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ANALISIS DE EVENTOS INTERNOS PARA LA UNIDAD 1 DE LA CENTRAL NUCLEOELECTRICA DE LAGUNA VERDE

APENDICES

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NOTA

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RESUMEN

Este volumen contiene los apéndices para el análisis de las secuencias de accidente de aquellos eventos iniciados internamente para la Unidad 1 de la Central Nucleoeléctrica de Laguna Verde.

El apéndice A presenta los comentarios aportados por el personal técnico de los Laboratorios Nacionales de Sandia al Análisis de Eventos Internos para la Unidad 1 de la CNLV durante la reunión conjunta celebrada a finales de 1992, asimismo se incluye una breve evaluación de su aplicabilidad al mencionado estudio.

El apéndice B muestra los gráficos para todos los modelos de los árboles de falla para los sistemas incluidos y analizados en el Análisis de Eventos Internos para la CNLV.

El apéndice C presenta las salidas del código TEMAC, usado en la evaluación cuantitativa de las secuencias de accidente denominantes al igual que para la cuantificación final de daño al núcleo.

ABSTRACT

This volume contains the appendices for the accident sequences analysis for those internally initiated events for Laguna Verde Unit 1, Nuclear Power Plant.

The appendix A presents the comments raised by the Sandia National Laboratories technical staff as a result of the review of the Internal Event Analysis for Laguna Verde Unit 1 Nuclear Power Plant. This review was performed during a joint Sandia/CNSNS multi-day meeting by the end 1992. Also included is a brief evaluation on the applicability of these comments to the present study.

The appendix B presents the fault tree models printed for each of the systems included and analyzed in the Internal Event Analysis for LVNPP.

The appendice C presents the outputs of the TEMAC code, used for the cuantification of the dominant accident sequences as well as for the final core damage evaluation.

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PROLOGO

Análisis de Eventos Internos para la Unidad 1 de la CNLV

En años recientes, la metodología del Análisis Probabilista de la Seguridad ha madurado al punto donde se prevén un gran número de posibles aplicaciones tendientes a mejorar la seguridad de las centrales nucleoeléctricas, mediante la identificación de las vulnerabilidades y puntos débiles en el diseño, mantenimiento y operación de las plantas nucleoeléctricas.

El área de Análisis Probabilista de Riesgos de la Comisión Nacional de Seguridad Nuclear y Salvaguardias, ha iniciado un proyecto denominado Análisis de Eventos Internos con la finalidad de establecer las condiciones iniciales para un análisis de la respuesta de la contención a accidentes severos. El Análisis de Eventos Internos identificará las fallas potenciales de sistemas, las secuencias de accidentes severos más probables que pueden ocurrir, y obtendrá una mayor comprensión cuantitativa de la frecuencia total de daño al núcleo y de la incertidumbre asociada.

Con la información y resultados generados se definirán y cuantificarán los estados de daño a la planta lo cual constituye la interfase entre un APS nivel 1 y nivel 2. Los estados de daño a la planta conforman las condiciones iniciales para el subsecuente análisis de la respuesta de la contención de la CNLV.

Los resultados del APS nivel 1 para la CNLV se presentan en el documento: "Análisis de Eventos Internos para la Unidad 1 de la Central Nucleoeléctrica de Laguna Verde", CNSNS-TR-004, que consta de cinco volúmenes. Los reportes están organizados de la siguiente manera:

CNSNS-TR-004 Volumen 1:	Introducción y Metodología.
CNSNS-TR-004 Volumen 2:	Eventos Iniciadores y Secuencias de Accidente.
CNSNS-TR-004 Volumen 3:	Análisis de Sistemas.
CNSNS-TR-004 Volumen 4:	Cuantificación de Secuencias de Accidente y Resultados.
CNSNS-TR-004 Volumen 5:	Apéndices A, B y C.

El volumen 1 "Introducción y Metodología" presenta una breve descripción del sitio y de la planta, los principales objetivos y antecedentes, así como una descripción de los principales resultados y conclusiones. Describe también la metodología usada en el desarrollo del proyecto.

El volumen 2 "Eventos Iniciadores y Secuencias de Accidente" describe el trabajo realizado para la identificación, agrupación y cuantificación de las categorías de eventos iniciadores. De igual forma este volumen describe las secuencias de eventos para cada grupo de iniciadores.

En el volumen 3 "Análisis de Sistemas" se presentan todos los sistemas involucrados en el estudio, con una breve descripción del funcionamiento,

interfases, especificaciones técnicas y las consideraciones en el desarrollo del modelo de cada sistema.

El volumen 4 "Cuantificación de Secuencias de Accidente y Resultados" contiene las secciones correspondientes al análisis de fallas dependientes, análisis de fiabilidad humana, contiene la cuantificación puntual de las secuencias antes y después de incluir recuperación y contiene también el análisis de incertidumbre lo cual constituye los principales resultados del estudio.

El apéndice A contenido en el volumen 5 presenta la resolución tomada en cuanto a los comentarios hechos por el personal técnico de los Laboratorios Nacionales de Sandia motivo de la revisión externa del estudio realizada a finales de 1992.

El apéndice B del volumen 5 presenta los modelos de los sistemas de primera línea.

El apéndice C contenido también en el volumen 5 presenta las medidas de importancia y conjuntos mínimos de corte para las secuencias dominantes.

La unidad 1 de la CNLV fue previamente analizada dentro de un proyecto interinstitucional denominado "Análisis Probabilístico de Seguridad aplicado al Proyecto Nucleoeléctrico de Laguna Verde". Las instituciones involucradas fueron la Comisión Federal de Electricidad, la Comisión Nacional de Seguridad Nuclear y Salvaguardias, el Instituto Nacional de Investigaciones Nucleares y el Instituto

de Investigaciones Eléctricas. Las principales diferencias entre ambos estudios se refieren a la metodología empleada y a los objetivos que rigen ambos estudios. El Análisis de Eventos Internos para la CNLV tiene como finalidad establecer las condiciones iniciales para un subsecuente análisis de la respuesta de la contención por lo que las secuencias de accidentes que conducen a daño al núcleo deben ser resueltas completamente, es decir resolver las secuencias con núcleo vulnerable. El Análisis de Eventos Internos para la CNLV pretende ser un estudio más realista ya que involucra sistemas alternos para enfriamiento al núcleo, así como procedimientos para ventear la contención primaria. Estas características no fueron contempladas en el proyecto interinstitucional ya que los objetivos de aquel estudio no eran continuar el análisis para evaluar la respuesta de la contención.

El documento que presenta los resultados de este estudio originalmente se pretendía liberar en un solo volumen, por lo que las referencias se numeraron consecutivamente conforme aparecen. Debido al tamaño del reporte se decidió dividirlo en cinco volúmenes, al final de cada volumen se presentan las referencias contenidas en dicho volumen con la numeración original.

AGRADECIMIENTOS

Los autores desean agradecer los esfuerzos de todos aquellos involucrados en el desarrollo de este estudio. A las autoridades de la CNSNS por su invaluable apoyo, a las autoridades y personal de la Comisión Federal de Electricidad por el apoyo brindado, al personal del centro de procesamiento de datos de la CNSNS por su gran cooperación.

En especial deseamos agradecer al personal técnico de los Laboratorios Nacionales de Sandia por su gran cooperación y asistencia en la revisión externa de este proyecto, en particular se aprecian los esfuerzos de Allen L. Camp y Donnie W. Whitehead. Agradecemos a la Comisión Nuclear Reguladora de los Estados Unidos de Norteamérica (USNRC) por el apoyo prestado para la realización de esta revisión externa.

Agradecemos de igual forma a los Laboratorios Nacionales de Sandia, ya que por conducto de Gregory D. Wyss se nos proporcionó el código "SEATree: A SETS Fault Tree Drawing Tool" que fue empleado para la preparación del apéndice B.

Hubo inumerables personas involucradas en el desarrollo de este proyecto, la mayor contribución a este volumen fue realizada por el C. Oscar Bravo Reyes por su excelente trabajo en la graficación de todos los árboles de falla de los sistemas incluidos en el estudio, así como por la conformación del apéndice C de este volumen.

APENDICE A

COMENTARIOS DEL PERSONAL TECNICO DE LOS LABORATORIOS NACIONALES DE SANDIA

A.I INTRODUCCION

Este apéndice presenta los comentarios finales hechos por el personal técnico de los Laboratorios Nacionales de Sandia (SNL) resultado de la reunión conjunta celebrada del 14 al 17 de Diciembre de 1992 en la ciudad de Albuquerque, Nuevo Mexico, Estados Unidos de América, en la cual se realizó una revisión externa al Análisis de Eventos Internos para la Unidad 1 de la Central Nucleoeléctrica de Laguna Verde.

Debido a las restricciones de tiempo para la realización de la revisión se deberá entender que ésta no fue una revisión detallada del estudio, sin embargo los comentarios tenían por objeto ayudarnos a obtener un APS tan útil como fuese posible, dadas las restricciones de recursos computacionales, humanos y de tiempo bajo las cuales se desarrolló el Análisis de Eventos Internos. Estos cubren los aspectos más significativos de una evaluación probabilista de la seguridad.

La mecánica que se siguió durante la reunión conjunta entre dos especialistas de la Comisión Nacional de Seguridad Nuclear y Salvaguardias y personal técnico de los Laboratorios Nacionales de Sandia, los cuales se listan en la siguiente sección, fue la siguiente: se realizaron presentaciones por parte del personal de CNSNS sobre cada una de las tareas realizadas en el Análisis de Eventos Internos, en las cuales se mostraron los modelos desarrollados, la metodología empleada, la delineación de secuencias, las principales consideraciones y suposiciones, al igual que los resultados de cada una de las tareas, y posteriormente se tuvieron sesiones de preguntas y respuestas así como discusiones técnicas sobre puntos específicos. Al final de cada discusión el personal de los Laboratorios Nacionales de Sandia generaba los comentarios y sugerencias específicas para cada tarea.

En la siguiente sección se muestran los comentarios originales proporcionados por el personal técnico de los Laboratorios Nacionales de Sandia mediante carta enviada por Donnie W. Whitehead el 27 de Enero de 1993. En la tercera sección de este apéndice se muestra la resolución tomada respecto a cada uno de los comentarios proporcionados, mencionando las razones por las cuales

se decidió incorporar o no los comentarios proporcionados al Análisis de Eventos Internos. Cabe hacer mención que debido a que los comentarios originales fueron proporcionados en inglés, la tercera sección de este apéndice que presenta la resolución tomada en relación a los mismos fue también escrita en inglés.

A.2 Comentarios de la Reunión Conjunta SNL/CNSNS.

Comments on Laguna Verda PRA Resulting from Joint Sandia/CNSNS Meeting in Albuquerque, New Mexico on December 14-17, 1992

Background

Sandia National Laboratories was asked to provide a limited review of the Laguna Verda PRA. Due to time constraints, this review was performed during a joint Sandia/CNSNS multi-day meeting in Albuquerque, New Mexico on December 14-17, 1992. Given the time constraints under which this review was performed, it should be clearly understood that this was not a detailed review of the Laguna Verda PRA. However, from the material presented and the discussions that were held during the multi-day meeting, it is believed that the comments provided below capture many of the potential areas of concern in the PRA.

Review Team

The comments presented here were compiled from the individual comments provided by each member of the review team. The team consisted of the following individuals:

Thomas Brown, Sandia National Laboratories
Allen Camp, Sandia National Laboratories
John Darby, Science and Engineering Associates
John Forester, Science Applications International Corporation
Donald Mitchell, Sandia National Laboratories
Donnie Whitehead, Sandia National Laboratories
Jeff Yakle, Science Applications International Corporation

Specific Comments

The comments provided below are based upon information presented by the two CNSNS staff and subsequent discussions among the review team and the CNSNS staff. Specific comments are provided for the following nine areas:

Initiating Events
Success Criteria
Event Trees and Accident Sequences
Systems Analysis (Fault Trees)
Dependent and Common Cause Failures
Data Analysis
Human Reliability Analysis Including Recovery Actions
Level I/II Interface: Plant Damage States
Uncertainty and Sensitivity Analysis

As can be seen below, the number of comments for each of the nine areas varies. The variation is due to the fact that some areas lend themselves more to a presentation/discussion format than others. As such, no importance should be attached to the number of comments provided for each area.

Comments on Laguna Verda PRA Resulting from Joint Sandia/CNSNS Meeting in Albuquerque, New Mexico on December 14-17, 1992

Initiating Events

For Large LOCA:

A distinction should be made between the types of LOCAs such as Recirculation Line Break, Main Steam Line Break, and Feedwater Line Break. The requirements for success differ depending on the type of LOCA. For example, partial success criteria for different LOCAs include:

If a Main Steam Line Break occurs, the MSIVs must close.

If a Feedwater Line Break occurs, both the MSIVs and check valves in the line must close. If this isolation is successful, then the SRVs must open.

For the LOCA in the Nuclear Service Water:

Was HPCS/LPCI trip on high suppression pool temperature considered?

Were thermostat trips for high room temperatures considered for the injection systems?

The event V sequence may have a small core damage frequency; however, it could contribute significantly to risk. Caution is recommended before eliminating any sequence that bypasses containment.

A rigorous examination to search for plant specific initiating events is recommended. It is highly unlikely that loss of a 1E AC or DC bus will not lead to a plant trip. For example, the CRD pumps are cooled by a system that is powered by the 1E AC buses. Loss of this cooling will most likely lead to a plant trip. In addition, loss of any support system (IA, cooling water, etc.) should be examined to determine if such a loss will cause or contribute to a plant trip.

Success Criteria

For Small LOCA:

For the smallest LOCA's if HPCS or RCIC are used, the SRV(s) must operate at their safety setpoint since flow out the break is low.

For Transients:

Without recirculation pump seal cooling, the transient becomes a Small LOCA.

Comments on Laguna Verda PRA Resulting from Joint Sandia/CNSNS Meeting in Albuquerque, New Mexico on December 14-17, 1992

Event Trees and Accident Sequences

For transients where recirculation seal cooling is lost, a transfer to the Small LOCA tree is necessary.

For an ATWS sequence, if the PCS is lost and SLC fails, core damage is not necessarily assured if an adequate source of injection is available. Injection of water (e.g., by HPCS) could result in a quasi-steady state operation. Appropriate thermal-hydraulic calculations would be necessary to verify this condition exists for the injection source considered.

Systems Analysis

General

The systems analysis review consisted of a presentation of the systems considered in the analysis. The presentation consisted of given the individual system functions, success criteria, and the logic model considerations.

From the presentation it appears all systems typically considered in BWR PRA were considered and modeled. Also from the presentation it appears the following primary events were considered in the logic models:

- Component failures - both demand and operational failures as well as both passive and active failures.
- Test and Maintenance
- Human error events - both pre-accident and post accident.
- Dependent failures - both shared support systems and other inter-dependencies as well as common mode failures.
- Flags - to turn logic on and off.

It is suggested that a plant specific subtle failure analysis be undertaken to determine whether or not new failures exist beyond those considered in NUREG/CR-4550. Without thorough examination, design related inadequacies, if they exist, may be overlooked. NUREG/CR-4550 provides a set of generic subtle failure possibilities which should be considered as a minimum set of subtle failures in the analysis of each system considered.

Important support systems not specifically presented included the Instrument Air and AC and DC Electrical Power Systems. As such, no comments are provided for these systems except for those comments that are directly related to systems described below.

Shutdown Cooling System (SDC):

The logic model for the SDC system did not considered the minimum flow line as a diversion path. Failure to close the minimum flow line prior to initiating SDC can result in the draining of the reactor vessel to the suppression pool.

Control Rod Drive System (CRD):

No credit was given for the charging water heater for injection to the vessel. This is conservative for one pump CRD operation, which may be important if loss of instrument air is an initiating event. Loss of instrument air would fail the CRD flow control valves to the cooling water header, in effect, failing CRD if no credit is given for the charging water header.

Nuclear Service Water (NSW) System:

Common mode failure of the pumps to run should be reconsidered, presently not modeled.

Isolation of non-essential loads was not considered since there are four valves (2 MOVs and 2 AOVs) in series which must all fail to close given an isolation signal. The non-essential header must isolate for system success. Though the hardware failure of these valves may be insignificant, the dependant failures common to the valves should be examined to determined if a common mode means of failing these valves exist, e.g, common control circuit or power source.

Nuclear Closed Cooling Water (NCCW) System:

Isolation of non-essential loads was not considered in the logic model since there are two MOVs in series which must fail to close for system success. A common mode failure of the two MOVs to close should be considered as well as any common dependent failures. For instance, it was stated that these two valves are powered off the same bus.

Standby Liquid Control (SLC) System:

The SLC pump suction MOVs were not modeled for common mode failure to open. This common mode failure should be reconsidered.

Condensate (CDS) System:

The condensate system was modeled using a boolean expression. The boolean expression did not consider loss of pump cooling. All dependent failures that could potential fail CDS should be considered. Information obtained during this process could also be important in the special initiator analysis.

Comments on Laguna Verda PRA Resulting from Joint Sandia/CNSNS Meeting in Albuquerque, New Mexico on December 14-17, 1992

Firewater System:

The flow rate into the SLC Test Tank from the Firewater System should be determined to verify the ability of the Firewater System to provide adequate makeup to the tank so that the SLC pumps do not deplete the tank as they inject the water from the Firewater System into the vessel.

Dependent and Common Cause Failures

The procedures used to check and maintain the batteries should be reviewed to insure that any significant contributors to dependent failures are identified. A review of this nature may provide information that allows for a reduction in the value used for the common cause failure or it may indicate that a higher value should be used.

No common cause failures (CCFs) were considered for air operated valves (AOVs). It is recommended that the AOVs at Laguna Verde be reviewed to determine if such failures should be included in the PRA.

It is recommended that the possibility of common cause failure(s) of the Service Water System Valves be considered.

The way temperature sensors are tested should be reviewed to determine if they can contribute to CCF. For example, are the sensors actuated while they are connected to the pump controls to see if they actually trip the pump or is the pump trip circuitry tested separately without including the sensor?

Data Analysis

Due to the short operational history of Laguna Verde, the use of generic data for component failure rates is adequate. However, it is suggested that a review of any existing operational data be conducted to identify "unusual" trends in failure data for Laguna Verde.

The value used for RCIC failure may need to be re-examined.

Human Reliability Analysis Including Recovery Actions

The HEPs used for pre-accident human actions in the Laguna Verde PRA were based on the values in NUREG/CR-4550. The HEPs for miscalibrations were generally around 1.0E-5, and those for system restorations after maintenance were generally around 1.0E-4. These are exceptionally low HEPs and were only obtained because of the high quality written procedures, requirements for verification, and the regularly scheduled checks prescribed by the plant operating procedures. It is recommended that Laguna Verde reexamine the HEPs they used for their pre-accident

events in the context of their own plant procedures to ensure that the values are applicable.

The Laguna Verde analysts correctly considered the potential for common mode human failures across miscalibrations of various sensors. However, they assumed that a failure in one division would imply a failure on the same task in the other division. If different divisions are done on different days, as is the case in many U.S. plants, their approach would be conservative. Errors in miscalibration are usually "slips" and there is little reason to assume such errors to occur across days or even crews.

The Laguna Verde analysts appear to be proceeding correctly in their inclusion and treatment of post-accident human actions. However, in all but a couple cases, they assigned a screening value of 0.5 to the various post-accident human errors events in the initial quantification. While this approach appeared reasonable for most of the operator actions included in the analysis, it may have been non-conservative in some cases. While Laguna Verde has Emergency Operating Procedures (EOPs) for responding to accidents, some of the actions required may be fairly complex and apparently procedures for these actions are not provided. For example, use of the Fire Water System is listed as a possible option for emergency injection, but no written procedures for alignment are available. In cases such as this, a screening value of 1.0 would be more appropriate. It is suggested that the Laguna Verde analysts reexamine their post-accident actions with this in mind and raise the relevant screening values to 1.0, where appropriate.

There is one aspect of the recovery analysis approach that may be conservative. The analysts seem to consider the quantification of more or less all post-accident operator actions as part of recovery and assert that, in general, credit will only be taken for one recovery action per cut set. Yet, the ASEP HRA Procedure, which they intend to use, allows quantification of multiple operator actions in response to multiple abnormal events in an accident scenario. HEPs are simply adjusted upwards in the case of multiple abnormal events occurring in close temporal proximity. Thus, assuming we have interpreted them correctly, their limitation may be too conservative. We agree that taking credit for multiple, complex operator actions outside the control room in a given cut set would be inappropriate, but this should not imply that operators will fail to make several different attempts to recover the accident if necessary. The time available is a critical factor to be considered in determining how many different actions can be accomplished.

During various discussions, the statement was made that no procedures exist to cross-tie the HPCS DG to either Division 1 or 2 of emergency power. It is unclear whether this lack of procedures is due to the fact that it is physically impossible to cross-tie the HPCS DG to one of the divisions or whether it is physically possible to achieve the cross-tie, but procedures have yet to be developed. If the latter is true, then development of the necessary procedures could possible alter the importance ranking of the surviving sequences.

It is important to discuss with the operators the possibility of various recovery actions. Questions should be asked in a manner that elicits what the operators would do, not would they do a particular action.

Level I/Level II Interface: Plant Damage States

Perceived Approach

It should be noted that the plant damage states (PDS) portion of the analysis has not yet been performed, so the actual implementation of the approach was not reviewed. However, based upon a presentation of the questions and answers that are expected to be used to define the PDS, the approach can be described as follows: (1) define questions that need to be answered in the Level II analysis (these questions were divided into three general categories: coolant makeup, releases, and retention), (2) create PDSs from the delineation of the unique combinations of these questions/answers based on information from the cut sets, and (3) combine similar PDS into PDS groups (split fractions will be used to differentiate between individual PDSs in the event tree evaluations).

General Comments

The systems and plant configurations addressed by the PDS questions are very similar to the types of questions asked in the NUREG-1150 and PRUEP studies. Sixteen PDS questions are used to define the Level I/II interface. In general, it appears that the appropriate questions are being addressed to define the Level II interface. Without knowing the details of the Laguna Verde Level II analysis, it is not possible to state that all of the relevant PDS questions have been asked.

In some instances the status of several systems were combined in one question. While either system may provide the necessary safety function, the response of the systems to events in the accident progression analysis may be very different. Thus, before systems are combined in the PDS question, a thorough review of the response of the system following core damage is necessary. For example, Question 6 addresses the status of both HPCS and RCIC. If the failure probabilities and/or recovery probabilities after core damage are not the same for both systems, it may not be appropriate to combine the systems in one question. For example, RCIC may be susceptible to containment back pressure whereas HPCS may not be affected by this condition. Similarly, the actions required to recover the two systems may be very different and, hence, the recovery probability may be very different.

At least initially, all of the possible answers to a question should be kept separate. Once the structure of the Level II analysis has been determine, it may be possible to combine some answers. It is usually easier to combine information at the end then it is to extract information that has been previously combined. For example, a given question may have several answers, e.g., (1) failed, (2) recoverable, (3) available but not working, and (4) available. Although it may

be tempting to combine answers 2 and 3, this should be avoided until it has been determined that both answers can be treated in a similar manner in the Level II analysis.

In the Level I analysis, once it is determined that core damage will occur the status of subsequent systems in the event tree are not a concern and, therefore, are not addressed. The status of some of these systems, however, may be very important in the Level II analysis. Thus, before these systems are bypassed in the Level I analysis, it is important to determine their importance in the Level II analysis. For example, if high pressure injection systems fail and there are no low pressure injection systems available, the question is not asked as to whether the operators depressurize the reactor (i.e., core damage will occur regardless of whether the vessel is depressurized). However, the pressure in the vessel is very important in the Level II analysis (i.e., determines which systems can be used to inject coolant following recovery and affects the containment loads and the source term).

It is worthwhile to review the Level II analysis and determine which systems could be used to mitigate the accident and determine if it is appropriate and feasible to include these systems in the Level I model even if they are not used to determine core damage (e.g., standby gas treatment system). By including these systems in the Level I model any dependencies between systems and support system can be taken into account.

The answers to many of the PDS questions will have to be based on information contained in the cut sets and, thus, careful thought should be given on how to efficiently handle the thousands of cut set that will be generated in the Level I analysis.

Uncertainty and Sensitivity Analysis

If the same data source is used to generate (obtain) failure probabilities, then all components that use this failure probability should be fully correlated.

A.3 RESOLUCION TOMADA RESPECTO A LOS COMENTARIOS DE SNL.

A.3.1 INITIATING EVENTS.

For Large LOCA:

The SNL staff suggests that a distinction between the Recirculation line break, Main Steam line break and Feedwater line break should be made. Usually this kind of distinction is not made in PRA studies for a large LOCA. For the Internal Event Analysis for Laguna Verde NPP, the loss of coolant accidents (LOCA's) were classified based on size and location (inside containment and outside). For a large LOCA inside the containment the only distinction made was based on the type of fluid considered, it is steam or liquid. So the Recirculation line break was analyzed as a liquid large break inside the containment. The Main Steam line break and the Feedwater line break inside the containment were also considered as part of a large LOCA initiating event. It was considered that success criteria for these breaks, at least inside the containment, do not differ.

For the Main Steam line break and Feedwater line break outside the containment the following assumptions were made regarding the possible distinction between these types of LOCA's. First, these kind of breaks are easily isolated, and if this isolation is successful, then the sequence can be treated like a transient. Second, if the isolation fails the sequence becomes an interface LOCA (V sequence) with a relatively low estimated contribution to the total core damage frequency based on the frequency of the initiating event times the isolation failure probability and times the conditional core damage probability. Based on the above considerations a distinction between the different types of large LOCAS was not made except for breaks inside the containment.

For the LOCA in the Nuclear Service Water:

A possible break in the Nuclear Service Water piping was not considered in the Internal Event Analysis for LVNPP due to its low frequency of occurrence.

The HPCS/LPCI and LPCS do not have an automatic trip on high suppression pool temperature so this issue was not considered in the Internal Event Analysis. However, as part of the accident sequences delineation it was considered the potential pump failure of these systems as a result of high temperature in the suppression pool in those accident sequences in which the RHR/NSW have failed. Due to the potential pump failure in these scenarios some alternate systems have to be aligned to assure the continued core cooling.

Regarding the V sequence (Interface LOCA) it was found, based on some previous PRA and some estimations, that the core damage frequency associated with these sequences are relatively low. However, it is recognized that they could contribute significantly to risk, that is why some bounding studies will be performed to estimate the potential risk associated.

Based on the SNL staff comments and after careful examination to search for any plant specific initiating event it was found that the loss of a IE AC bus, 1E DC bus and loss of instrument air cause or contribute to a plant trip, and therefore they were included in the Internal Event Analysis for LVNPP. The complete loss of Nuclear Service Water or Nuclear Closed Cooling Water cause a plant trip and affect several injections systems, however, they were not included in the analysis based on their low frequency of occurrence.

A.3.2 SUCCESS CRITERIA.

For Small LOCA:

It is recognized the need for the control pressure function through the SRVs for the smallest LOCA's sequences when the high pressure injection systems, HPCS or RCIC, are used. However, the event tree for small LOCA on volume 2 was not modified because it was assumed that all the sequences depicted in the above event tree consider the successful operation of the SRV's at their safety point to control the pressure. Those sequences with failure to control the pressure were considered negligible.

For Transients:

The recirculation pump seal leak as a result of the wearing-out of the pump seals during normal operation was included in the small LOCA category. For those transients without recirculation pump seal cooling a leak occurs and the sequence should be transfered to a small LOCA, however the frequency of this occurrence, that is the recirculation pump seal failure probability times the transient frequency, seems to be low compared with the frequency of the small LOCA. Nevertheles a more detailed analysis of this issue is being considered.

A.3.3 EVENT TREES AND ACCIDENT SEQUENCES.

The modification of the event trees to include a transfer to the small LOCA tree for transients where recirculation seal cooling is lost was not made based on the low frequency of occurrence. If the above detailed analysis yields a different conclusion, the appropriate modification of the event trees would be carried out and the sequences would be reassessed.

It was conservatively assumed that a core damage occurs for an ATWS sequence where the PCS was lost and the SLC was failed even if an adequate source of injection were available. We are aware, however, of the potential quasi-steady state operation that could result in this kind of scenarios, as was found in La Salle NPP analysis. Currently a project is under way to verify or neglect the occurrence of this quasi-steady state operation for Laguna Verde NPP using the TRAC-BF1 code.

A.3.4 SYSTEMS ANALYSIS.

General.

Regarding the plant specific subtle failures analysis, we agree that this analysis must be undertaken to determine whether or not new failures exist beyond those considered in the NUREG/CR-4550 and that were already reviewed for their applicability to the Laguna Verde analysis, however due to time constraints and scarcity of human resources it was not possible to go on in more detail than we did.

Shutdown Cooling System (SDC):

The final model for the SDC system now considers the failure to close the minimum flow line.

Control Rod Drive System (CRD):

The current logic model of the system only contains the human error to align the system with a screening value of 1.0. This is based on comments provided by the Human Reliability expert and due to a lack of procedures for the CRD alignment. When the precise procedures for the CRD alignment become available and further the Laguna Verde operators are fully trained in the use of the procedures, then the logic model of the system would give credit for the Charging water header for injection as well as for thr Cooling water header.

Nuclear Service Water System (NSW):

The NSW is a normal operating system consisting of two loops with two pumps in each loop. For normal operation three pumps are required, two in one loop and another one in the other loop. For emergency operation only one pump in each loop is required, however for safe shutdown only one loop is needed. Since the initial state of the plant is assumed at full power, it means the successful operation of at least three NSW pumps before the initiating event occurs. The common cause failure of the four pumps to run during the mission

time is assumed unlikely, besides, the scattering data available for beta factor of motor driven pumps to run supports the decision of not include the common mode failure of the pumps to run.

The final logic model for the NSW now includes the common cause failure to close of the motor operated valves and the air operated valves designed for the isolation of non-essential loads.

Nuclear Close Cooling Water System (NCCW):

The common mode failure of the two motor operated valves to close for the isolation of non-essential loads is now considered in the NCCW logic model.

Standby Liquid Control System (SLC):

The SLC pump suction valves (MOVs) are modeled, in the final logic model, for common mode failure to open.

Condensate System (CDS):

Since the sealing water of the condensate pumps is provided from the condensate pumps' common discharge header, the loss of pump cooling was not included in the boolean expression for the condensate system.

Firewater System:

Regarding the use of the Firewater system to inject water into the vessel, and based again on comments provided by the Human Reliability expert, the logic model of the system only contains the human error to align the system with a screening value of 1.0. Therefore it was unnecessary to verify the ability of the Firewater system to provide adequate makeup to the tank so that the SLC pumps do not deplete the tank as they inject the water from the Firewater system into the vessel.

The Laguna Verde NPP staff is planning to write procedures for Firewater alignment and to design another path for injecting the water from the Firewater system into the vessel. As soon as the above actions are implemented the Internal Event Analysis will be modified to incorporate these changes.

A.3.5 DEPENDENT AND COMMON CAUSE FAILURES.

From the preliminary total core damage frequency evaluation it was found that the importance of the common cause failure of the batteries is marginal, that is why a non-detailed review of the procedures used to check and maintain the batteries was performed and based on this review no significant contributors to dependent failures were identified.

The Laguna Verde systems were reviewed and some common cause failure were considered for air operated valves (AOV).

The Nuclear Service Water logic model includes the possibility of common cause failures of the non-essential isolation valves.

Since the only system at Laguna Verde NPP that actually trips on high temperature is the RCIC, and as this signal can be bypassed, no much effort was spent in determining the way temperature sensors are tested to find out if they can contribute to common cause failures.

A.3.6 DATA ANALYSIS.

The suggested review of any existing operational data to identify unusual trends in failure data for Laguna Verde was postponed. It was considered that the Internal Event Analysis for Laguna Verde NPP should be released using generic data, due to the need to have a Laguna Verde model to perform some applications. However a project has been envisaged to incorporate operational data using Bayesian techniques in the near future.

The RCIC specific data base was reviewed but no unusual value was found.

A.3.7 HUMAN RELIABILITY ANALYSIS INCLUDING RECOVERY ACTIONS.

A project was set up in early 1993 to perform a specific human reliability analysis for Laguna Verde NPP. Some pre-accident human actions were reexamined, and it was found that the preliminary values used, that were based on the values,es in NUREG/CR-4550, were acceptable taking into account the Laguna Verde procedures, requirements for verification, and the regularly scheduled checks prescribed by the plant operating procedures. It should be noted, however, that not all the pre-accident human actions were examined in this project, only some miscalibrations and system restorations after maintenance were assessed, and the values obtained were assigned to the rest of pre-accident human actions as appropriate. The philosophy behind was to spend no much time on pre-accident human actions unless we found it is worth while based on the importance of this actions in the final CDF evaluation.

It seems that the approach presented for common mode human failures across miscalibrations of various sensors was not clear. The Internal Event Analysis for LVNPP does not include failures due to miscalibrations in different divisions. It was included miscalibrations of Rx water level sensors, Drywell pressure sensors, flow sensors, etc., but only in the same actuation logic.

As it was stated above, the Laguna Verde human reliability analysis estimates the human error probabilities for all but a couple of post-accident actions and these probabilities were used in the final quantification. Based on the comments provided a screening value of 1.0 was used for the human error to align the Firewater and CRD systems for injection. This is based on the lack of written procedures for alignment and on the fact that the LV operators are not familiar with the use of this kind of systems for long term core cooling.

Regarding the recovery analysis approach, we can say that for the final evaluation credit was given for multiple operator actions outside the control room in a given cut set, provided this recovery actions were related to different

functions, for example recovery of injection into the vessel, recovery of containment heat removal, recovery of diesel generators failures, recovery of offsite power.

For Laguna Verde NPP the lack of procedures for cross-tie the HPCS DG to either Division I or II is due to the fact that physically this is impossible.

A.3.8 LEVEL I/LEVEL II INTERFACE: PLANT DAMAGE STATES.

General Comments.

For the final Level I/Level II Interface: Plant Damage States Analysis for Laguna Verde NPP seventeen PDS questions were used to define the interim PDS.

Based on the comments provided, the final PDS questions do not combine the status of several systems in one question, except the case of the low pressure injection systems (LPCS and LPCI) and the different modes of operation of the RHR, where the response of these systems to events in the accident progression analysis are quite similar.

In general, all the possible answers to a specific question were kept apart. When the interim PDS were combined into the final PDS groups, it was possible to join different answers to a specific question and the appropriate split fractions were calculated to differentiate between the interim PDS that form the final PDS group in the accident progression event tree evaluations.

It is recognized the importance that the status of some systems may have in the Level II analysis, even if these systems were not addressed in the Level I event tree once it is determined that core damage has already ocurred. So, based on the above, the PDS analysis tried to keep track of the status of those systems that were not considered in the accident sequences once the core damage occurs by assessing the cut set information in order to determine if a system is available, failed or recoverable.

From a preliminary review of the Level II analysis it was found that no

additional systems could be used to mitigate the accident, except the standby gas treatment system (SGTS). We are in the process of determining for which PDS's the STGS is failed, available or recoverable.

As it was stated on the comments provided, many answers to PDS questions have to be based on information at the cut sets level, so even if we would have wanted to have an automatic way to answer the PDS question to each minimal cut set it was impossible due to restrains in the basic event codification. So, this process was performed by hand for each of the 4245 minimal cut sets, however some patterns of failures were identified which facilitated the PDS sorting.

A.3.9 UNCERTAINTY AND SENSITIVITY ANALYSIS.

Similar components with failures probabilities generated from the same data source were fully correlated as part of the uncertainty analysis.

APENDICE B

ARBOLES DE FALLA DE LOS SISTEMAS MODELADOS

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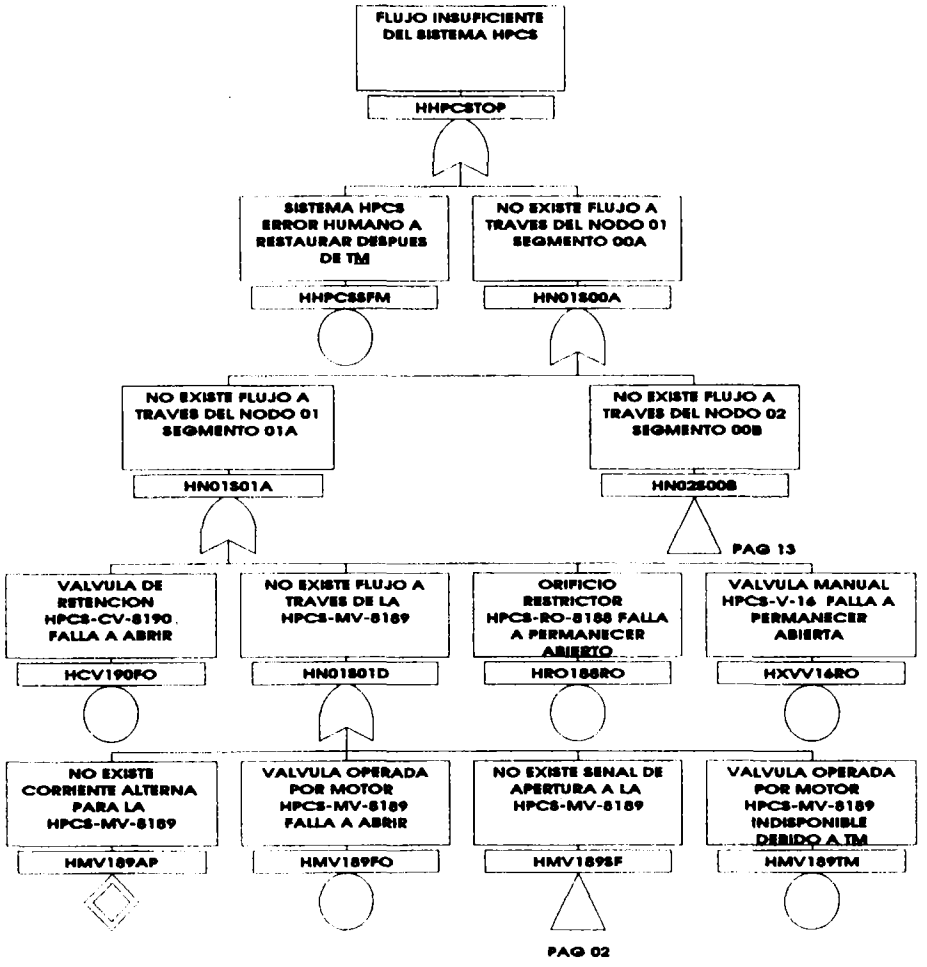
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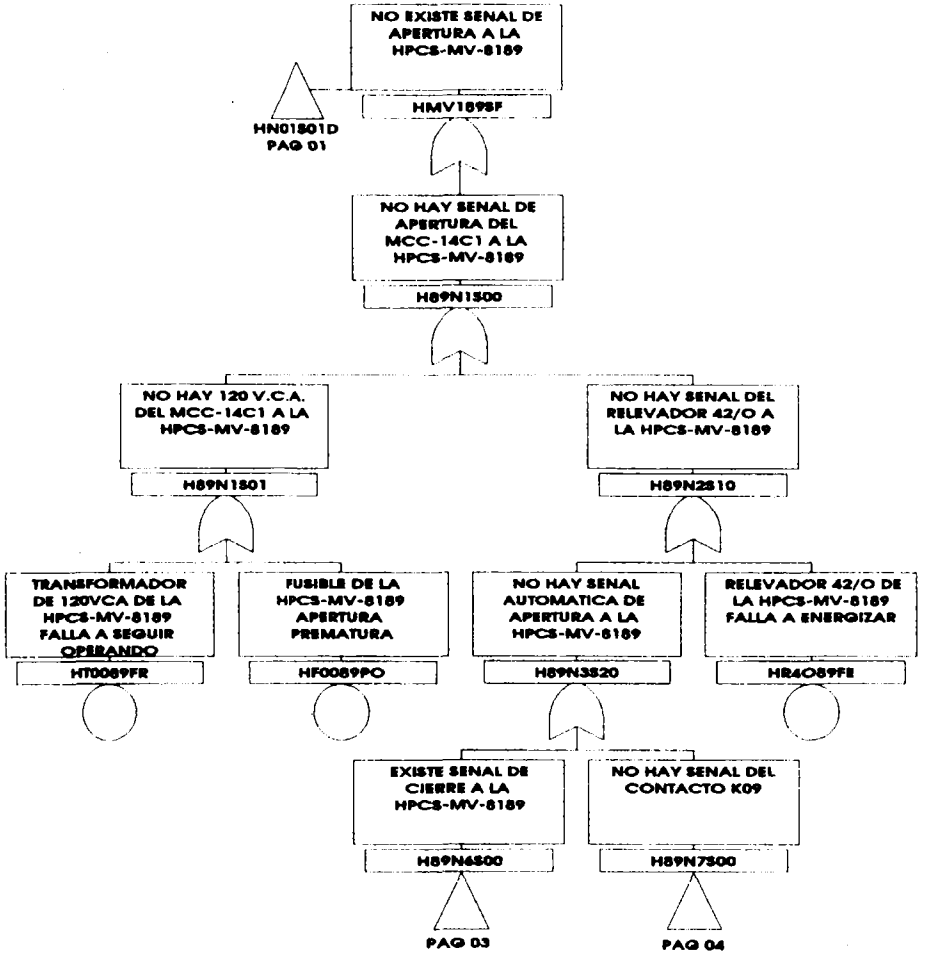
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B-35 Arbol de fallas del sistema de ventilación y aire acondicionado (HVAC) división III B-466

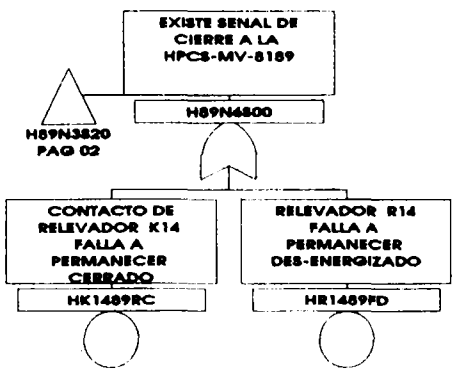
FIGURA B-1. ARBOL DE FALLAS DEL SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS).



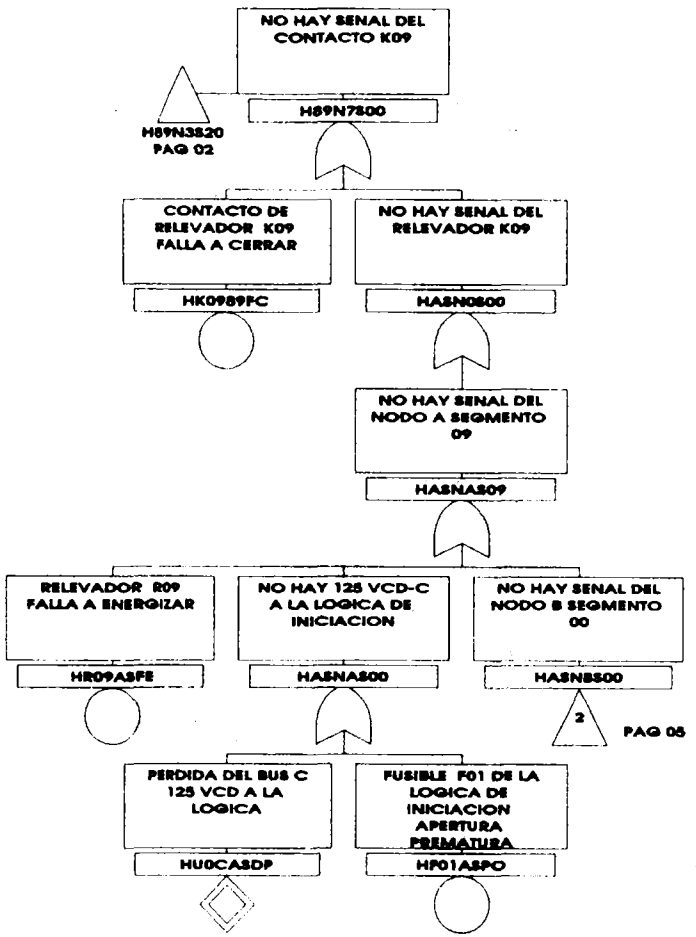
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



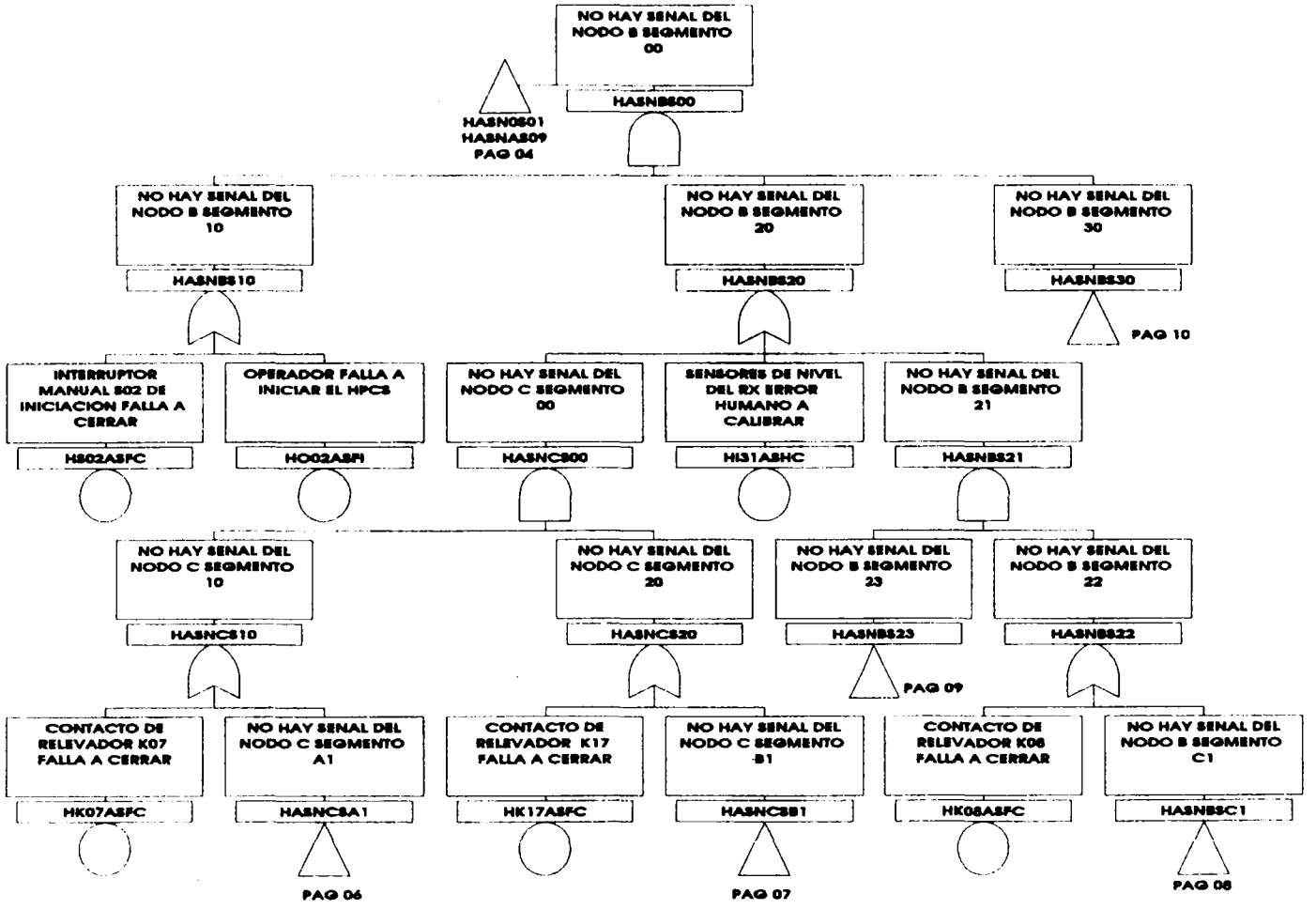
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 02**



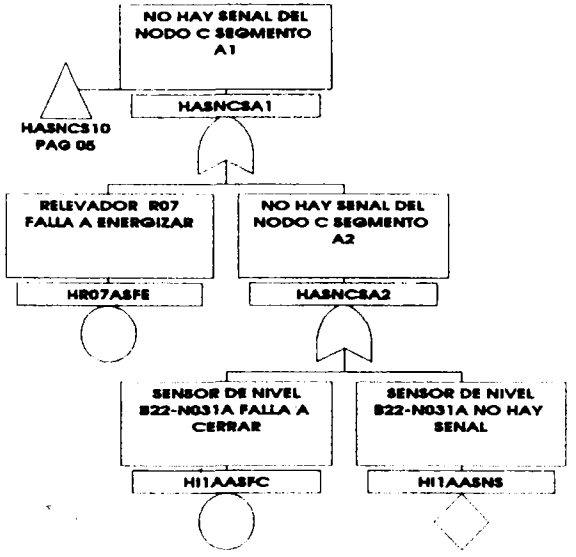
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 03**



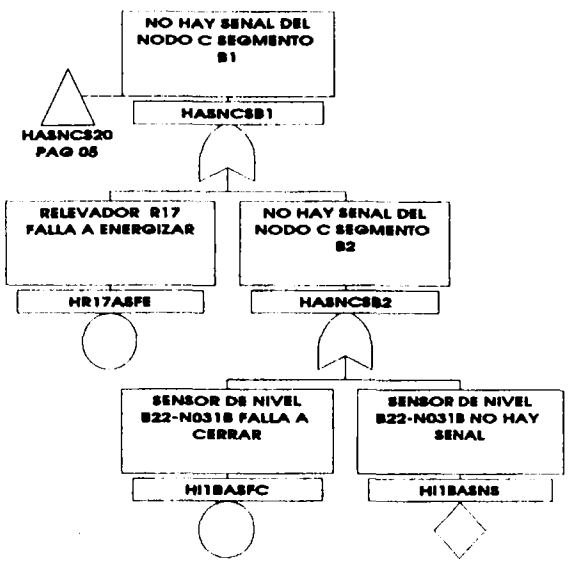
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04



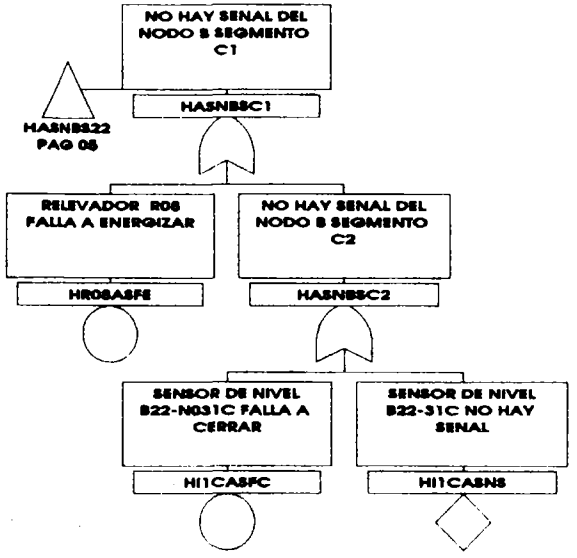
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 05



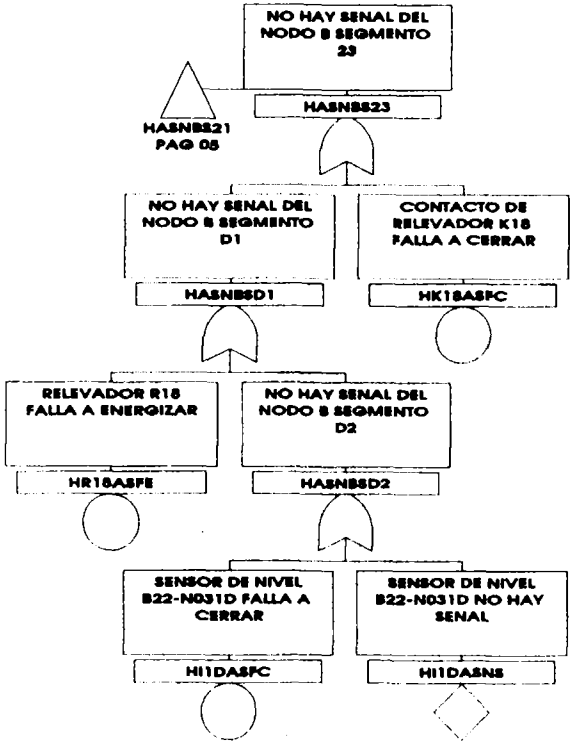
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 06**



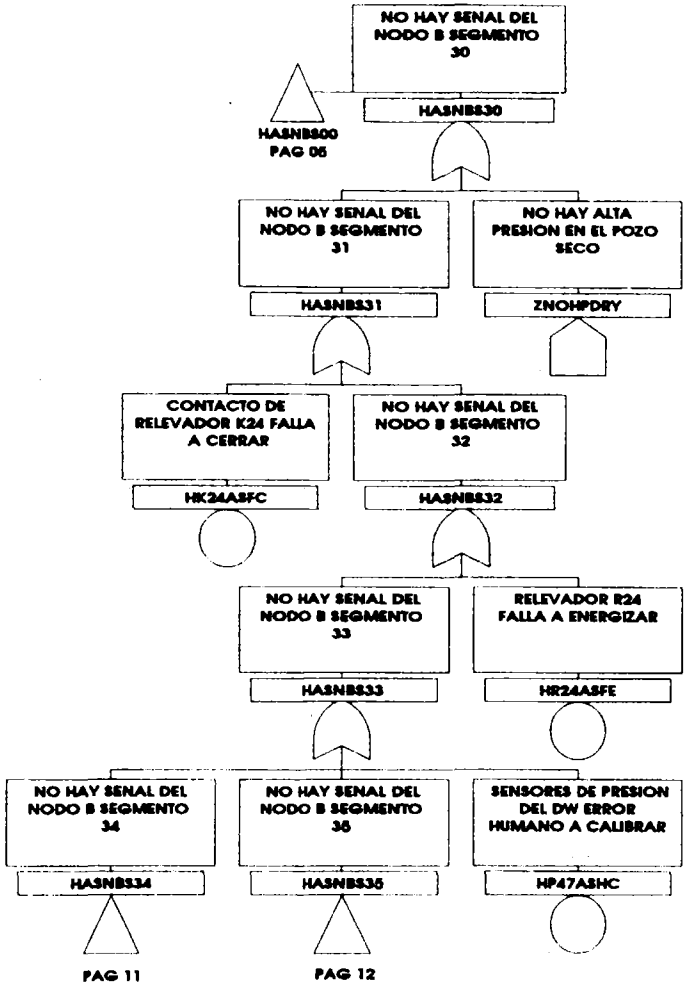
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 07



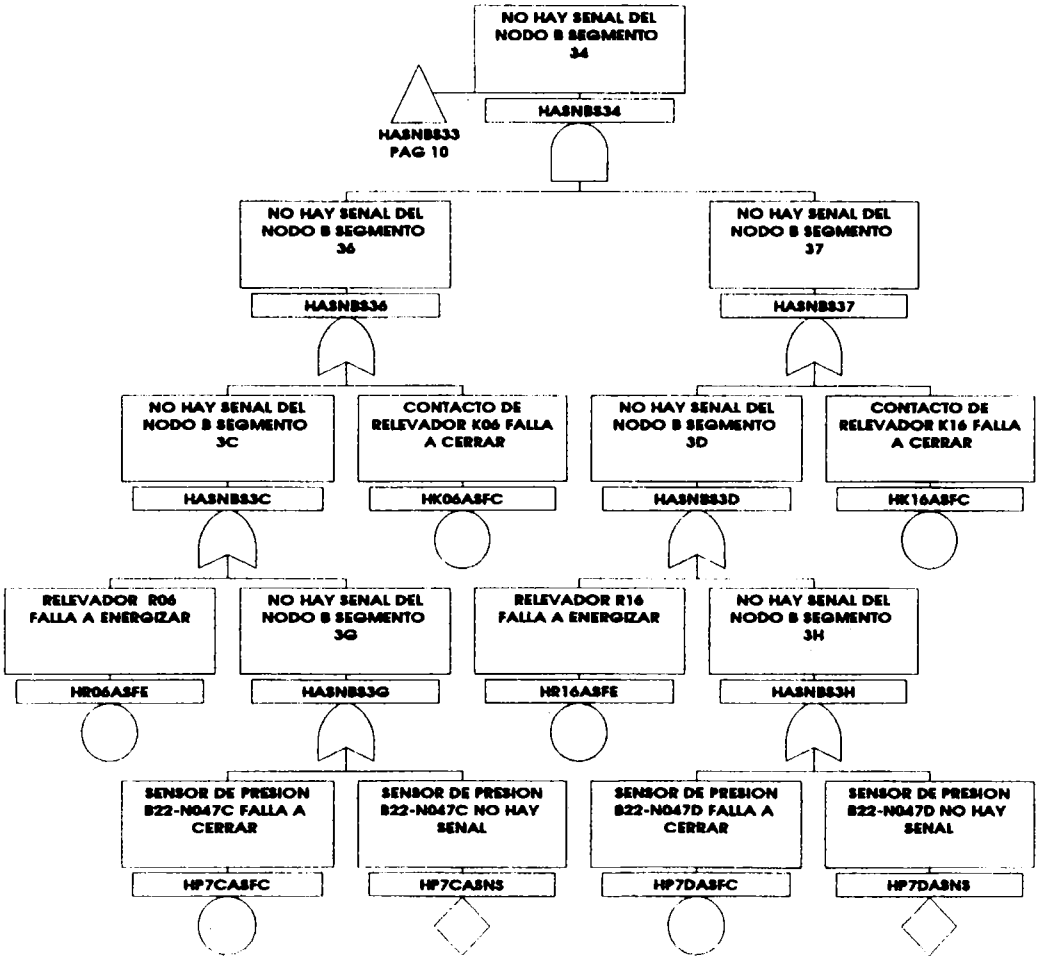
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 08**



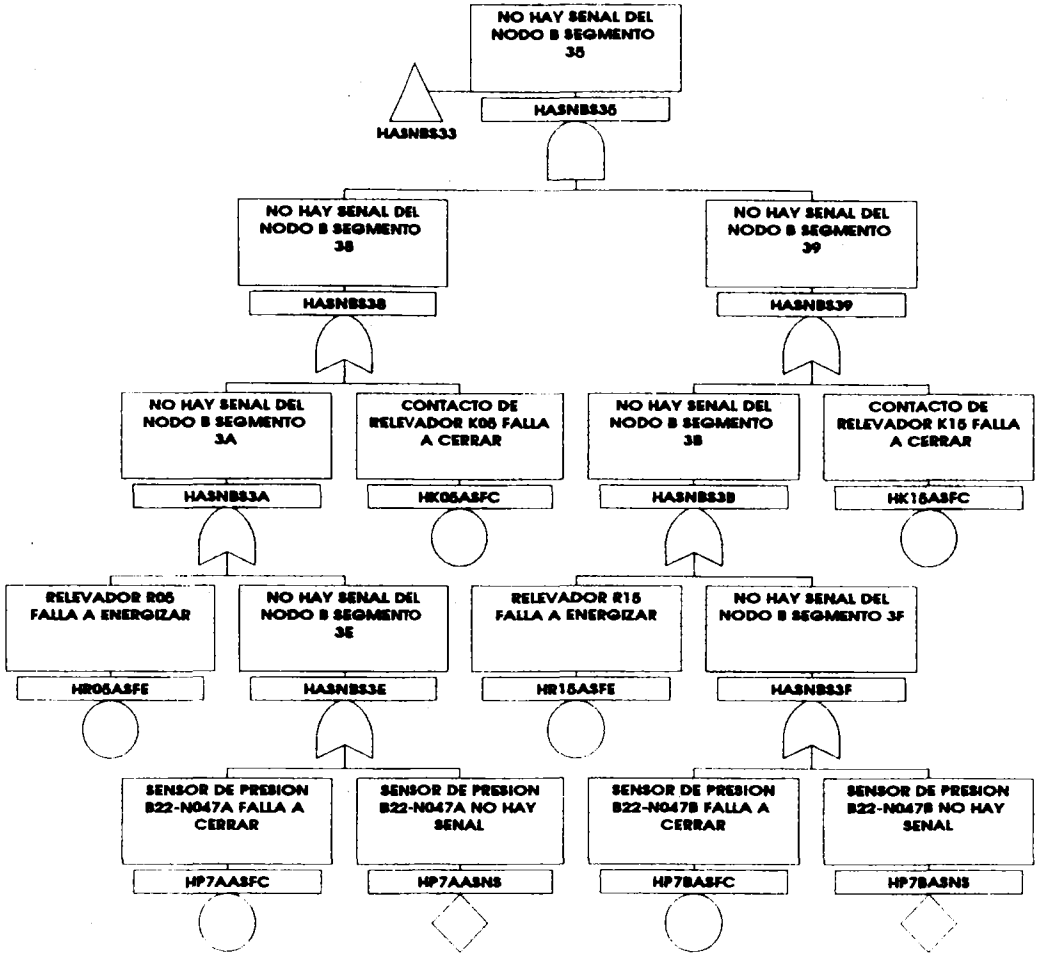
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09



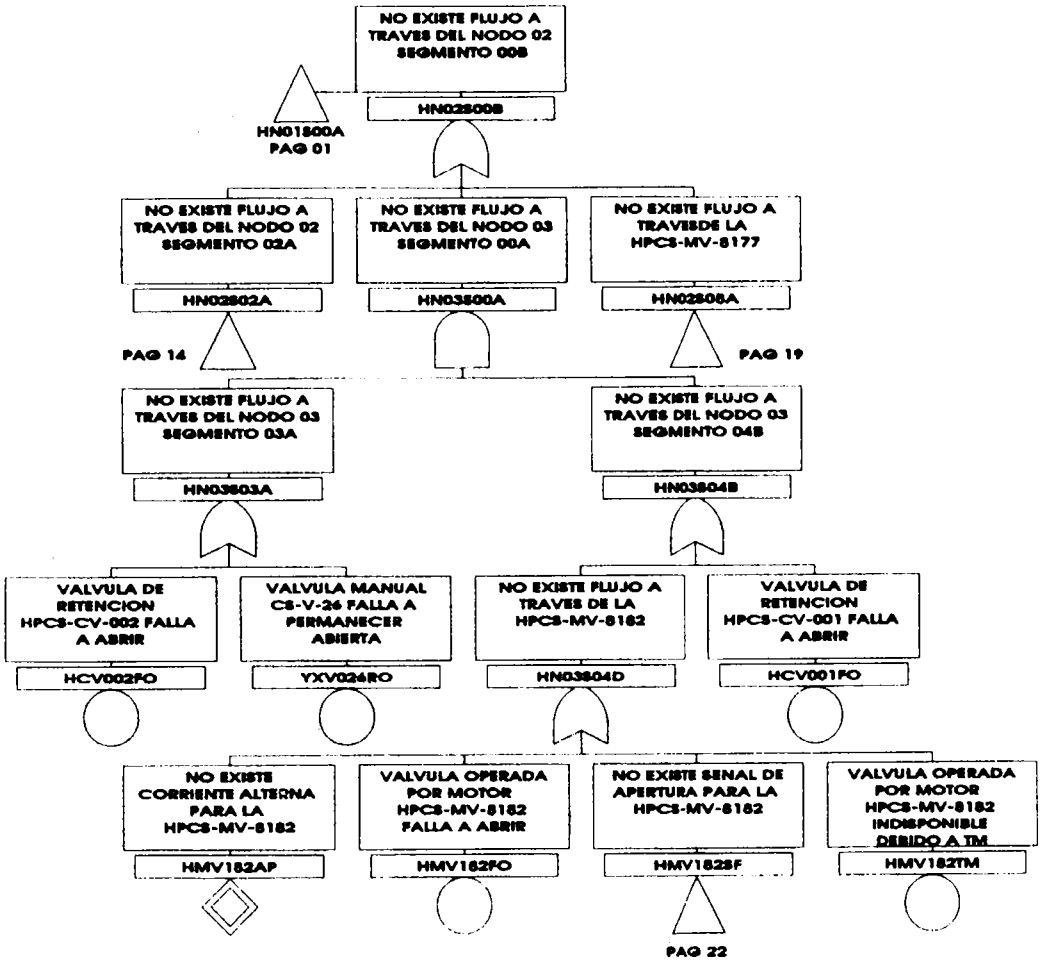
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 10



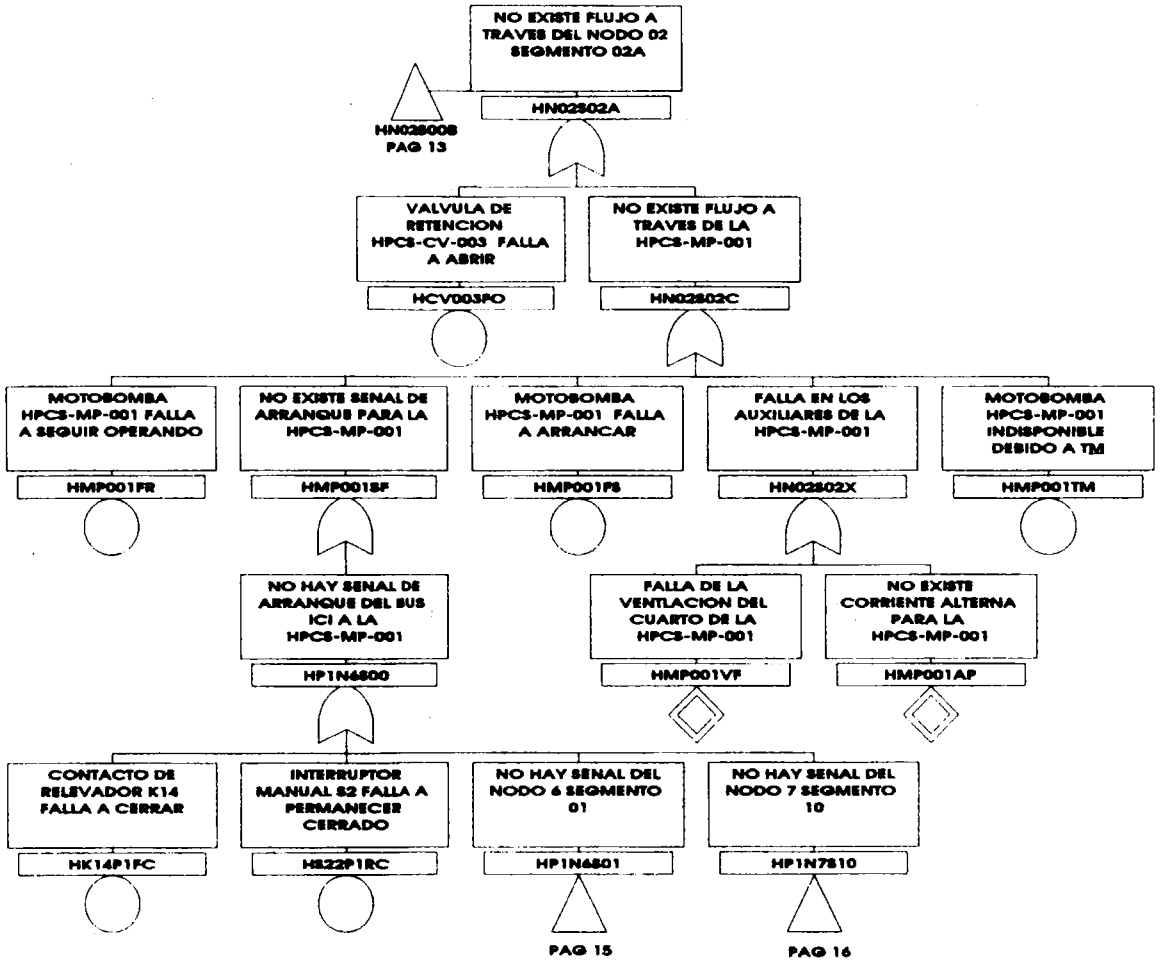
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 11



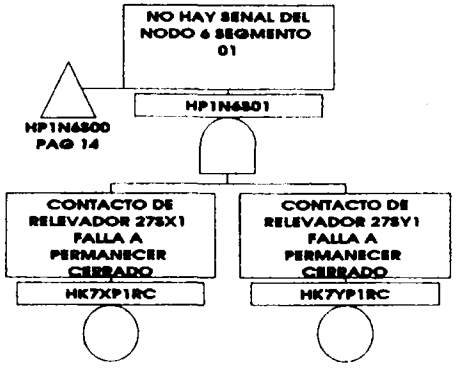
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 12



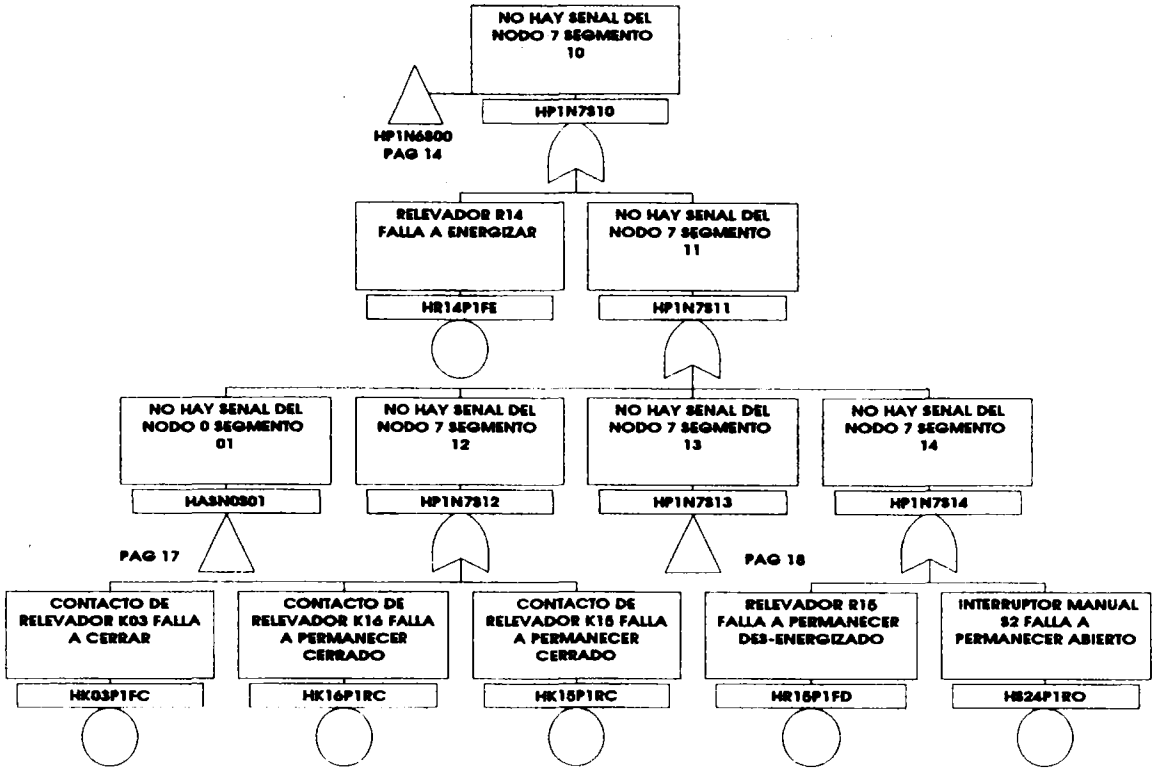
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 13



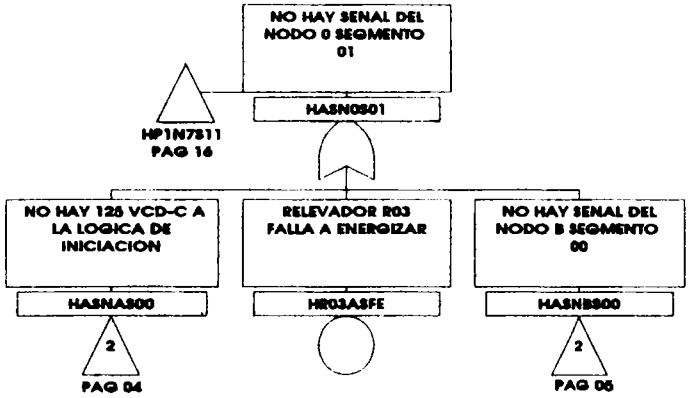
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 14



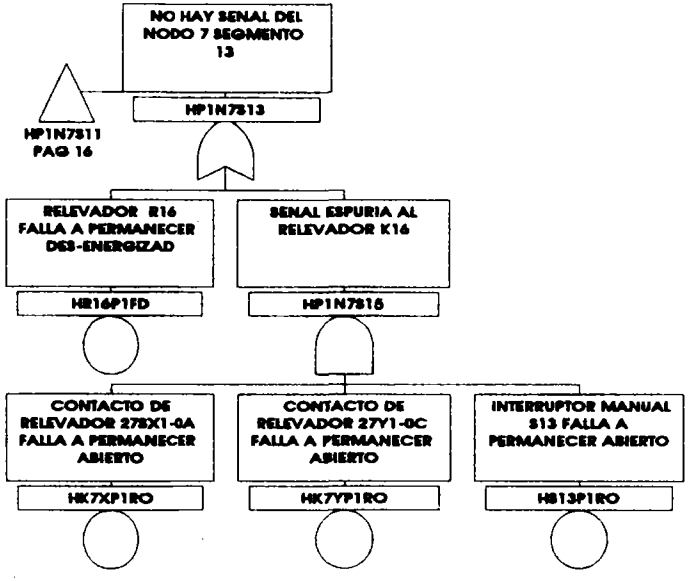
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 15**



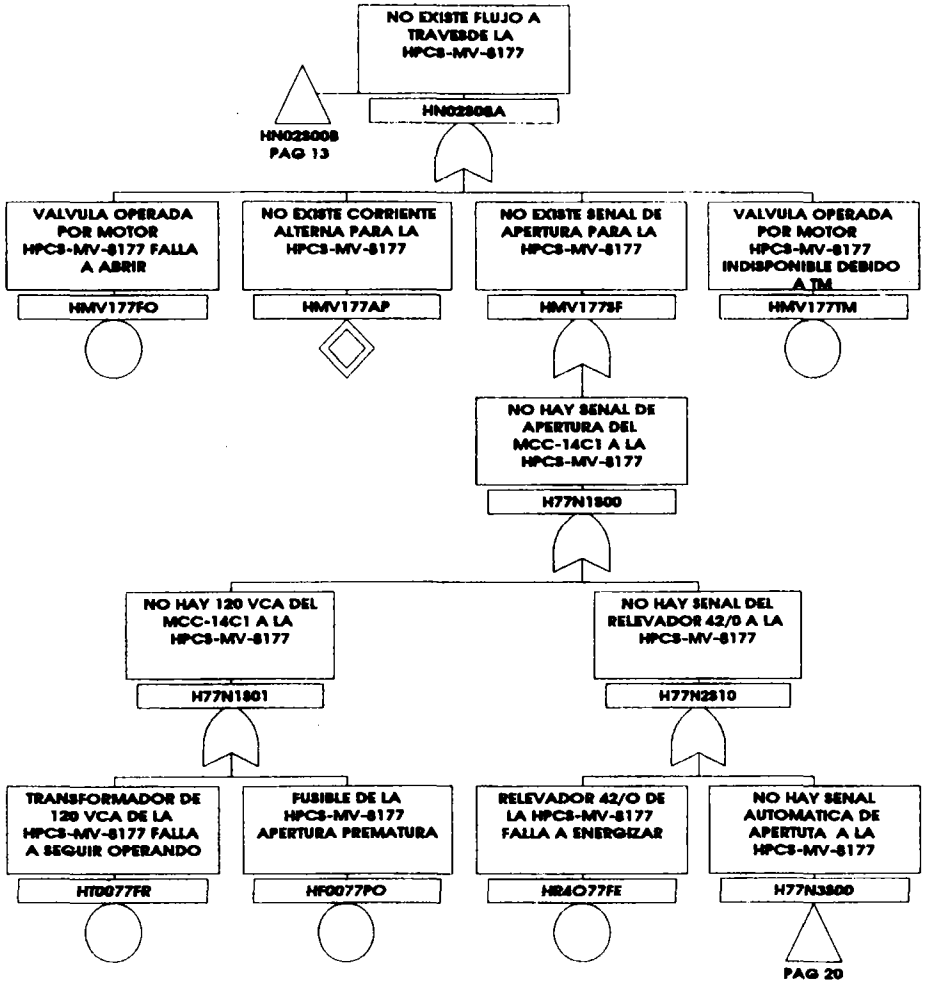
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 16



