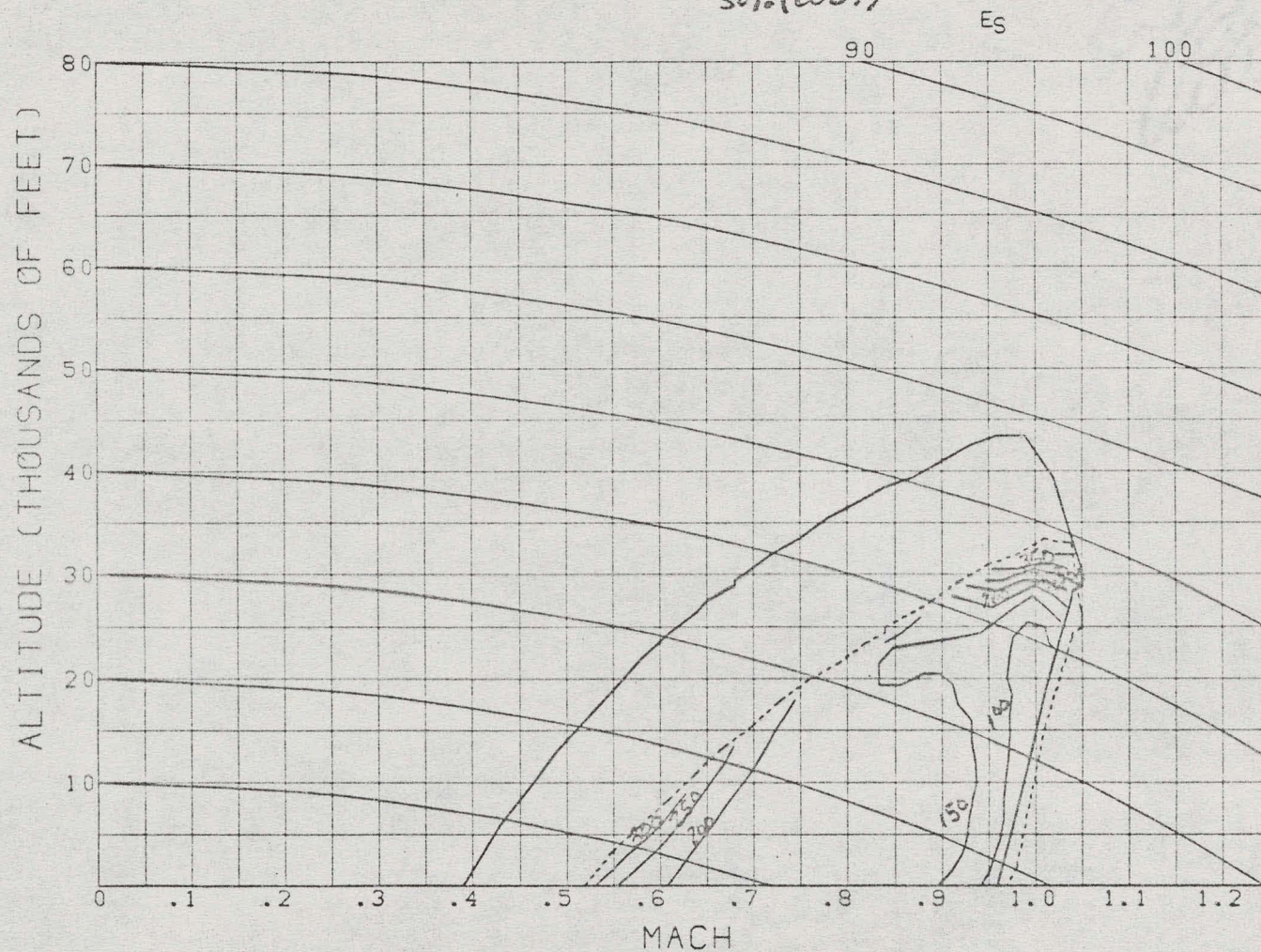
D/C 1 D/C 2

2-A-9 4-A-7

19249 41322

507. (6029)

5.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 410234 -F4ES

MILITARY POWER

D/C 1 D/C 2

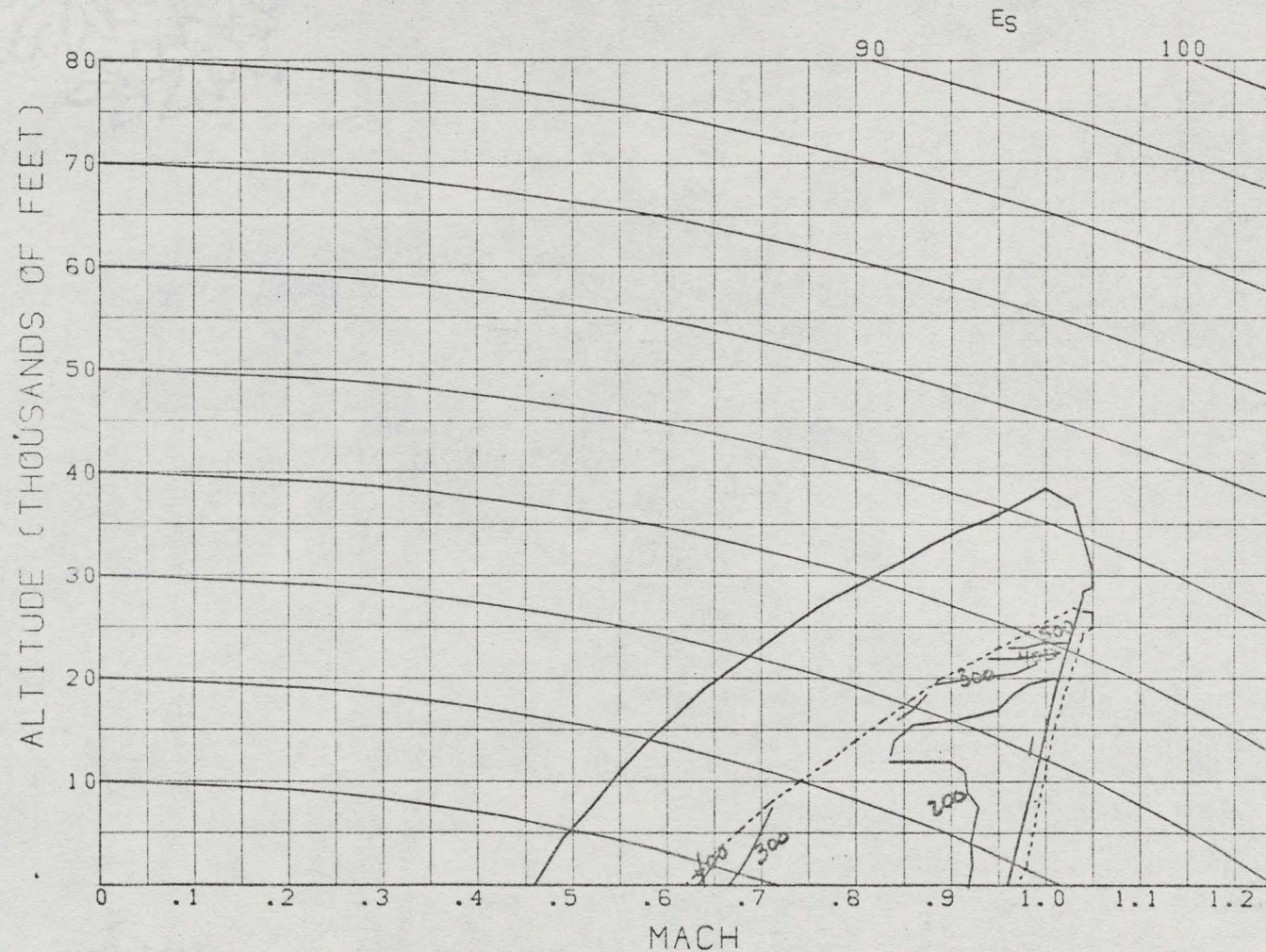
2-A-9 4-A-7

19243 41322

JAN 3 1975

7.00 G DIAGRAM

50% (6029)



PLOT PREPARED BY ASD/ENFDP

2-A-9
19249

2-AT
11015
5280 (1290)

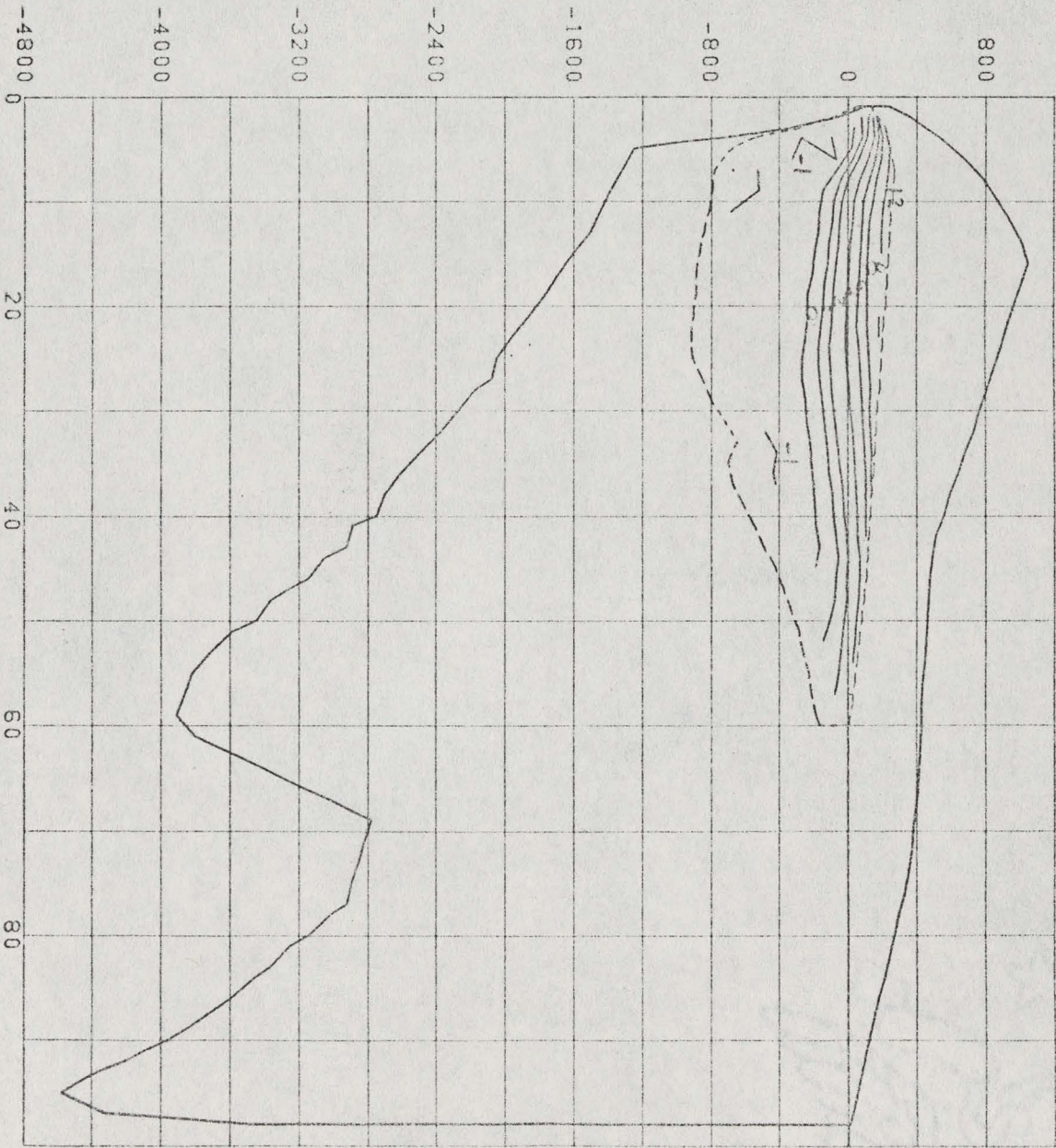
1-1-75

MAX MANEUVER DIAGRAM

410234 - 311
DC1 - MAX PWR-DC1

HORIZONTAL ALTITUDE

ENERGY RATE (FT/SEC)



ENERGY LEVEL (THOUSANDS OF FEET)

PLOT PREPARED BY ASD/ENFDP

2-A-9
19249

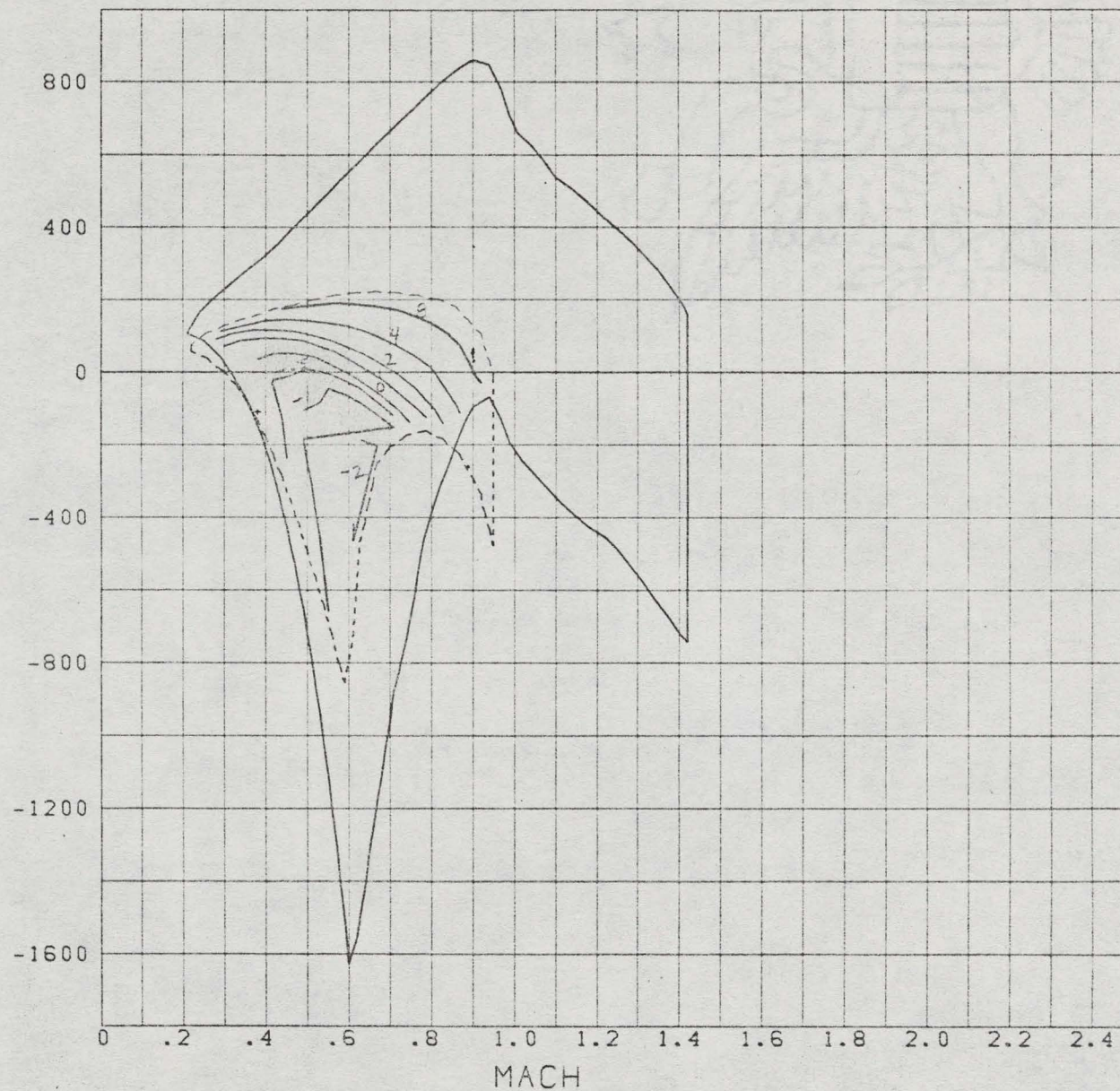
Z-AT
11015
5070(1290)

JAN 3 1975

MANEUVER DIAGRAM
ALTITUDE 10000

410234 - 311
DC 1 - MAX PWR - DC 1

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/ENFDP

2-A-9
14249

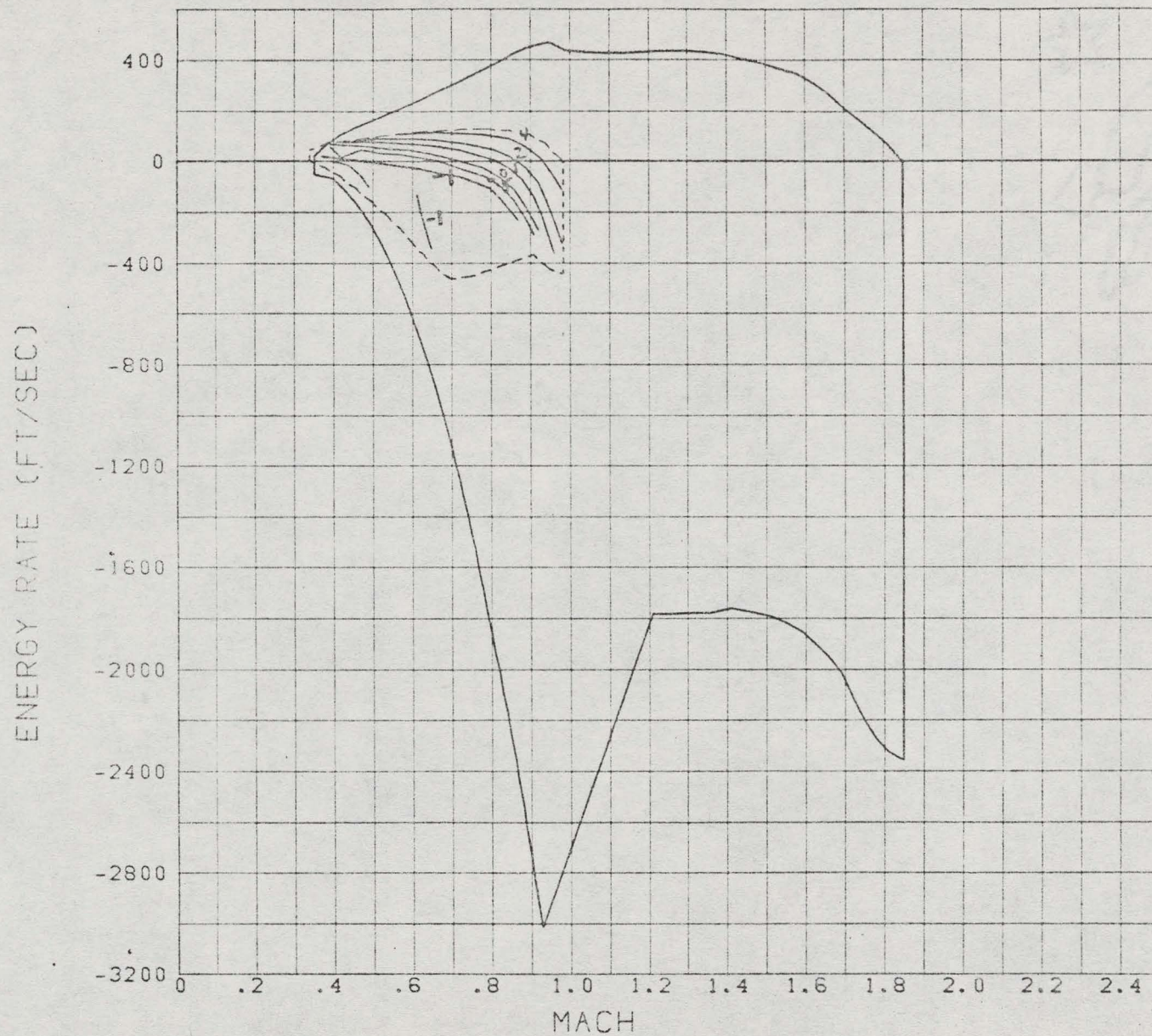
2-AT
11015
50% (1290)

JAN '3 1975

MANEUVER DIAGRAM
ALTITUDE 30000

410234 - 311
DC 1 - MAX PWR - DC 1

HORIZONTAL ATTITUDE



PLOT PREPARED BY ASD/ENFDP

$$\Delta PS = \frac{410234}{DC1 - MAX PWR - DC1} - \frac{311}{OPT L/D} \text{ --- HORIZONTAL ATTITUDE}$$

DC1 - MAX PWR - DC1
OPT L/D

HORIZONTAL ATTITUDE

2-A-4

2-AT

JAN 8 1975

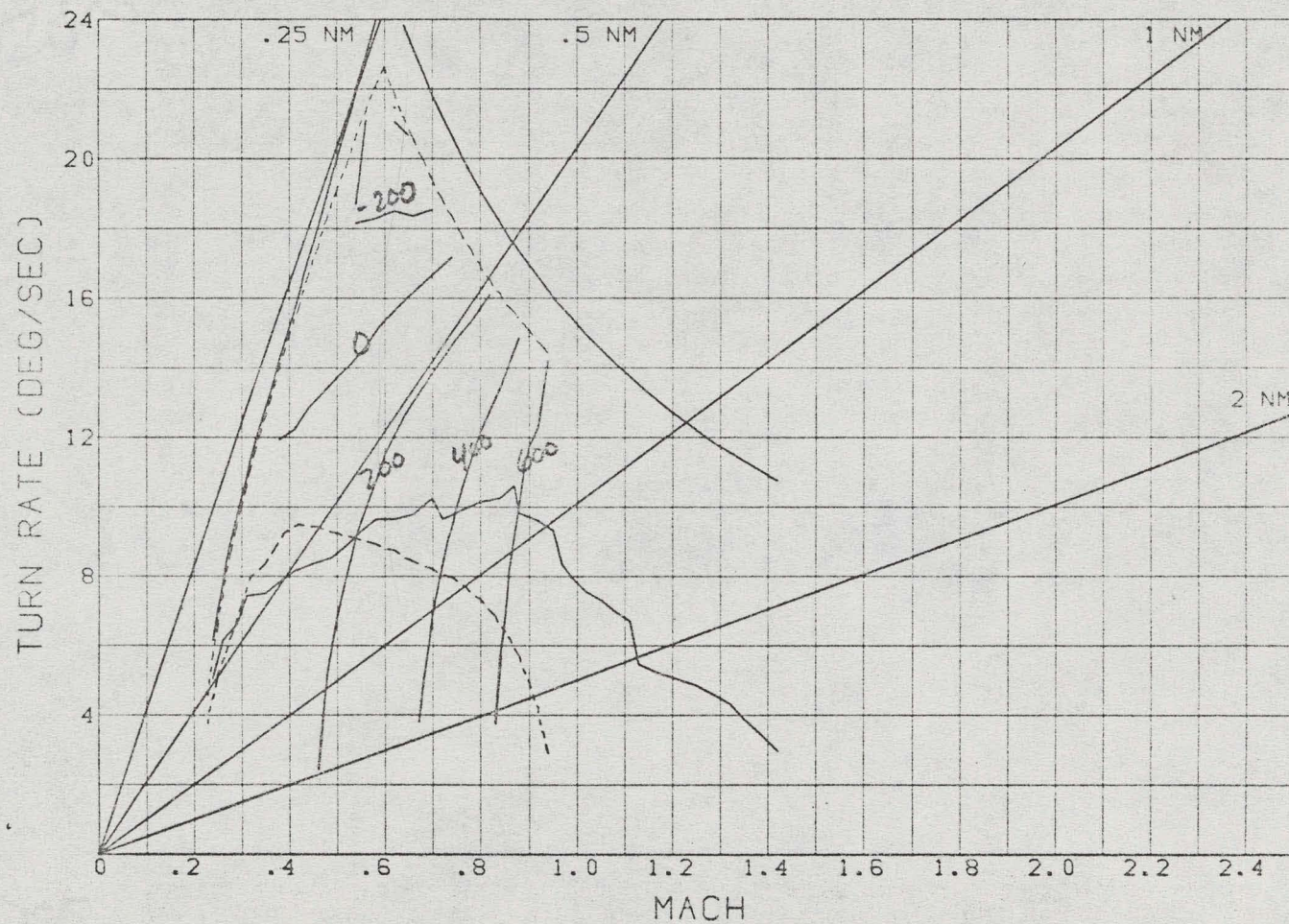
19249

11015

5070(1290)

MANEUVER DIAGRAM

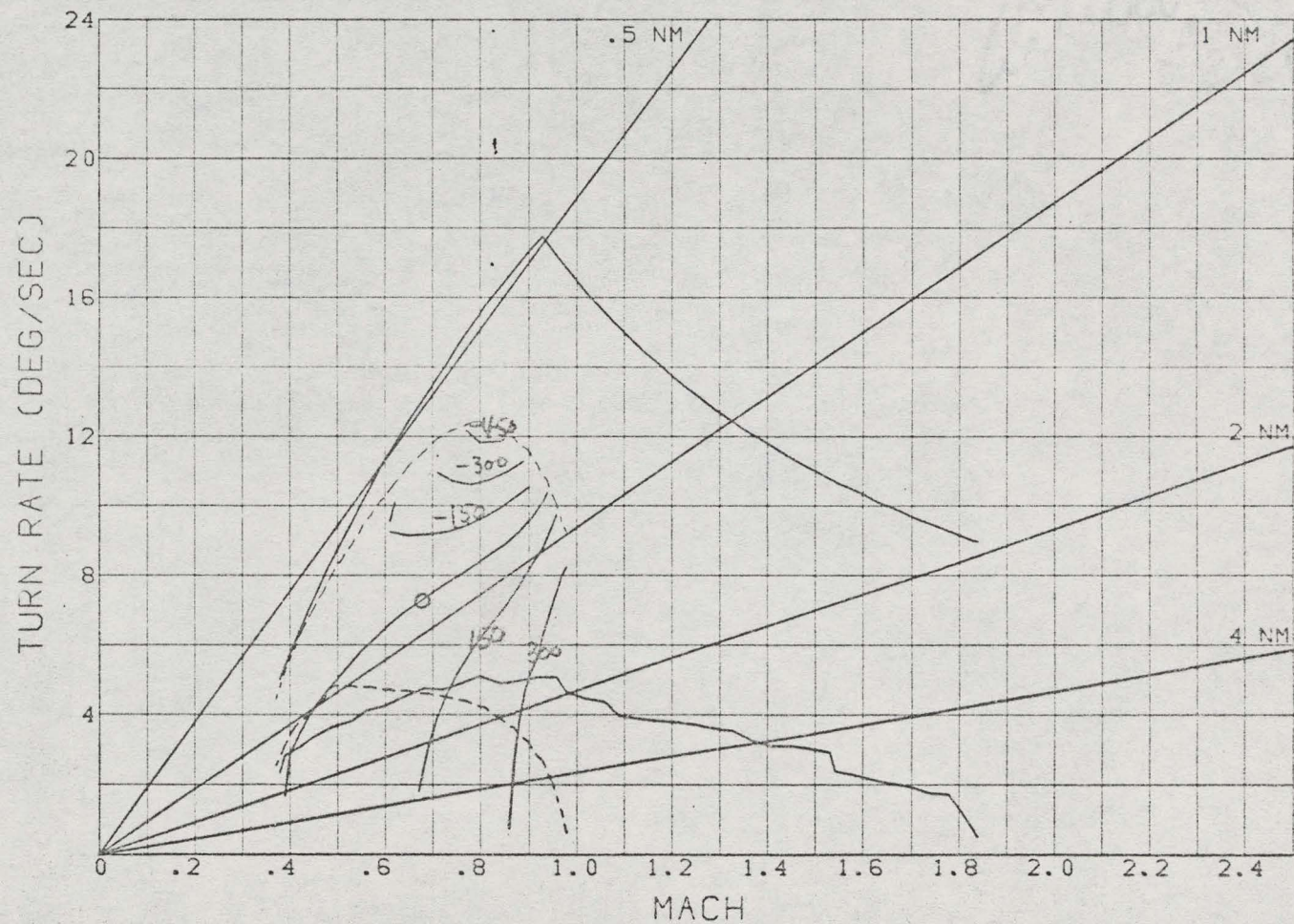
ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFDP

$\Delta PS = \frac{410234}{DC1 - MAX \ PWR - DC1} - \frac{311}{OPT \ L/D}$ HORIZONTAL ATTITUDE
 2-A-9 2-AT
 19249 11015
 50% (1290)

MANEUVER DIAGRAM
 ALTITUDE: 30000



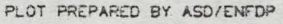
PLOT PREPARED BY ASD/ENFDP

1-1-75

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11015

5070(1290)



PLOT PREPARED BY ASD/ENFDP

1-1-75

DPS 410234 -311

MAXIMUM POWER

D/C 1 D/C 1

2-A-9

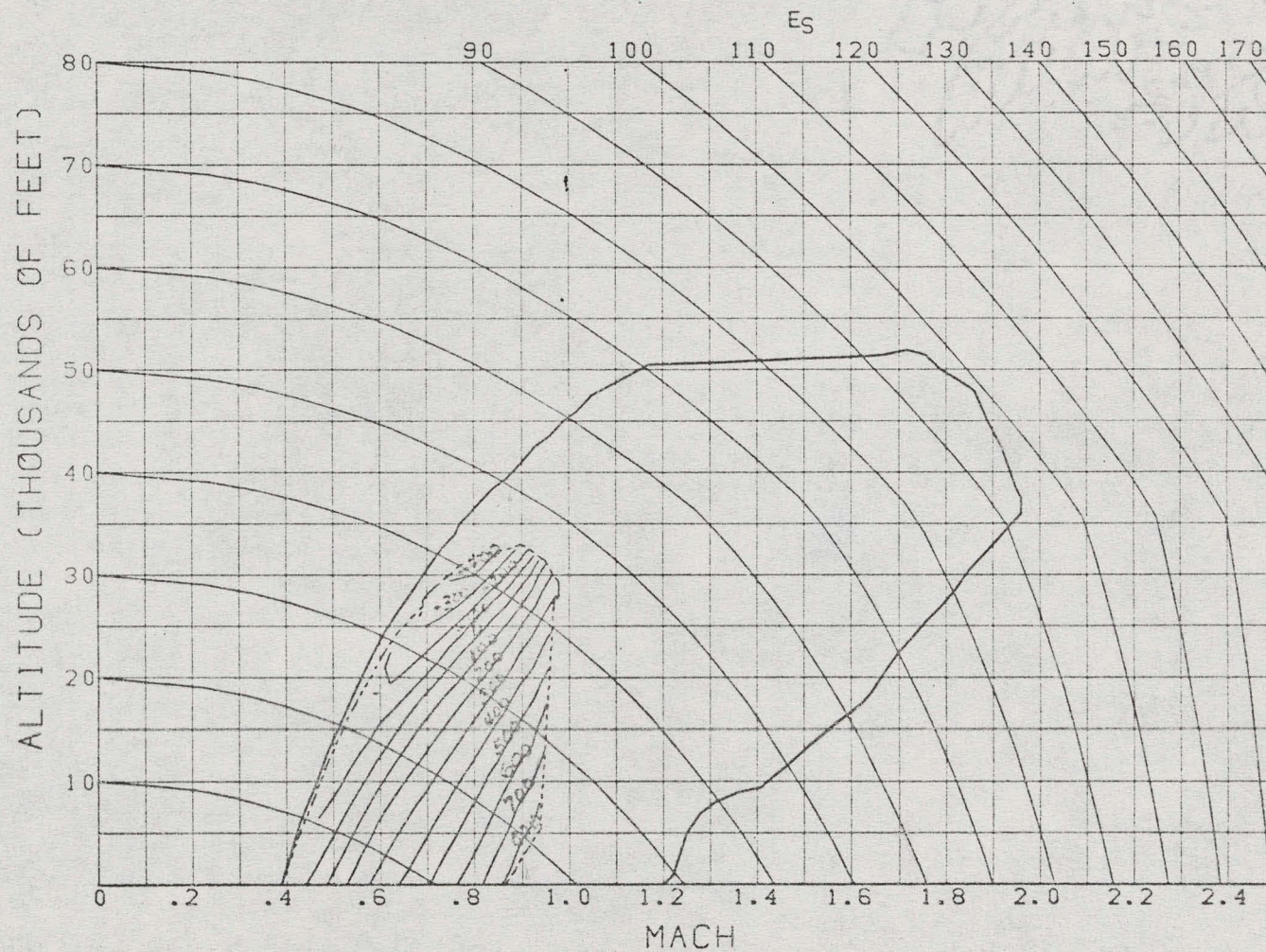
2-AT

19249

11015

5070(1290)