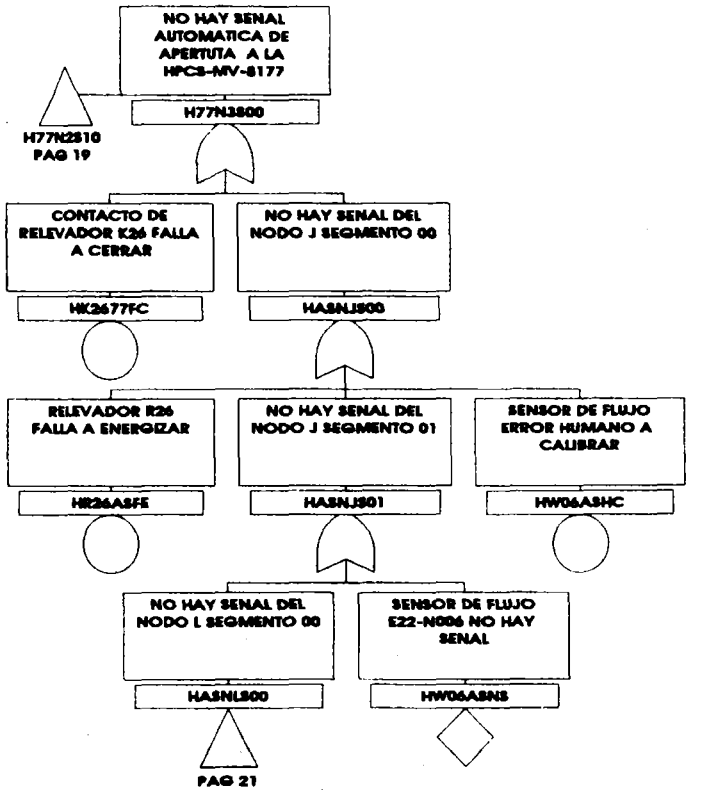
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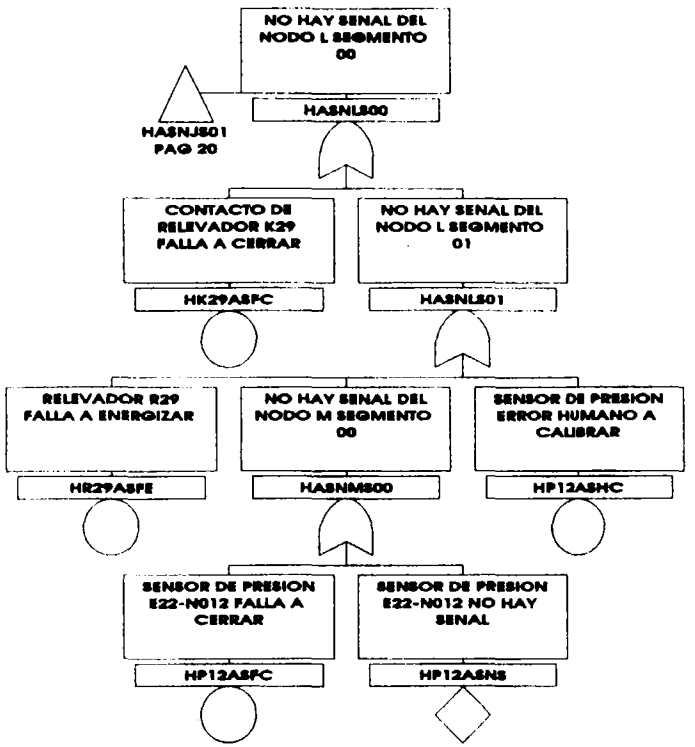
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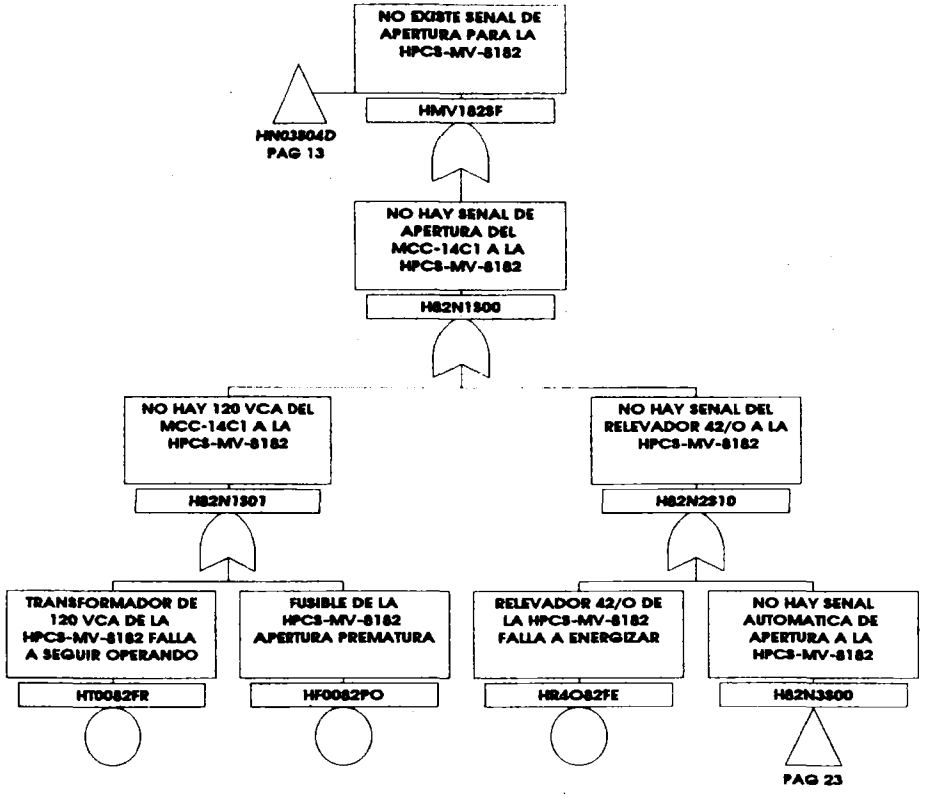
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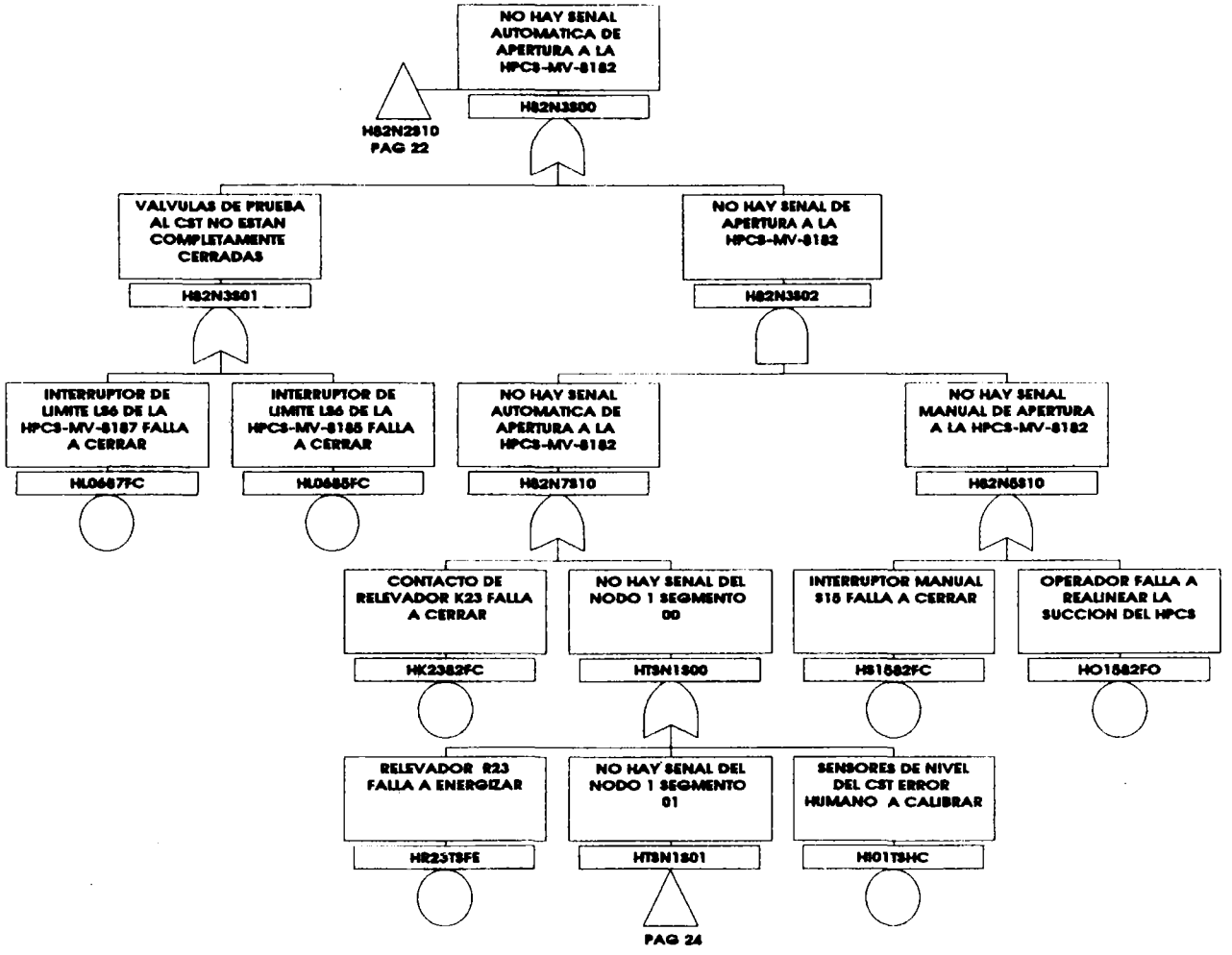
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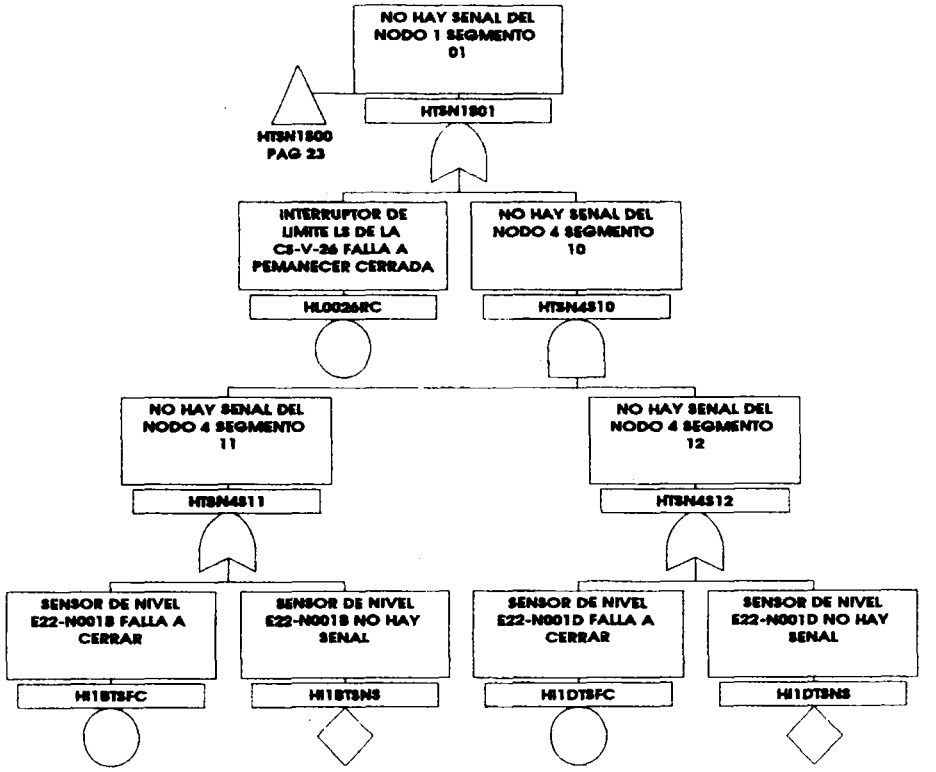
SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 21**



SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 22

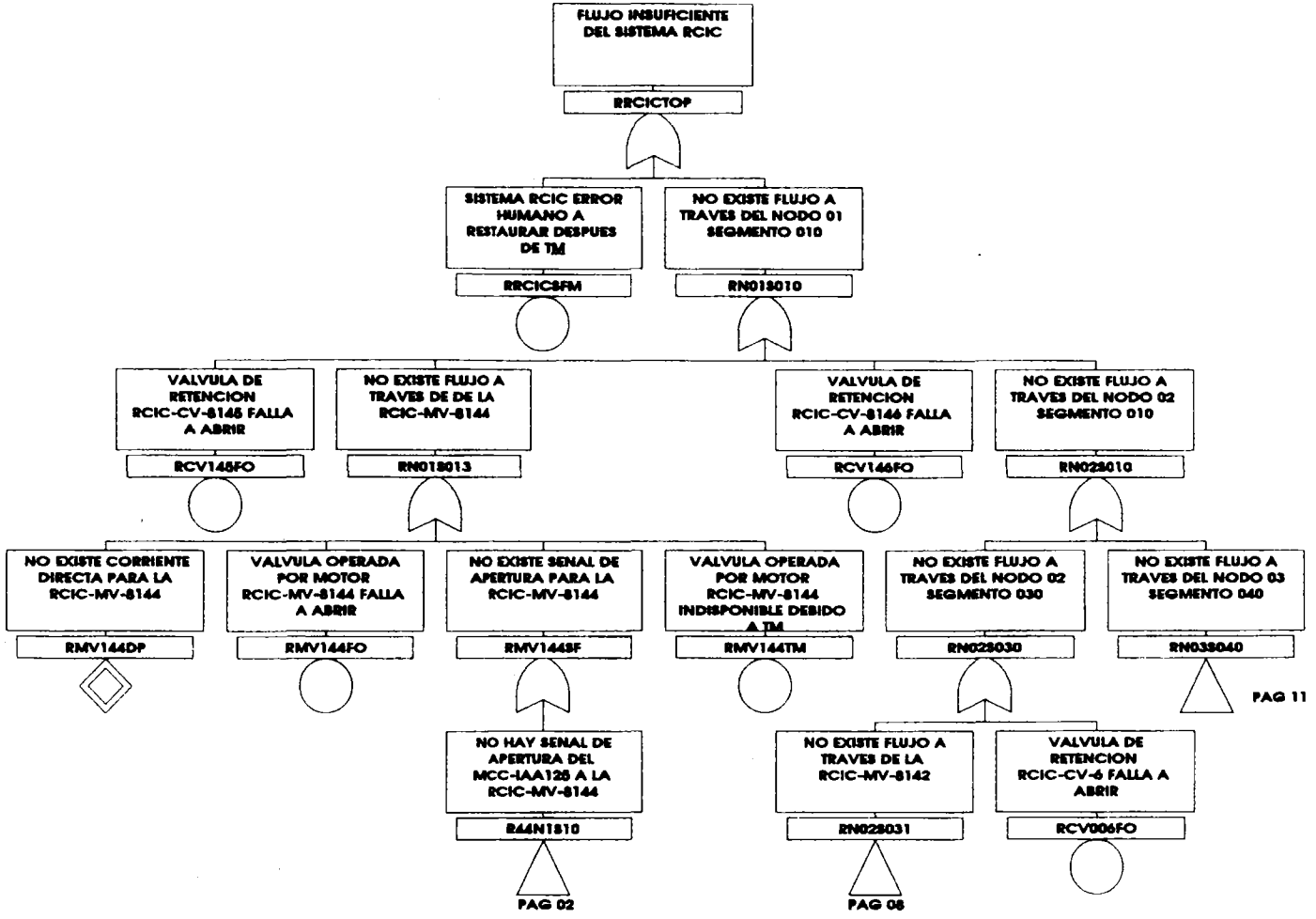


SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 23

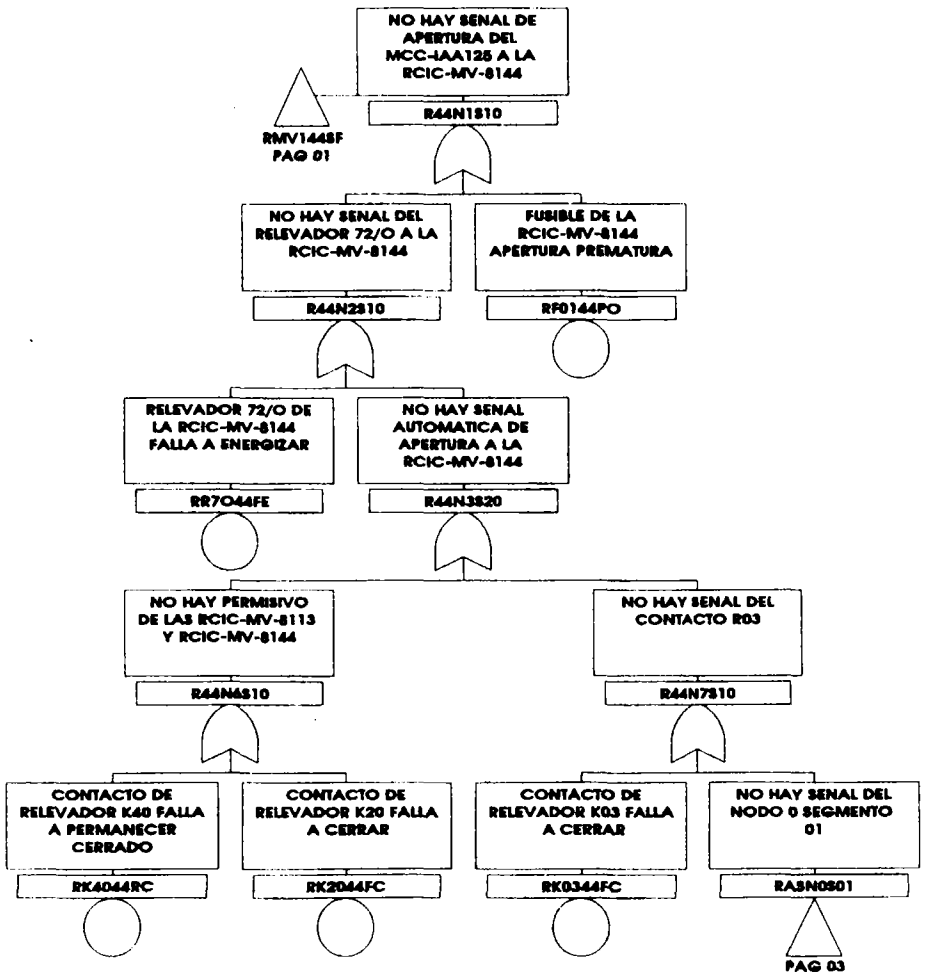


SISTEMA DE ASPERSION DEL NUCLEO A ALTA PRESION (HPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 24

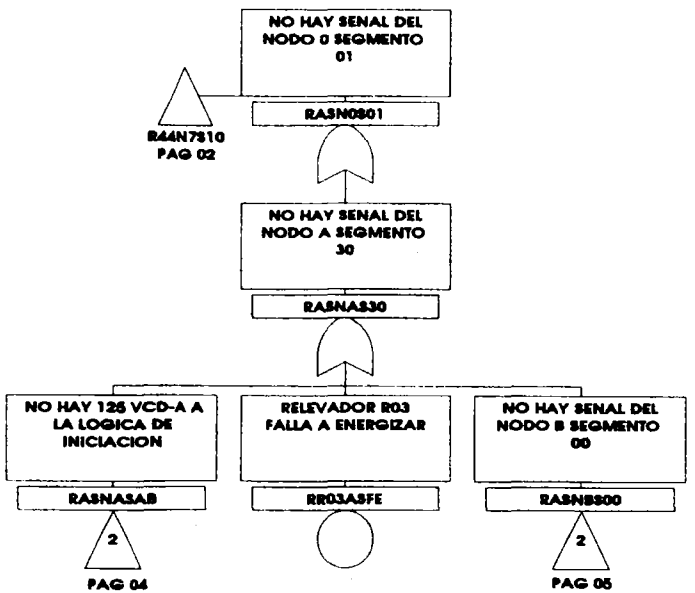
FIGURA B-2. ARBOL DE FALLAS DEL SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC).



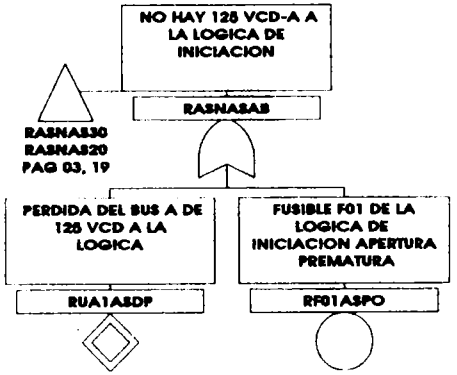
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



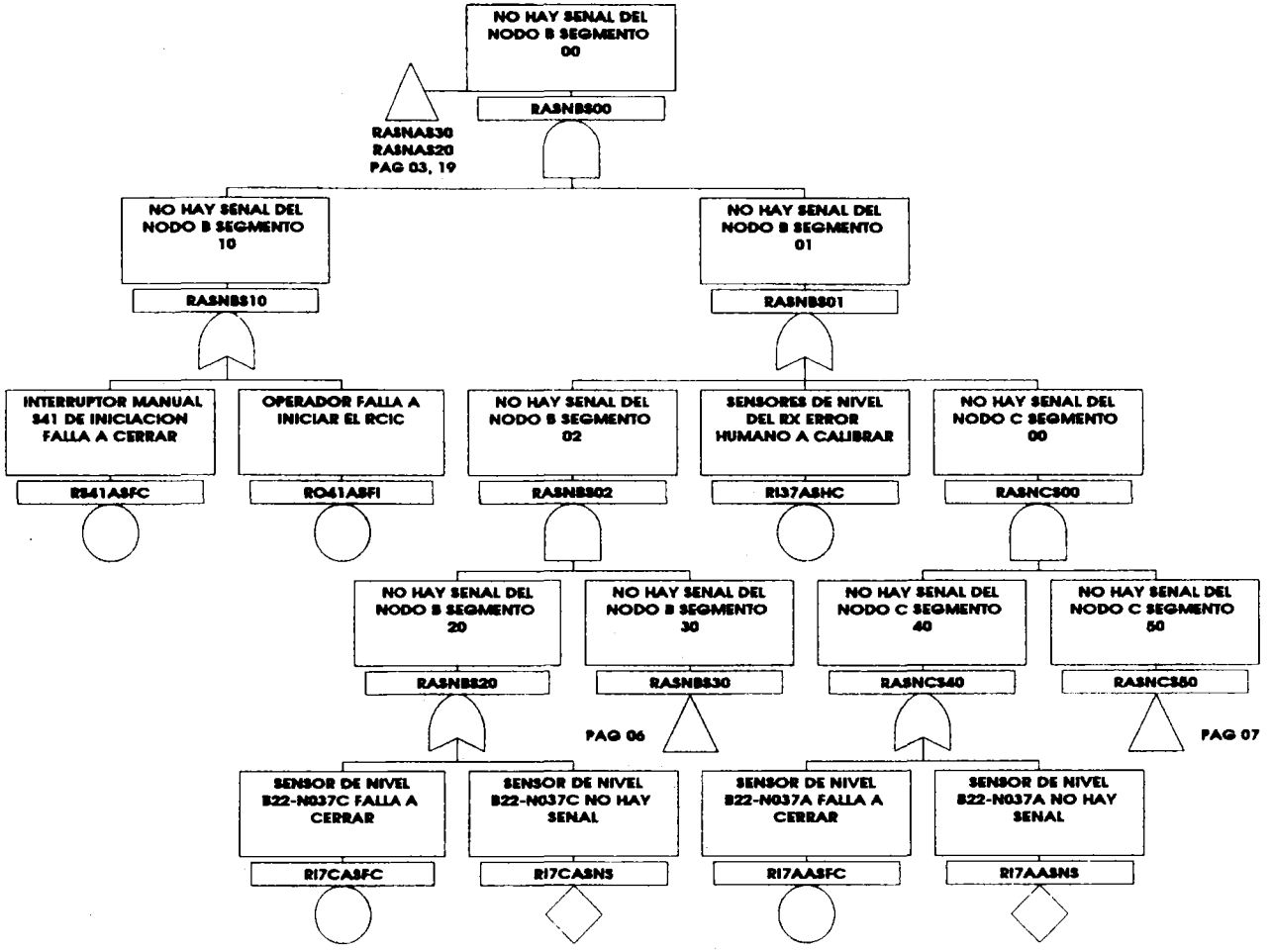
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02



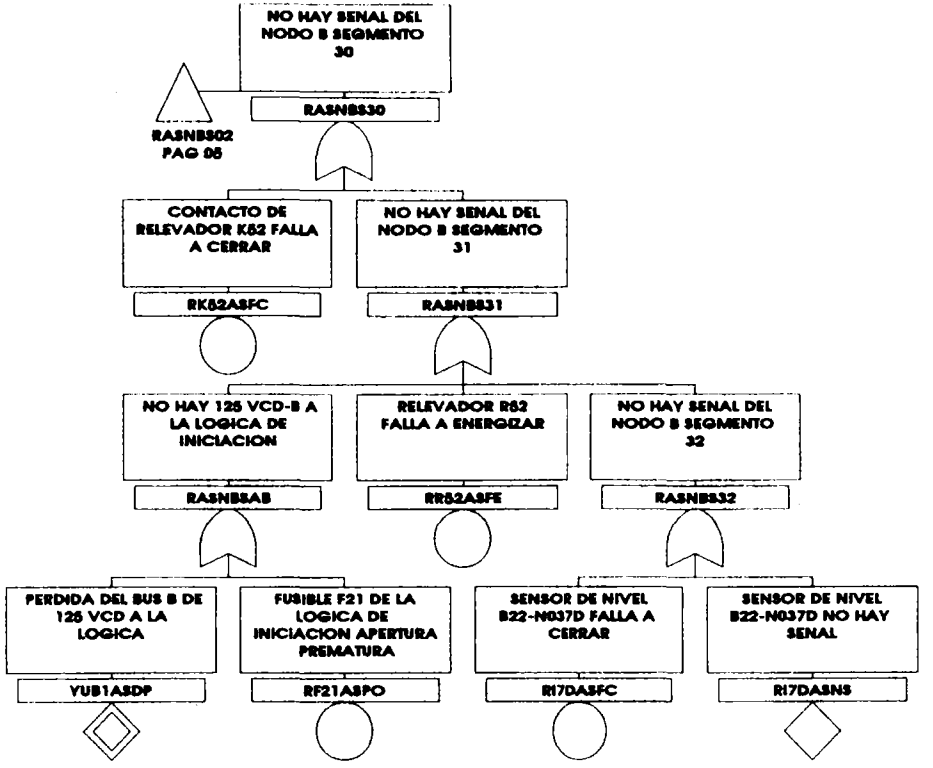
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03



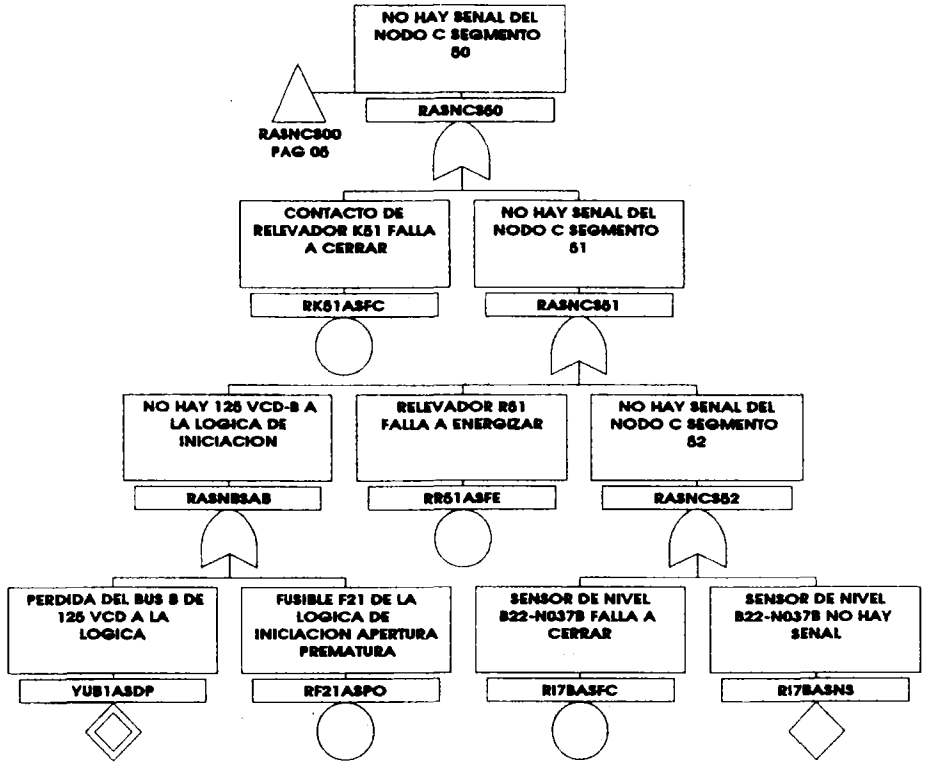
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04



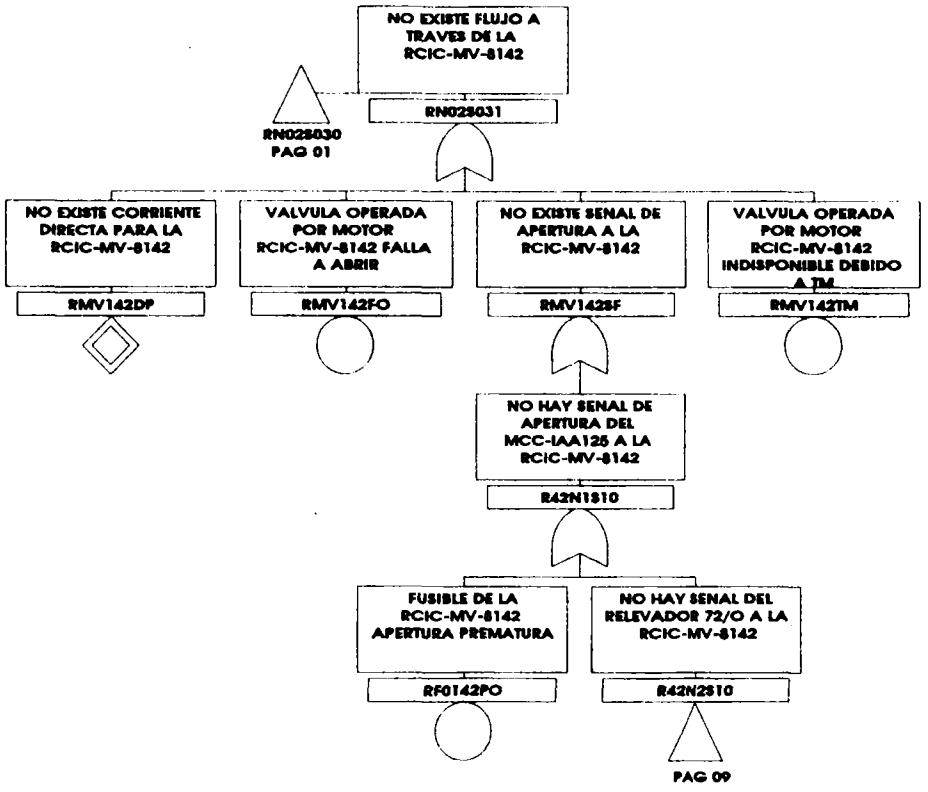
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 05



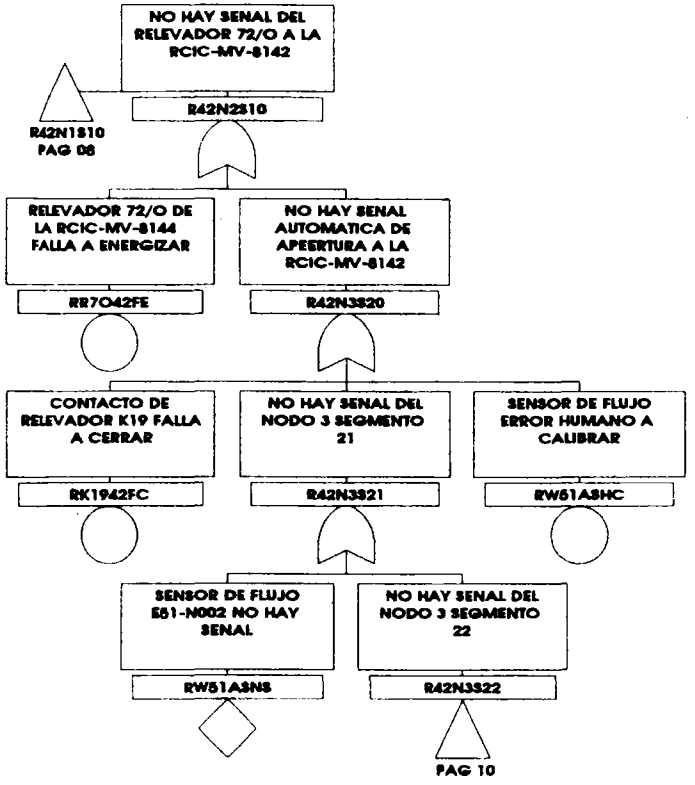
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 06**



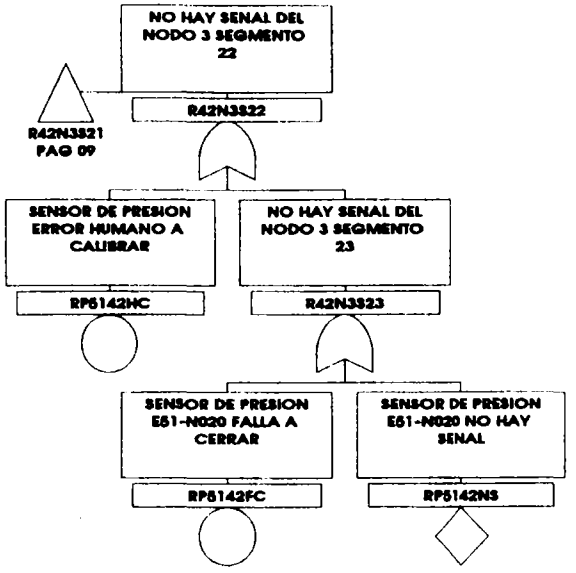
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 07



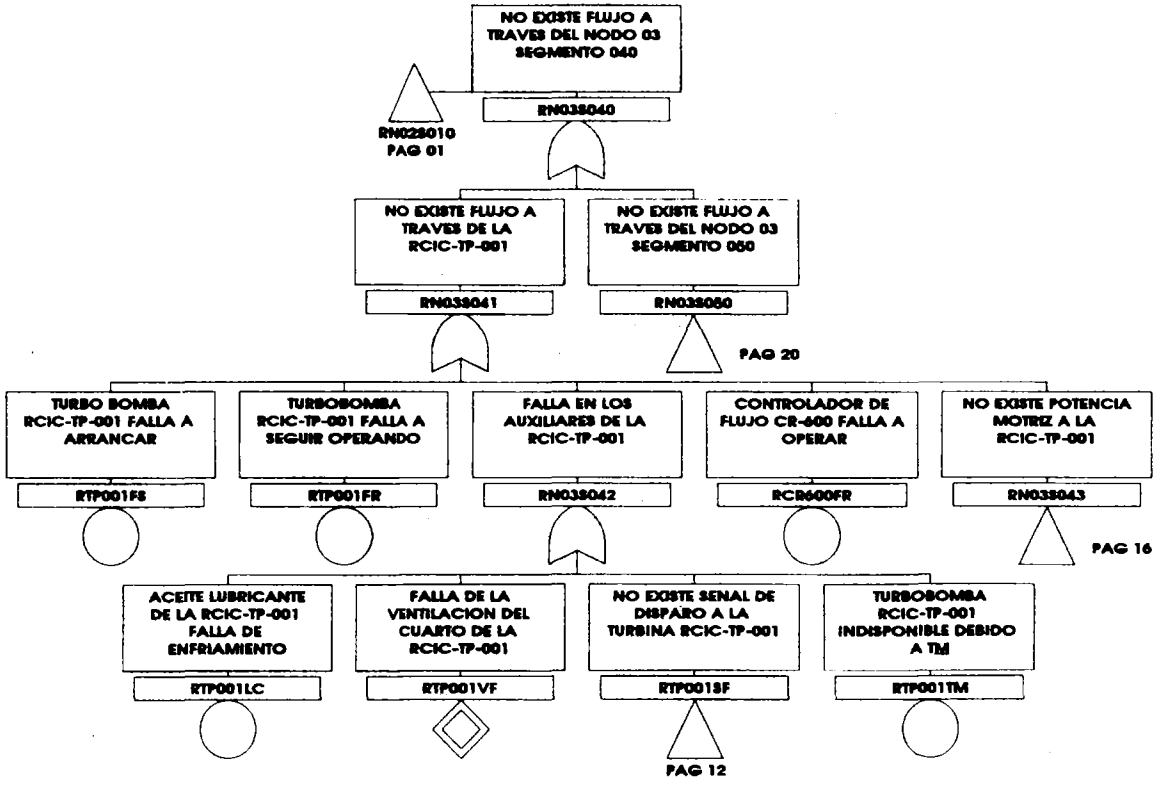
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 08



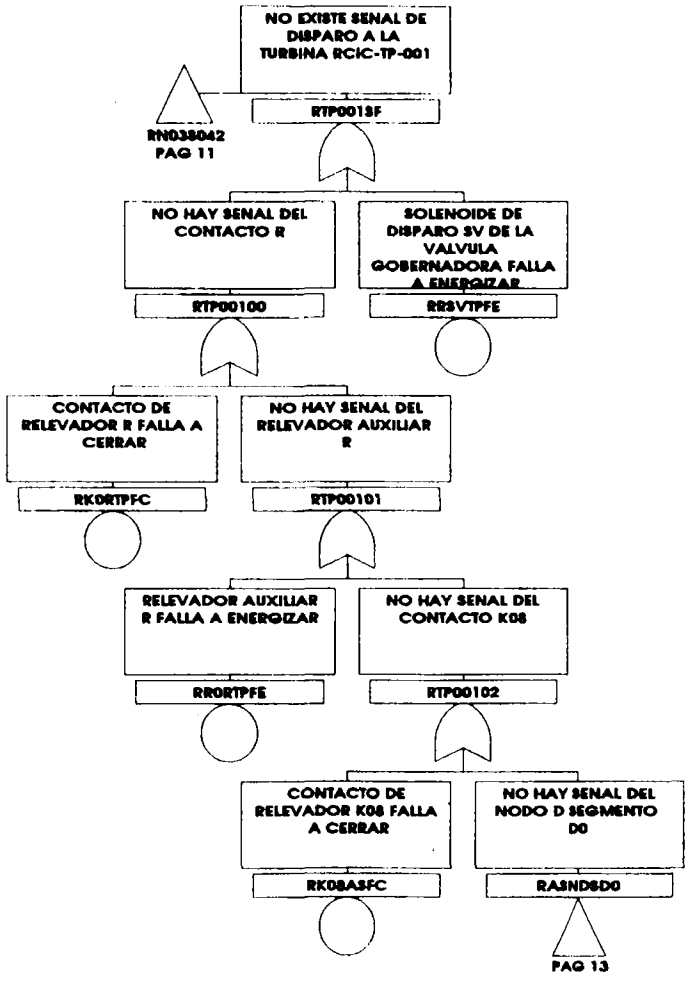
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09



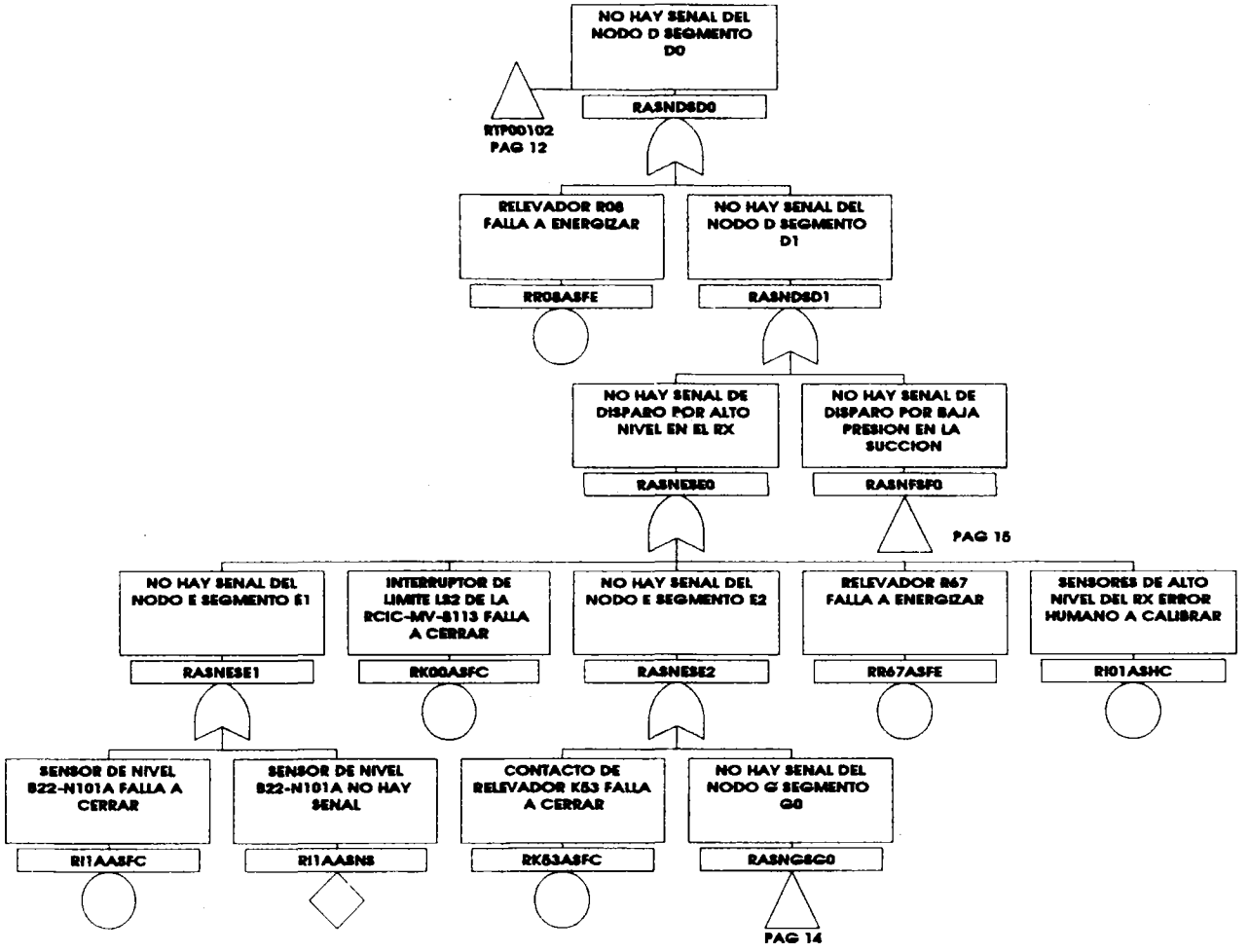
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 10**



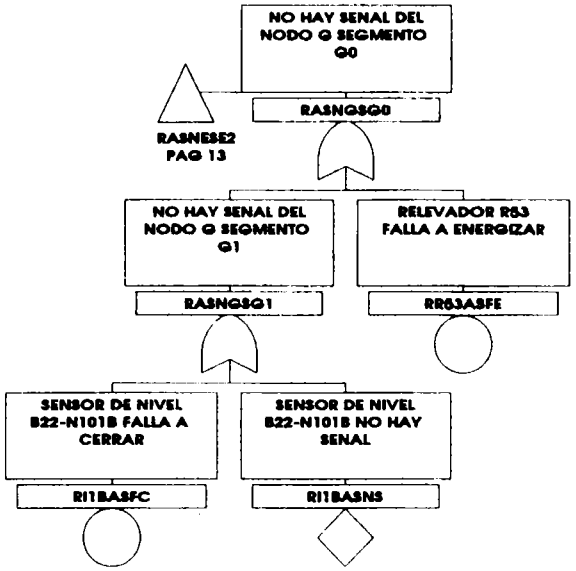
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 11



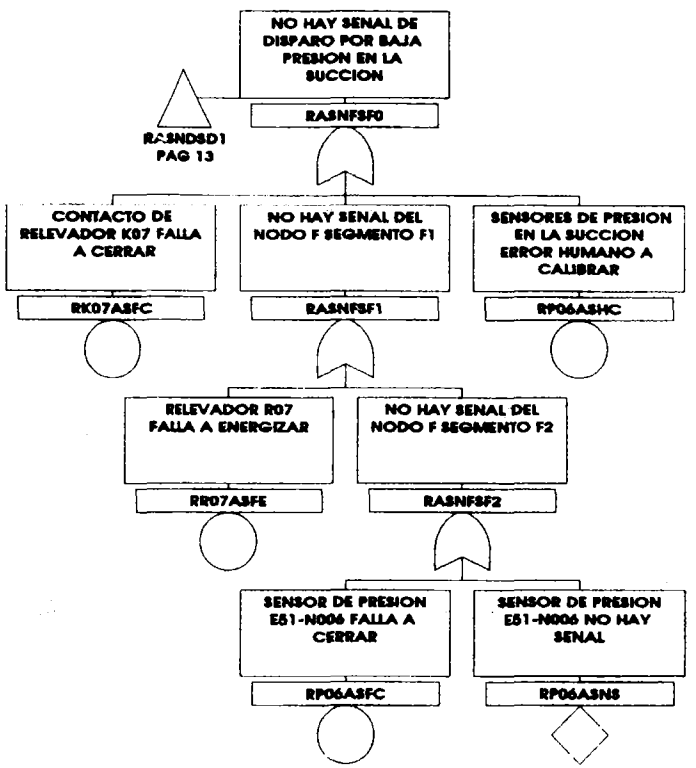
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 12



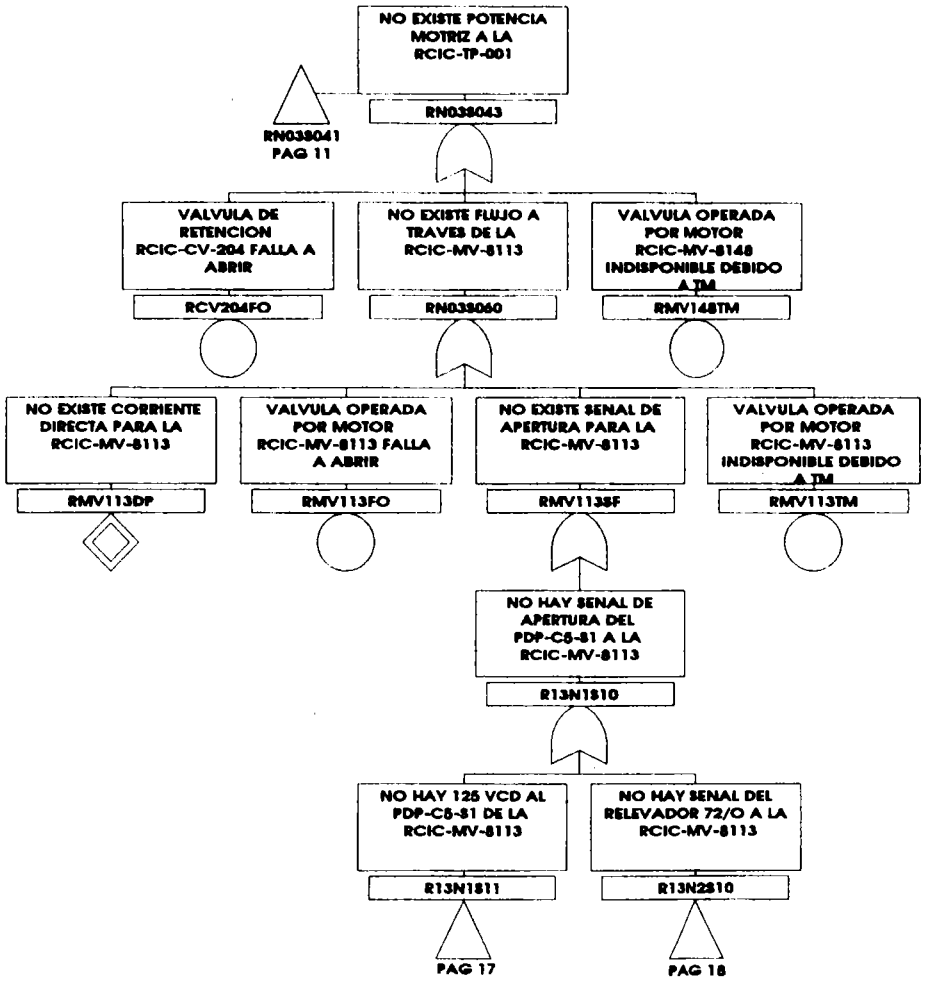
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 13



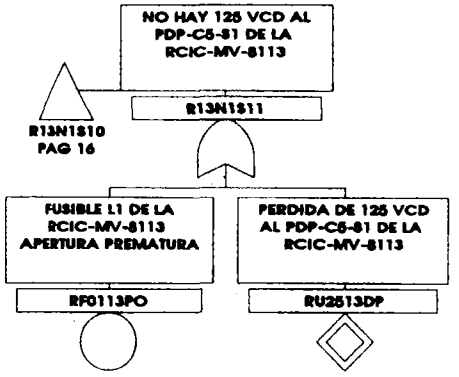
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 14**



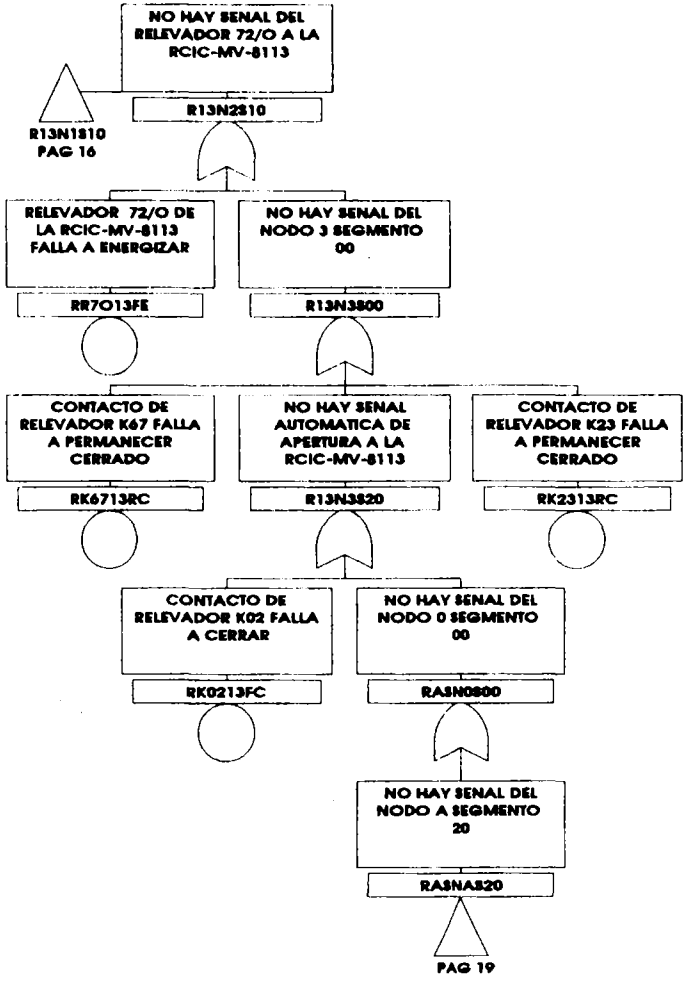
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 15**



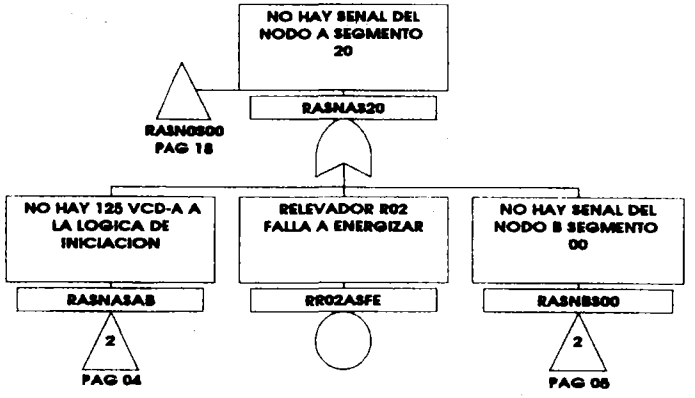
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 16



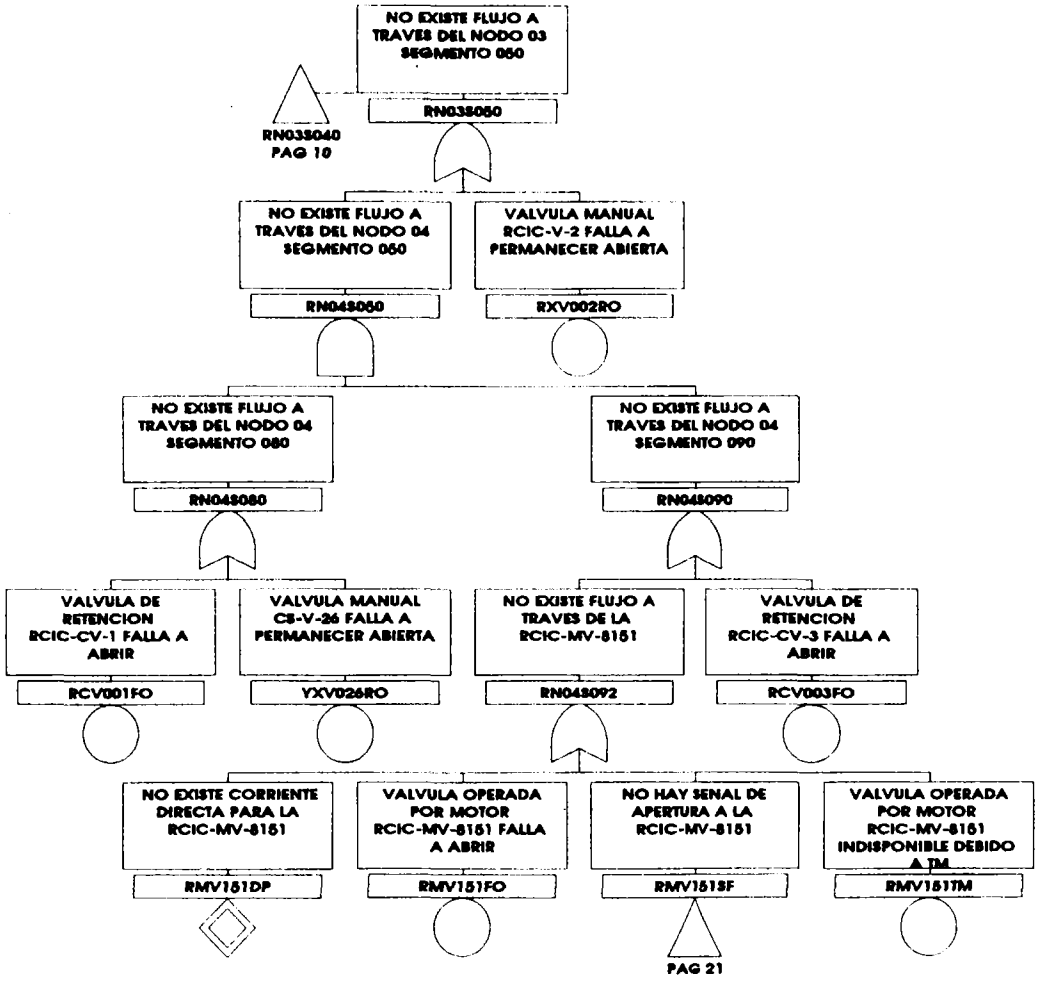
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 17**



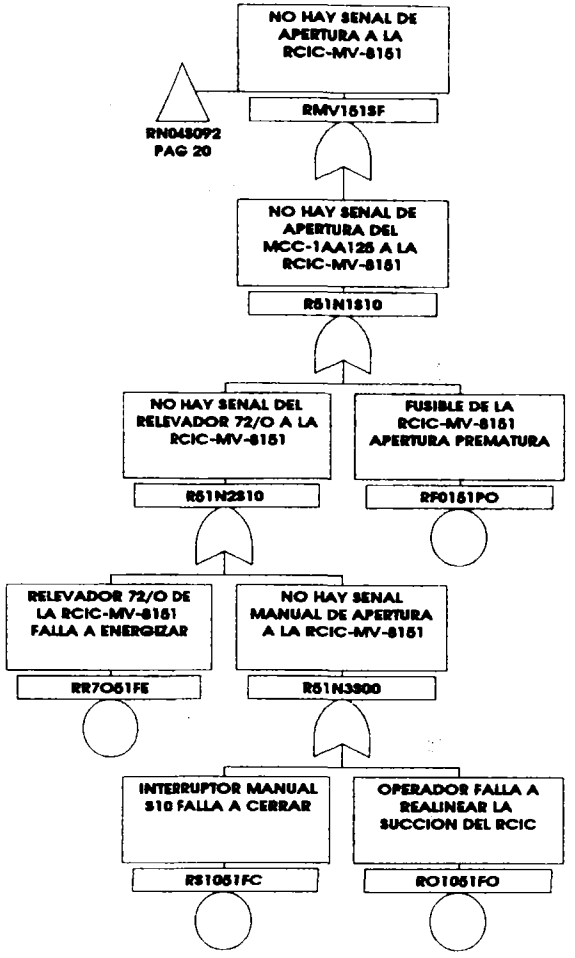
SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 18



SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 19**

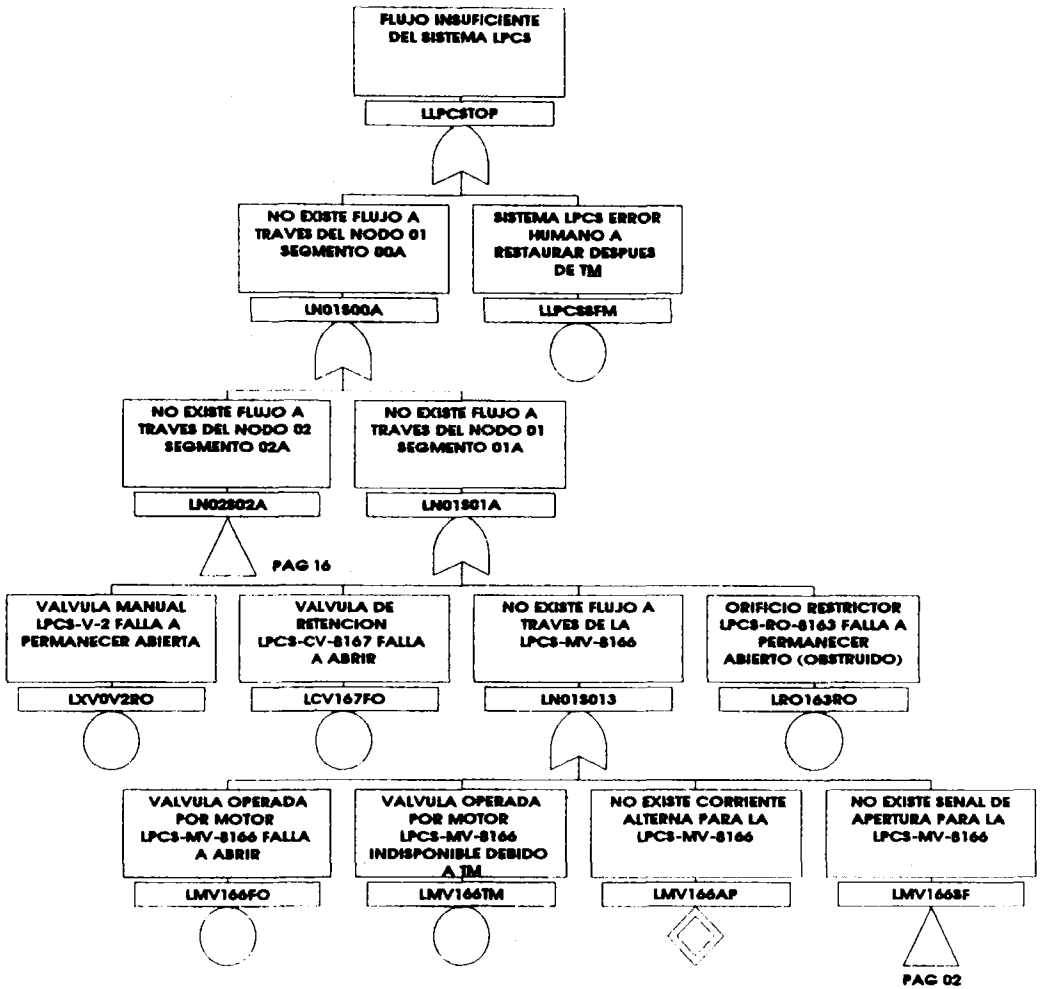


SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 20

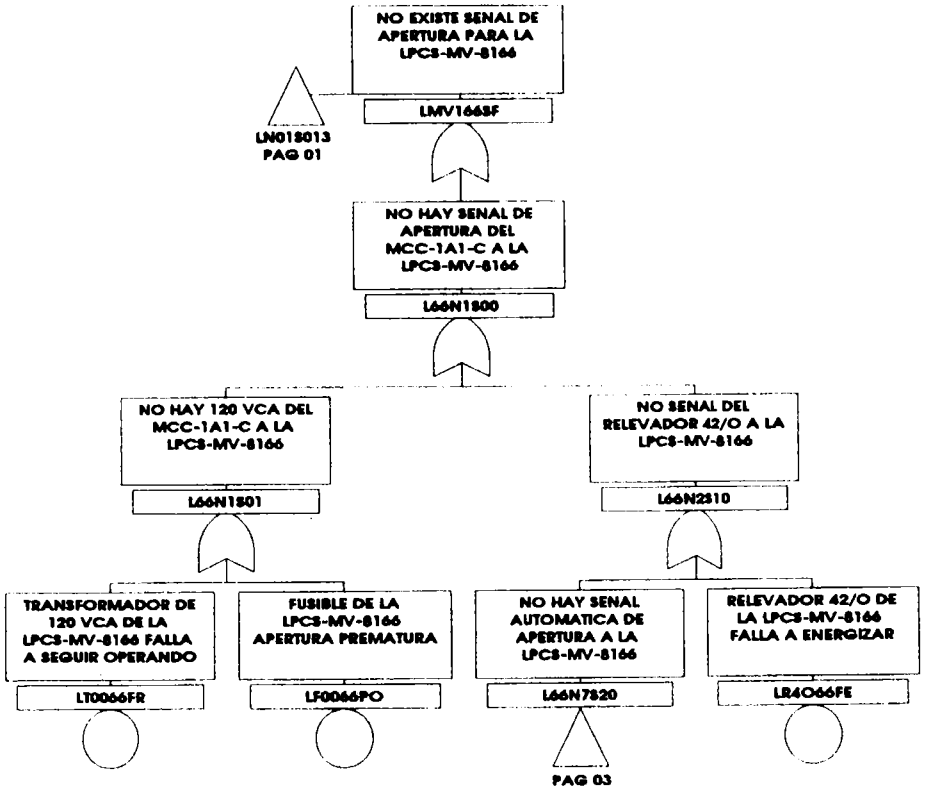


SISTEMA PARA ENFRIAMIENTO DEL NUCLEO CON EL REACTOR AISLADO (RCIC)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 21**

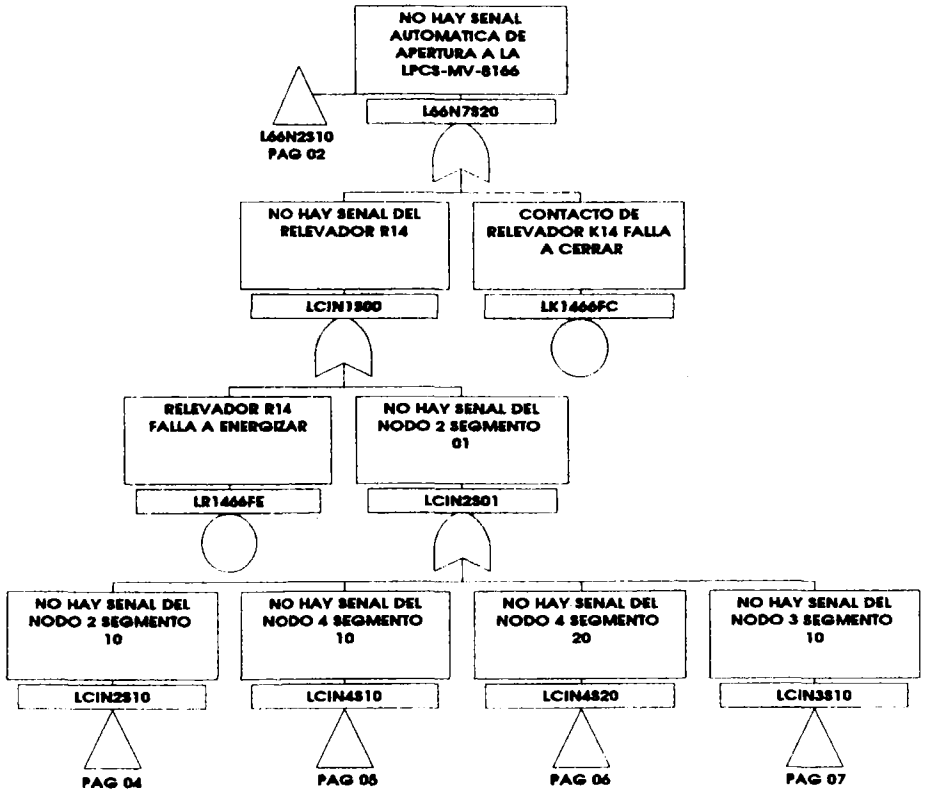
FIGURA B-3. ARBOL DE FALLAS DEL SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS).



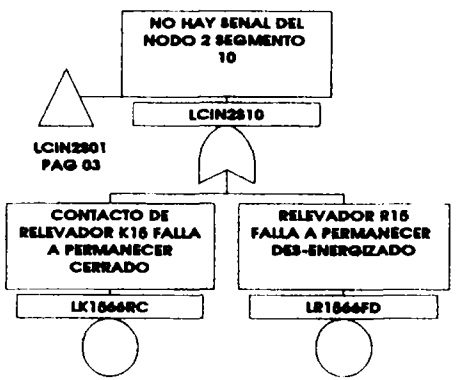
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



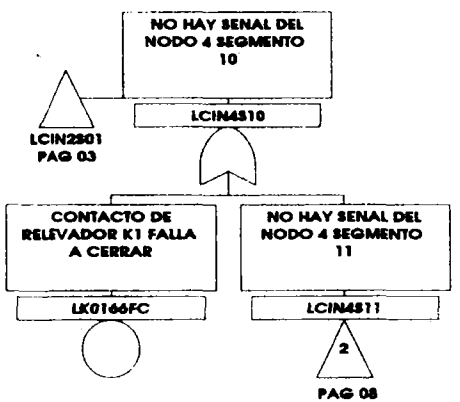
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02



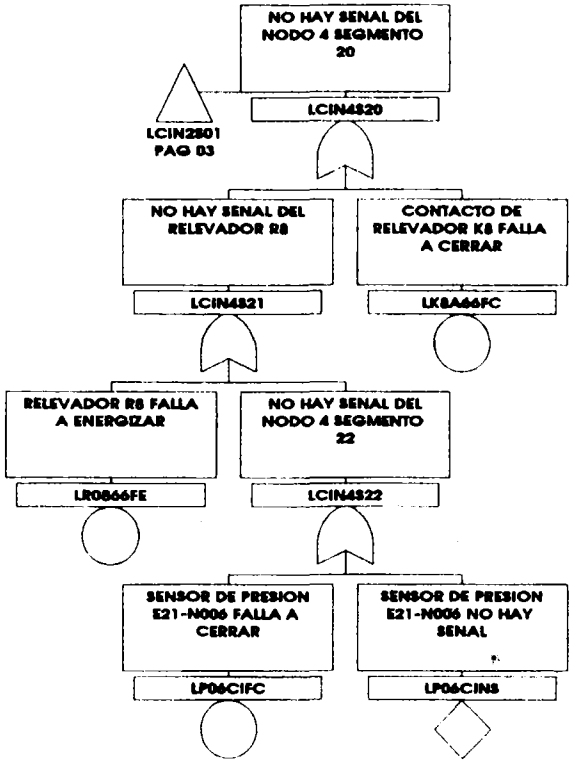
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03



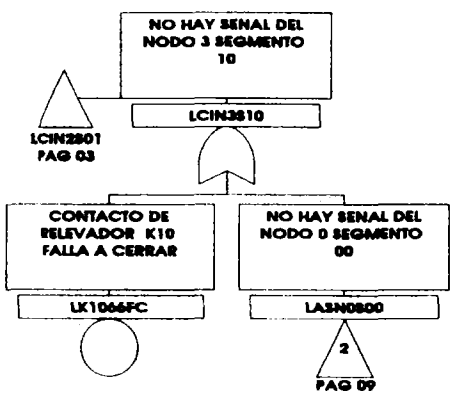
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 04**



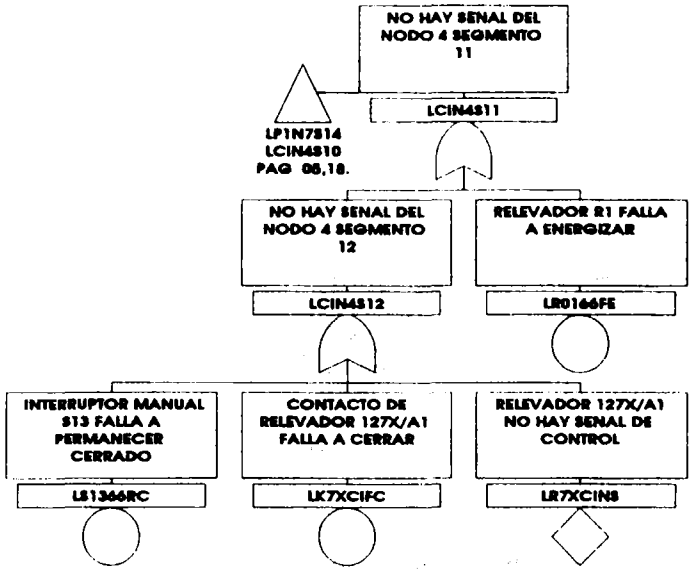
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 05



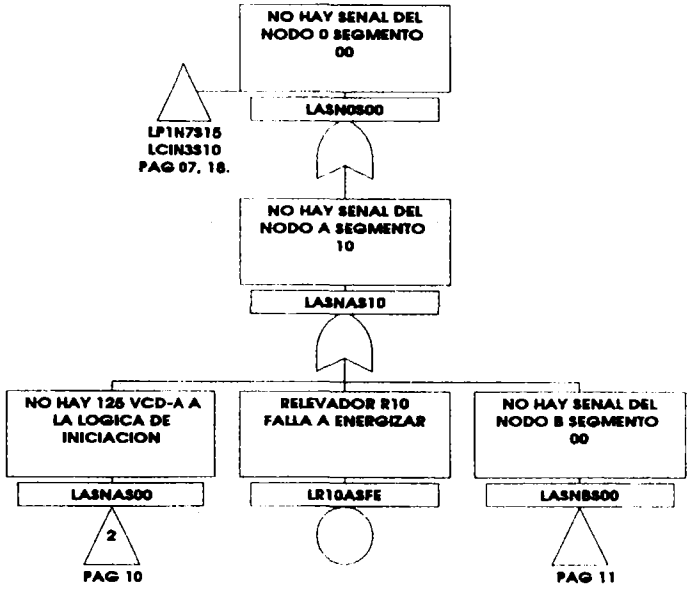
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 06



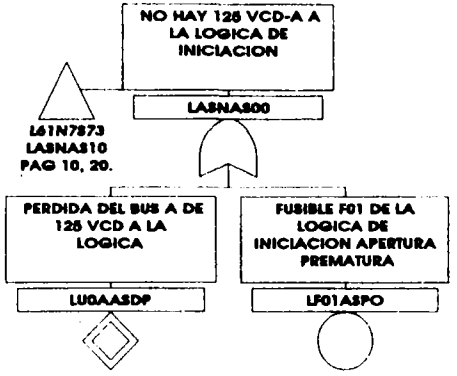
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 07



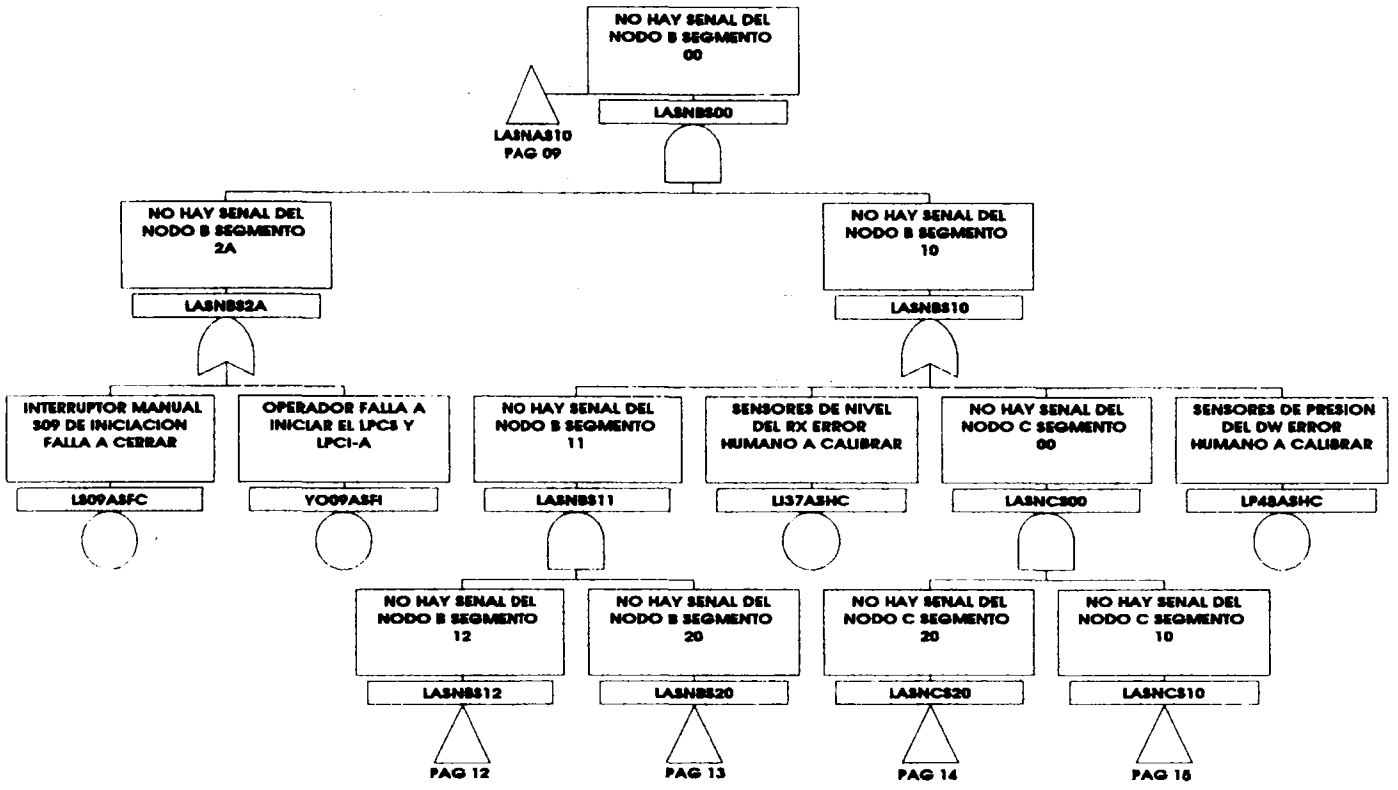
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 08



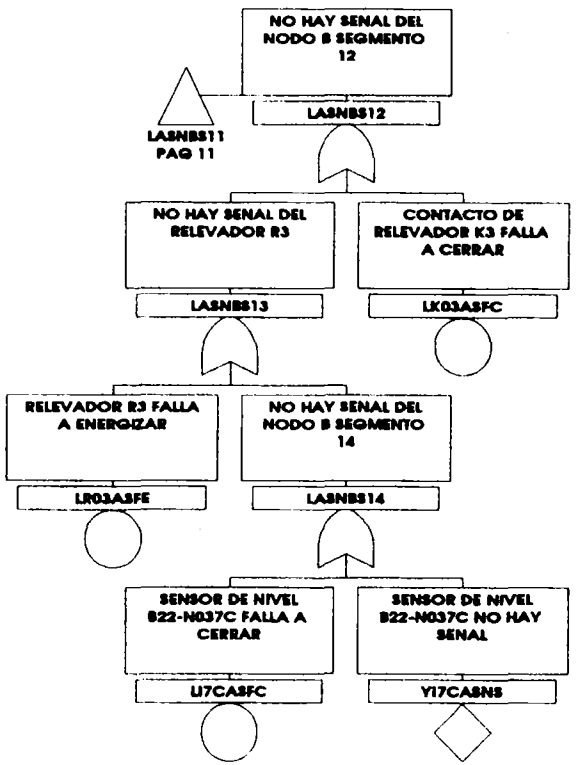
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09



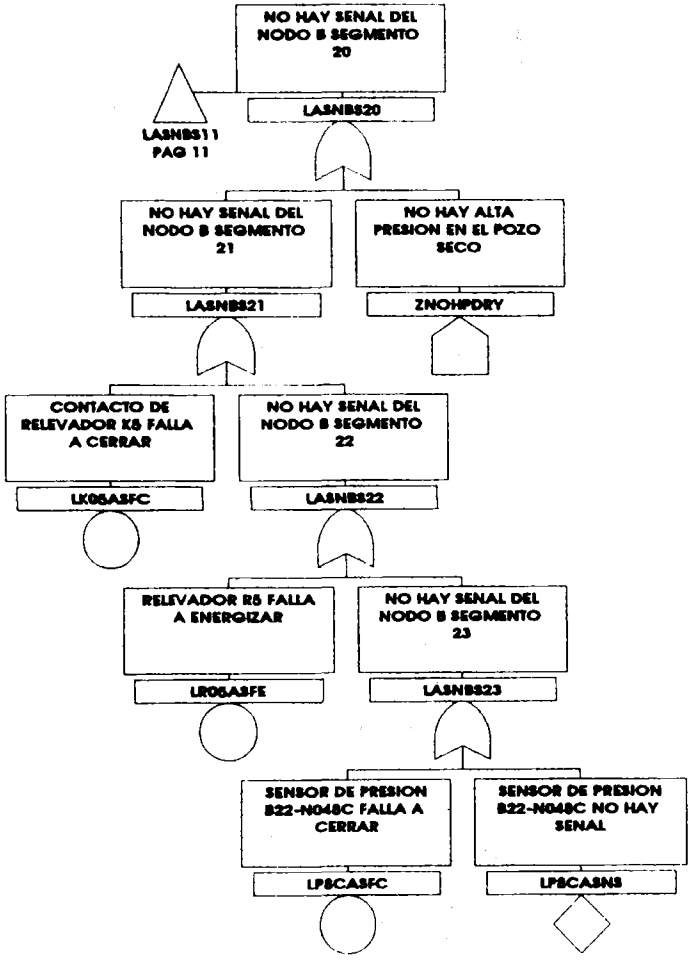
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 10**



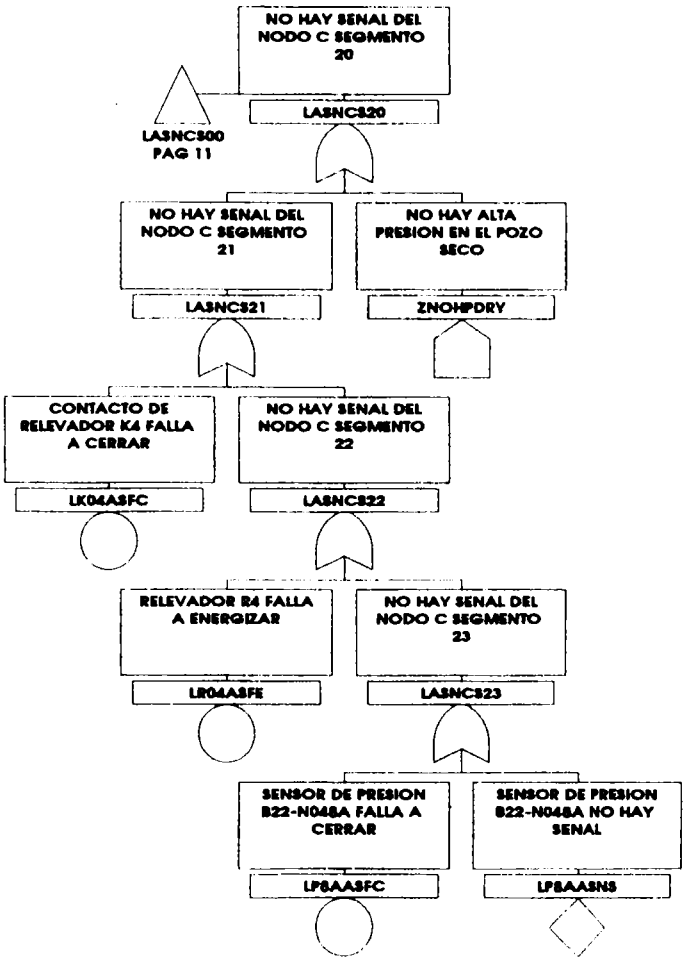
SISTEMA DE ASPERCION DEL NUCLEO A BAJA PRESION (LPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 11



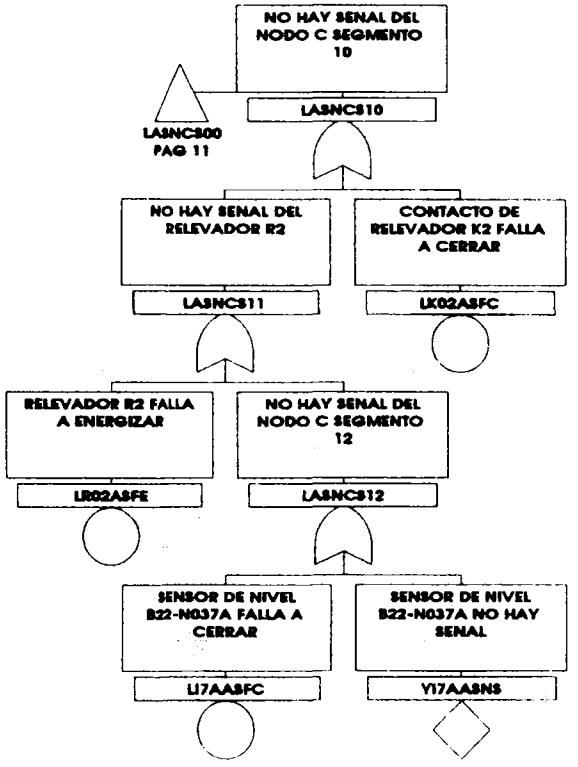
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 12



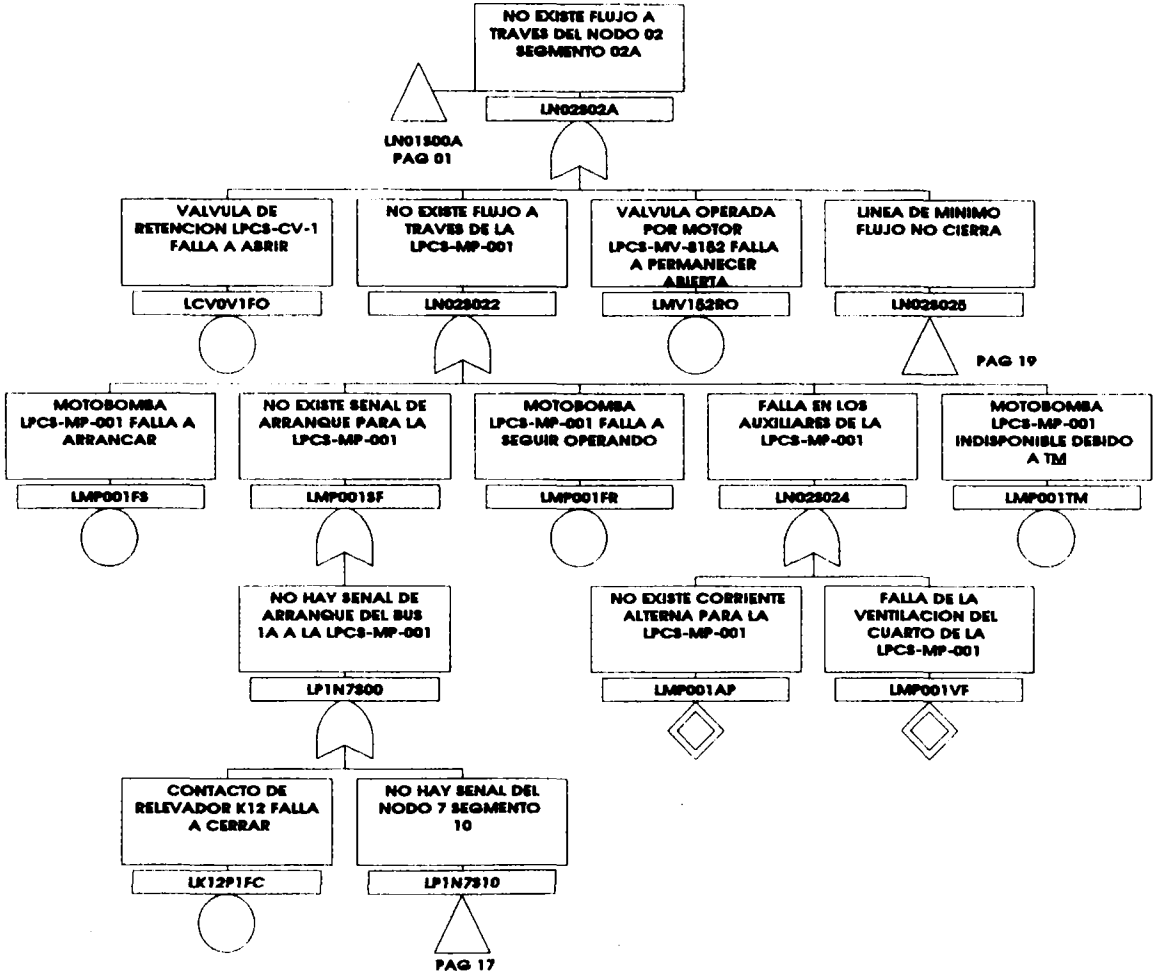
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 13**



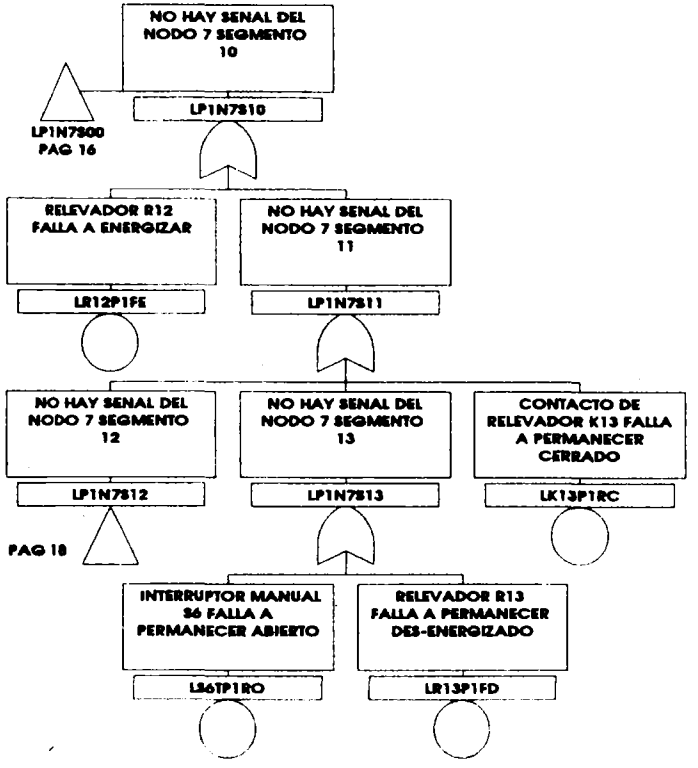
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 14



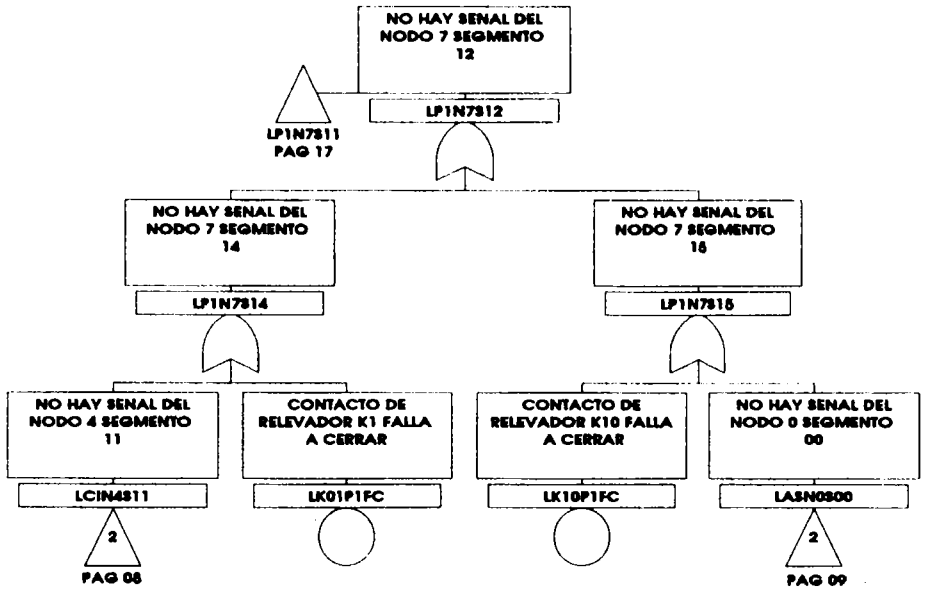
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 15



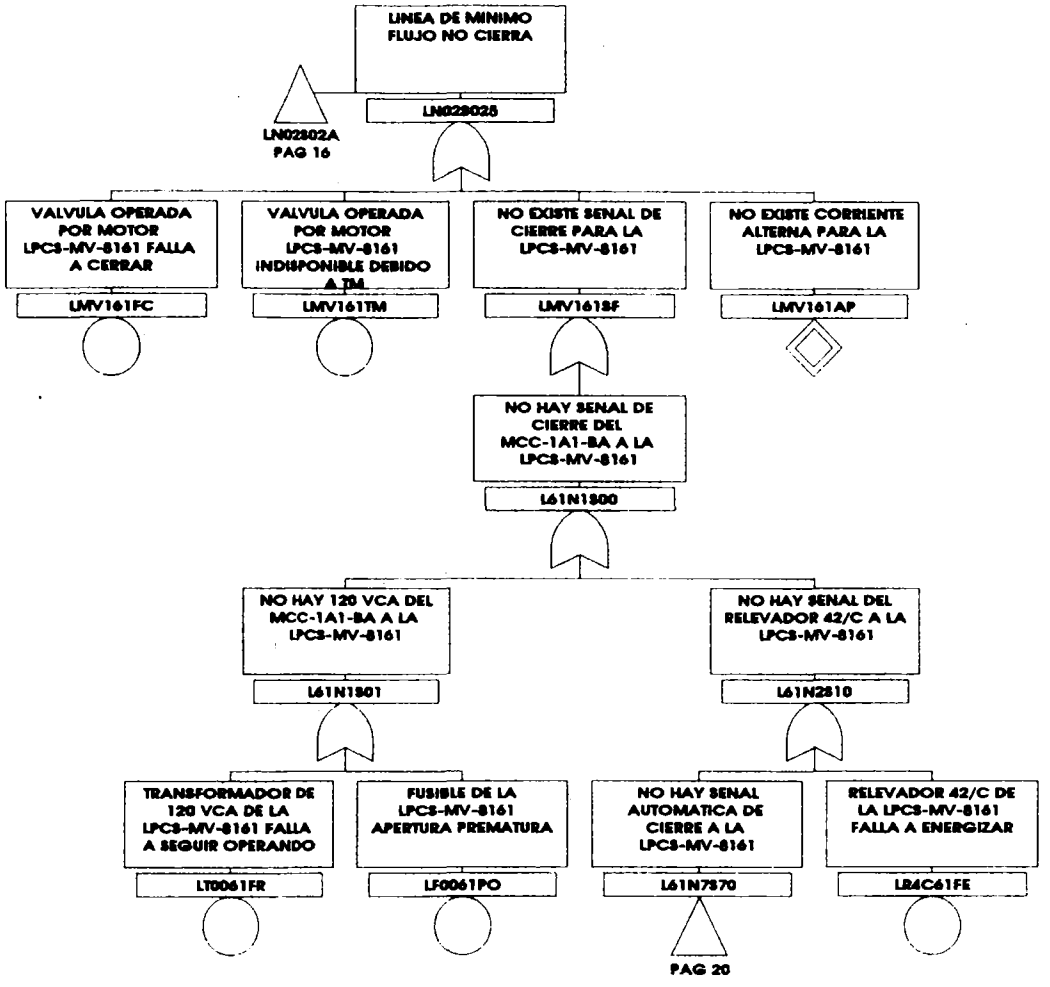
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 16



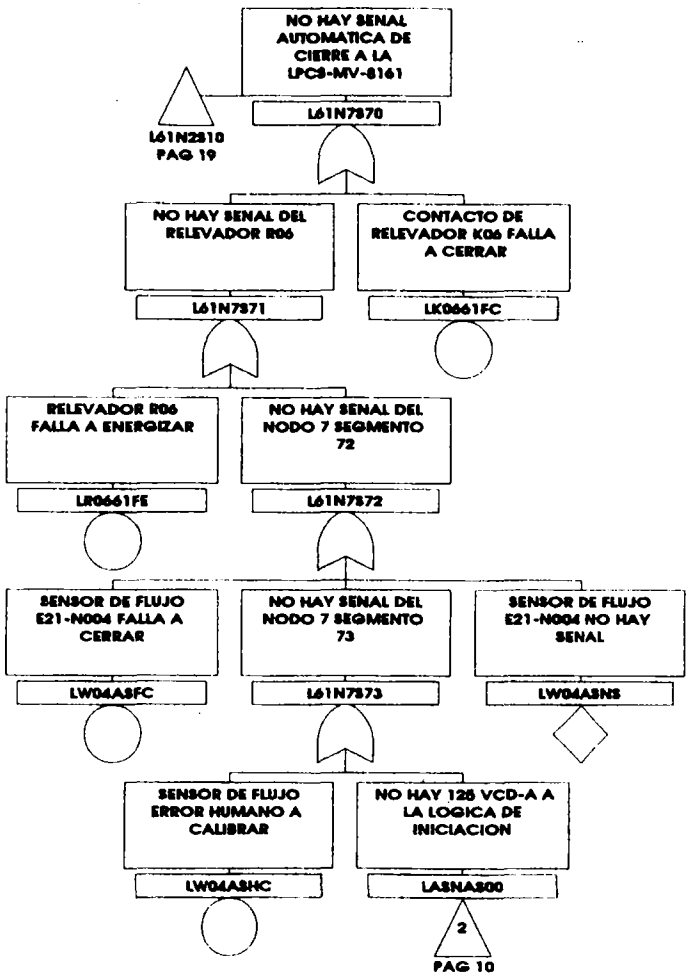
SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 17**



SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 18

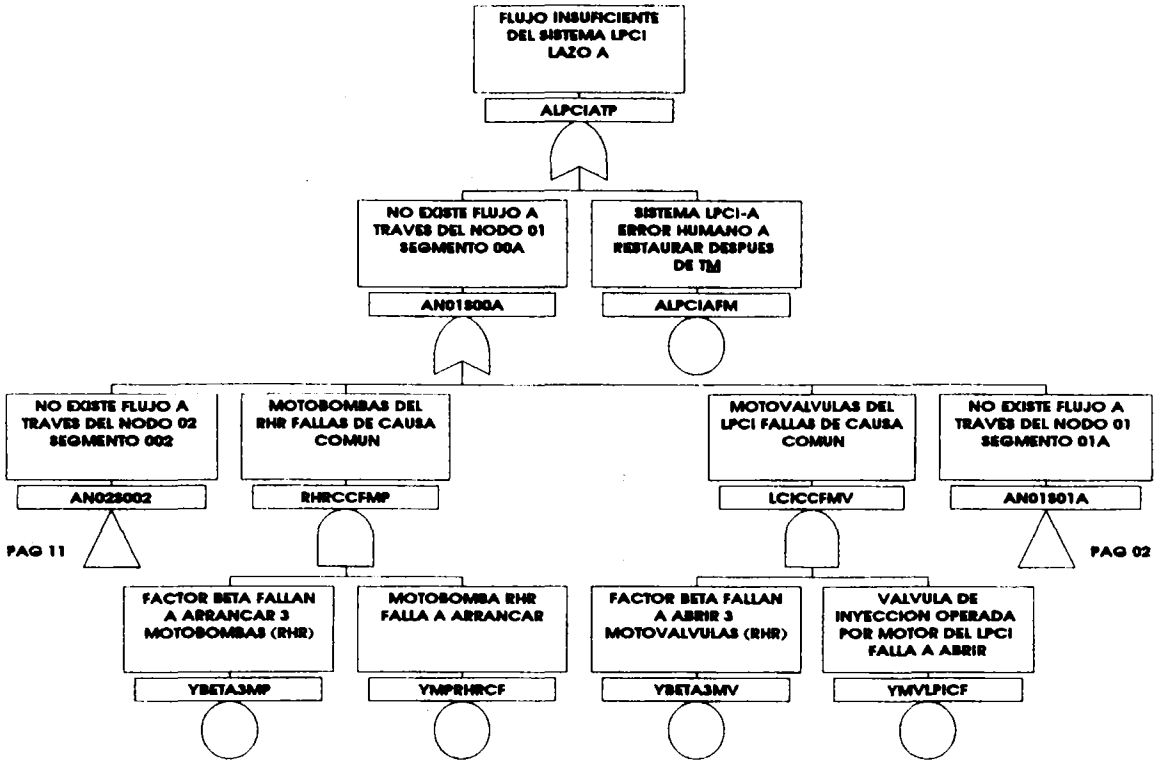


SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 19

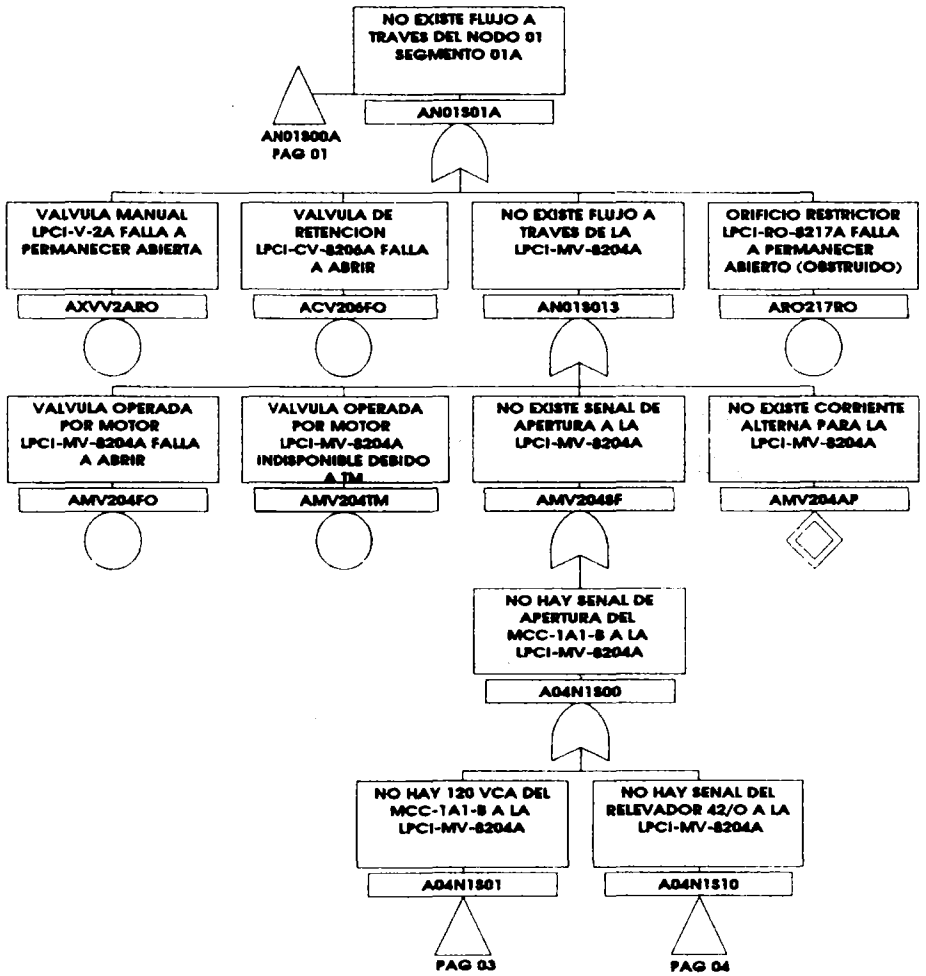


SISTEMA DE ASPERSION DEL NUCLEO A BAJA PRESION (LPCS)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 20**

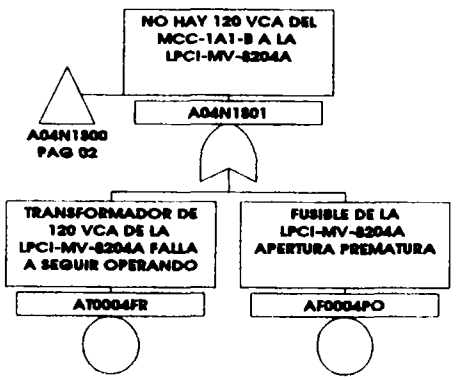
FIGURA B-4. ARBOL DE FALLAS DEL SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A (LPCI-A).



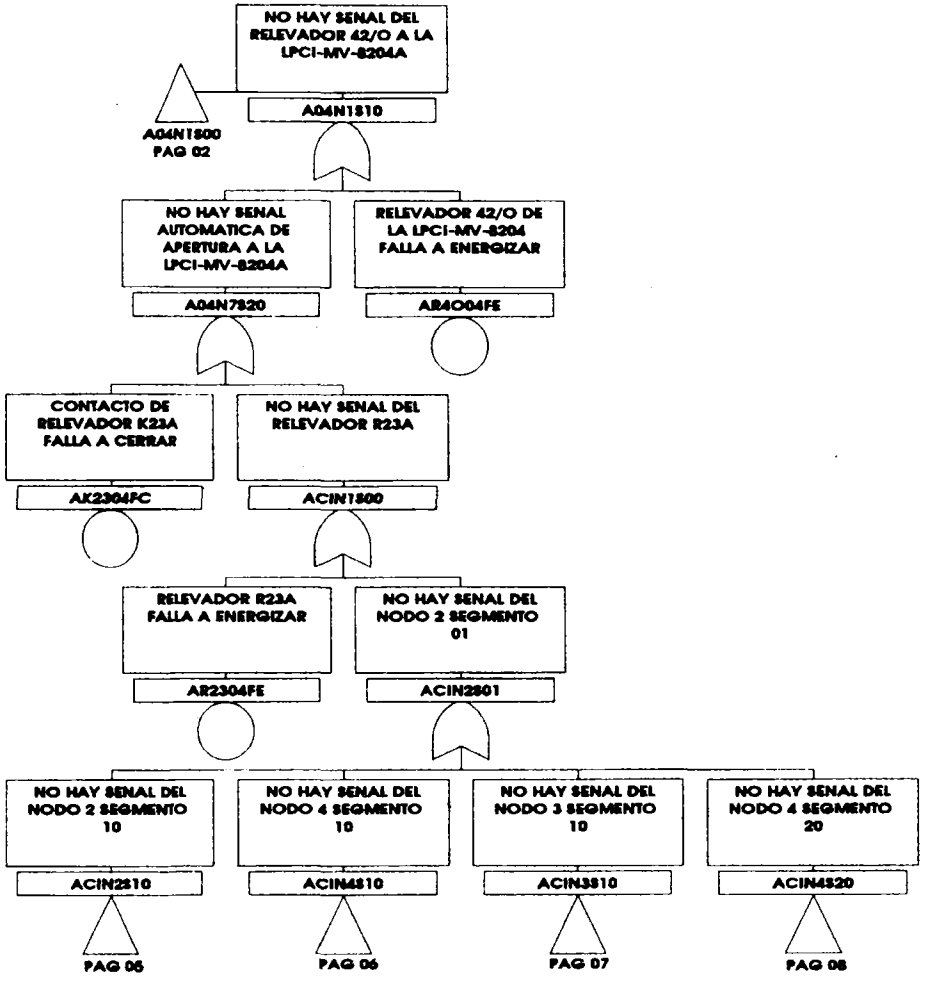
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A (LPCI-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 01**



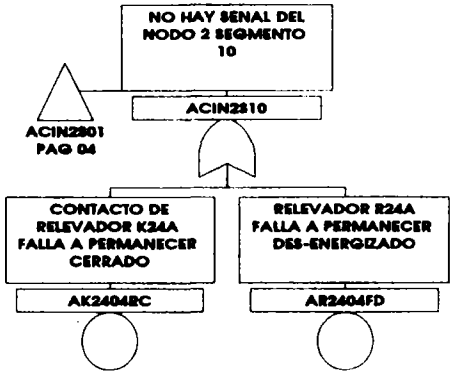
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A (LPCI-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02



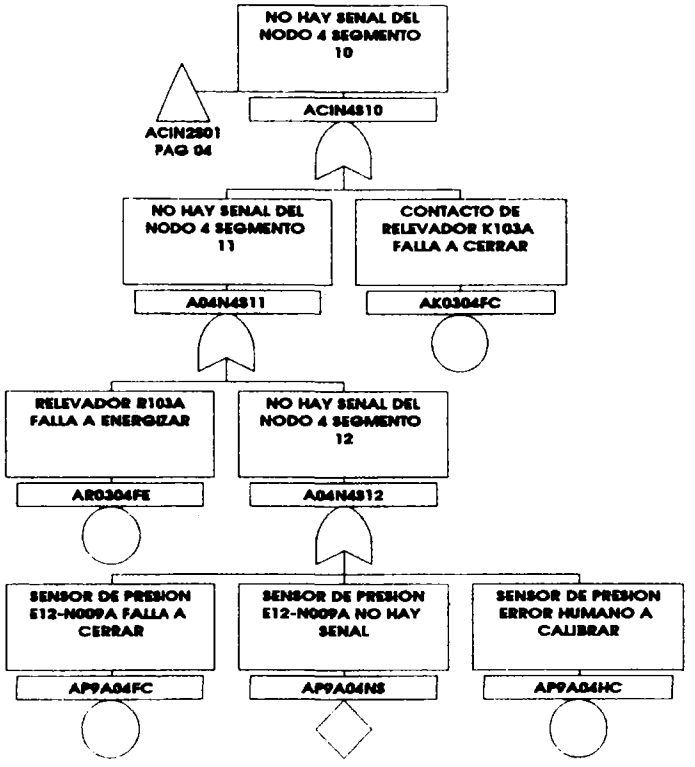
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A (LPCI-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 03**



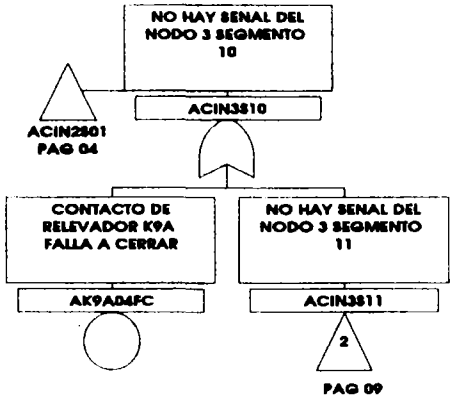
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A (LPCI-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04



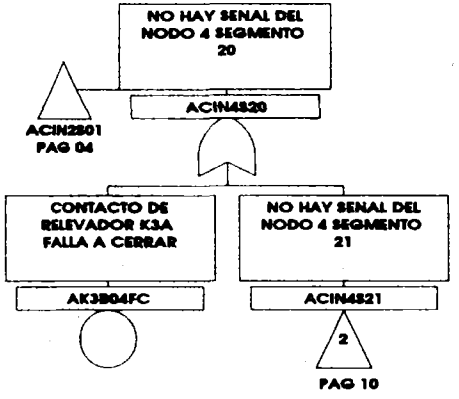
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A (LPCI-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 05**



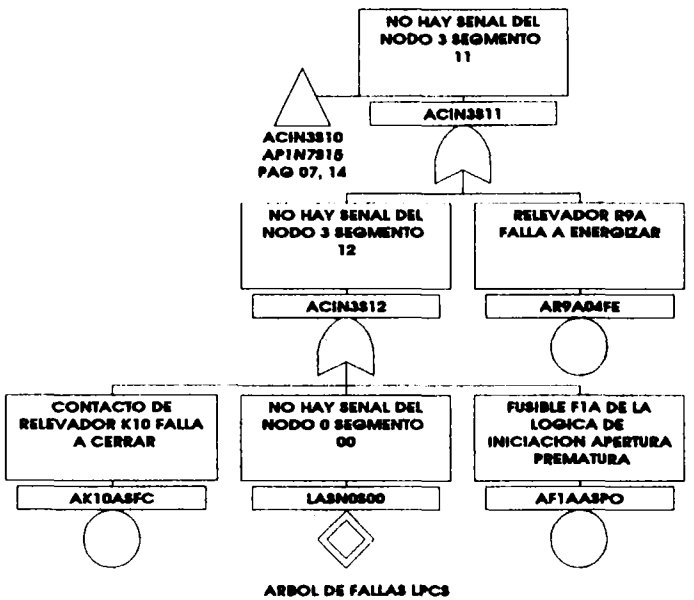
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZP A (LPCI-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 06**



SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A (LPCI-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 07**

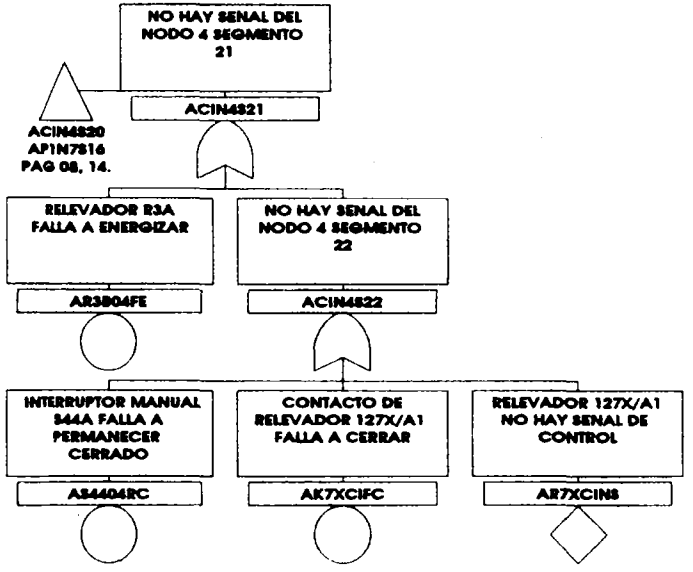


SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A (LPCI-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 08**

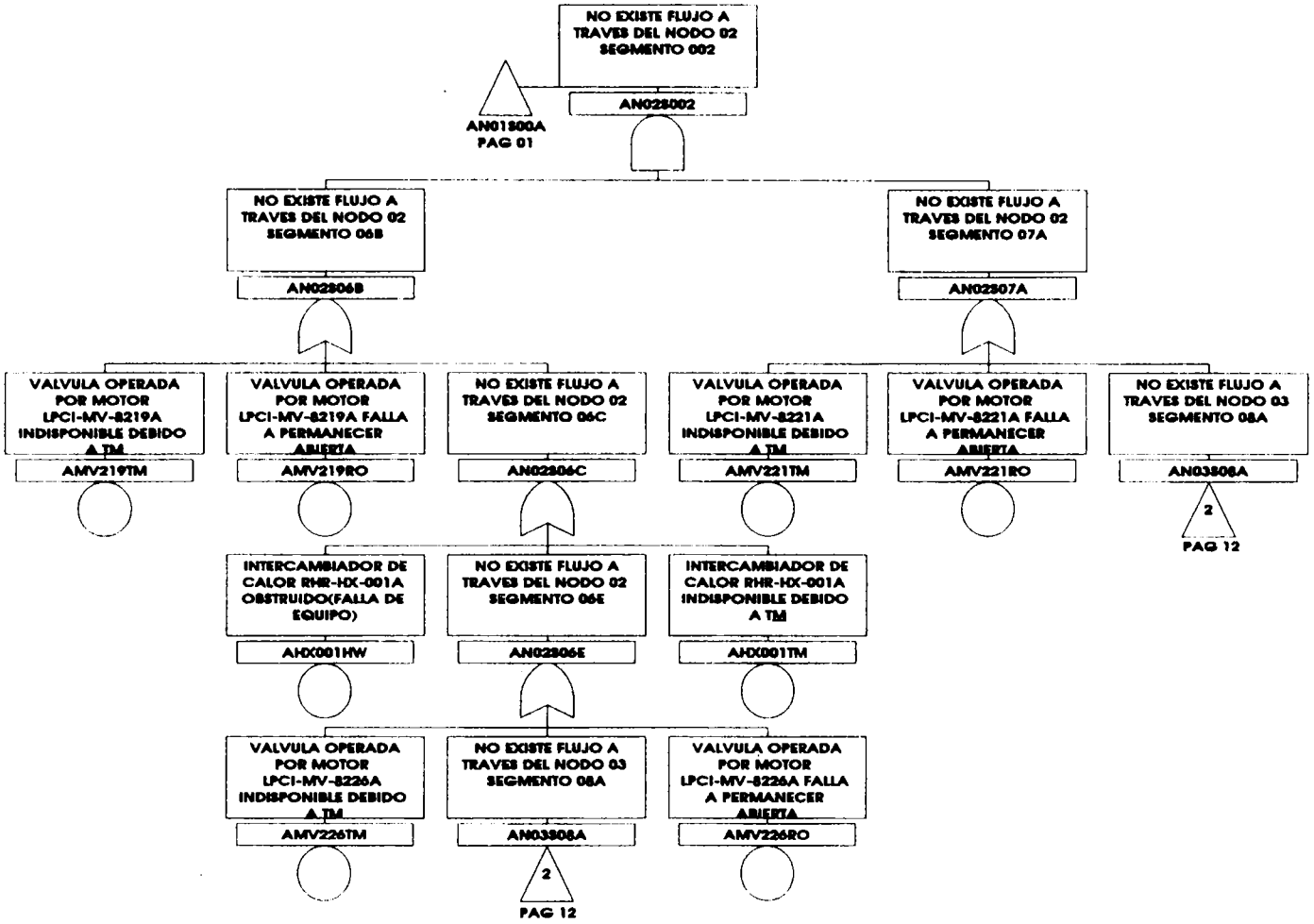


ARBOL DE FALLAS LPCS

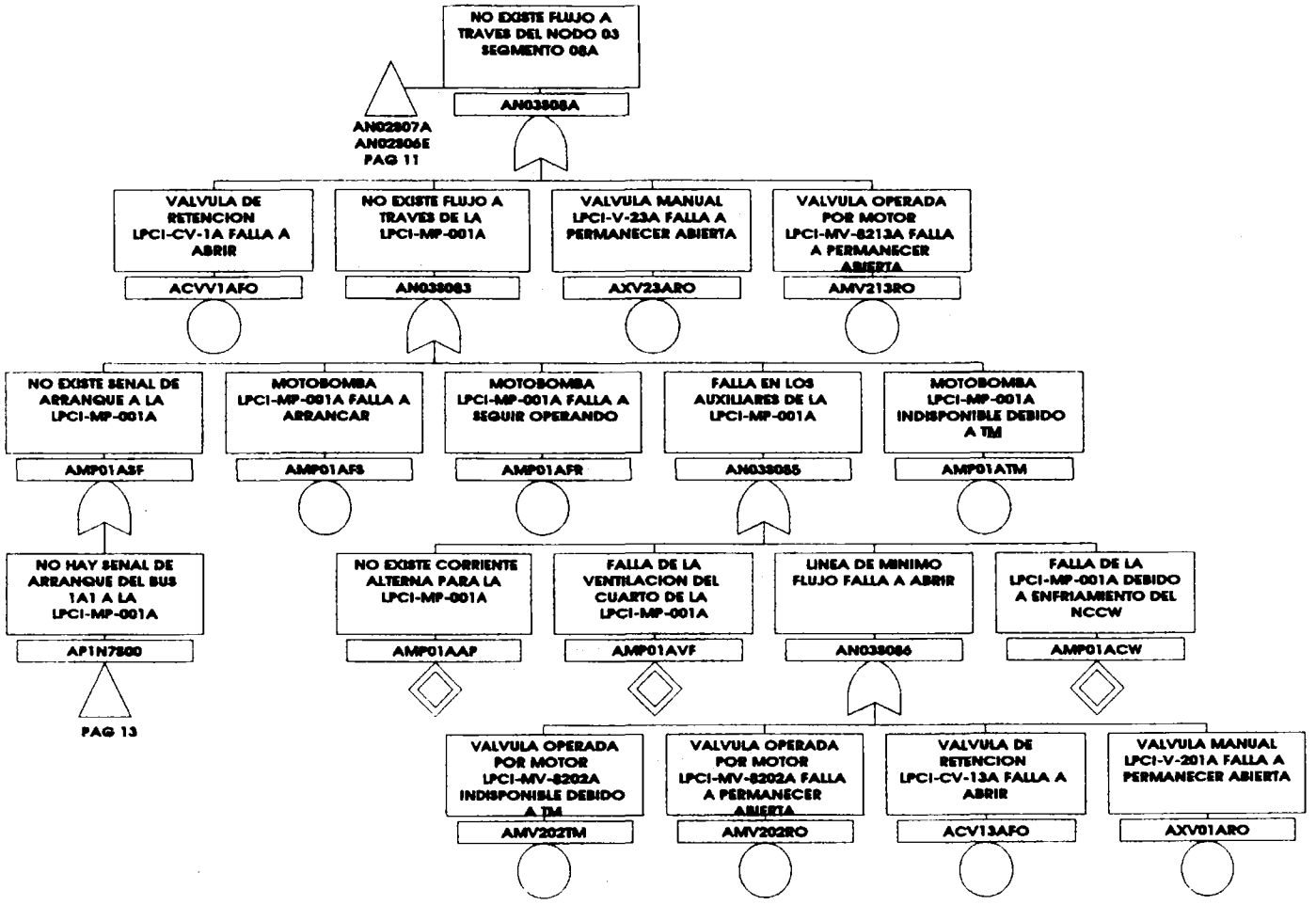
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A (LPCI-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09



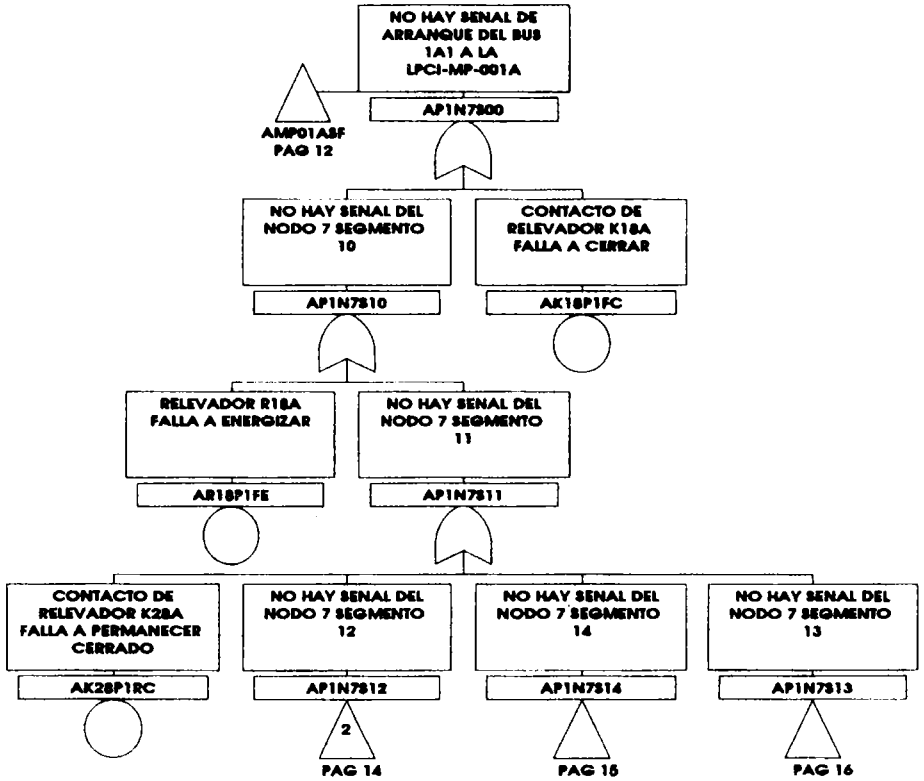
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A (LPCI-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 10



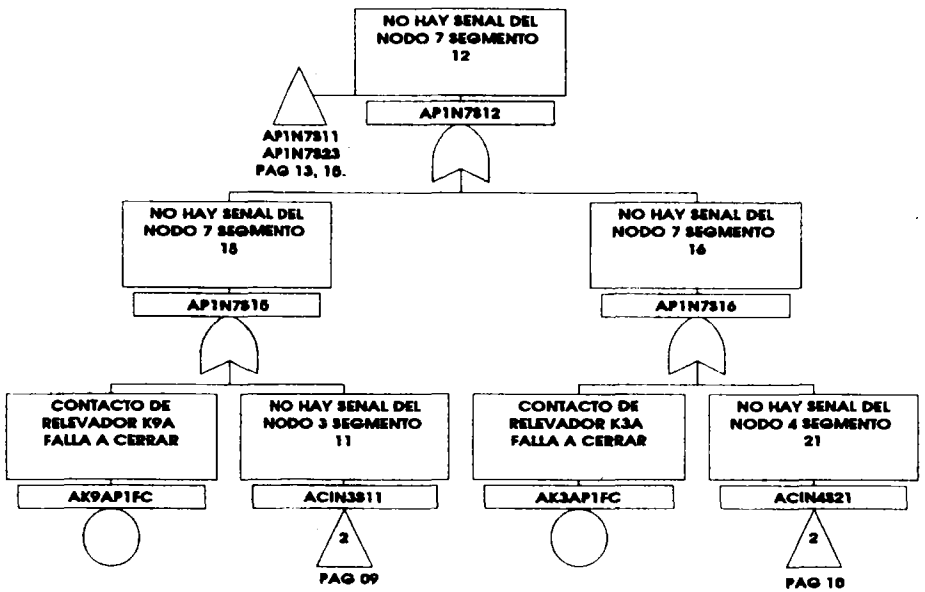
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A (LPCI-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 11



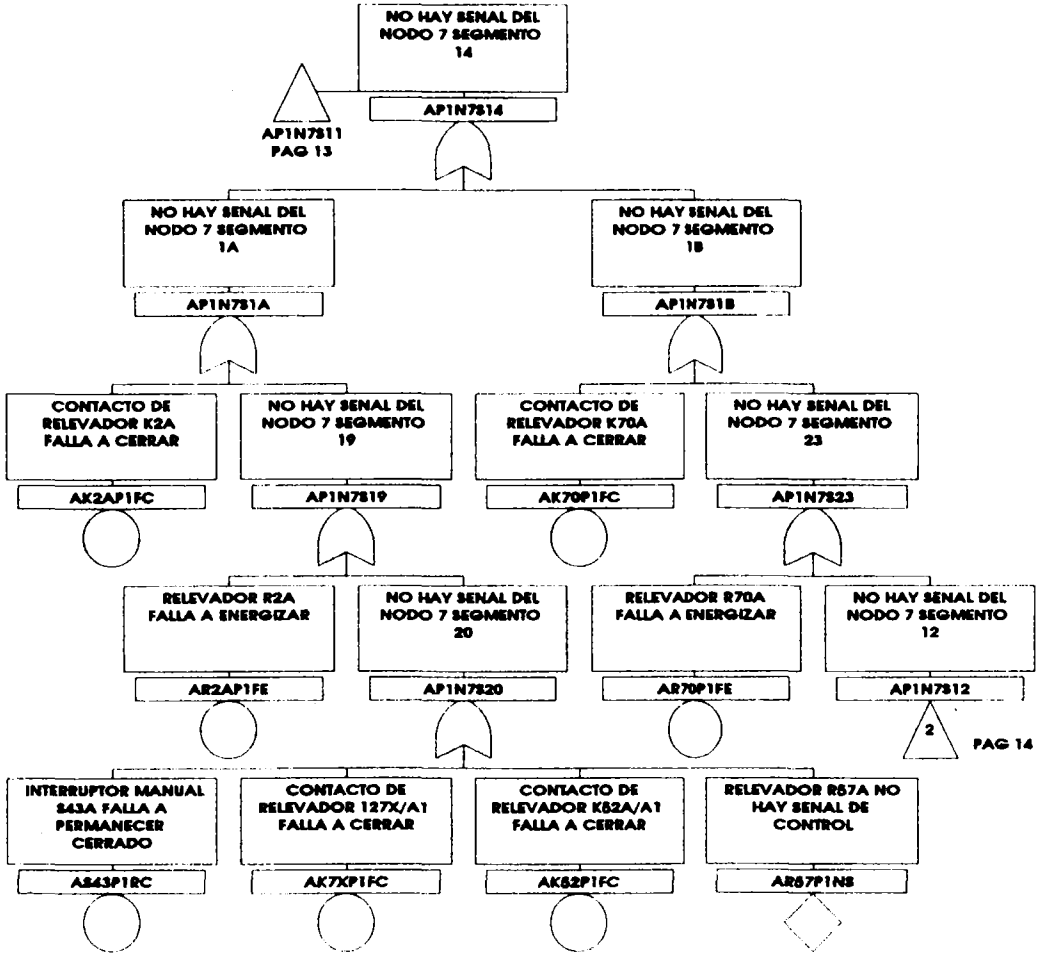
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A(LPCI-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 12



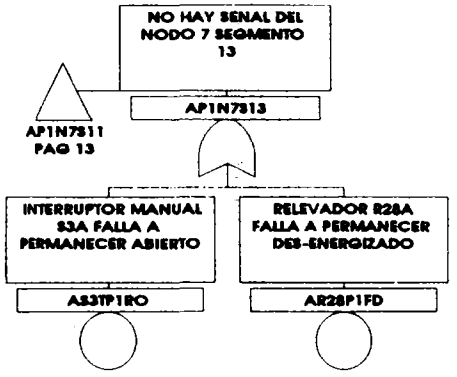
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A (LPCI-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 13**



SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A (LPCI-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 14

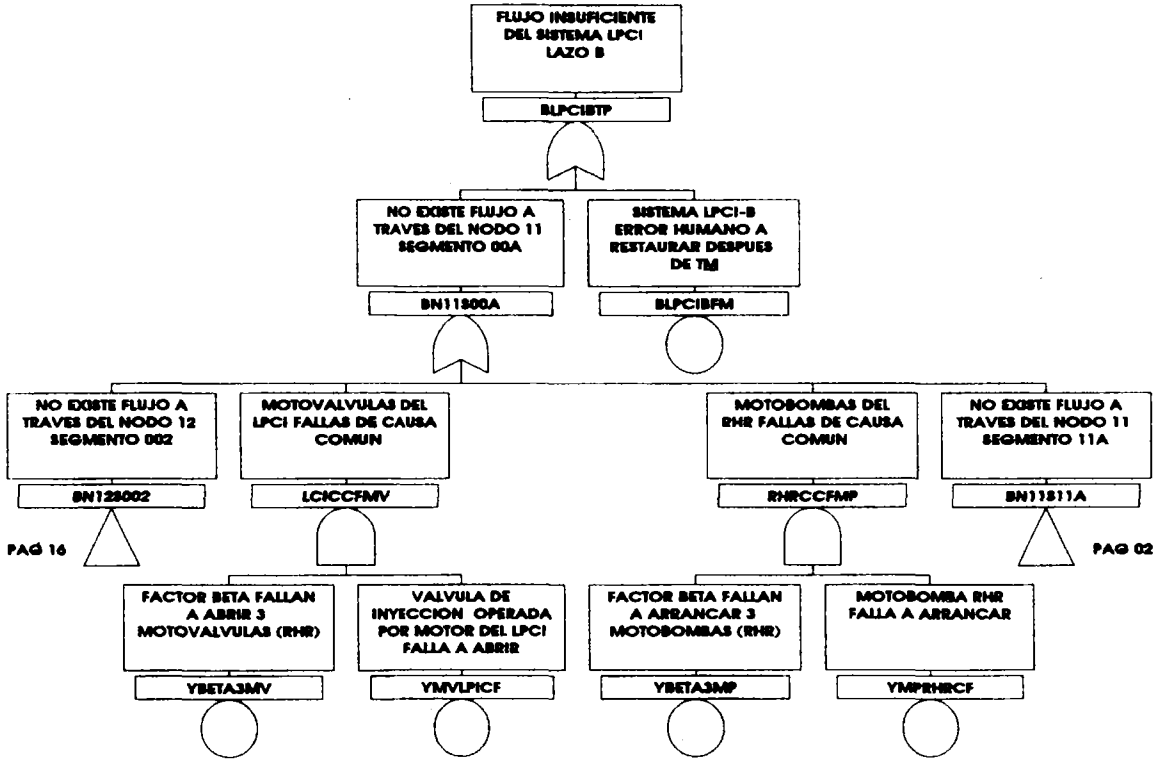


SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A (LPCI-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 15

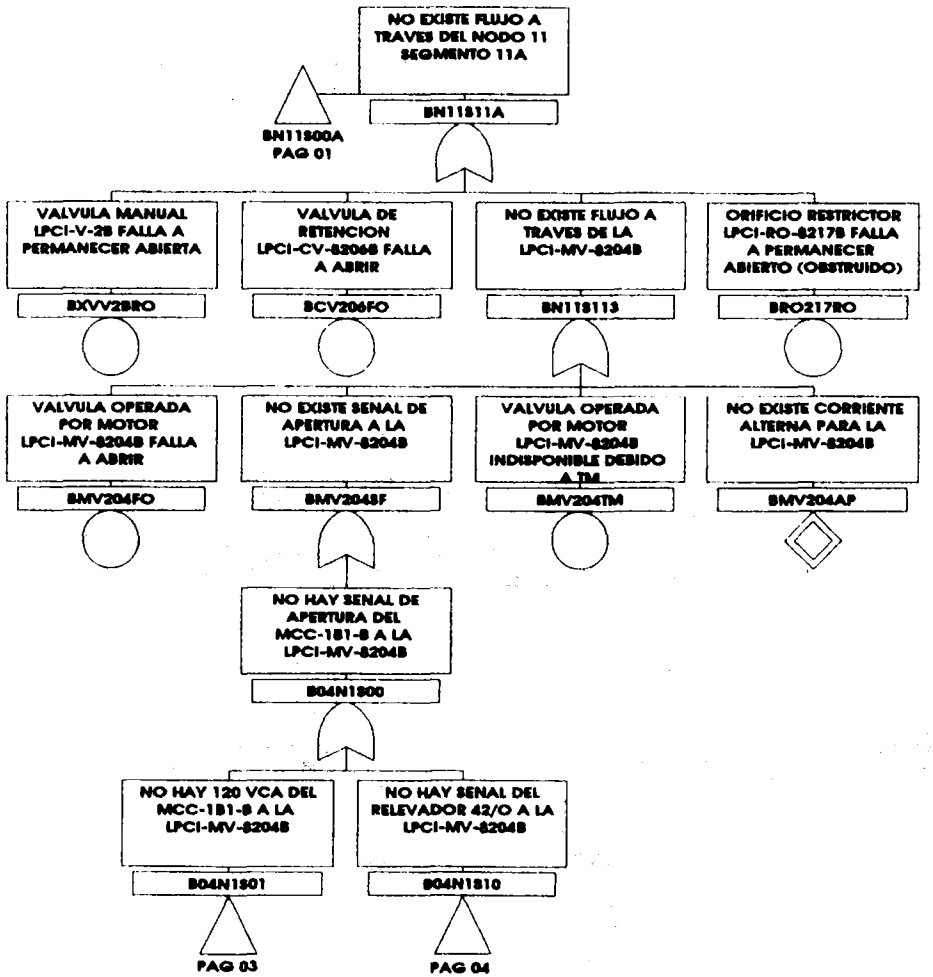


SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO A (LPCI-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 16**

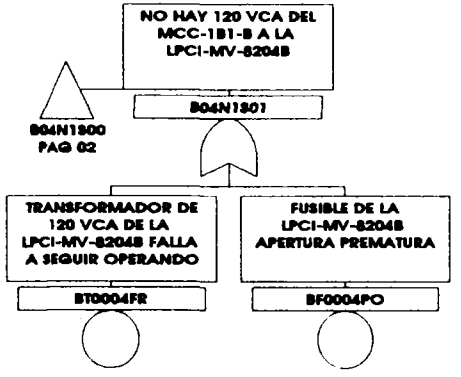
FIGURA B-5. ARBOL DE FALLAS DEL SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B).



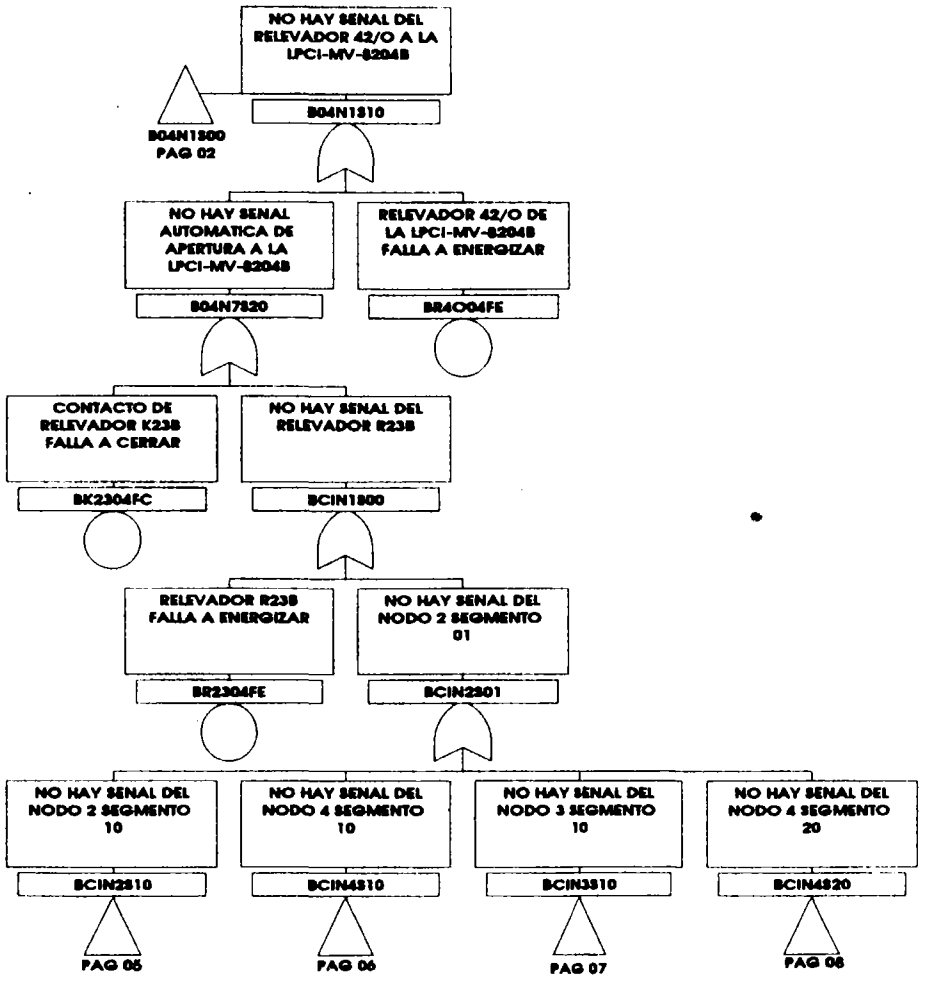
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 01**



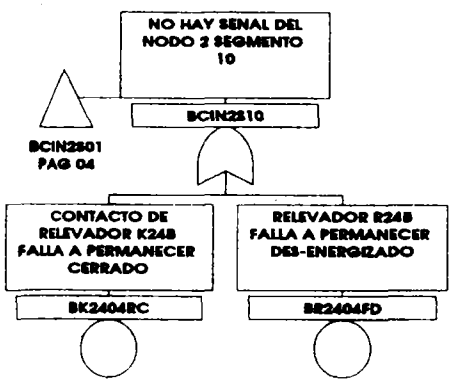
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 02**



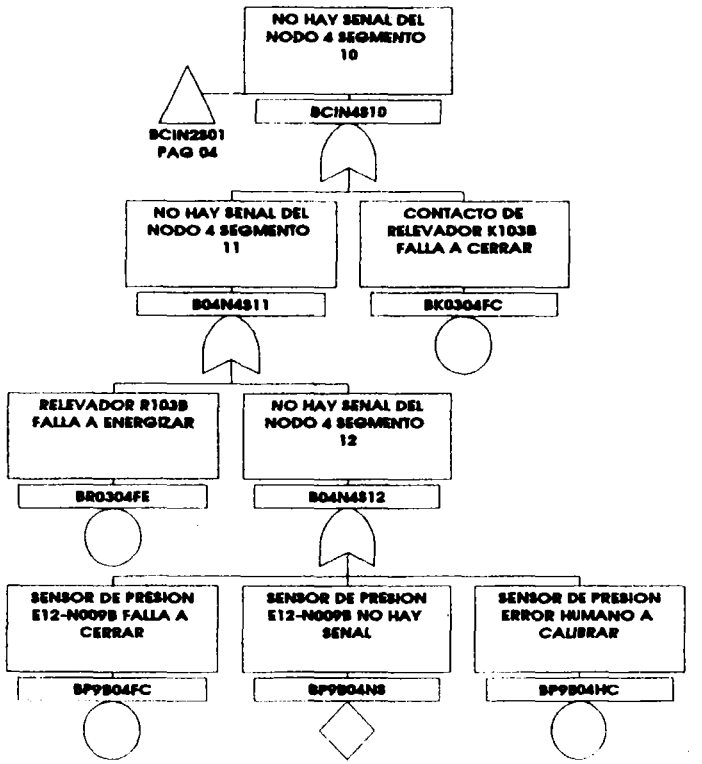
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 03**



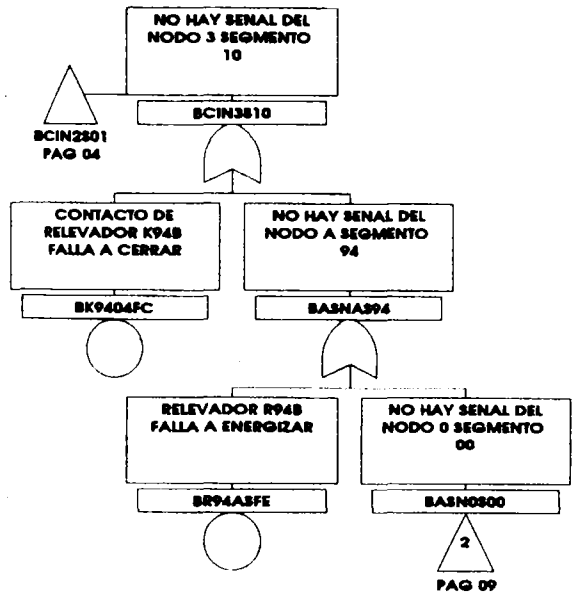
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04



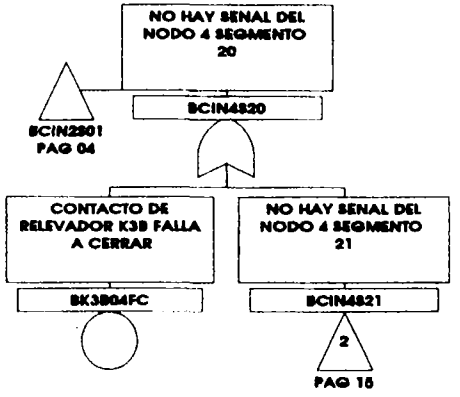
SISTEMA DE INYECCION DEL NUCKEO A BAJA PRESION LAZO B (LPCI-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 05**



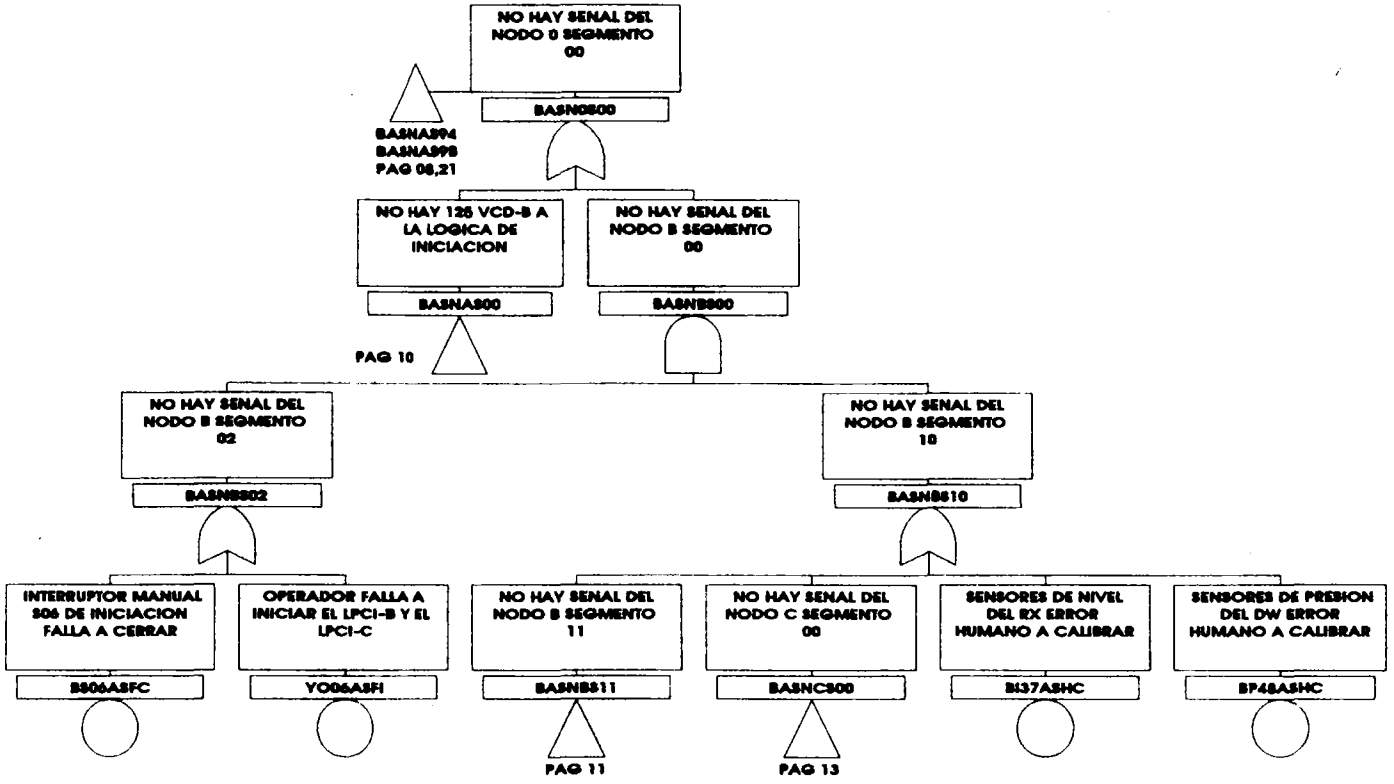
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPC-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 06**



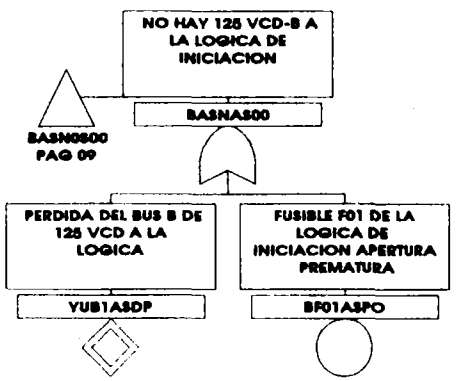
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPC-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 07**



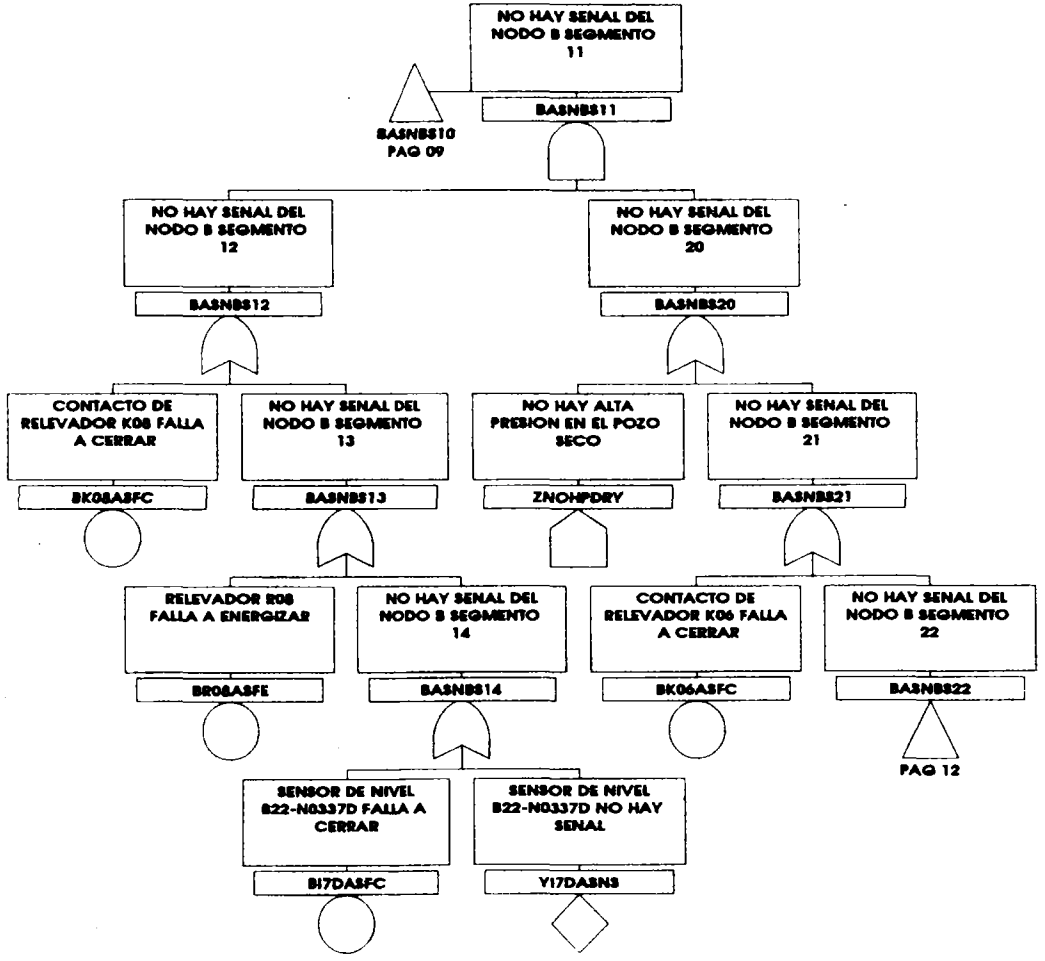
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPC-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 08**



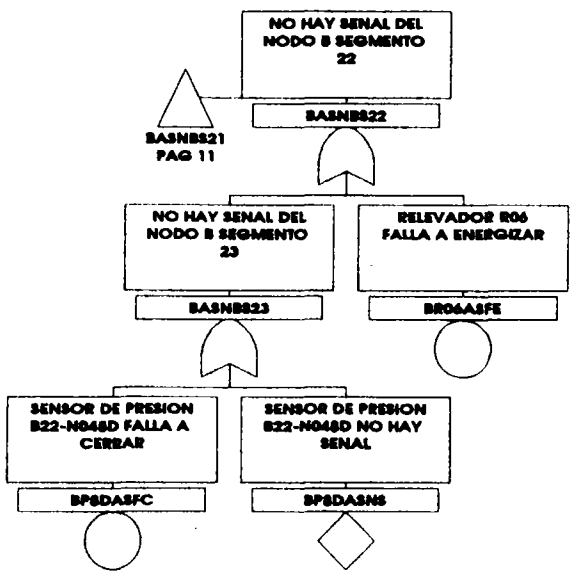
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPC-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09



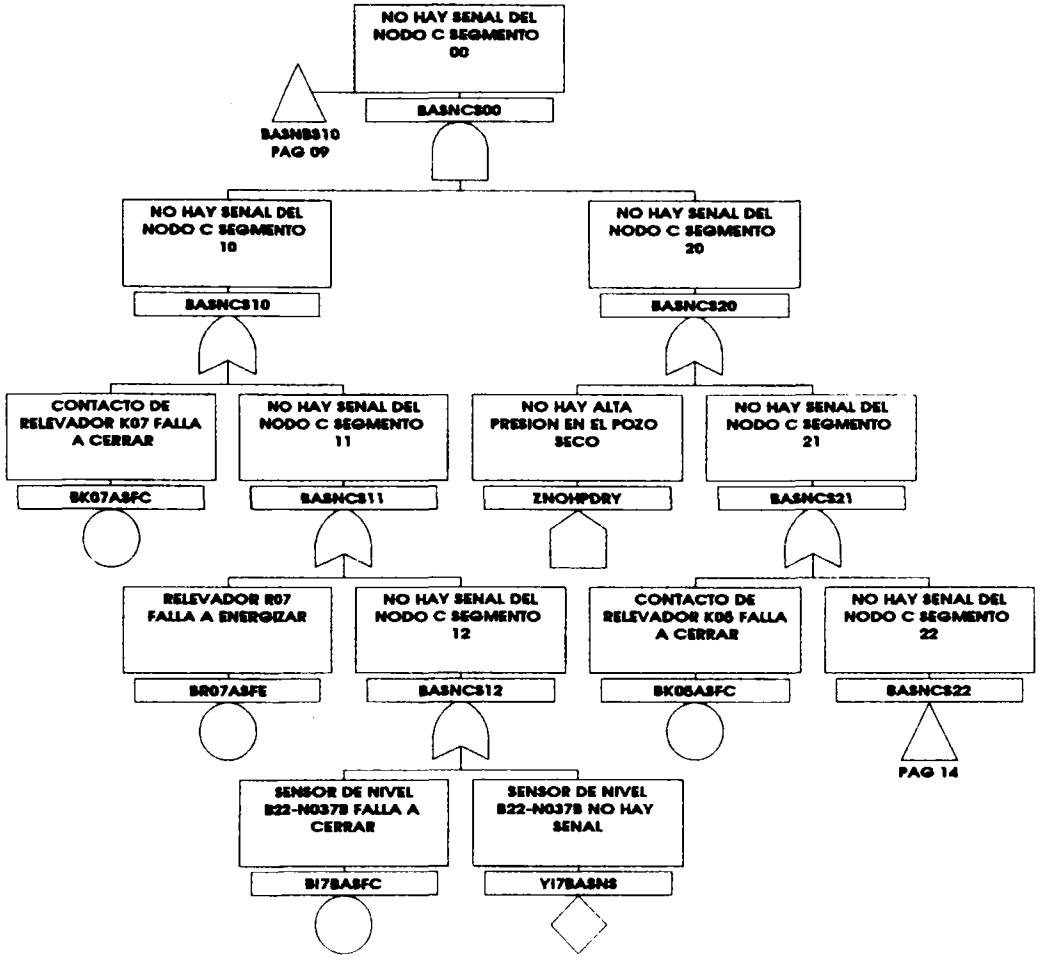
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 10**



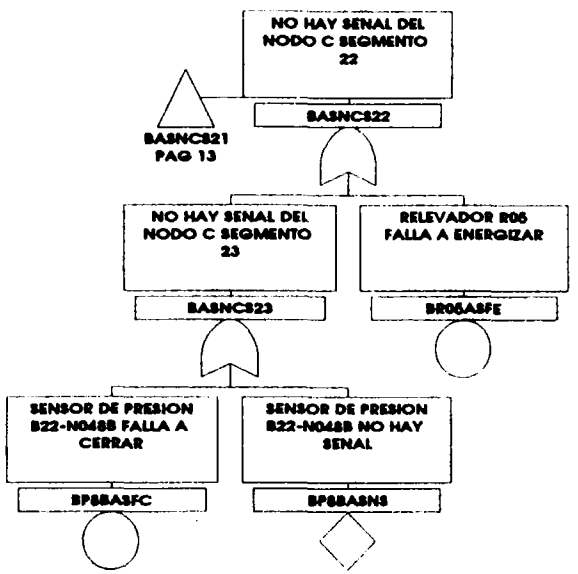
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 11**



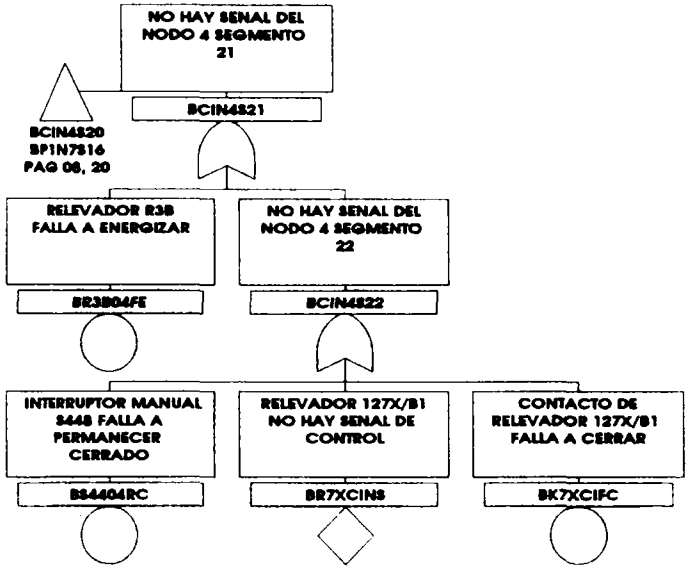
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 12**



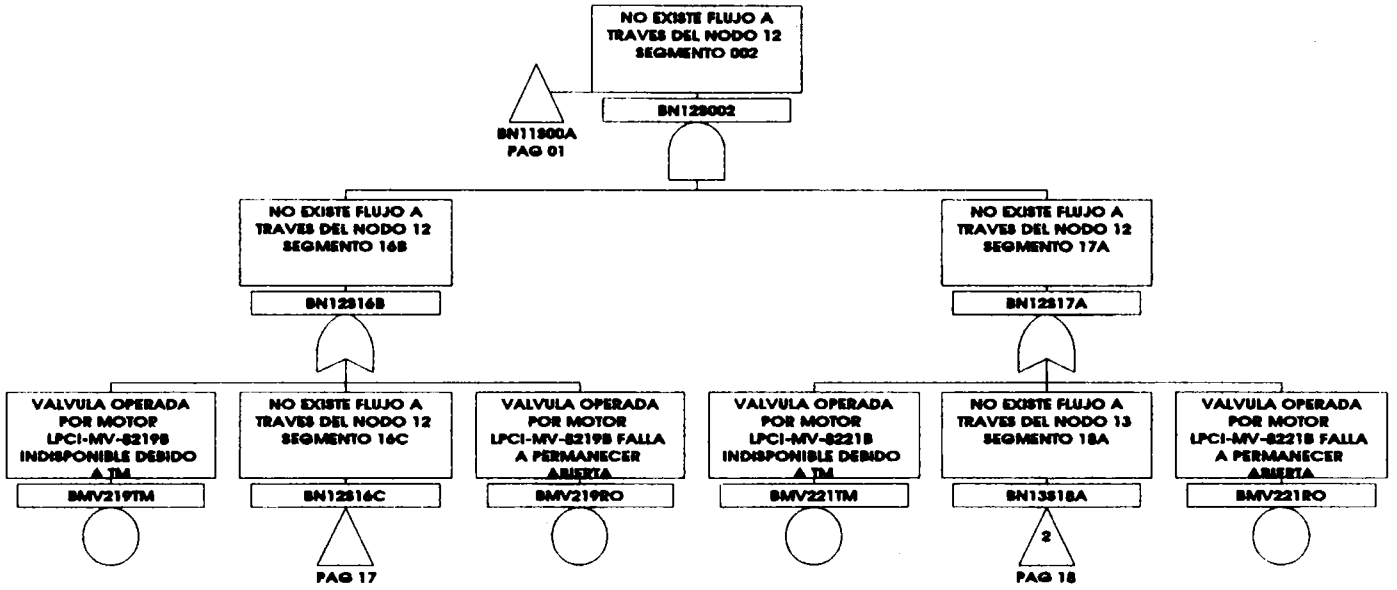
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPC-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 13**



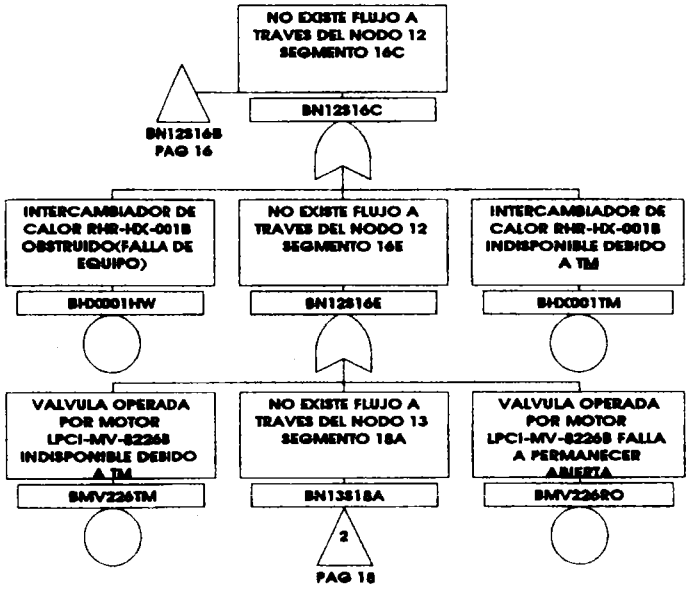
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 14



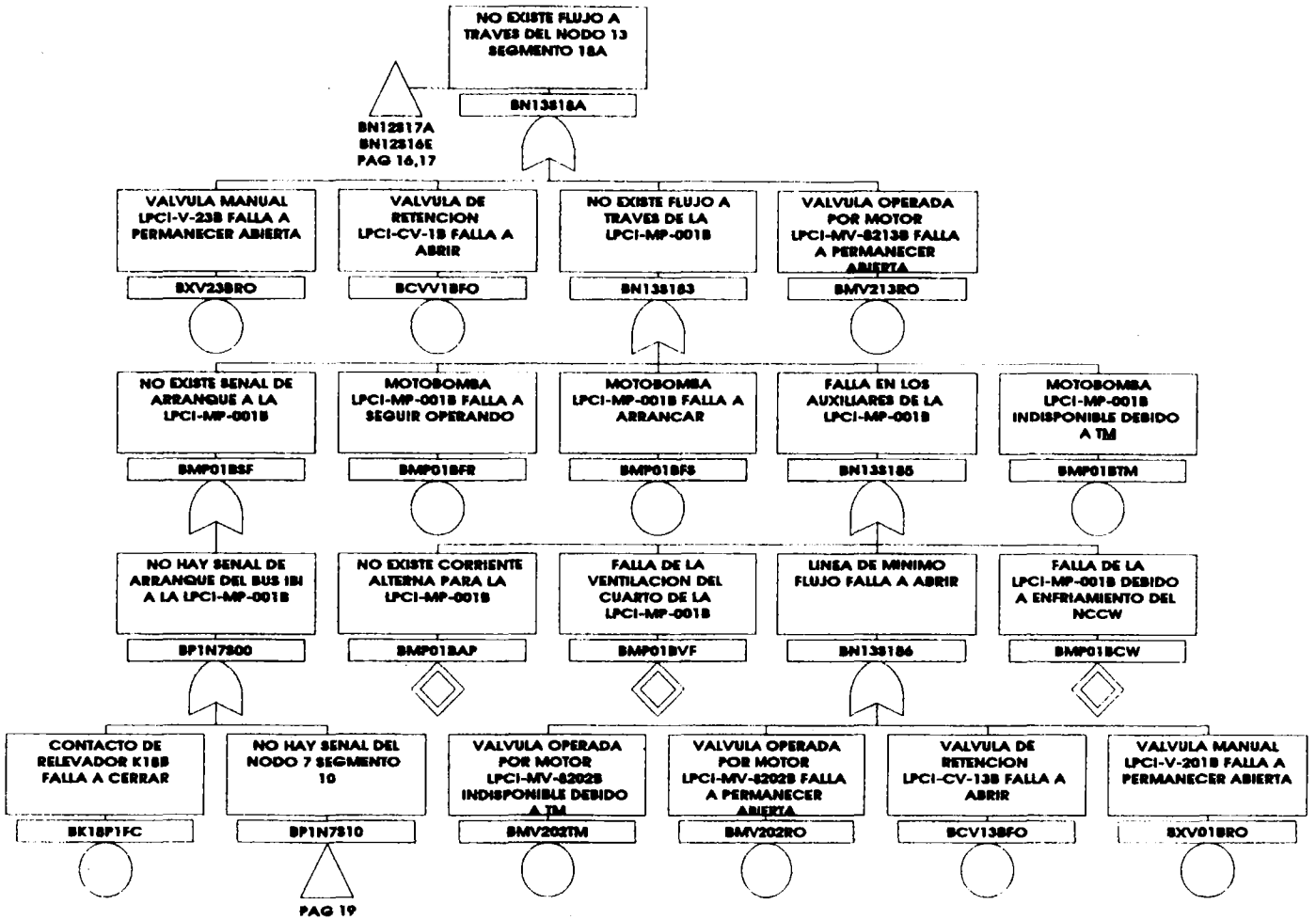
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 15**



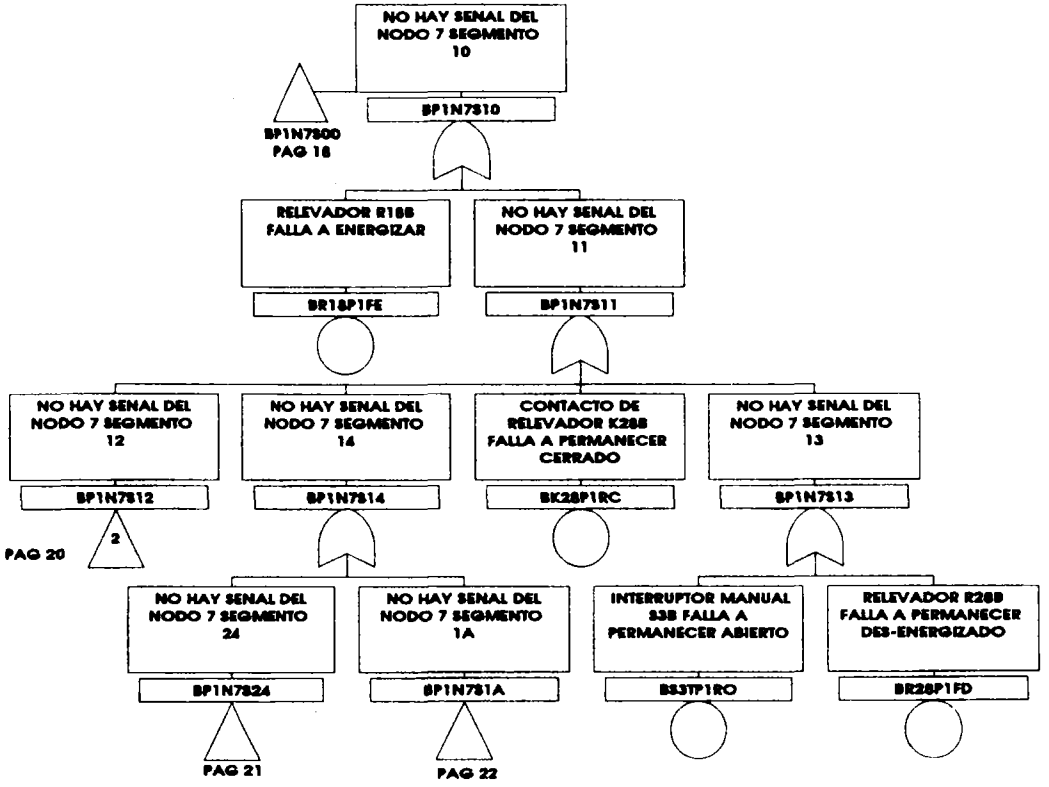
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 16



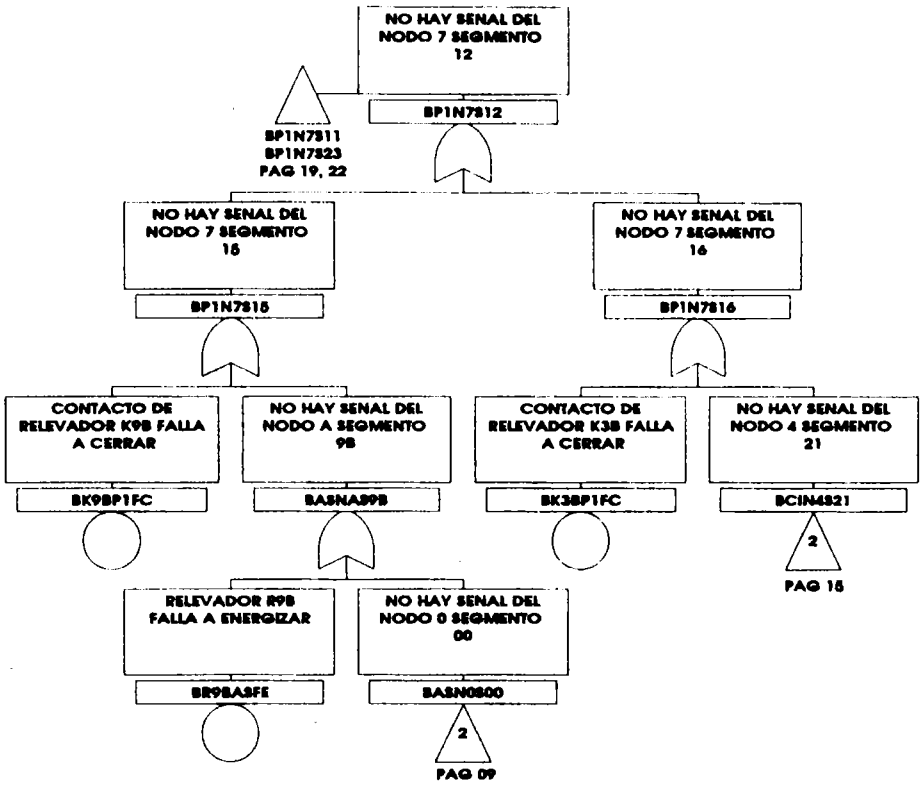
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 17**



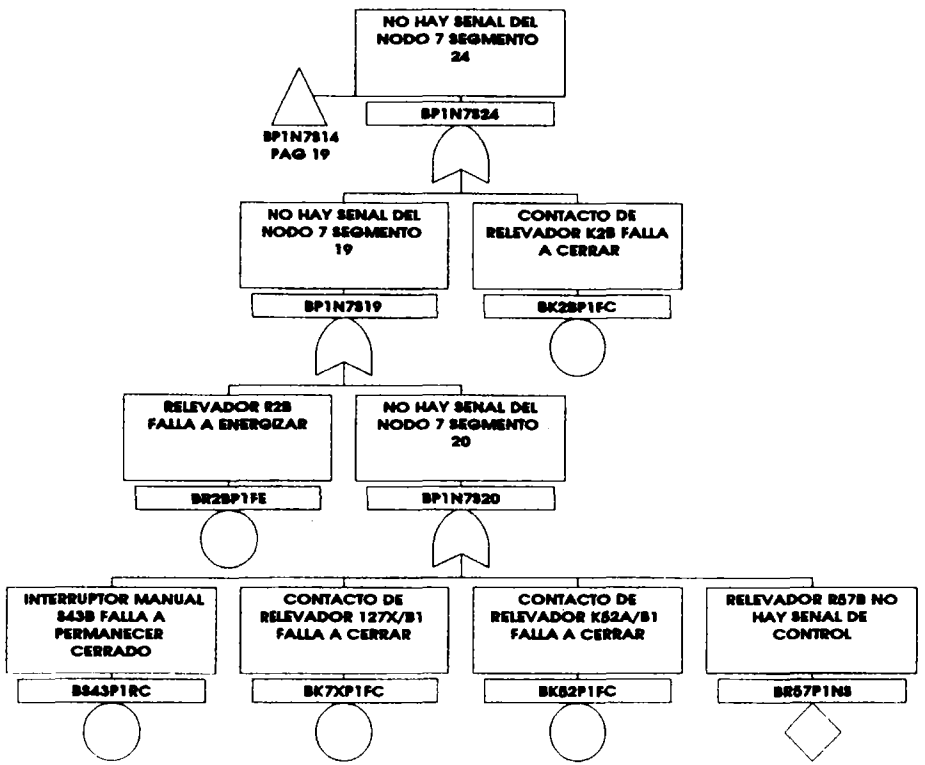
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 18



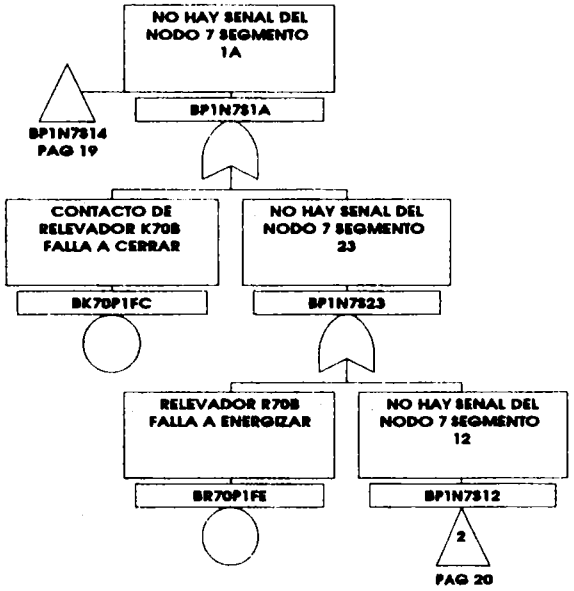
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 19**



SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 20**

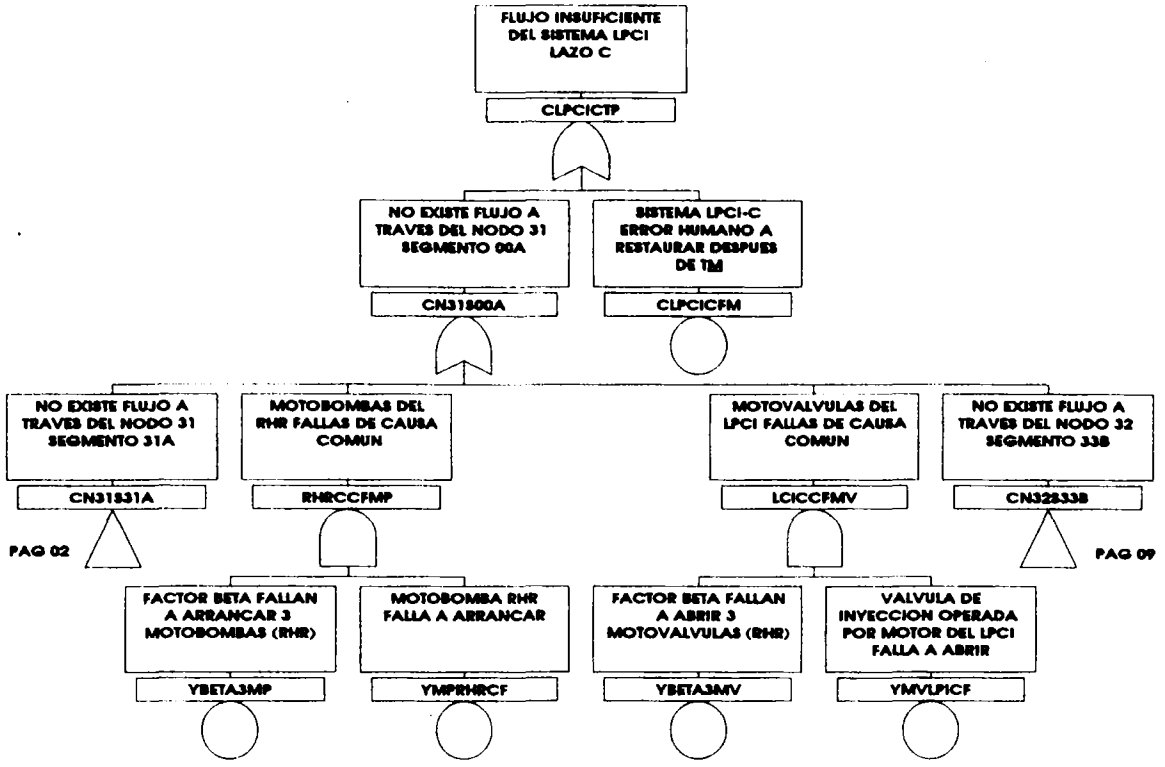


SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 21**

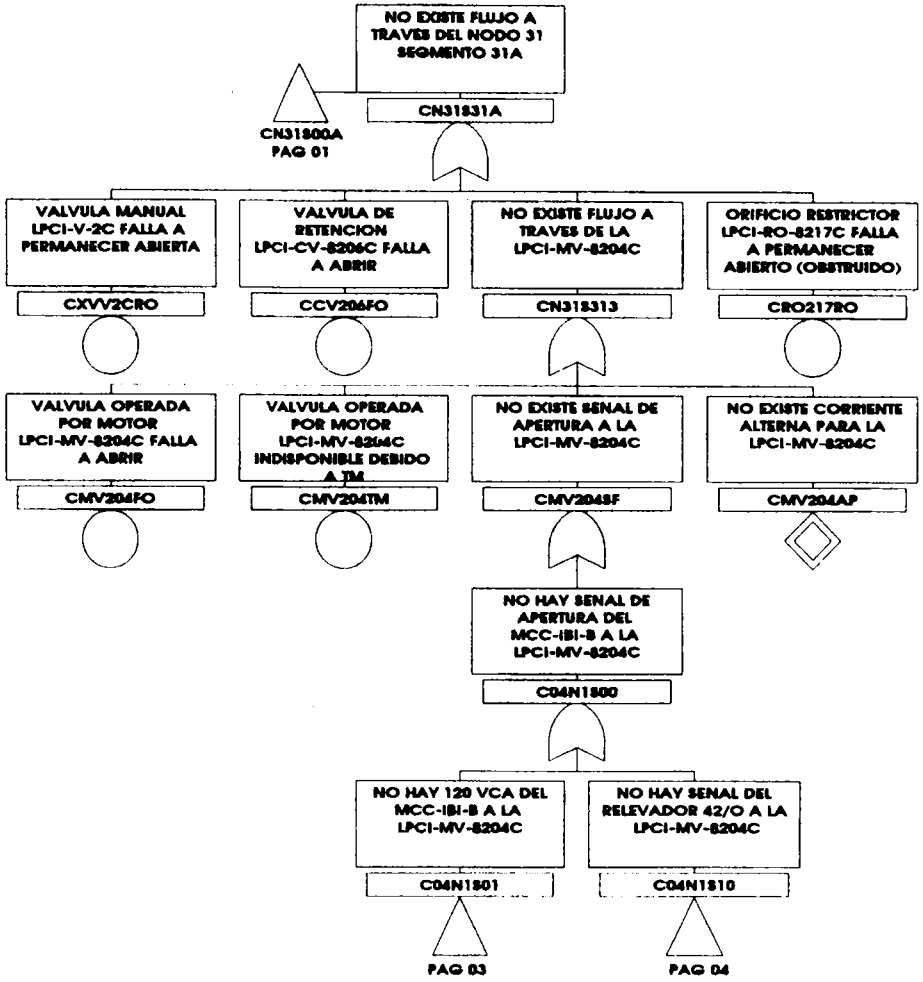


SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO B (LPCI-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 22**

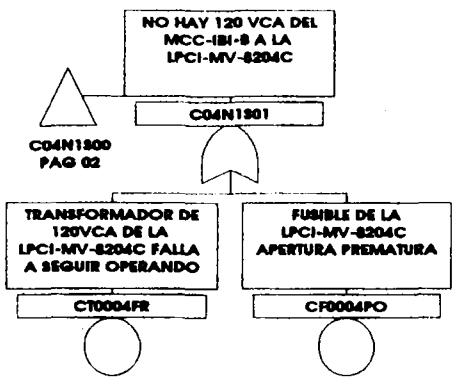
FIGURA B-6. ARBOL DE FALLAS DEL SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO C (LPCI-C).