5.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 410234 -311

MAXIMUM POWER

JAN 3 1975

D/C 1 D/C 1

2-A-9

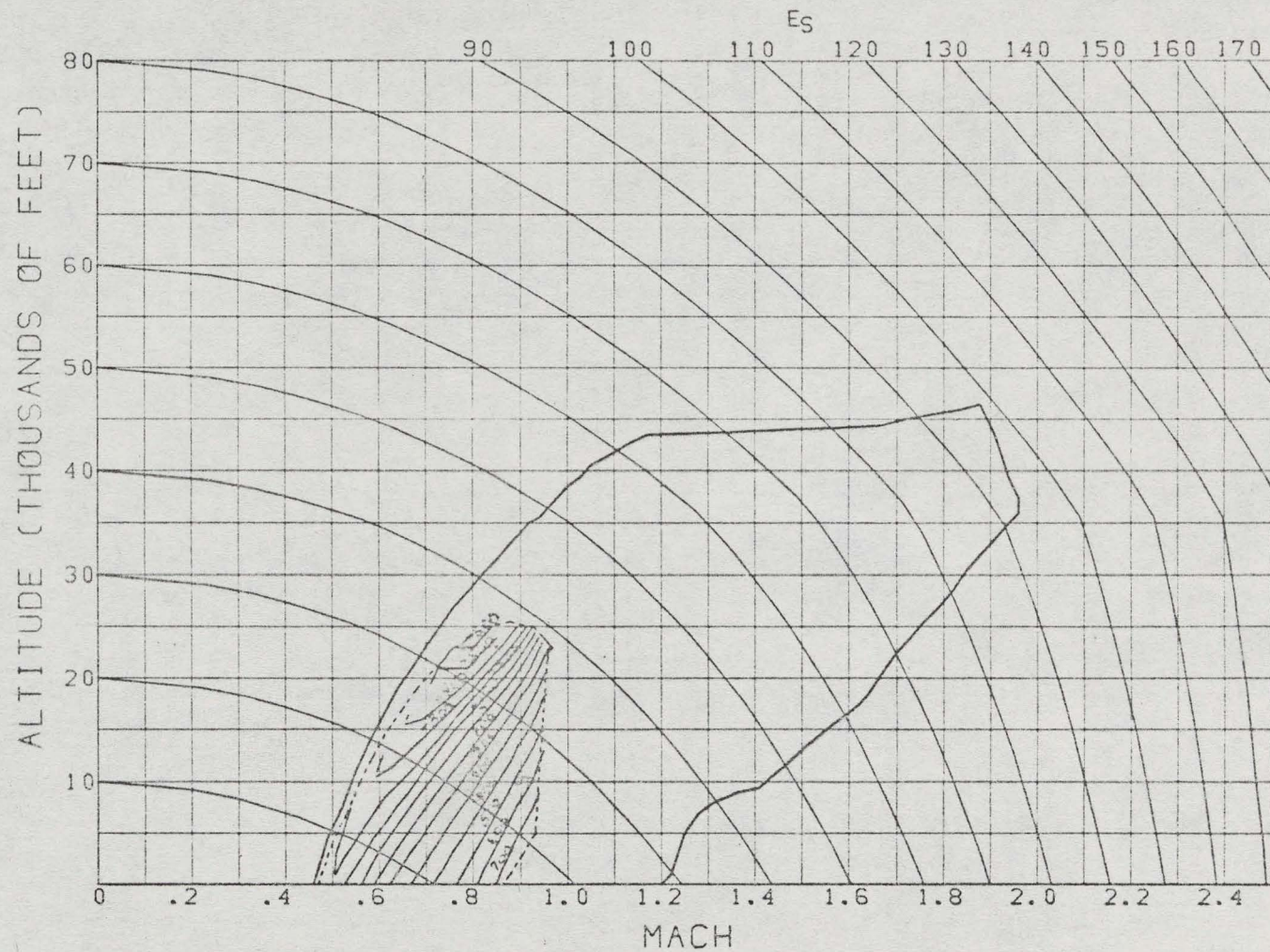
2-AT

19249

11015

50% (1240)

7.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 410234 -311

MILITARY POWER

D/C 1 D/C 1

2-A-Q

19249

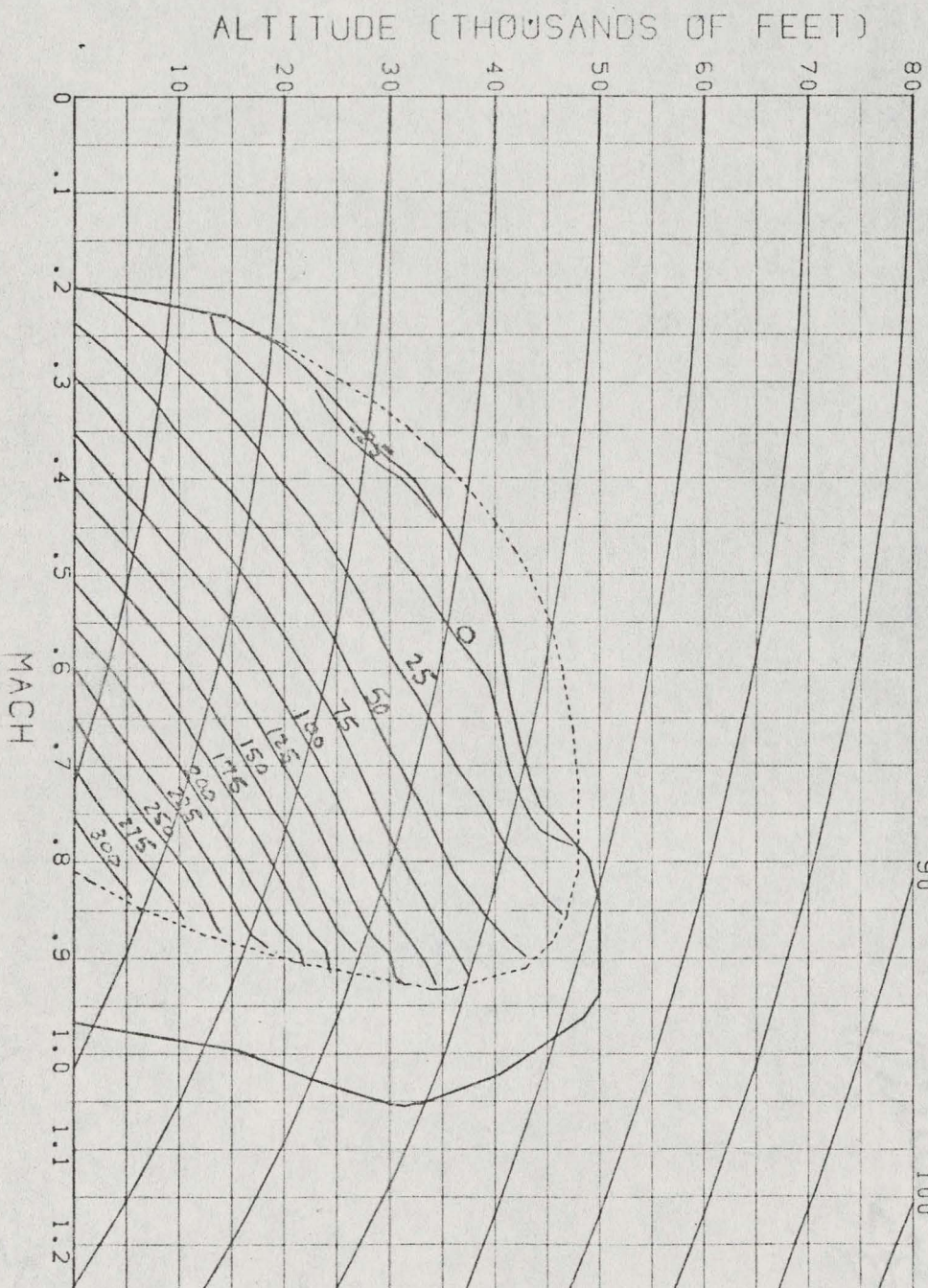
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1.00 G DIAGRAM

2-47

11015

5070 (1290)



PLOT PREPARED BY ASD/ENFDP

DPS 41 0234 -311

MILITARY POWER

D/C 1 D/C 1

JAN 3 1975

5.00 G DIAGRAM

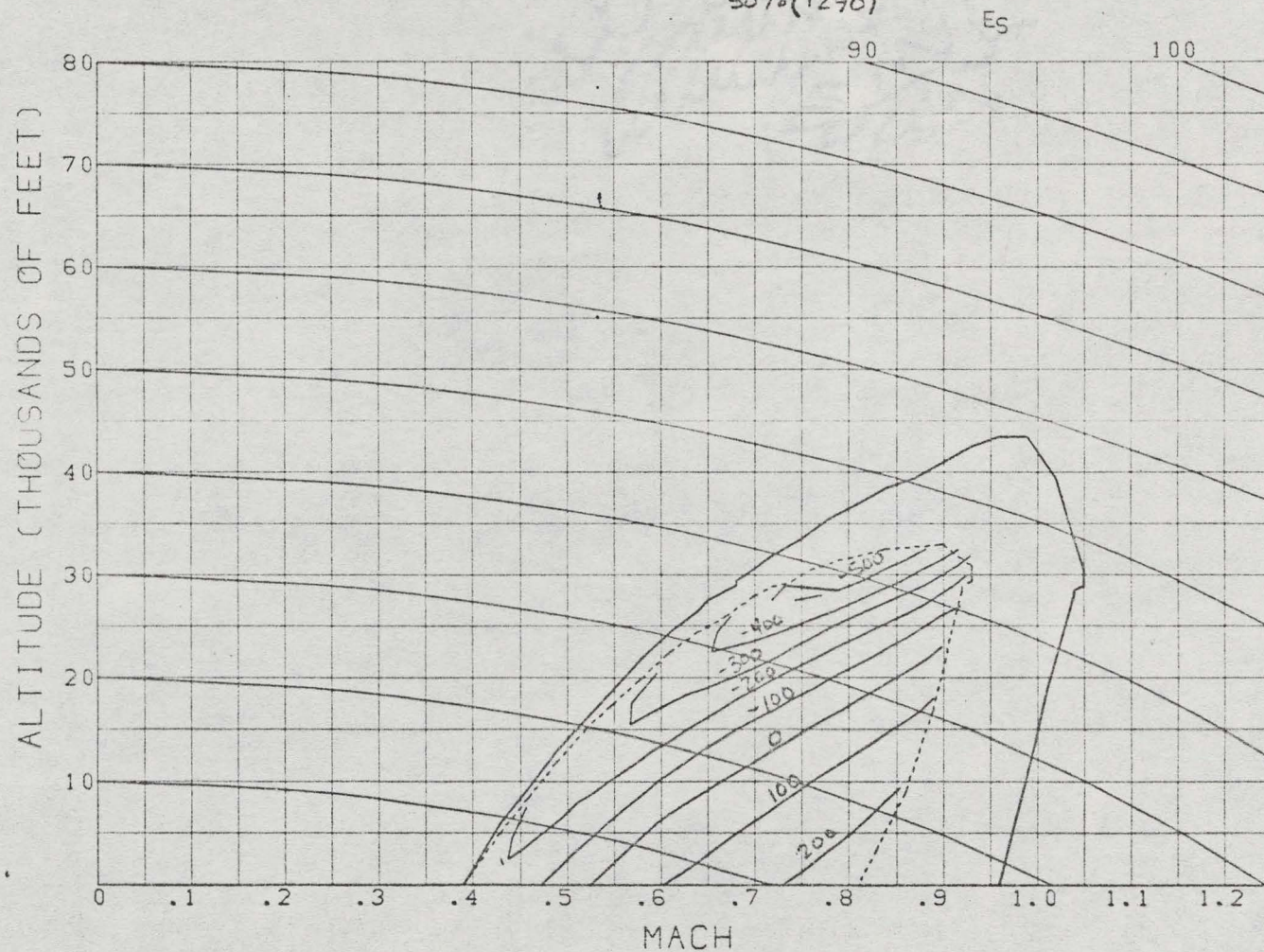
2-A-9

2-AT

19249

11015

507. (1290)



PLOT PREPARED BY ASD/ENFDP

DPS 410234 -311

MILITARY POWER

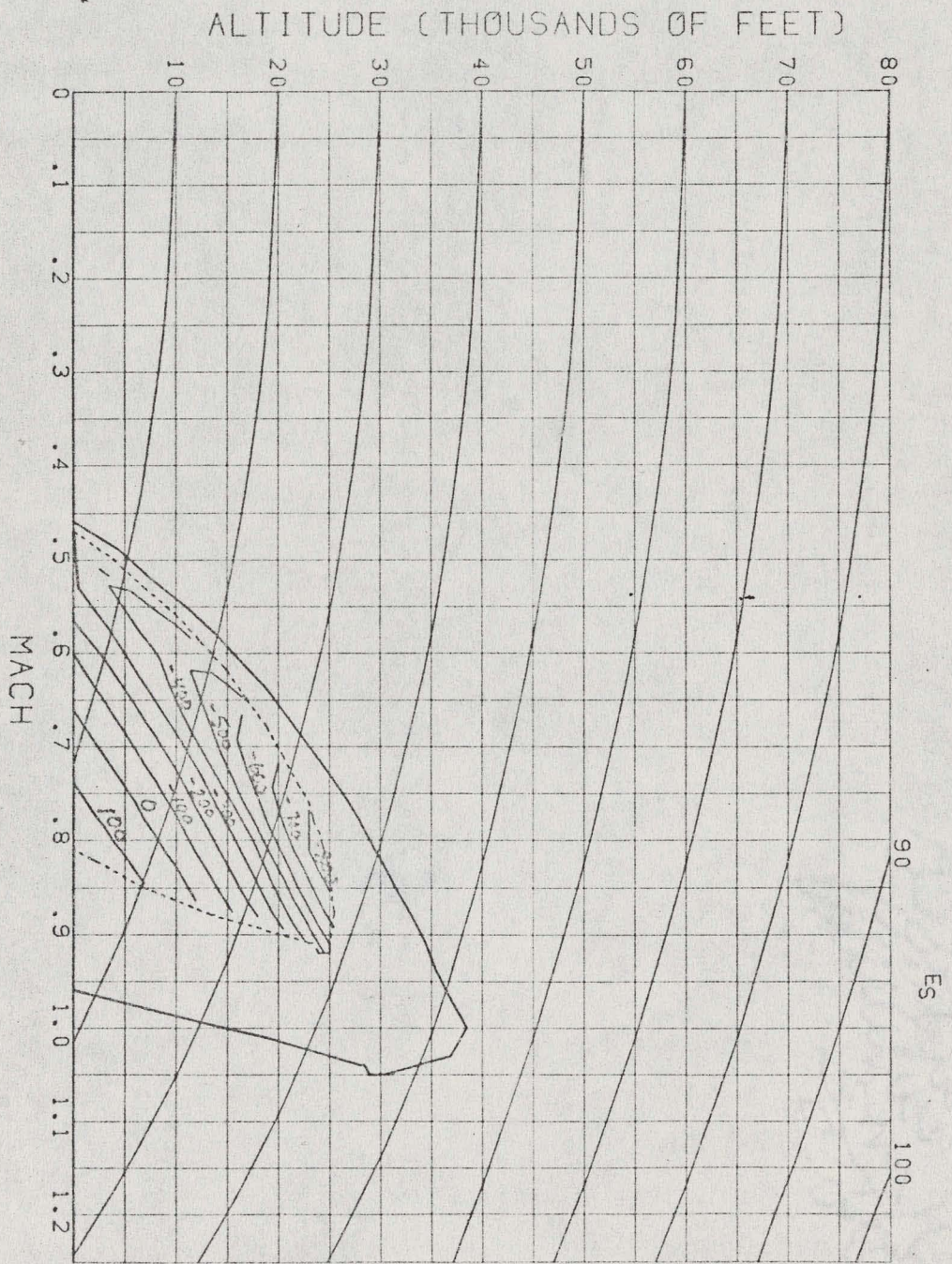
JAN 3 1953

D/C 1 D/C 1

2-A-9 2-AT

19249 11015

7.00G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

2-A-9

2-AT

19249

15712

507. (2590)

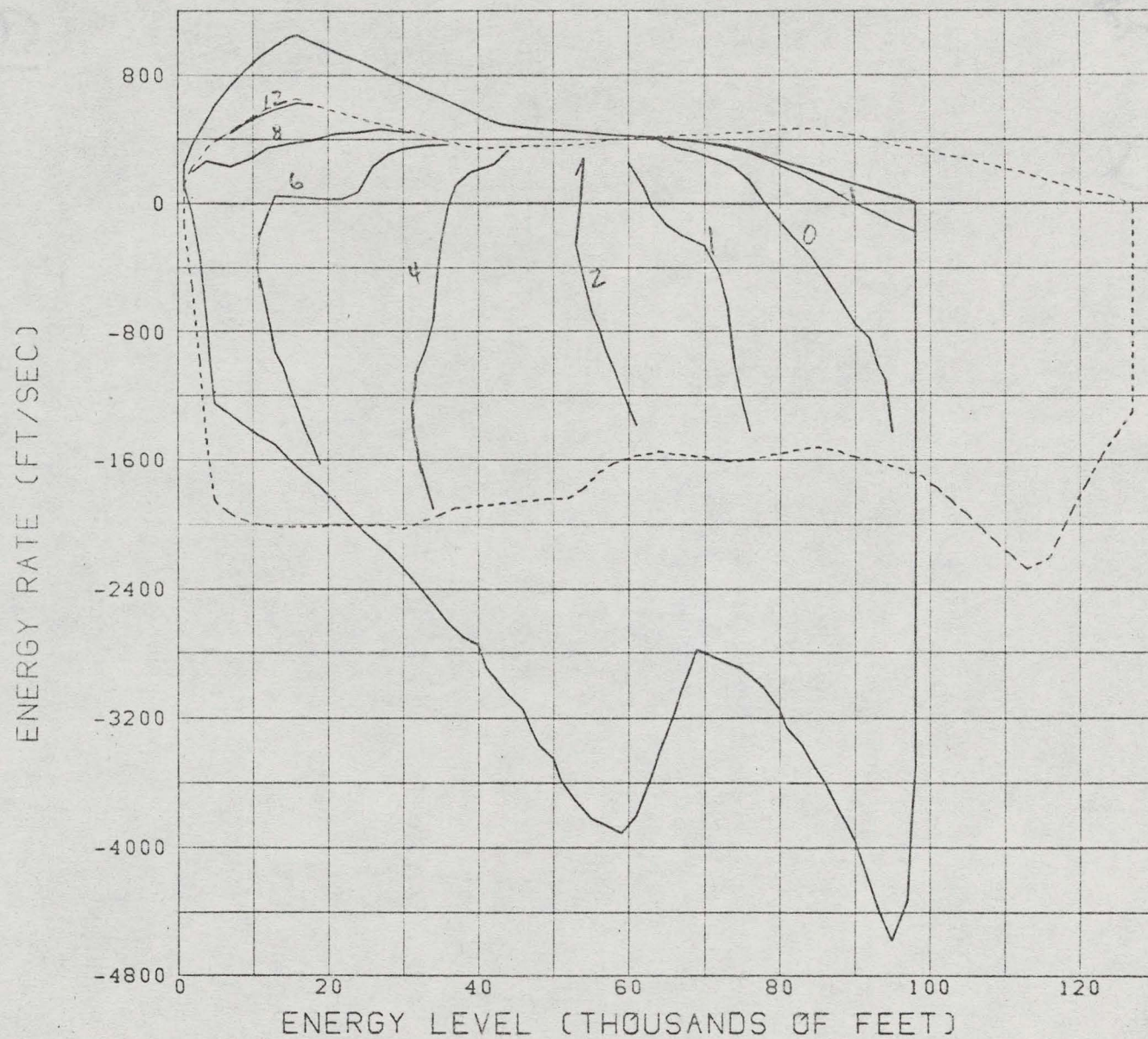
1-1-75

410234 - 329

MAX MANEUVER DIAGRAM

DC1 -MAX PWR-DC1

HORIZONTAL ATTITUDE



PLOT PREPARED BY ASD/ENFDP

MANEUVER DIAGRAM
ALTITUDE 10000

2-A-4
10249

410234 -

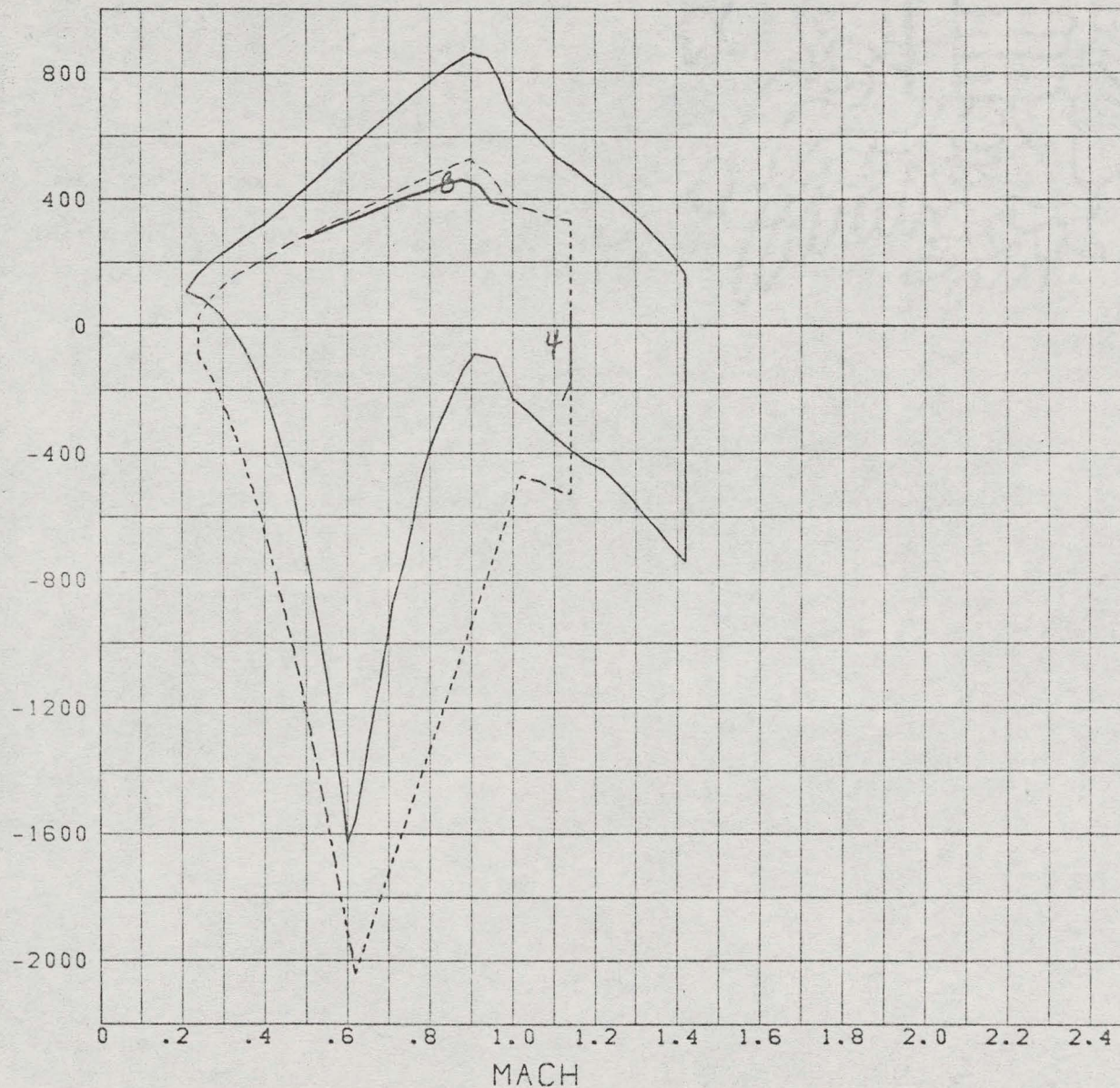
DC 1 -MAX PWR-DC 1

2-AT
15712
50(1290)

329

JAN 3 1975

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/ENFDP

MANEUVER DIAGRAM
ALTITUDE 30000

2-A-9
19249

410234

DC 1 - MAX PWR - DC 1

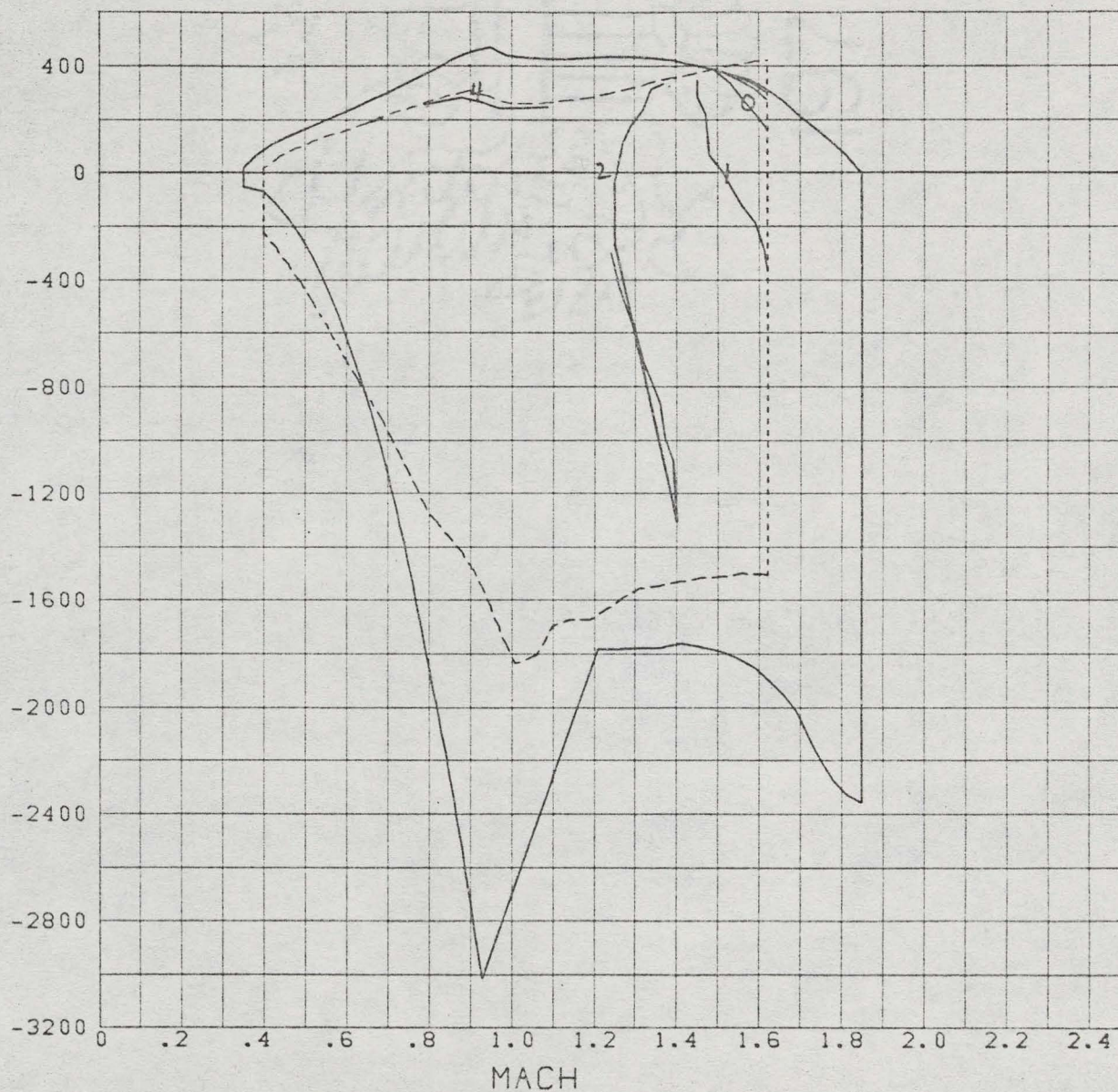
2-AT
15712
50% (1290)

329

JAN 3 1975

HORIZONTAL ATTITUDE

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/ENFDP

$$\Delta PS = \frac{410234}{-} - \frac{329}{-}$$

DC 1 - MAX PWR - DC 1
OPT L/D

HORIZONTAL ATTITUDE

2-A-9

2-AT

JAN 3 1948

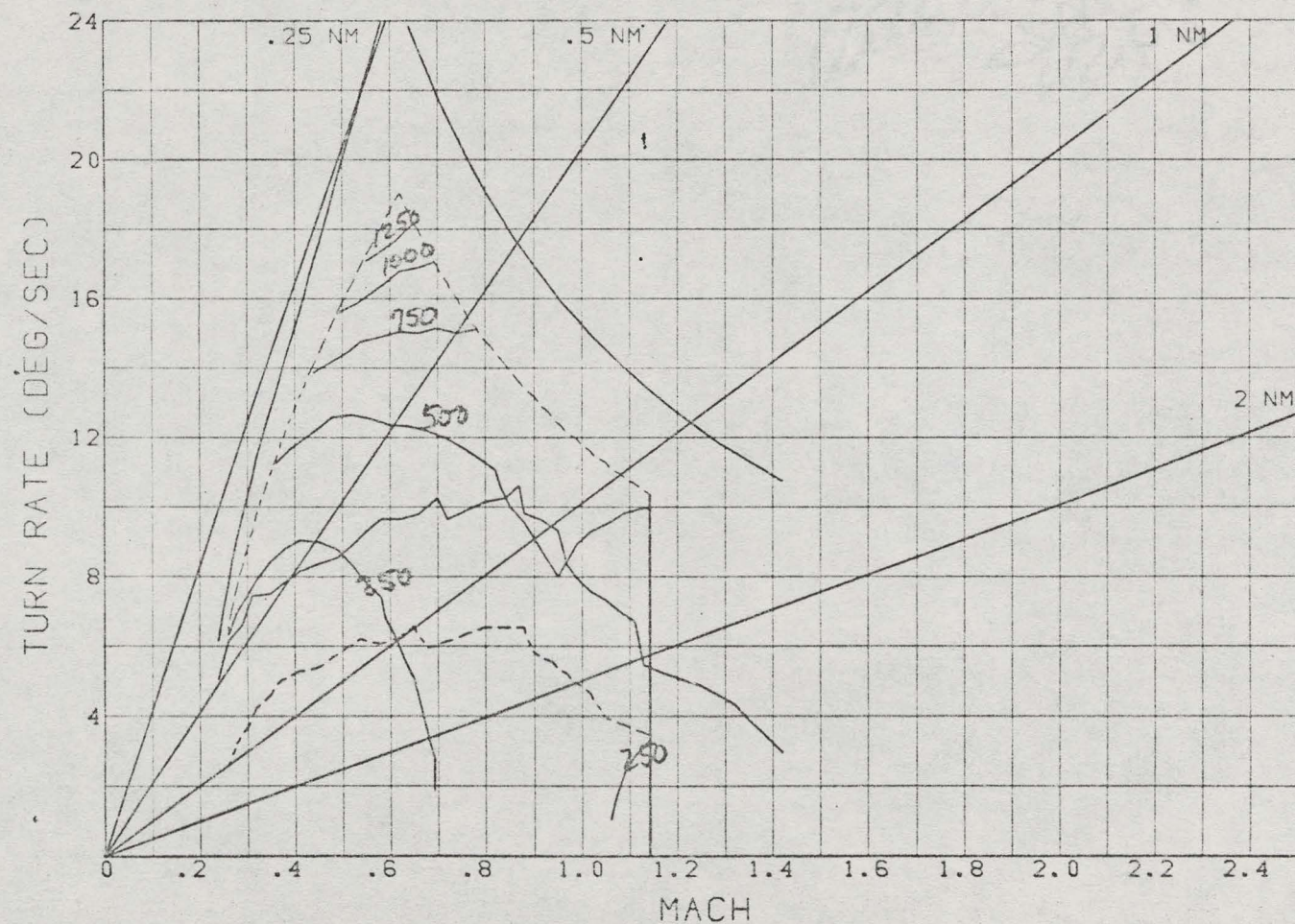
19249

15712

50% (2590)