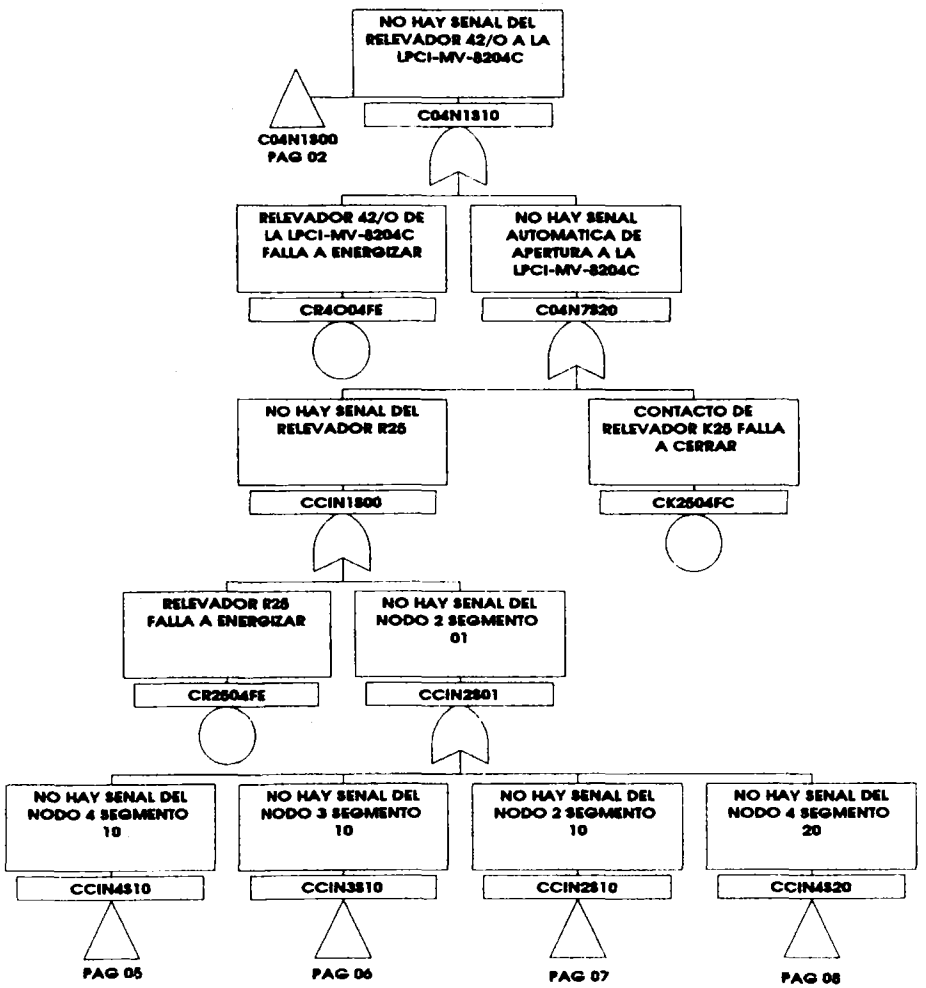
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO C (LPCI-C)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 01**



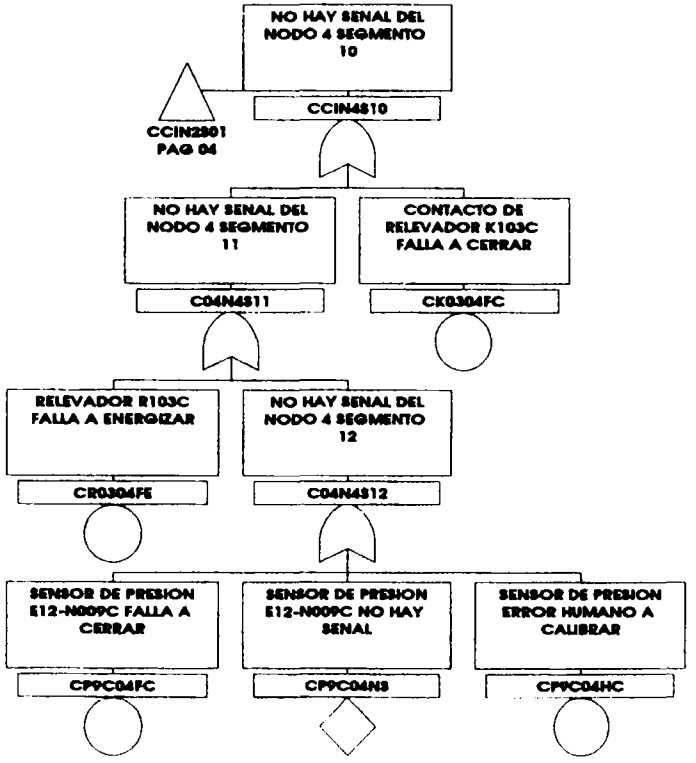
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO C (LPCI-C)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02



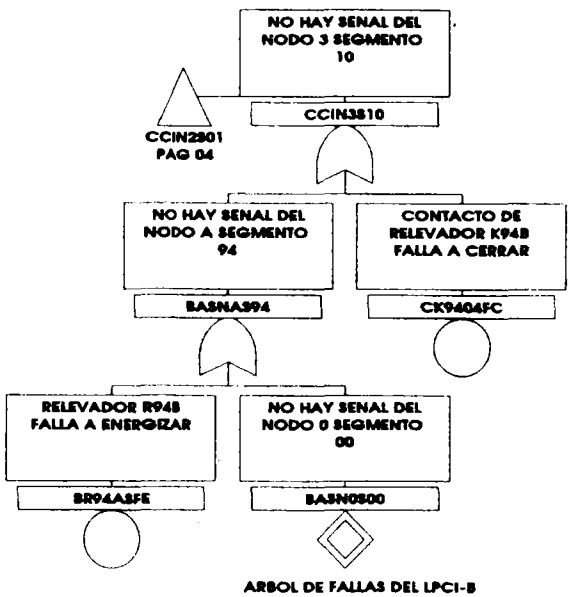
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO C (LPCI-C)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 03**



SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO C (LPCI-C)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04

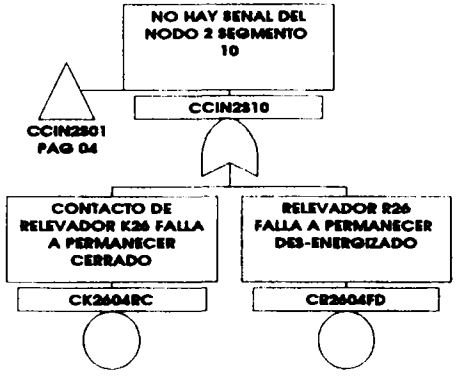


SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO C (LPCI-C)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 05

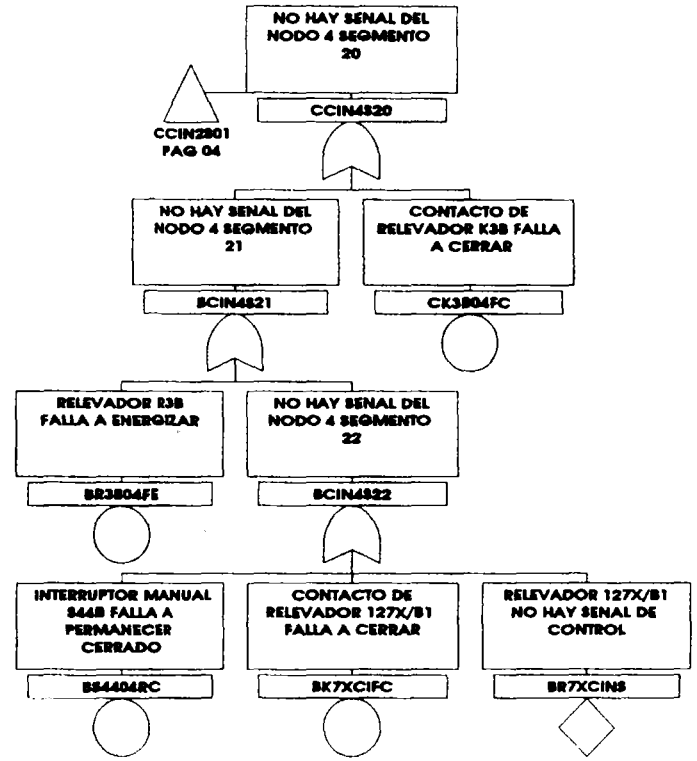


ARBOL DE FALLAS DEL LPCI-B

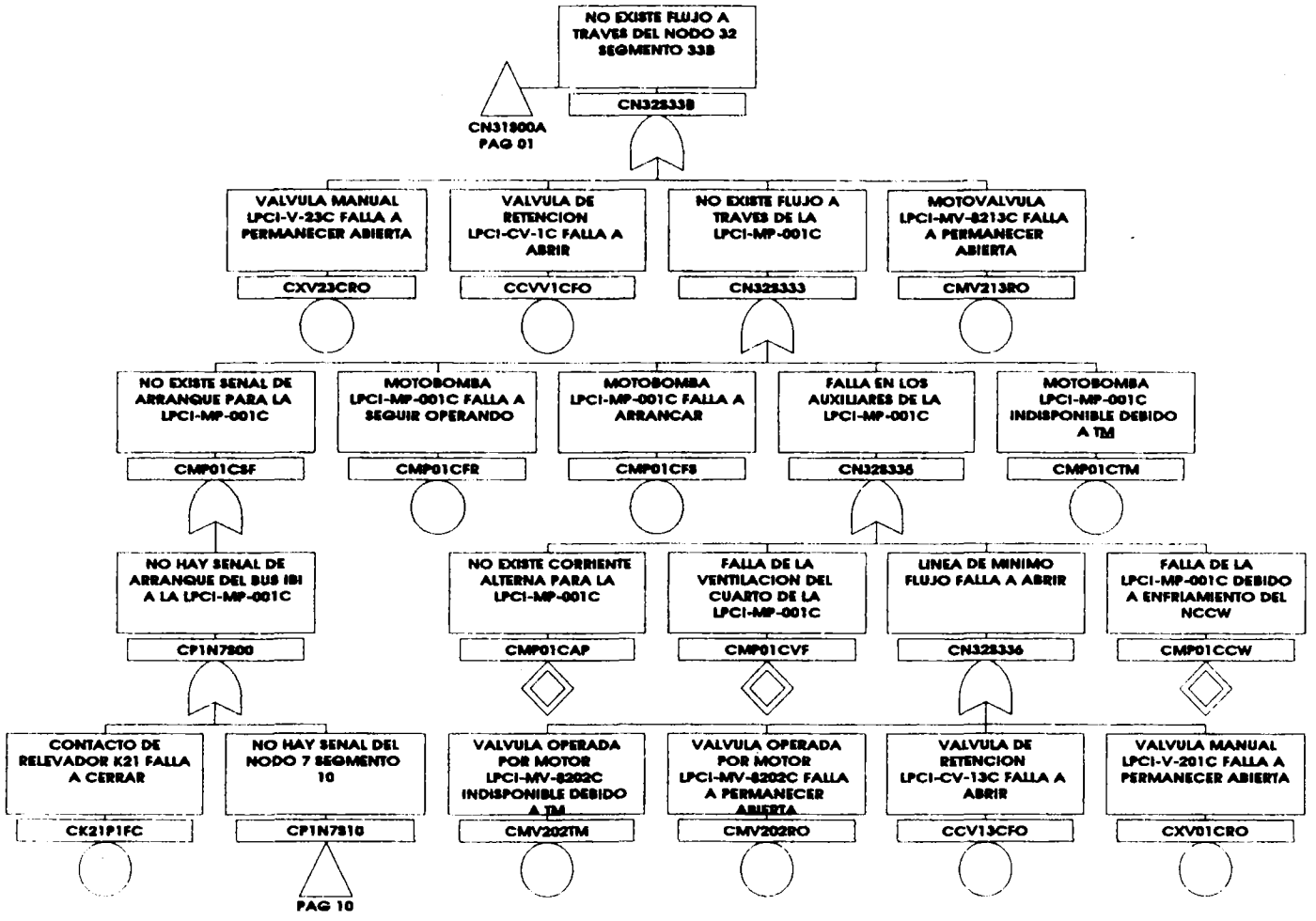
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO C (LPCI-C)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 06**



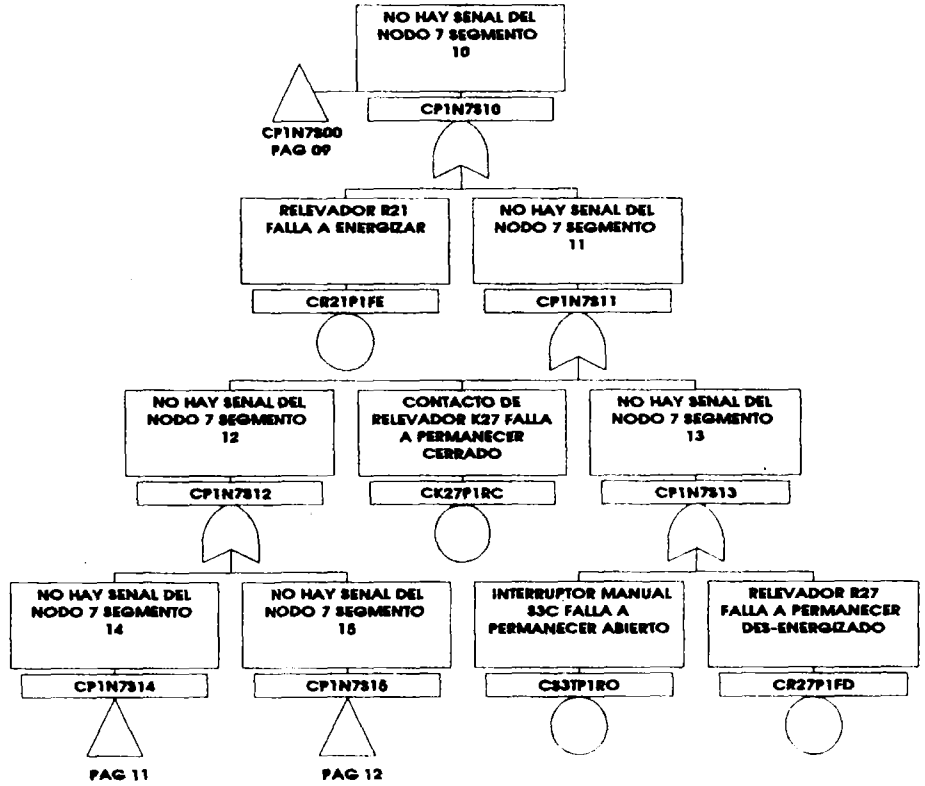
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO C (LPCI-C)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 07**



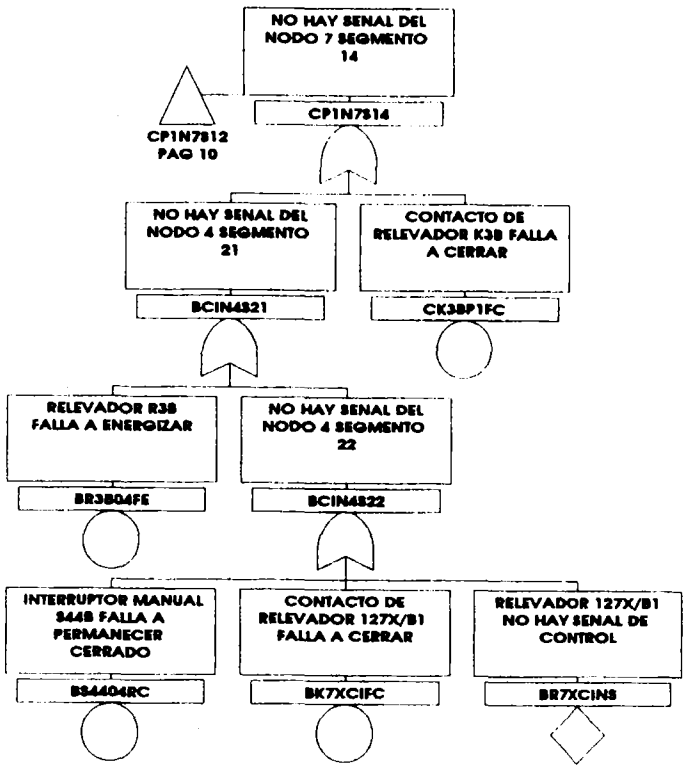
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO C (LPCI-C)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 08**



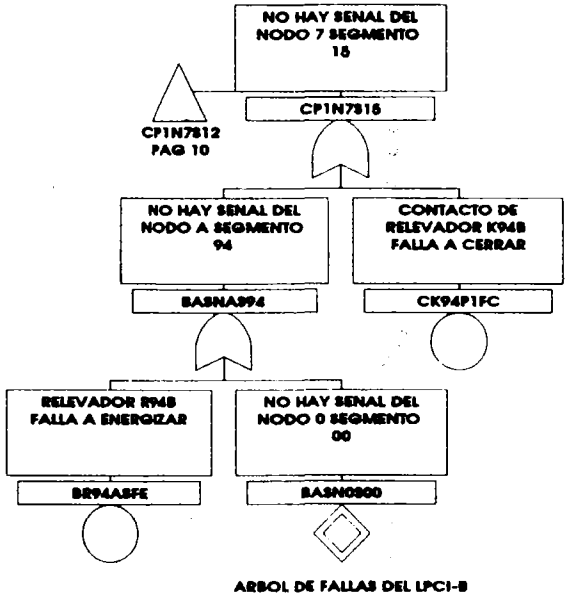
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO C (LPCI-C)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09



SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO C (LPCI-C)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 10



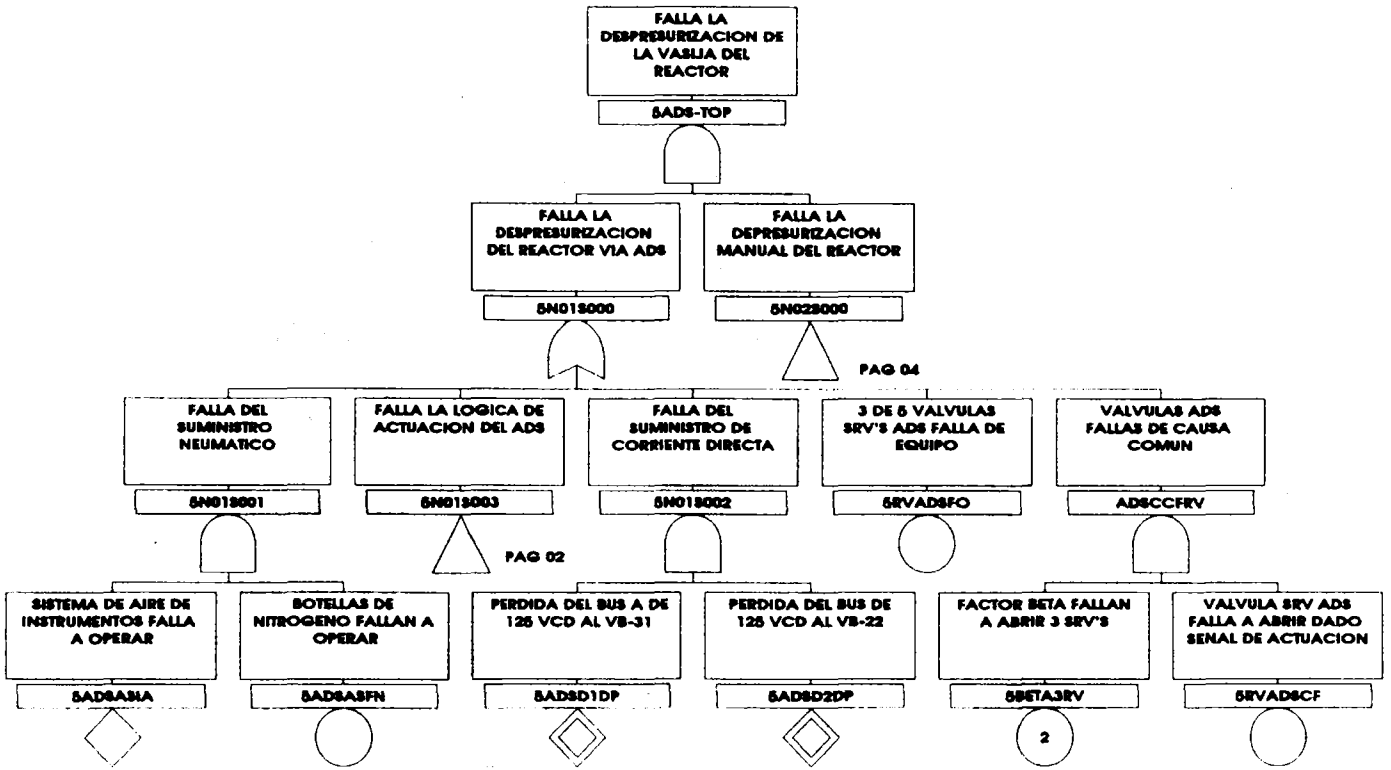
SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO C (LPCI-C)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 11**



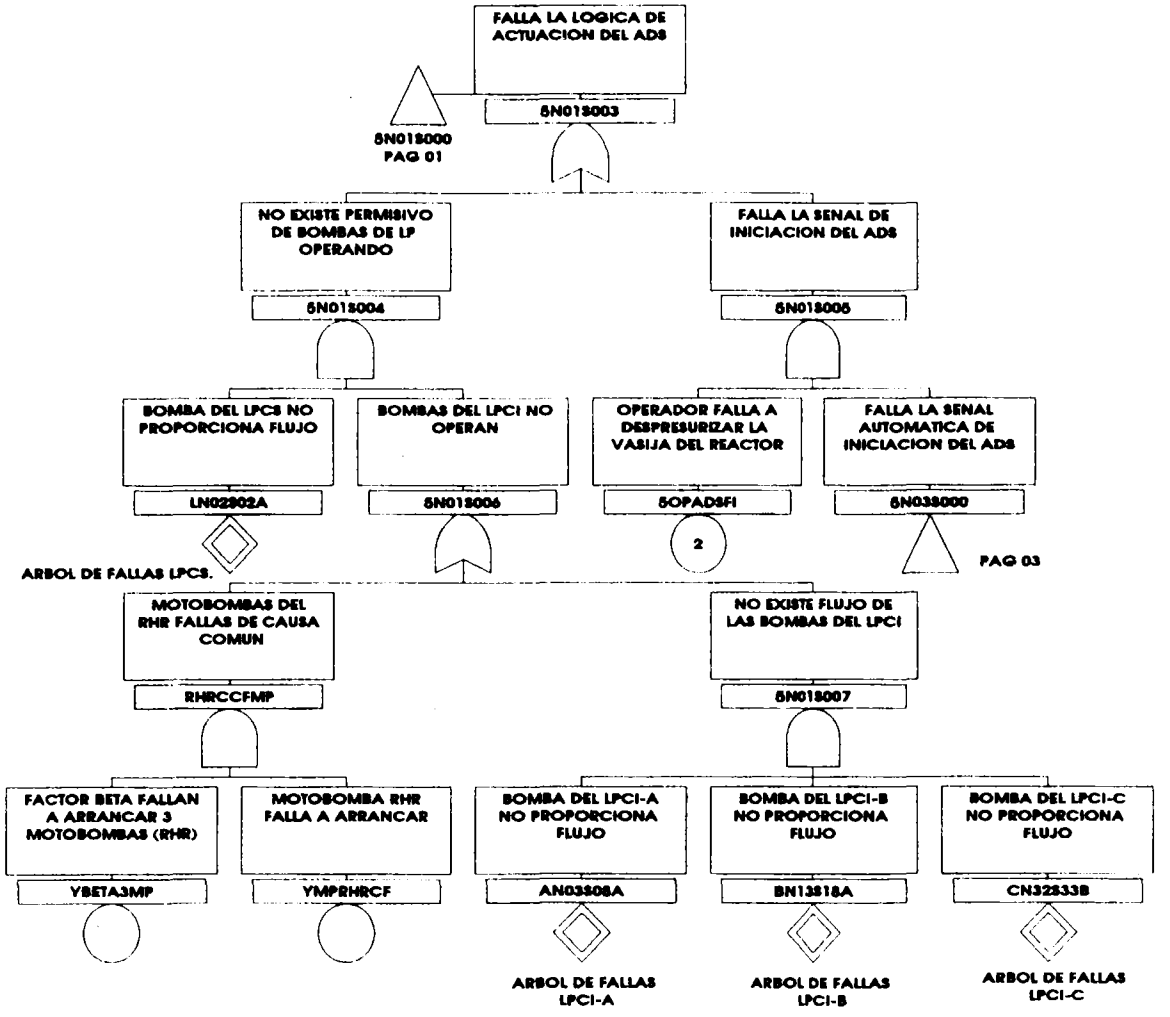
ARBOL DE FALLAS DEL LPCI-B

SISTEMA DE INYECCION DE REFRIGERANTE A BAJA PRESION LAZO C (LPCI-C)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 12

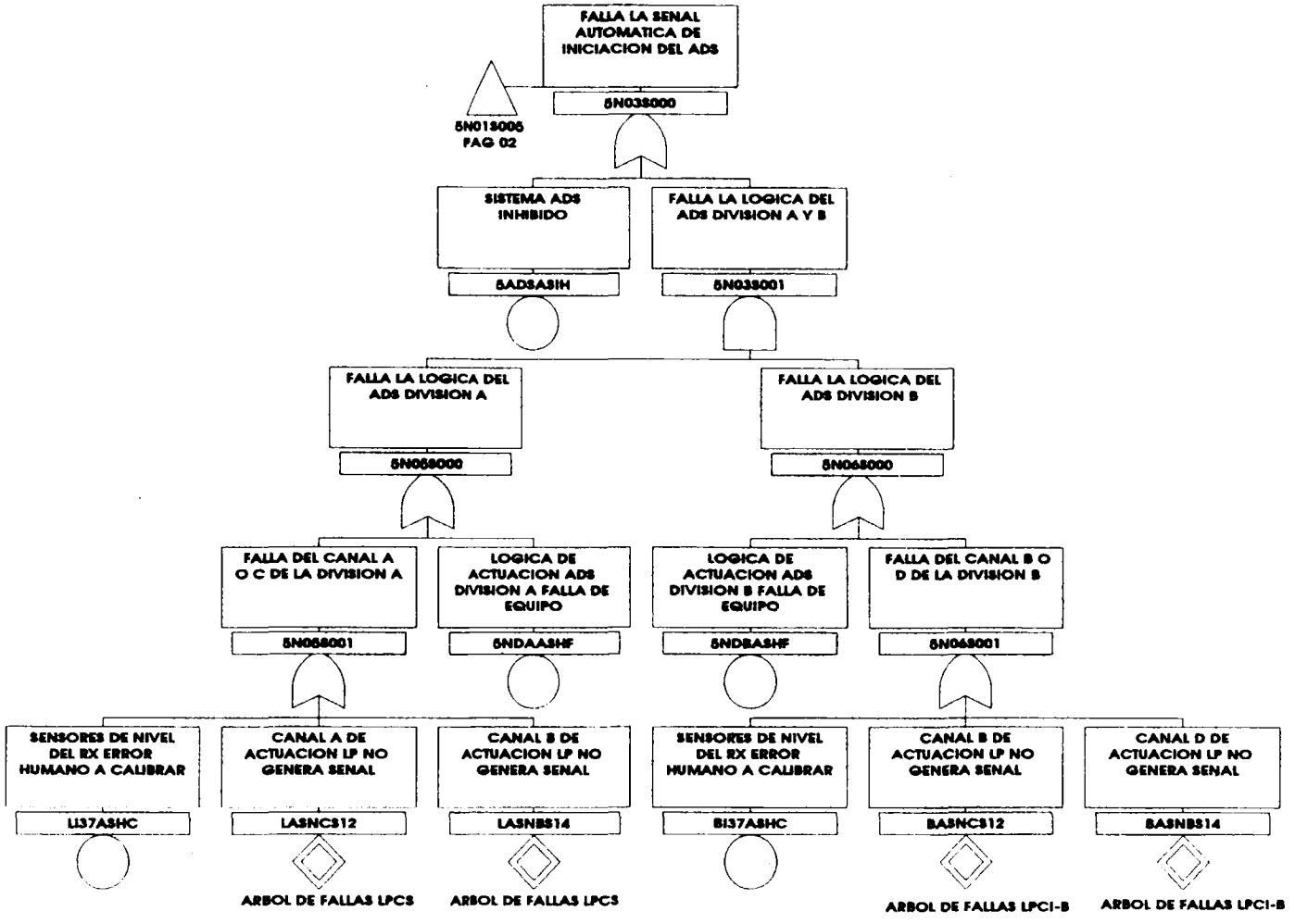
FIGURA B-7. ARBOL DE FALLAS DEL SISTEMA DE DESPRESURIZACION AUTOMATICA (ADS).



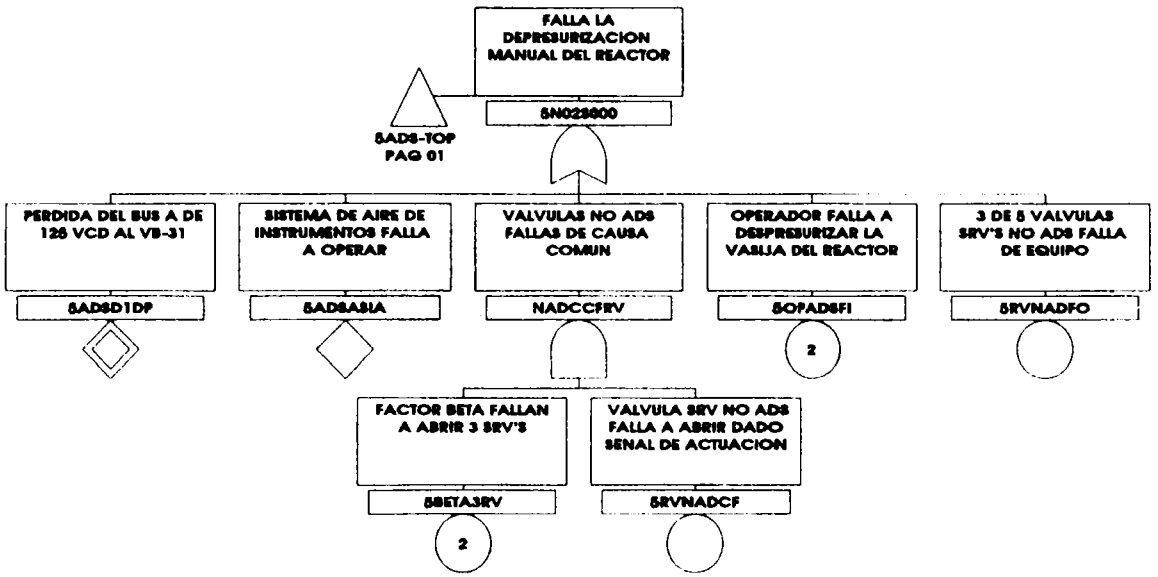
SISTEMA DE DESPRESURIZACION AUTOMATICA (ADS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



SISTEMA DE DESPRESURIZACION AUTOMATICA (ADS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02

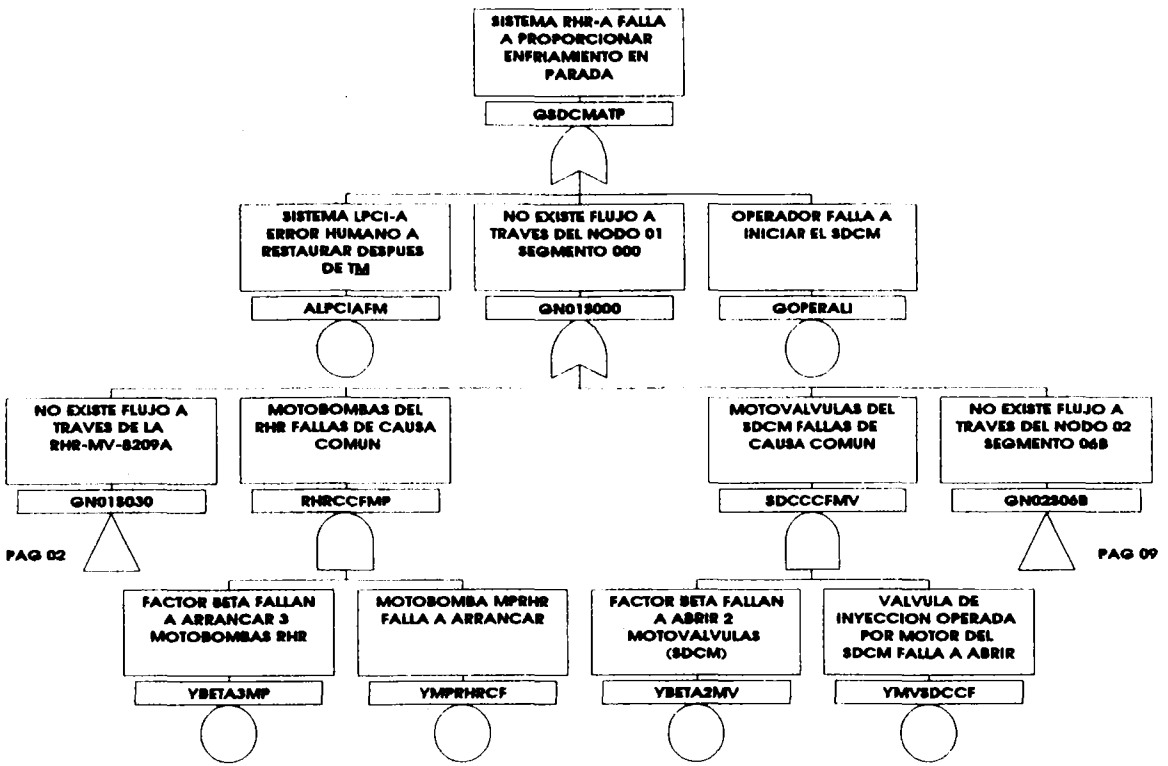


SISTEMA DE DESPRESURIZACION AUTOMATICA (ADS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03

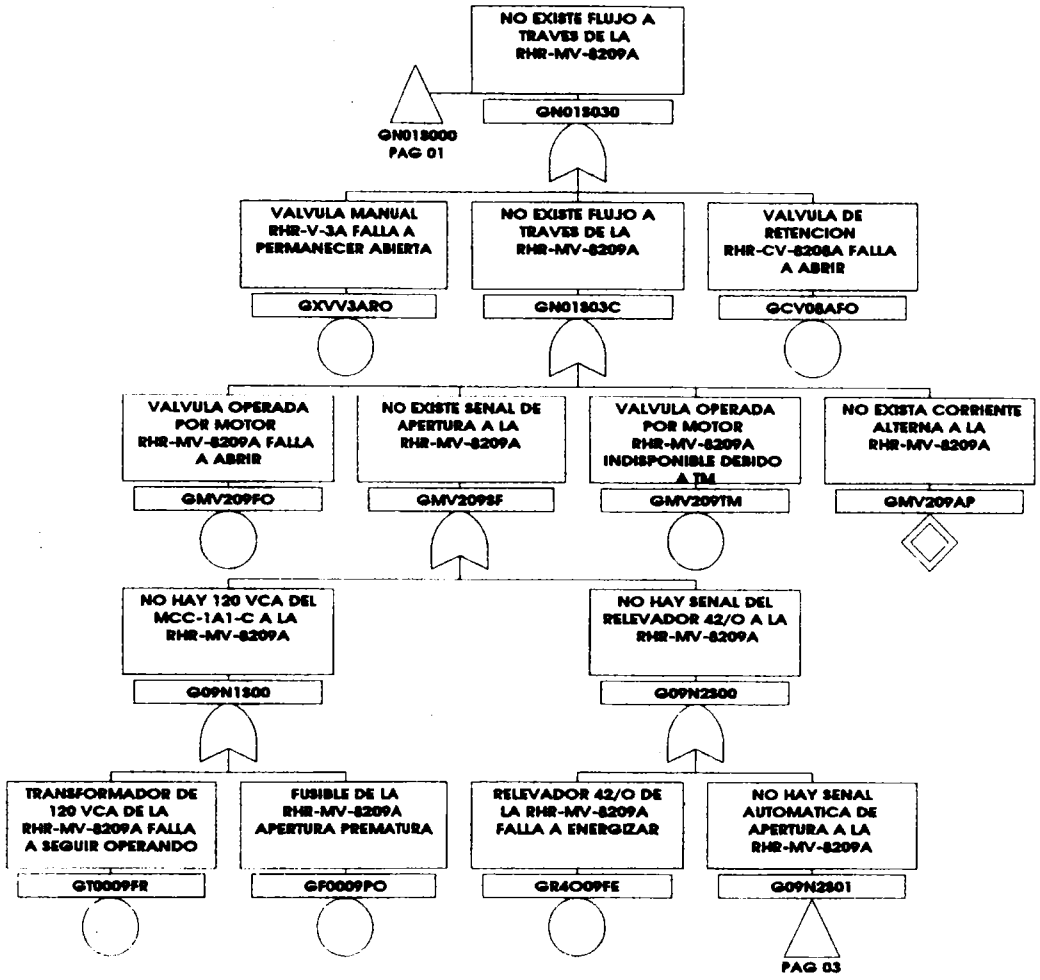


SISTEMA DE DESPRESURIZACION AUTOMATICA (ADS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04

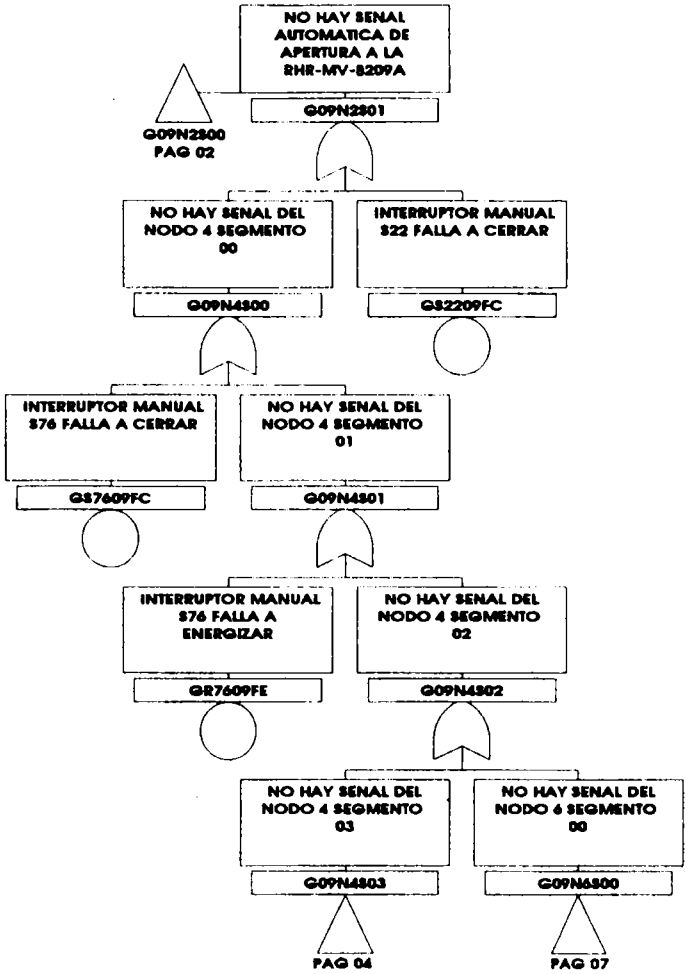
FIGURA B-8. ARBOL DE FALLAS DEL SISTEMA DE REMOCION DE CALOR RESIDUAL (RHR) MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A).



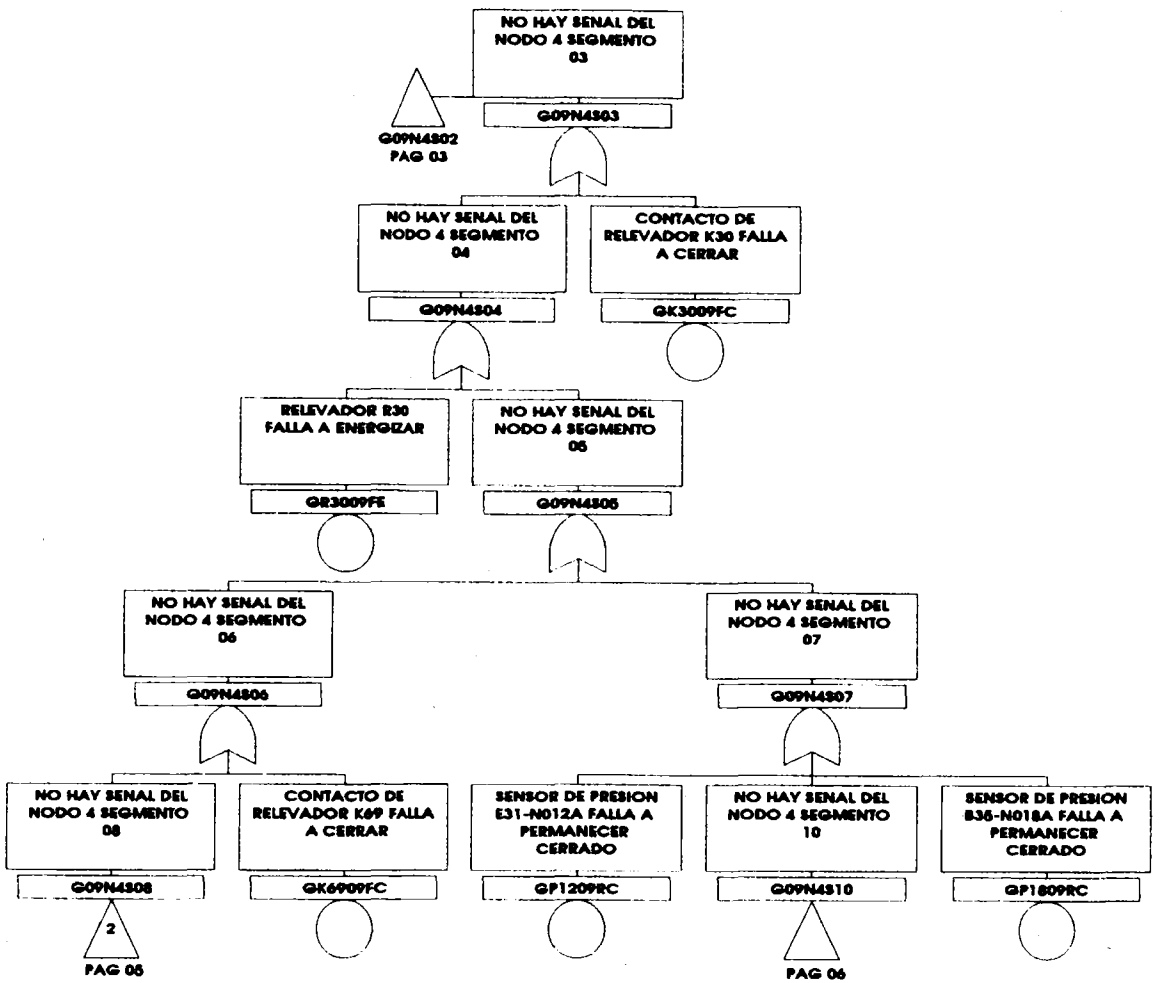
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



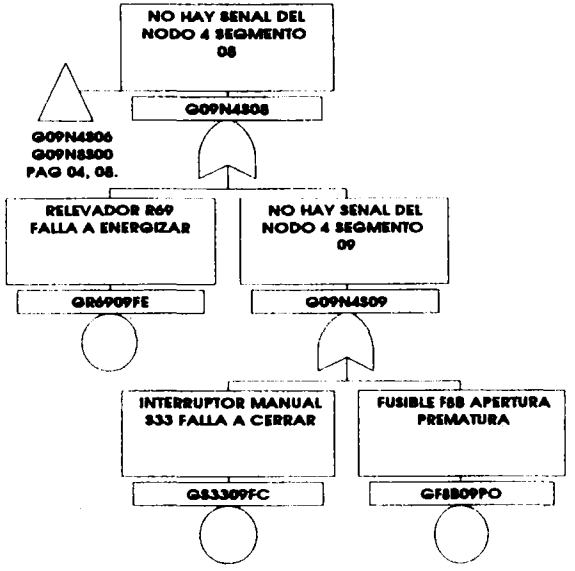
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02



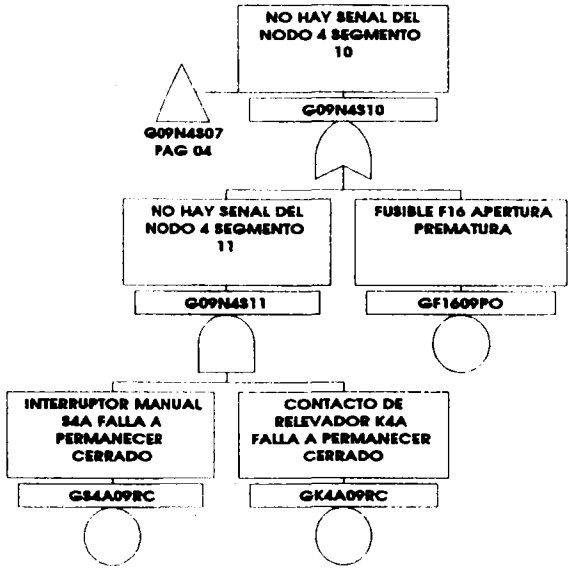
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03



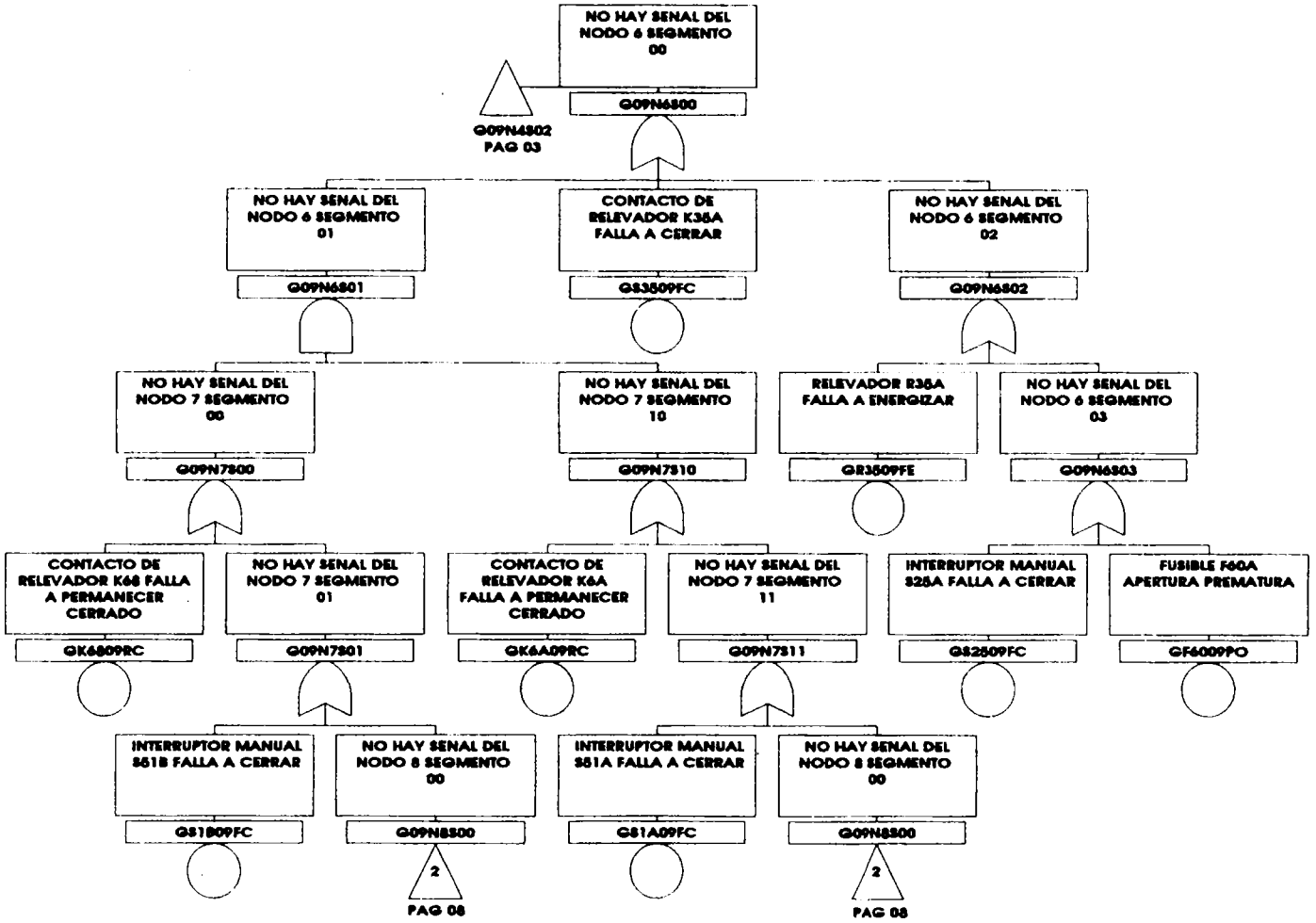
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04



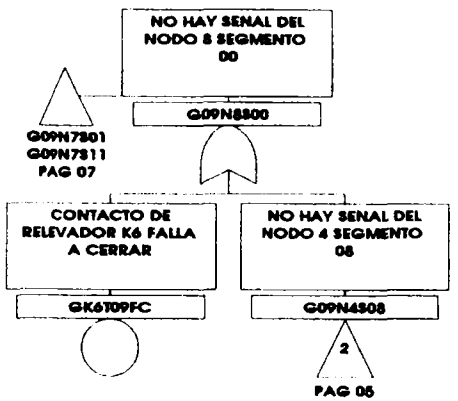
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 05**



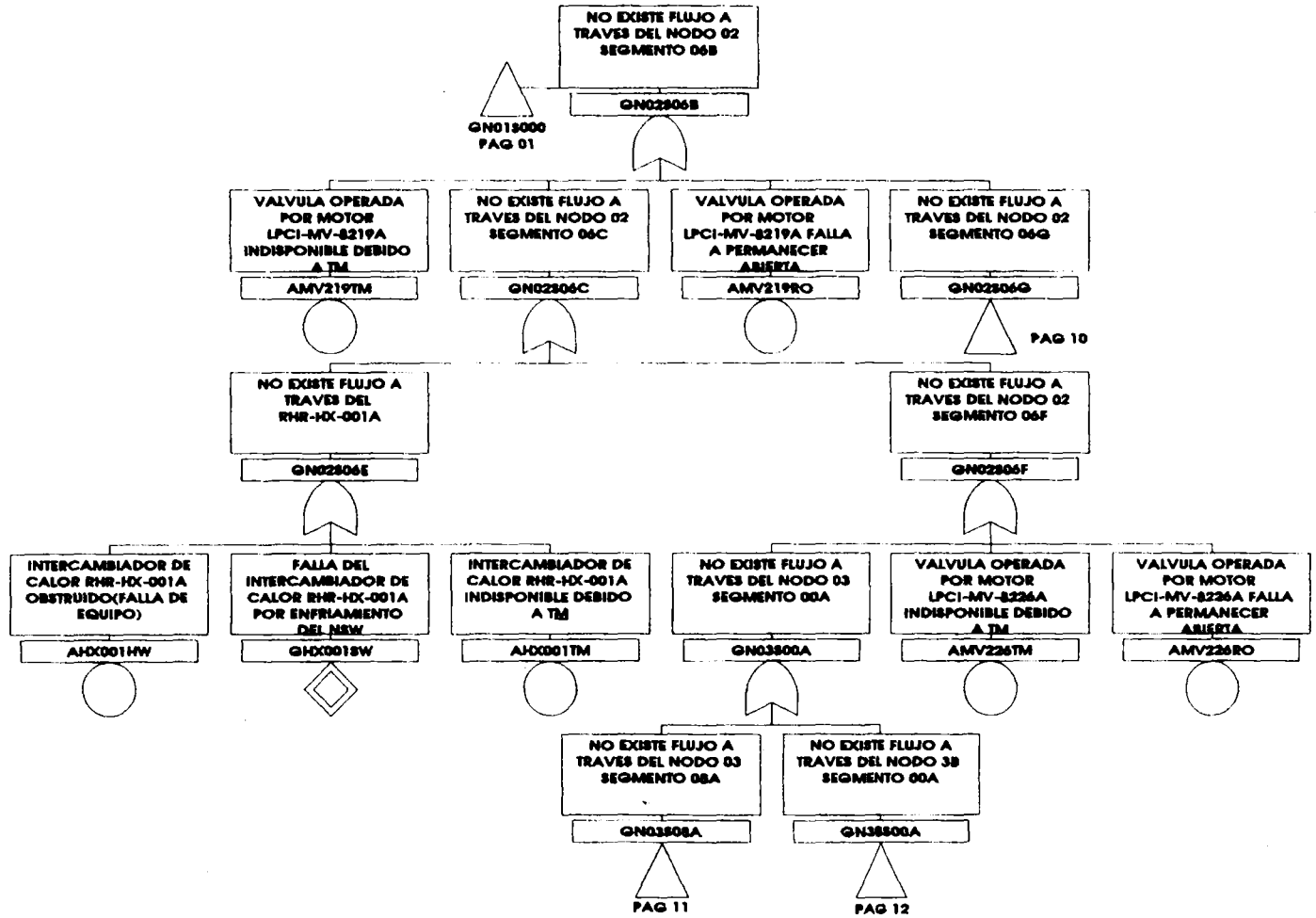
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 06



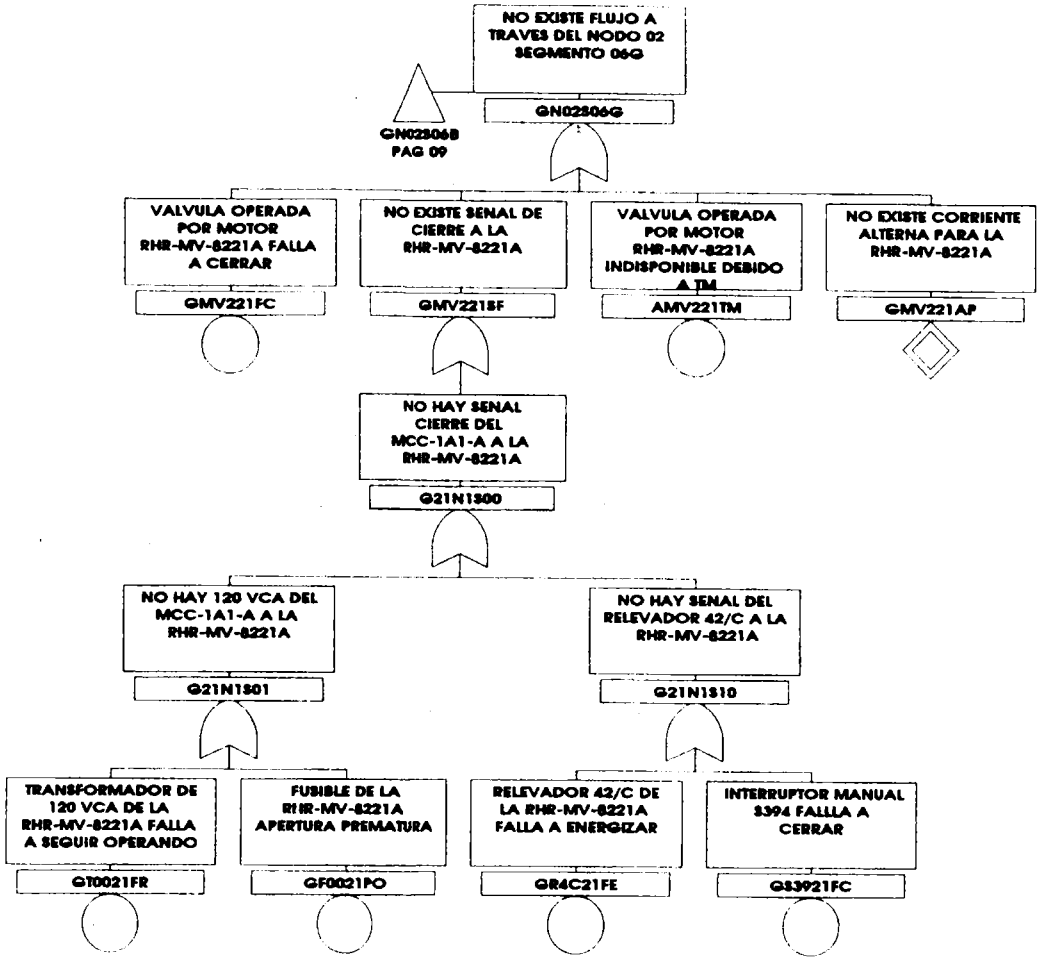
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 07



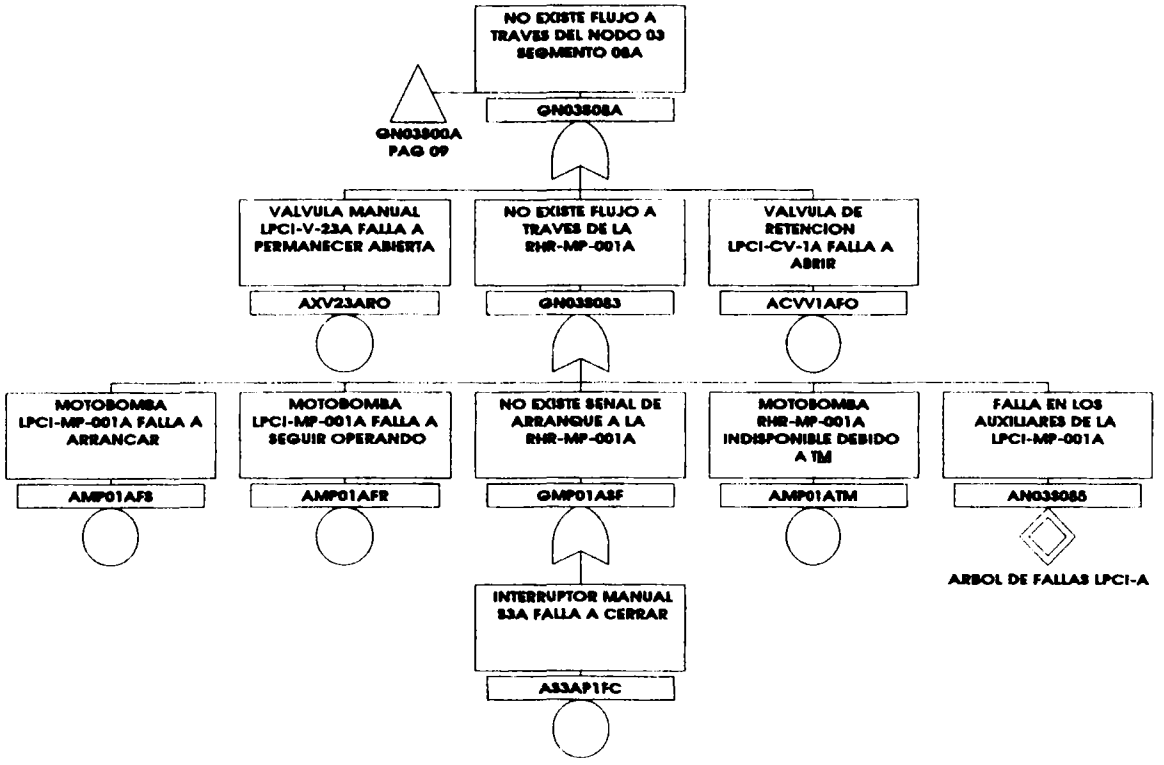
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 08



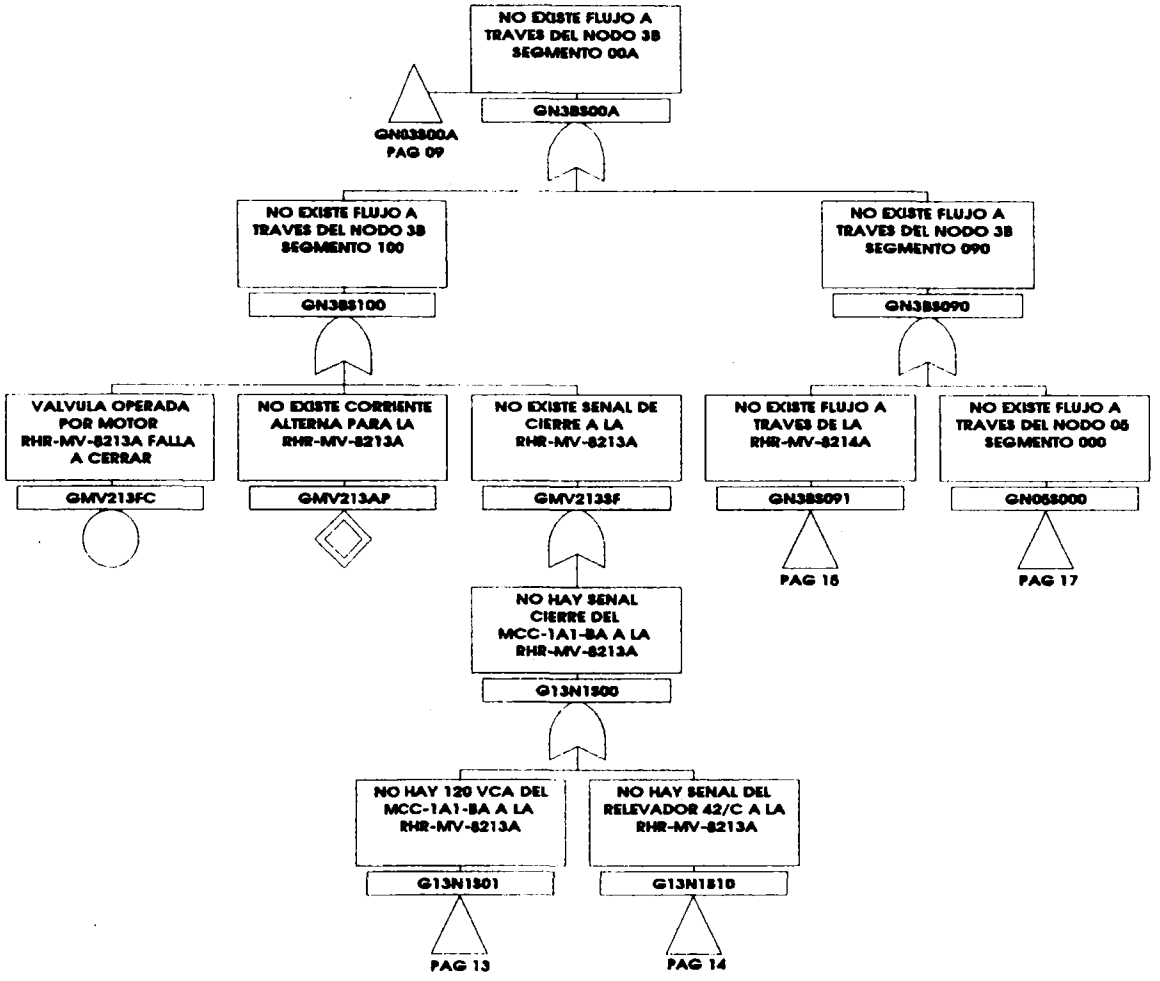
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09



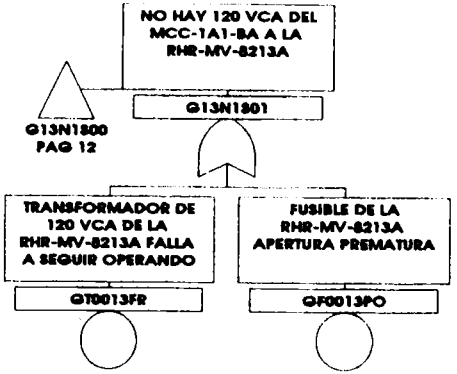
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 10



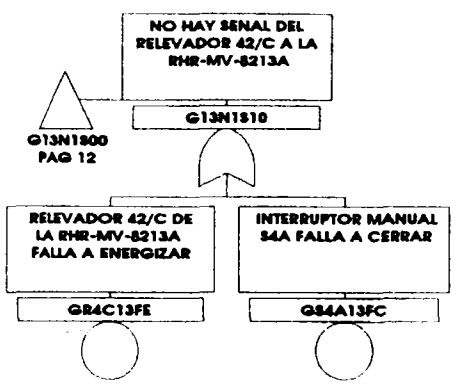
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 11



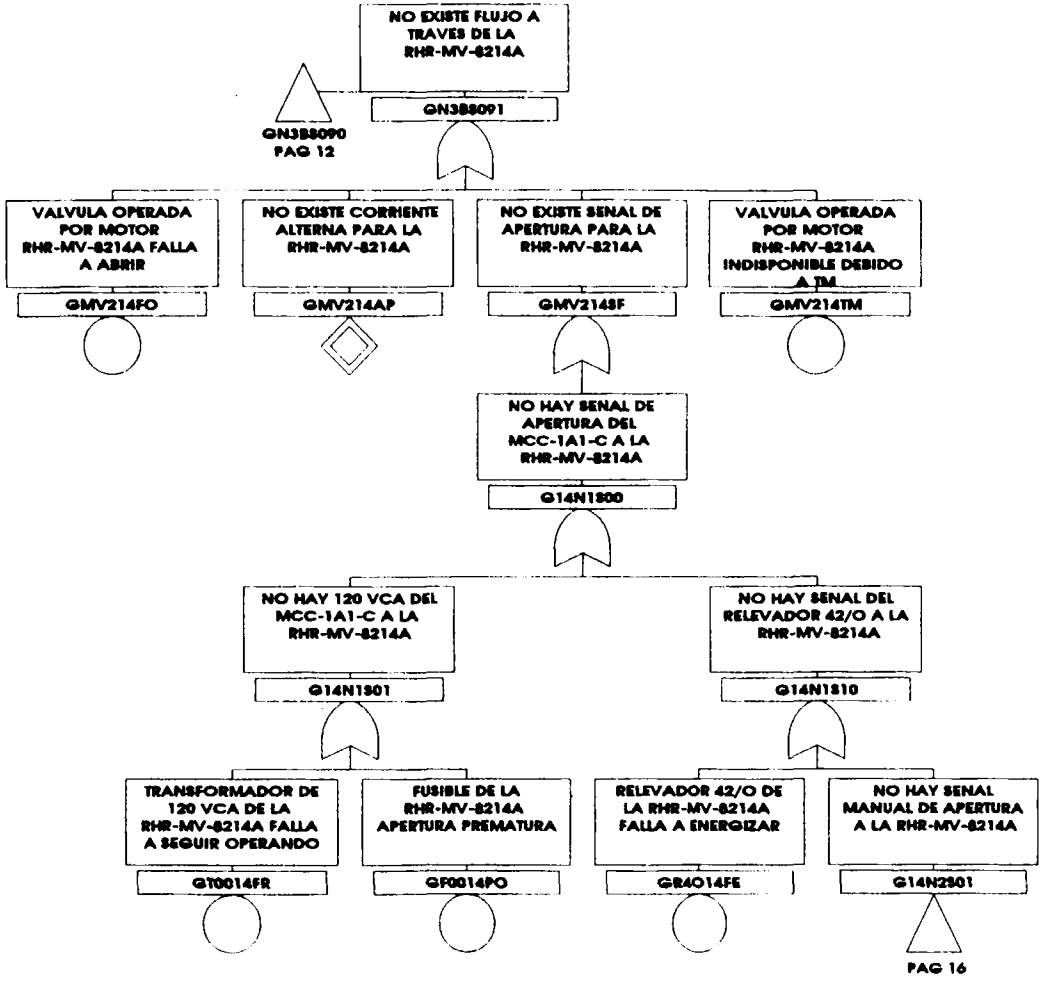
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 12



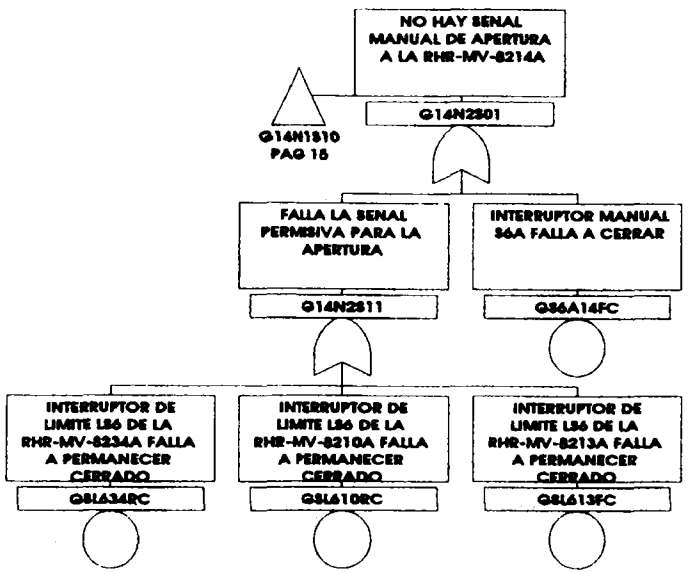
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 13**



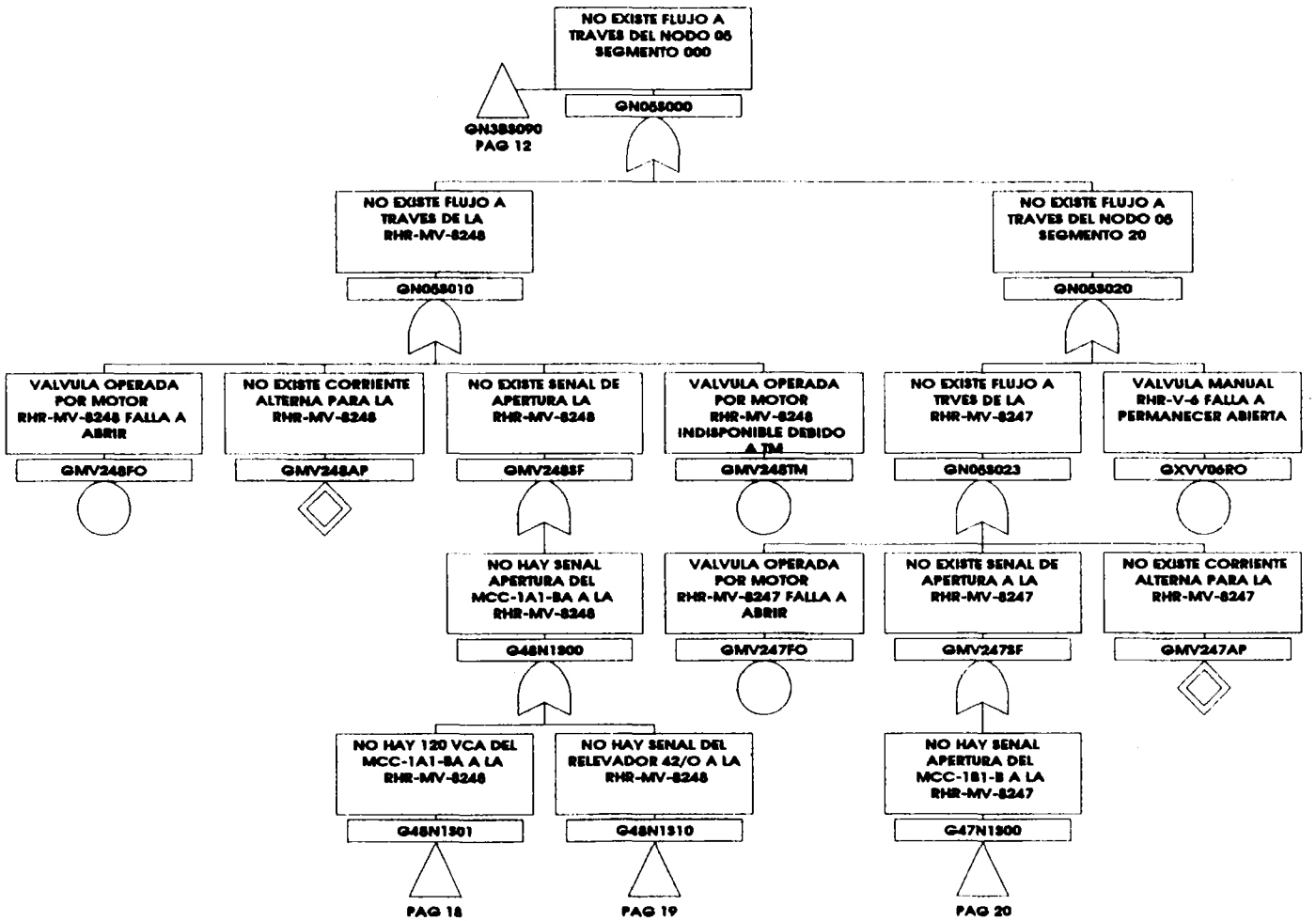
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 14**



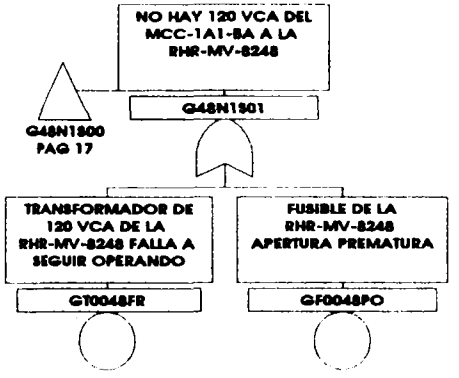
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 15



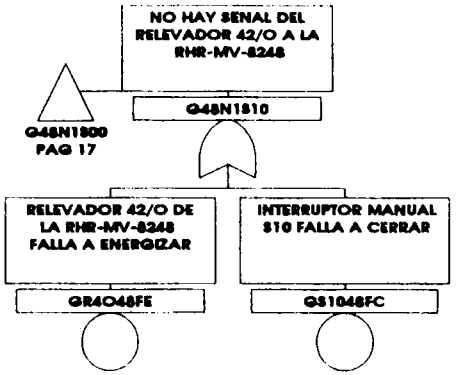
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 16



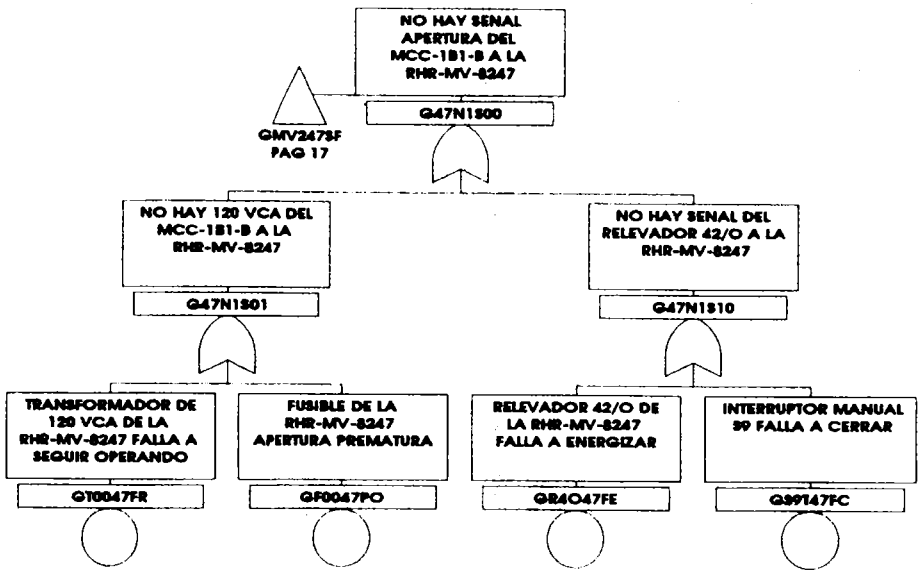
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 17



SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 18**

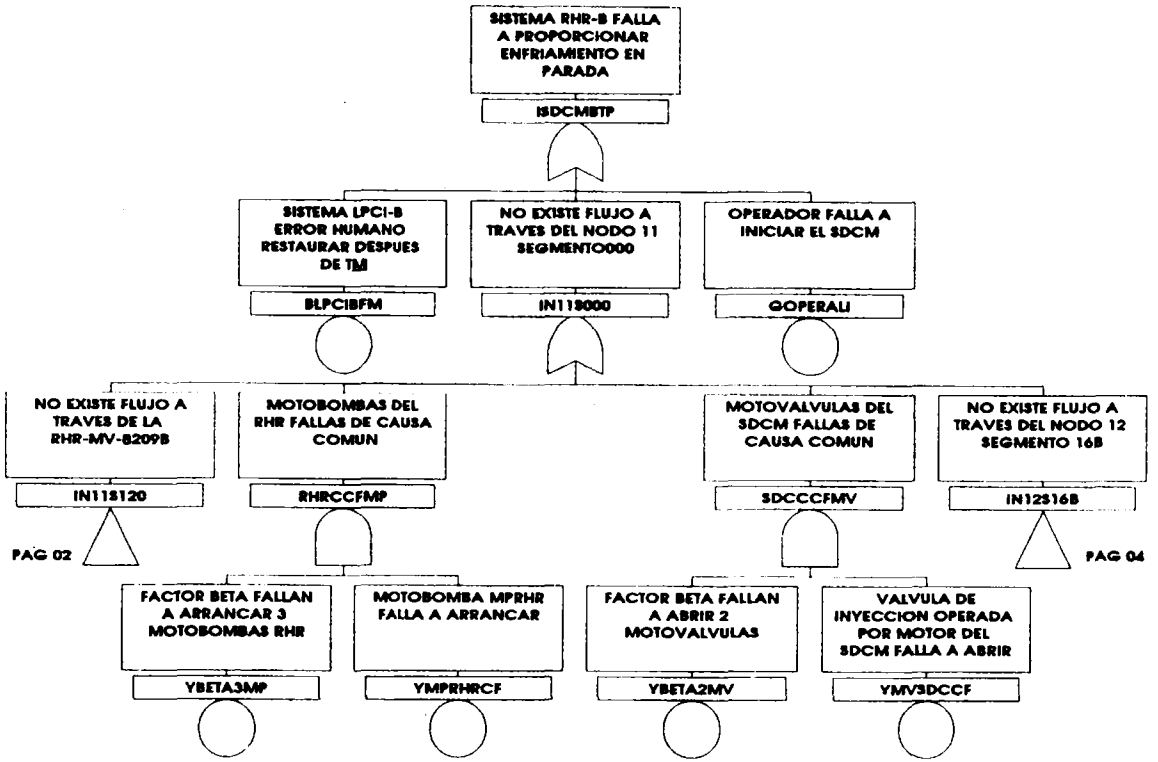


SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 19

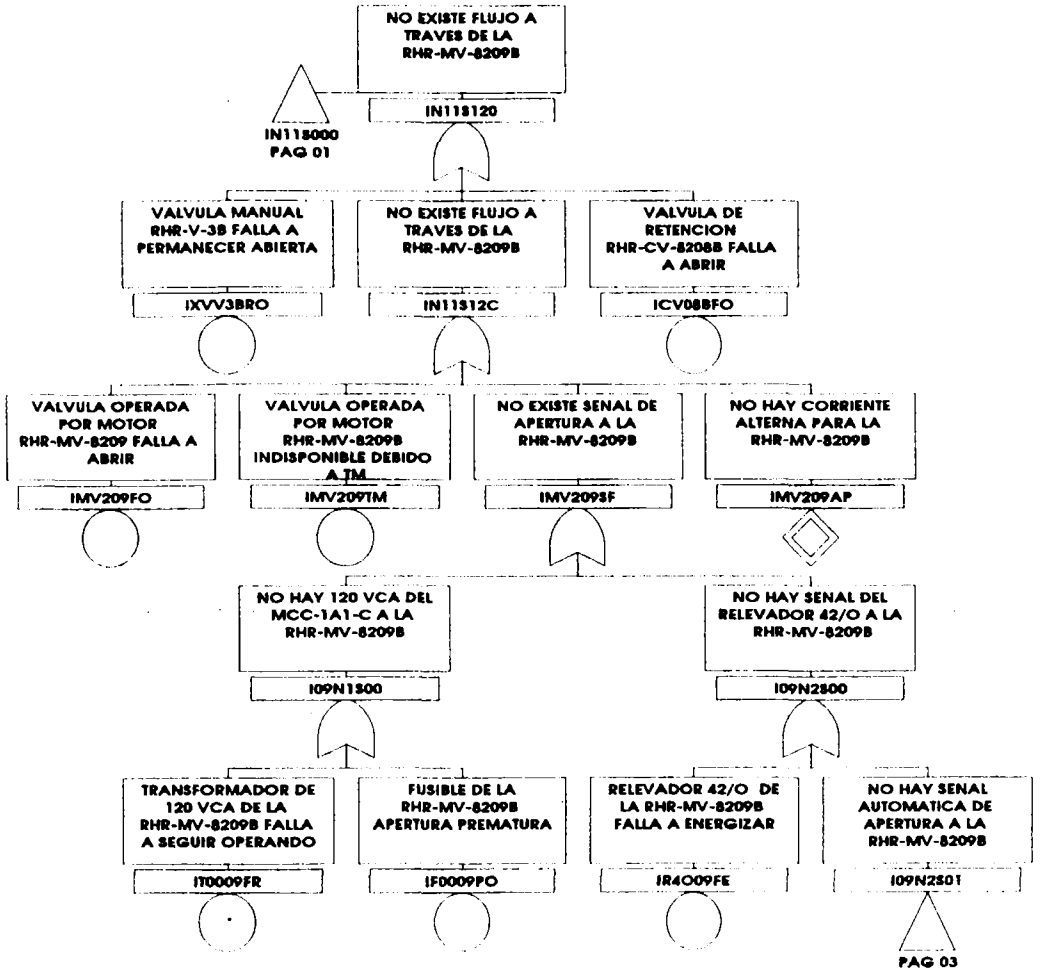


SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 20

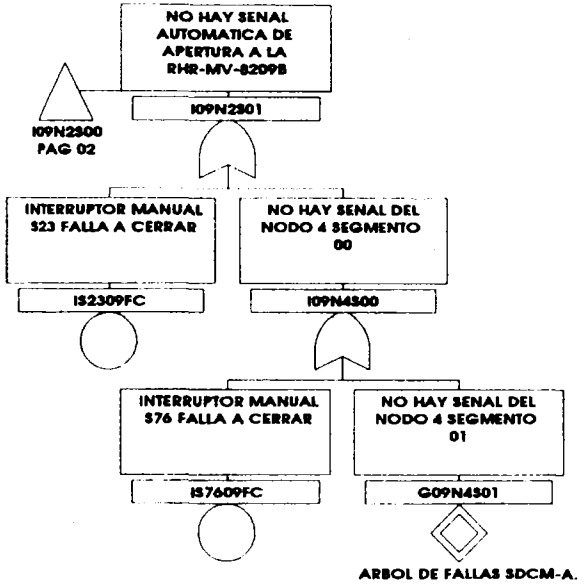
FIGURA B-9. ARBOL DE FALLAS DEL SISTEMA DE REMOCION DE CALOR RESIDUAL (RHR) MODO DE ENFRIAMIENTO EN PARADA LAZO B (SDCM-B).



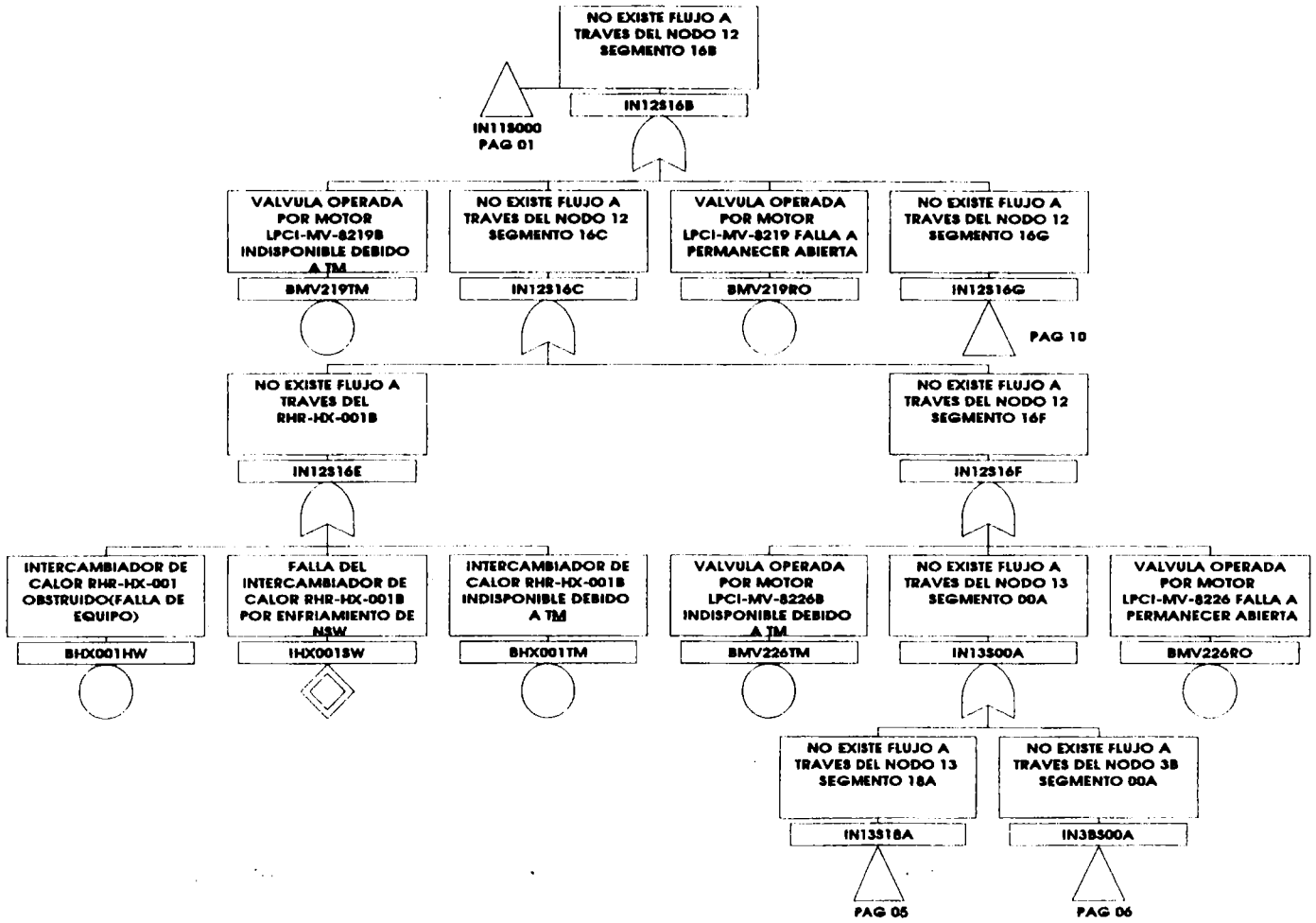
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO B (SDCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



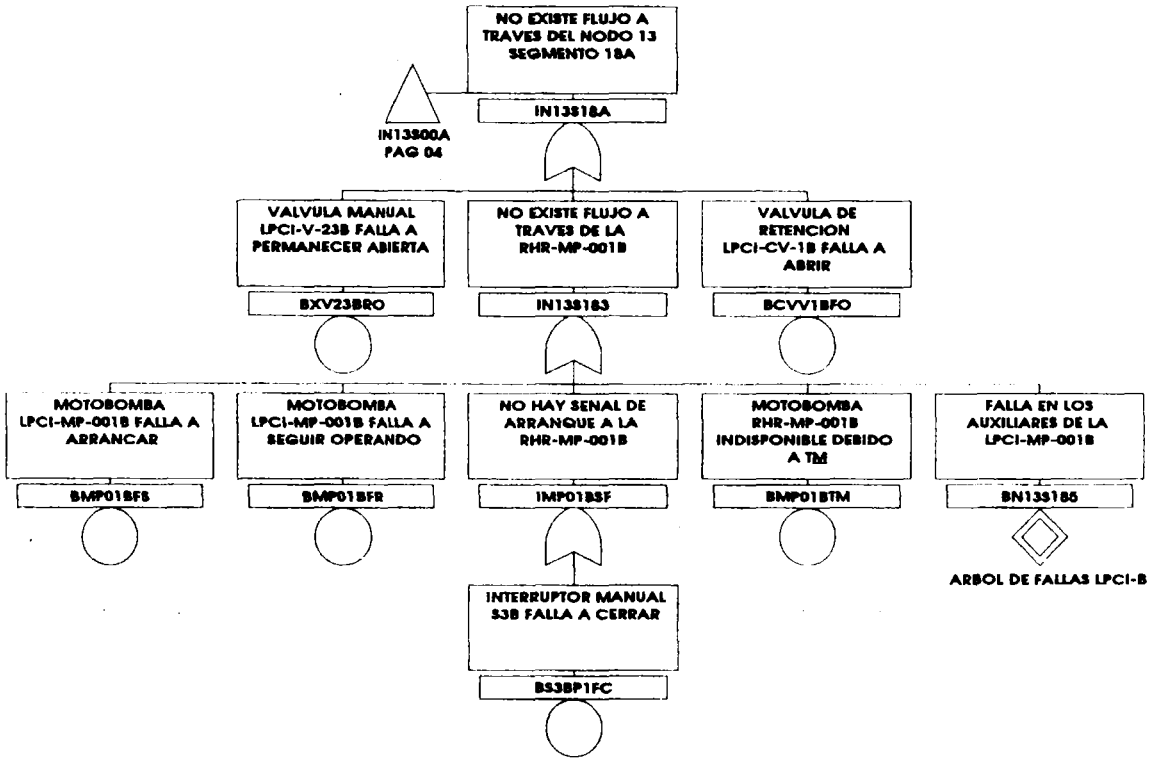
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO B (SDCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02



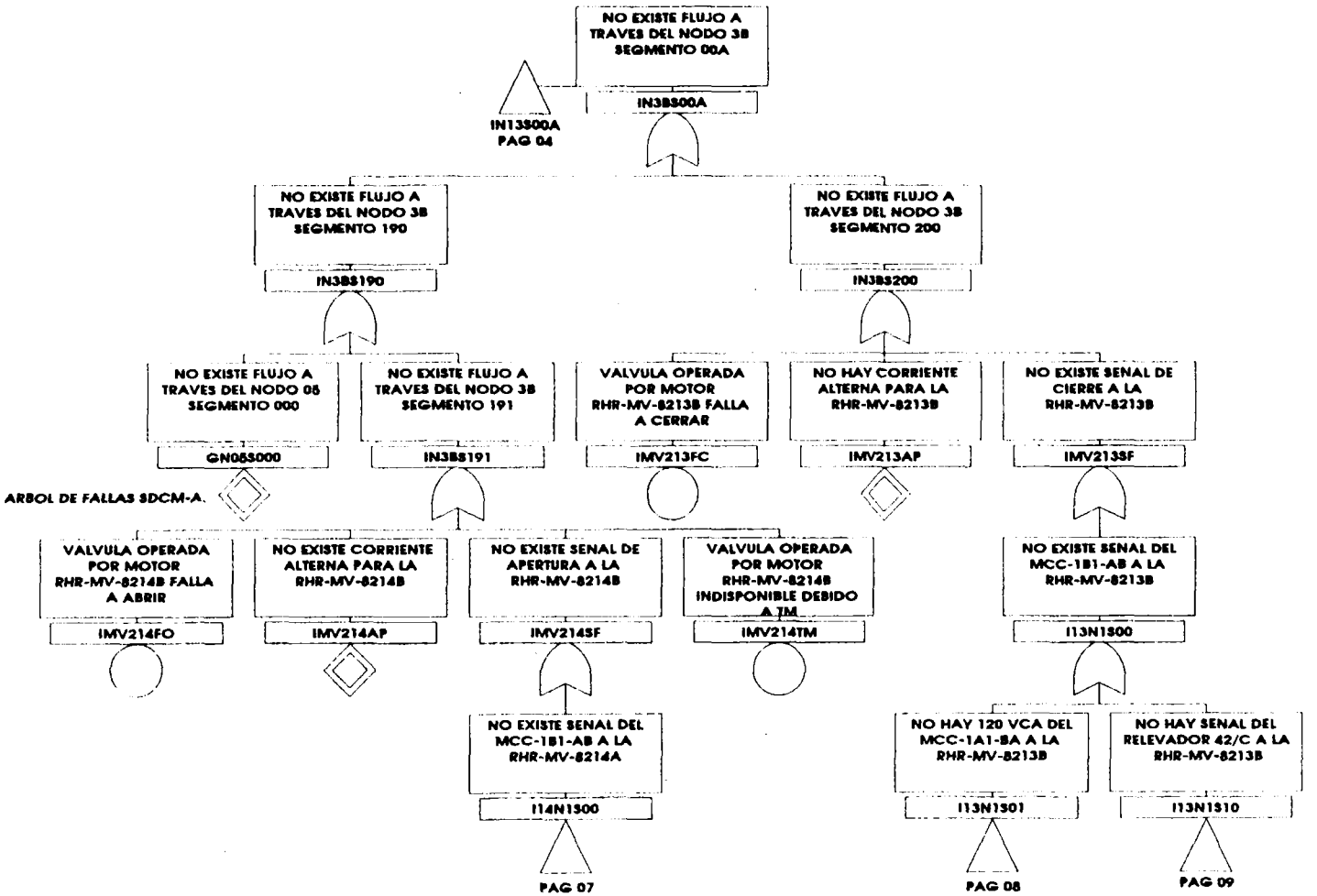
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO B (SDCM-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 03**



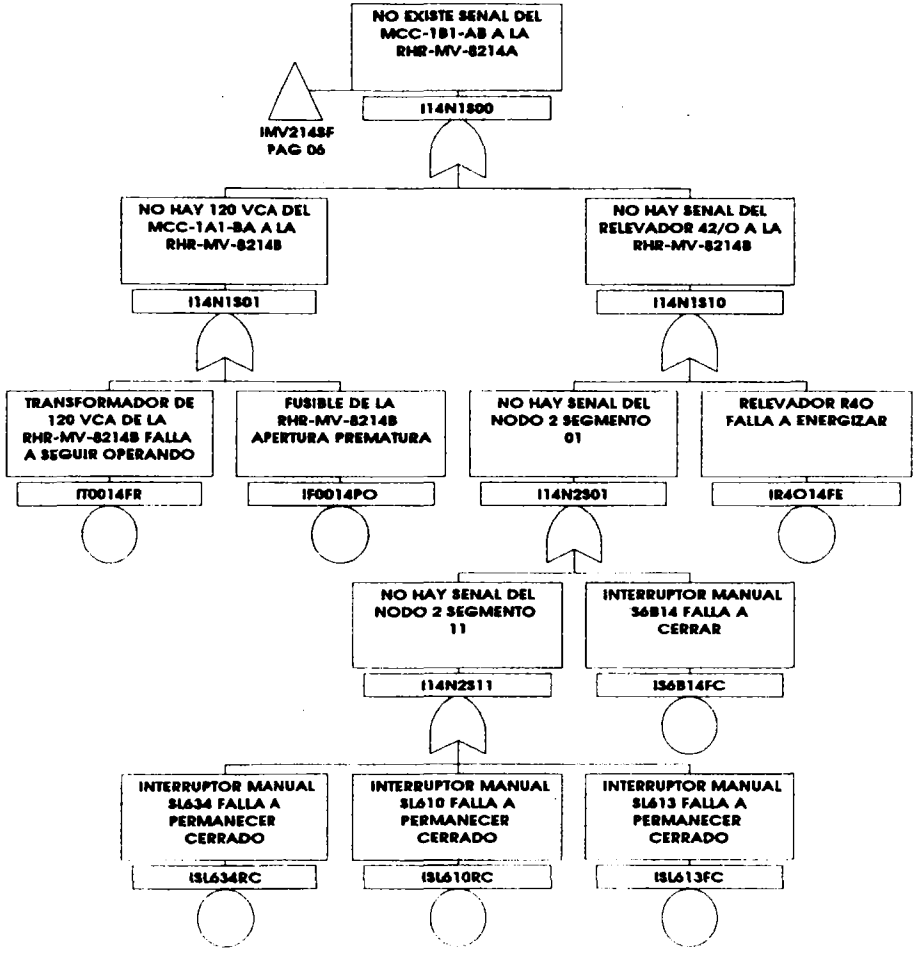
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO B (SDCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04



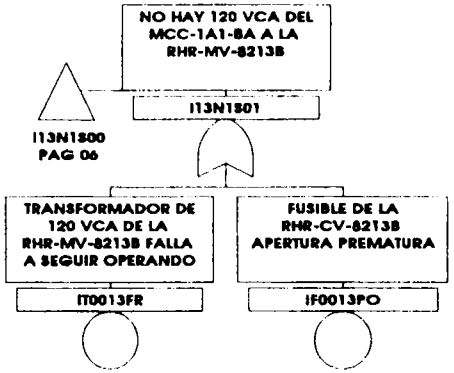
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO B (SDCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 05



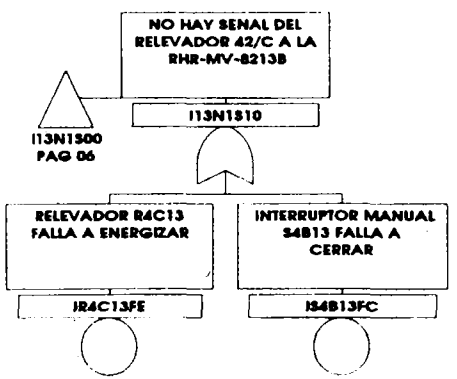
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO B (SDCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 06



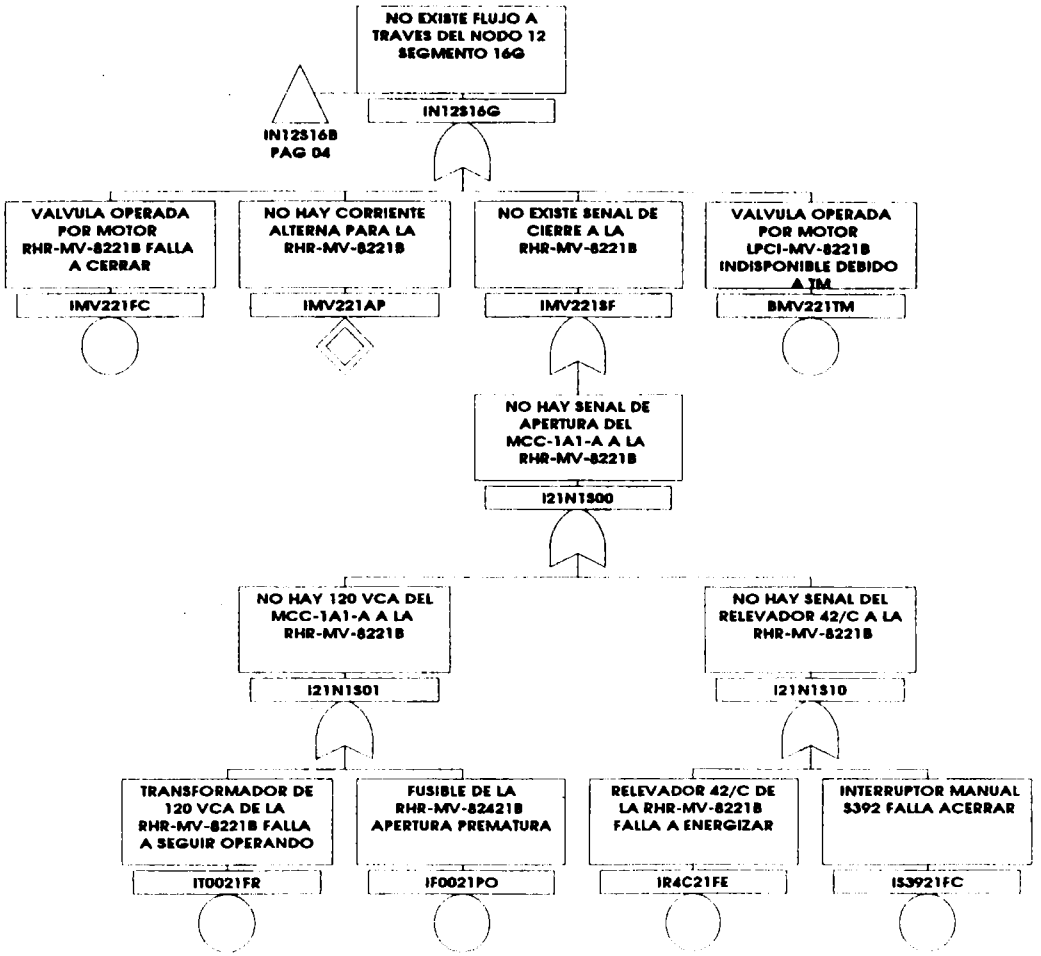
SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO A (SDCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 07



SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO B (SDCM-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 08**

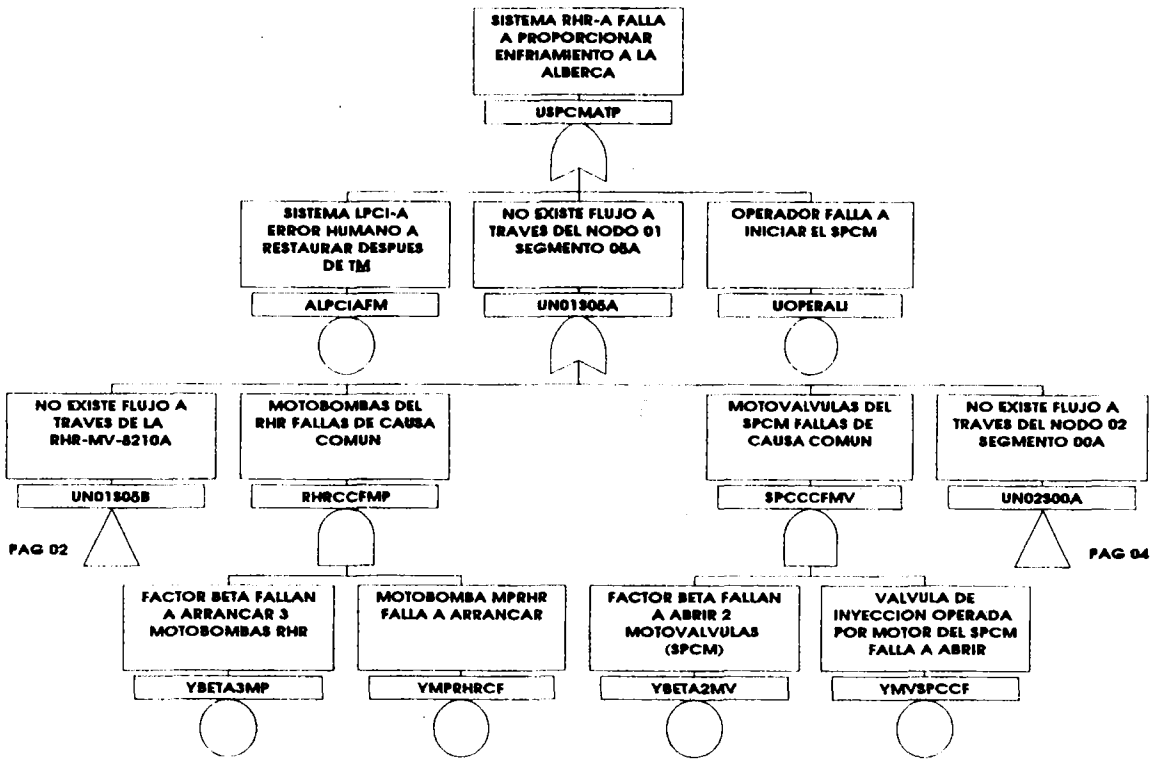


SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO B (SDCM-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 09**

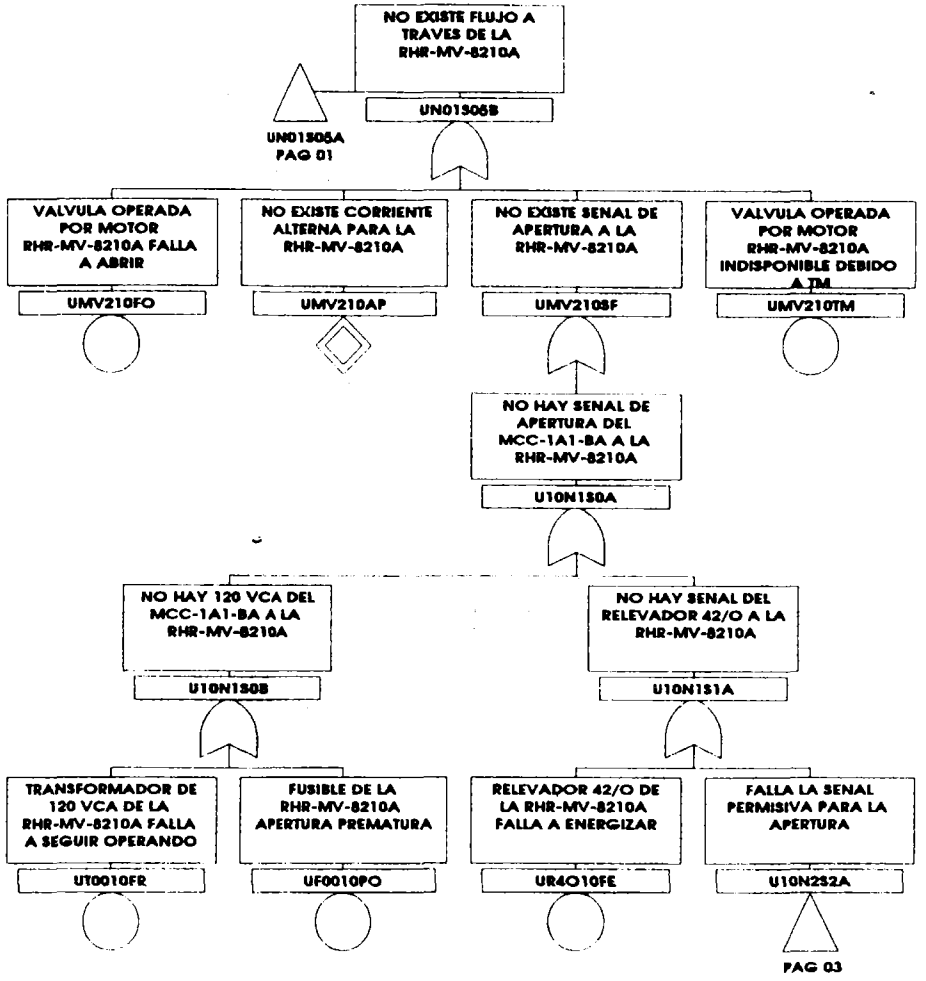


SISTEMA RHR MODO DE ENFRIAMIENTO EN PARADA LAZO B (SDCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 10

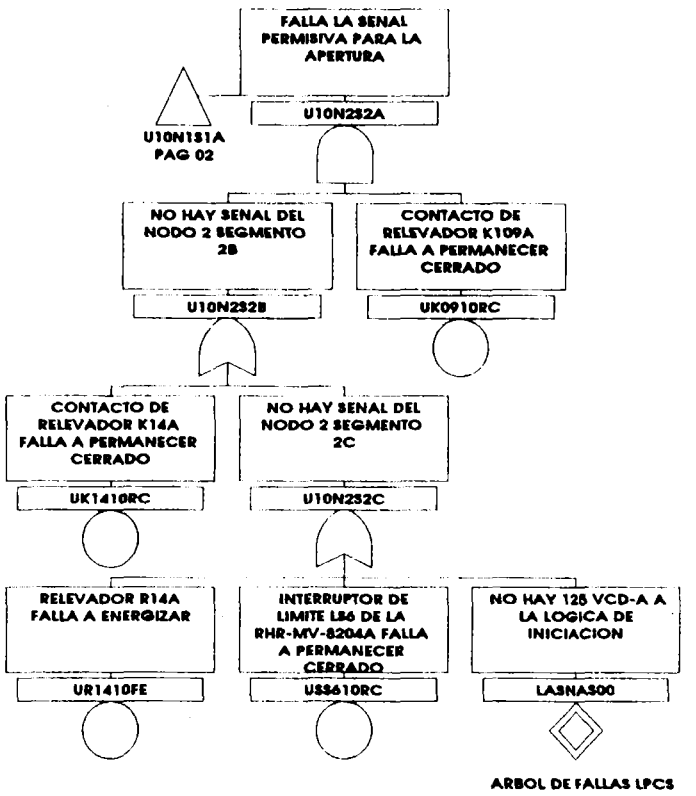
FIGURA B-10. ARBOL DE FALLAS DEL SISTEMA DE REMOCION DE CALOR RESIDUAL (RHR) MODO DE ENFRIAMIENTO DE LA PISCINA DE SUPRESION DE PRESION LAZO A (SPCM-A).



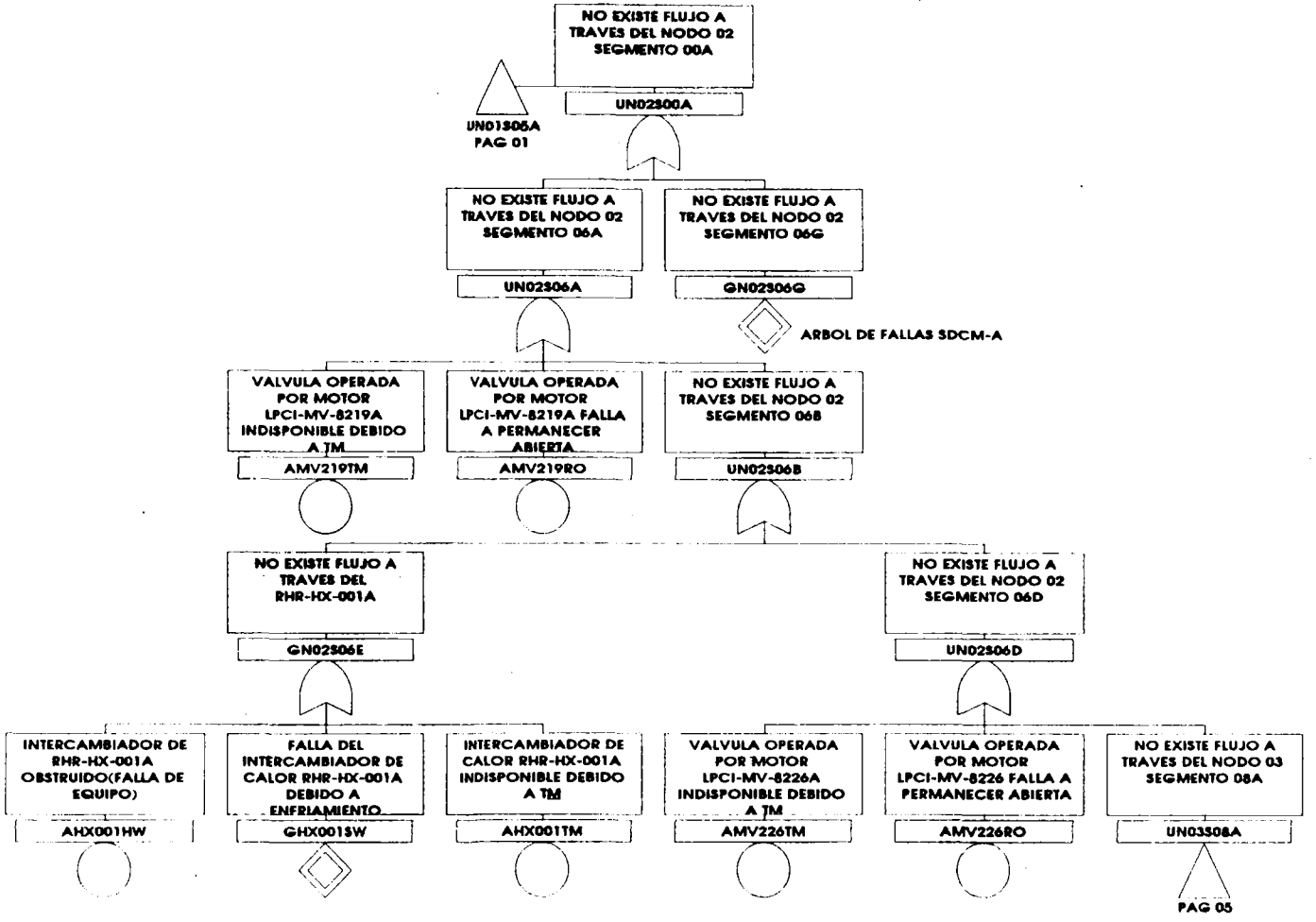
SISTEMA RHR MODO DE ENFRIAMIENTO DE LA PISCINA DE SUPRESION LAZO A (SPCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



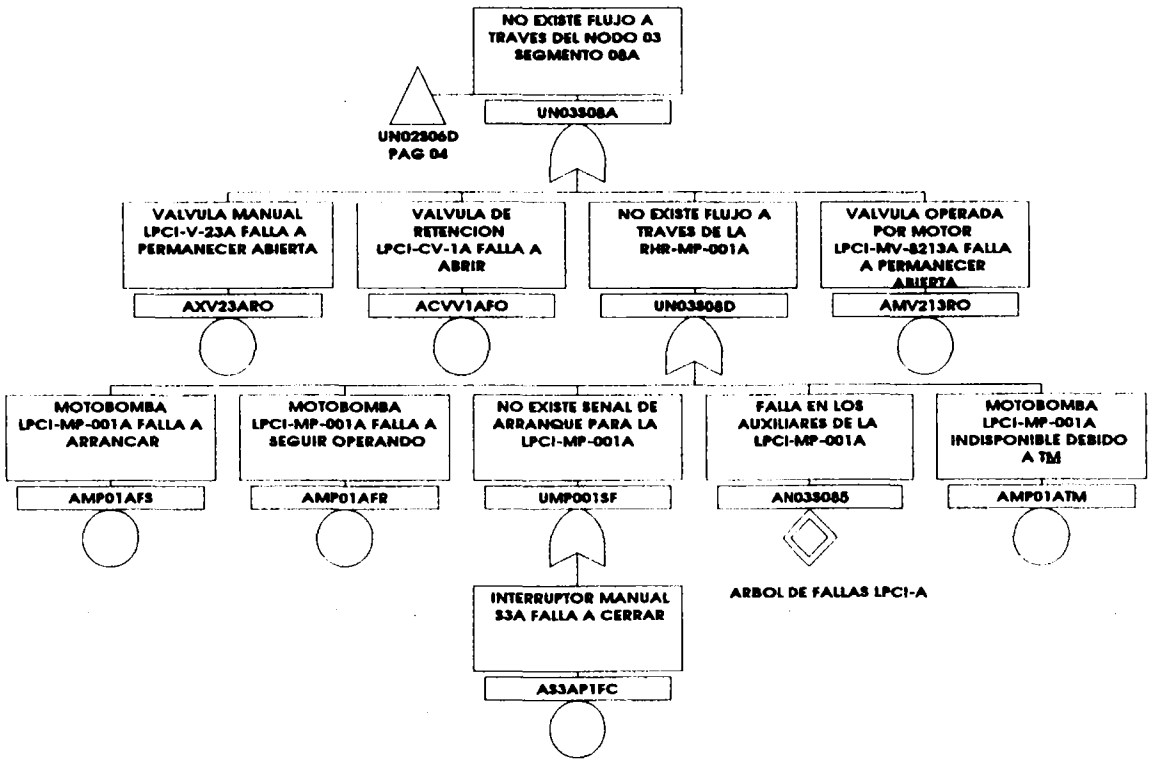
SISTEMA RHR MODO DE ENFRIAMIENTO DE LA PISCINA DE SUPRESION LAZO A (SPCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02



SISTEMA RHR MODO DE ENFRIAMIENTO DE LA PISCINA SUPRESION LAZO A (SPCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03

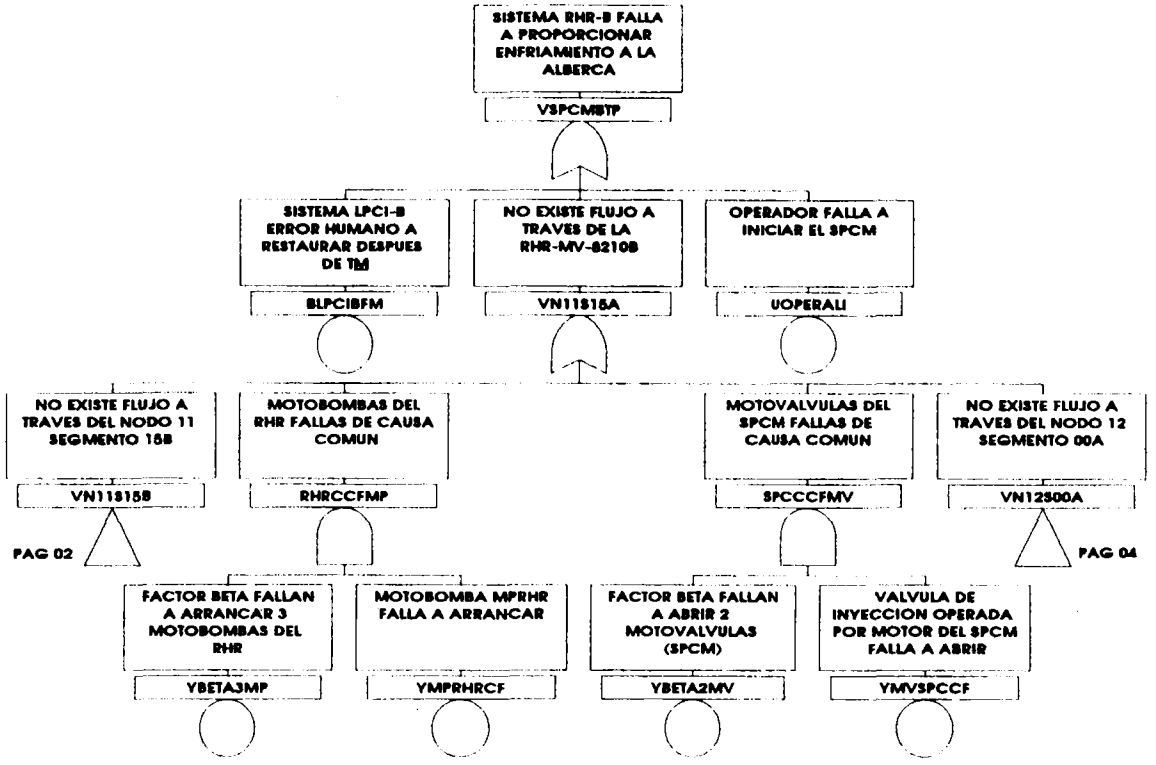


SISTEMA RHR MODO DE ENFRIAMIENTO DE LA PISCINA DE SUPRESION LAZO A (SPCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04

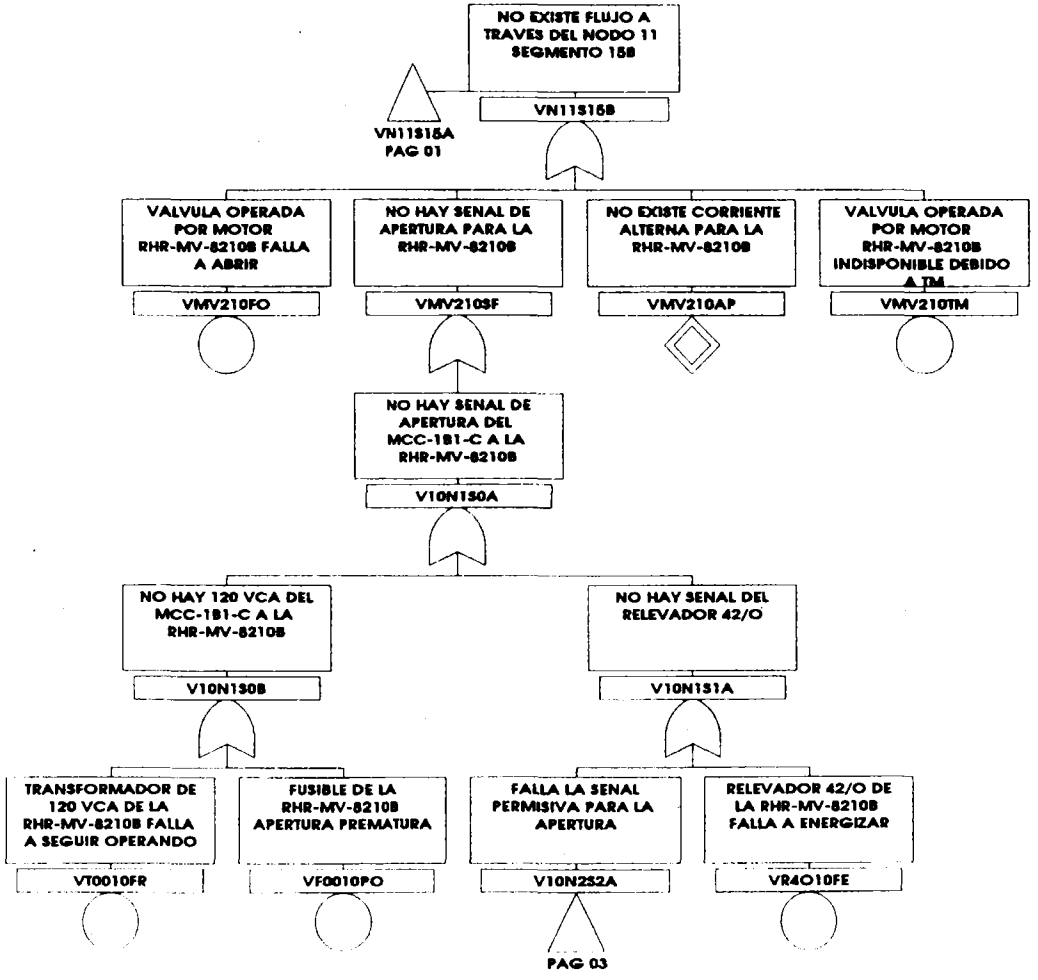


SISTEMA RHR MODO DE ENFRIAMIENTO DE LA PISCINA DE SUPRESION LAZO A (SPCM-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 05**

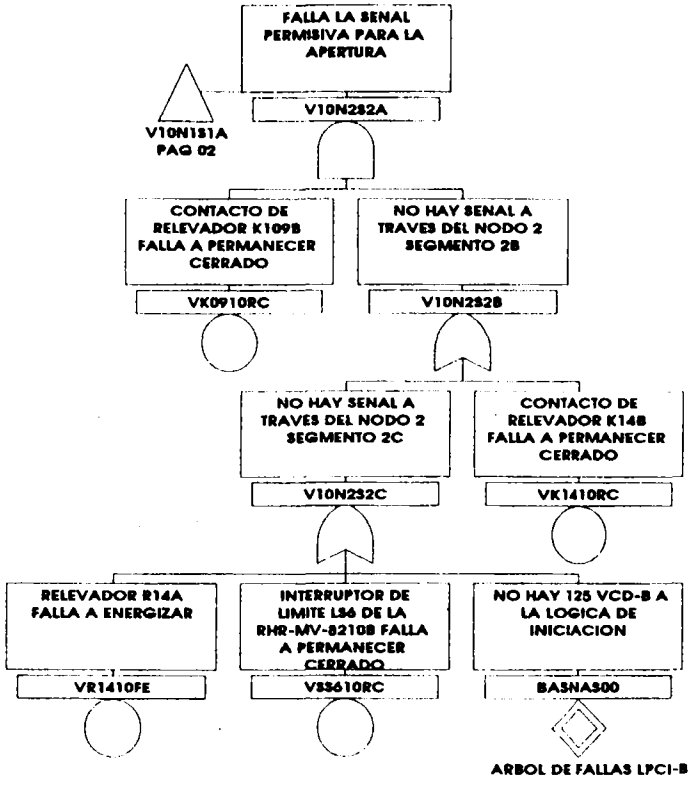
FIGURA B-11. ARBOL DE FALLAS DEL SISTEMA DE REMOCION DE CALOR RESIDUAL (RHR) MODO DE ENFRIAMIENTO DE LA PISCINA DE SUPRESION DE PRESION LAZO B (SPCM-B).



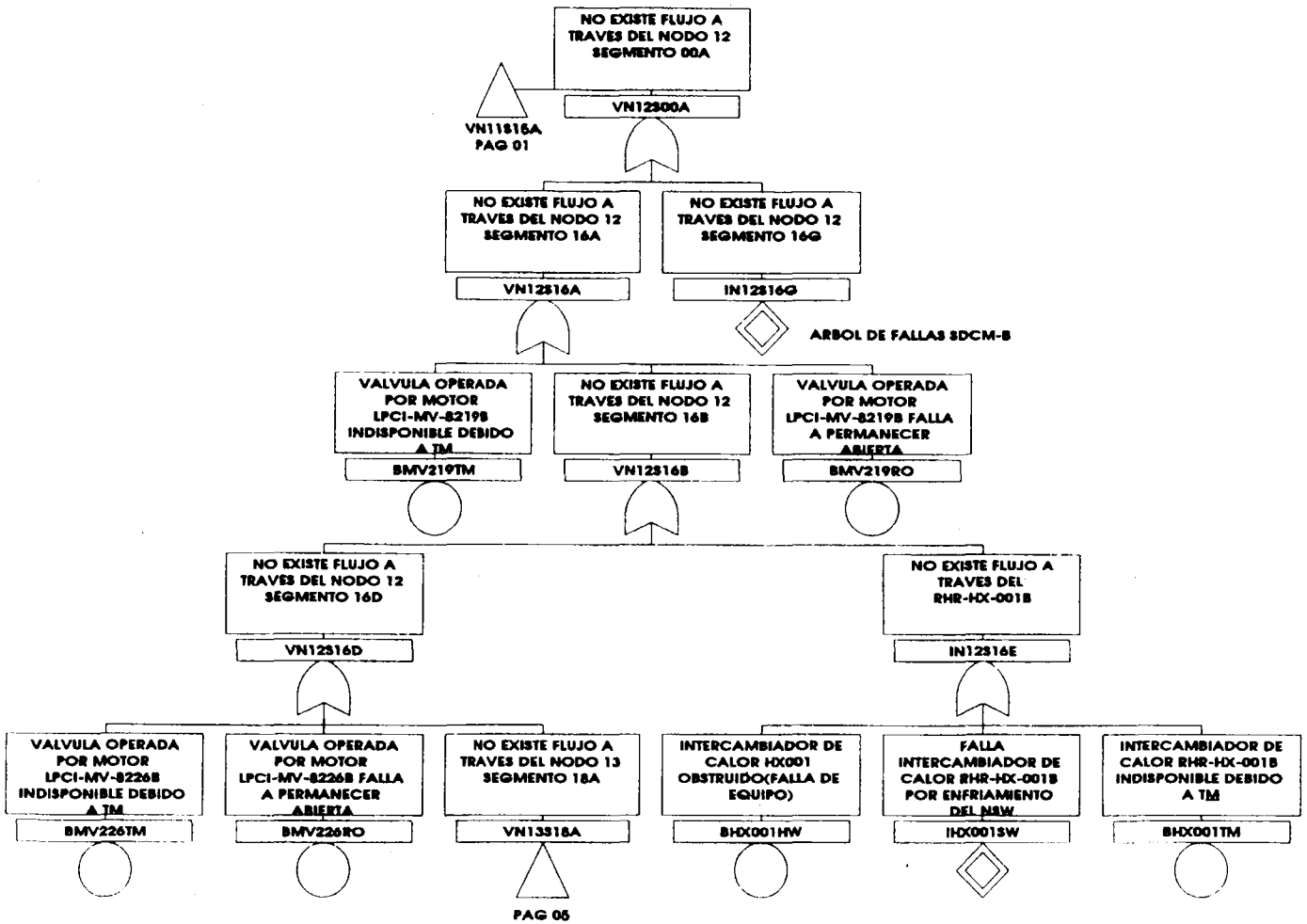
SISTEMA RHR MODO DE ENFRIAMIENTO DE LA PISCINA DE SUPRESION LAZO B (SPCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



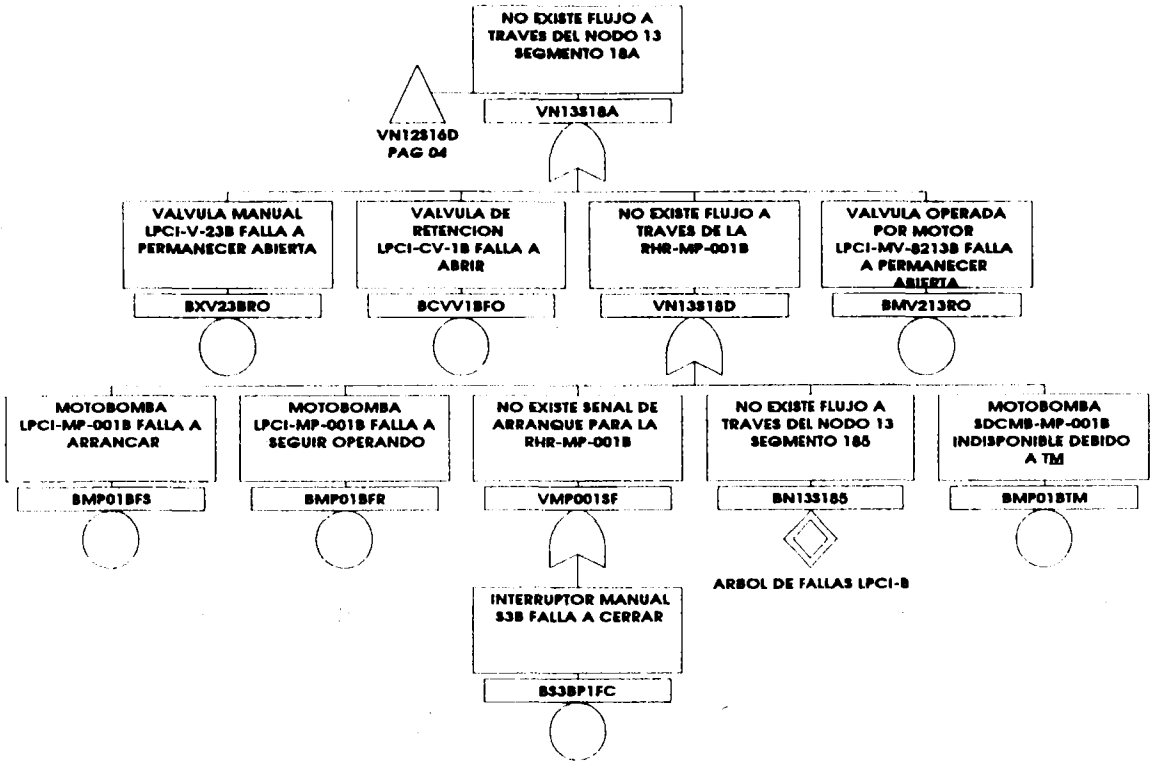
SISTEMA RHR MODO DE ENFRIAMIENTO DE LA PISCINA DE SUPRESION LAZO B (SPCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02



SISTEMA RHR MODO DE ENFRIAMIENTO DE LA PISCINA DE SUPRESION LAZO B (SPCM-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 03**

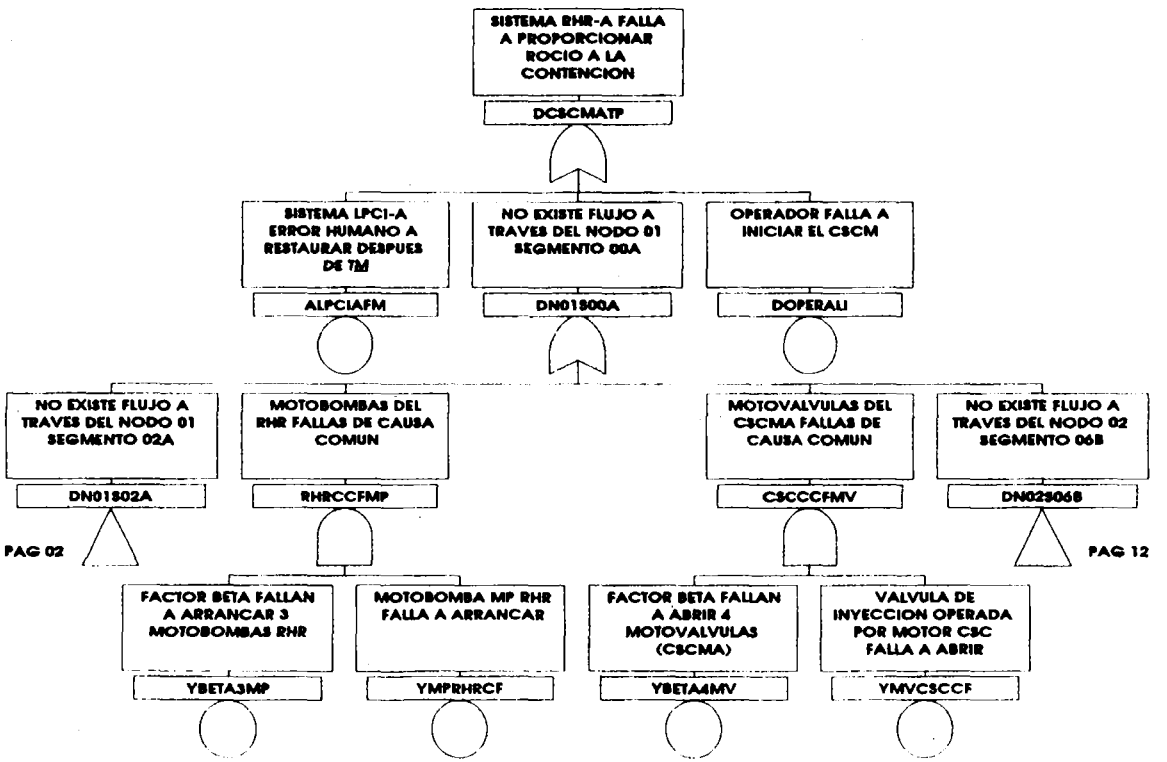


SISTEMA RHR MODO DE ENFRIAMIENTO DE LA PISCINA DE SUPRESION LAZO B (SPCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04

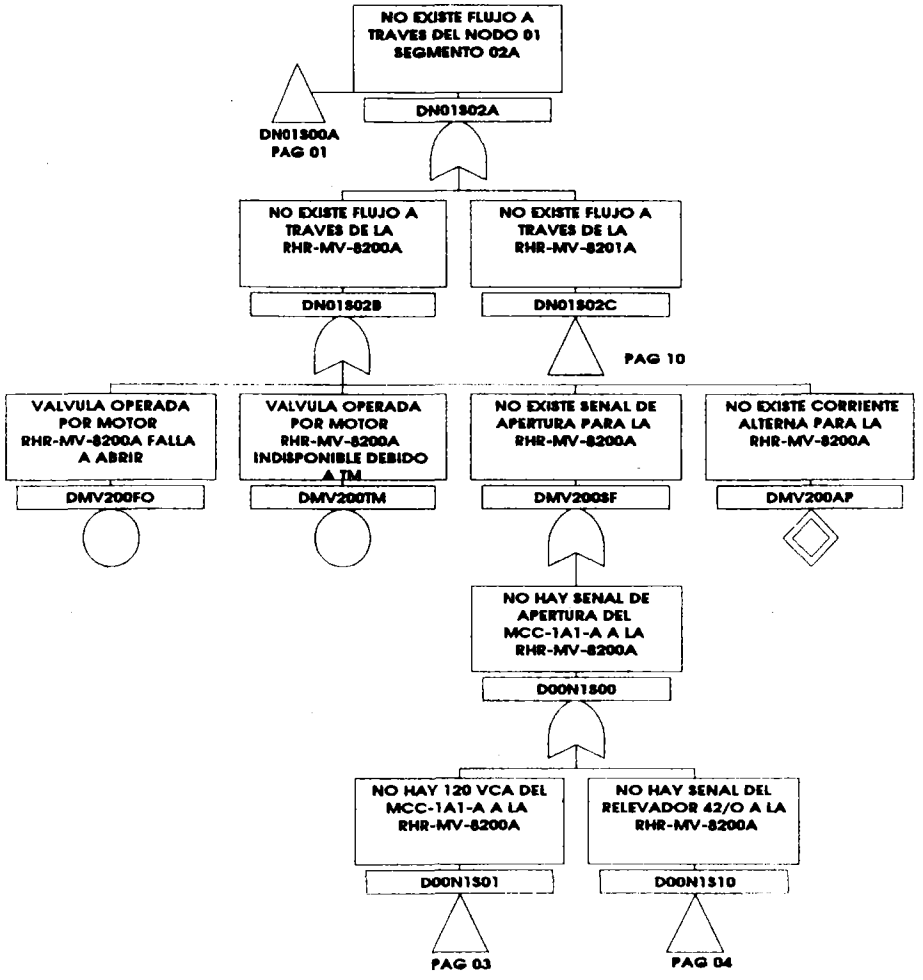


SISTEMA RHR MODO DE ENFRIAMIENTO DE LA PISCINA DE SUPRESION LAZO B (SPCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 05

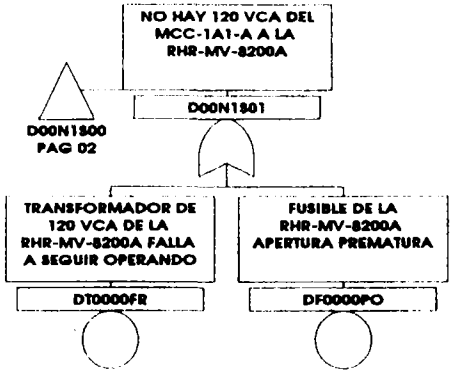
FIGURA B-12. ARBOL DE FALLAS DEL SISTEMA DE REMOCION DE CALOR RESIDUAL (RHR) MODO DE ASPERSION DE LA CONTENCION LAZO A (CSCM-A).