MANEUVER DIAGRAM

ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFDP

$$\Delta PS = \frac{410234}{329} \text{ ---}$$

DC 1 -MAX PWR-DC 1 HORIZONTAL ATTITUDE
OPT L/D

2-A-9 2-AT

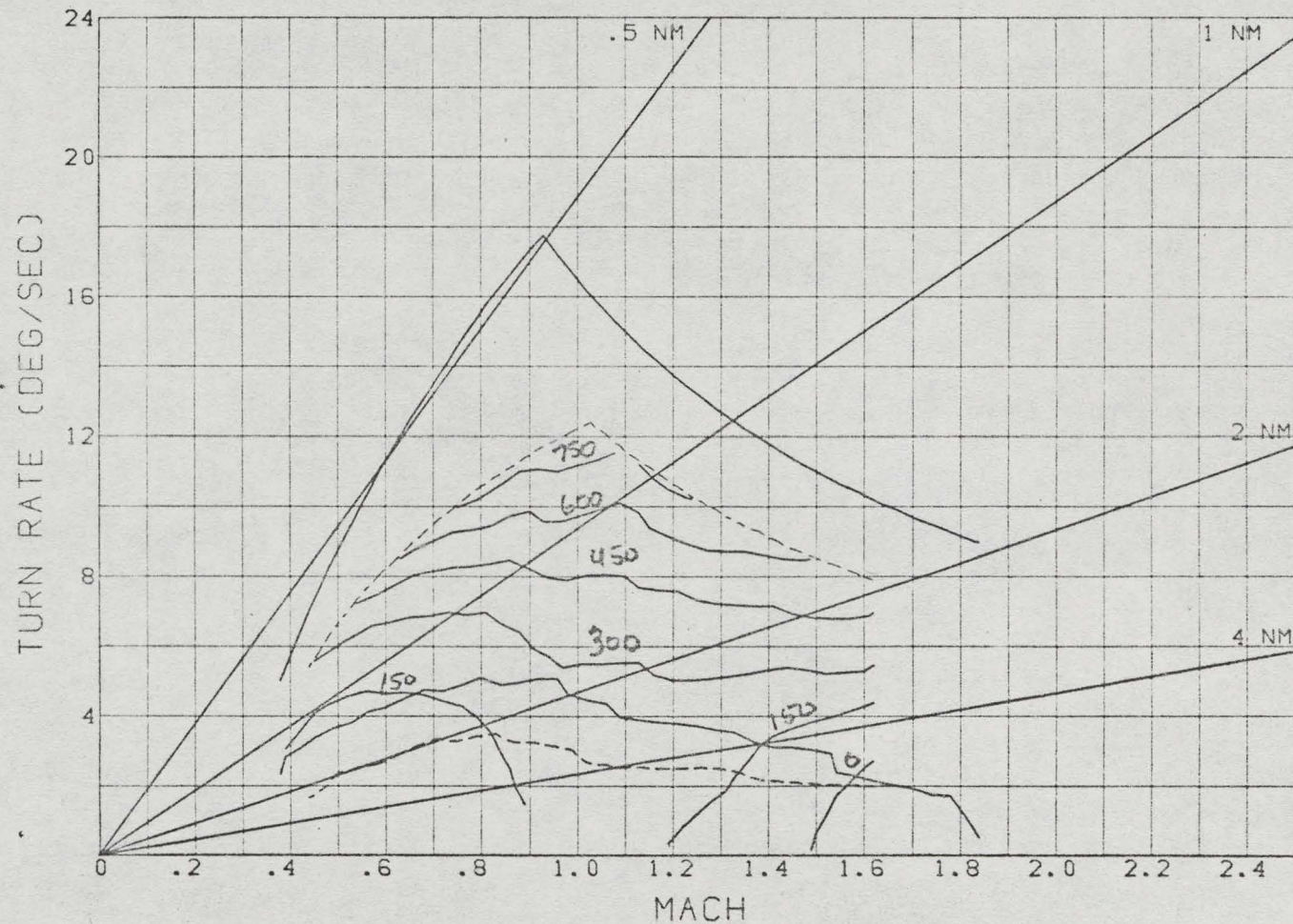
19249 15712

JAN 3 1975

506(2590)

MANEUVER DIAGRAM

ALTITUDE: 30000



PLOT PREPARED BY ASD/ENFDP

1-1-75

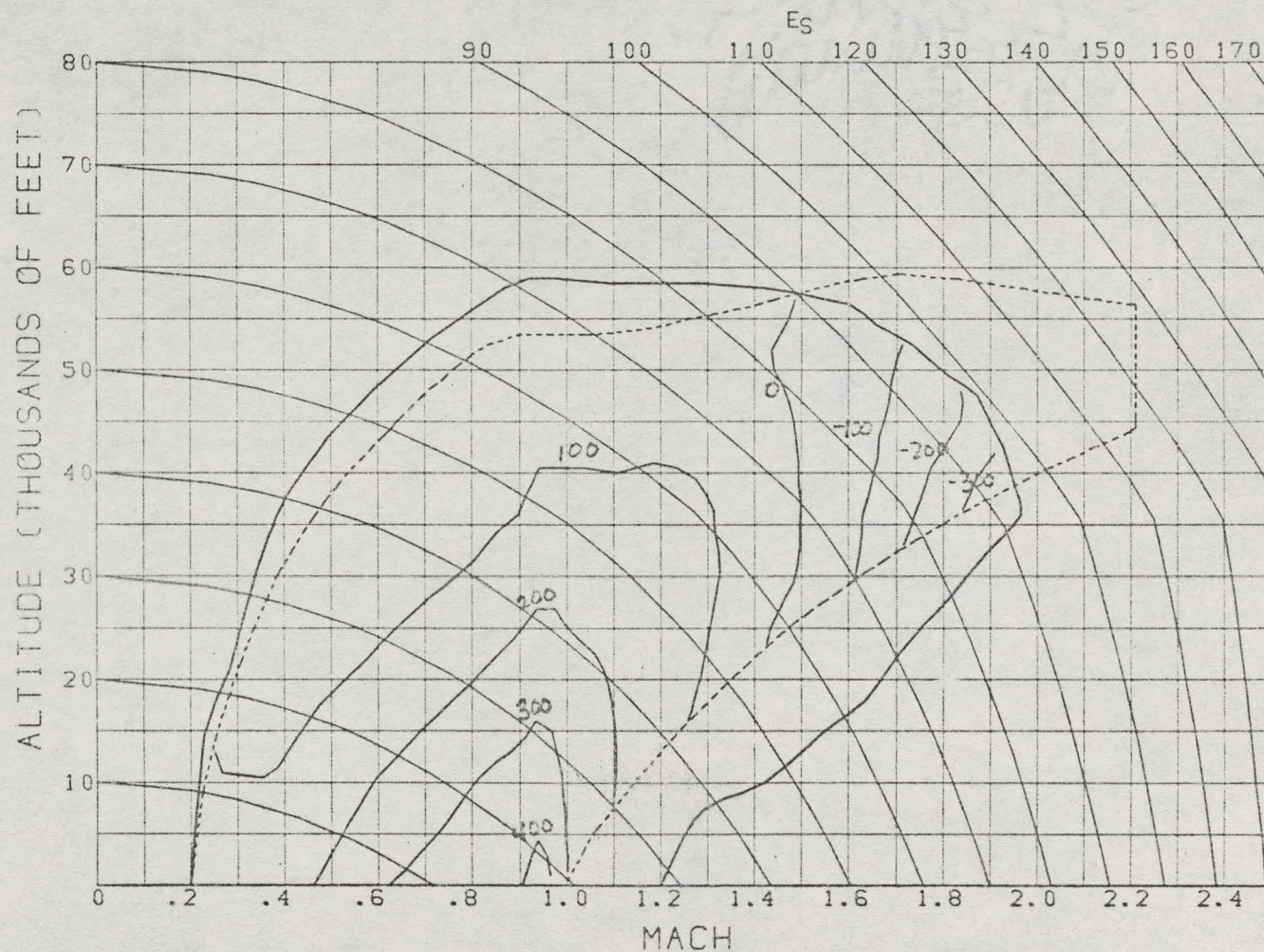
D/C 1 D/C 1

2-AT

15712

507. (2590)

1.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 410234 -329

MAXIMUM POWER

D/C 1 D/C 1

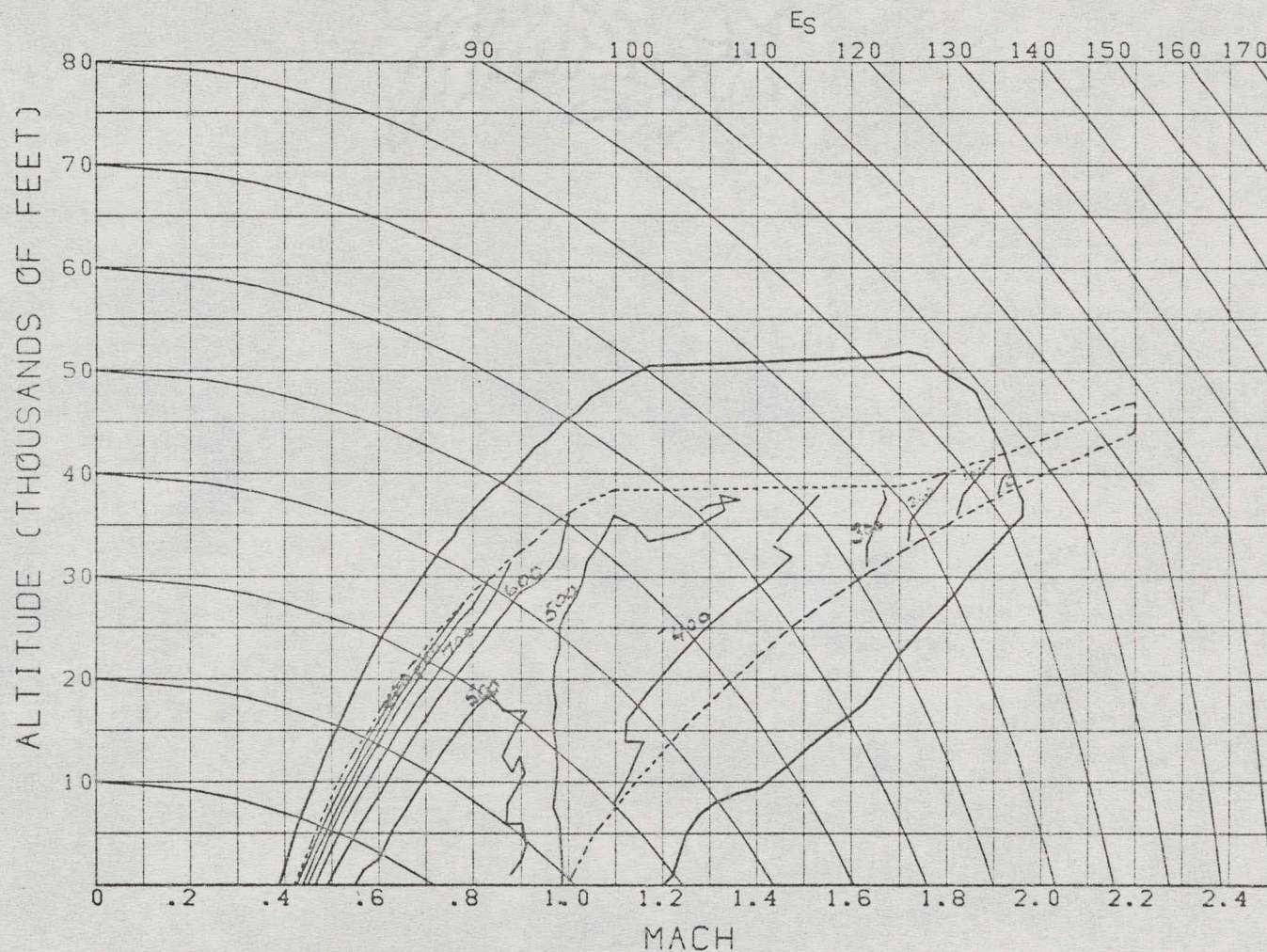
2-A-9 2-AT

19249 15712

50% (2590)

1-1-75

5.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFOP

DPS 410234 -329

MAXIMUM POWER

1-1-75

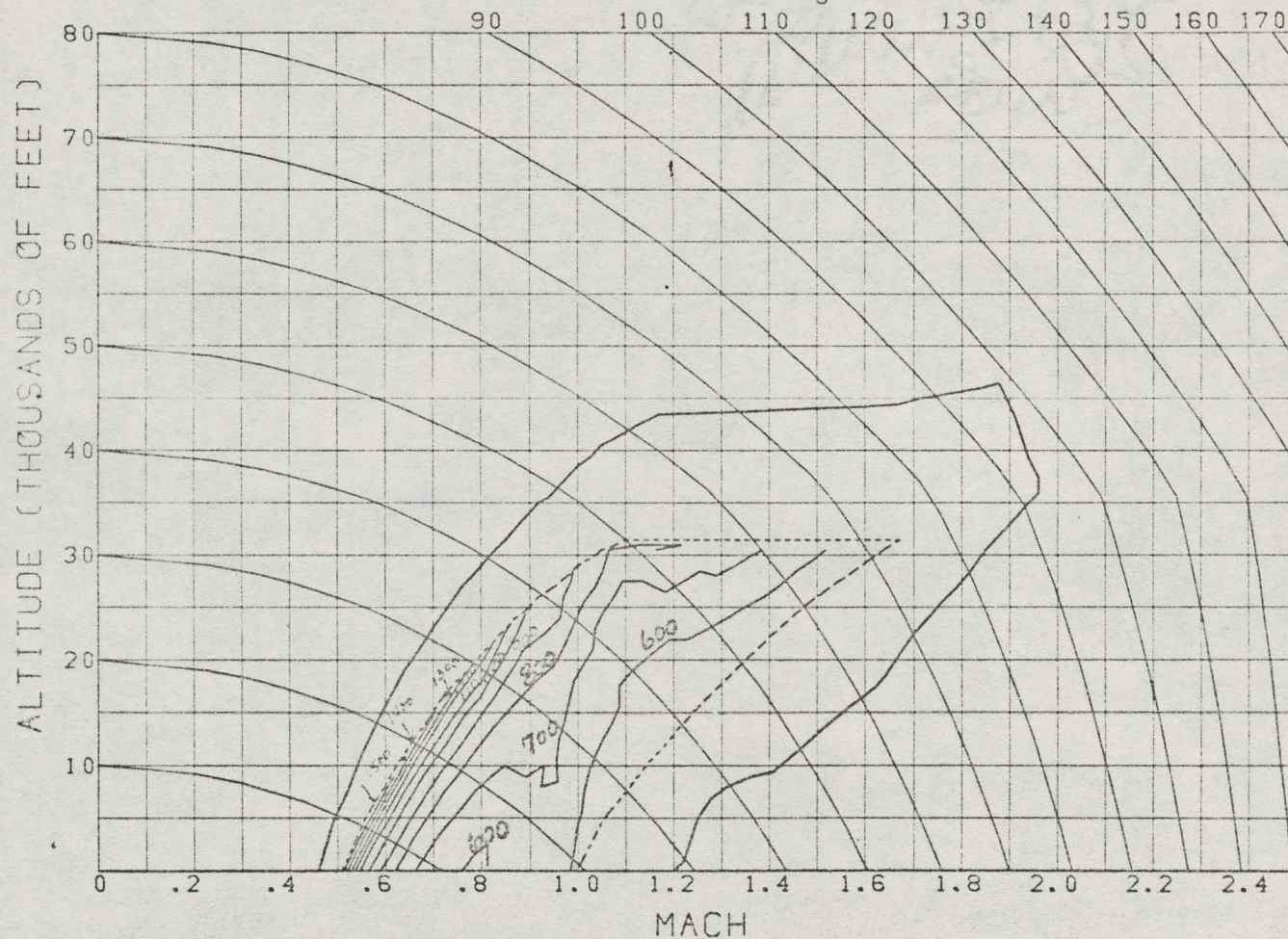
D/C 1 D/C 1

2-A-9 2-AT

19249 15712

5076(2590)
ES

7.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 410234 -329

JAN 1 1975

MILITARY POWER

D/C 1 D/C 1

2-A-9

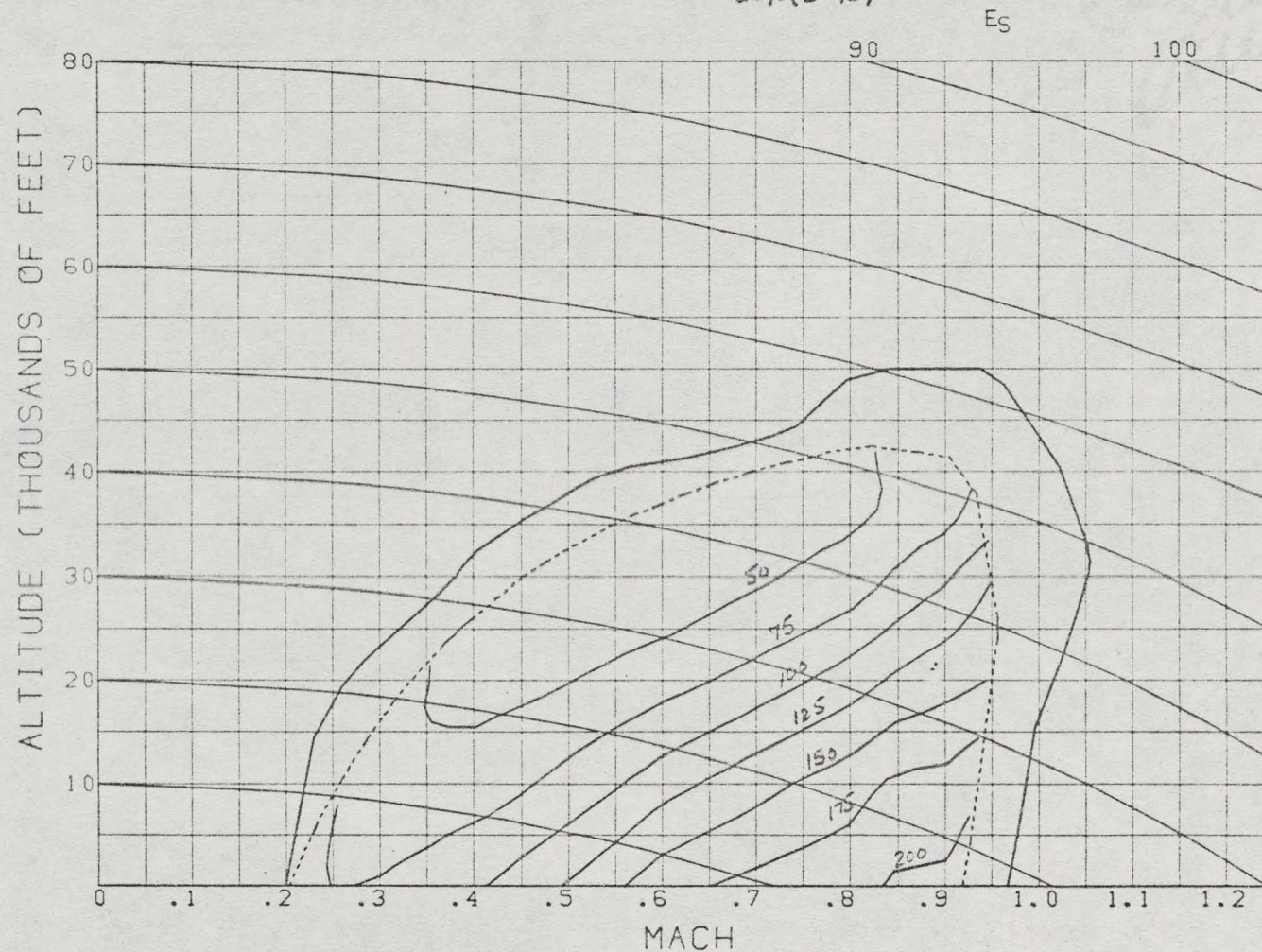
2-AT

19249

15712

507. (2590)

1.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 410234 -329

MILITARY POWER

D/C 1 D/C 1

2-A-4

2-AT

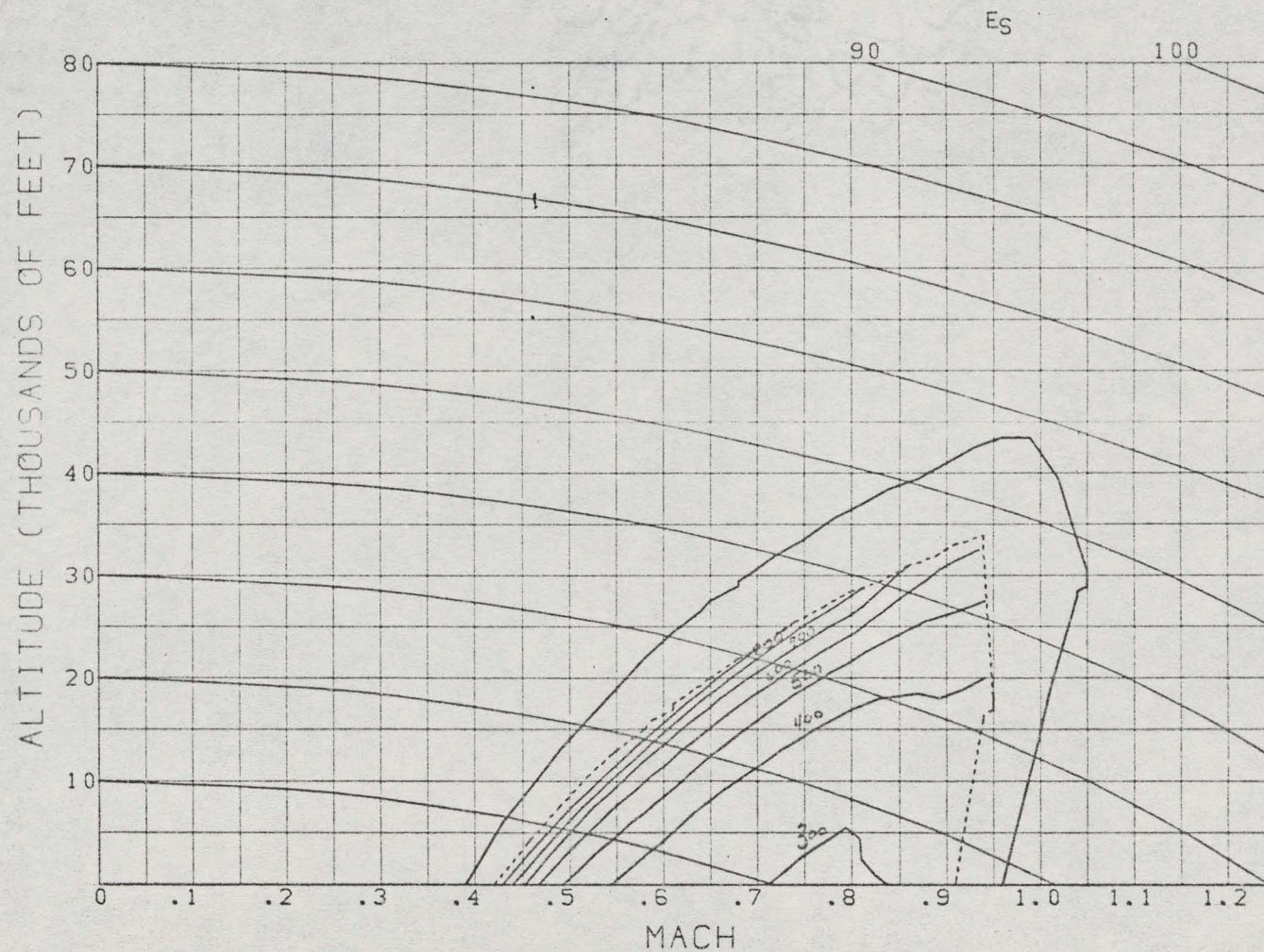
19249

15712

JAN 2 1945

5.00 G DIAGRAM

50% (2590)



PLOT PREPARED BY ASD/ENFDP

DPS 410234 -329

MILITARY POWER

D/C 1 D/C 1

2-A-9

2-AT

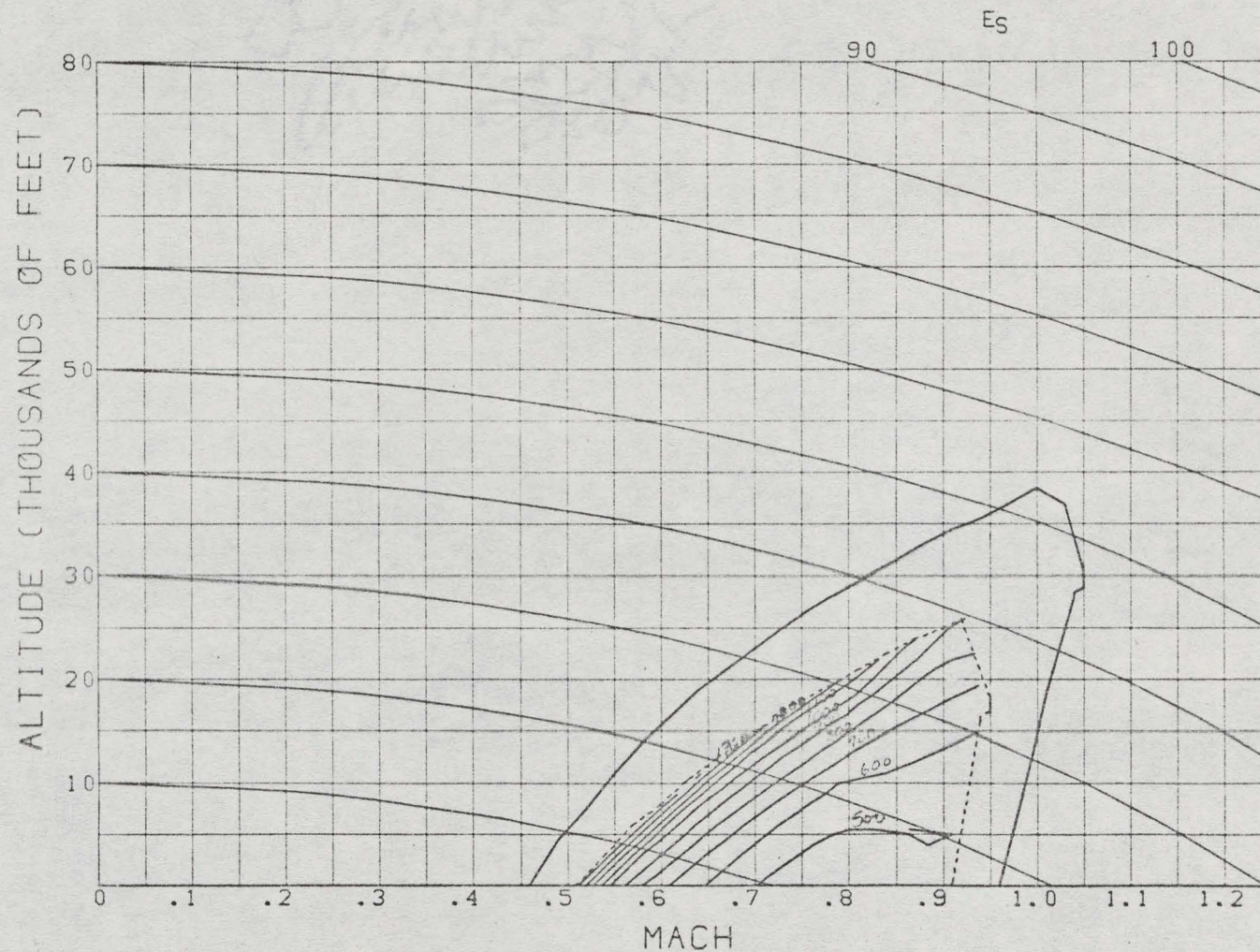
JAN 3 1975

7.00 G DIAGRAM

19243

15712

507. (2590)



PLOT PREPARED BY ASD/ENFDP

2-A-9
19249

2-AT
24766
50% (3750)

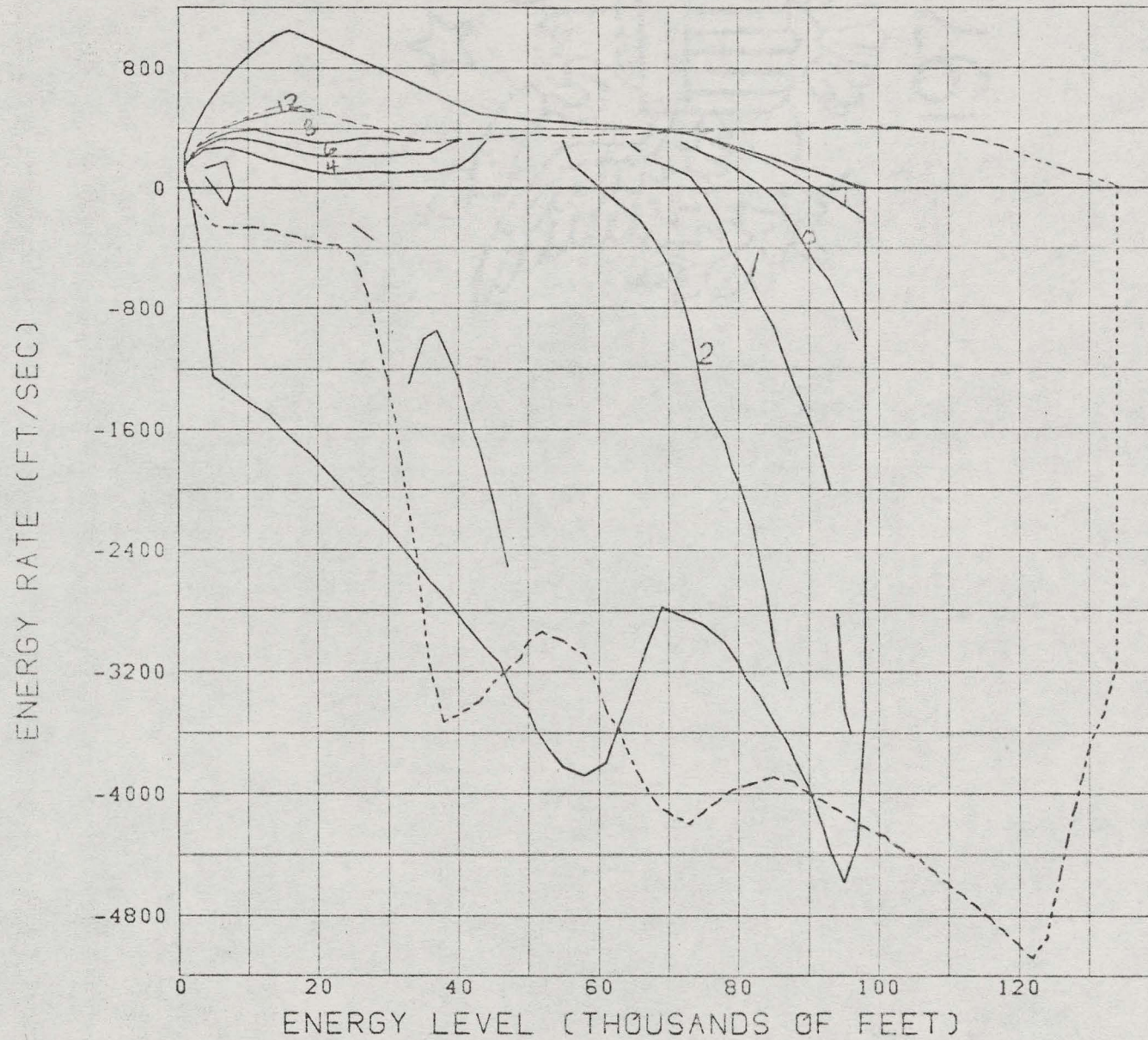
1-1-75

410234 - 3546

MAX MANEUVER DIAGRAM

DC 1 - MAX PWR - DC 2

HORIZONTAL ATTITUDE



PLOT PREPARED BY ASD/ENFDP

$$\Delta PS = \frac{410234}{DC1 - MAX PWR - DC2} - \frac{3546}{OPT L/D} \quad \text{---}$$