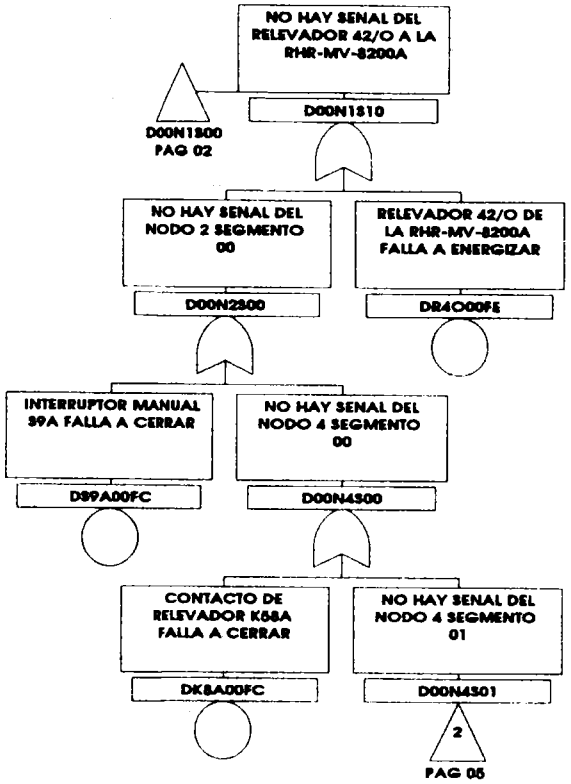
SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO A (CSCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



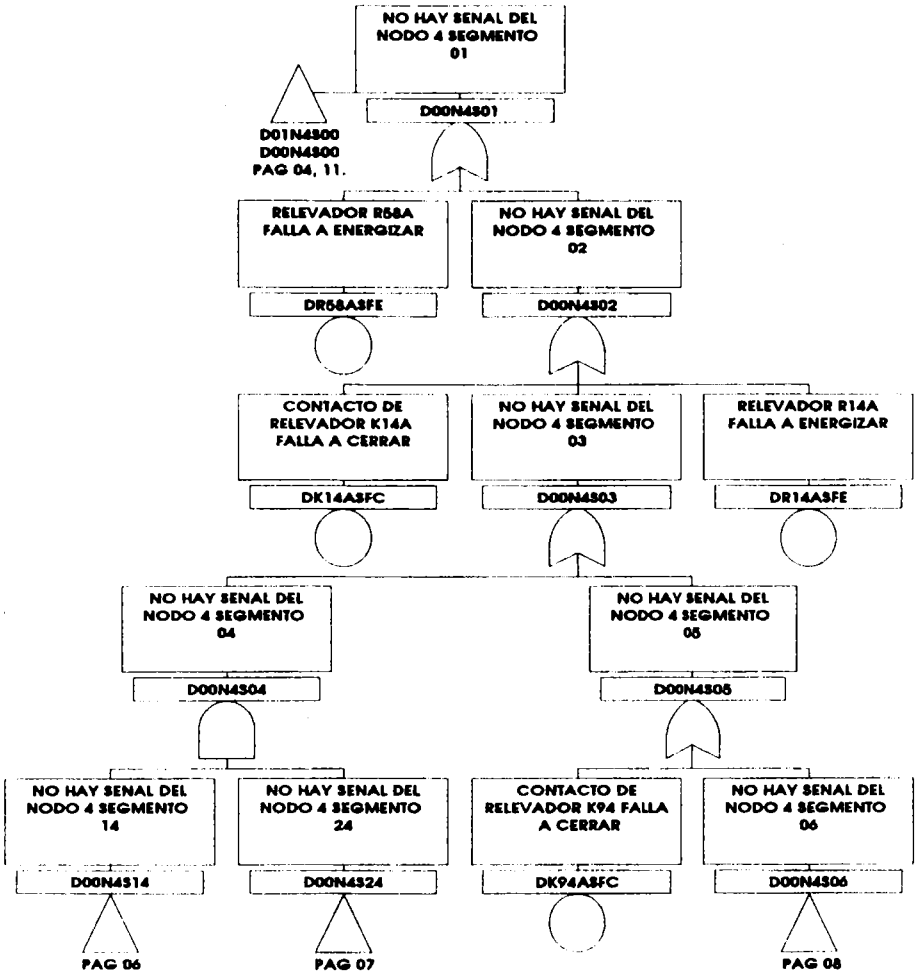
SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO A (CSCM-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 02**



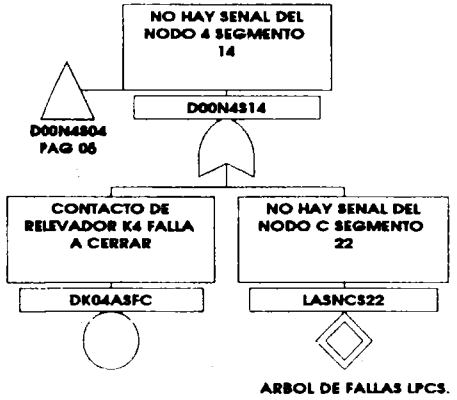
SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO A (CSCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03



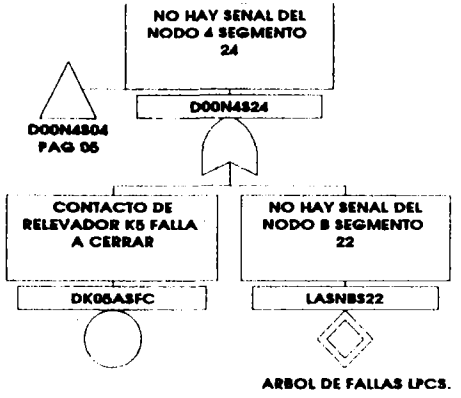
SISTEMA RHR MODO DE ASPESION DE LA CONTENCION LAZO A (CSCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04



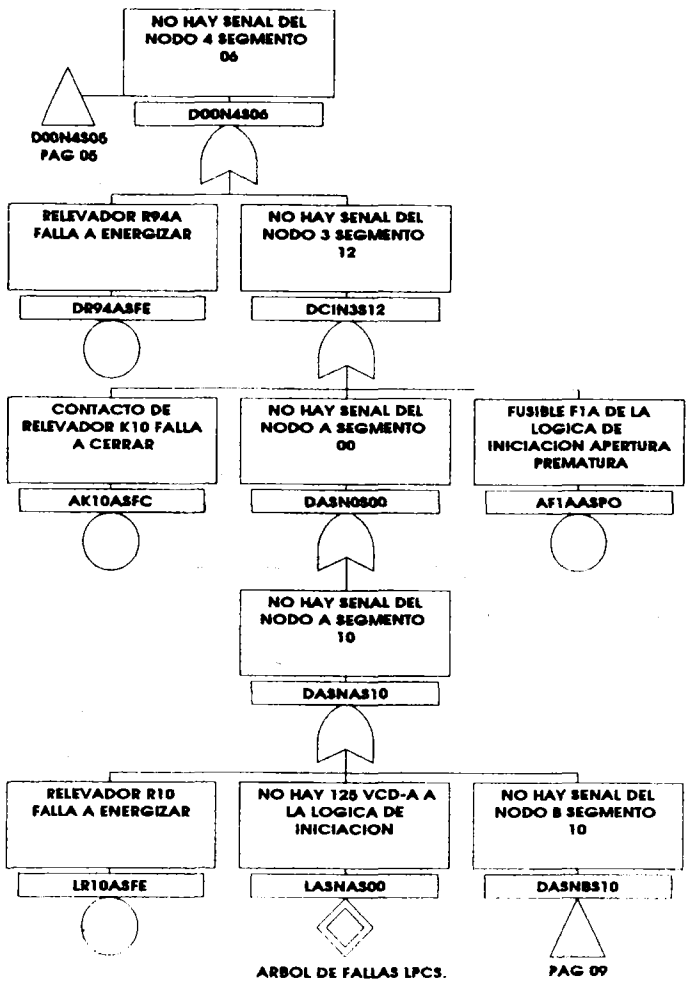
SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO A (CSCM-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 05**



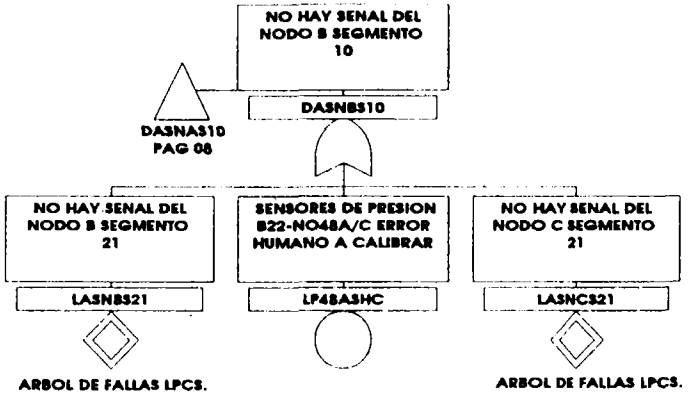
SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO A (CSCM-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 06**



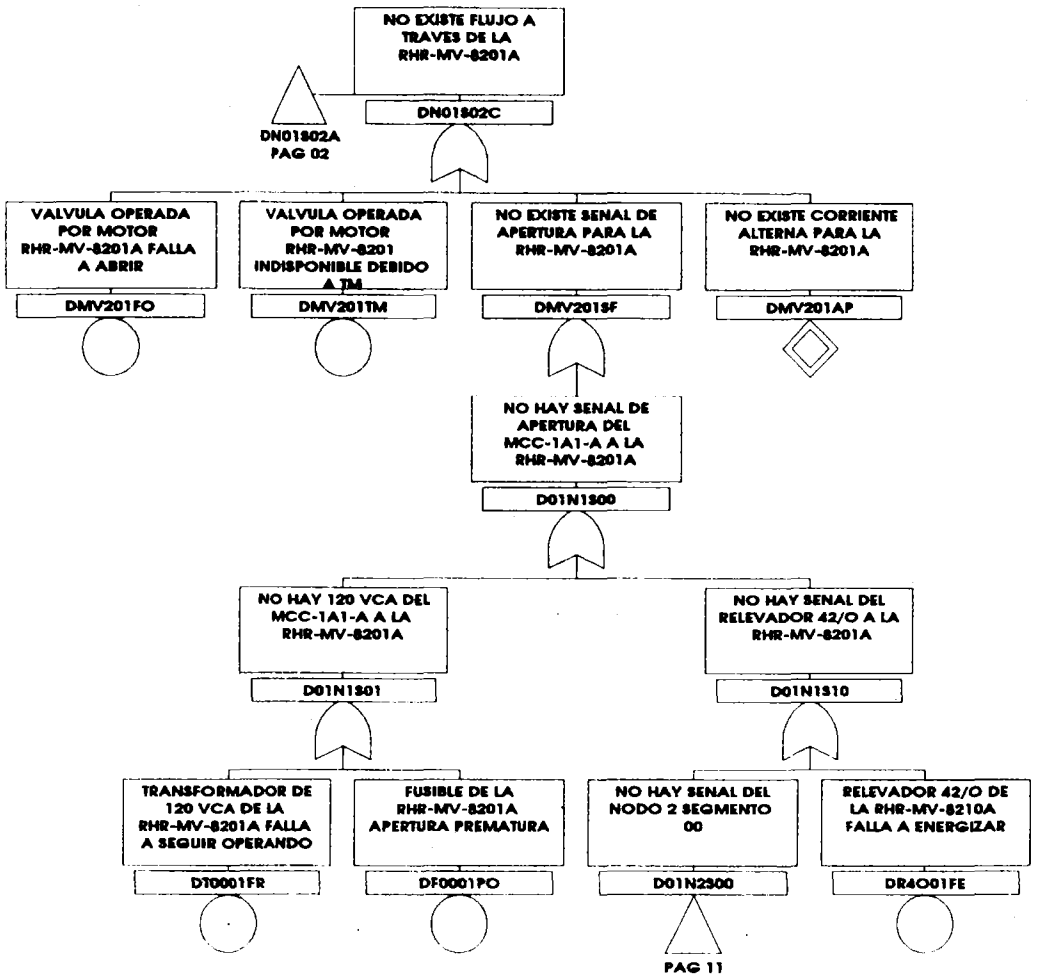
SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO A (CSCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 07



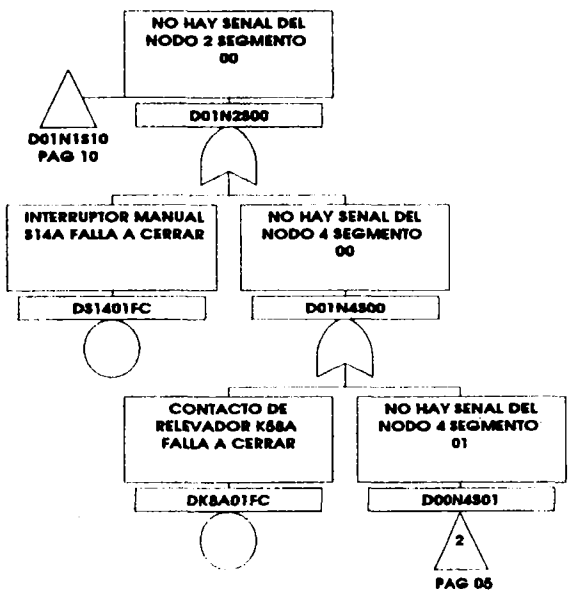
SISTEMA RHR MODO DE ASPAERSION DE LA CONTENCION LAZO A (CSCM-A)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 08**



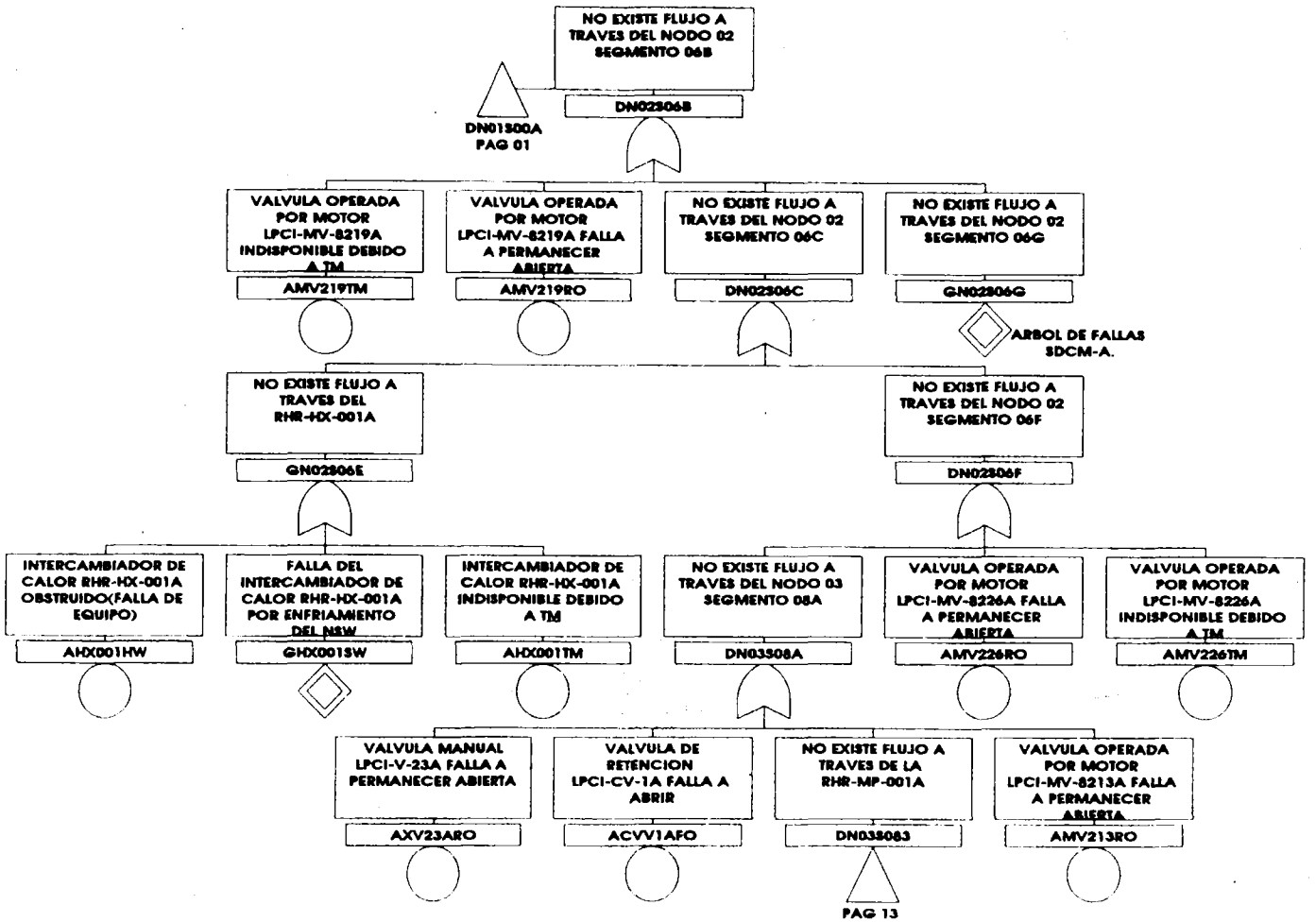
SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO A (CSCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09



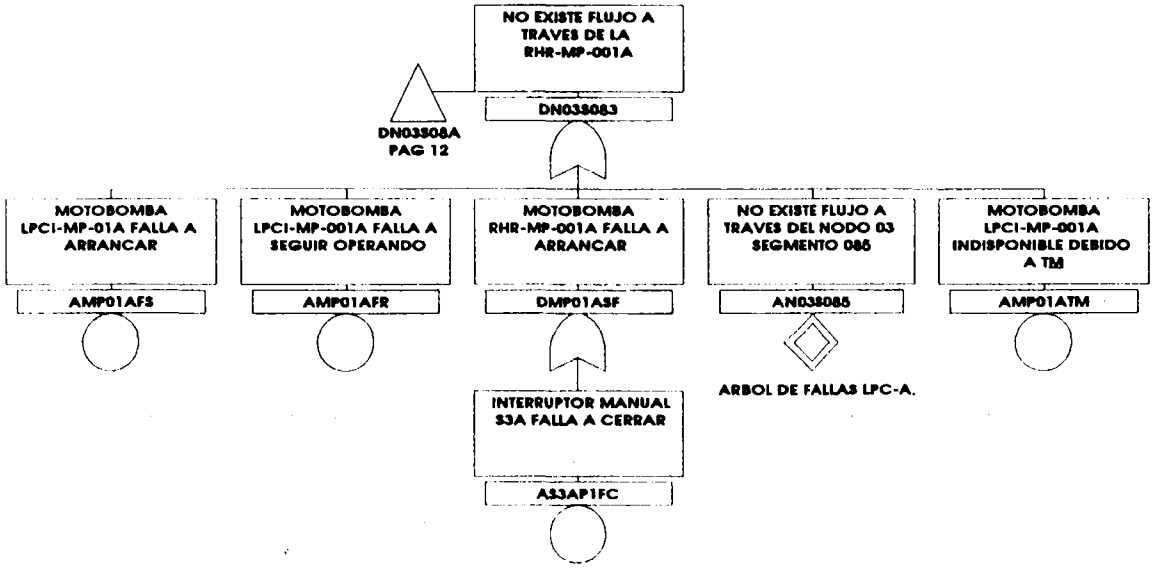
SISTEMA RHR MODO DE ASPERESION DE LA CONTENCION LAZO A (CSCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 10



SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO A (SDCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 11

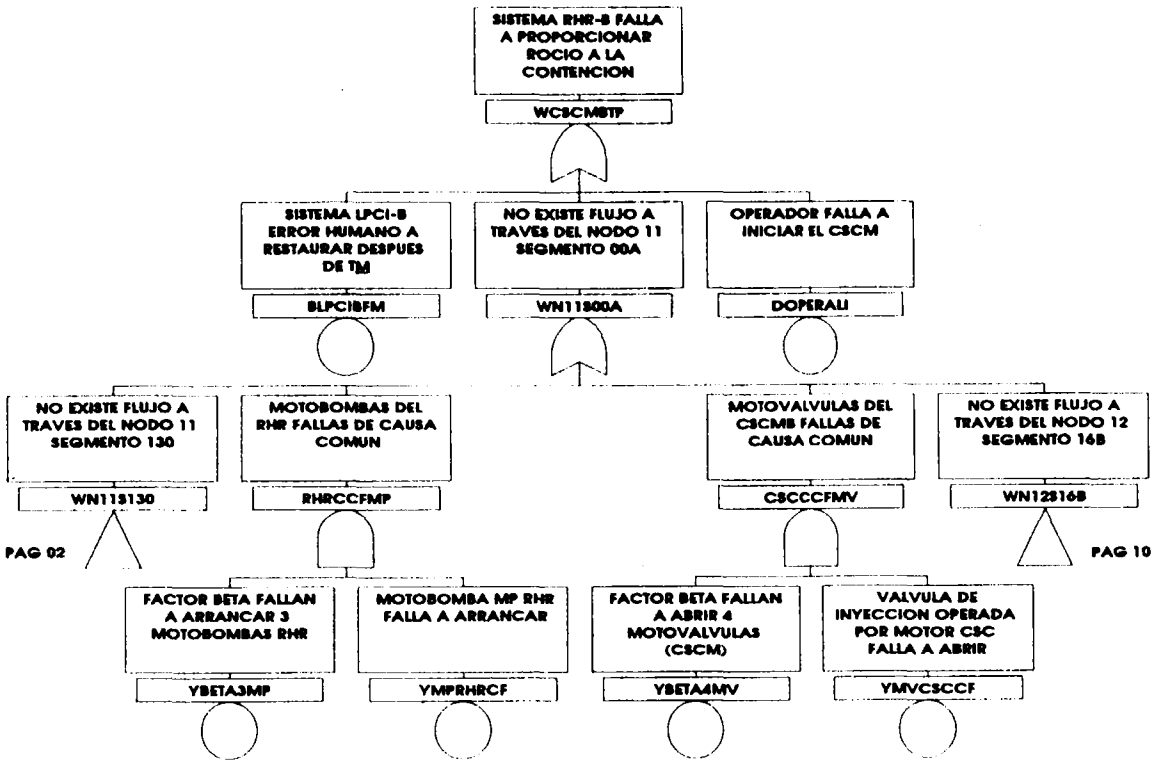


SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO A (CSCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 12

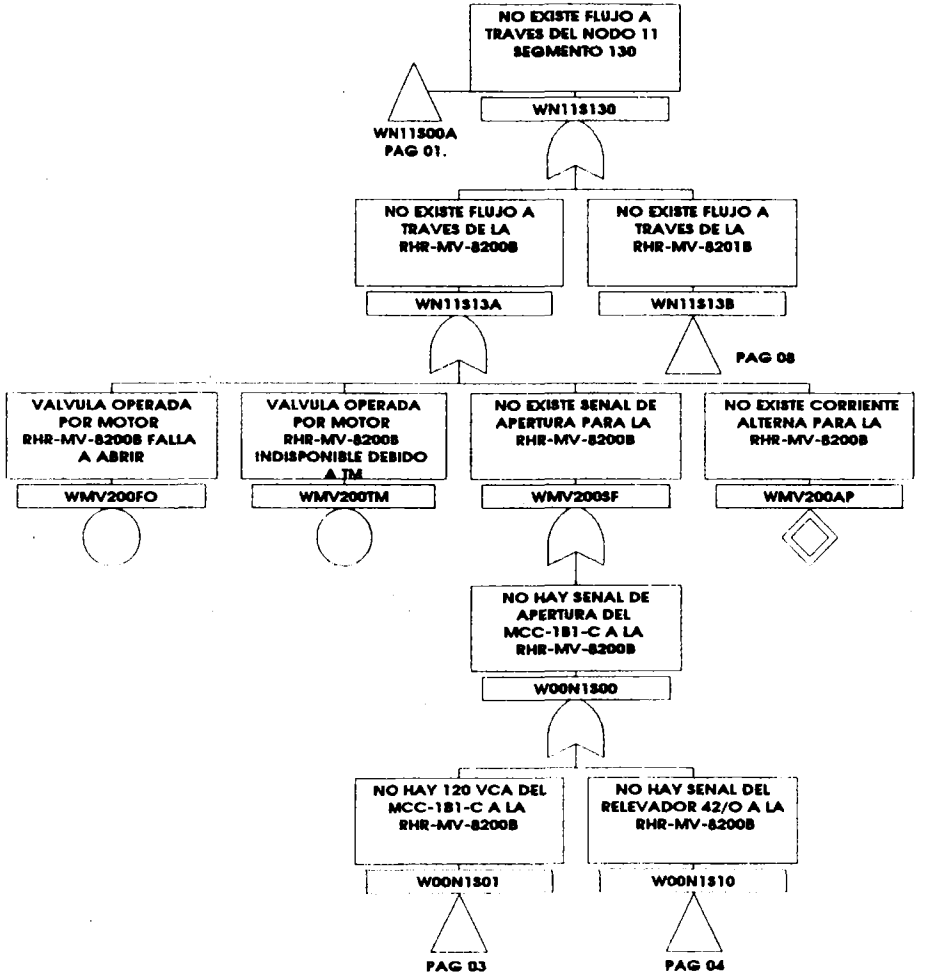


SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO A (CSCM-A)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 13

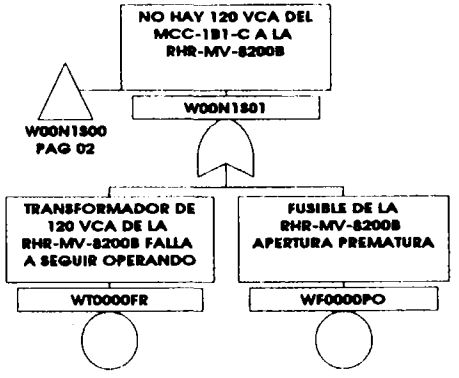
FIGURA B-13. ARBOL DE FALLAS DEL SISTEMA DE REMOCION DE CALOR RESIDUAL (RHR) MODO DE ASPERSION DE LA CONTENCION LAZO B (CSCM-B).



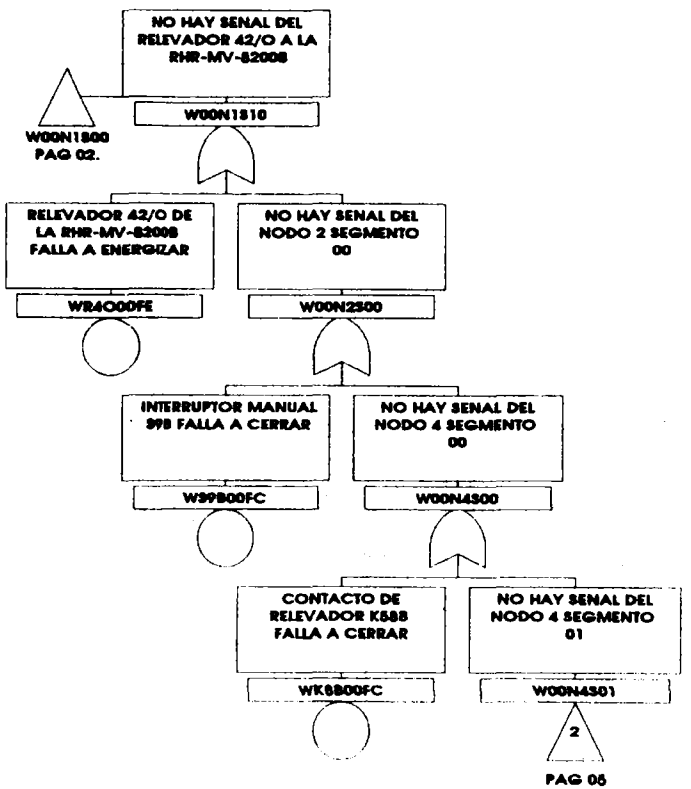
SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO B (CSCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



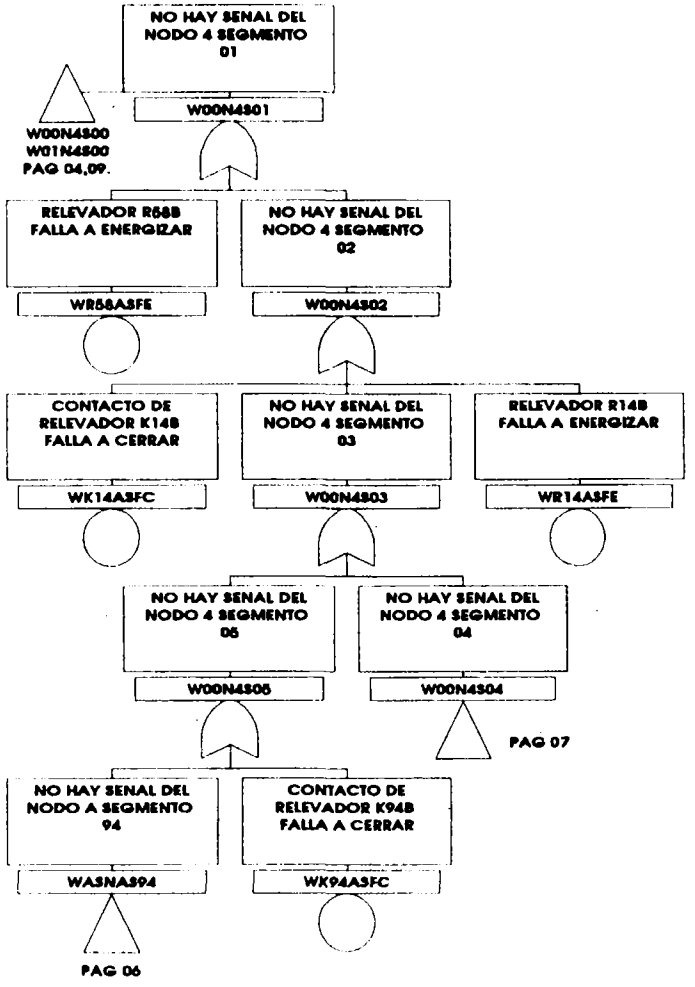
SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO B (CSCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02



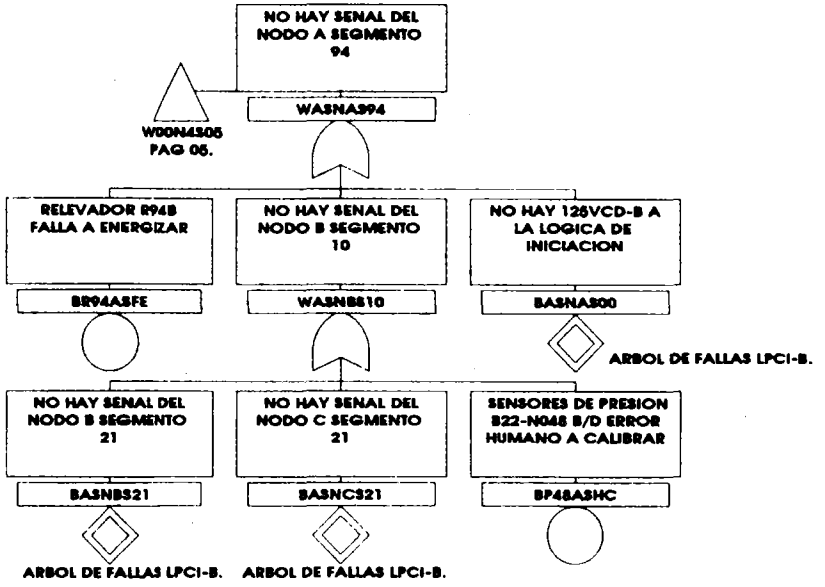
SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO B (CSCM-B)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 03**



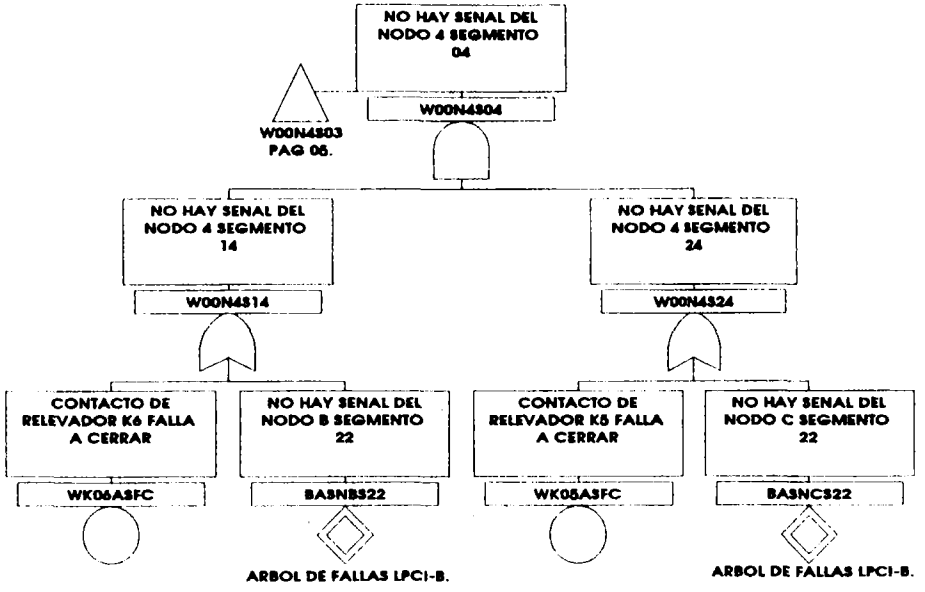
SISTEMA RHR MODO DE ASPESION DE LA CONTENCION LAZO B (CSCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04



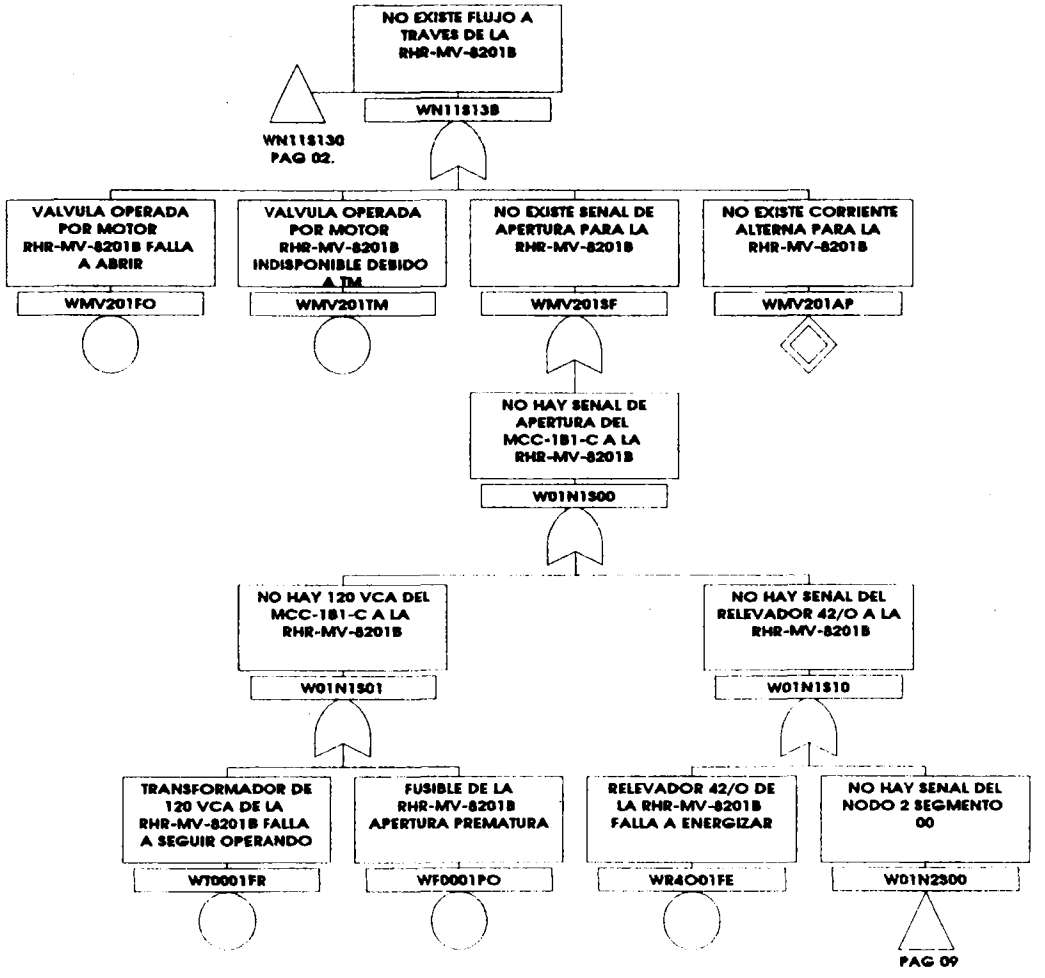
SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO B (CSCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 05



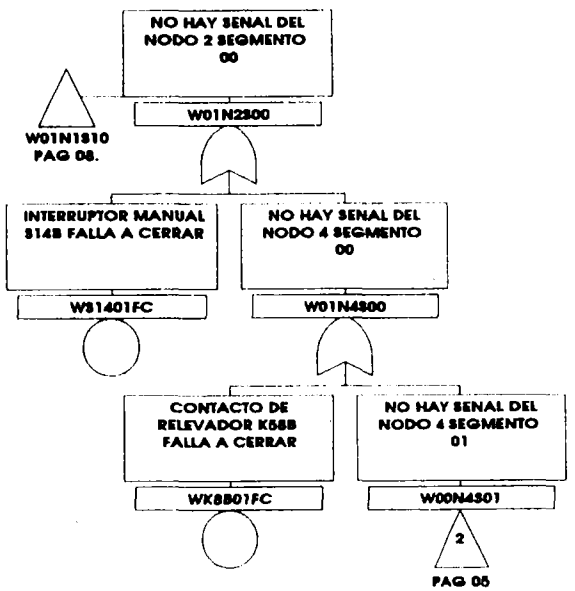
SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO B (CSCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 06



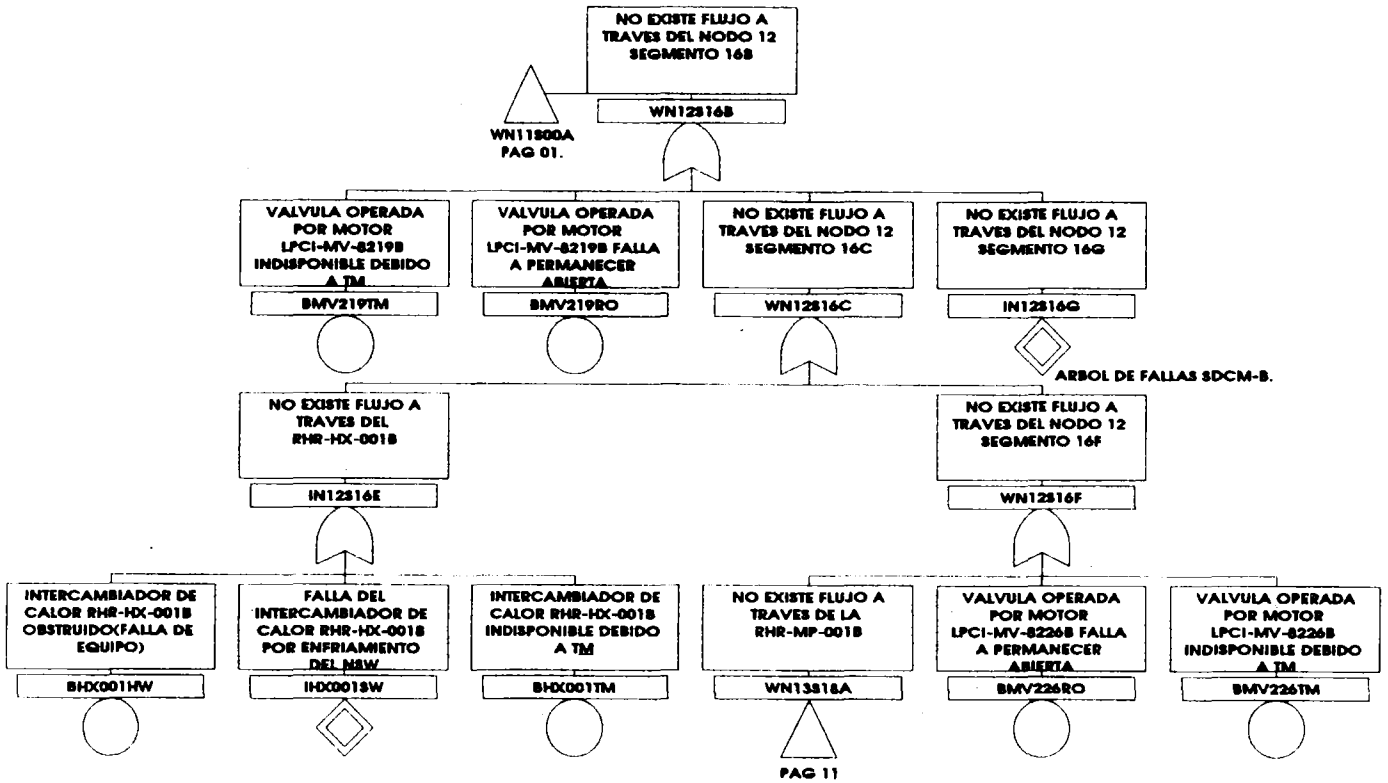
SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO B (CSCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 07



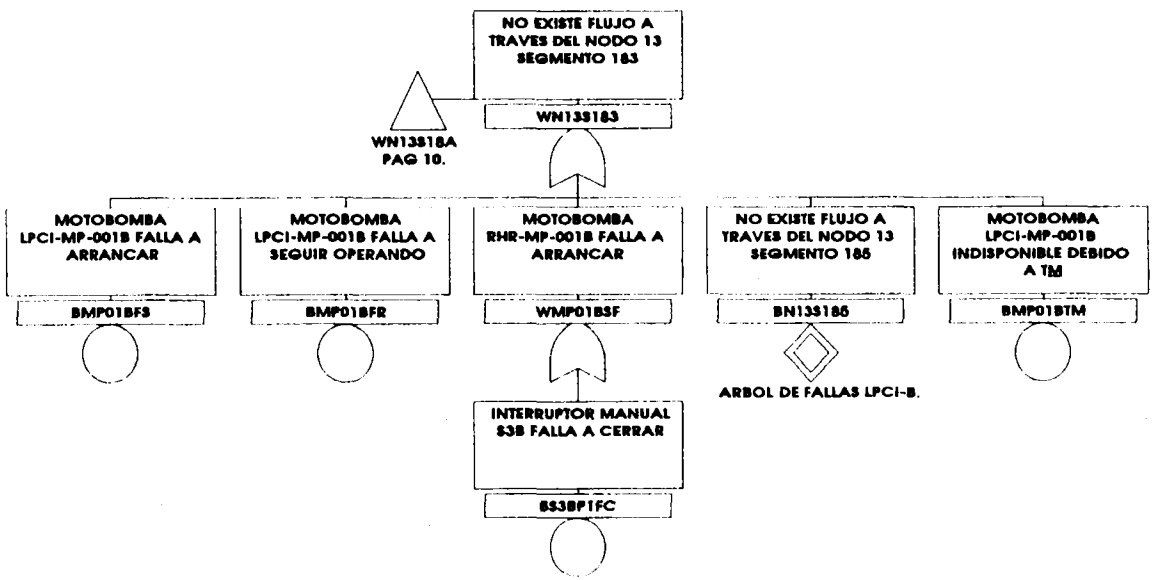
SISTEMA RHR MODO DE ASPAERSION DE LA CONTENCION LAZO B (CSCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 08



SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO B (CSCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09

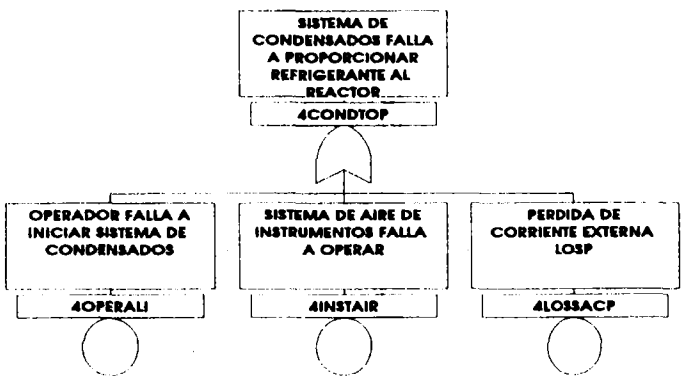


SISTEMA RHR MODO DE ASPERESION DE LA CONTENCION LAZO B (CSCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 10



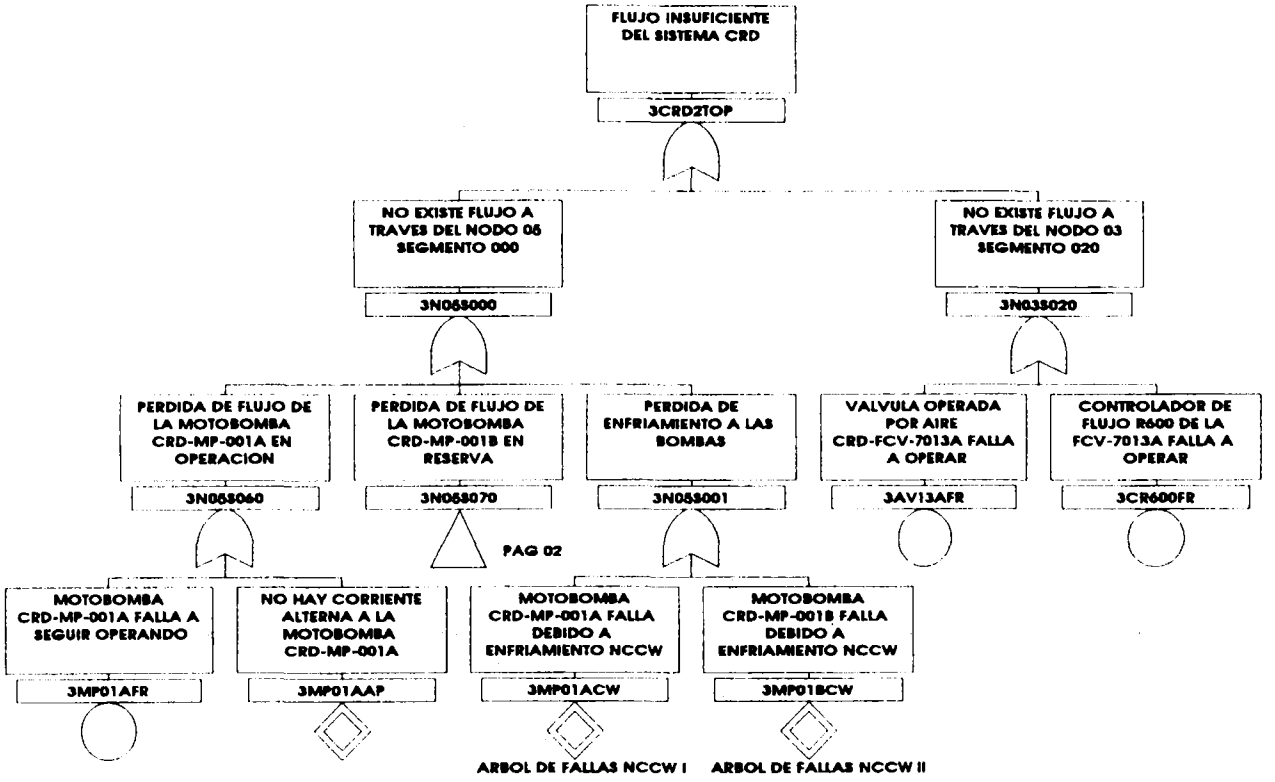
SISTEMA RHR MODO DE ASPERSION DE LA CONTENCION LAZO B (CSCM-B)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 11

FIGURA B-14. ARBOL DE FALLAS DEL SISTEMA DE CONDENSADOS.

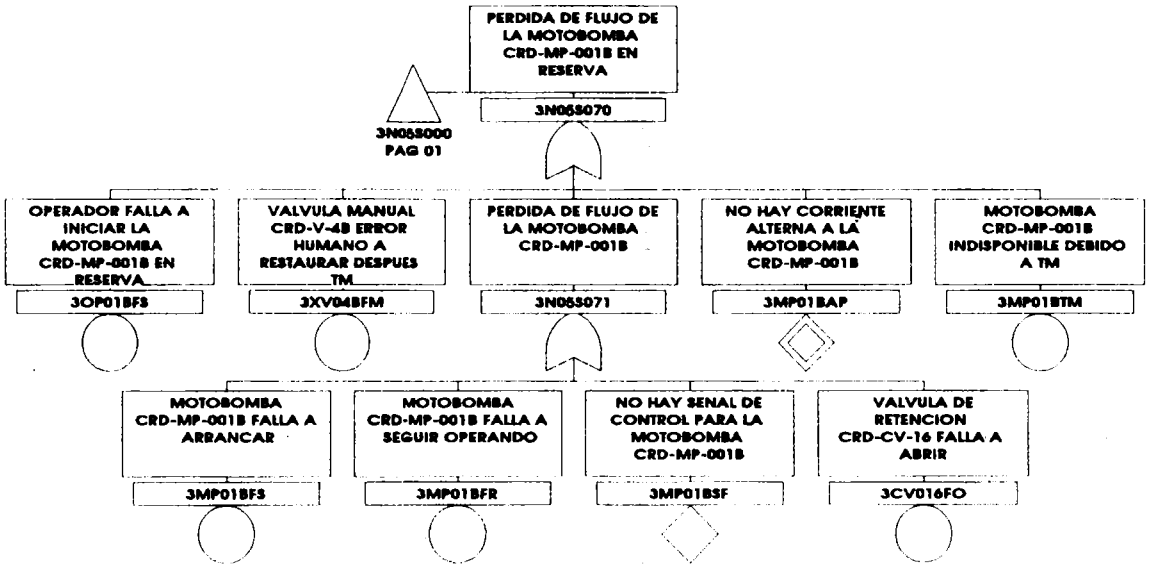


SISTEMA DE CONDENSADOS	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01

FIGURA B-15 ARBOL DE FALLAS DEL SISTEMA HIDRAULICO DE ACCIONAMIENTO DE BARRAS DE CONTROL (CRD).

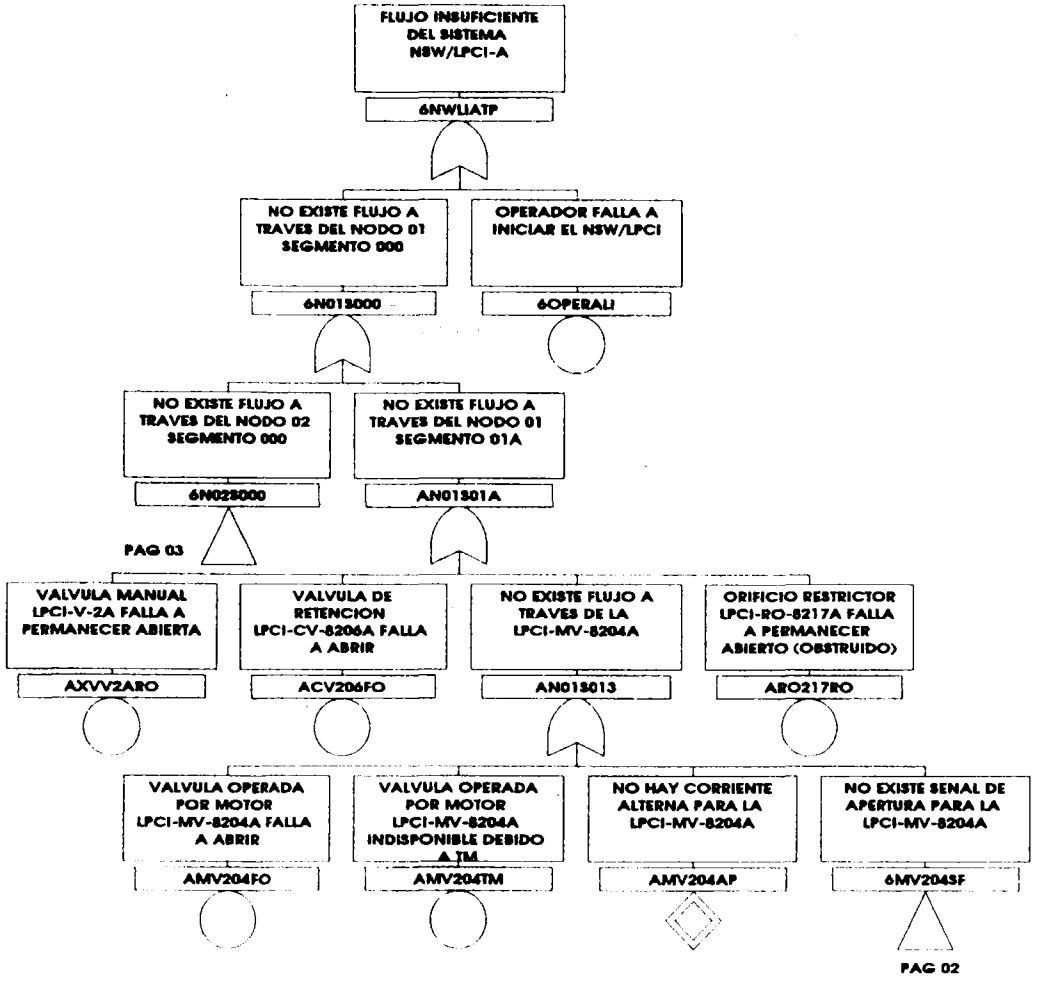


SISTEMA HIDRAULICO DE ACCIONAMIENTO DE BARRAS DE CONTROL (CRD)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01

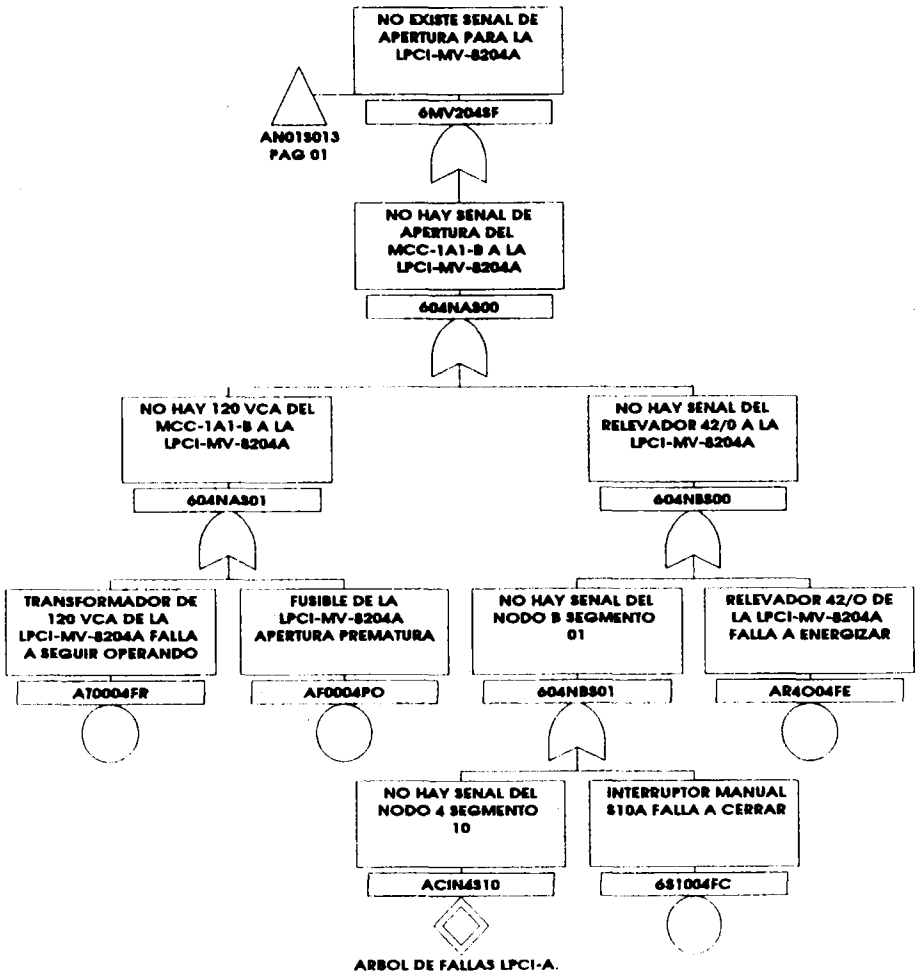


SISTEMA HIDRAULICO DE ACCIONAMIENTO DE BARRAS DE CONTROL (CRD)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02

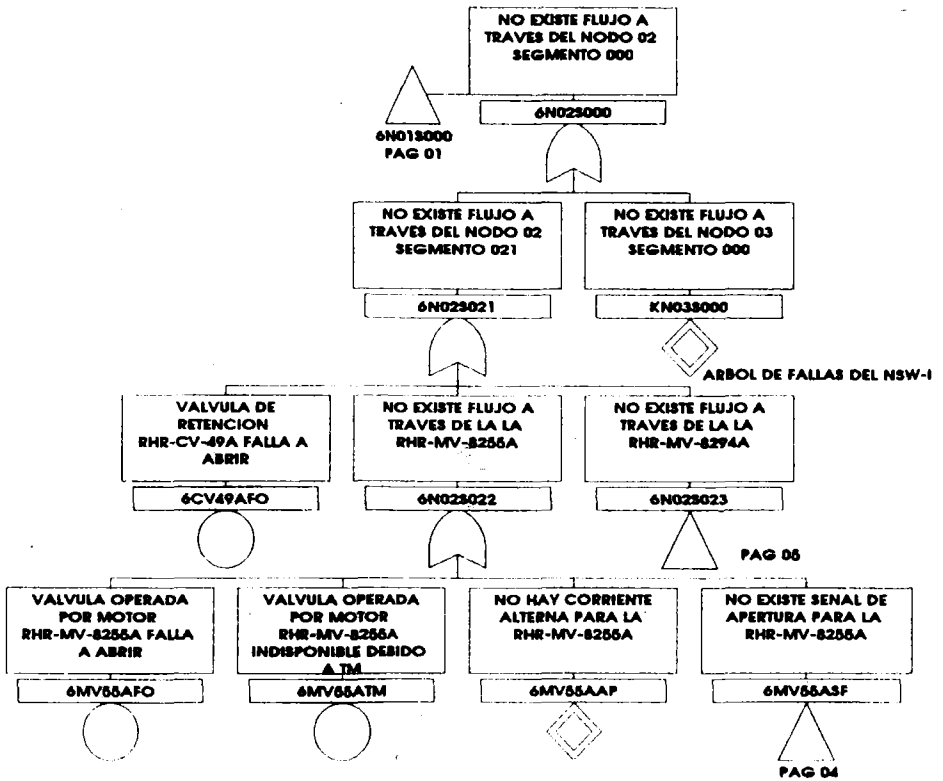
FIGURA B-16. ARBOL DE FALLAS DEL SISTEMA ALTERNO NSW/LPCI LAZO A MODO ENLAZADO.



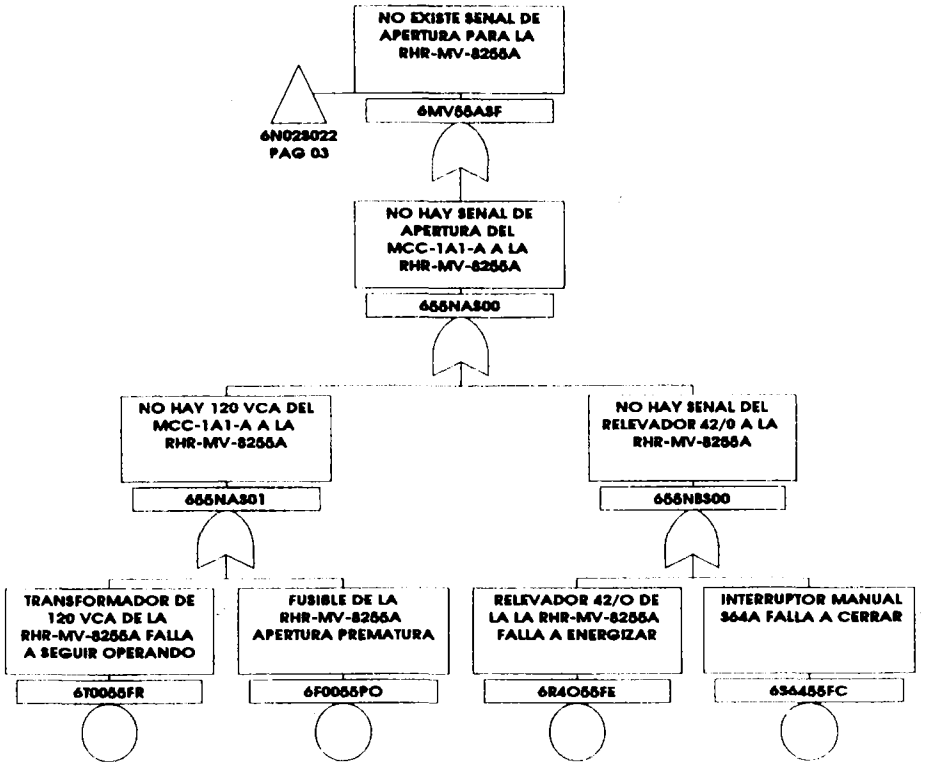
SISTEMA NSW/LPCI LAZO A MODO ENLAZADO	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



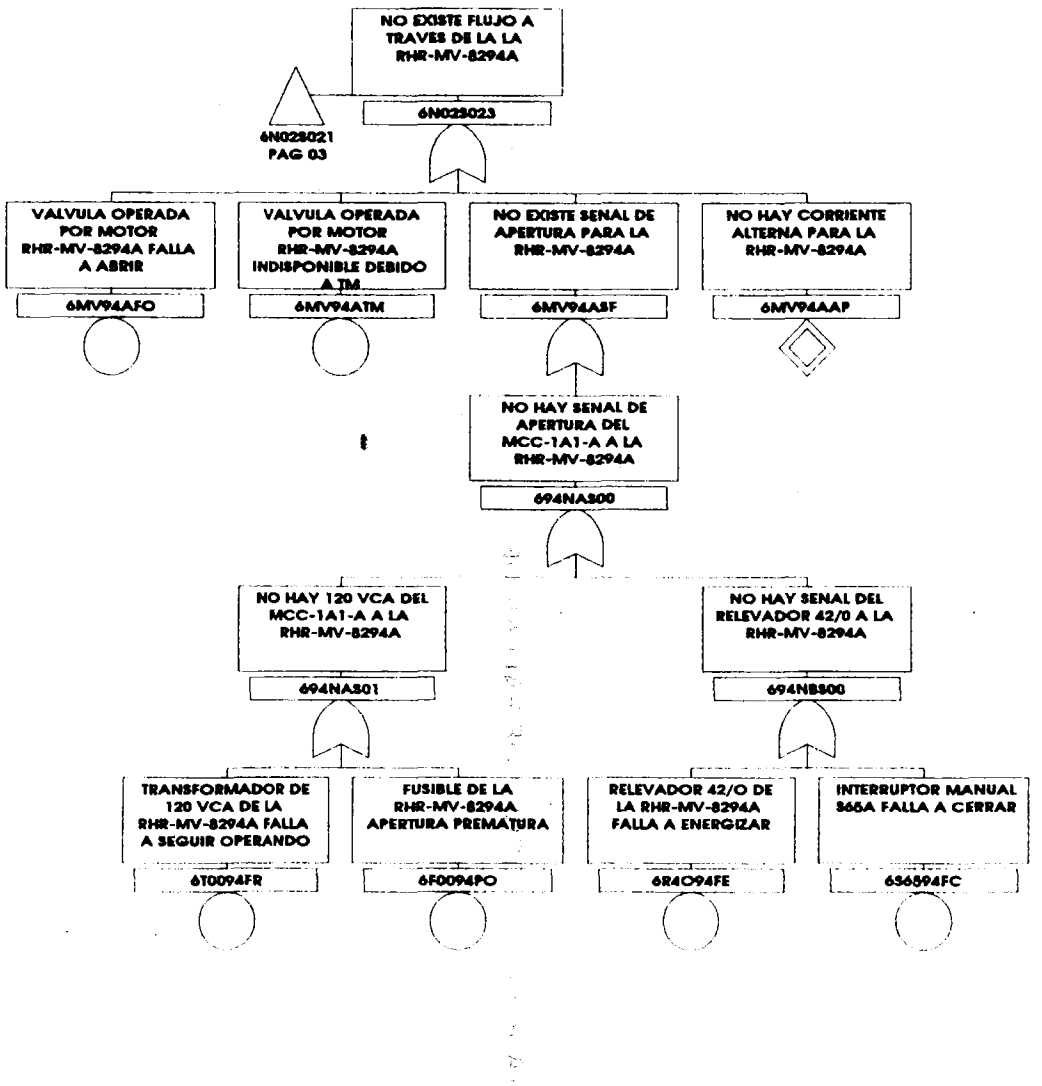
SISTEMA NSW/LPCI LAZO A MODO ENLAZADO	CNSNS/GTRYS	AEI-CNLV-U1	PAG 02



SISTEMA NSW/LPCI LAZO A MODO ENLAZADO	CNSNS/GTRYS	AEI-CNLV-U1	PAG 03

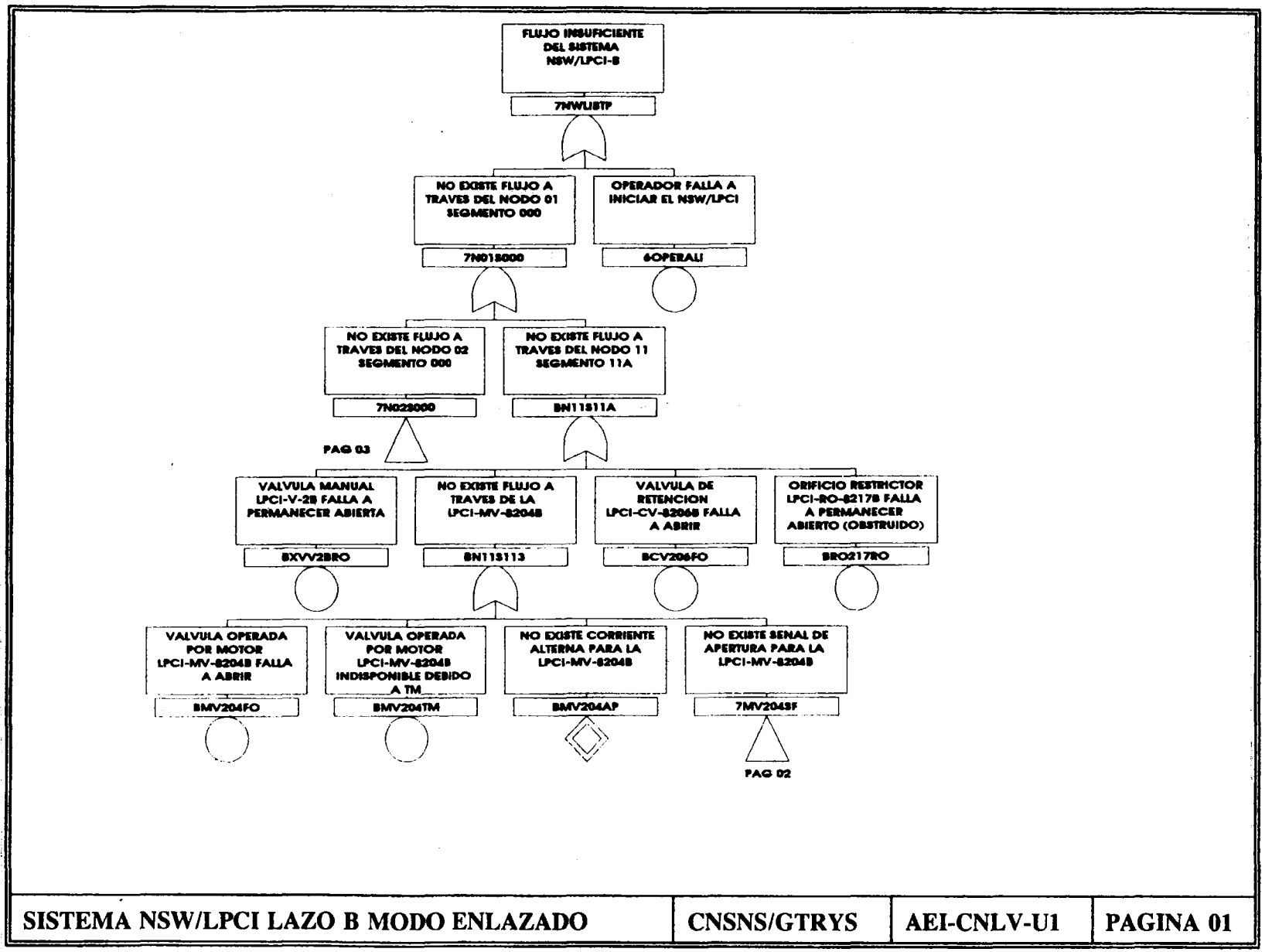


SISTEMA NSW/LPCI LAZO A MODO ENLAZADO	CNSNS/GTRYS	AEI-CNLV-U1	PAG 04

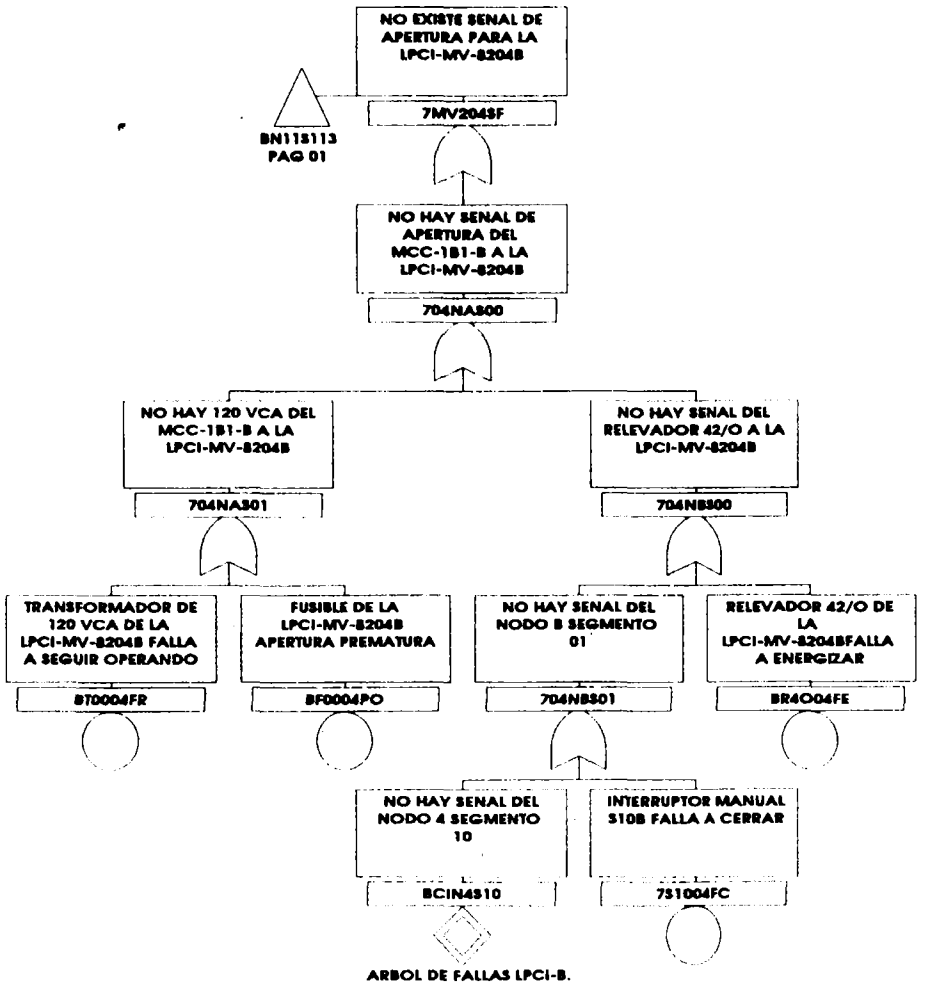


SISTEMA NSW/LPCI LAZO A MODO ENLAZADO	CNSNS/GTRYS	AEI-CNLV-U1	PAG 05

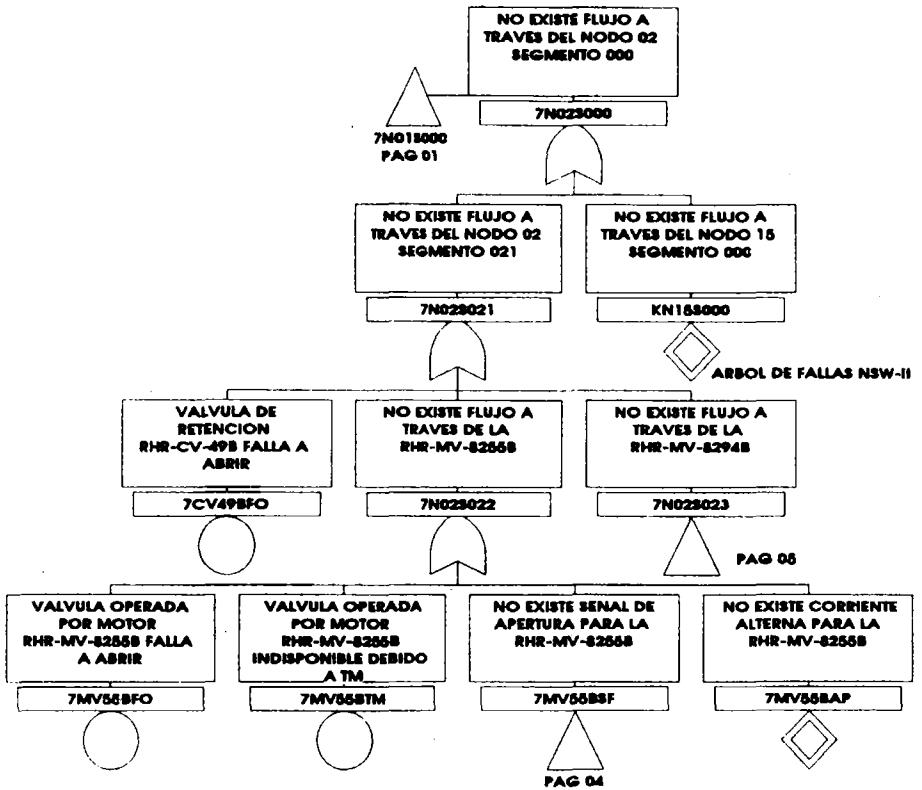
FIGURA B-17. ARBOL DE FALLAS DEL SISTEMA ALTERNO NSW/LPCI LAZO B MODO ENLAZADO.



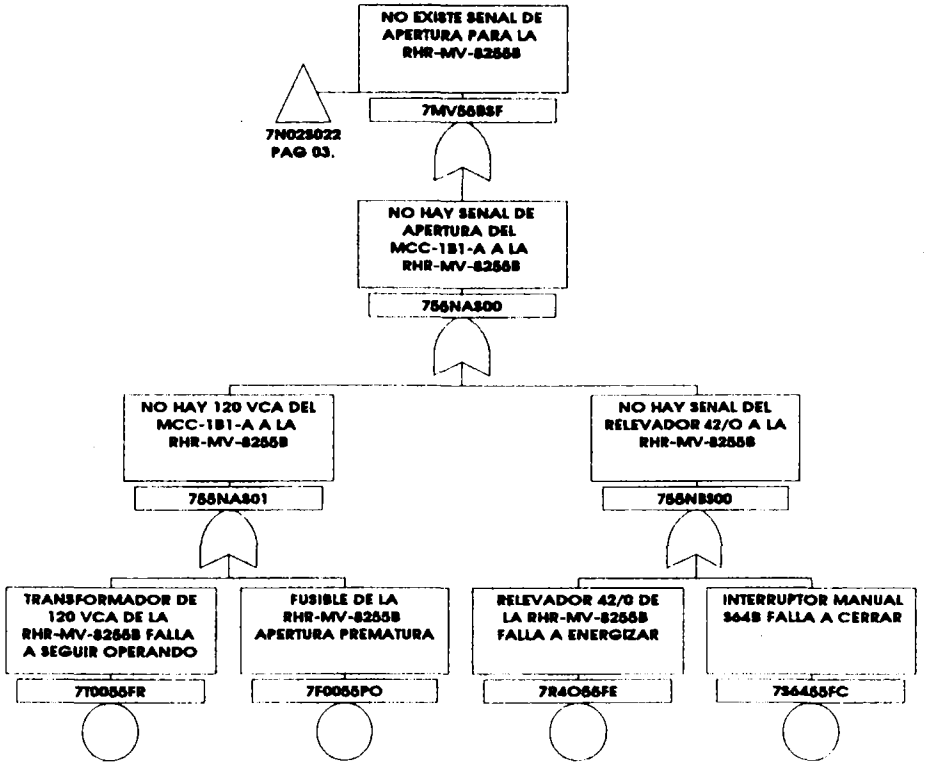
SISTEMA NSW/LPCI LAZO B MODO ENLAZADO	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



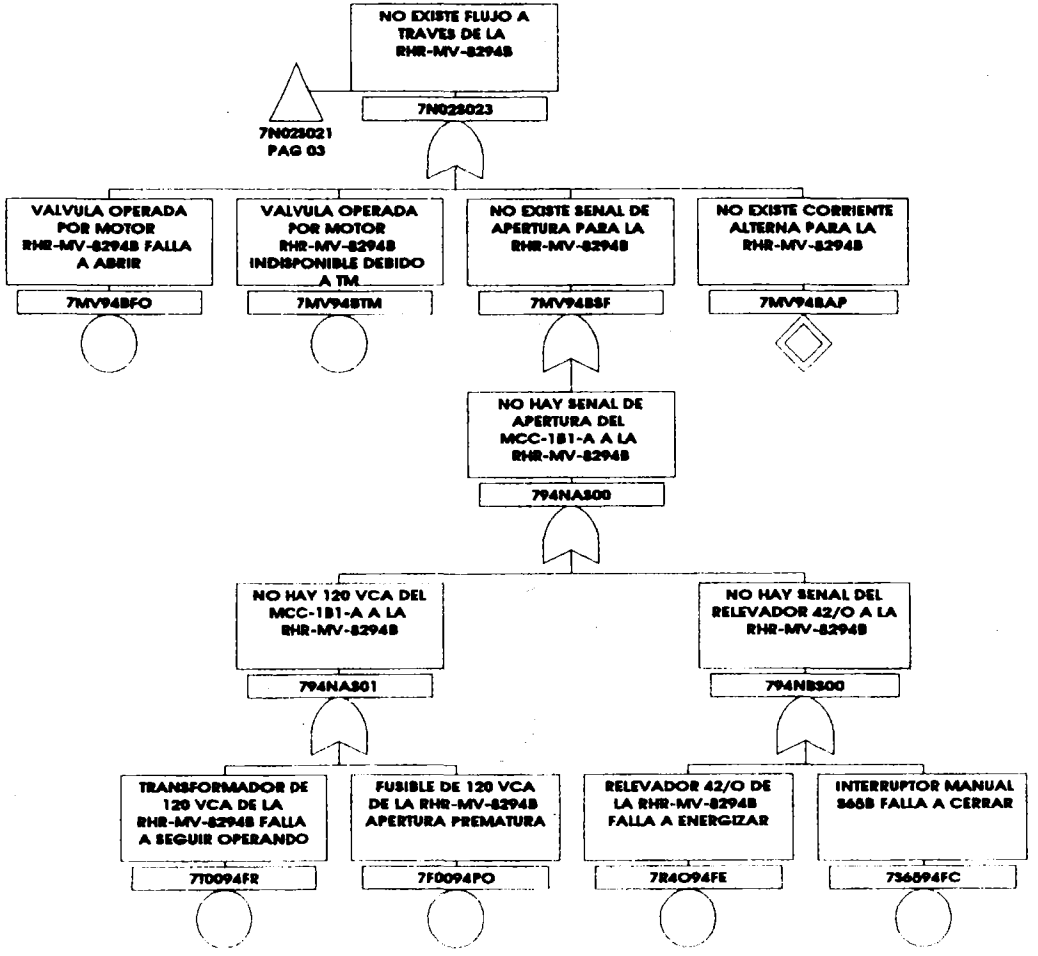
SISTEMA NSW/LPCI LAZO B MODO ENLAZADO	CNSNS/GTRYS	AEI-CNLV-U1	PAG 02



SISTEMA NSW/LPCI LAZO B MODO ENLAZADO	CNSNS/GTRYS	AEI-CNLV-U1	PAG 03

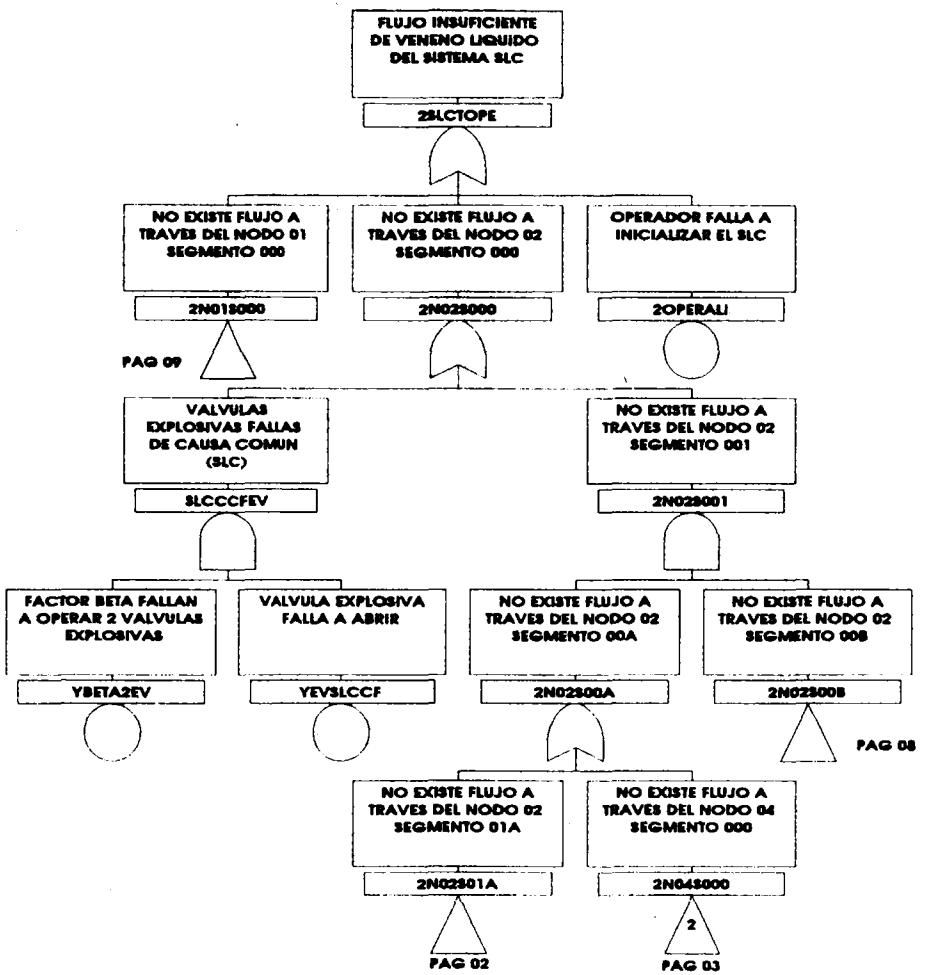


SISTEMA NSW/LPCI LAZO B MODO ENLAZADO	CNSNS/GTRYS	AEI-CNLV-U1	PAG 04

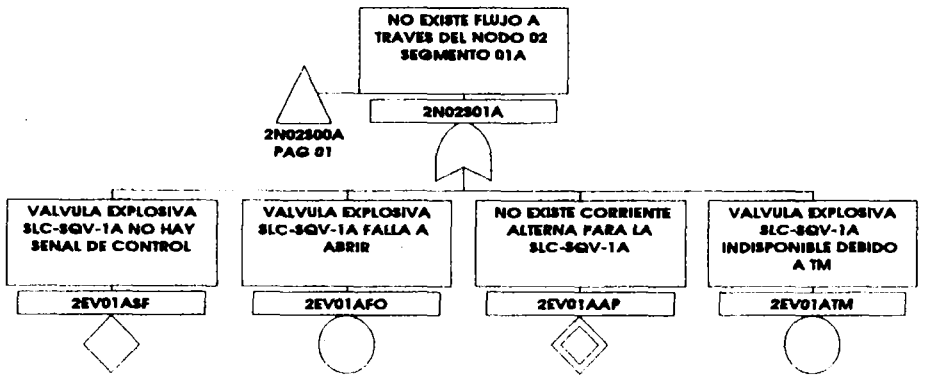


SISTEMA NSW/LPCI LAZO B MODO ENLAZADO	CNSNS/GTRYS	AEI-CNLV-U1	PAG 05

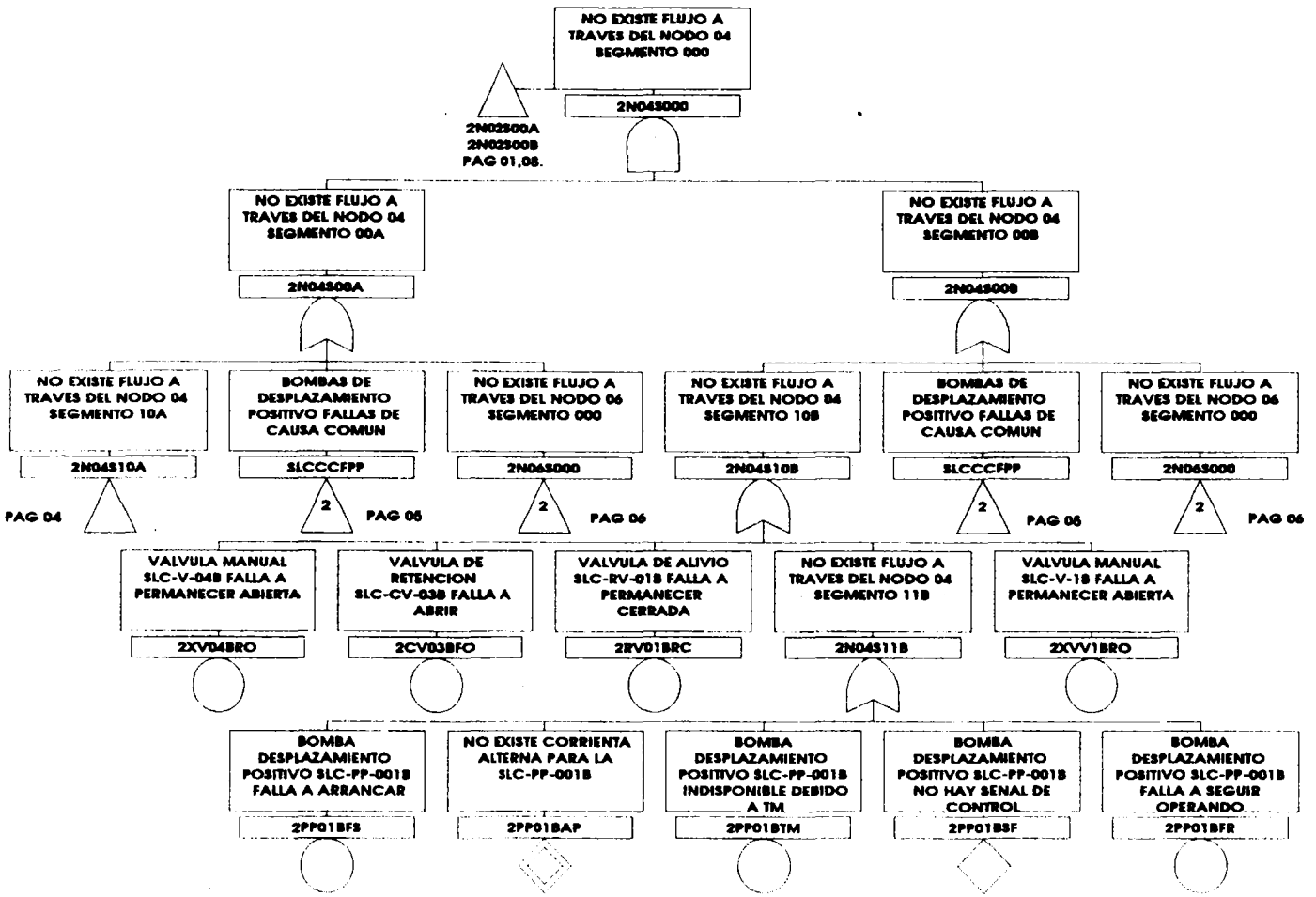
FIGURA B-18. ARBOL DE FALLAS DEL SISTEMA DE INYECCION DE VENENO LIQUIDO (SLC).