DC1 - MAX PWR - DC2
OPT L/D

HORIZONTAL ATTITUDE

2-A-9

19249

2-AT

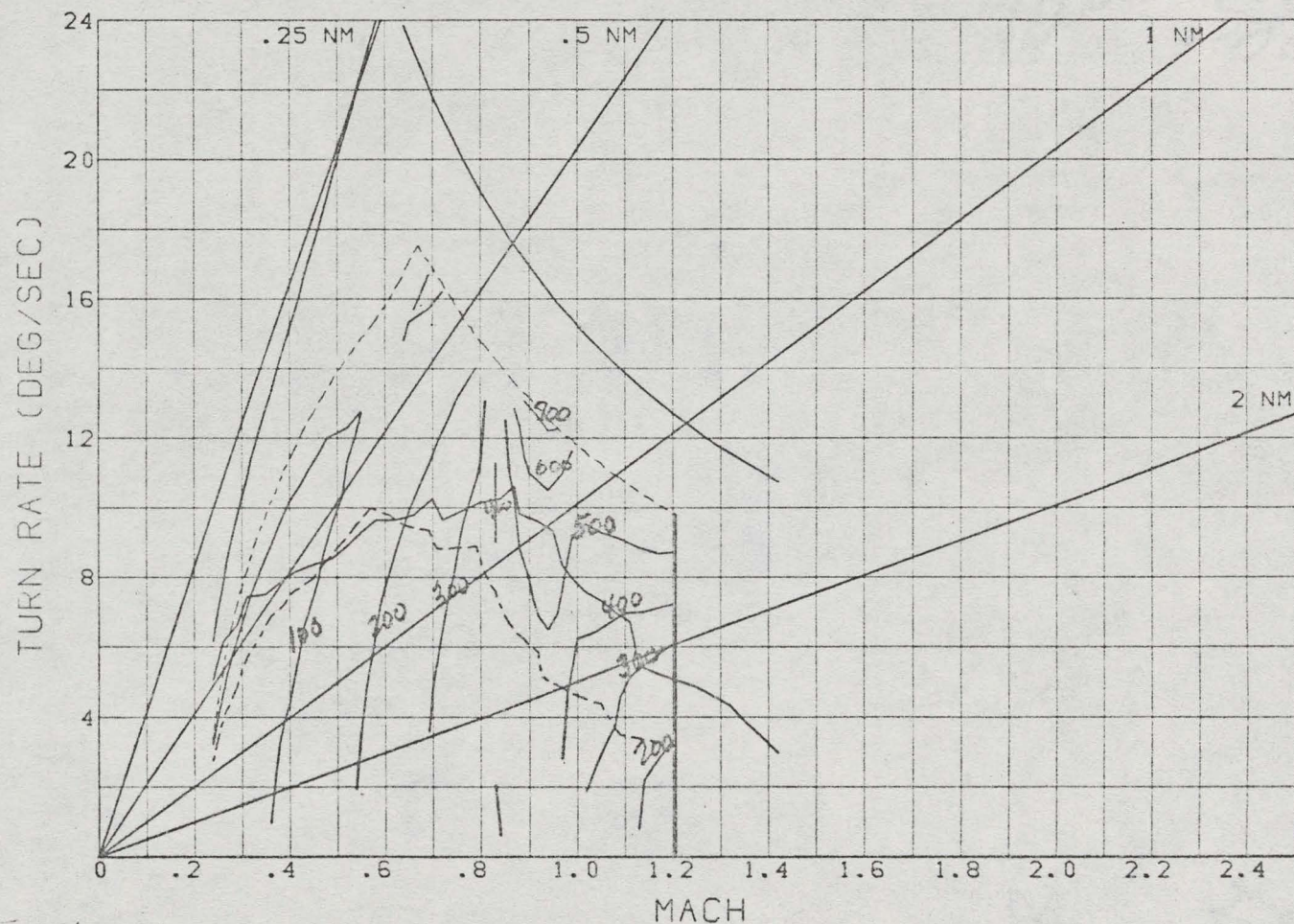
24766

5070(3750)

JAN 3 1975

MANEUVER DIAGRAM

ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFOP

$$\Delta PS = \frac{410234}{DC1 - MAX PWR - DC2} - \frac{3546}{OPT L/D} \text{ --- HORIZONTAL ATTITUDE}$$

DC1 - MAX PWR - DC2

HORIZONTAL ATTITUDE

OPT L/D

2-4-9

2-AT

19249

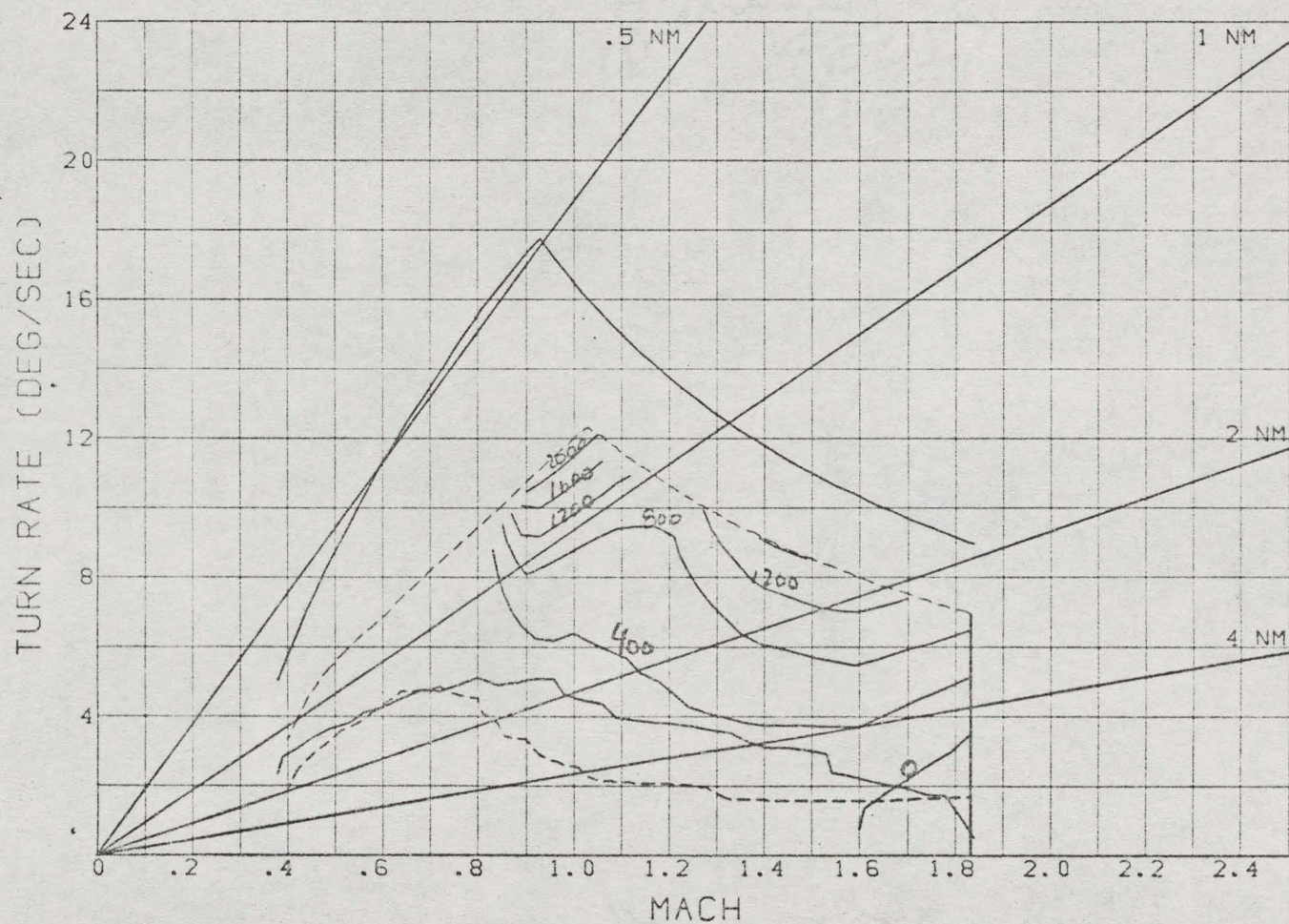
24766

5070(3750)

JAN 3 1975

MANEUVER DIAGRAM

ALTITUDE: 30000



PLOT PREPARED BY ASD/ENFDP

2-A-9
24072

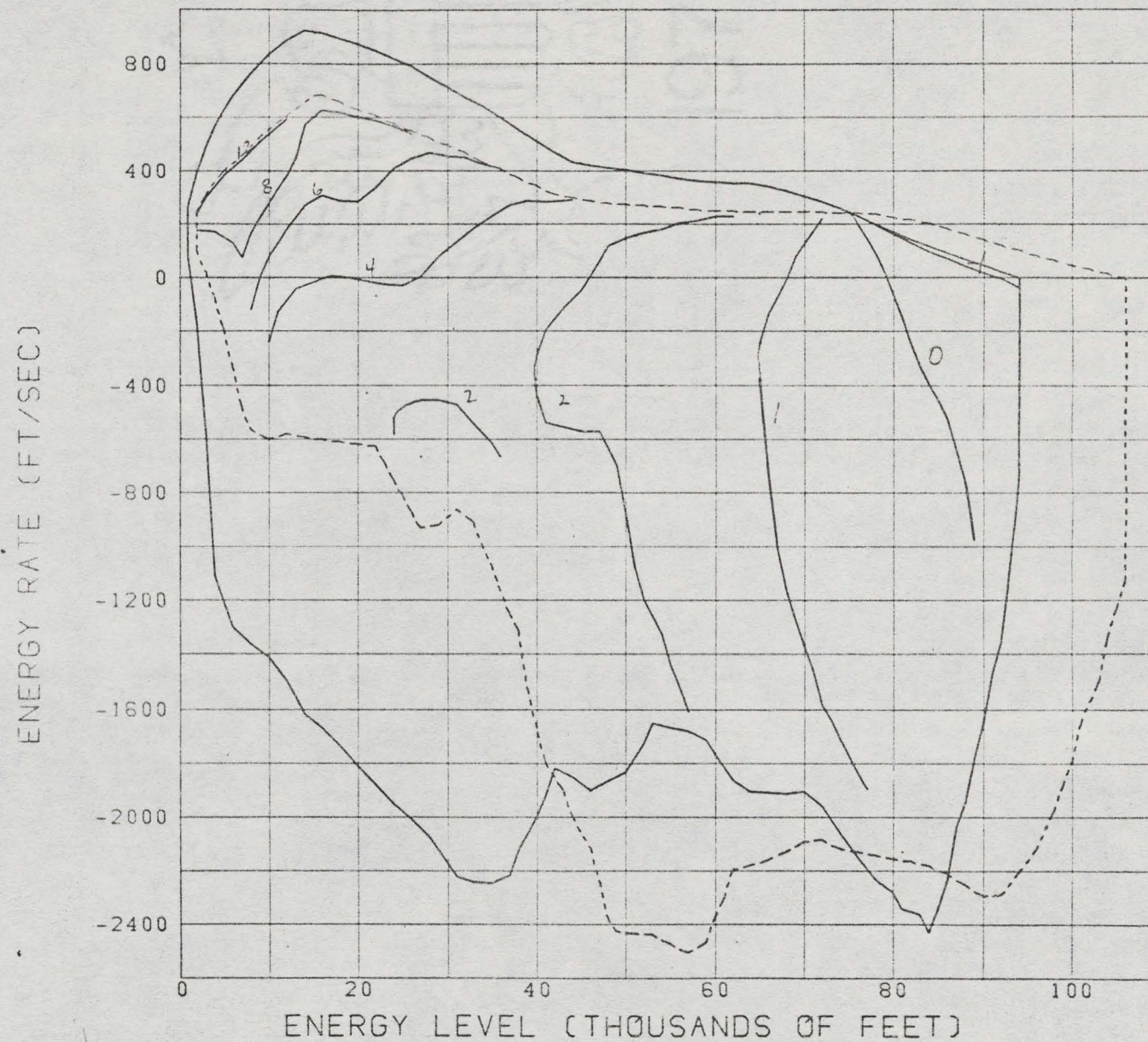
4-A-7
41322
507. (6029)

610333 - F4ES

MAX MANEUVER DIAGRAM

DC1 - MAX PWR - DC2

HORIZONTAL ATTITUDE



PLOT PREPARED BY ASD/ENFDP

$\Delta PS = 610333 - F4ES$

DC1 - MAX PWR - DC2
OPT L/D

HORIZONTAL ATTITUDE

2-A-9

4-8-7

2409Z

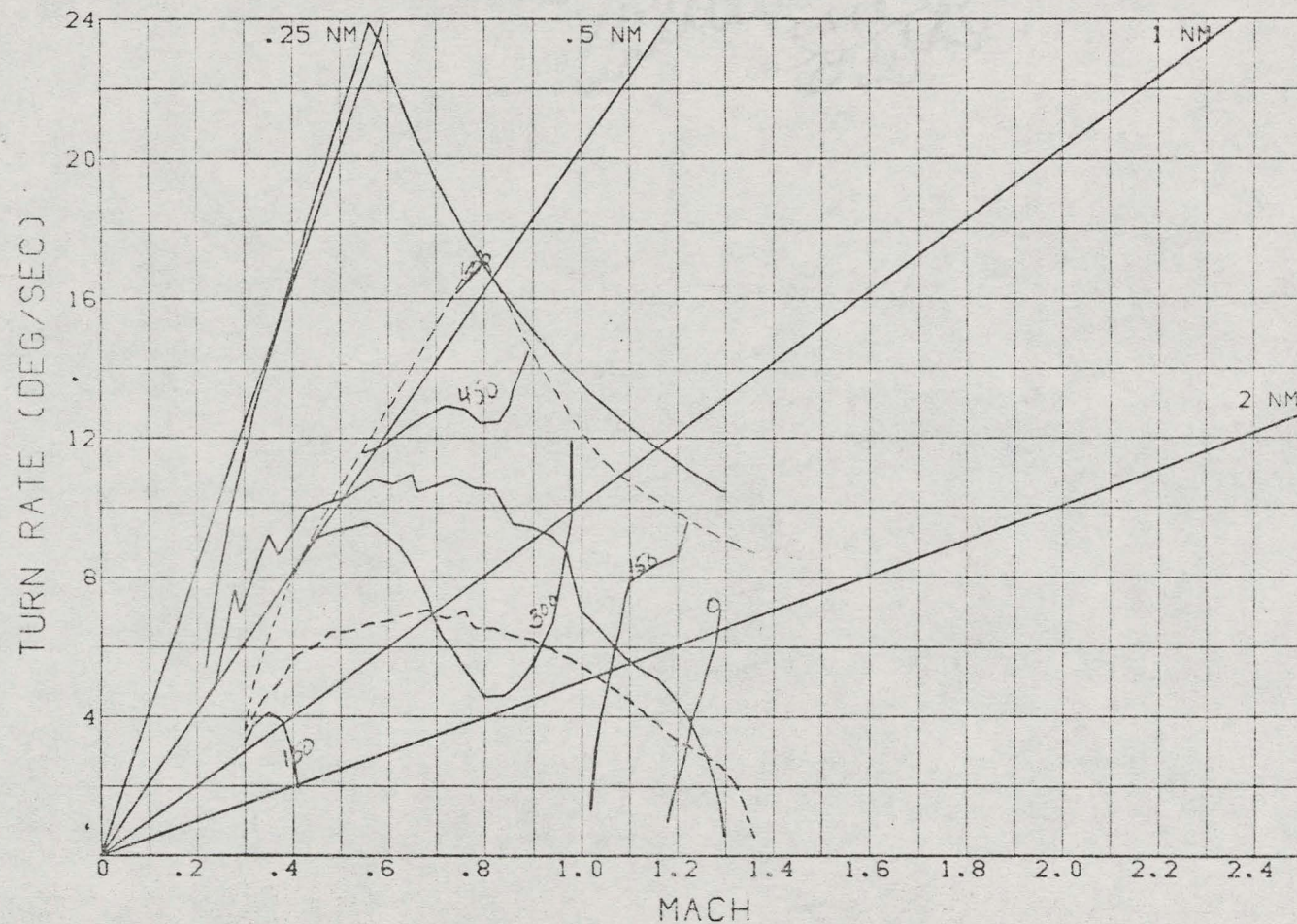
4132Z

JAN 8 1969

5070(6029)

MANEUVER DIAGRAM

ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFDP

$\Delta PS = 610333 - F4ES$

DC1 - MAX PWR - DC2
OPT L/D

HORIZONTAL ATTITUDE

2-4-9

4-A-7

24092

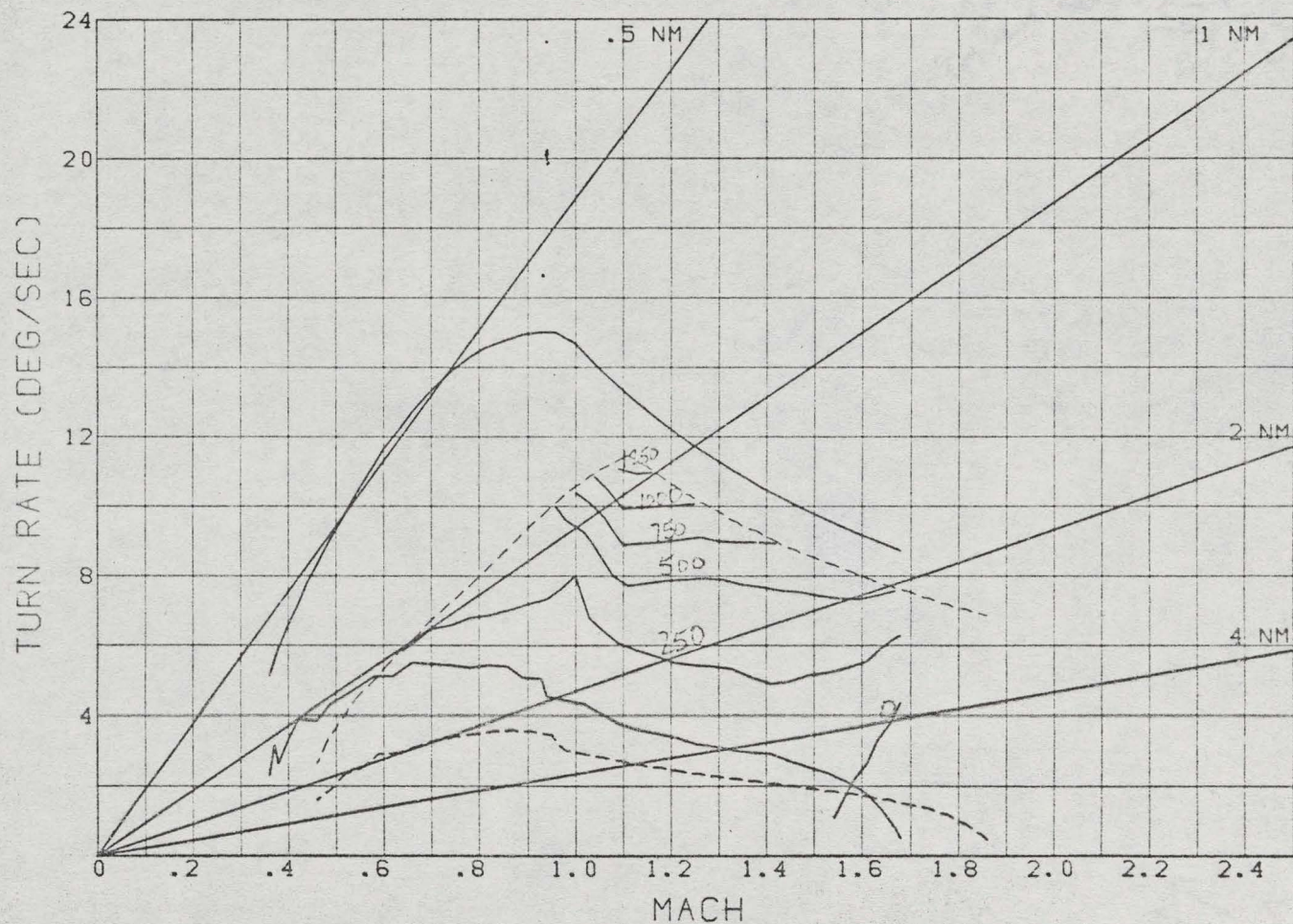
41322

JAN 6 1975

5070(6029)

MANEUVER DIAGRAM

ALTITUDE: 30000



PLOT PREPARED BY ASD/ENFDP

DPS 610333 -F4ES

MAXIMUM POWER

D/C 1 D/C 2

1-1-75

2-A-9

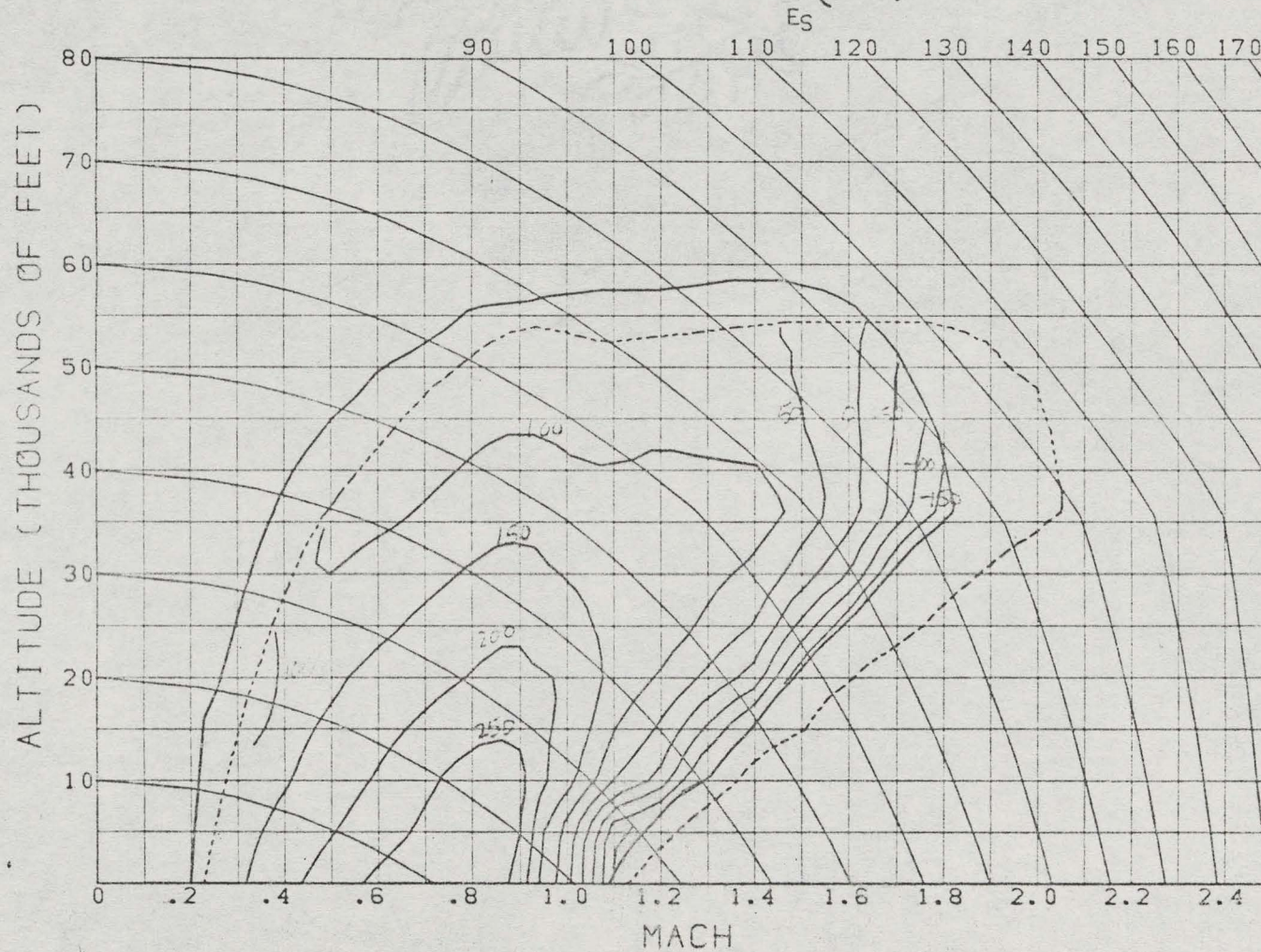
4-A-7

24054

41322

50% (6029)

1.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 610333 -F4ES

MAXIMUM POWER

D/C 1

2-A-9
24054

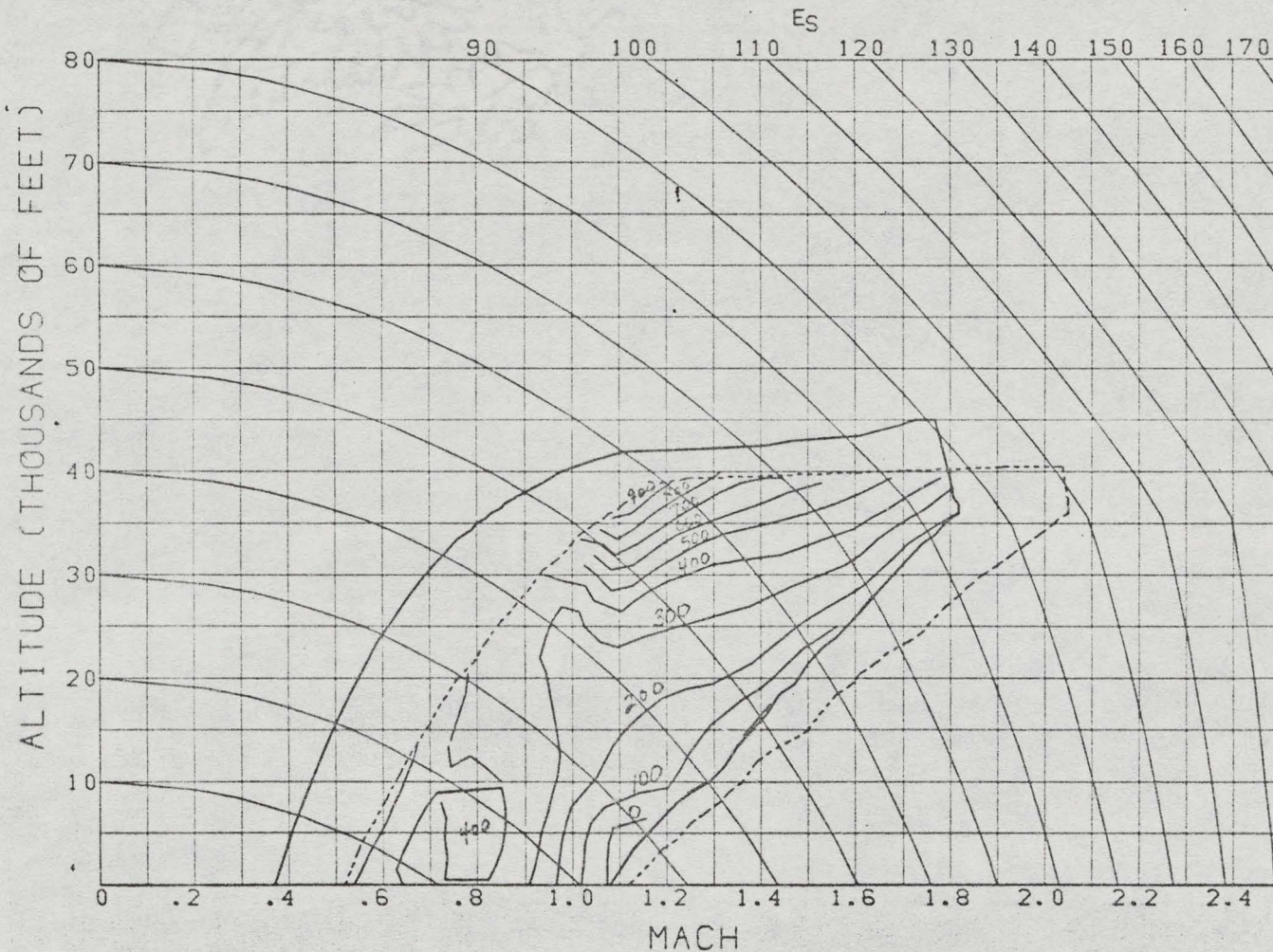
D/C 2

4-A-9
41322

1-1-75

5.00 G DIAGRAM

50% (6029)



PLOT PREPARED BY ASD/ENFOP

DPS 610333 -F4ES

MAXIMUM POWER

1-1-75

D/C 1

D/C 2

2-4-9

4-A-7

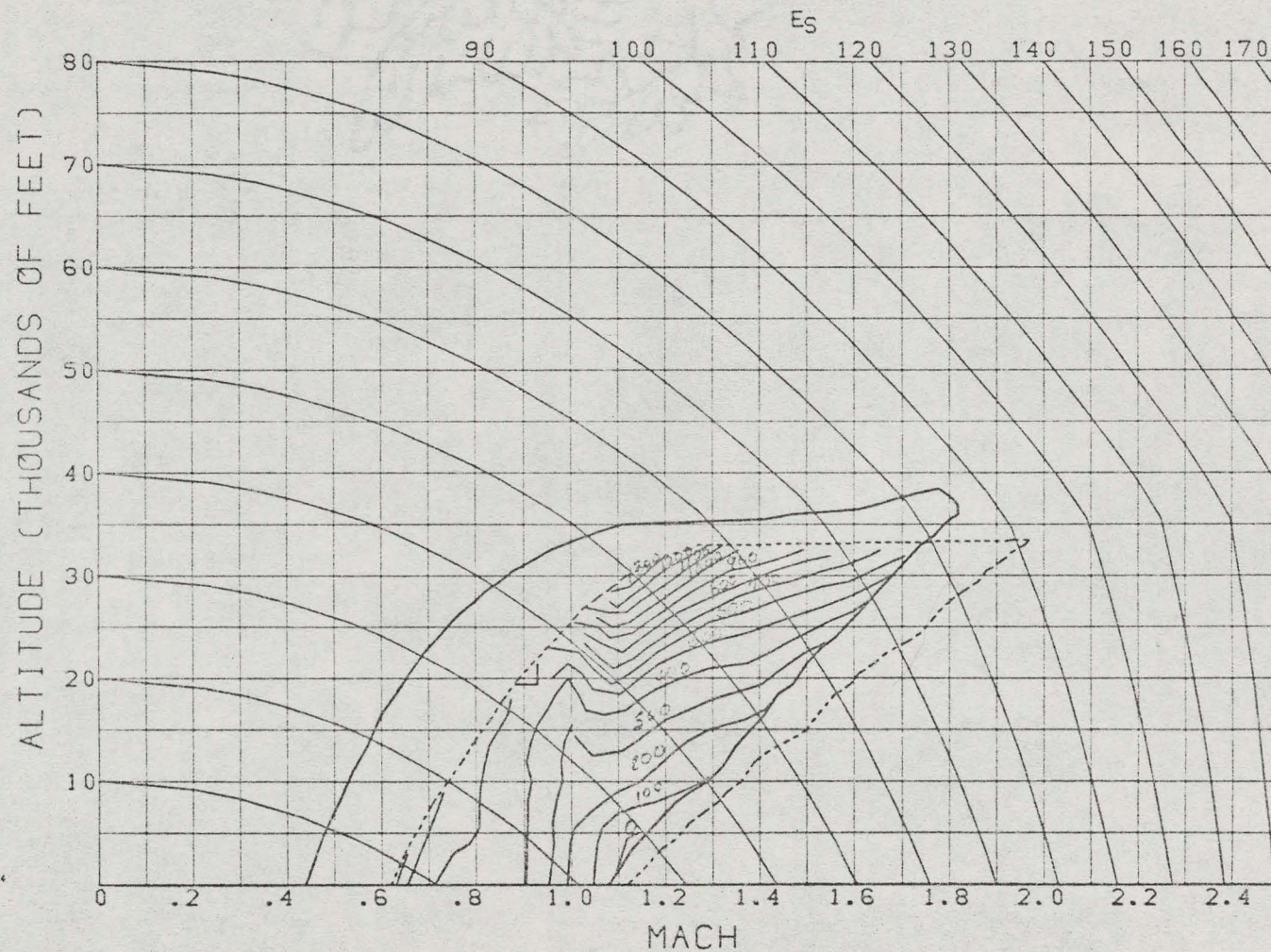
24054

41322

JAN 3 1975

50% (6029)

7.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 610333 -F4ES

MILITARY POWER

D/C 1 D/C 2

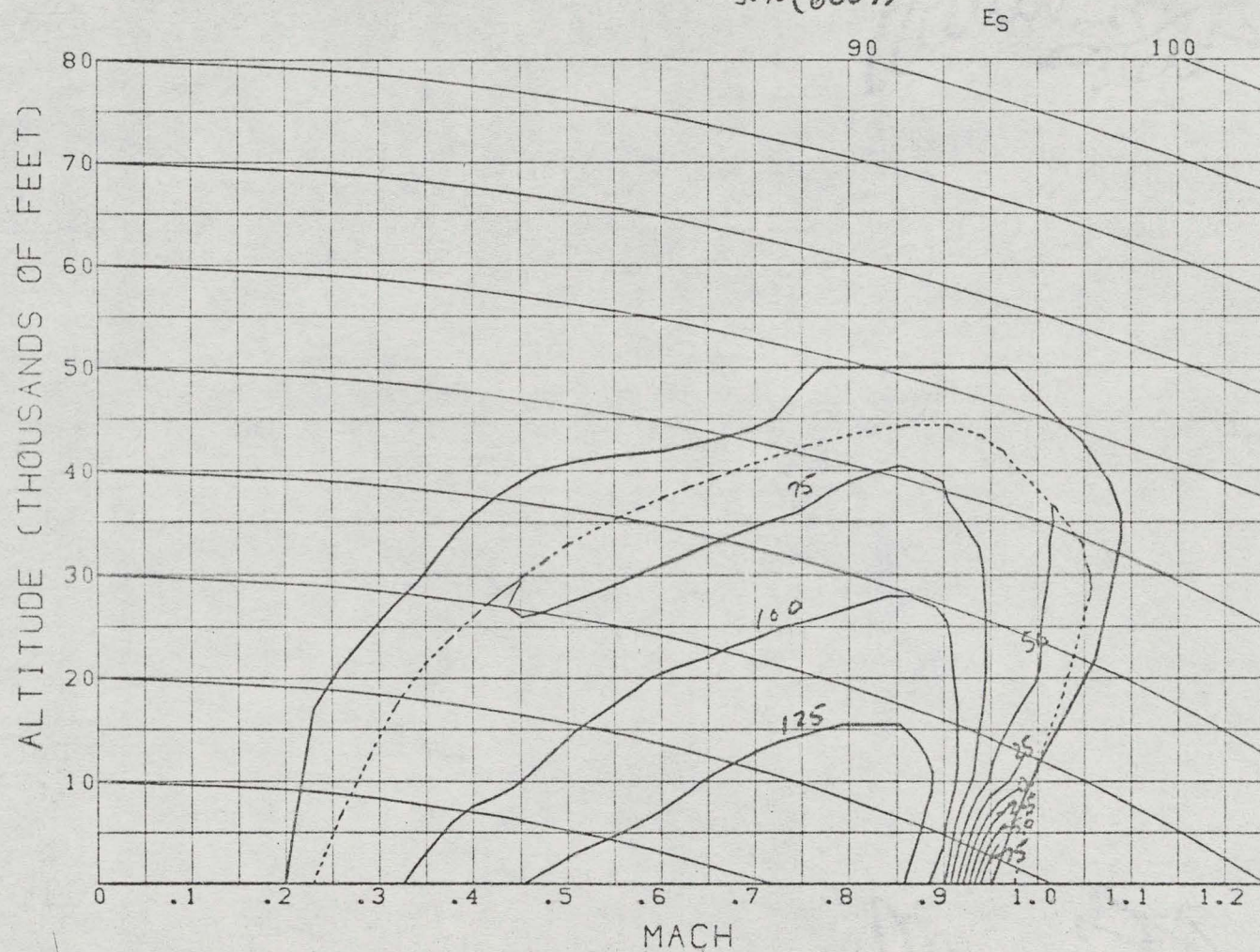
2-A-7 4-A-7

24054 41322

50% (6029)

JAN 3 1975

1.00 G DIAGRAM



DPS 610333 -F4ES

MILITARY POWER

D/C 1 D/C 2

2-A-4

4-A-7

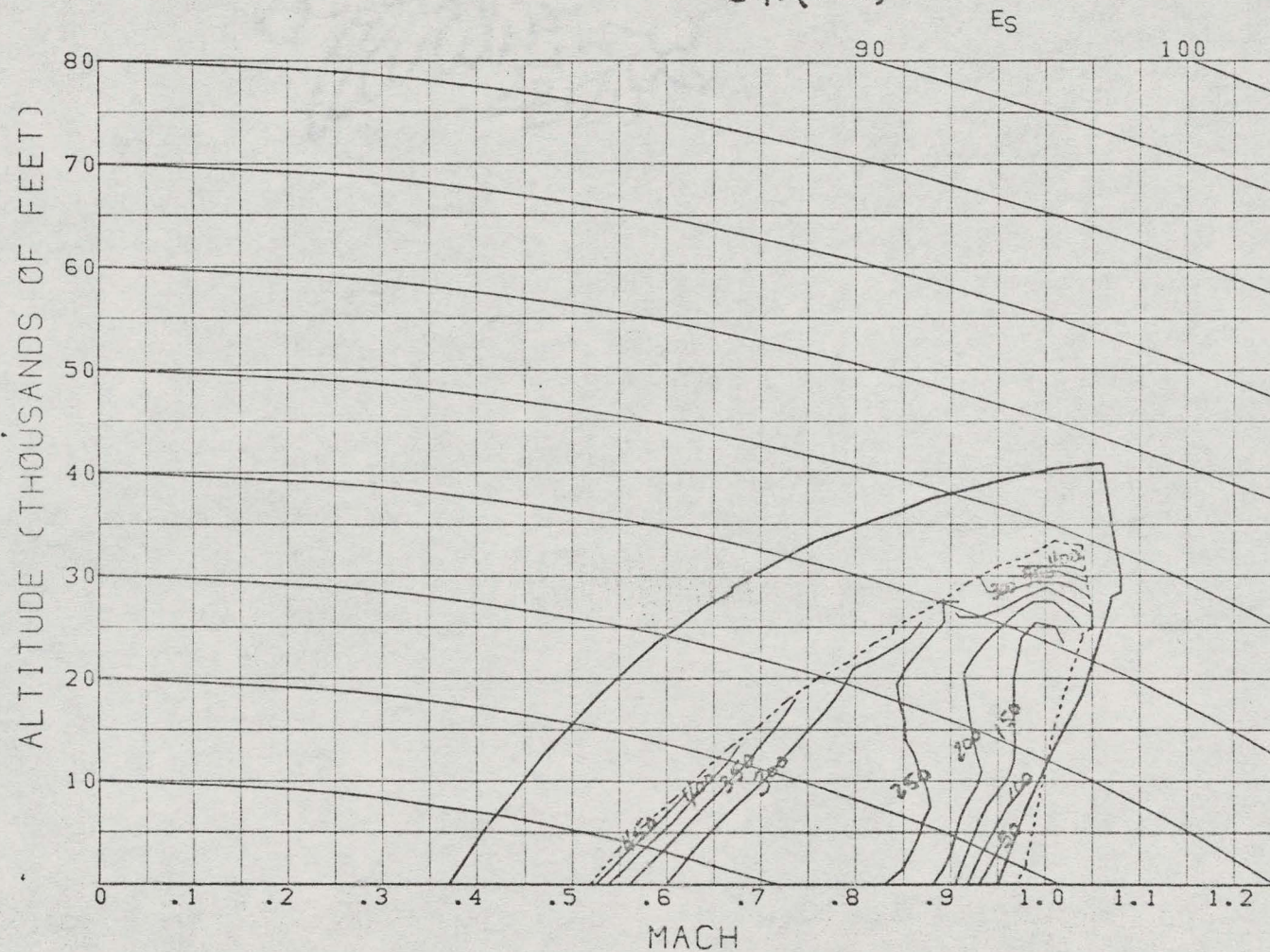
24054

41322

50% (6029)

JAN 3 1975

5.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFOP

DPS 610333 -F4ES

MILITARY POWER

D/C 1 D/C 2

2-A-9

4-A-7

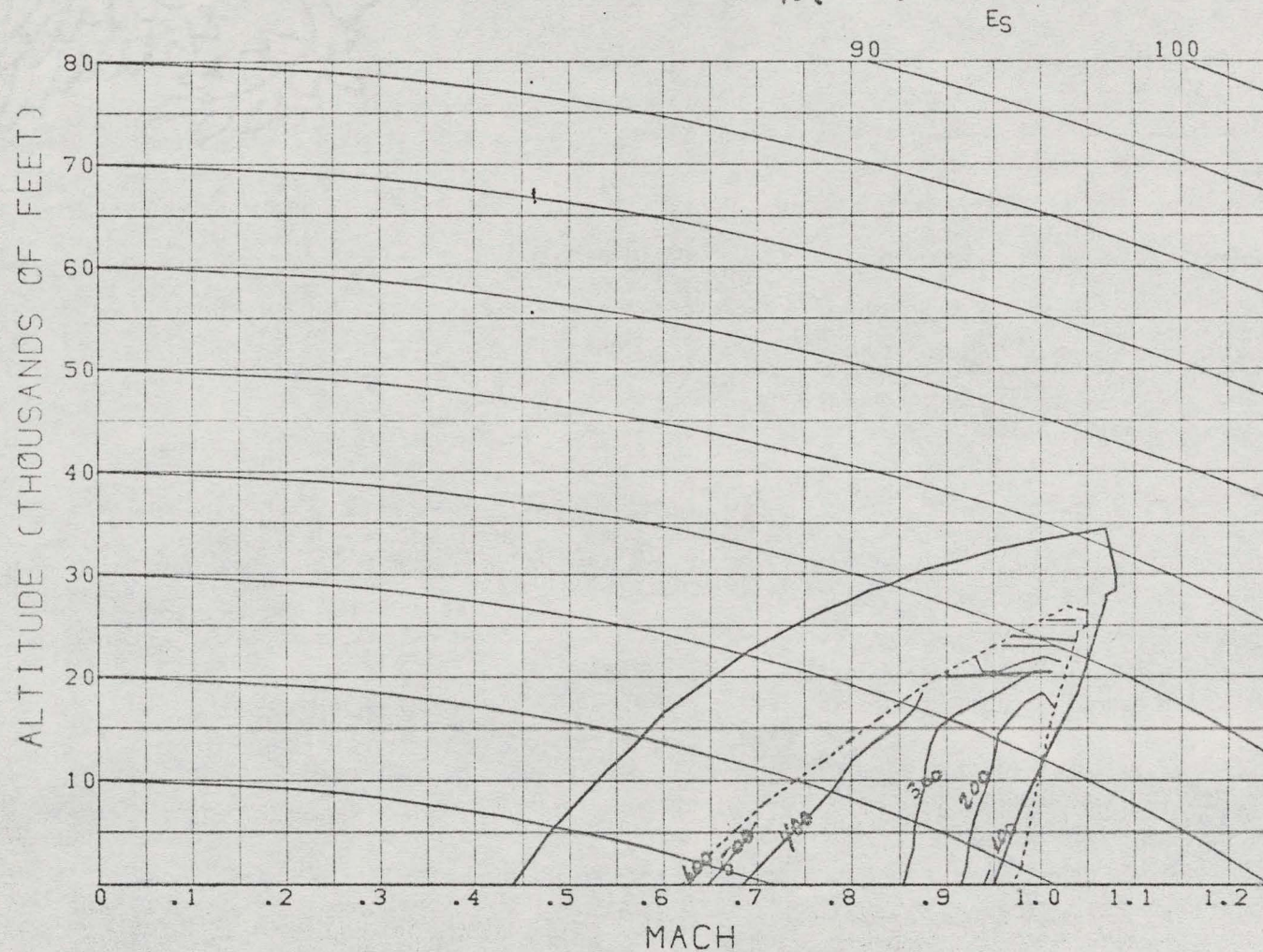
JAN 3 1975

7.00 G DIAGRAM

24054

41322

5070 (6029)



PLOT PREPARED BY ASD/ENFDP

2-A-9
24092

2-AT
11015
507. (1290)

1-1-75

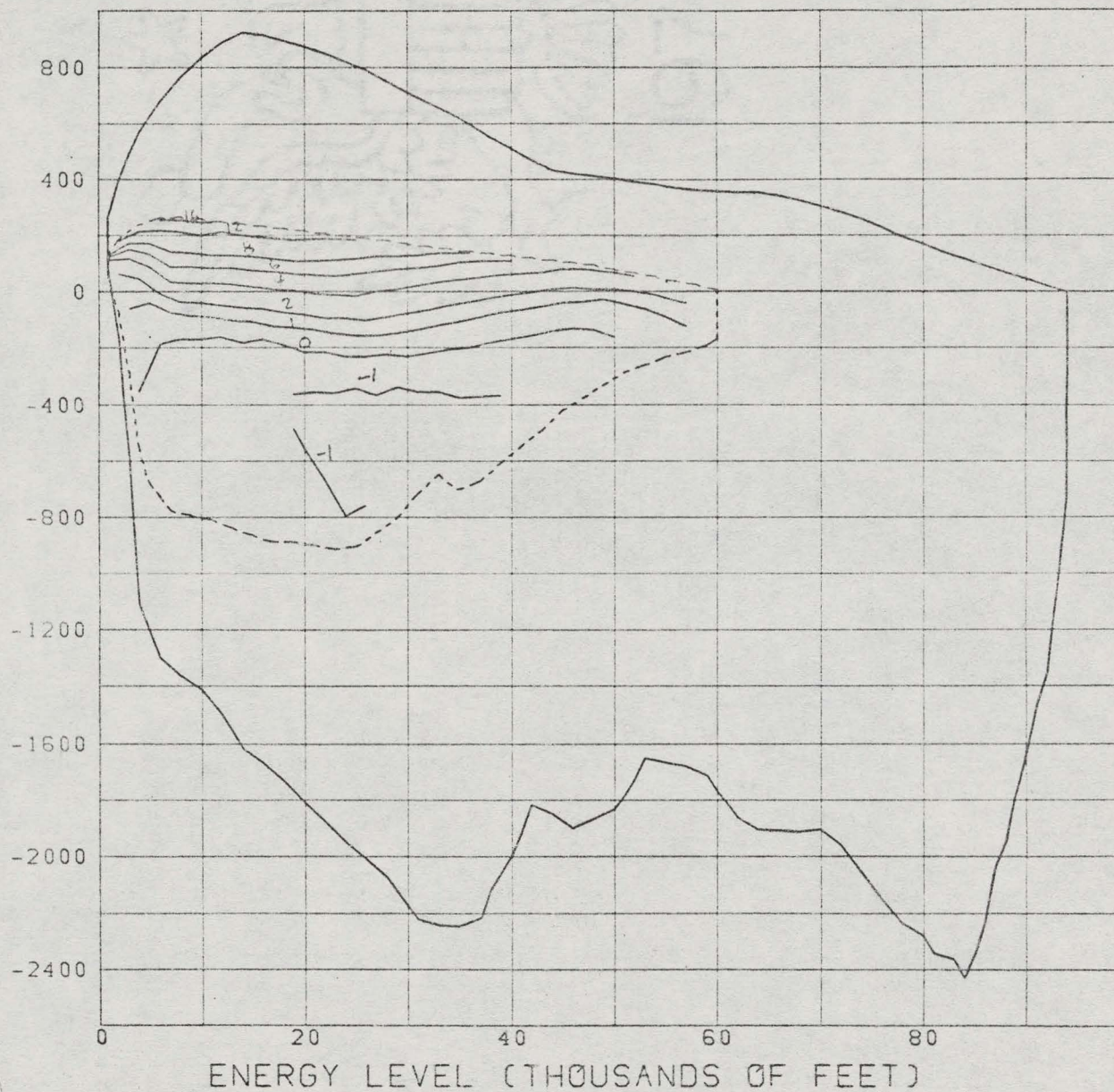
610333 - 311

MAX MANEUVER DIAGRAM

DC 1 - MAX PWR - DC 1

HORIZONTAL ATTITUDE

ENERGY RATE (FT/SEC)



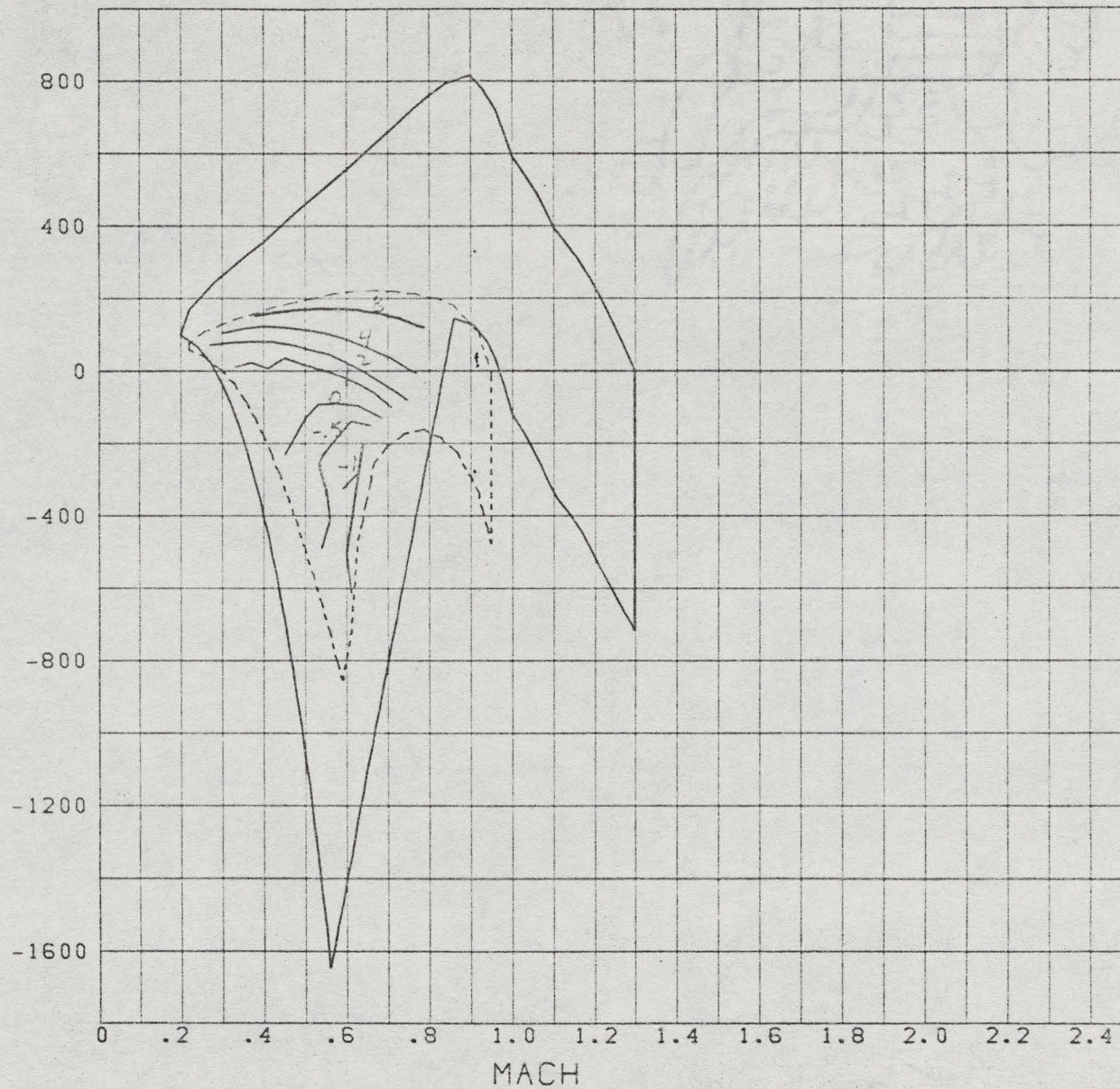
PLOT PREPARED BY ASD/ENFDP

MANEUVER DIAGRAM
ALTITUDE 10000

2-A-9 2-AT
24092 11015
507(1290)
610333 - 311
DC 1 - MAX PWR - DC 1

JAN 3 1975

ENERGY RATE (FT/SEC)



2-A-9
24092

-2-AT
11015
527(1290)

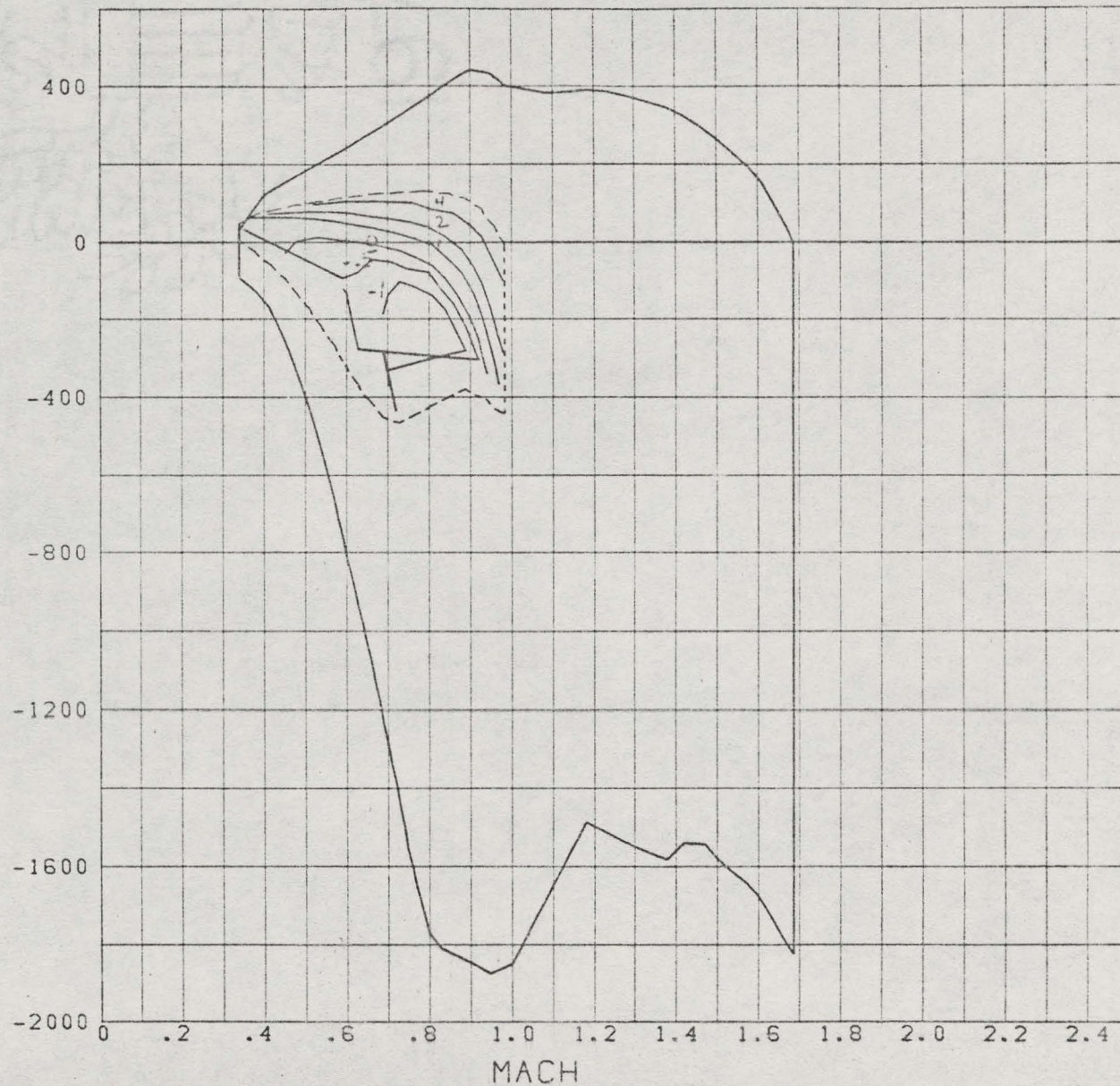
JAN 6 1975

MANEUVER DIAGRAM
ALTITUDE 30000

610333 - 311
DC 1 - MAX PWR - DC 1

HORIZONTAL ATTITUDE

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/ENFDP

$$\Delta PS = 610333 - 311$$

DC 1 -MAX PWR-DC 1

HORIZONTAL ATTITUDE

OPT L/D

2-AT

2-A-7
24092

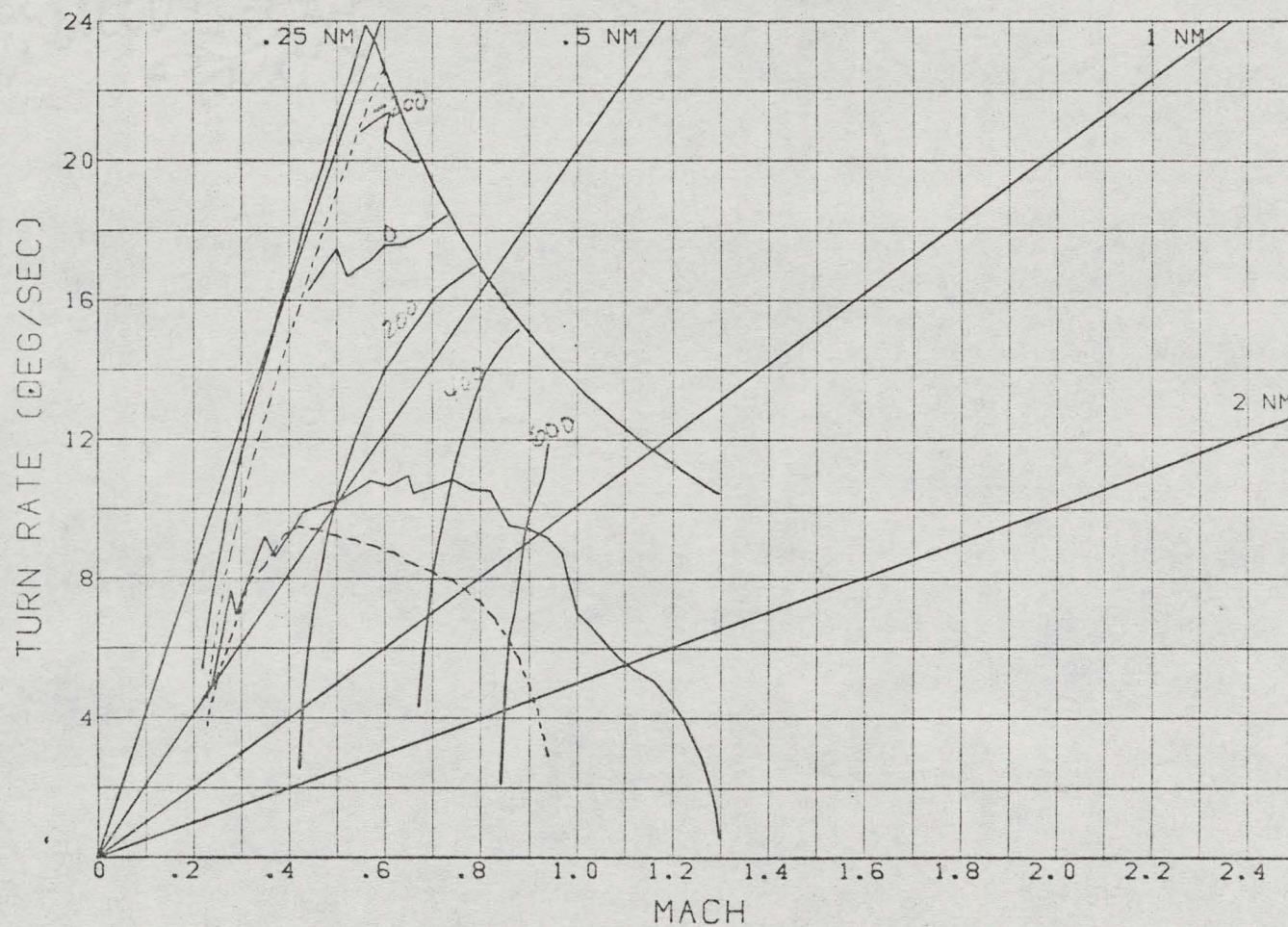
11015

50% (1290)

JAN 8 1975

MANEUVER DIAGRAM

ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFDP

$\Delta PS = 610333 - 311$

DC1 - MAX PWR - DC1

HORIZONTAL ATTITUDE

OPT L/D

2-A-9

2-AT

24054

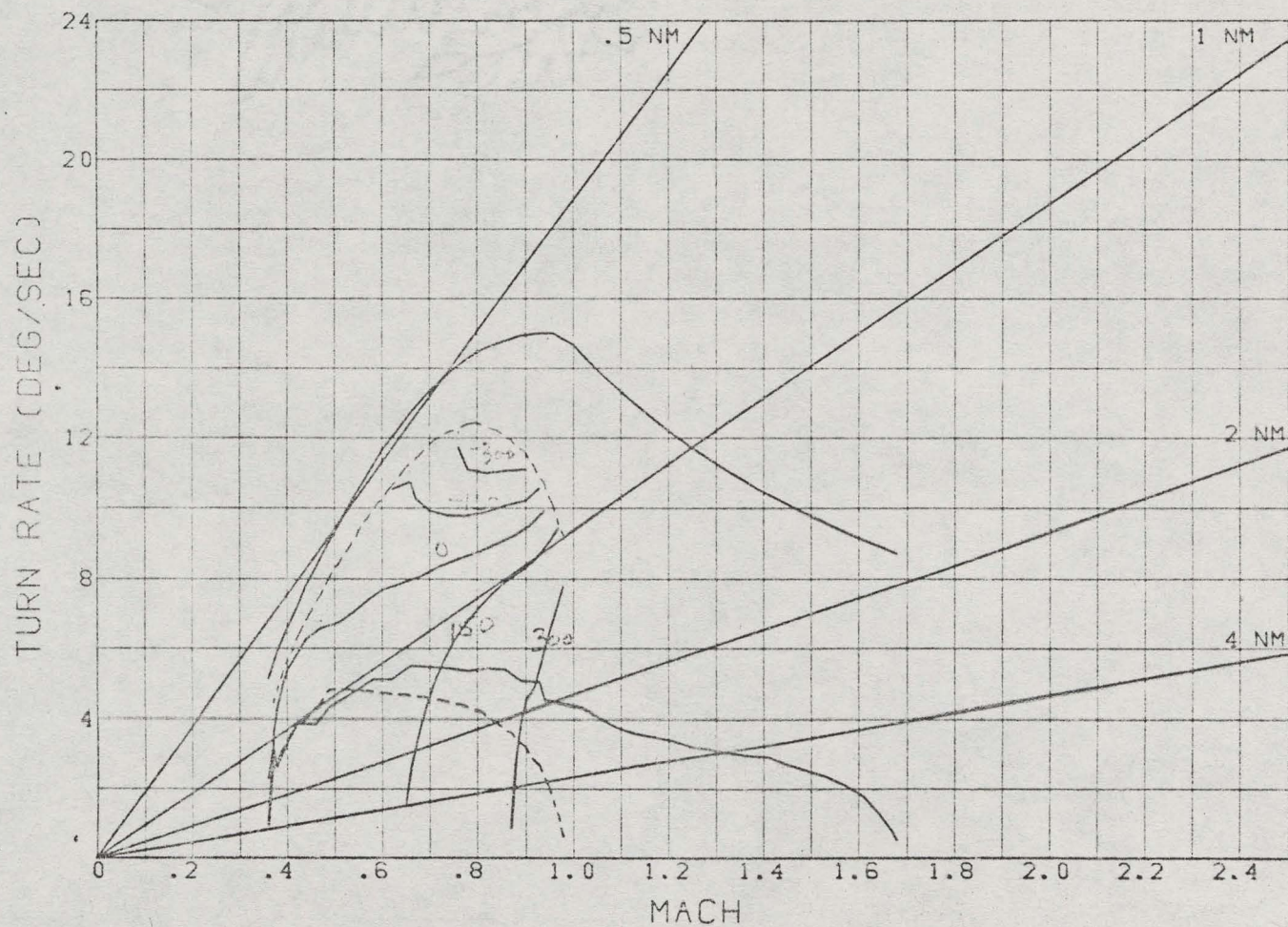
11015

50% (1290)

JAN 3 1975

MANEUVER DIAGRAM

ALTITUDE: 30000



PLOT PREPARED BY ASD/ENFDP

DPS 610333 -311

MAXIMUM POWER

D/C 1 D/C 1

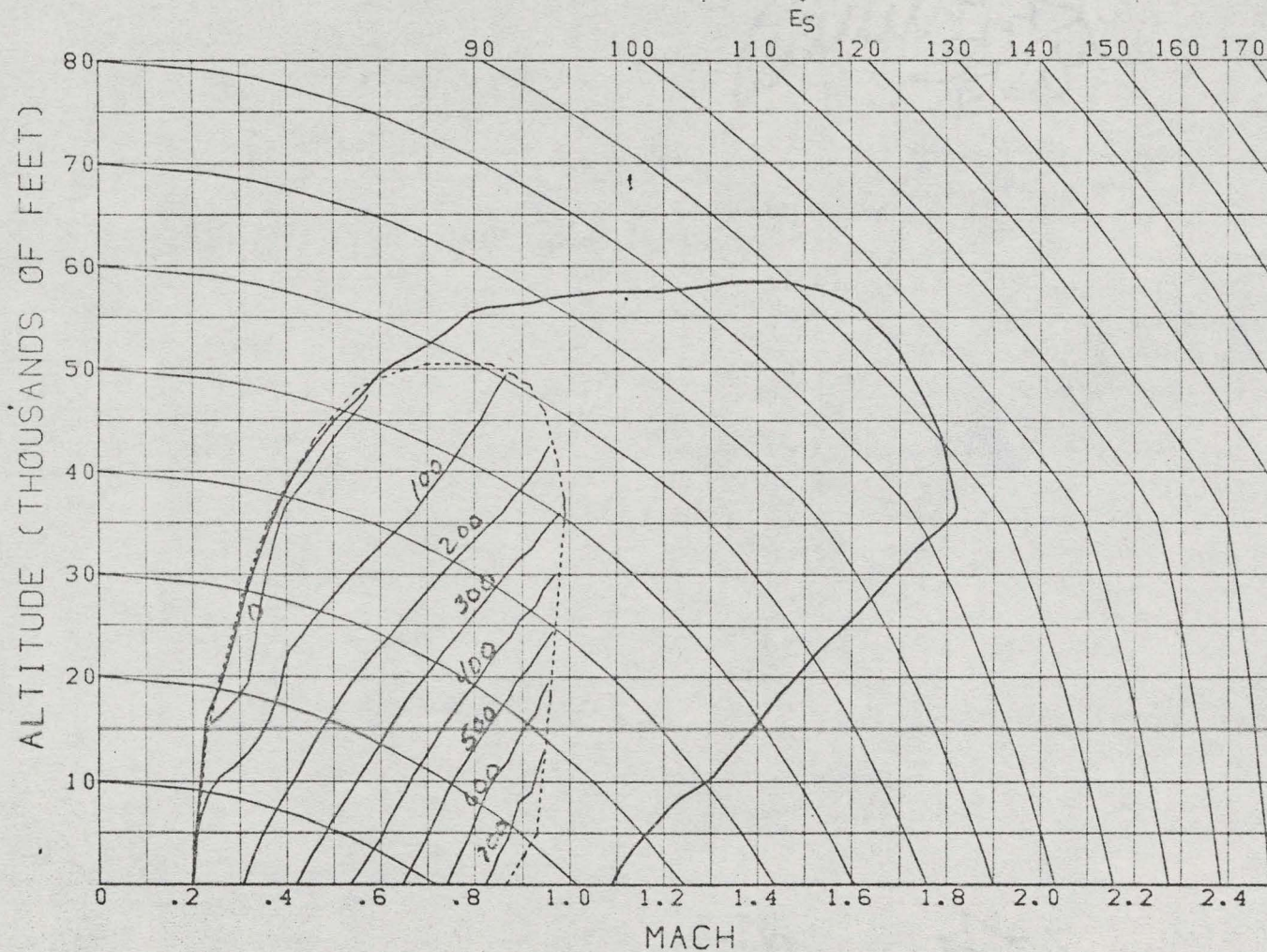
JAN 8 1975

Z-A-9 2AT

24054 11015

50% (1290)