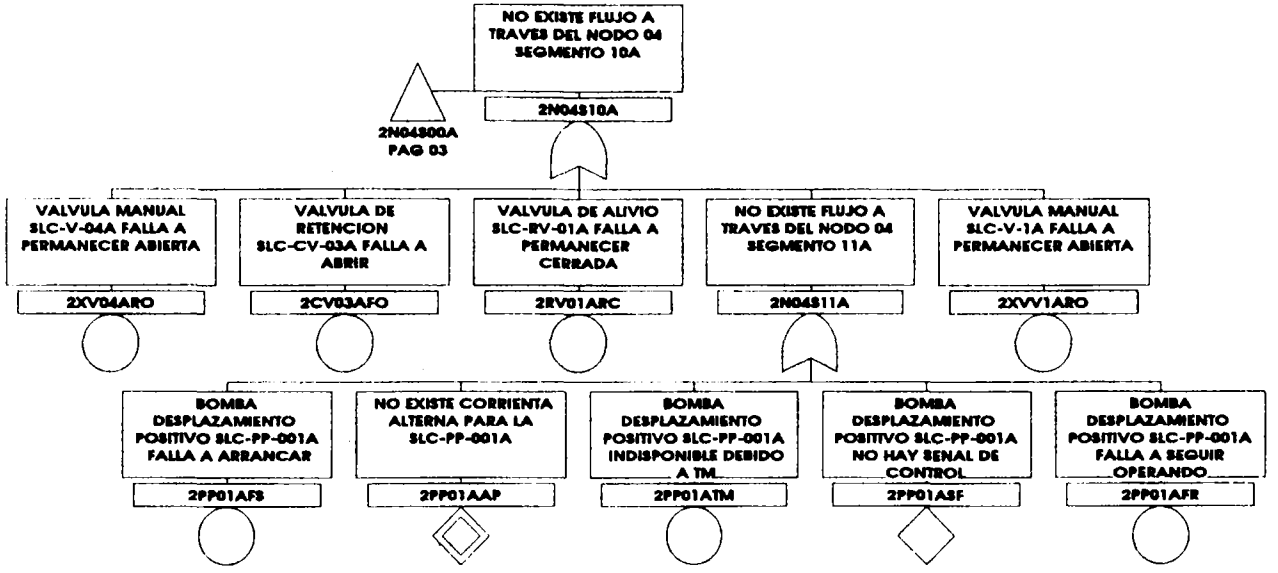
SISTEMA DE INYECCION DE VENENO LIQUIDO (SLC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



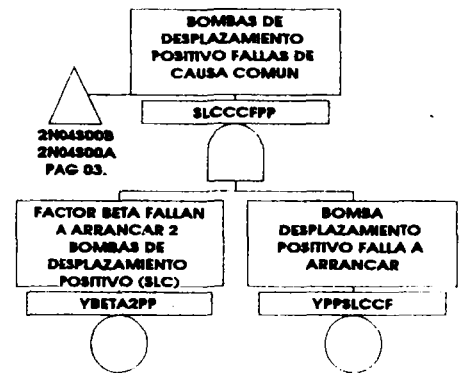
SISTEMA DE INYECCION DE VENENO LIQUIDO (SLC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02

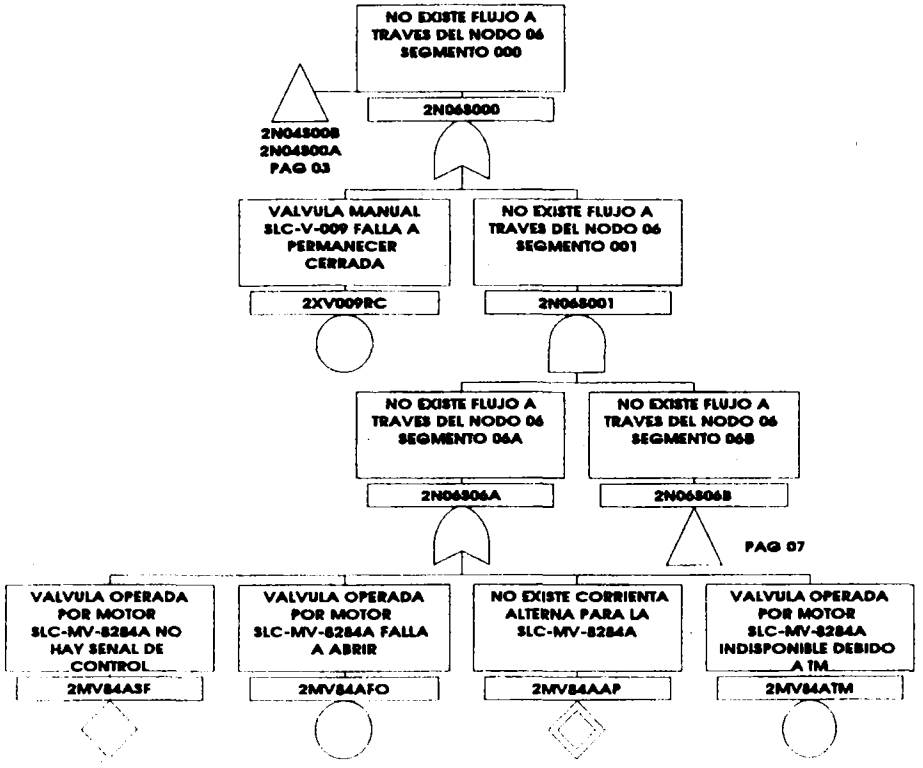


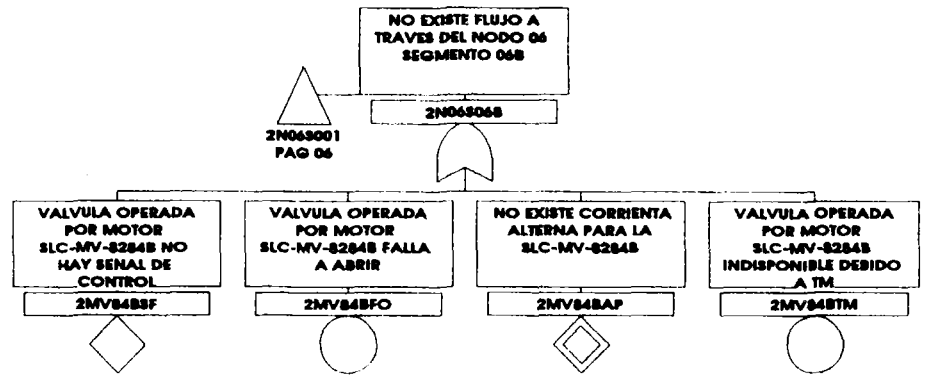
SISTEMA DE INYECCION DE VENENO LIQUIDO (SLC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03



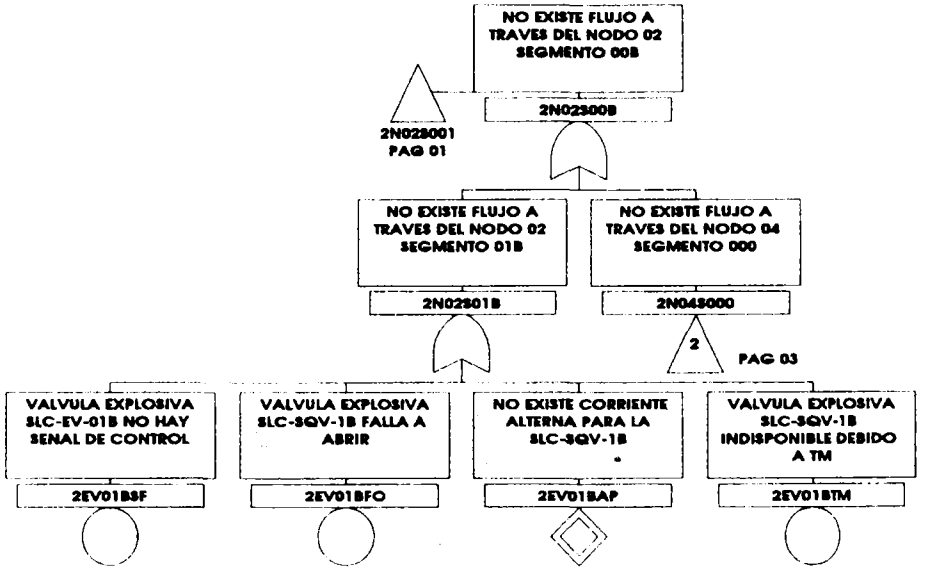
SISTEMA DE INYECCION DE VENENO LIQUIDO (SLC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04


BOMBAS DE DESPLAZAMIENTO POSITIVO FALLAS DE CAUSA COMUN
SLCCCFPP
2N04S00B
2N04S00A
PAG 03.
FACTOR BETA FALLAN A ARRANCAR 2 BOMBAS DE DESPLAZAMIENTO POSITIVO (SLC)
YBETA2PP
BOMBA DESPLAZAMIENTO POSITIVO FALLA A ARRANCAR
YPPSLCCF

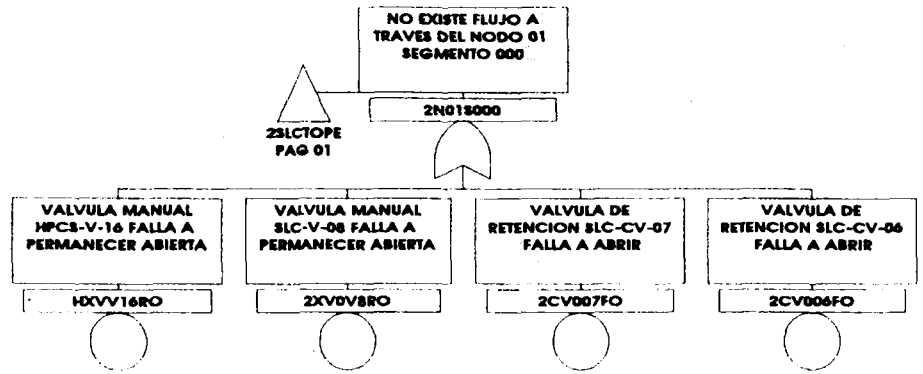

NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 000
2N065000
2N045008
2N045009A
PAG 03
VALVULA MANUAL SLC-V-009 FALLA A PERMANECER CERRADA
2XV009RC
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
2N065001
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 06A
2N06506A
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 06B
2N06506B
PAG 07
VALVULA OPERADA POR MOTOR SLC-MV-8284A NO HAY SENAL DE CONTROL
2MV84ASF
VALVULA OPERADA POR MOTOR SLC-MV-8284A FALLA A ABRIR
2MV84AFO
NO EXISTE CORRIENTA ALTERNA PARA LA SLC-MV-8284A
2MV84AAP
VALVULA OPERADA POR MOTOR SLC-MV-8284A INDISPONIBLE DEBIDO A TM
2MV84ATM



SISTEMA DE INYECCION DE VENENO LQUIDO (SLC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 07

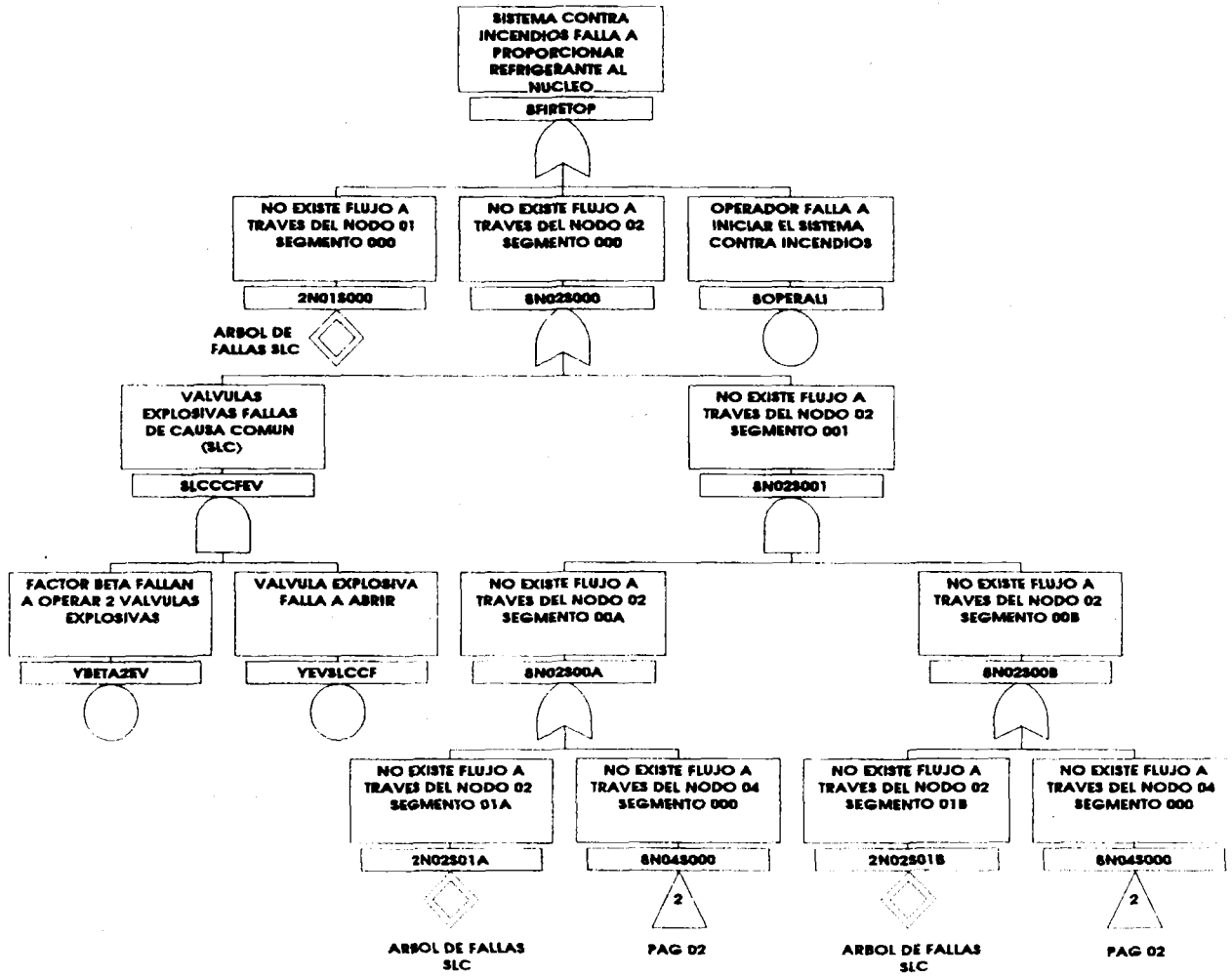


SISTEMA DE INYECCION DE VENENO LIQUIDO (SLC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 08

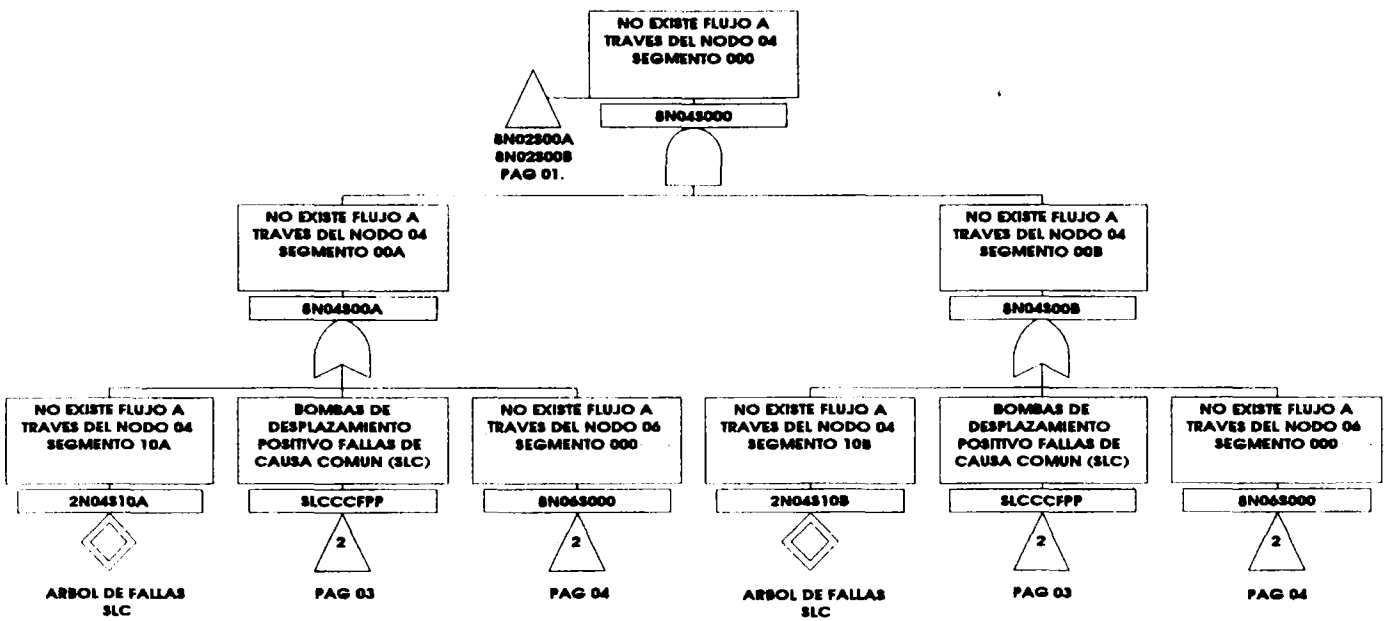


SISTEMA DE INYECCION DE VENENO LIQUIDO (SLC)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09

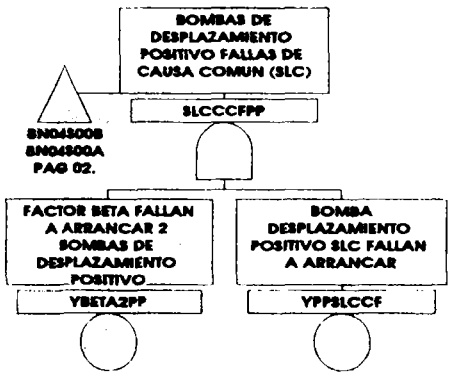
FIGURA B-19. ARBOL DE FALLAS DEL SISTEMA CONTRA INCENDIOS.



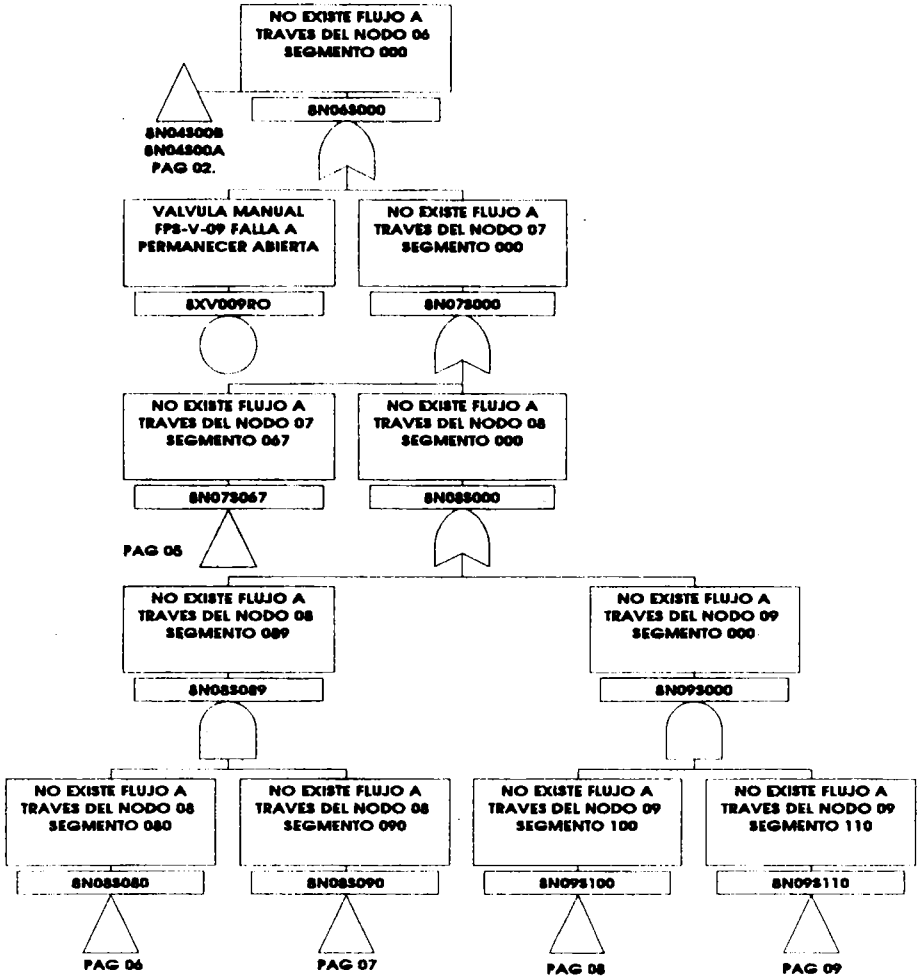
SISTEMA CONTRA INCENDIOS (FIRE)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



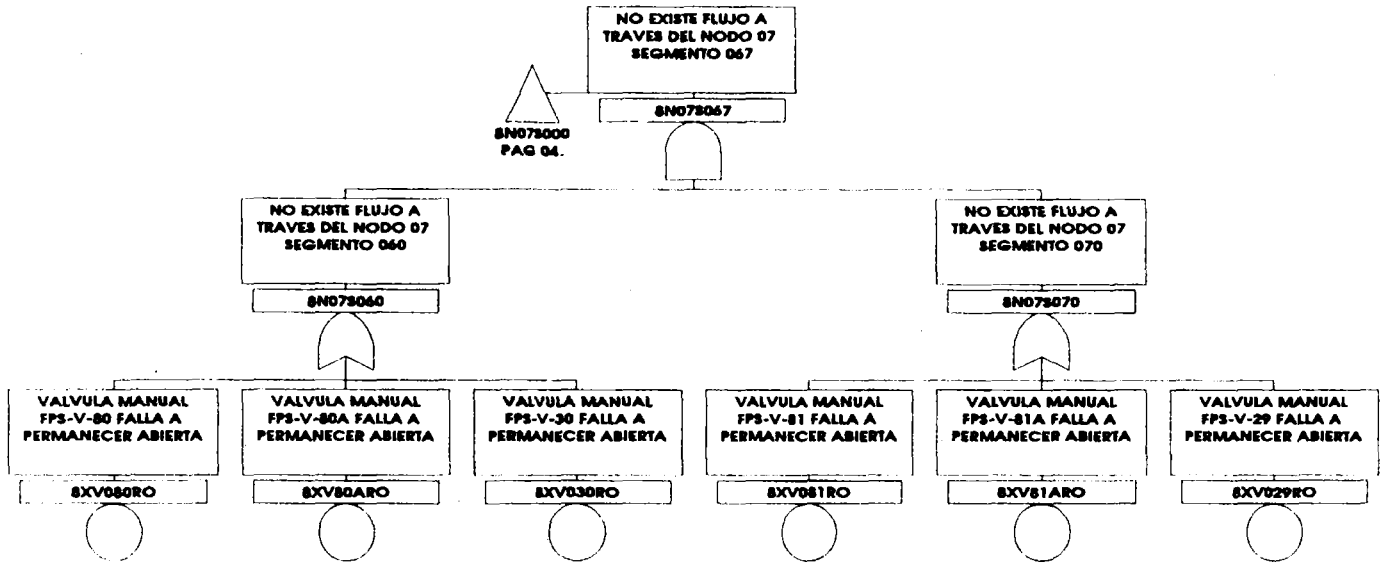
SISTEMA CONTRA INCENDIOS (FIRE)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02



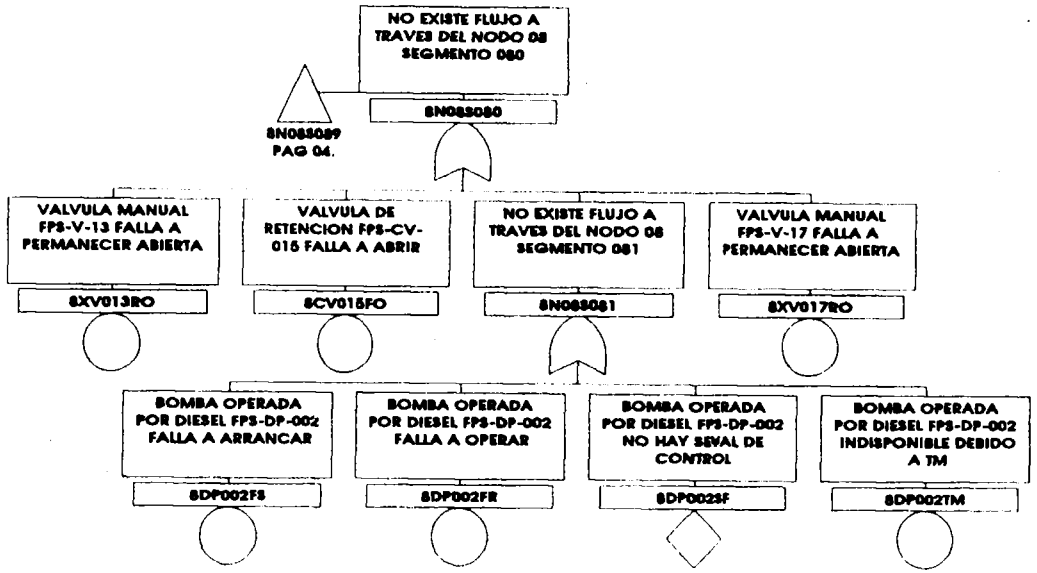
SISTEMA CONTRA INCENDIOS (FIRE)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03



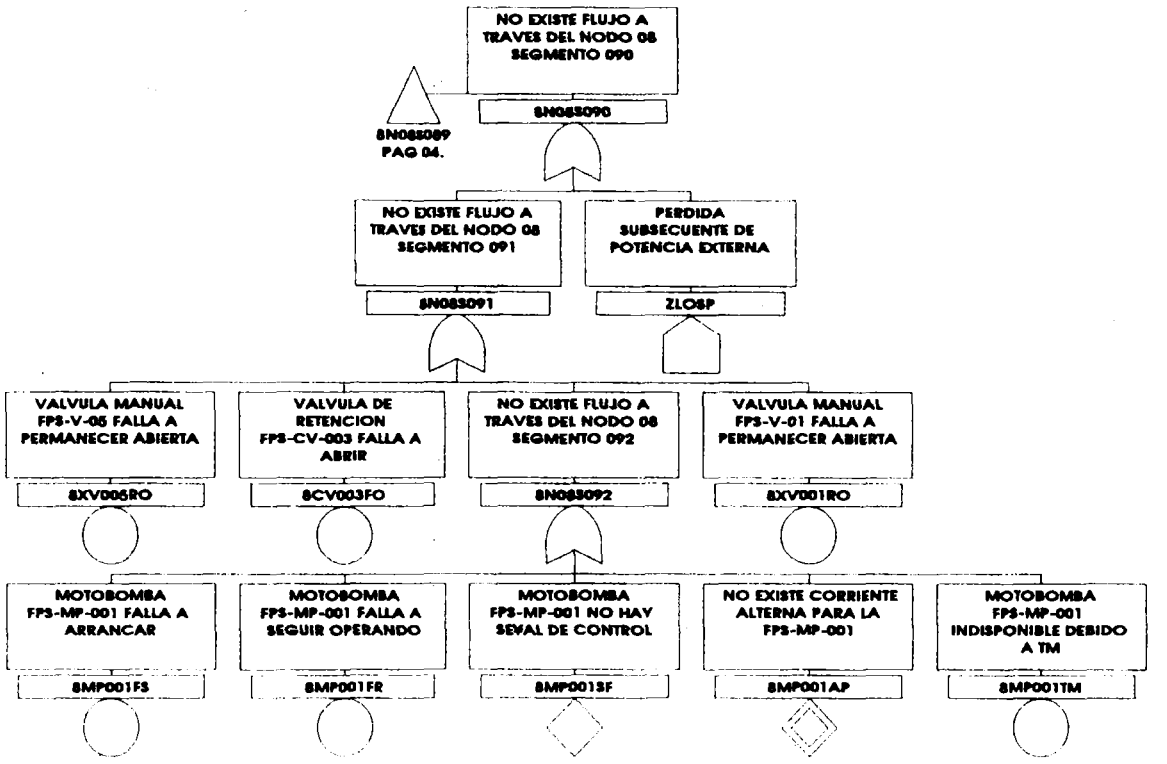
SISTEMA CONTRA INCENDIOS (FIRE)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04



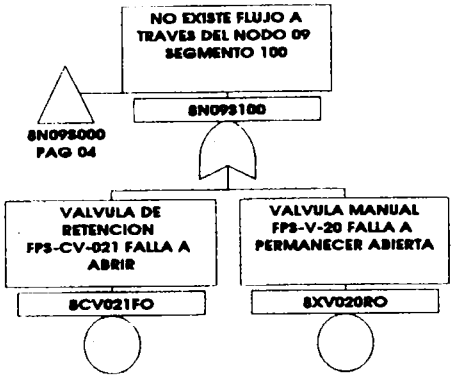
SISTEMA CONTRA INCENDIOS (FIRE)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 05



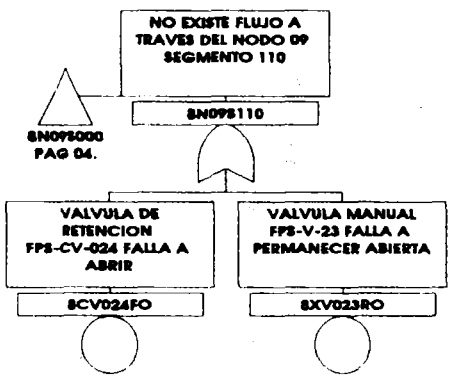
SISTEMA CONTRA INCENDIOS (FIRE)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 06



SISTEMA CONTRA INCENDIOS (FIRE)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 07

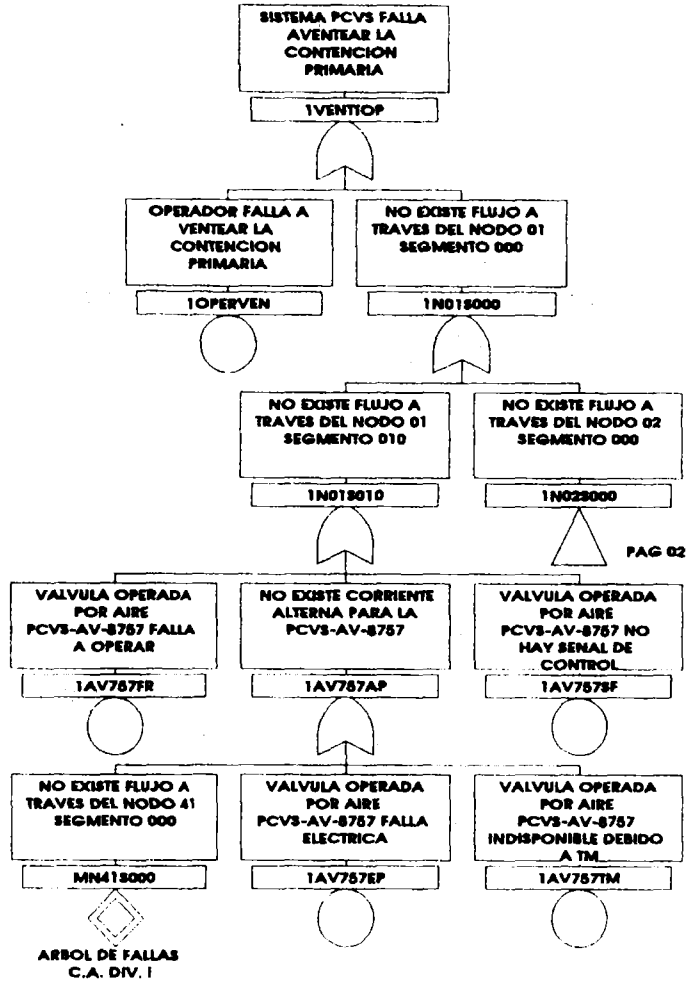


SISTEMA CONTRA INCENDIOS (FIRE)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 08

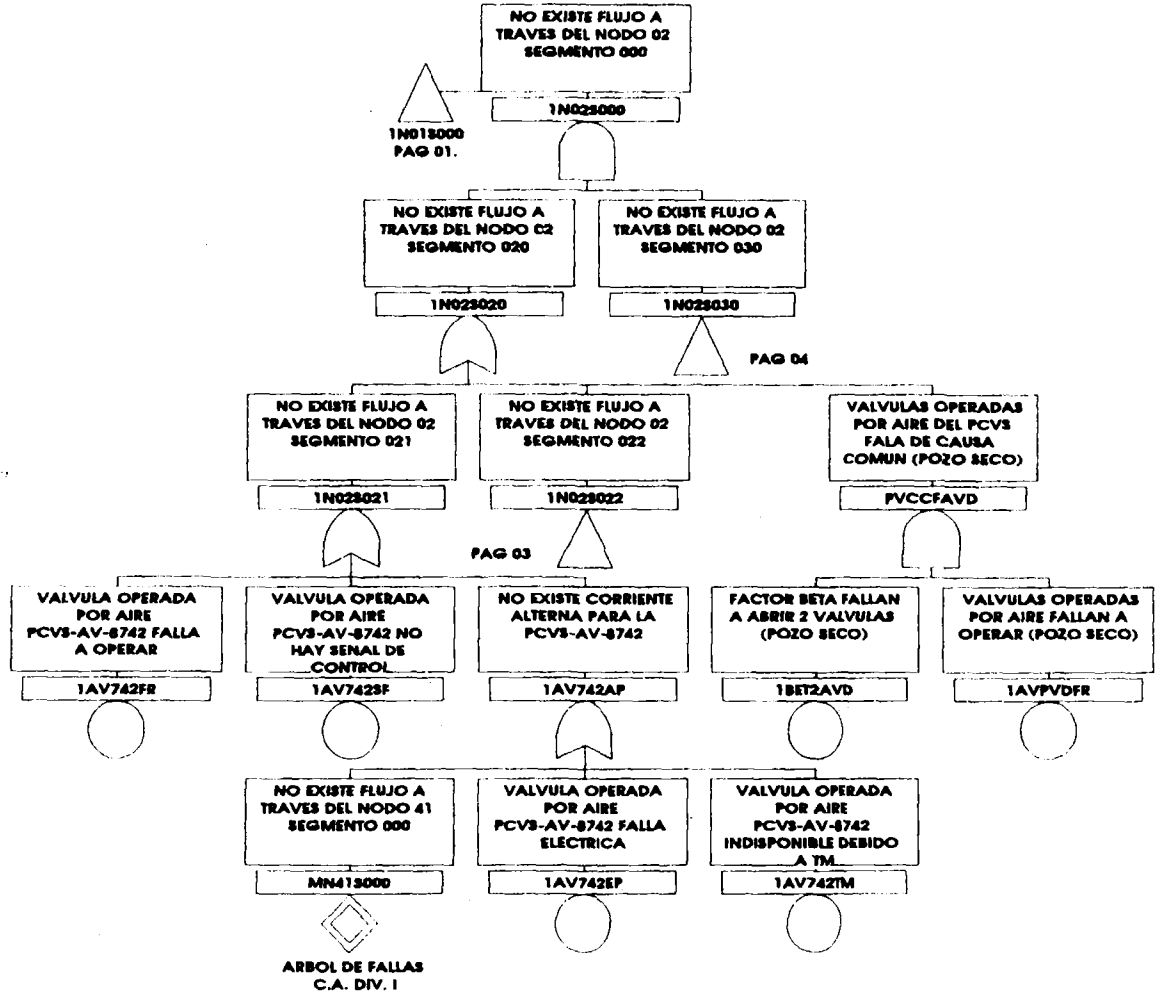


SISTEMA CONTRA INCENDIOS (FIRE)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09

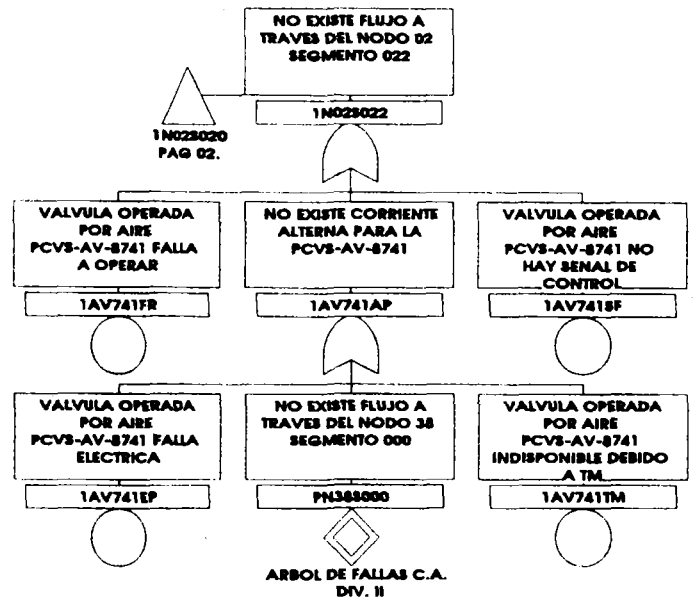
FIGURA B-20 ARBOL DE FALLAS DEL SISTEMA DE VENTEO DE LA CONTENCION PRIMARIA.



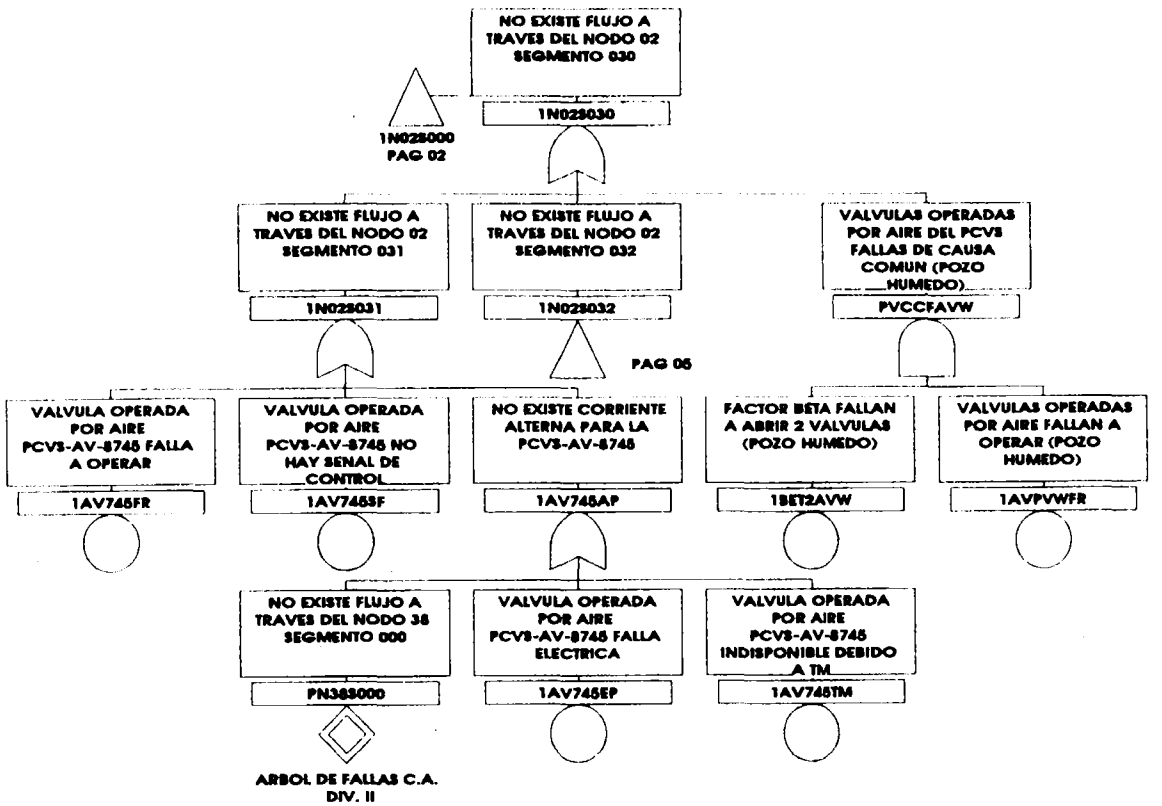
SISTEMA DE VENTEO DE LA CONTENCION PRIMARIA (PCVS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



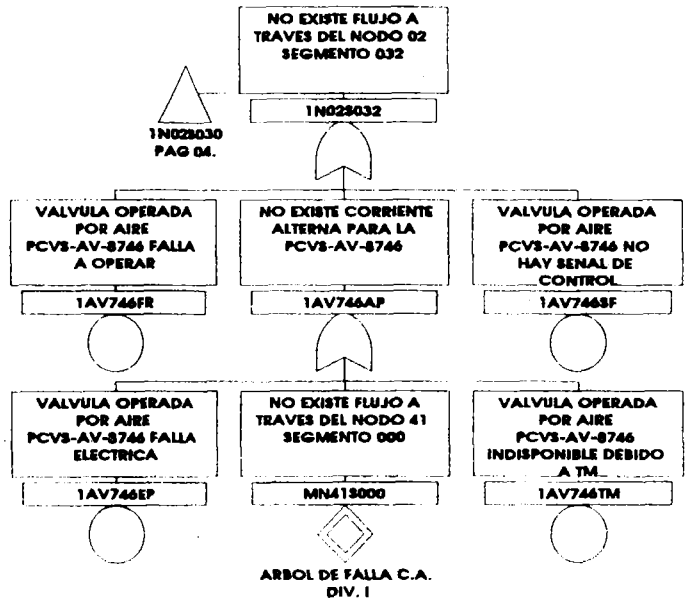
SISTEMA DE VENTEO DE LA CONTENCION PRIMARIA (PCVS)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 02**



SISTEMA DE VENTEO DE LA CONTENCION PRIMARIA (PCVS)	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 03**

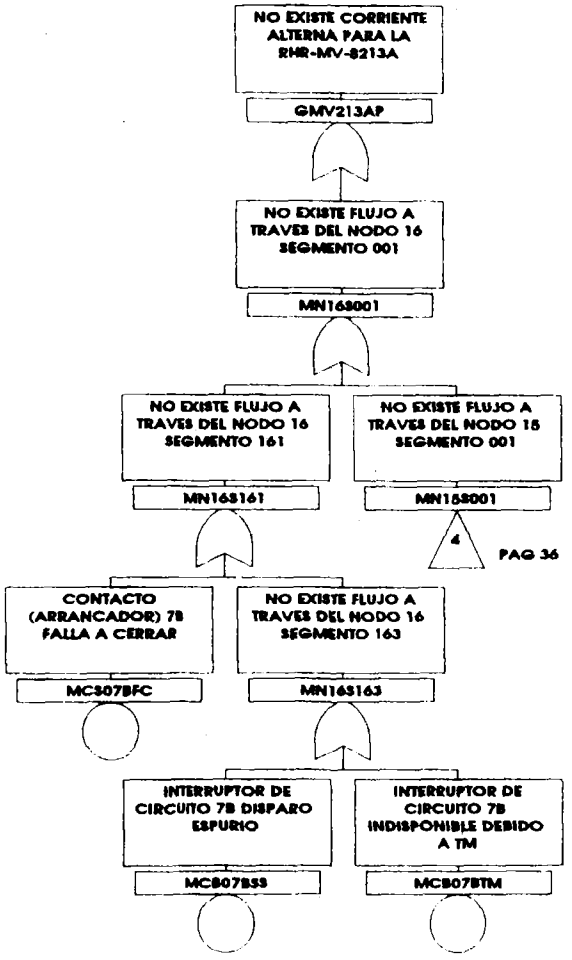


SISTEMA DE VENTEO DE LA CONTENCION PRIMARIA (PCVS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04

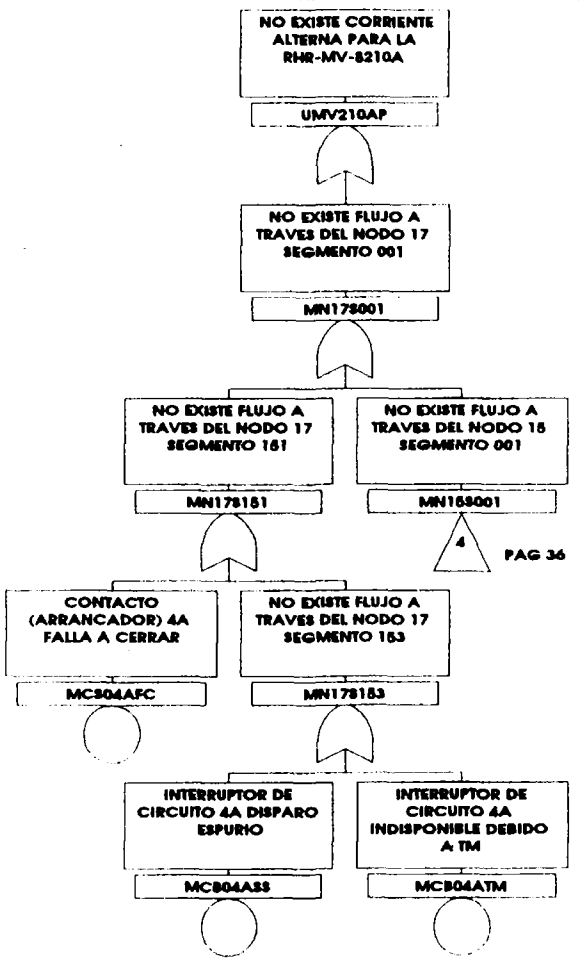


SISTEMA DE VENTEO DE LA CONTENCION PRIMARIA (PCVS)	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 05

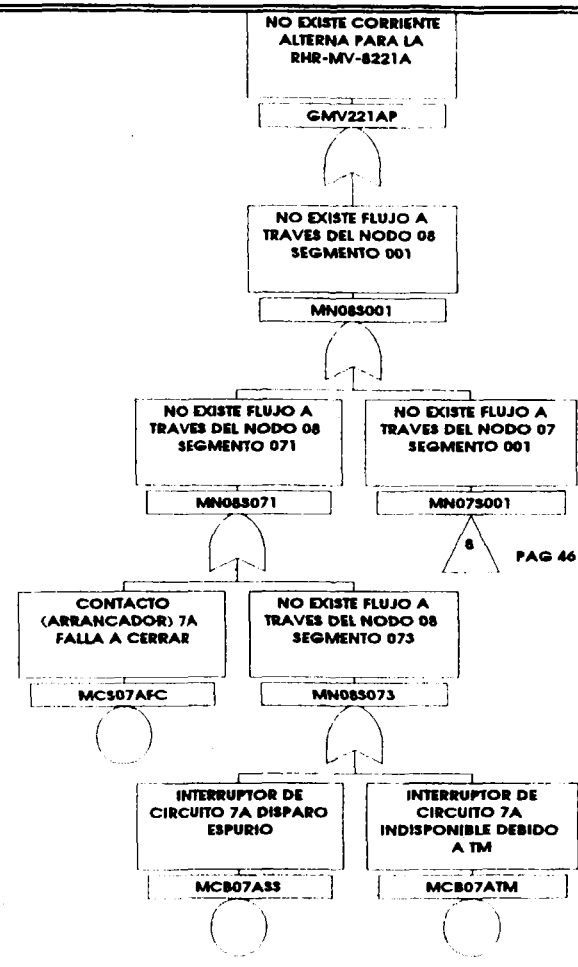
FIGURA B-21. ARBOL DE FALLAS DEL SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I.



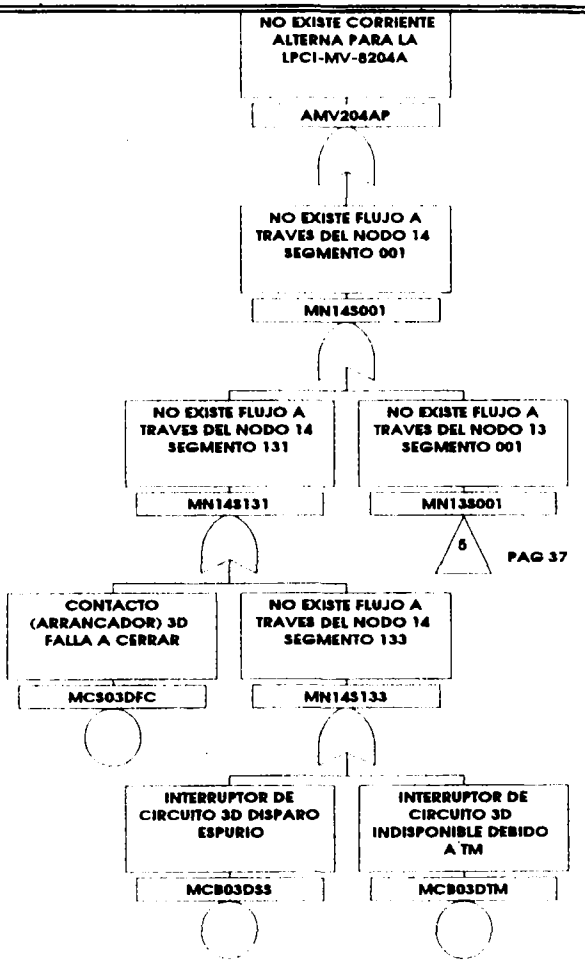
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



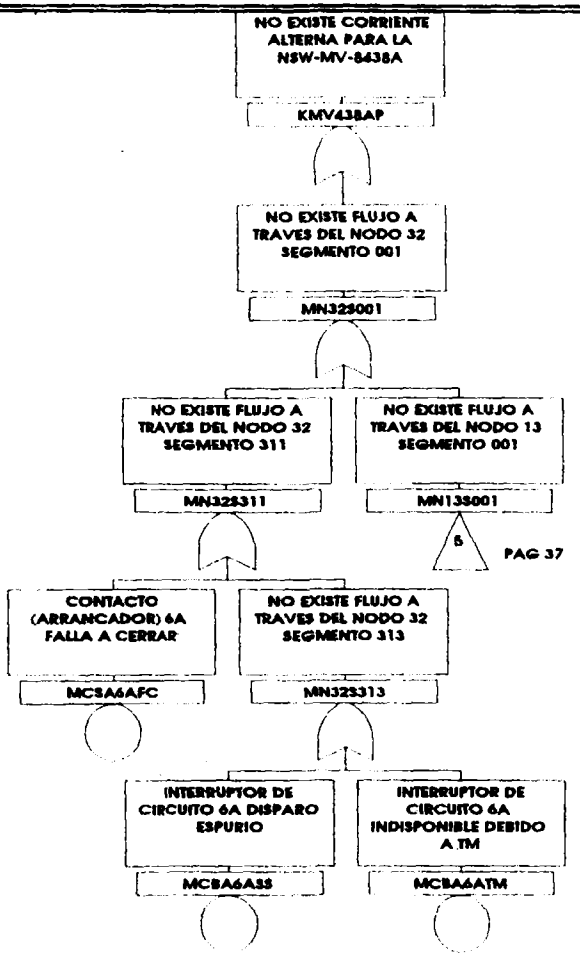
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02



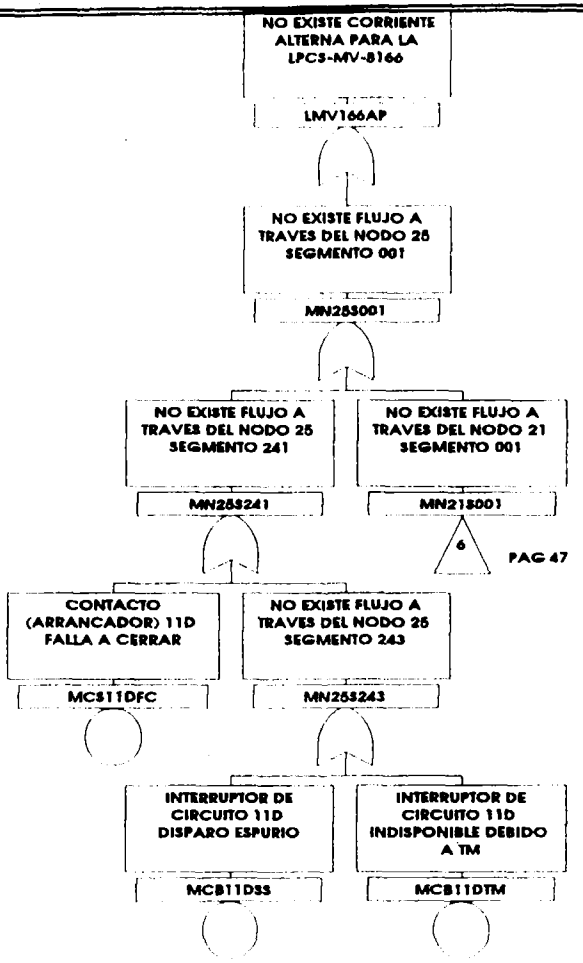
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03



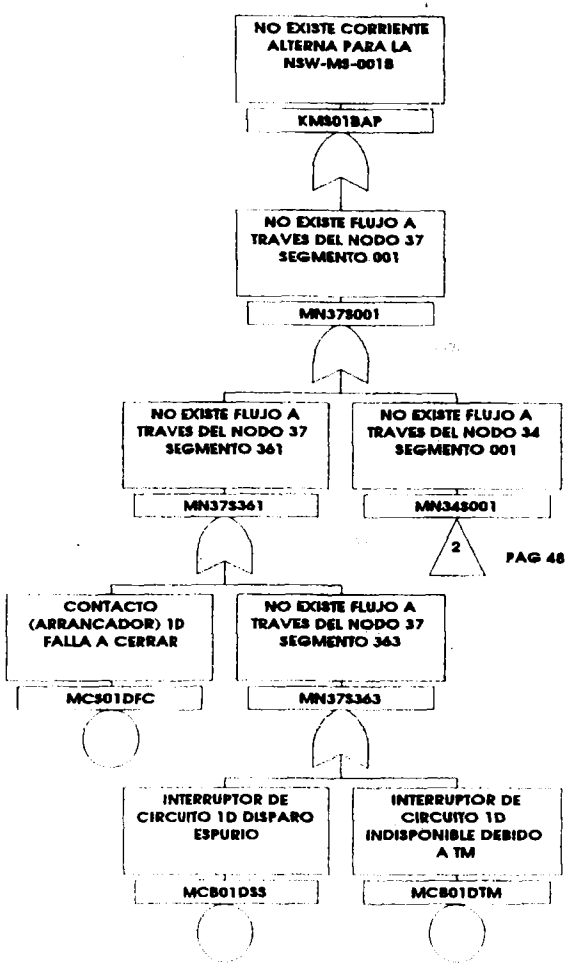
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04



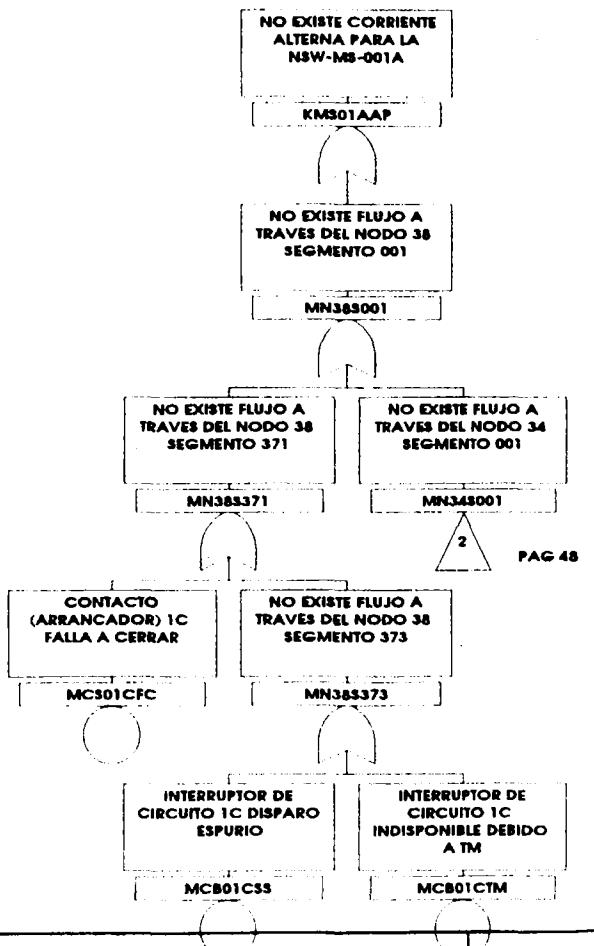
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 05



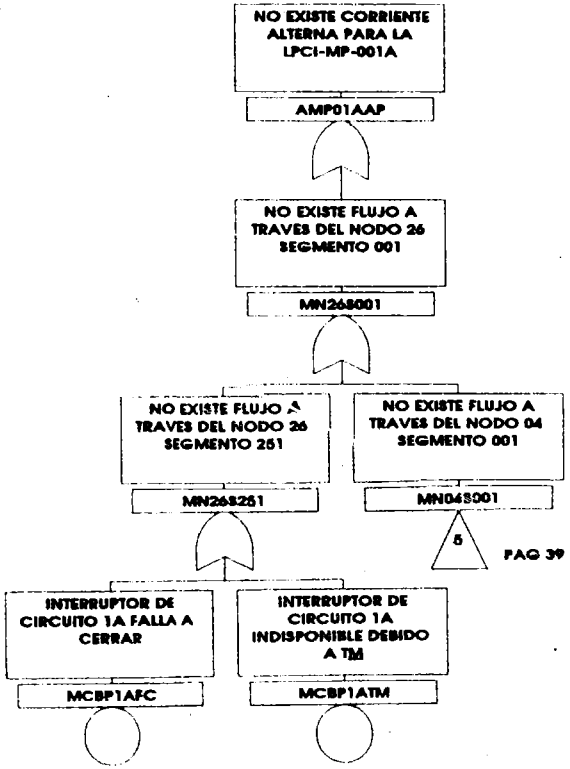
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 06



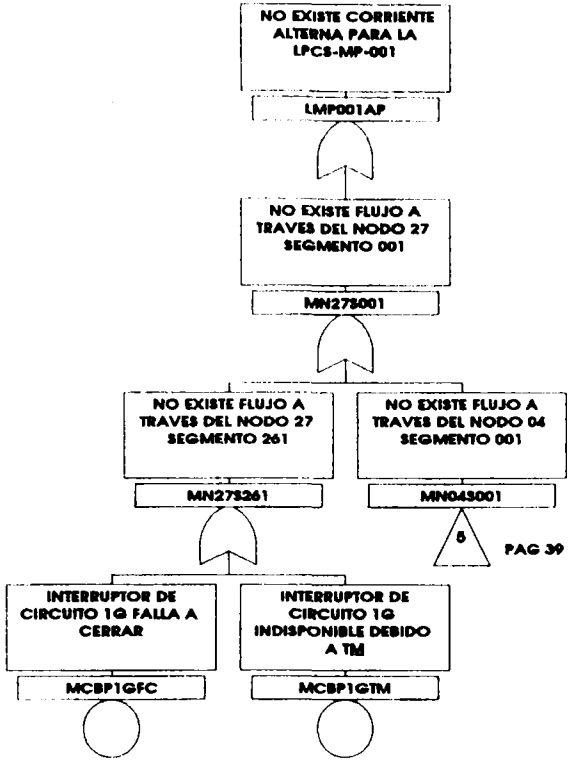
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 07

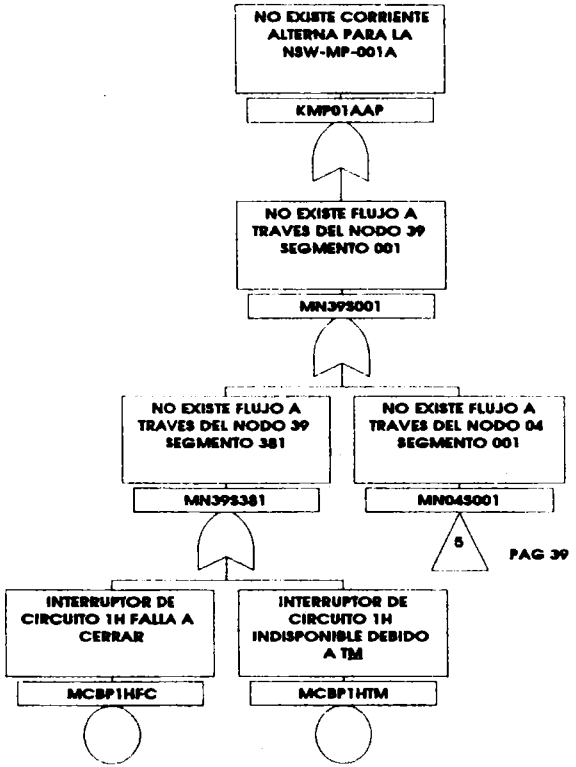


SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 08

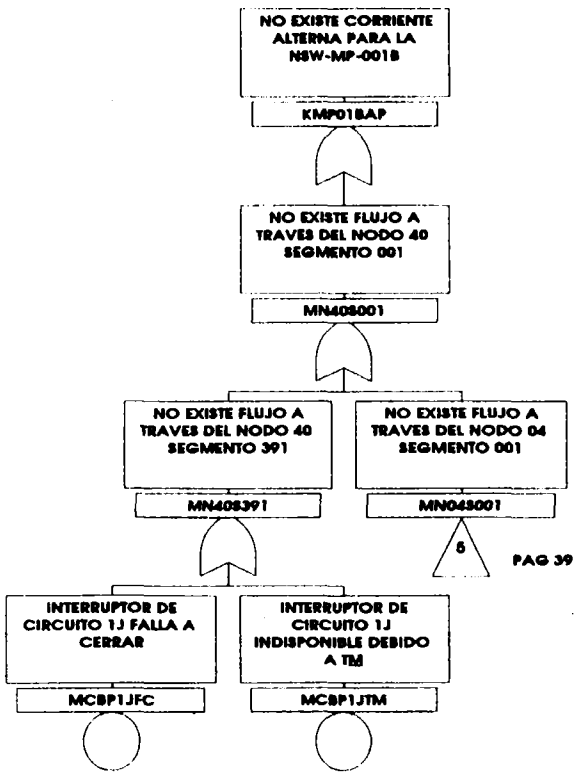


SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09

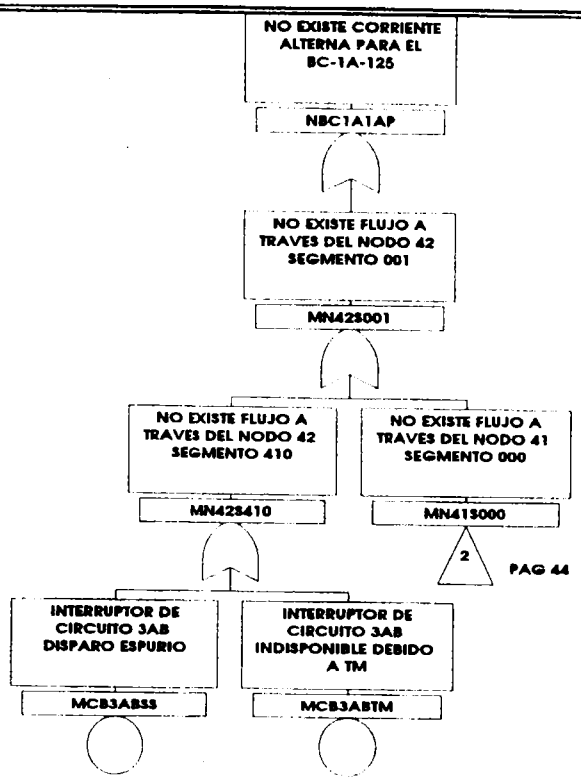

NO EXISTE CORRIENTE ALTERNA PARA LA LPCS-MP-001
LMP001AP
NO EXISTE FLUJO A TRAVES DEL NODO 27 SEGMENTO 001
MN273001
NO EXISTE FLUJO A TRAVES DEL NODO 27 SEGMENTO 261
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 001
MN273261
MN043001
5
PAG 39
INTERRUPTOR DE CIRCUITO 1G FALLA A CERRAR
INTERRUPTOR DE CIRCUITO 1G INDISPONIBLE DEBIDO A TM
MCBP1GFC
MCBP1GTM

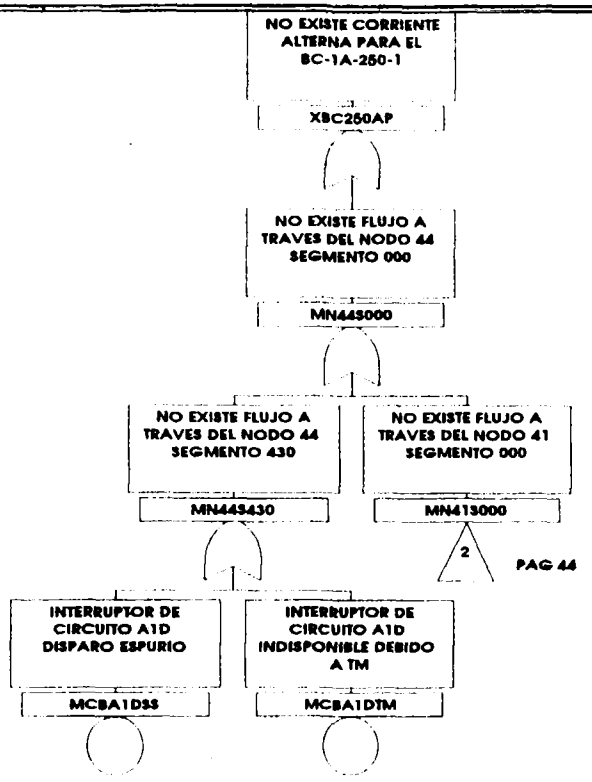


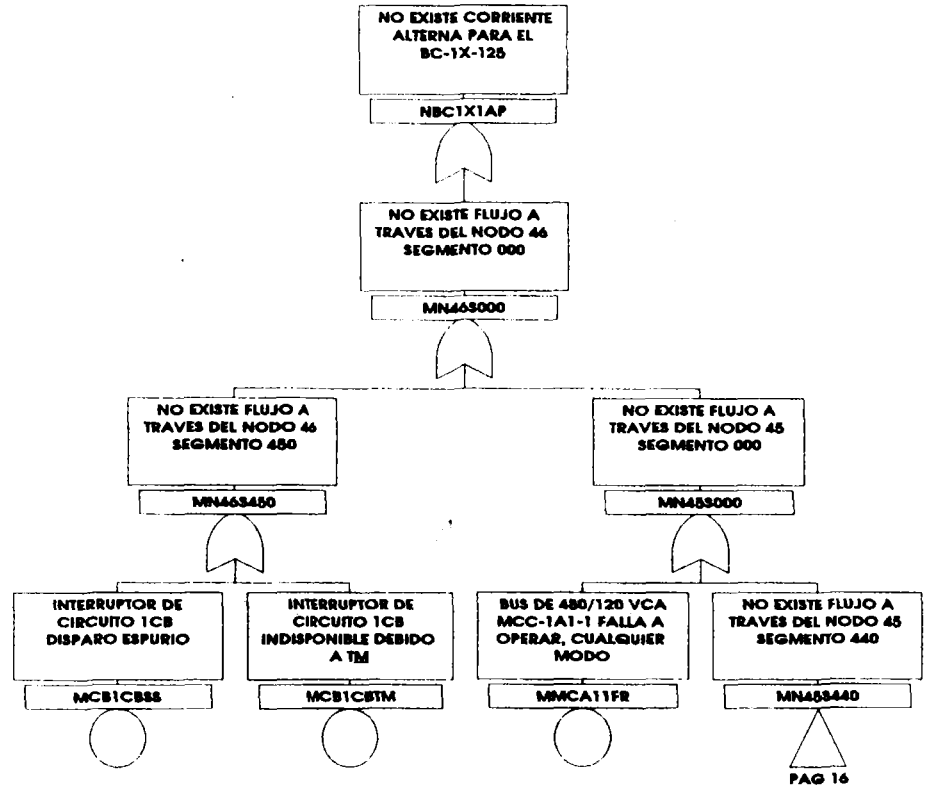
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 11



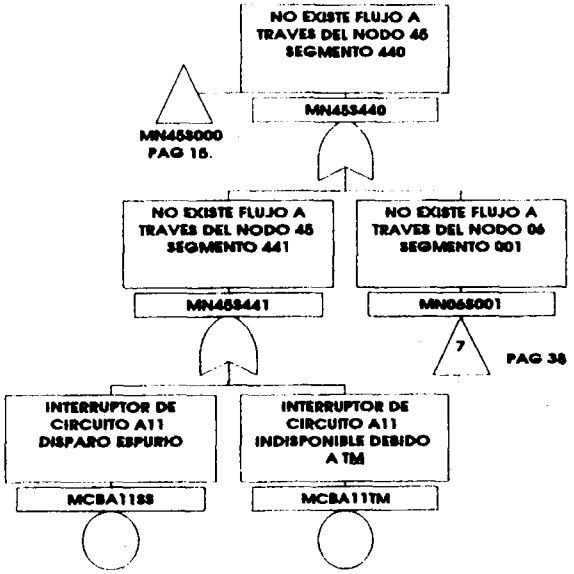
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 12

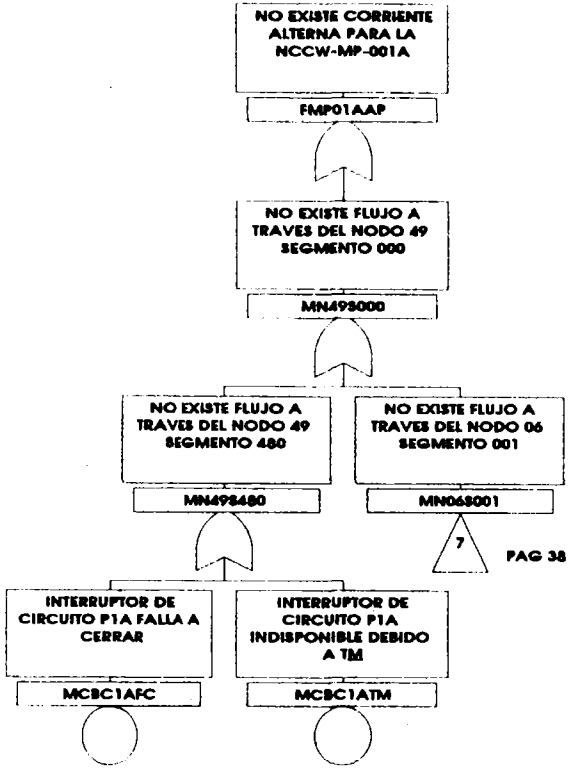

NO EXISTE CORRIENTE ALTERNA PARA EL BC-1A-125
NBC1A1AP
NO EXISTE FLUJO A TRAVES DEL NODO 42 SEGMENTO 001
MN423001
NO EXISTE FLUJO A TRAVES DEL NODO 42 SEGMENTO 410
NO EXISTE FLUJO A TRAVES DEL NODO 41 SEGMENTO 000
MN428410
MN413000
2
PAG 44
INTERRUPTOR DE CIRCUITO 3AB DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 3AB INDISPONIBLE DEBIDO A TM
MCB3ABSS
MCB3ABTM

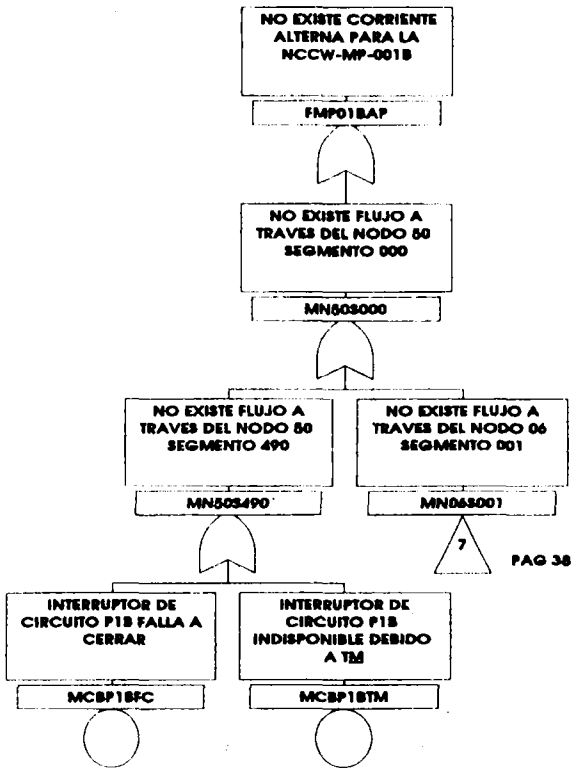

NO EXISTE CORRIENTE ALTERNA PARA EL BC-1A-250-1
XBC250AP
NO EXISTE FLUJO A TRAVES DEL NODO 44 SEGMENTO 000
MN445000
NO EXISTE FLUJO A TRAVES DEL NODO 44 SEGMENTO 430
NO EXISTE FLUJO A TRAVES DEL NODO 41 SEGMENTO 000
MN445430
MN413000
2
PAG 44
INTERRUPTOR DE CIRCUITO A1D DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO A1D INDISPONIBLE DEBIDO A TM
MCBA1DSS
MCBA1DTM



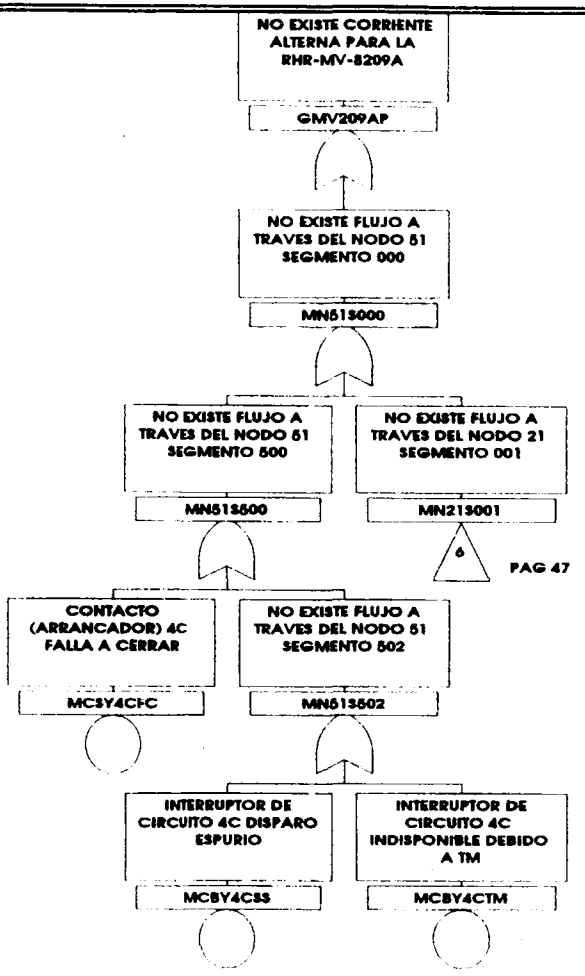
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 15

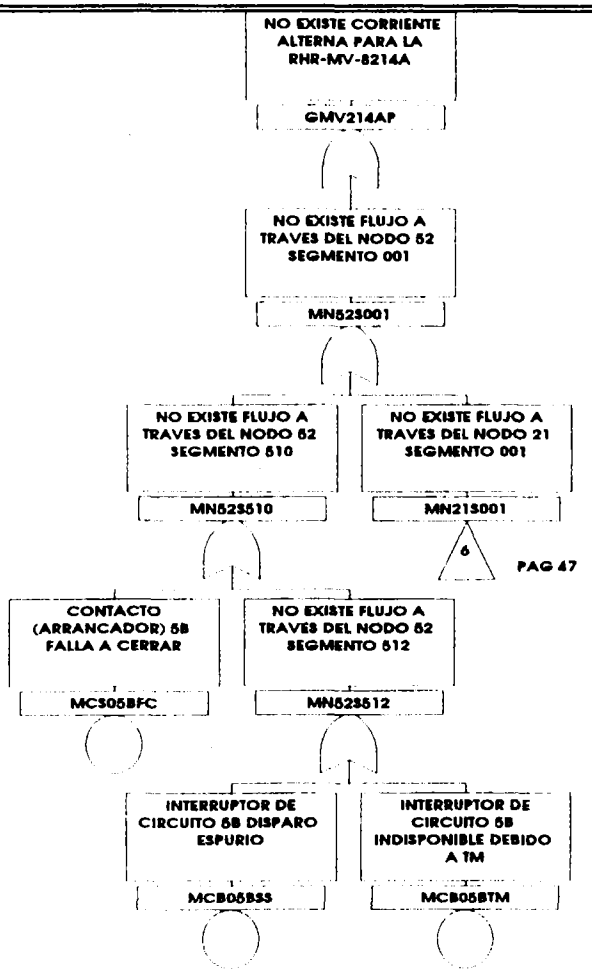

NO EXISTE FLUJO A TRAVES DEL NODO 45 SEGMENTO 440
MN455440
MN455000 PAG 15.
NO EXISTE FLUJO A TRAVES DEL NODO 45 SEGMENTO 441
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
MN455441
MN065001
7
PAG 38
INTERRUPTOR DE CIRCUITO A11 DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO A11 INDISPONIBLE DEBIDO A TM
MCBA11SS
MCBA11TM


NO EXISTE CORRIENTE ALTERNA PARA LA NCCW-MP-001A
FMP01AAP
NO EXISTE FLUJO A TRAVES DEL NODO 49 SEGMENTO 000
MN495000
NO EXISTE FLUJO A TRAVES DEL NODO 49 SEGMENTO 480
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
MN498480
MN065001
7
PAG 38
INTERRUPTOR DE CIRCUITO P1A FALLA A CERRAR
INTERRUPTOR DE CIRCUITO P1A INDISPONIBLE DEBIDO A TM
MCBC1AFC
MCBC1ATM

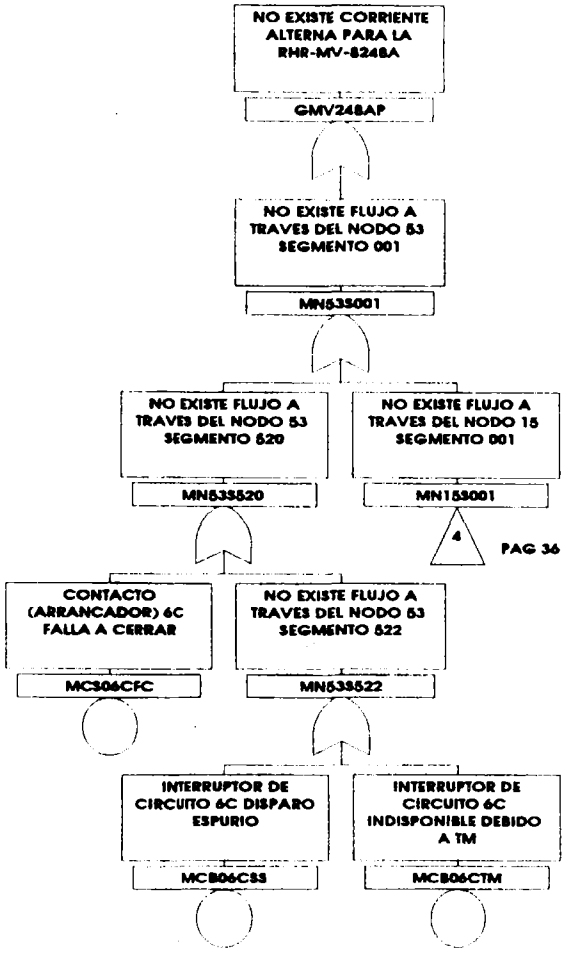


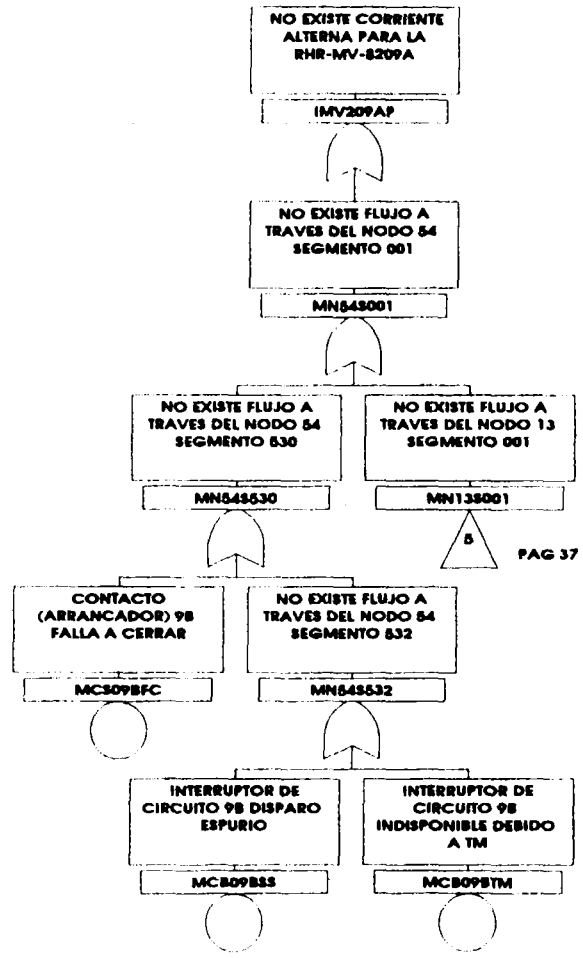
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 18


NO EXISTE CORRIENTE ALTERNA PARA LA RHR-MV-8209A
GMV209AP
NO EXISTE FLUJO A TRAVES DEL NODO 51 SEGMENTO 000
MN513000
NO EXISTE FLUJO A TRAVES DEL NODO 51 SEGMENTO 500
NO EXISTE FLUJO A TRAVES DEL NODO 21 SEGMENTO 001
MN513500
MN213001
6
PAG 47
CONTACTO (ARRANCADOR) 4C FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 51 SEGMENTO 502
MC3Y4CFC
MN513502
INTERRUPTOR DE CIRCUITO 4C DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 4C INDISPONIBLE DEBIDO A TM
MCBY4CSS
MCBY4CTM

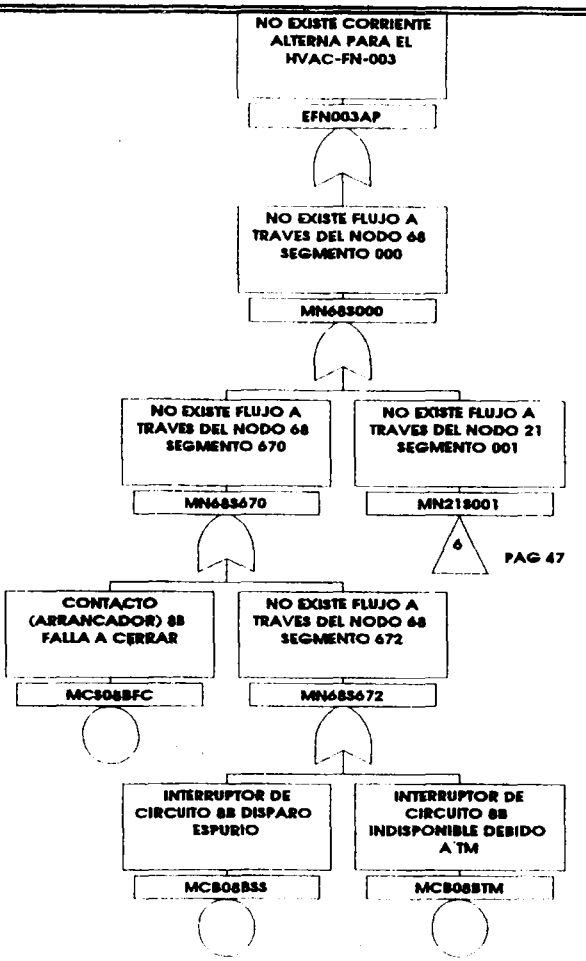


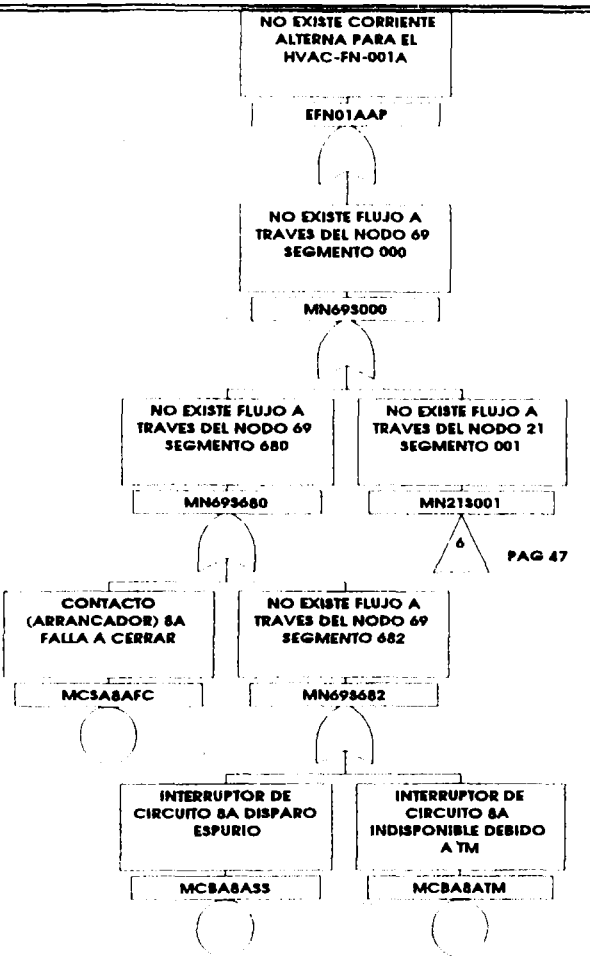
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 20