1.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 610333 -311

MAXIMUM POWER

D/C 1 D/C 1

2-A-9

2-RT

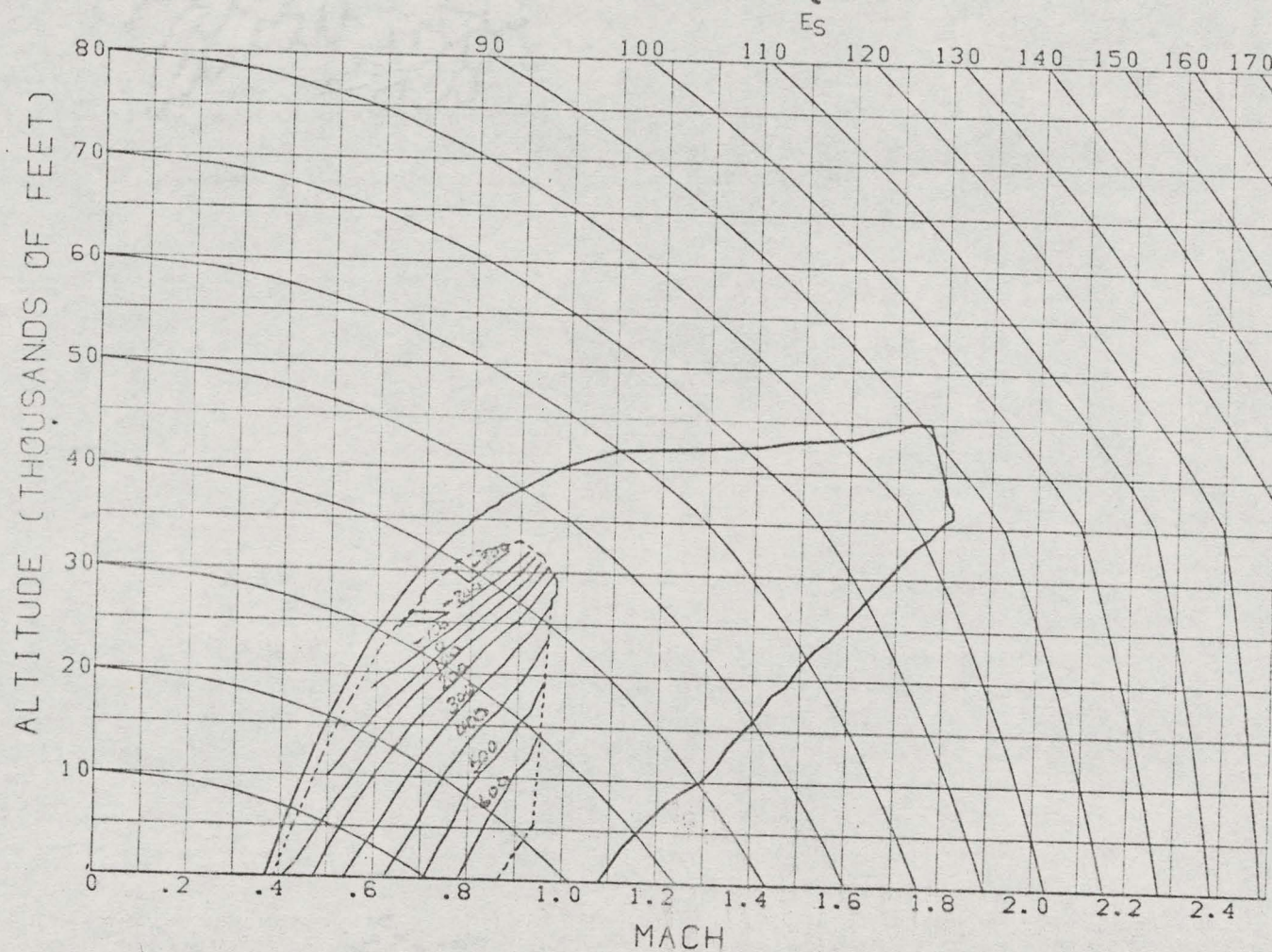
JAN 3 1975

24054

11015

5070 (1290)

5.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 610333 -311

MAXIMUM POWER

D/C 1 D/C 1

JAN 3 1975

2-A-9

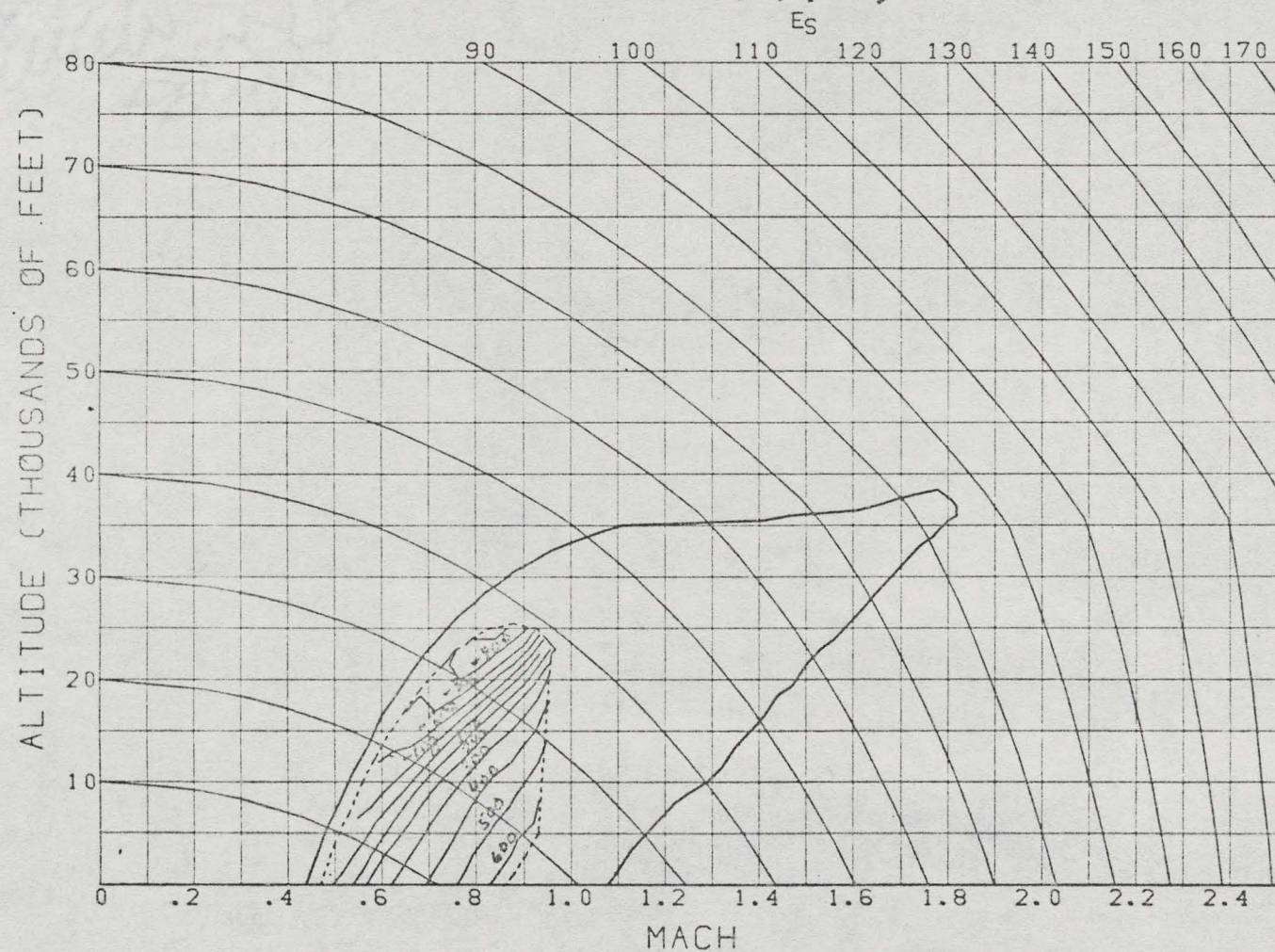
2-AT

24054

11015

507.(1290)

7.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 610333 -311

MILITARY POWER

D/C 1 D/C 1

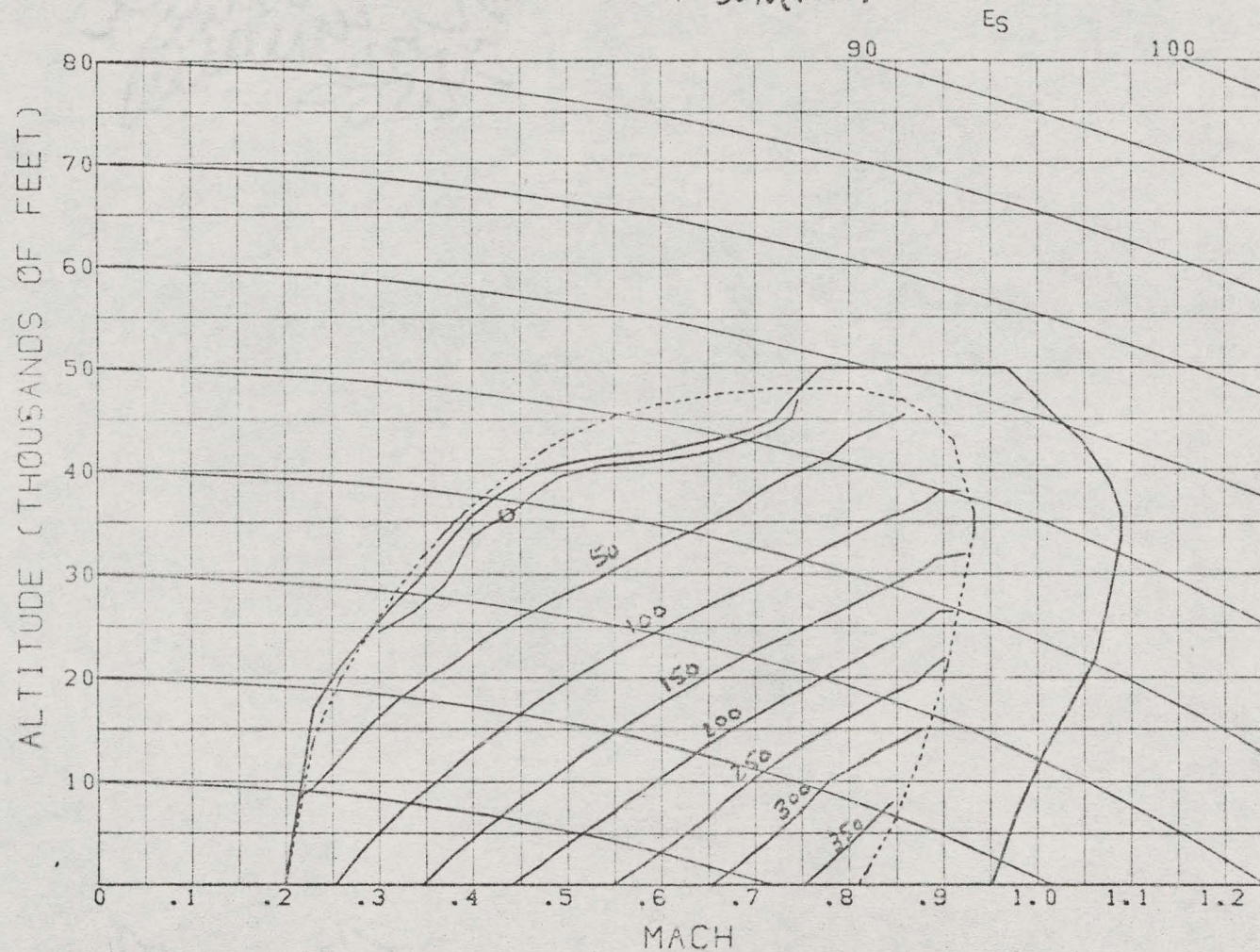
JAN 3 1975

2-A-9 2-AT

24054 11015

50% (1290)

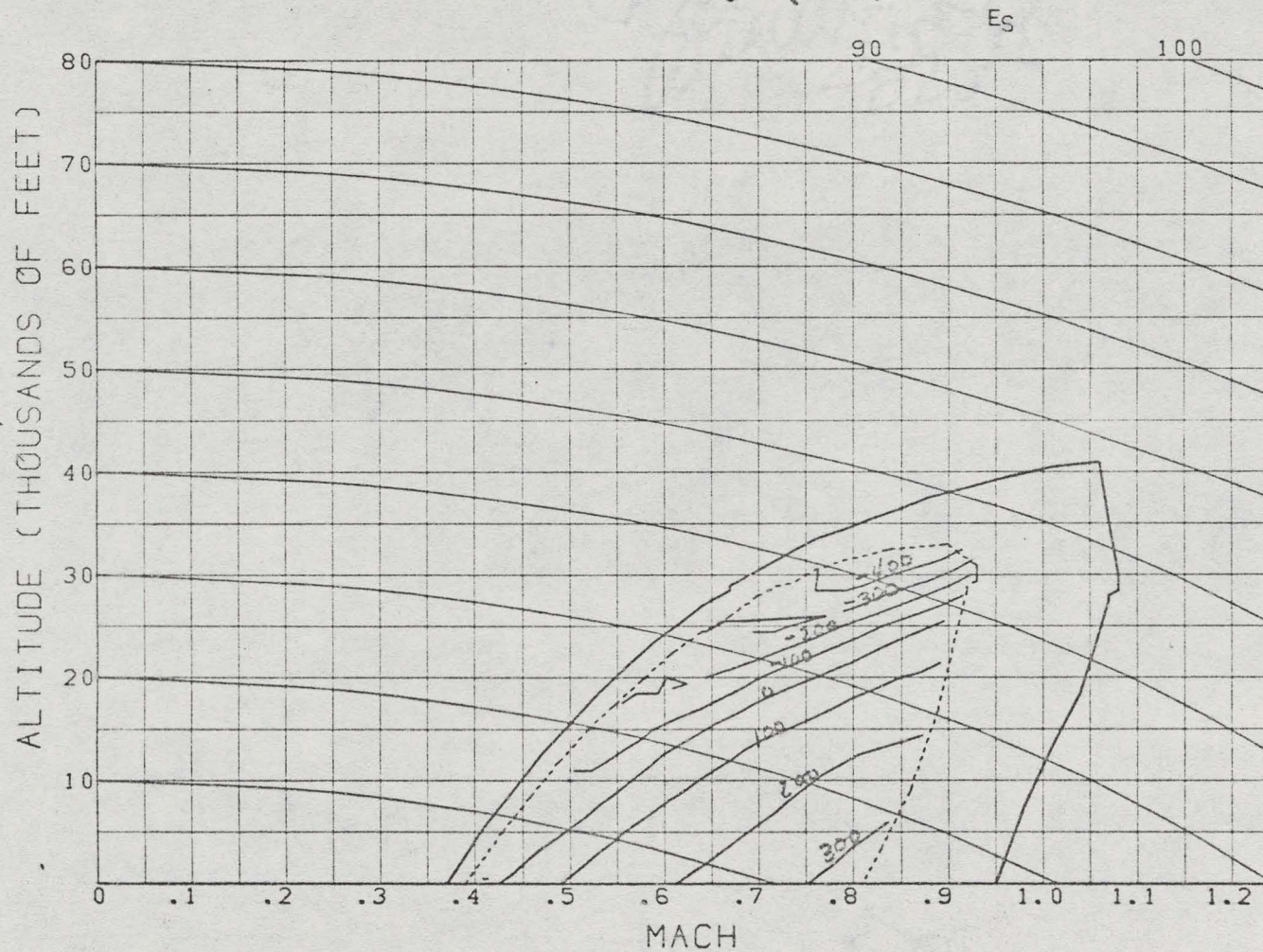
1.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

JAN 2 1952

5.00 G DIAGRAM



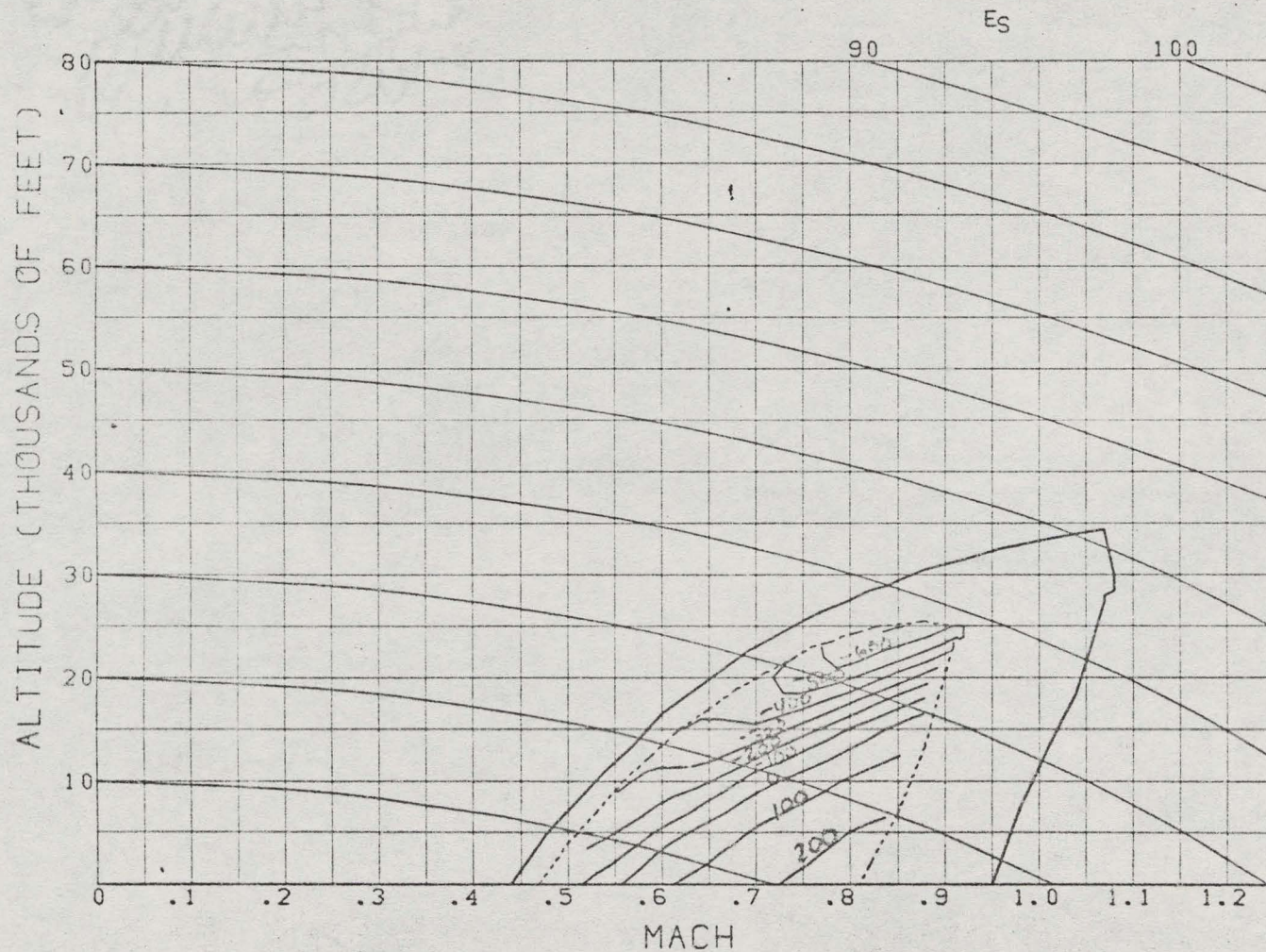
PLOT PREPARED BY ASD/ENFDP

DPS 610333 -311
MILITARY POWER
D/C 1 D/C 1

JAN 3 1975

7.00 G DIAGRAM

2-A-7 2-AT
24054 11015
507. (1290)



PLOT PREPARED BY ASD/ENFDP

2-A-9
24092

2-AT
15712
50% (2590)

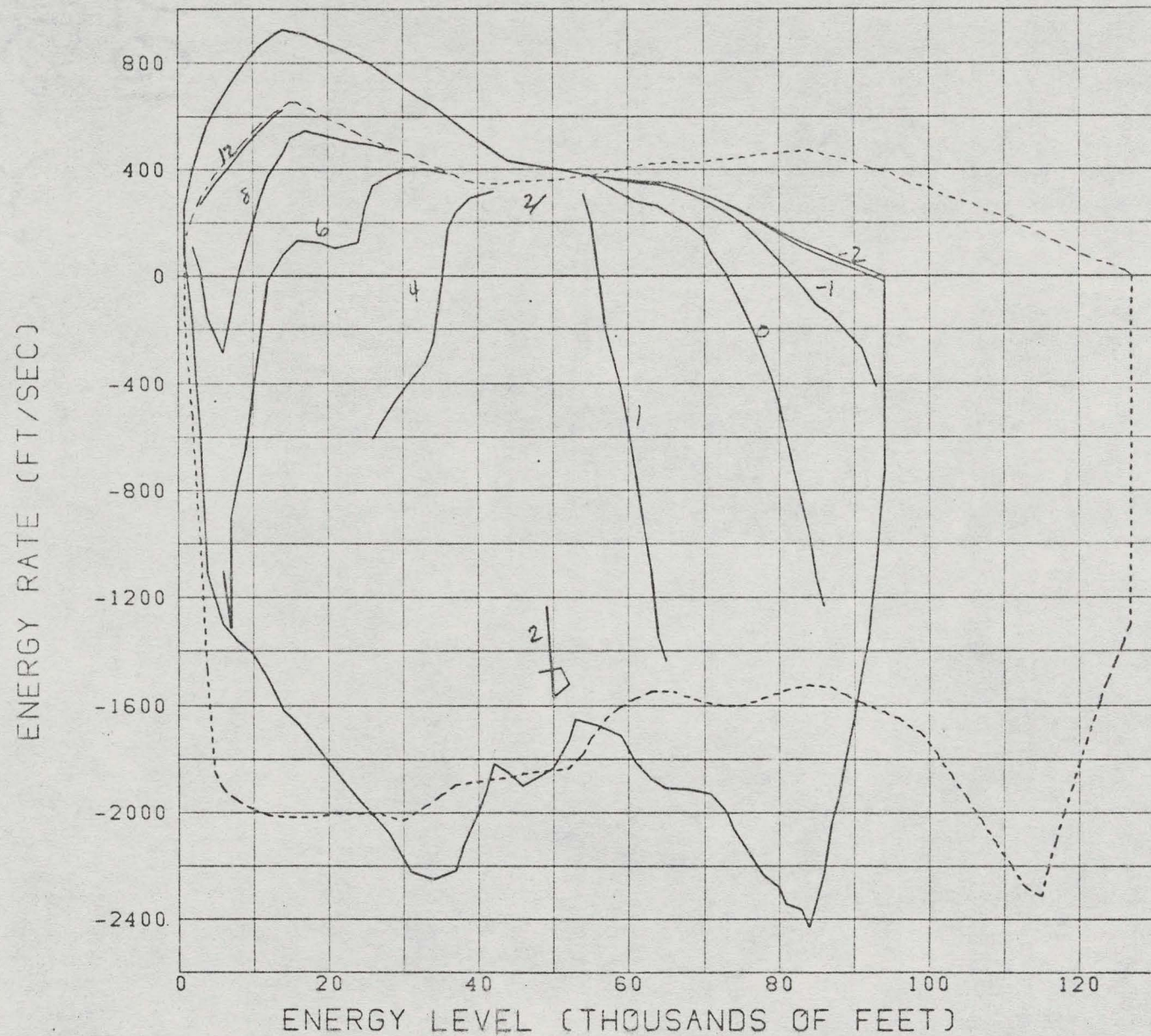
1-1-75

610333 - 329

MAX MANEUVER DIAGRAM

DC 1 -MAX PWR-DC 1

----- HORIZONTAL ATTITUDE



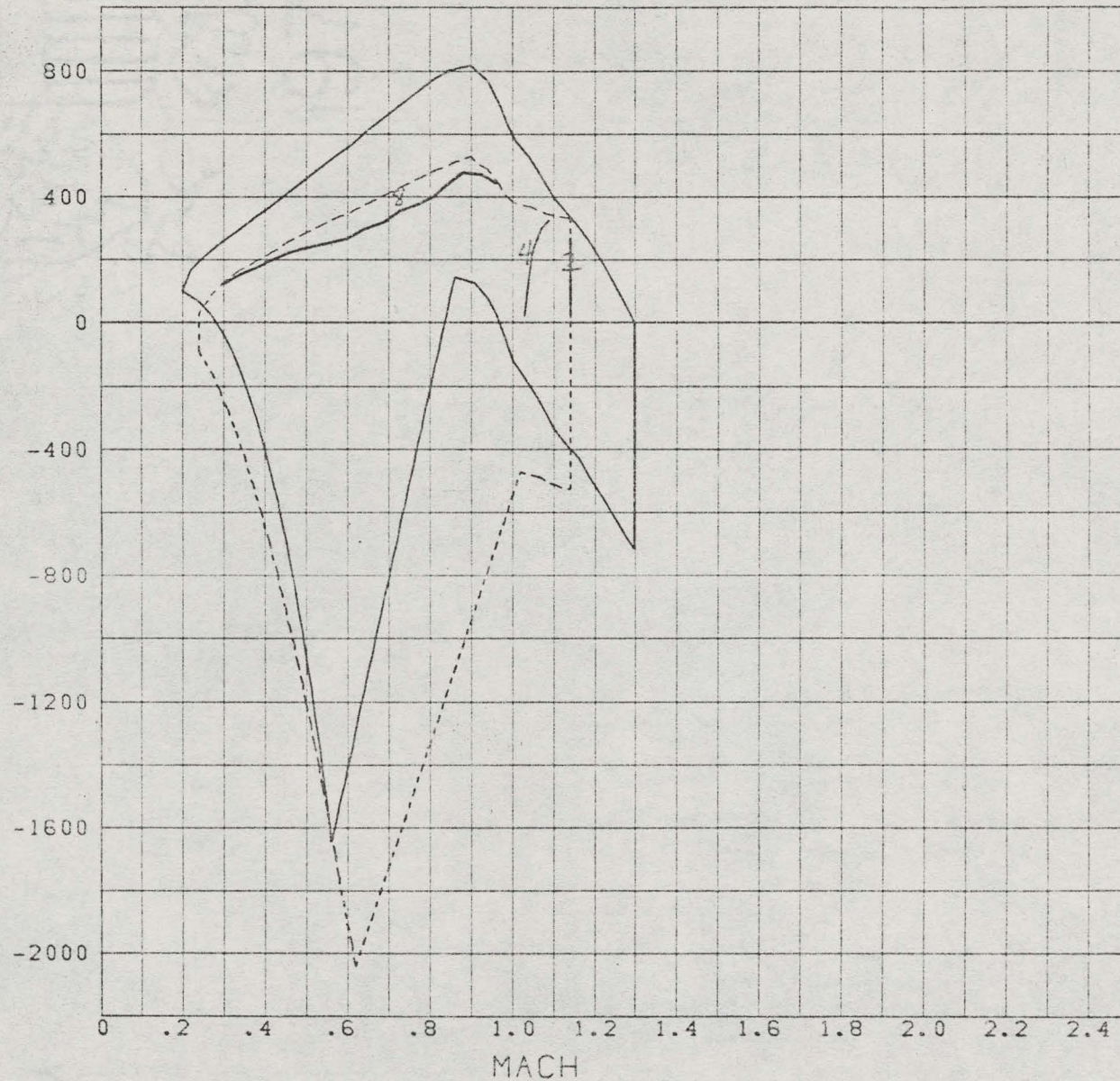
MANEUVER DIAGRAM
ALTITUDE 10000

2-A-9
24092
610333 - 329
DC 1 - MAX PWR - DC 1

2-AT
15712
807 (2540)

JAN 8 1975

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/ENFDP

JAN 3 1975

2-4-9
24092

2-AT
15712
5070(2590)

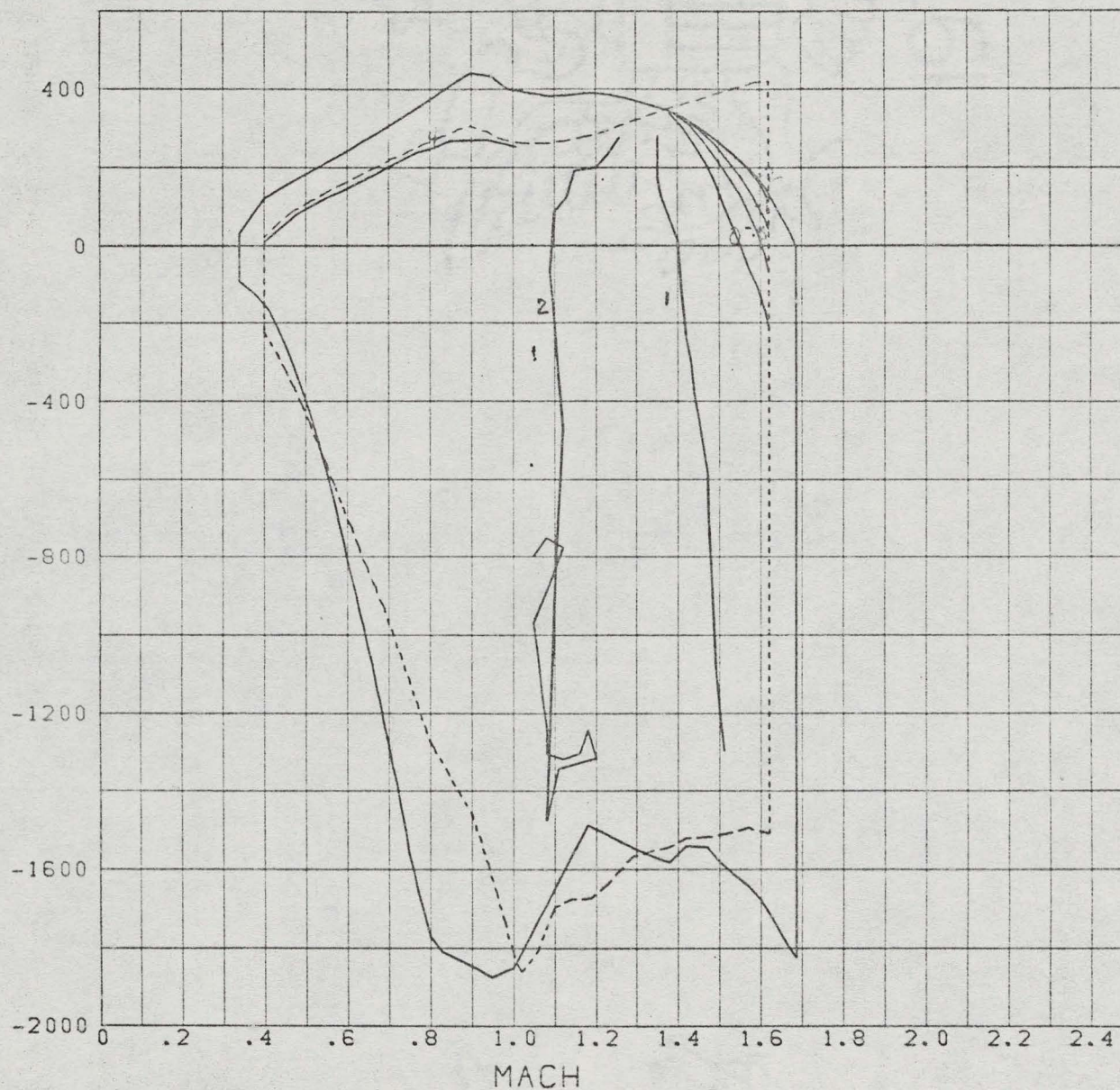
MANEUVER DIAGRAM
ALTITUDE 30000

610333 - 329

DC 1 -MAX PWR-DC 1

HORIZONTAL ATTITUDE

ENERGY RATE (FT/SEC)



PLOT PREPARED BY ASD/ENFOP

$\Delta PS = 610333 - 329$

DC1 - MAX PWR - DC1
OPT L/D

HORIZONTAL ATTITUDE

2-4-9

2-4T

24092

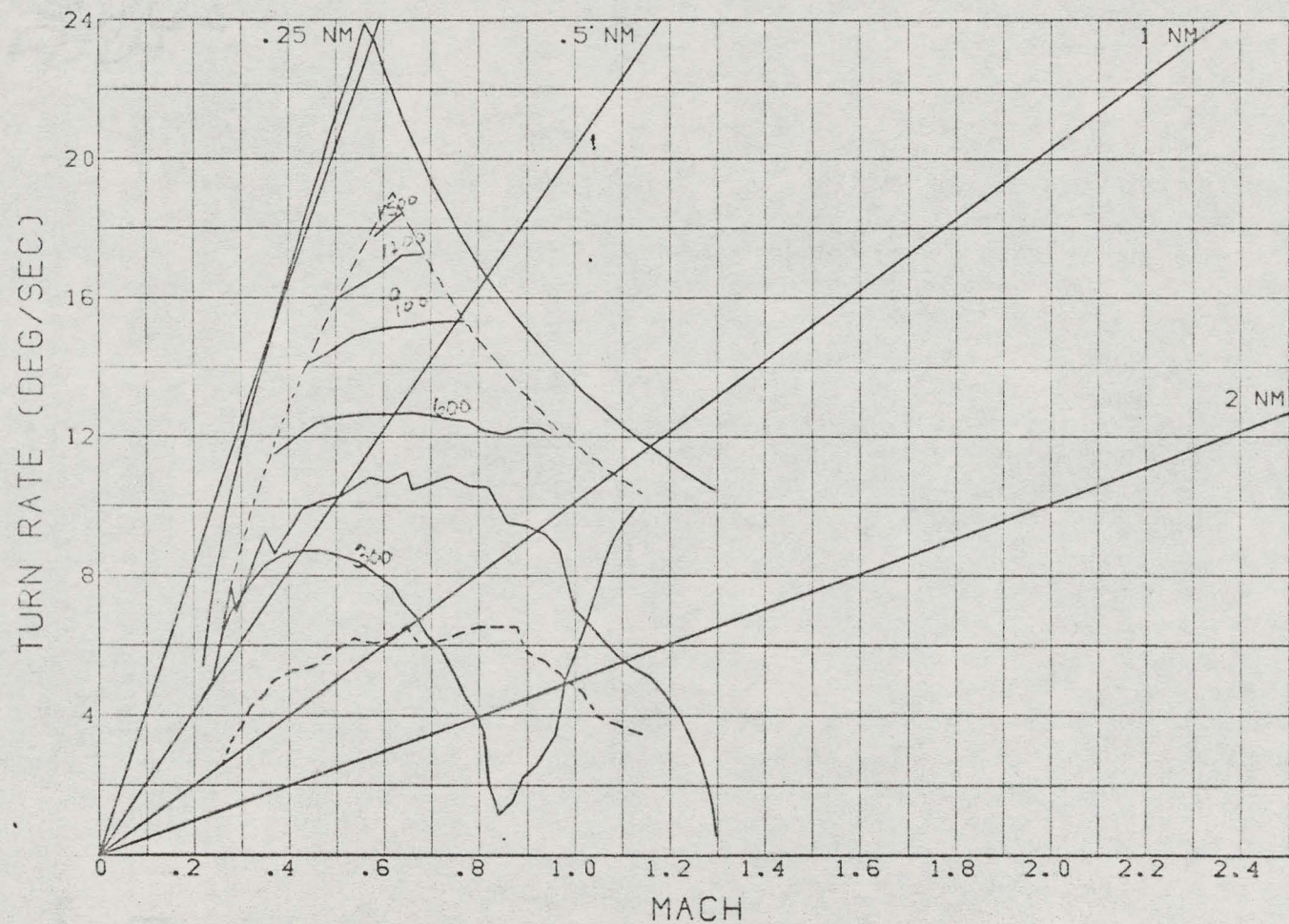
15712

JAN 8 1975

5076 (2590)

MANEUVER DIAGRAM

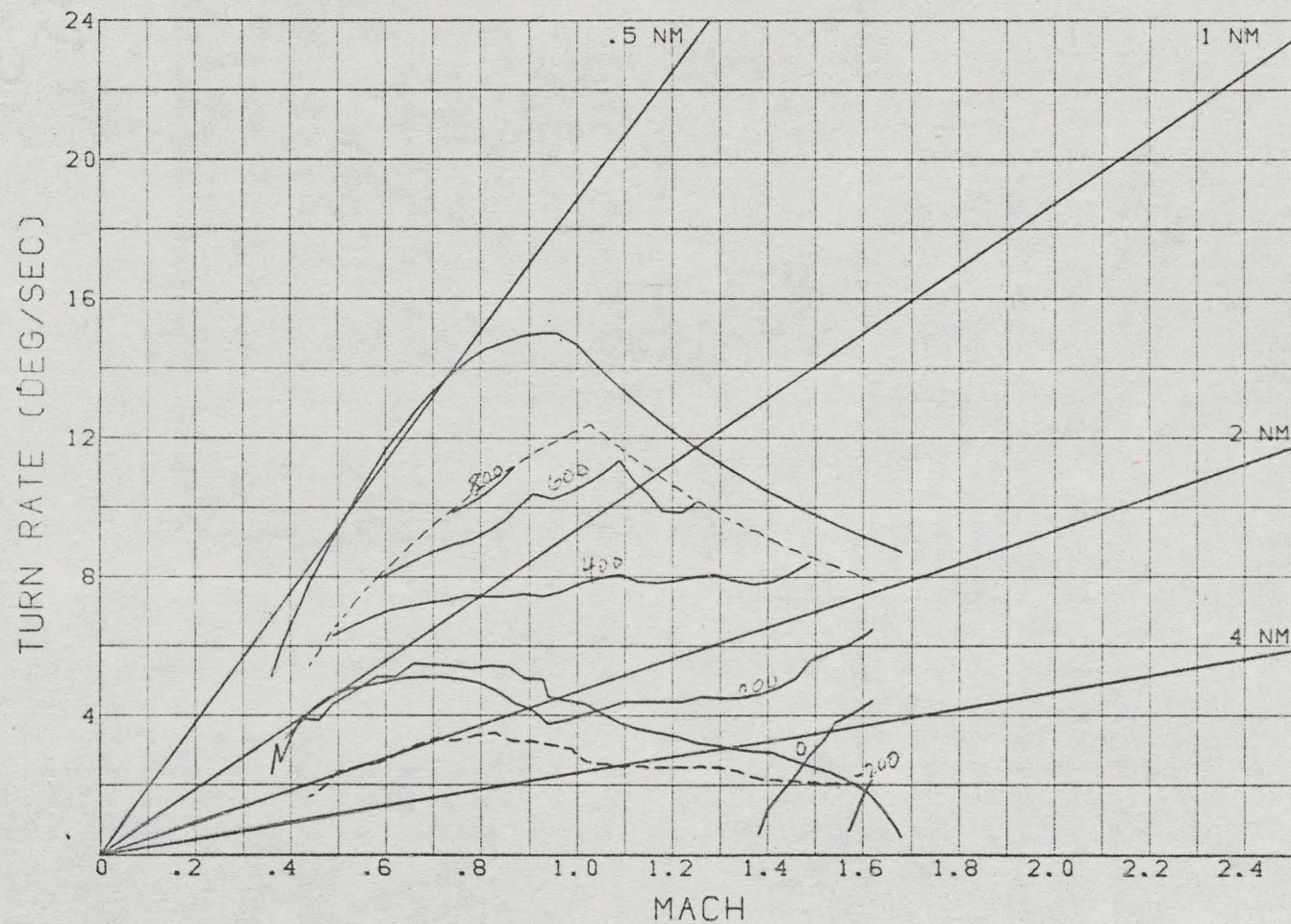
ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFDP

$\Delta PS = 610333 - 329$ ---
 DC 1 - MAX PWR - DC 1 HORIZONTAL ATTITUDE
 OPT L/D
 2-A-9 2-AT
 24092 15712 JAN 3 1975
 507. (2590)

MANEUVER DIAGRAM
 ALTITUDE: 30000



PLOT PREPARED BY ASD/ENFDP

DPS 61 0333 -329

MAXIMUM POWER

D/C 1 D/C 1

JAN 3 1975

2-A-9

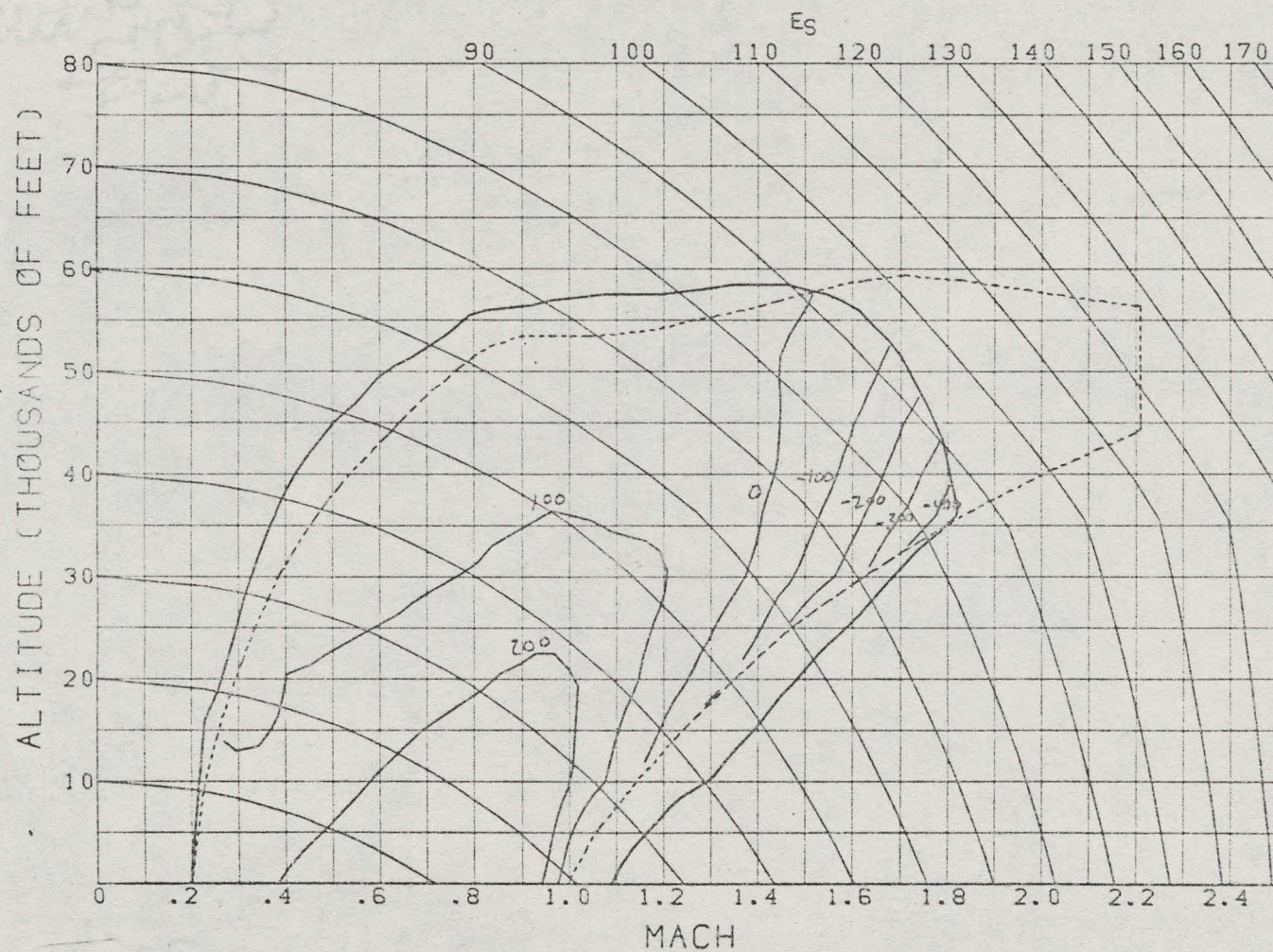
$$Z - A\bar{T}$$

24054

15712

50% (2590)

1.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFOP

DPS 610333 -329

MAXIMUM POWER

D/C 1 D/C 1

JAN 3 1975

5.00 G DIAGRAM

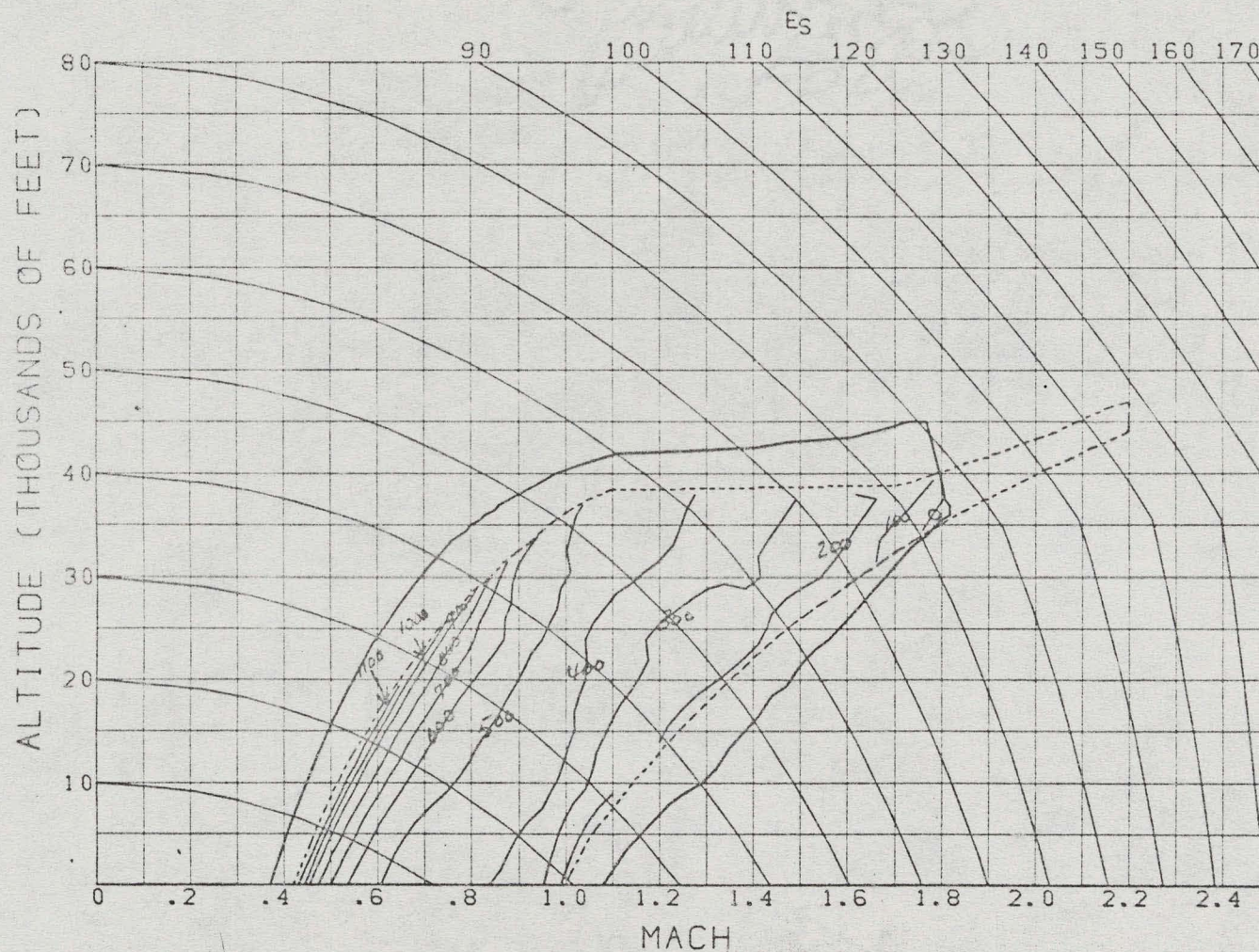
2-A-9

2-AT

24054

15712

5070(2570)



PLOT PREPARED BY ASD/ENFDP

DPS 610333 -329

MAXIMUM POWER

JAN 8 1975

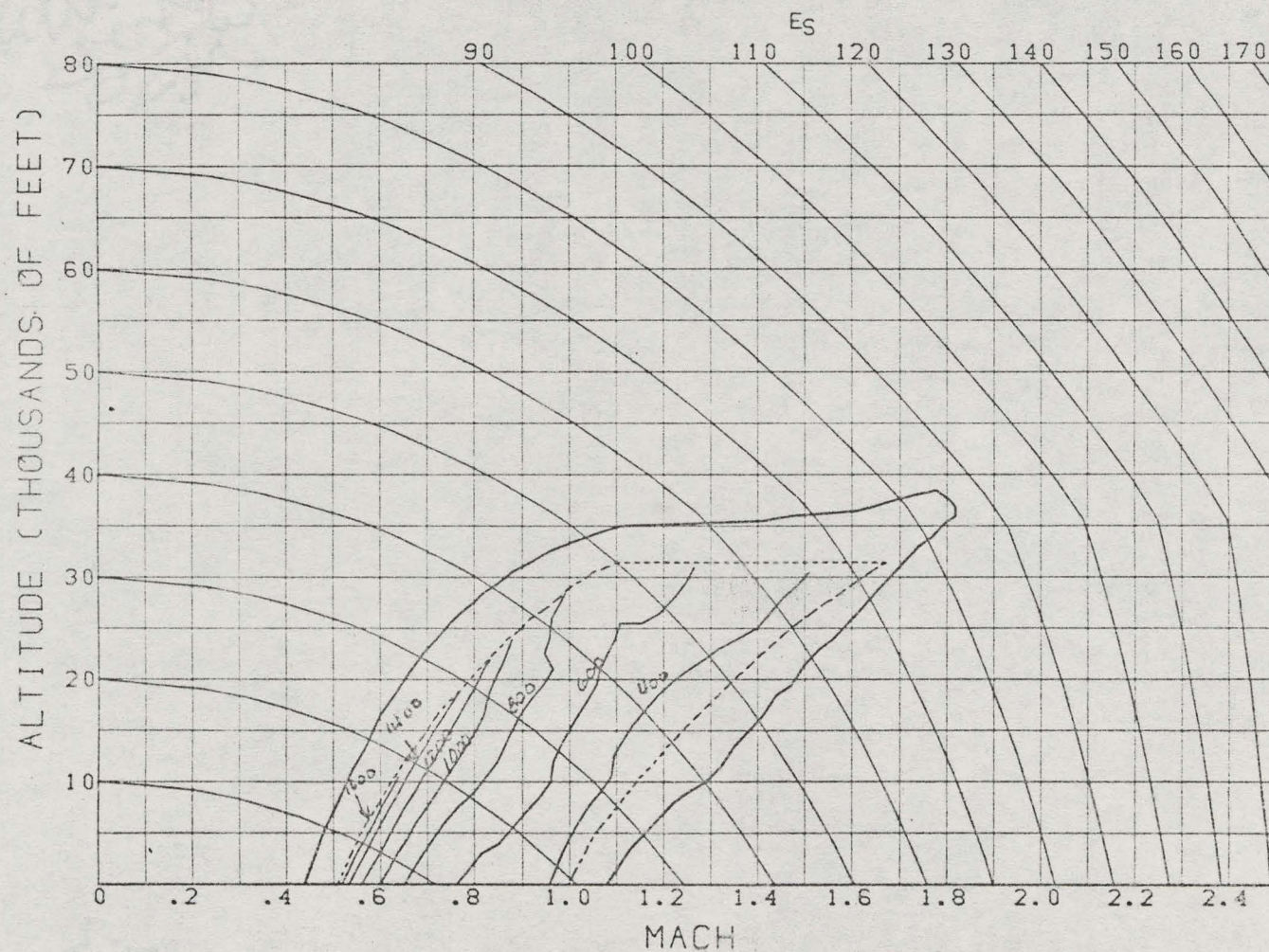
D/C 1 D/C 1

2-A-9 2-AT

24054 15712

50% (2590)

7.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 610333 -329

MILITARY POWER

D/C 1 D/C 1

2-A-9

2-A-7

24054

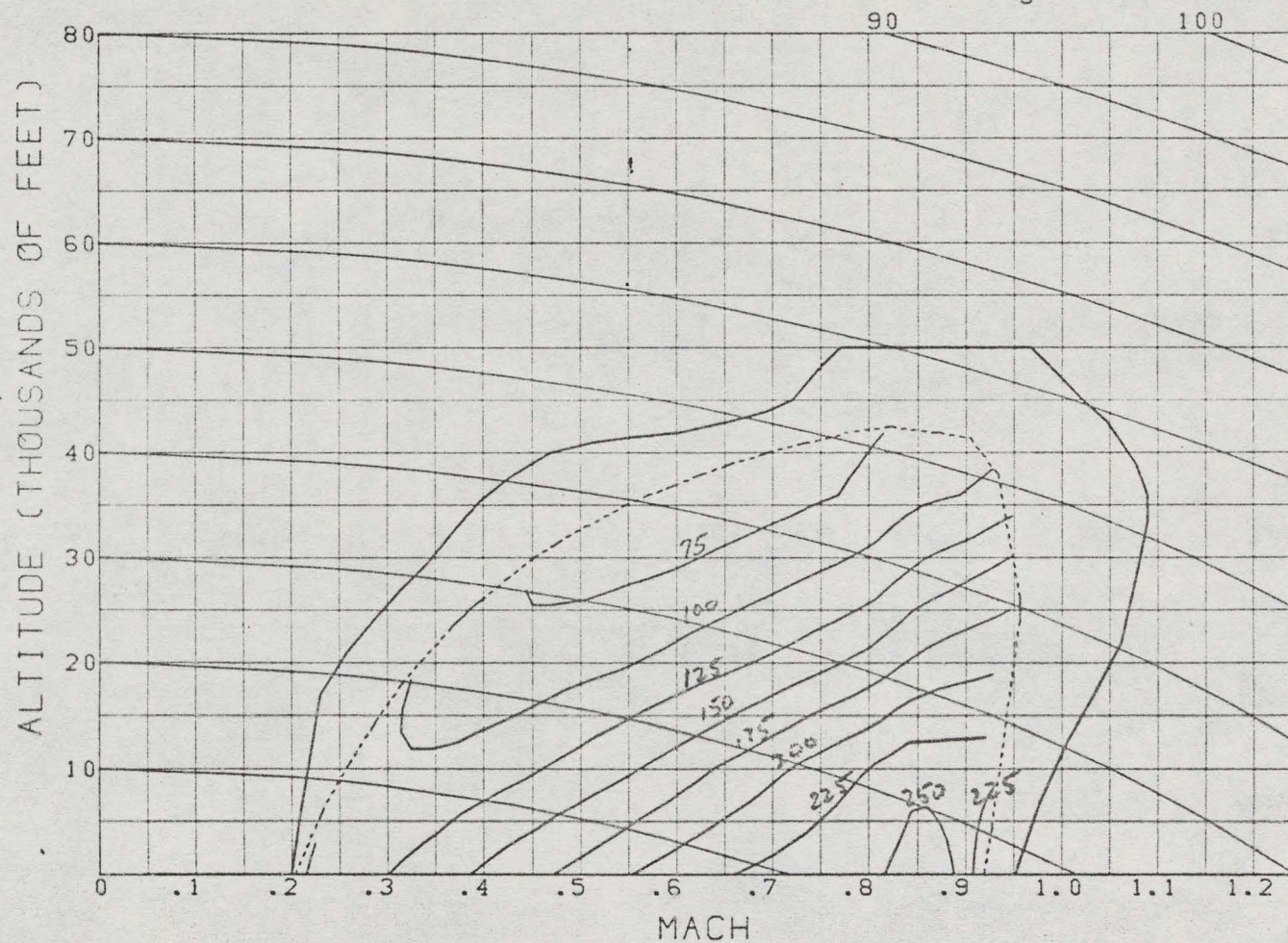
15712

5074 (2596)

JAN

JAN 3 1975

1.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

DPS 610333 -329

MILITARY POWER

D/C 1 D/C 1

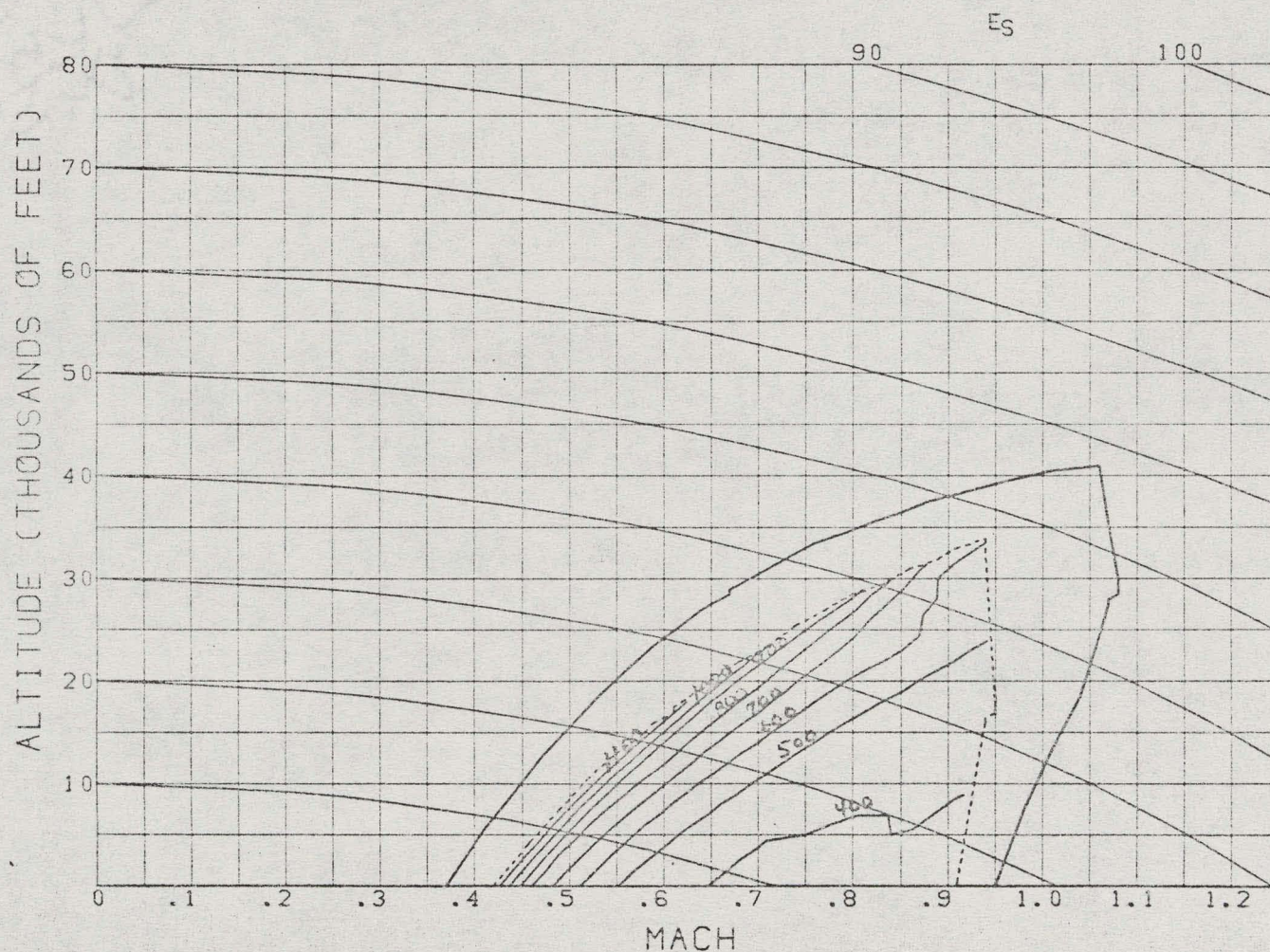
2-A-9 2-AT

19249 15712

JAN 2 1973

5.00 G DIAGRAM

5070(2590)



PLOT PREPARED BY ASD/ENFDP

DPS 610333 -329

MILITARY POWER

D/C 1 D/C 1

2-A-9

2-AT

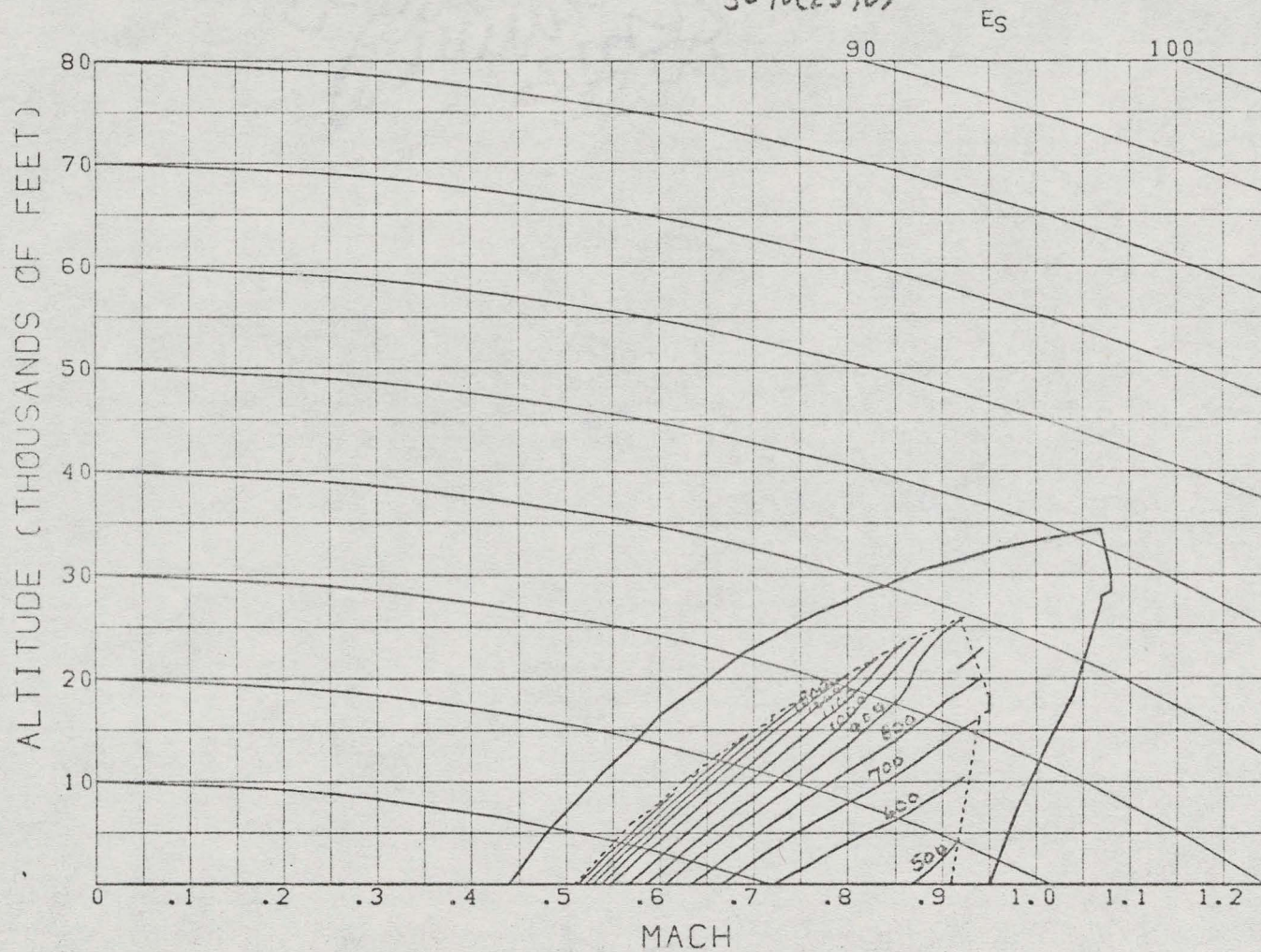
24054

15712

5070(2590)

JAN 3 1975

7.00 G DIAGRAM



PLOT PREPARED BY ASD/ENFDP

2-A-7
24092

2-AT
24766
50% (3750)

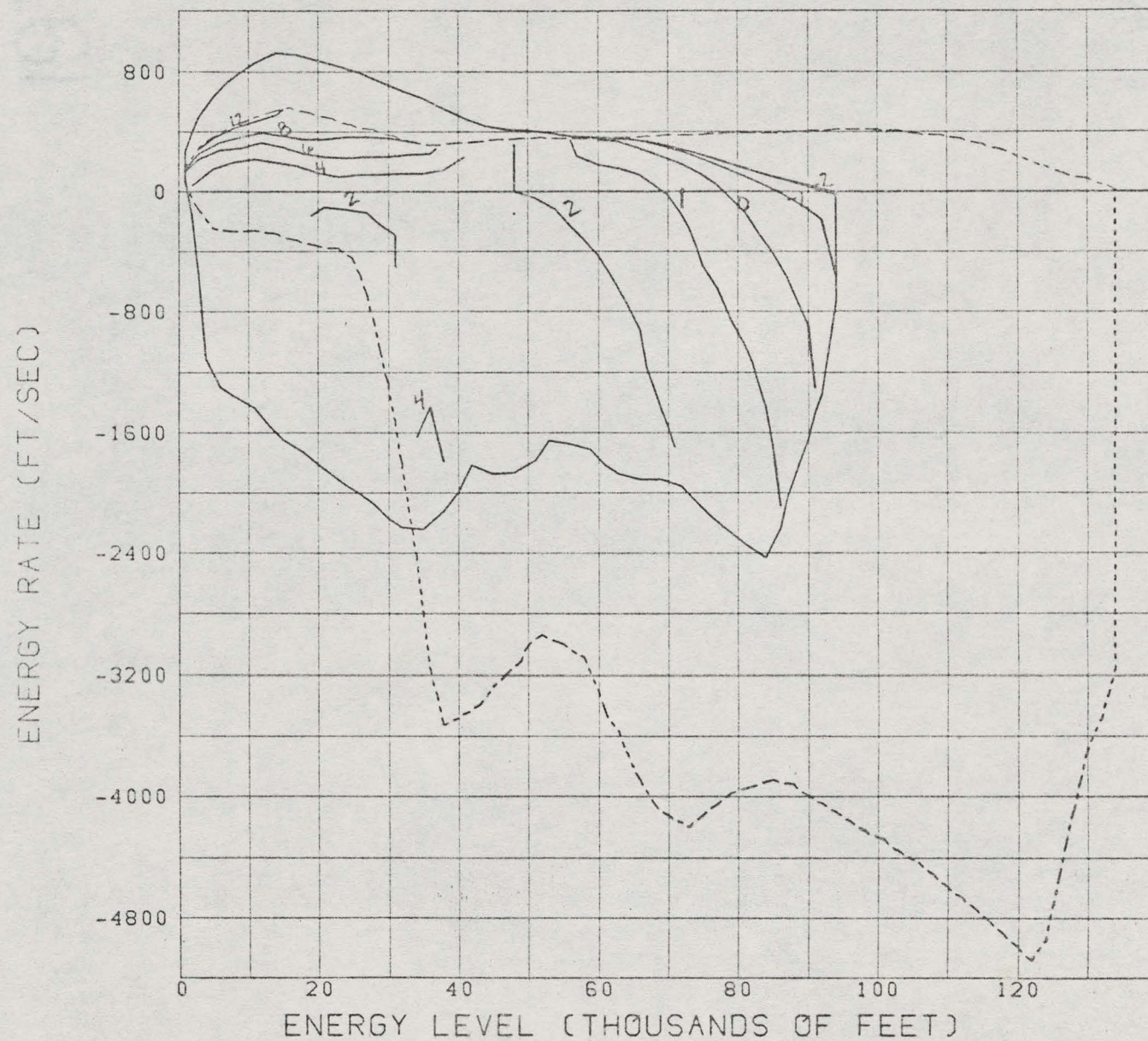
1-1-75

610333 - 3546

MAX MANEUVER DIAGRAM

DC1 - MAX PWR - DC2

HORIZONTAL ATTITUDE



PLOT PREPARED BY ASD/ENFDP

$$\Delta PS = \frac{610333}{-} - \frac{3546}{-}$$

DC 1 -MAX PWR-DC 2
OPT L/D

HORIZONTAL ATTITUDE

2-A-9

2-AT

24092

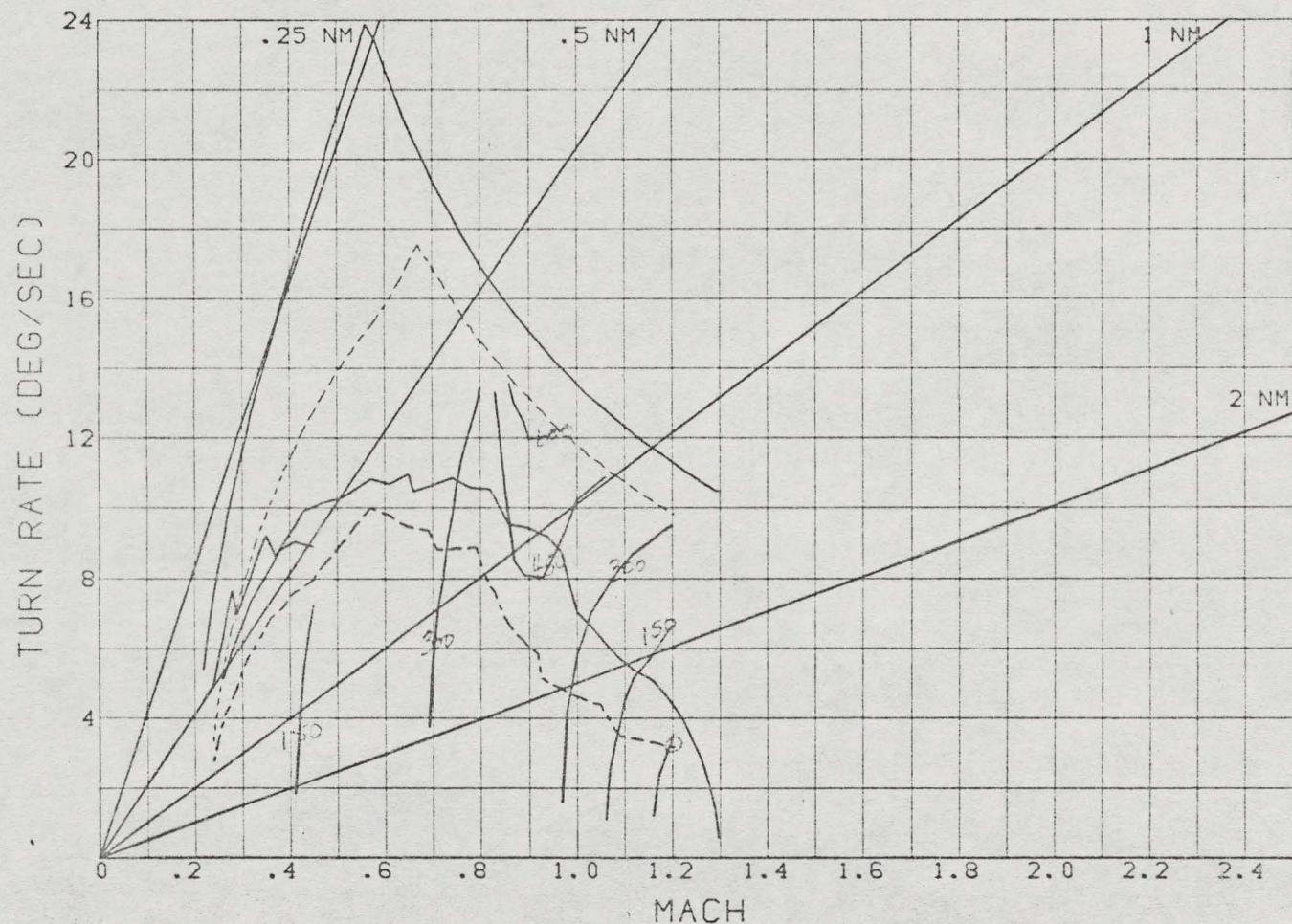
24766

5075 (3750)

JAN 1975

MANEUVER DIAGRAM

ALTITUDE: 10000



PLOT PREPARED BY ASD/ENFDP

$$\Delta PS = \frac{610333}{DC1 - MAX PWR - DC2} - \frac{3546}{OPT L/D}$$

DC1 - MAX PWR - DC2
OPT L/D

HORIZONTAL ATTITUDE

2-A-9

2-AT

JAN 3 1975

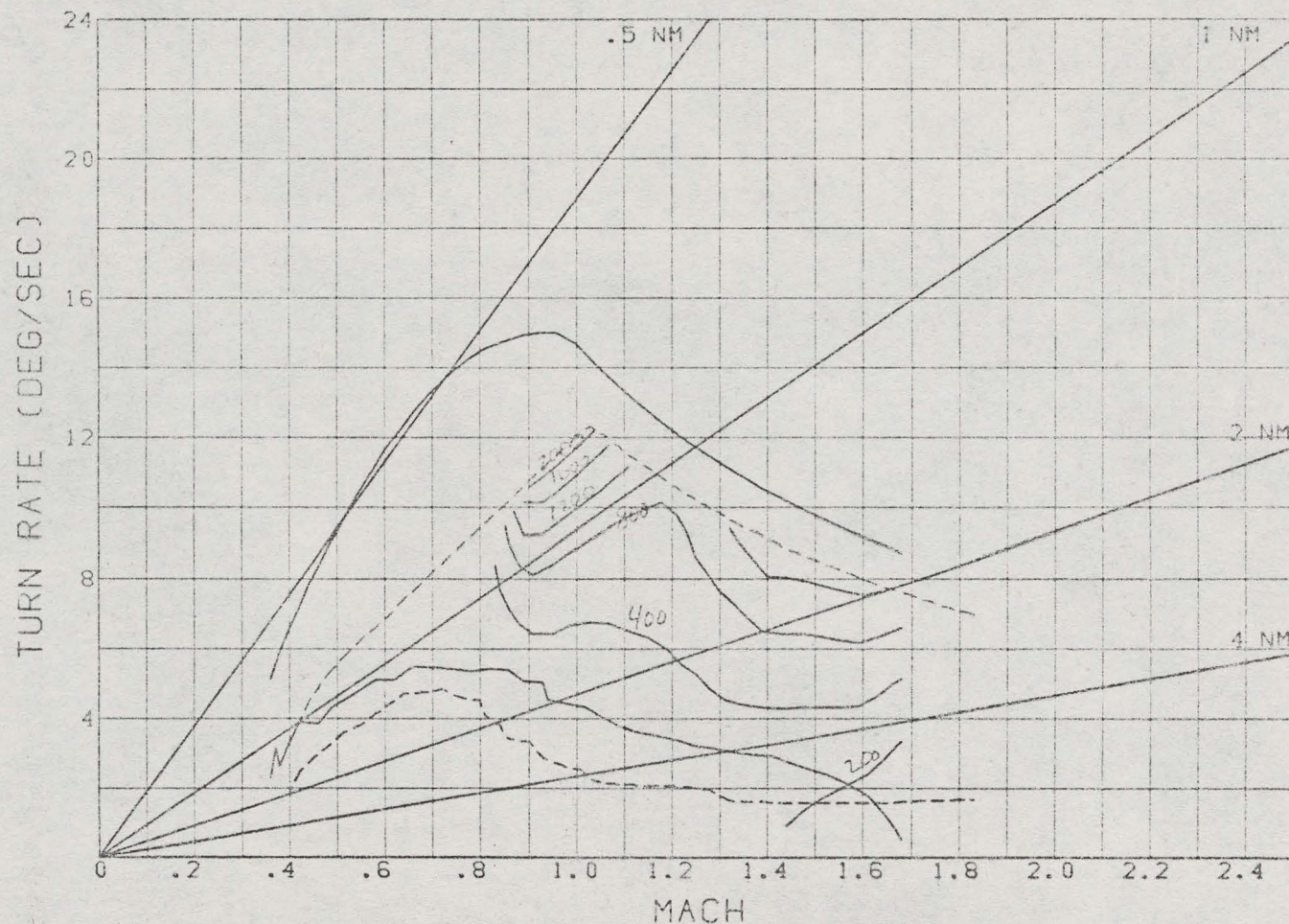
24092

24766

50% (3750)

MANEUVER DIAGRAM

ALTITUDE: 30000



PLOT PREPARED BY ASD/ENFDP

20900

11015

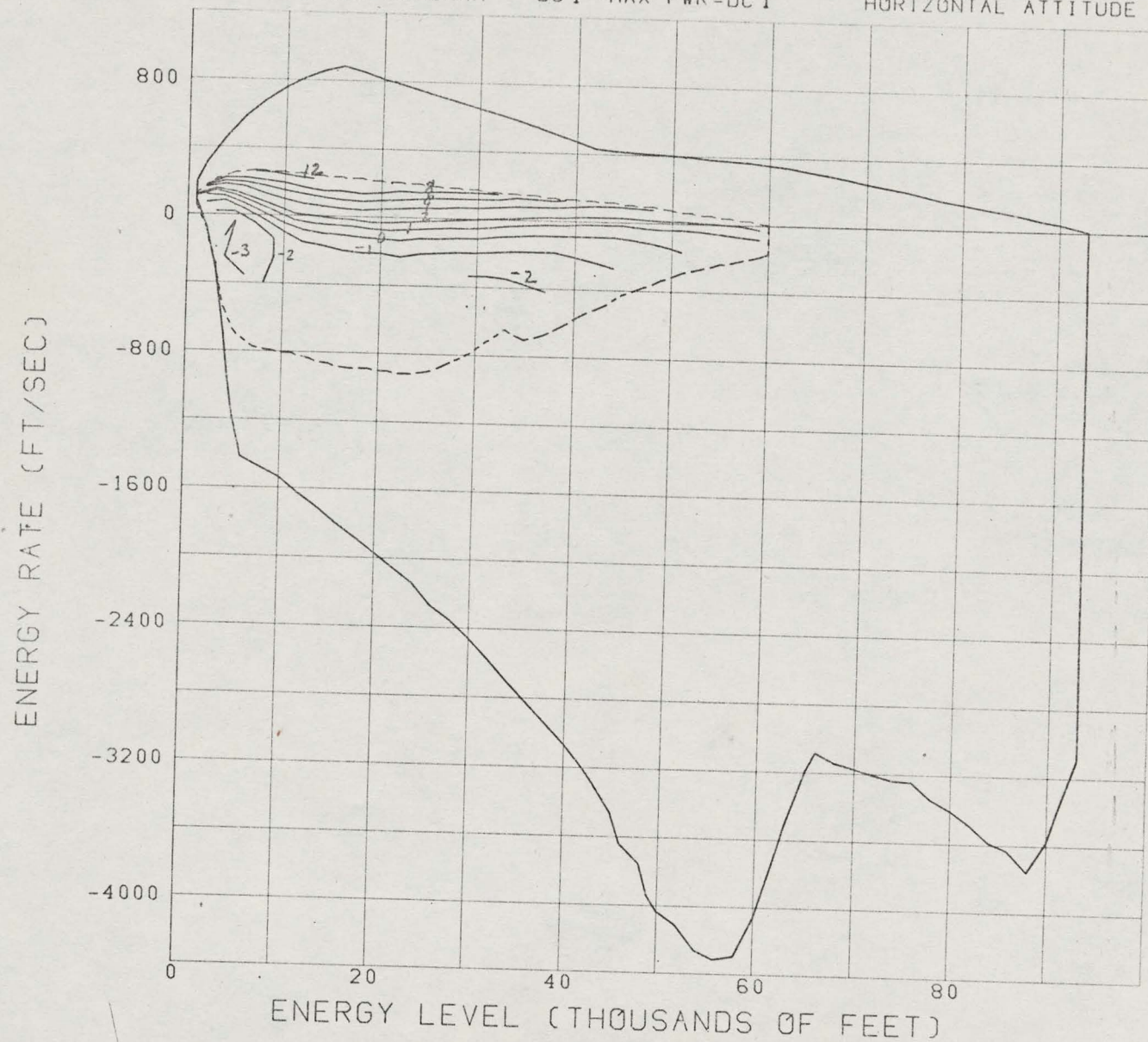
JAN 12 1975

410XRP - 311

MAX MANEUVER DIAGRAM

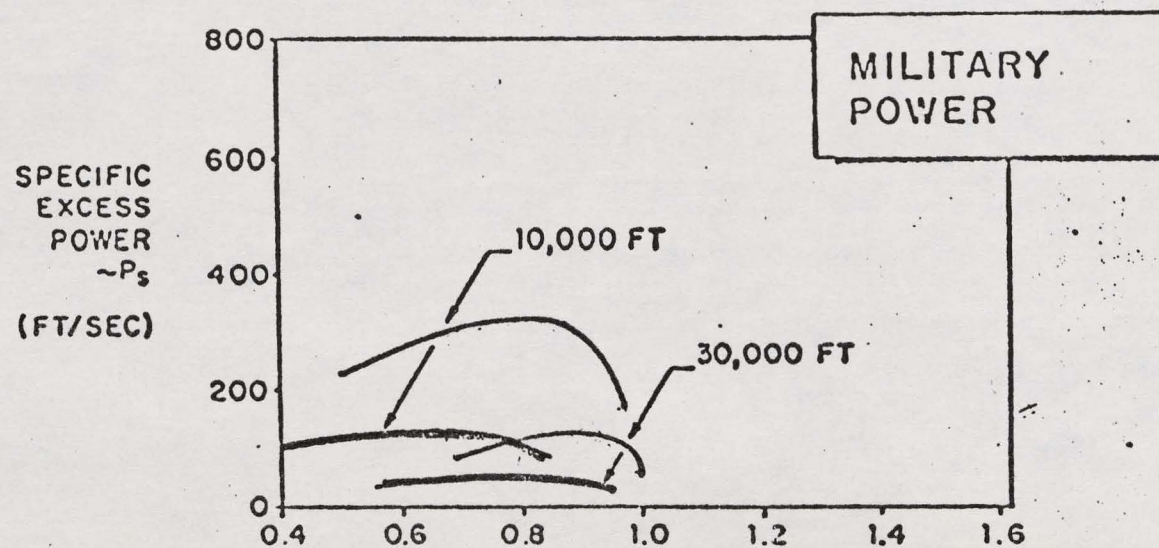
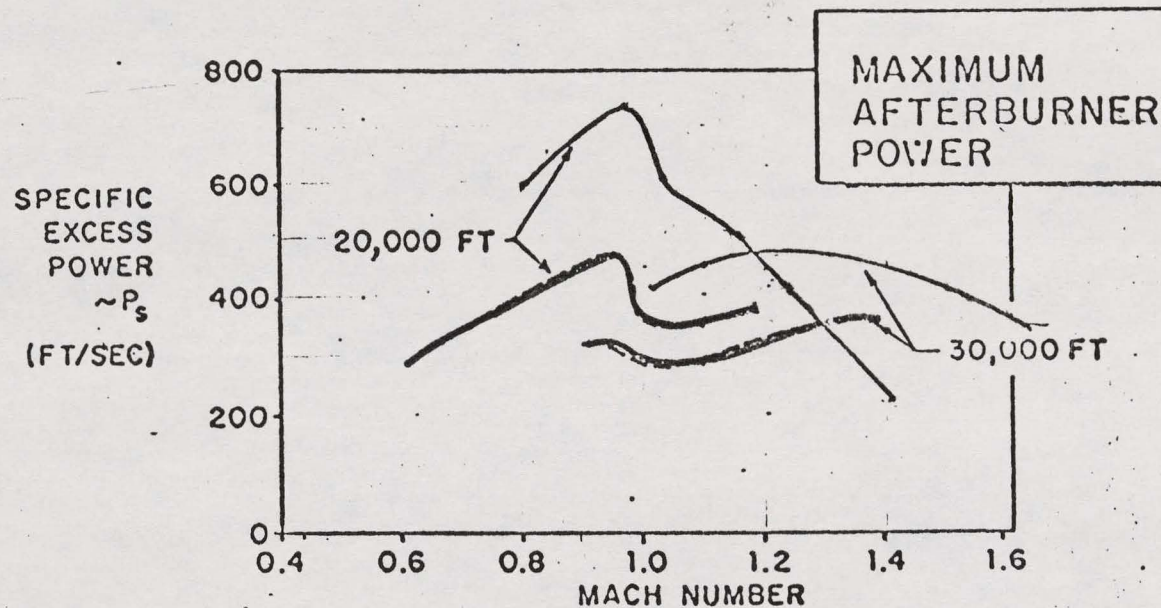
DC 1 - MAX PWR - DC 1

HORIZONTAL ATTITUDE

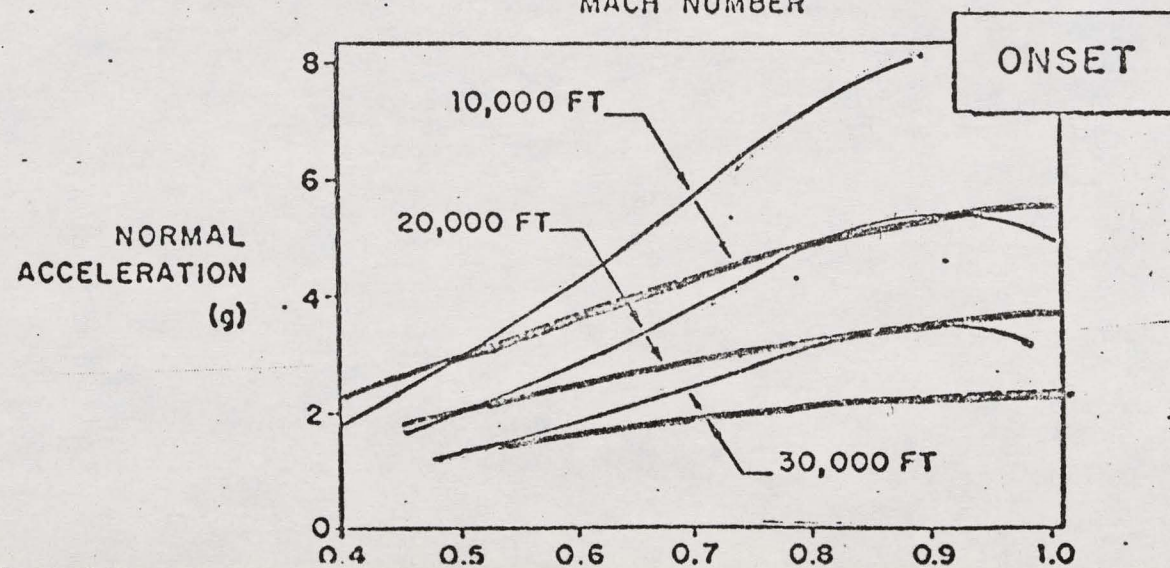
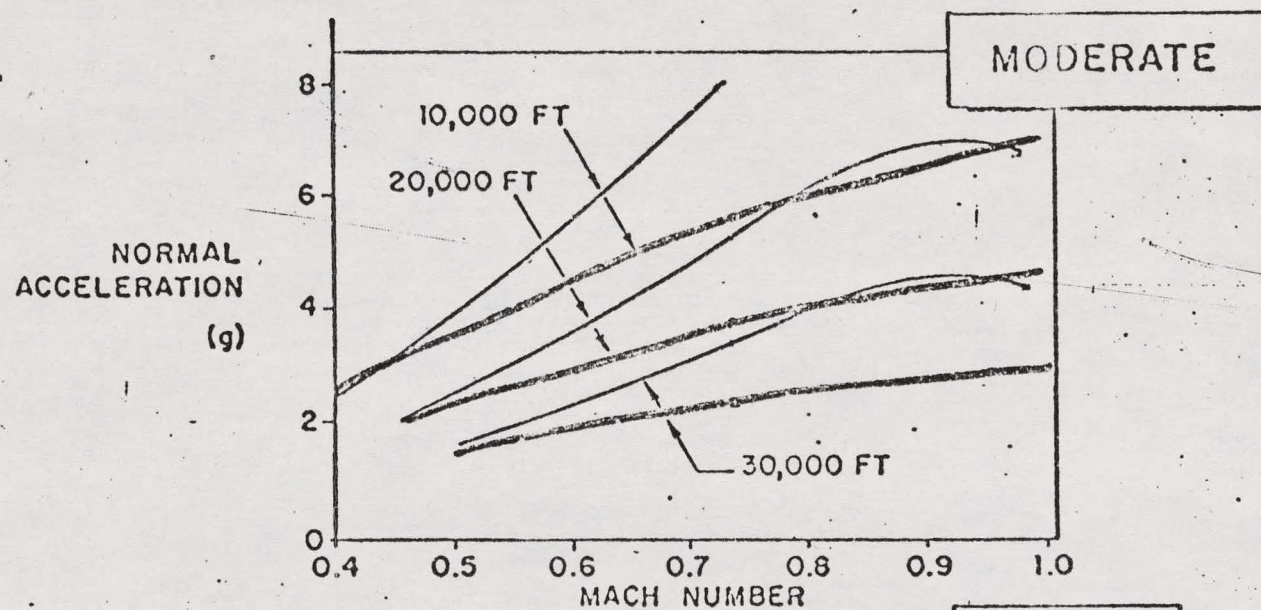


PLOT PREPARED BY ASD/ENFDP

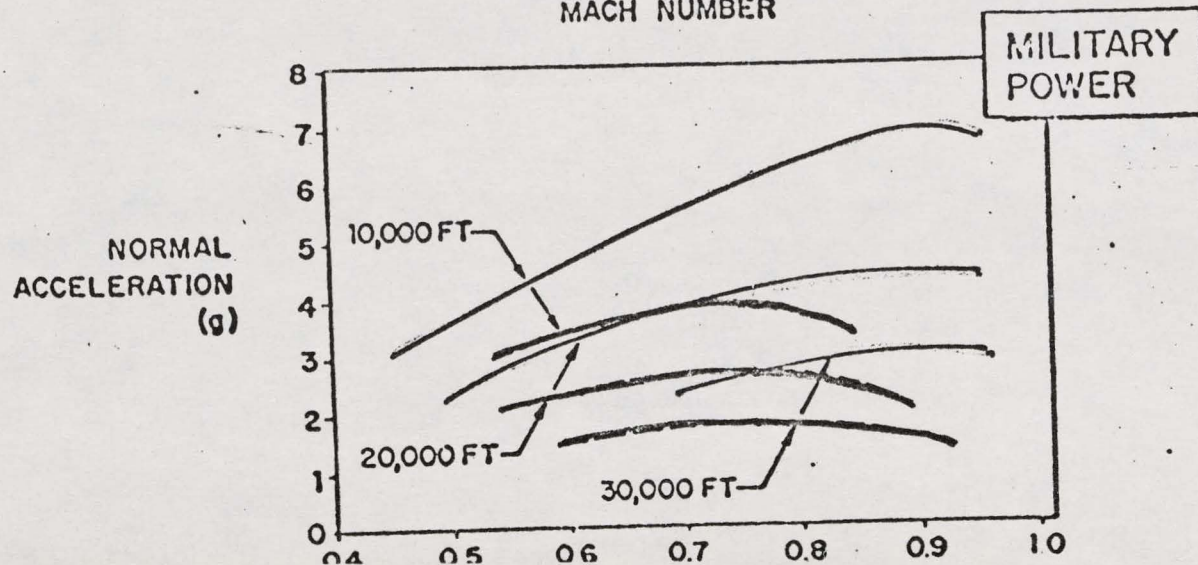
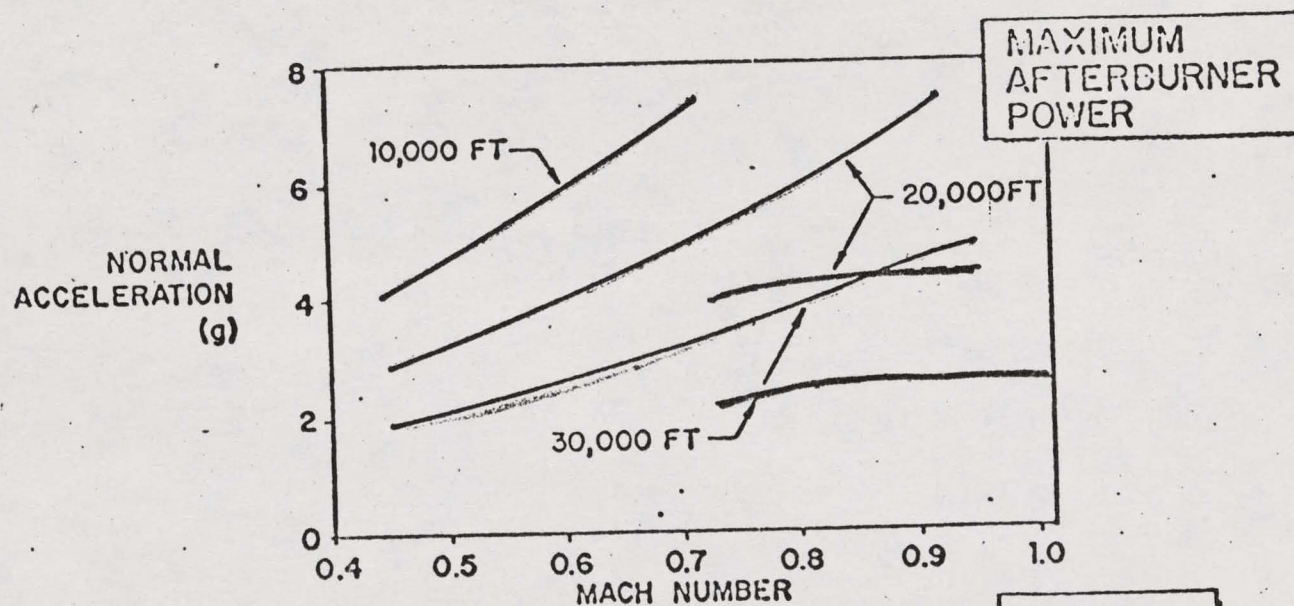
SPECIFIC EXCESS POWER



BUFFET BOUNDARY



THRUST LIMITED TURNING PERFORMANCE



JTF OBSERVATION LWF vs TYPE I/II

THE OBSERVATIONS OF THE JOINT TEAM PILOT DURING ACTUAL ENGAGEMENTS WITH TYPE I AND TYPE II AIRCRAFT ARE SUMMARIZED IN THIS CHART. AS WAS EXPECTED BOTH THE YF-16 AND YF-17 DOMINATED ENGAGEMENTS WITH THE TYPE AIRCRAFT. THE YF-16 WAS COMPLETELY DOMINATE AND ALLOWED THE PILOTS TO QUICKLY GAIN AND MAINTAIN A POSITION ADVANTAGE. THE YF-17 ON THE OTHER HAND WAS LESS DOMINATE AGAINST THE TYPE I AIRCRAFT IN THE LOW ALTITUDE (10,000 FEET), LOW AIRSPEED (AROUND 200 KIAS) ARENA AND REQUIRED THE PROPER USE OF FIGHTER MANEUVERS TO GAIN A POSITION OF ADVANTAGE. ADDITIONALLY THE TYPE II AIRCRAFT AGAINST THE YF-17 WAS CAPABLE OF EFFECTING SEPARATION AFTER THE INITIAL TURN IN A HEAD-ON PASS OR FOLLOWING A HIT AND RUN ATTACK. SIGNIFICANTLY, THIS WAS NOT TRUE WITH THE TYPE II AGAINST THE YF-16.

THESE TEST RESULTS SUGGEST THAT OTHER FACTORS CAN AND DO AFFECT THE OUTCOME OF AIR COMBAT MANEUVERING ENGAGEMENTS. ENERGY MANEUVERABILITY ANALYSIS AND COMPUTER MODELING DOES NOT APPEAR TO BE COMPLETELY AMENABLE TO THESE FACTORS. FOR EXAMPLE UNDER THE FACTOR CONTROLLABILITY THE PILOTS ABILITY TO USE VERTICAL MANEUVERS, EASE OF GETTING MAXIMUM MANEUVERING PERFORMANCE, AND DECELERATION EFFECTIVENESS ARE INHERENT IN THE PILOT/AIRCRAFT INTERFACE AND DIFFICULT TO QUANTIFY. ALSO, THE EXCELLENT ACCELERATION PERFORMANCE ALLOWED MULTITUDE OF ENGAGE/DISENGAGE OPTIONS. THESE WERE DOMINATE FACTORS IN THIS EVALUATION. OTHER FACTORS AFFECTING THE OUTCOME INCLUDED, OUT OF COCKPIT VISIBILITY, DIFFICULTY IN DETERMINING THE YF-16'S ASPECT ANGLE DUE TO ITS SIZE AND SHAPE AND THE HIGH "G" COCKPIT.