NO EXISTE CORRIENTE ALTERNA PARA LA RHR-MV-8248A
GMV248AP
NO EXISTE FLUJO A TRAVES DEL NODO 53 SEGMENTO 001
MN533001
NO EXISTE FLUJO A TRAVES DEL NODO 53 SEGMENTO 520
NO EXISTE FLUJO A TRAVES DEL NODO 15 SEGMENTO 001
MN533520
MN153001
4
PAG 36
CONTACTO (ARRANCADOR) 6C FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 53 SEGMENTO 522
MCB06CFC
MN533522
INTERRUPTOR DE CIRCUITO 6C DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 6C INDISPONIBLE DEBIDO A TM
MCB06CSS
MCB06CTM

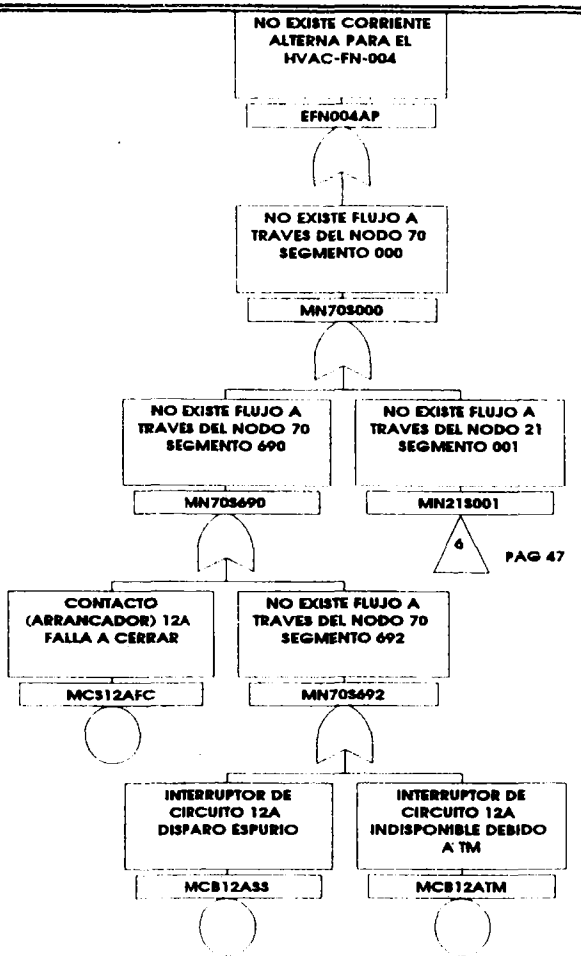


SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 22

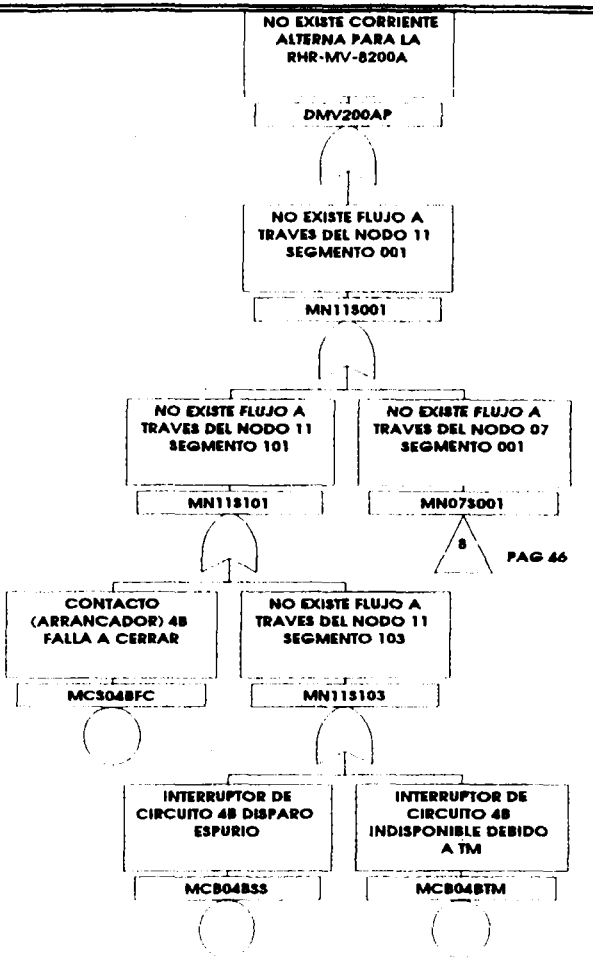

NO EXISTE CORRIENTE ALTERNA PARA EL HVAC-FN-003
EFN003AP
NO EXISTE FLUJO A TRAVES DEL NODO 68 SEGMENTO 000
MN683000
NO EXISTE FLUJO A TRAVES DEL NODO 68 SEGMENTO 670
NO EXISTE FLUJO A TRAVES DEL NODO 21 SEGMENTO 001
MN683670
MN218001
6
PAG 47
CONTACTO (ARRANCADOR) 8B FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 68 SEGMENTO 672
MC808BFC
MN683672
INTERRUPTOR DE CIRCUITO 8B DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 8B INDISPONIBLE DEBIDO A TM
MCB08BSS
MCB08BTM

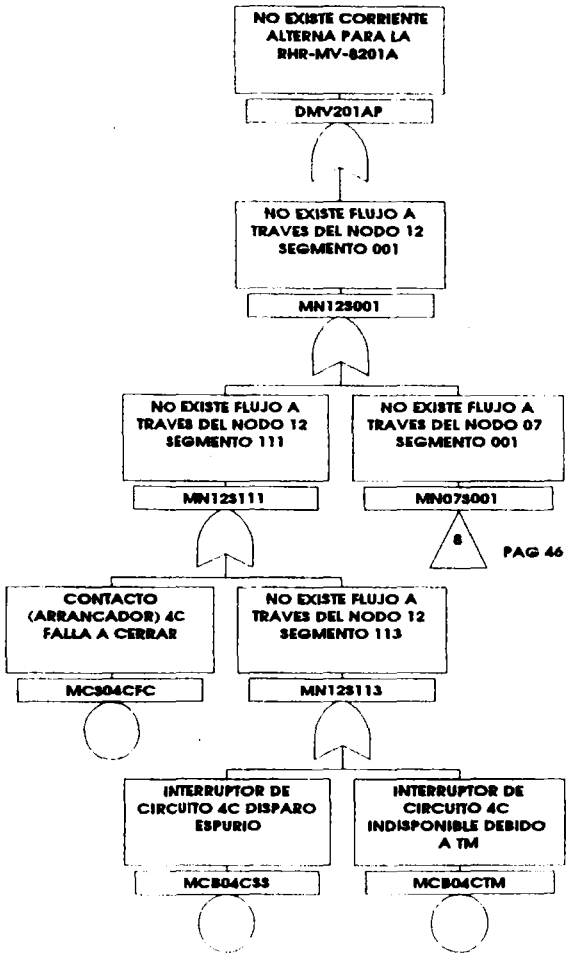


SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 24

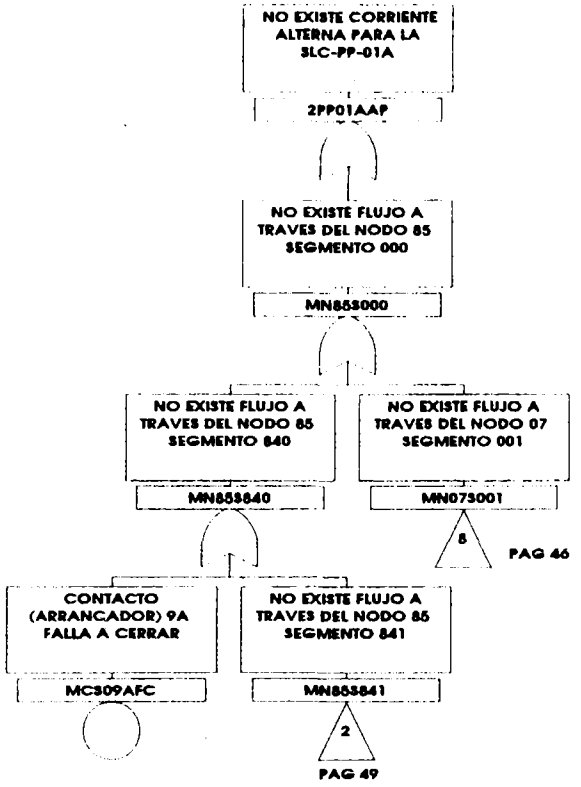


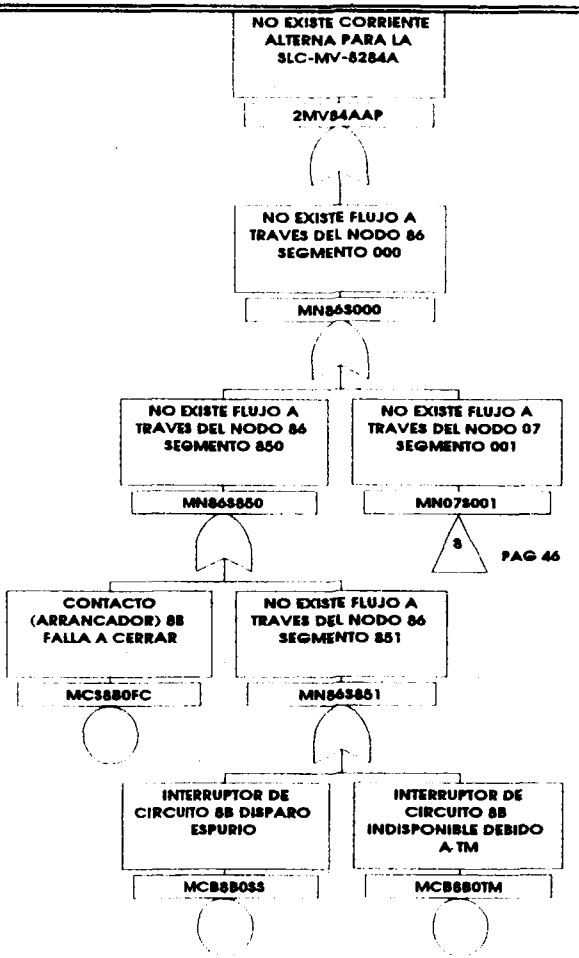
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 25

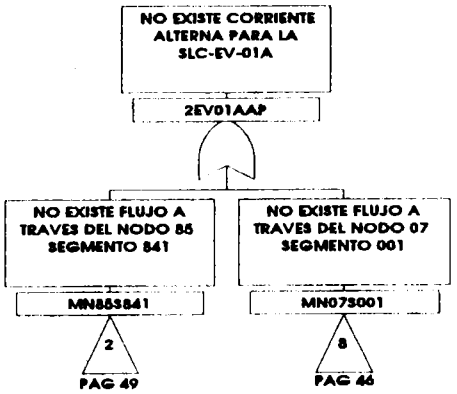

NO EXISTE CORRIENTE ALTERNA PARA LA RHR-MV-8200A
DMV200AP
NO EXISTE FLUJO A TRAVES DEL NODO 11 SEGMENTO 001
MN113001
NO EXISTE FLUJO A TRAVES DEL NODO 11 SEGMENTO 101
NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 001
MN113101
MN073001
8
PAG 46
CONTACTO (ARRANCADOR) 4B FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 11 SEGMENTO 103
MC504BFC
MN113103
INTERRUPTOR DE CIRCUITO 4B DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 4B INDISPONIBLE DEBIDO A TM
MCB04BSS
MCB04BTM

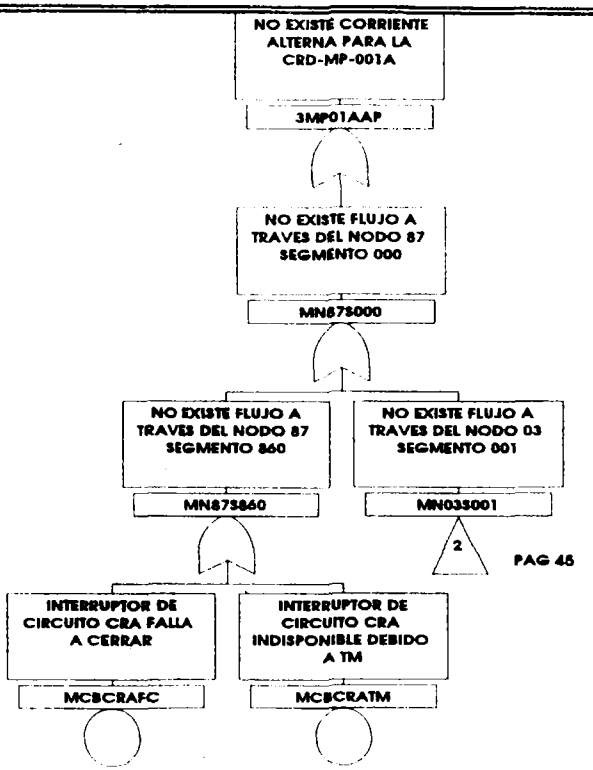


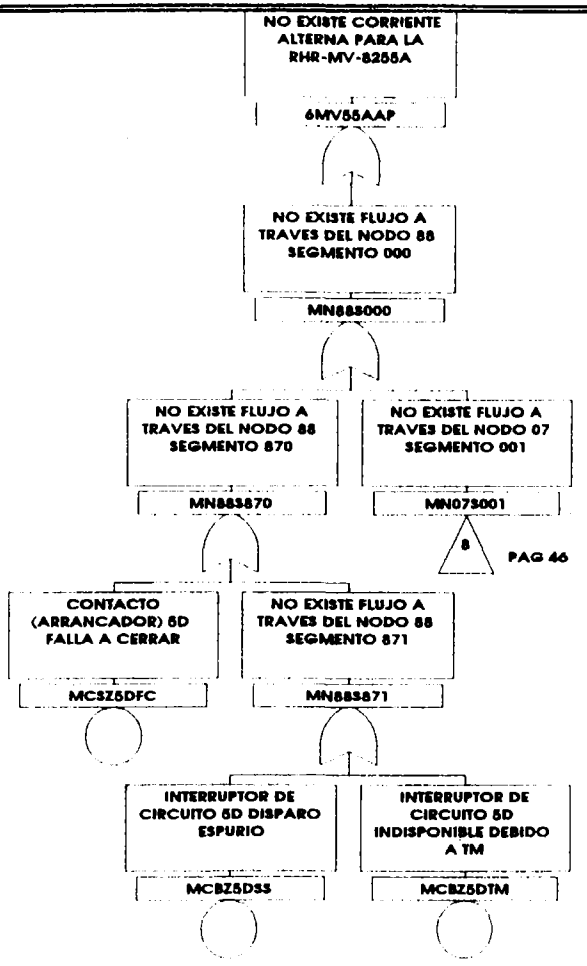
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 27


NO EXISTE CORRIENTE ALTERNA PARA LA SLC-PP-01A
2PP01AAP
NO EXISTE FLUJO A TRAVES DEL NODO 85 SEGMENTO 000
MN855000
NO EXISTE FLUJO A TRAVES DEL NODO 85 SEGMENTO 840
NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 001
MN855840
MN075001
8
PAG 46
CONTACTO (ARRANCADOR) 9A FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 85 SEGMENTO 841
MC309AFC
MN855841
2
PAG 49

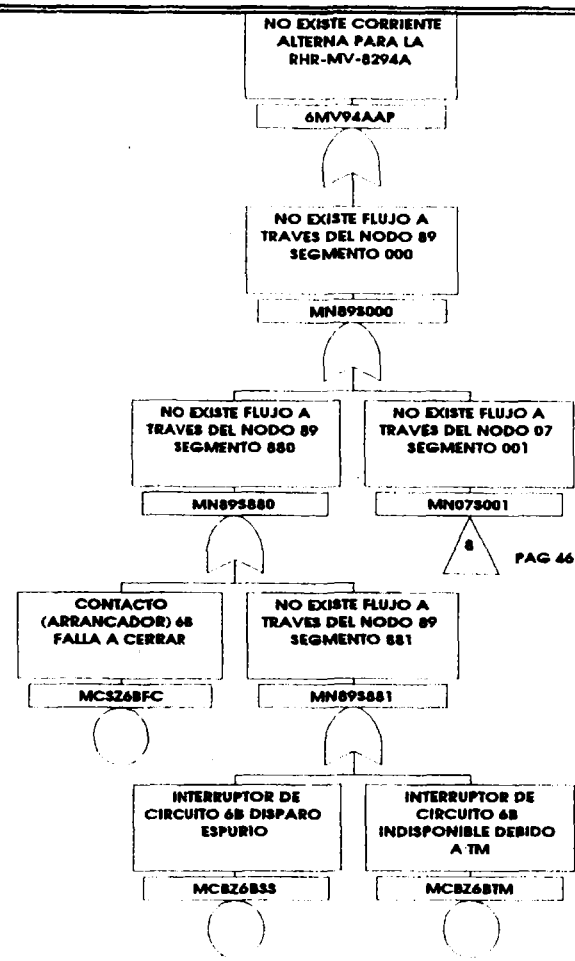

NO EXISTE CORRIENTE ALTERNA PARA LA SLC-MV-8284A
2MV84AAP
NO EXISTE FLUJO A TRAVES DEL NODO 86 SEGMENTO 000
MN863000
NO EXISTE FLUJO A TRAVES DEL NODO 86 SEGMENTO 850
NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 001
MN863850
MN078001
8
PAG 46
CONTACTO (ARRANCADOR) 8B FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 86 SEGMENTO 851
MC8B0FC
MN863851
INTERRUPTOR DE CIRCUITO 8B DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 8B INDISPONIBLE DEBIDO A TM
MCB8B0SS
MCB8B0TM

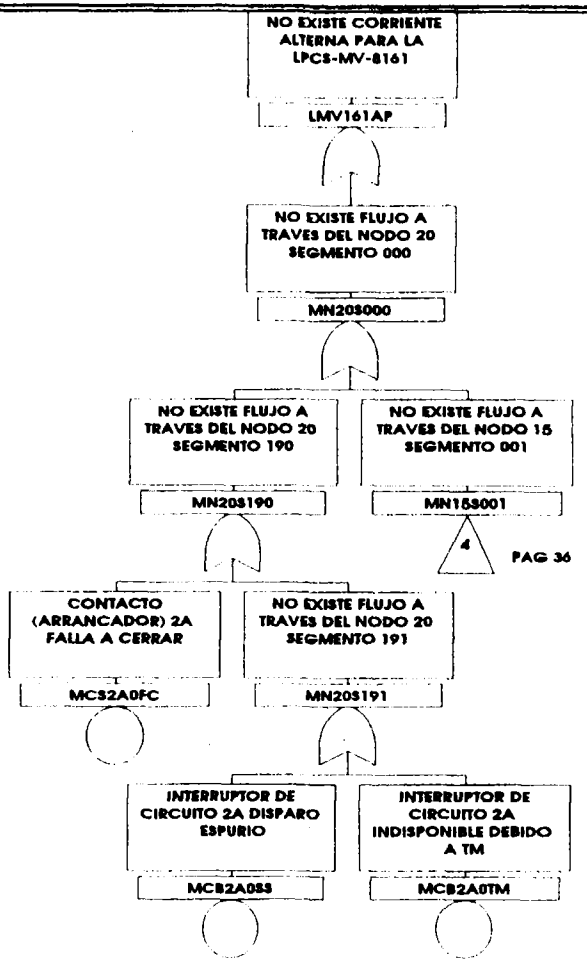

NO EXISTE CORRIENTE ALTERNA PARA LA SLC-EV-01A
2EV01AAP
NO EXISTE FLUJO A TRAVES DEL NODO 85 SEGMENTO 841
NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 001
MN853841
MN075001
2
PAG 49
8
PAG 46

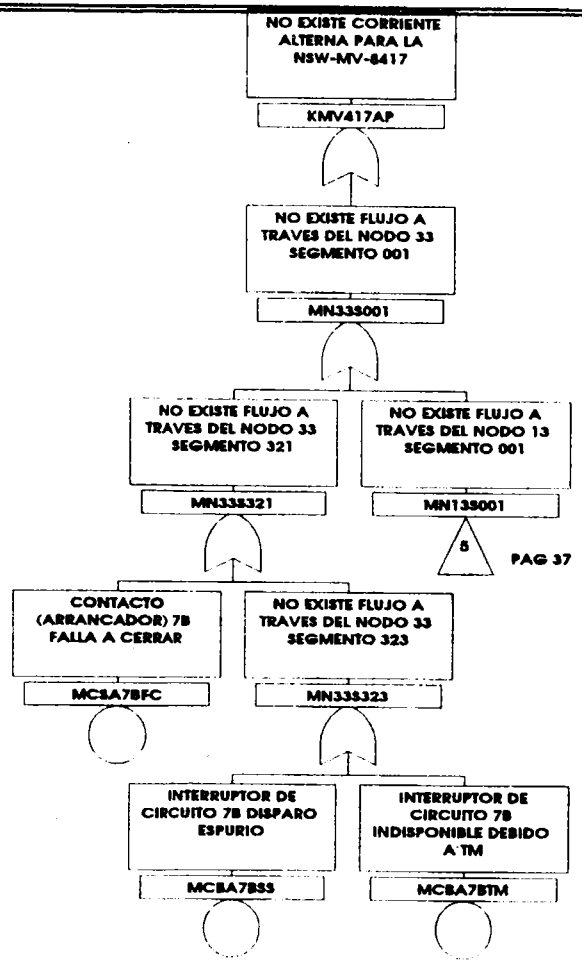

NO EXISTE CORRIENTE ALTERNA PARA LA CRD-MP-001A
3MP01AAP
NO EXISTE FLUJO A TRAVES DEL NODO 87 SEGMENTO 000
MN87S000
NO EXISTE FLUJO A TRAVES DEL NODO 87 SEGMENTO 860
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 001
MN87S860
MN033001
2
PAG 45
INTERRUPTOR DE CIRCUITO CRA FALLA A CERRAR
INTERRUPTOR DE CIRCUITO CRA INDISPONIBLE DEBIDO A TM
MCBCRAFC
MCBCRATM

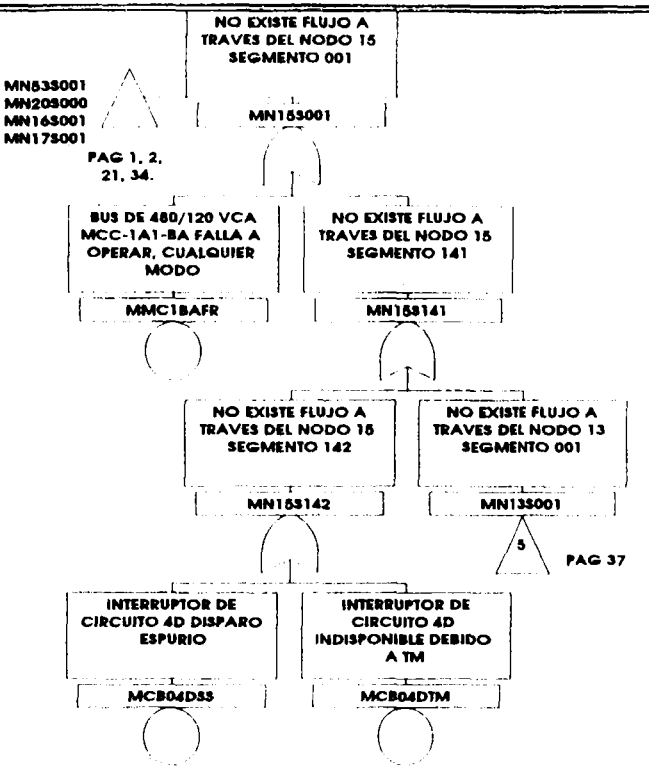


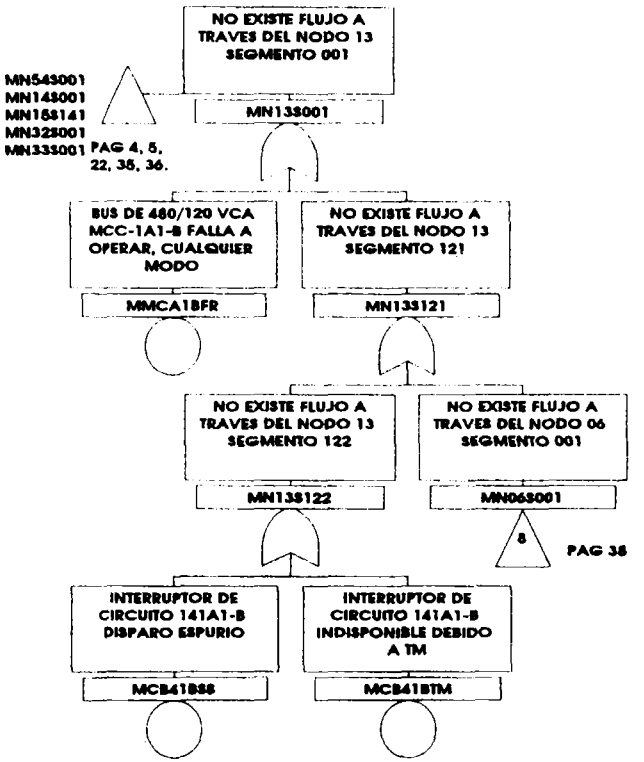
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 32

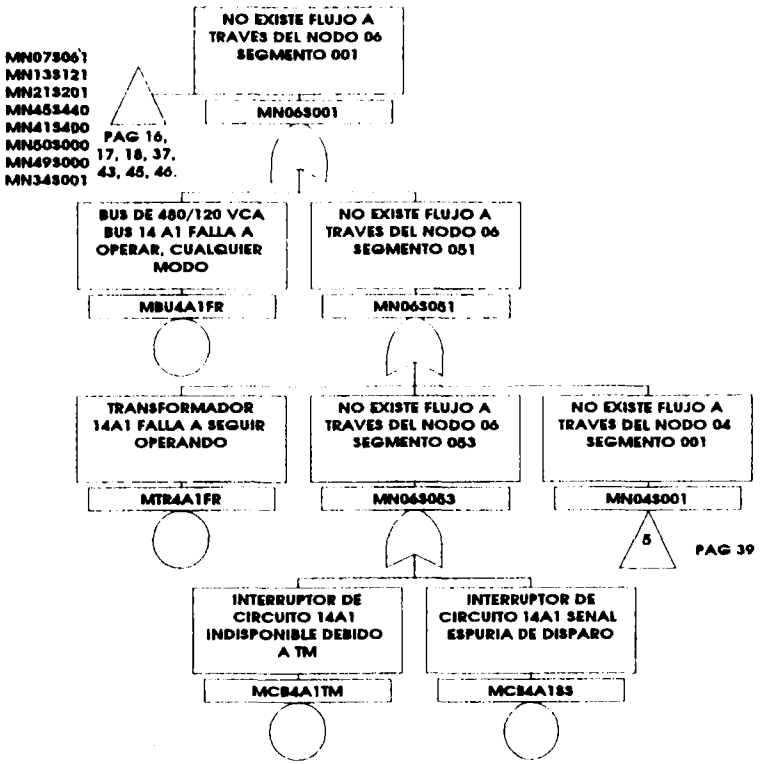

NO EXISTE CORRIENTE ALTERNA PARA LA RHR-MV-8294A
6MV94AAP
NO EXISTE FLUJO A TRAVES DEL NODO 89 SEGMENTO 000
MN895000
NO EXISTE FLUJO A TRAVES DEL NODO 89 SEGMENTO 880
NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 001
MN895880
MN075001
8
PAG 46
CONTACTO (ARRANCADOR) 6B FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 89 SEGMENTO 881
MCSZ6BFC
MN895881
INTERRUPTOR DE CIRCUITO 6B DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 6B INDISPONIBLE DEBIDO A TM
MCBZ6BSS
MCBZ6BTM

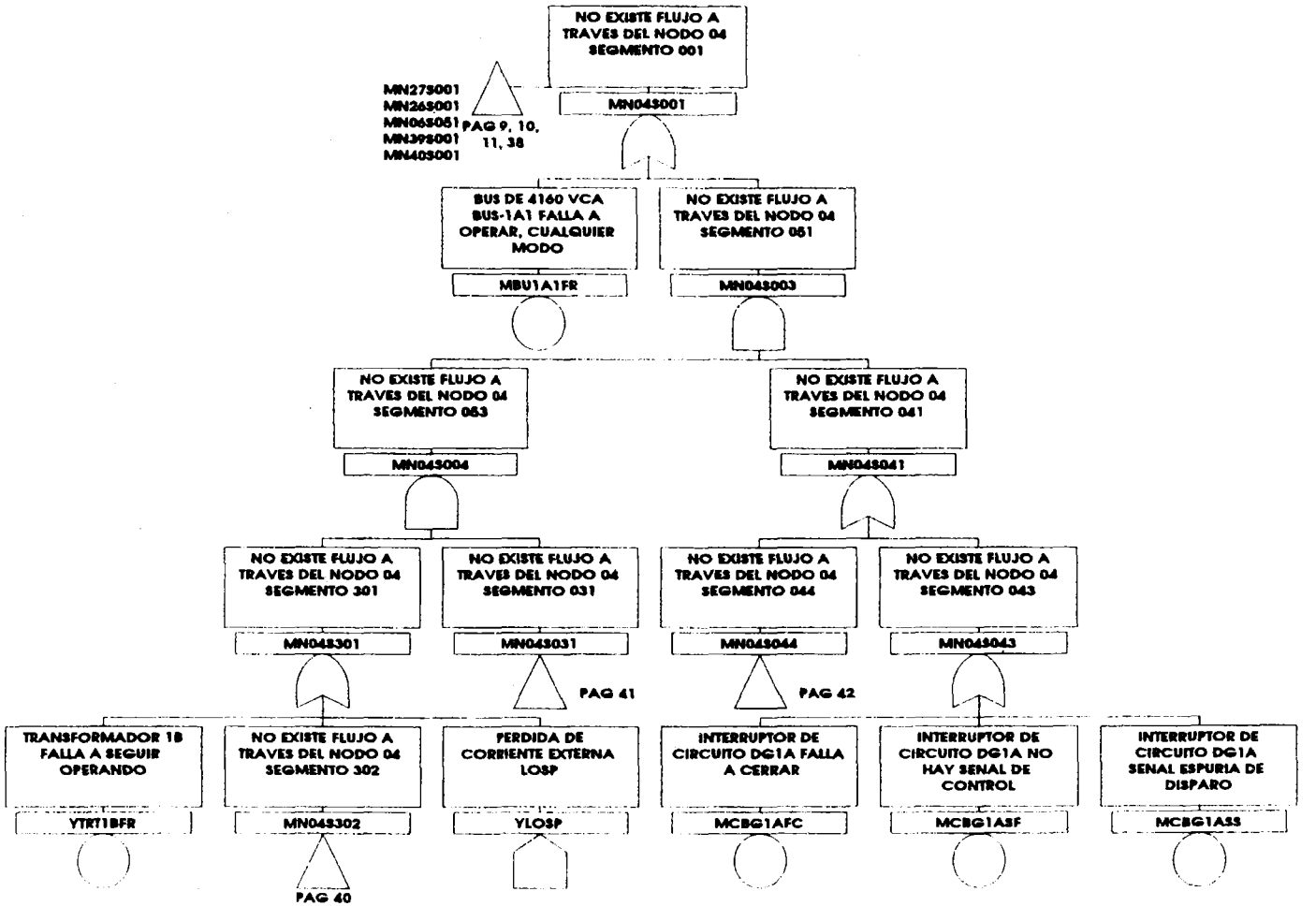

NO EXISTE CORRIENTE ALTERNA PARA LA LPCS-MV-8161
LMV161AP
NO EXISTE FLUJO A TRAVES DEL NODO 20 SEGMENTO 000
MN20S000
NO EXISTE FLUJO A TRAVES DEL NODO 20 SEGMENTO 190
NO EXISTE FLUJO A TRAVES DEL NODO 15 SEGMENTO 001
MN20S190
MN15S001
4
PAG 36
CONTACTO (ARRANCADOR) 2A FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 20 SEGMENTO 191
MCS2A0FC
MN20S191
INTERRUPTOR DE CIRCUITO 2A DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 2A INDISPONIBLE DEBIDO A TM
MCB2A0SS
MCB2A0TM


NO EXISTE CORRIENTE ALTERNA PARA LA NSW-MV-8417
KMV417AP
NO EXISTE FLUJO A TRAVES DEL NODO 33 SEGMENTO 001
MN333001
NO EXISTE FLUJO A TRAVES DEL NODO 33 SEGMENTO 321
NO EXISTE FLUJO A TRAVES DEL NODO 13 SEGMENTO 001
MN333321
MN133001
8
PAG 37
CONTACTO (ARRANCADOR) 7B FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 33 SEGMENTO 323
MCBA7BFC
MN333323
INTERRUPTOR DE CIRCUITO 7B DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 7B INDISPONIBLE DEBIDO A TM
MCBA7BSS
MCBA7BTM

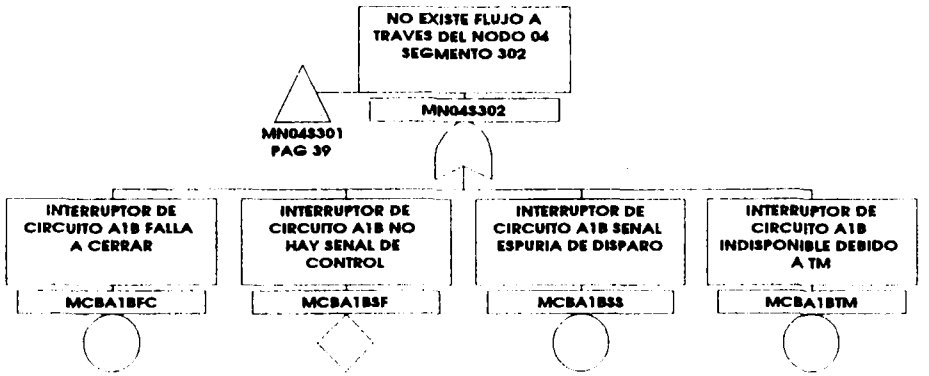

NO EXISTE FLUJO A TRAVES DEL NODO 15 SEGMENTO 001
MN15S001
MN83S001
MN20S000
MN16S001
MN17S001
PAG 1, 2, 21, 34.
BUS DE 480/120 VCA MCC-1A1-BA FALLA A OPERAR, CUALQUIER MODO
MMC1BAFR
NO EXISTE FLUJO A TRAVES DEL NODO 15 SEGMENTO 141
MN15S141
NO EXISTE FLUJO A TRAVES DEL NODO 15 SEGMENTO 142
MN15S142
NO EXISTE FLUJO A TRAVES DEL NODO 13 SEGMENTO 001
MN13S001
5
PAG 37
INTERRUPTOR DE CIRCUITO 4D DISPARO ESPURIO
MCB04DSS
INTERRUPTOR DE CIRCUITO 4D INDISPONIBLE DEBIDO A TM
MCB04DTM

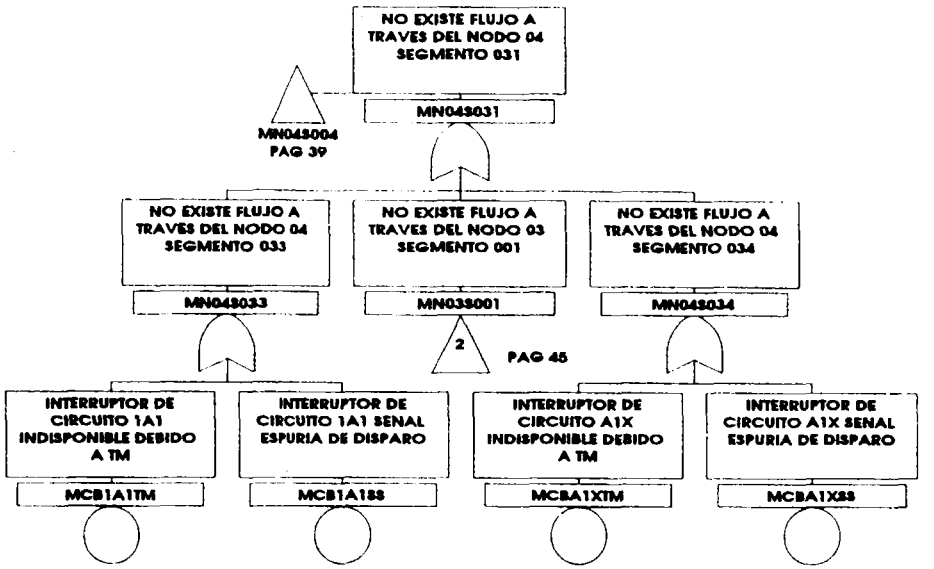

NO EXISTE FLUJO A TRAVES DEL NODO 13 SEGMENTO 001
MN543001
MN148001
MN168141
MN328001
MN338001
PAG 4, 5, 22, 35, 36.
MN138001
BUS DE 480/120 VCA MCC-1A1-B FALLA A OPERAR, CUALQUIER MODO
NO EXISTE FLUJO A TRAVES DEL NODO 13 SEGMENTO 121
MMCA18FR
MN138121
NO EXISTE FLUJO A TRAVES DEL NODO 13 SEGMENTO 122
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
MN138122
MN068001
8
PAG 38
INTERRUPTOR DE CIRCUITO 141A1-B DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 141A1-B INDISPONIBLE DEBIDO A TM
MCB41BSS
MCB41BTM

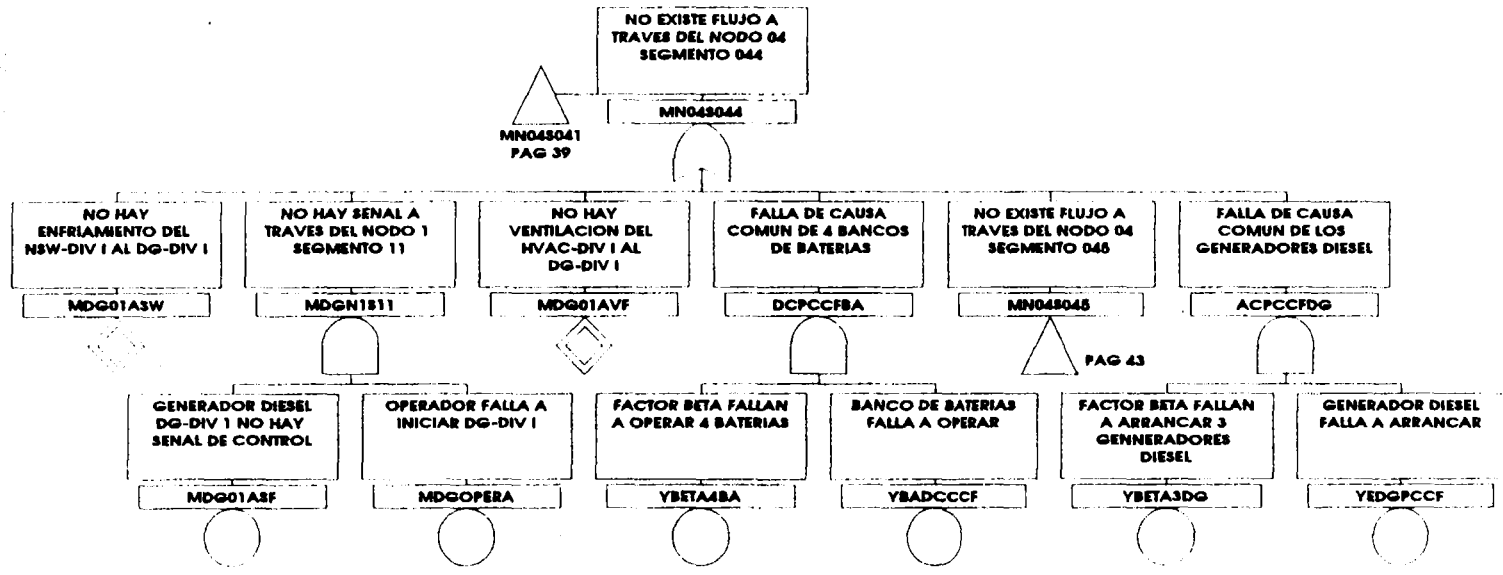

NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
MN063001
MN073061
MN133121
MN213201
MN455440
MN415400
MN503000
MN493000
MN343001
PAG 16, 17, 18, 37, 43, 45, 46.
BUS DE 480/120 VCA BUS 14 A1 FALLA A OPERAR, CUALQUIER MODO
MBU4A1FR
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 051
MN063051
TRANSFORMADOR 14A1 FALLA A SEGUIR OPERANDO
MTR4A1FR
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 053
MN063053
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 001
MN043001
5
PAG 39
INTERRUPTOR DE CIRCUITO 14A1 INDISPONIBLE DEBIDO A TM
MCB4A1TM
INTERRUPTOR DE CIRCUITO 14A1 SENAL ESPURIA DE DISPARO
MCB4A1SS

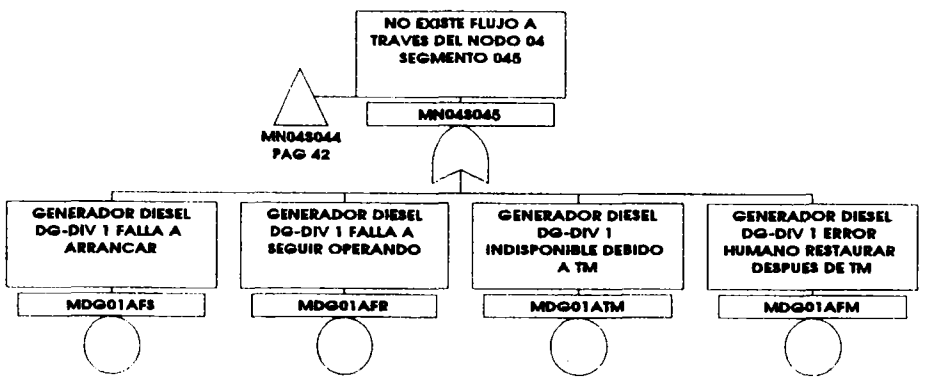


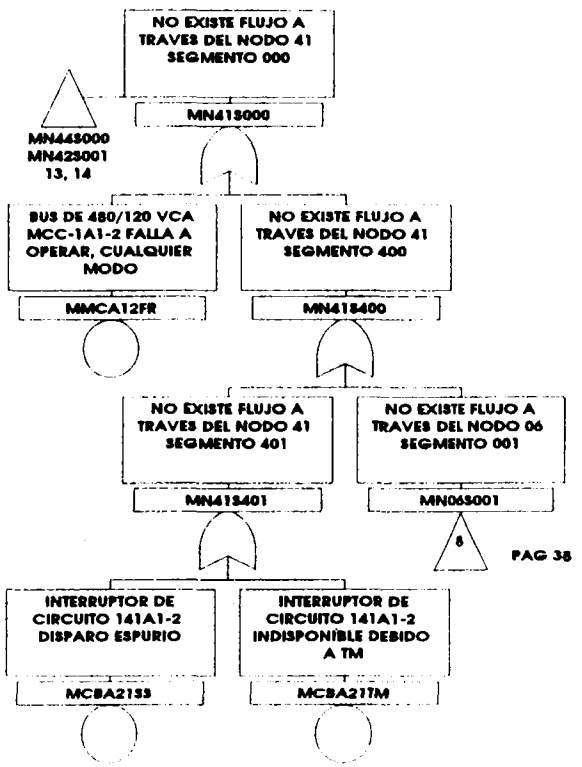
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 39

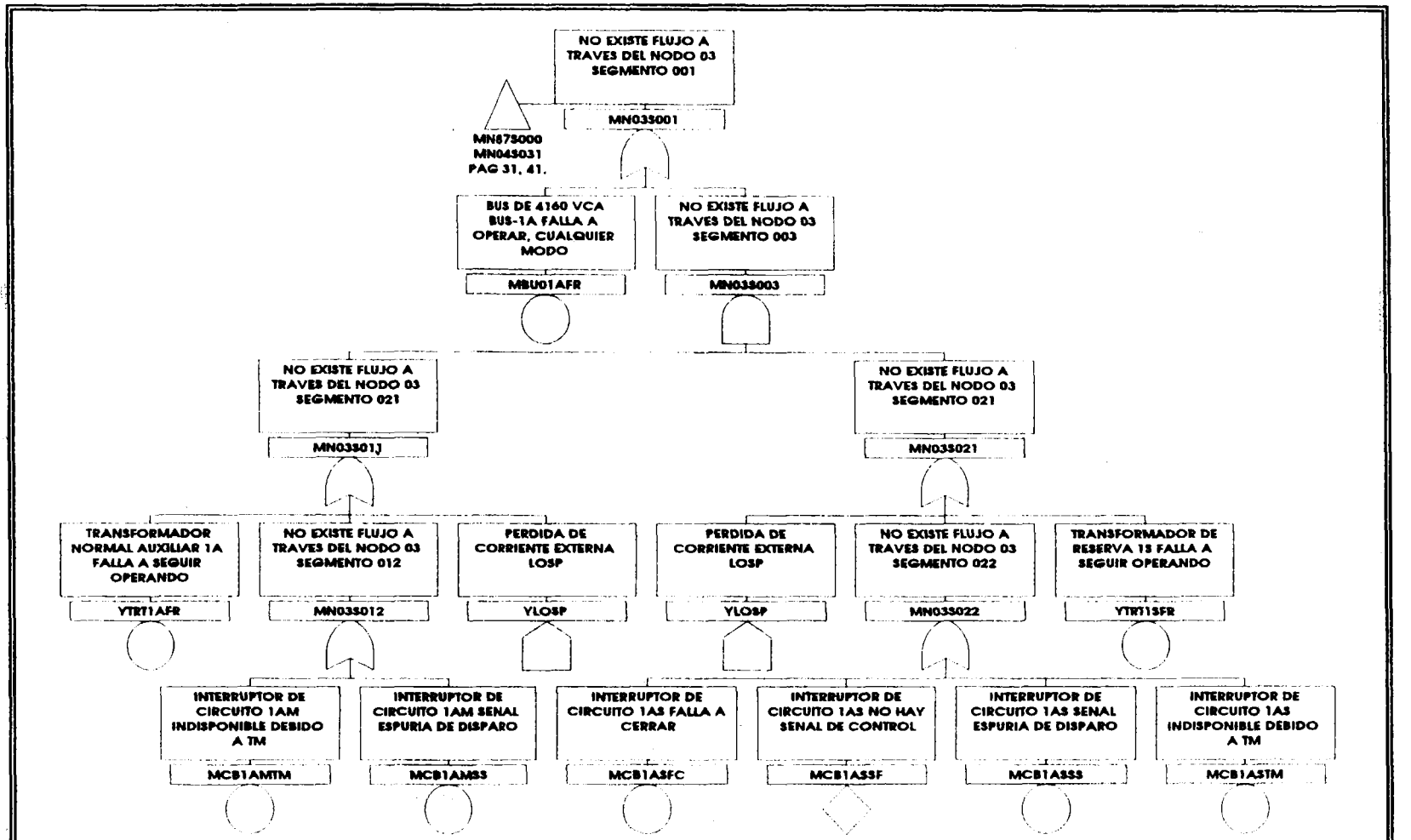

NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 302
MN045302
MN045301 PAG 39
INTERRUPTOR DE CIRCUITO A1B FALLA A CERRAR
INTERRUPTOR DE CIRCUITO A1B NO HAY SENAL DE CONTROL
INTERRUPTOR DE CIRCUITO A1B SENAL ESPURIA DE DISPARO
INTERRUPTOR DE CIRCUITO A1B INDISPONIBLE DEBIDO A TM
MCBA1BFC
MCBA1BSF
MCBA1BSS
MCBA1BTM

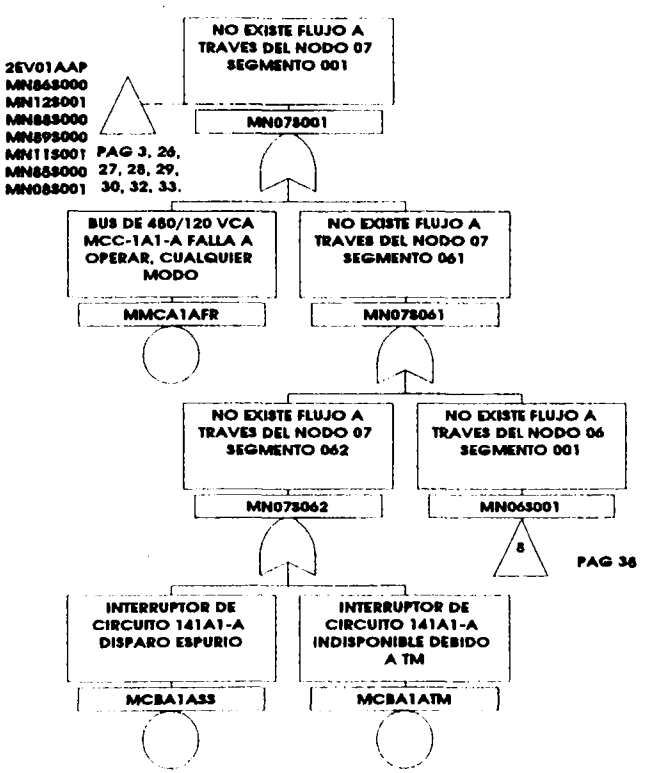

NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 031
MN043031
MN043004 PAG 39
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 033
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 001
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 034
MN043033
MN033001
MN043034
2
PAG 45
INTERRUPTOR DE CIRCUITO 1A1 INDISPONIBLE DEBIDO A TM
INTERRUPTOR DE CIRCUITO 1A1 SENAL ESPURIA DE DISPARO
INTERRUPTOR DE CIRCUITO A1X INDISPONIBLE DEBIDO A TM
INTERRUPTOR DE CIRCUITO A1X SENAL ESPURIA DE DISPARO
MCB1A1TM
MCB1A1SS
MCBA1XTM
MCBA1XSS

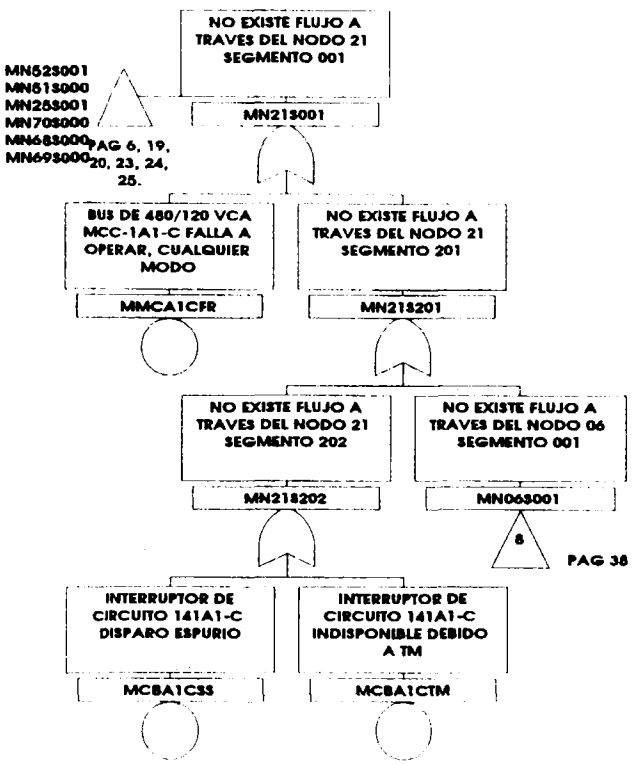

NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 044
MN045044
MN045041 PAG 39
NO HAY ENFRIAMENTO DEL NSW-DIV I AL DG-DIV I
MDG01ASW
NO HAY SENAL A TRAVES DEL NODO 1 SEGMENTO 11
MDGN1811
NO HAY VENTILACION DEL HVAC-DIV I AL DG-DIV I
MDG01AVF
FALLA DE CAUSA COMUN DE 4 BANCOS DE BATERIAS
DCPCCFBA
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 045
MN045045
PAG 43
FALLA DE CAUSA COMUN DE LOS GENERADORES DIESEL
ACPCCFDG
GENERADOR DIESEL DG-DIV 1 NO HAY SENAL DE CONTROL
MDG01ASF
OPERADOR FALLA A INICIAR DG-DIV I
MDGOPERA
FACTOR BETA FALLAN A OPERAR 4 BATERIAS
YBETA4BA
BANCO DE BATERIAS FALLA A OPERAR
YBADCCCF
FACTOR BETA FALLAN A ARRANCAR 3 GENNERADORES DIESEL
YBETA3DG
GENERADOR DIESEL FALLA A ARRANCAR
YEDGPCCF

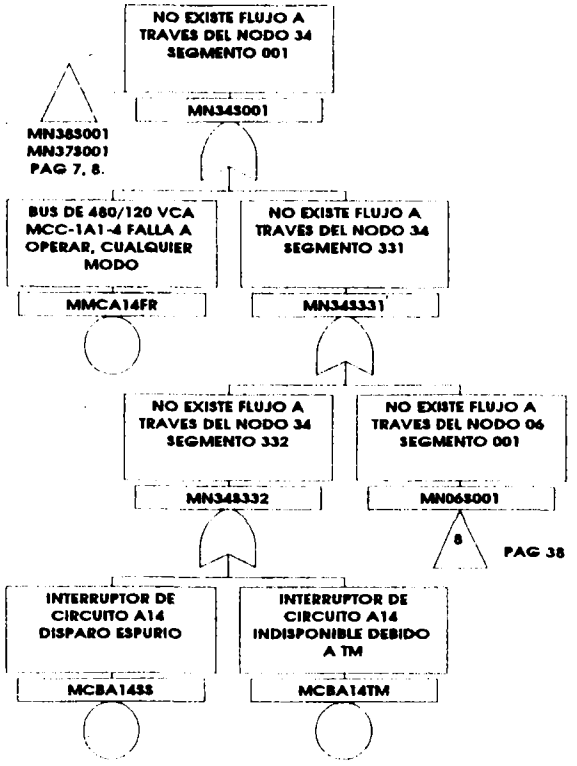

NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 045
MN043045
MN043044 PAG 42
GENERADOR DIESEL DG-DIV 1 FALLA A ARRANCAR
MDG01AFS
GENERADOR DIESEL DG-DIV 1 FALLA A SEGUIR OPERANDO
MDG01AFR
GENERADOR DIESEL DG-DIV 1 INDISPONIBLE DEBIDO A TM
MDG01ATM
GENERADOR DIESEL DG-DIV 1 ERROR HUMANO RESTAURAR DESPUES DE TM
MDG01AFM


NO EXISTE FLUJO A TRAVES DEL NODO 41 SEGMENTO 000
MN413000
MN445000
MN423001
13, 14
1
BUS DE 480/120 VCA MCC-1A1-2 FALLA A OPERAR, CUALQUIER MODO
MMCA12FR
NO EXISTE FLUJO A TRAVES DEL NODO 41 SEGMENTO 400
MN418400
NO EXISTE FLUJO A TRAVES DEL NODO 41 SEGMENTO 401
MN413401
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
MN065001
8
PAG 38
INTERRUPTOR DE CIRCUITO 141A1-2 DISPARO ESPURIO
MCBA2133
INTERRUPTOR DE CIRCUITO 141A1-2 INDISPONIBLE DEBIDO A TM
MCBA217M


NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 001
MN035001
MN675000 MN043031 PAG 31, 41.
BUS DE 4160 VCA BUS-1A FALLA A OPERAR, CUALQUIER MODO
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 003
MBU01AFR
MN033003
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 021
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 021
MN033011
MN033021
TRANSFORMADOR NORMAL AUXILIAR 1A FALLA A SEGUIR OPERANDO
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 012
PERDIDA DE CORRIENTE EXTERNA LOSP
PERDIDA DE CORRIENTE EXTERNA LOSP
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 022
TRANSFORMADOR DE RESERVA 1S FALLA A SEGUIR OPERANDO
YTRT1AFR
MN035012
YLOSP
YLOSP
MN035022
YTRT1SFR
INTERRUPTOR DE CIRCUITO 1AM INDISPONIBLE DEBIDO A TM
INTERRUPTOR DE CIRCUITO 1AM SENAL ESPURIA DE DISPARO
INTERRUPTOR DE CIRCUITO 1AS FALLA A CERRAR
INTERRUPTOR DE CIRCUITO 1AS NO HAY SENAL DE CONTROL
INTERRUPTOR DE CIRCUITO 1AS SENAL ESPURIA DE DISPARO
INTERRUPTOR DE CIRCUITO 1AS INDISPONIBLE DEBIDO A TM
MCB1AMTM
MCB1AMSS
MCB1ASFC
MCB1ASSF
MCB1ASSS
MCB1ASTM


NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 001
MN078001
2EV01AAP
MN868000
MN128001
MN888000
MN898000
MN115001
MN888000
MN085001
PAG 3, 26, 27, 28, 29, 30, 32, 33.
BUS DE 480/120 VCA MCC-1A1-A FALLA A OPERAR, CUALQUIER MODO
MMCA1AFR
NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 061
MN078061
NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 062
MN078062
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
MN063001
8
PAG 36
INTERRUPTOR DE CIRCUITO 141A1-A DISPARO ESPURIO
MCBA1ASS
INTERRUPTOR DE CIRCUITO 141A1-A INDISPONIBLE DEBIDO A TM
MCBA1ATM


NO EXISTE FLUJO A TRAVES DEL NODO 21 SEGMENTO 001
MN213001
MN523001
MN513000
MN253001
MN703000
MN683000
MN693000
PAG 6, 19, 20, 23, 24, 25.
BUS DE 480/120 VCA MCC-1A1-C FALLA A OPERAR, CUALQUIER MODO
MMCA1CFR
NO EXISTE FLUJO A TRAVES DEL NODO 21 SEGMENTO 201
MN213201
NO EXISTE FLUJO A TRAVES DEL NODO 21 SEGMENTO 202
MN213202
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
MN063001
8
PAG 38
INTERRUPTOR DE CIRCUITO 141A1-C DISPARO ESPURIO
MCBA1CSS
INTERRUPTOR DE CIRCUITO 141A1-C INDISPONIBLE DEBIDO A TM
MCBA1CTM


NO EXISTE FLUJO A TRAVES DEL NODO 34 SEGMENTO 001
MN345001
MN383001
MN378001
PAG 7, 8.
BUS DE 480/120 VCA MCC-1A1-4 FALLA A OPERAR, CUALQUIER MODO
MMCA14FR
NO EXISTE FLUJO A TRAVES DEL NODO 34 SEGMENTO 331
MN345331
NO EXISTE FLUJO A TRAVES DEL NODO 34 SEGMENTO 332
MN348332
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
MN068001
8
PAG 38
INTERRUPTOR DE CIRCUITO A14 DISPARO ESPURIO
MCBA14SS
INTERRUPTOR DE CIRCUITO A14 INDISPONIBLE DEBIDO A TM
MCBA14TM

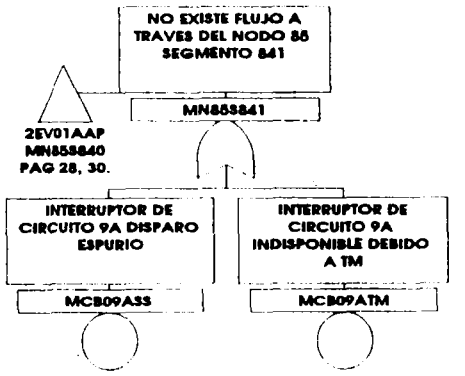
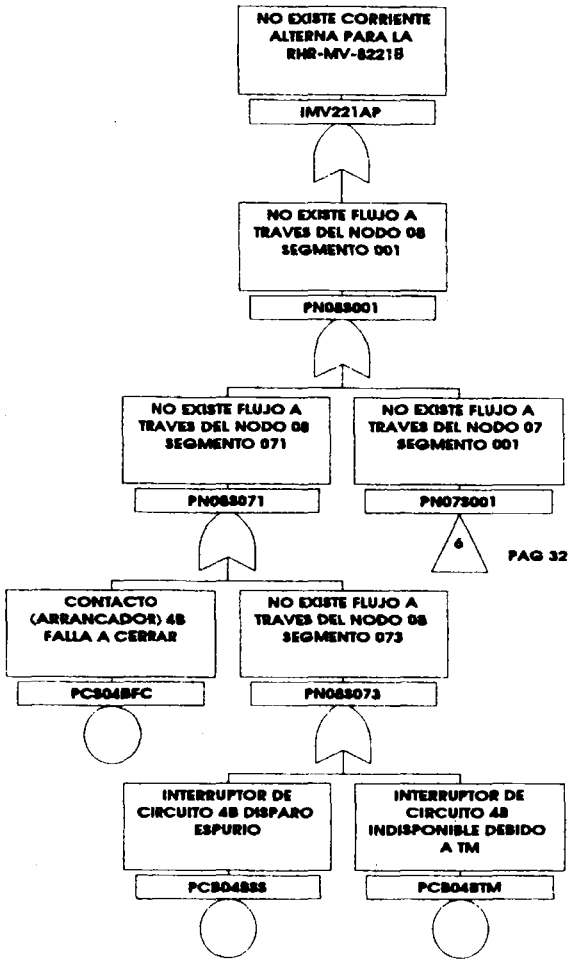
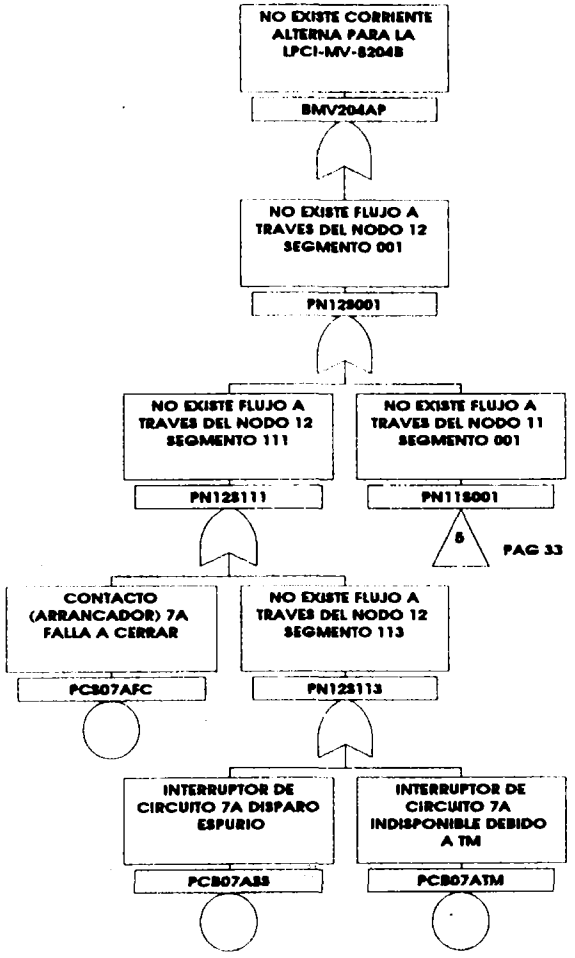

NO EXISTE FLUJO A TRAVES DEL NODO 88 SEGMENTO 841
MN858841
2EV01AAP MN858840 PAG 28, 30.
INTERRUPTOR DE CIRCUITO 9A DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 9A INDISPONIBLE DEBIDO A TM
MCB09ASS
MCB09ATM

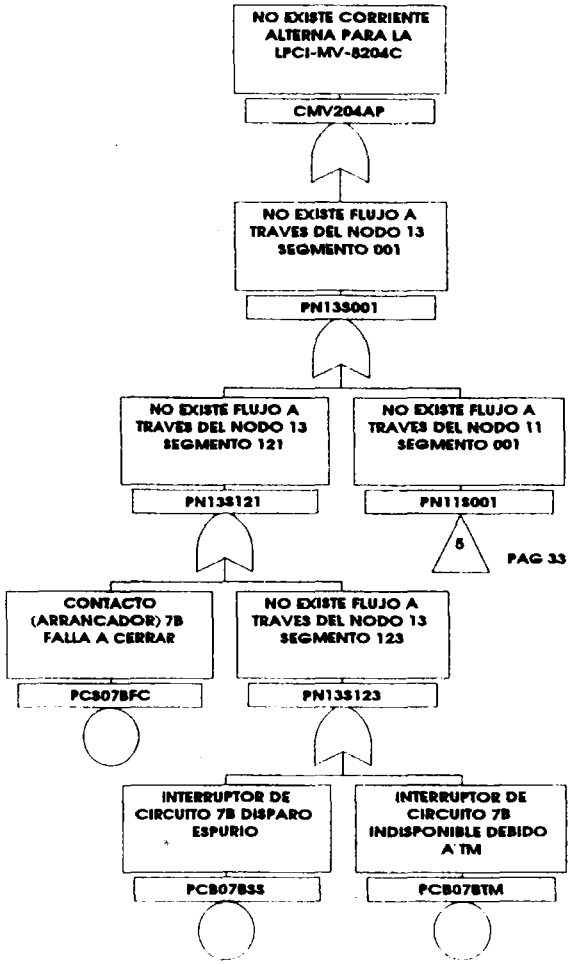
FIGURA B-22. ARBOL DE FALLAS DEL SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION II.



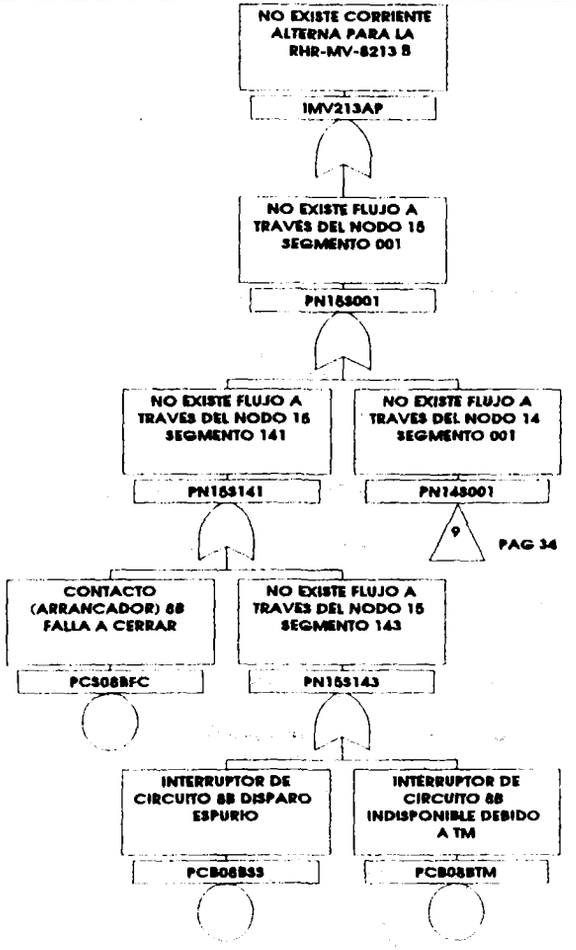
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



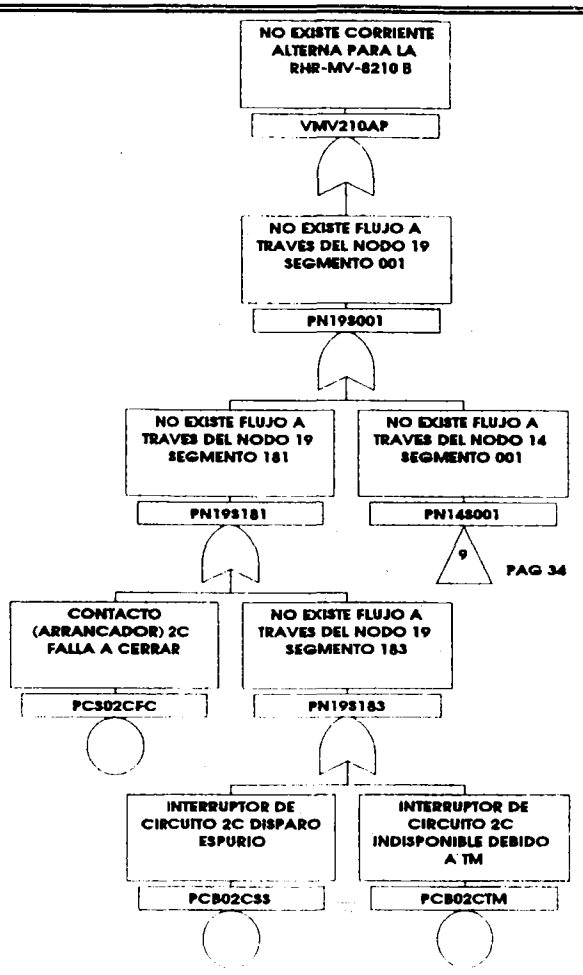
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION II	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 02**

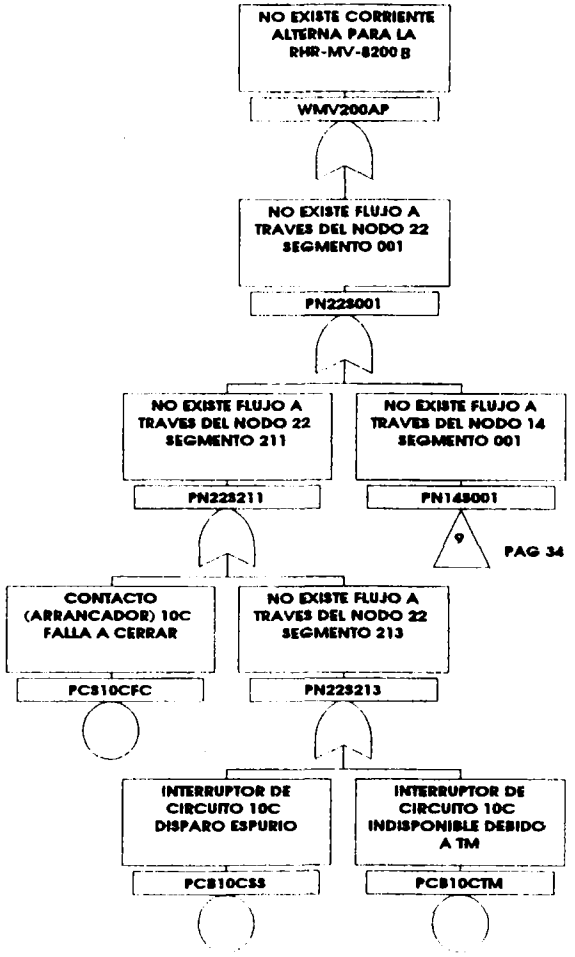


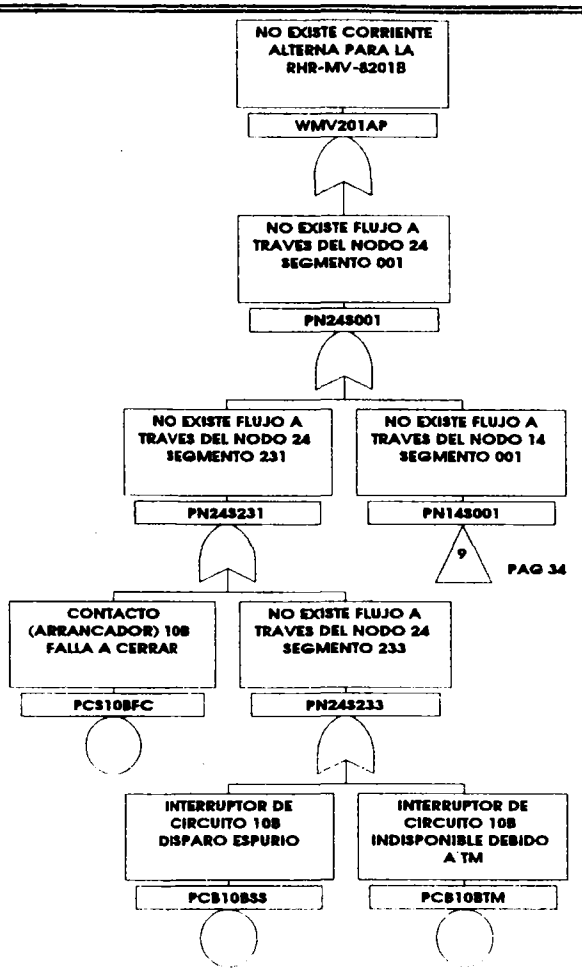
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03

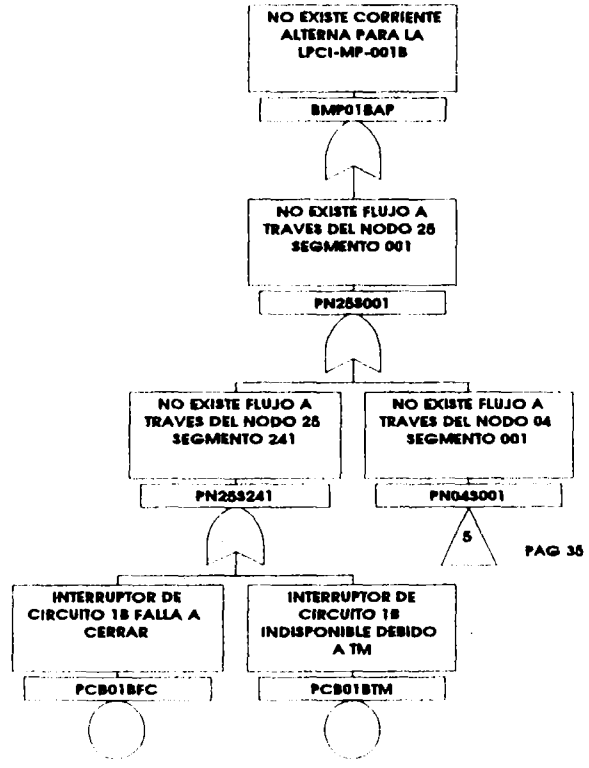


SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04

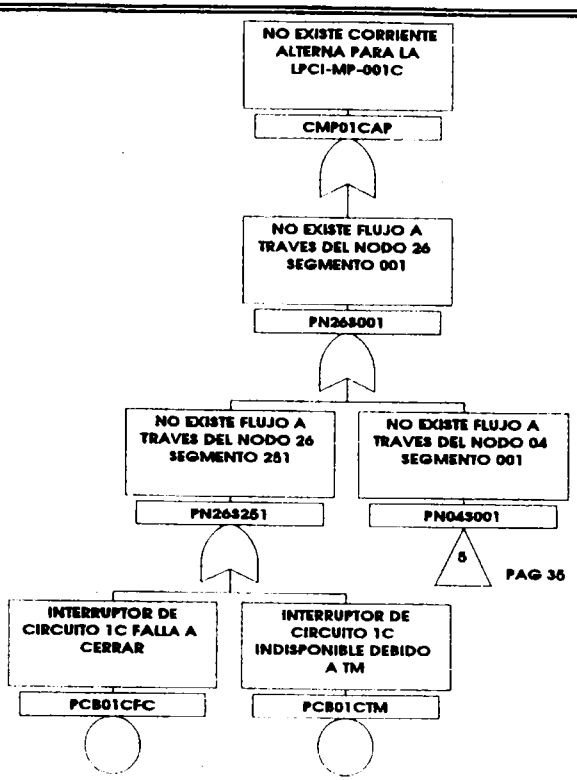

NO EXISTE CORRIENTE ALTERNA PARA LA RHR-MV-8210 B
VMV210AP
NO EXISTE FLUJO A TRAVES DEL NODO 19 SEGMENTO 001
PN19S001
NO EXISTE FLUJO A TRAVES DEL NODO 19 SEGMENTO 181
NO EXISTE FLUJO A TRAVES DEL NODO 14 SEGMENTO 001
PN19S181
PN14S001
9
PAG 34
CONTACTO (ARRANCADOR) 2C FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 19 SEGMENTO 183
PCB02CFC
PN19S183
INTERRUPTOR DE CIRCUITO 2C DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 2C INDISPONIBLE DEBIDO A TM
PCB02CSS
PCB02CTM

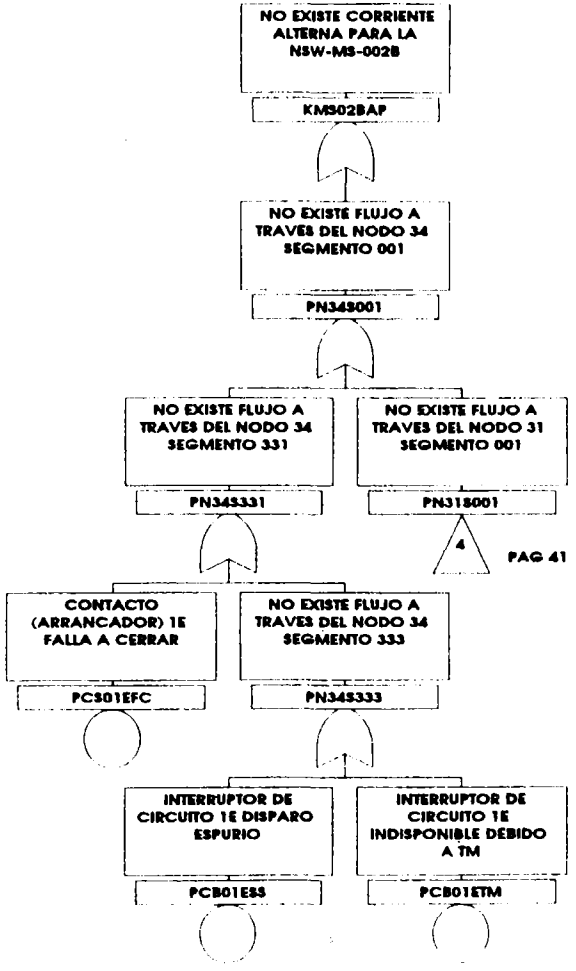

NO EXISTE CORRIENTE ALTERNA PARA LA RHR-MV-8200 B
WMV200AP
NO EXISTE FLUJO A TRAVES DEL NODO 22 SEGMENTO 001
PN228001
NO EXISTE FLUJO A TRAVES DEL NODO 22 SEGMENTO 211
NO EXISTE FLUJO A TRAVES DEL NODO 14 SEGMENTO 001
PN228211
PN145001
9
PAG 34
CONTACTO (ARRANCADOR) 10C FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 22 SEGMENTO 213
PCB10CFC
PN228213
INTERRUPTOR DE CIRCUITO 10C DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 10C INDISPONIBLE DEBIDO A TM
PCB10CSS
PCB10CTM


NO EXISTE CORRIENTE ALTERNA PARA LA RHR-MV-82018
WMV201AP
NO EXISTE FLUJO A TRAVES DEL NODO 24 SEGMENTO 001
PN248001
NO EXISTE FLUJO A TRAVES DEL NODO 24 SEGMENTO 231
NO EXISTE FLUJO A TRAVES DEL NODO 14 SEGMENTO 001
PN248231
PN148001
9
PAG 34
CONTACTO (ARRANCADOR) 108 FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 24 SEGMENTO 233
PCS10BFC
PN248233
INTERRUPTOR DE CIRCUITO 108 DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 108 INDISPONIBLE DEBIDO A TM
PCB10BSS
PCB10BTM

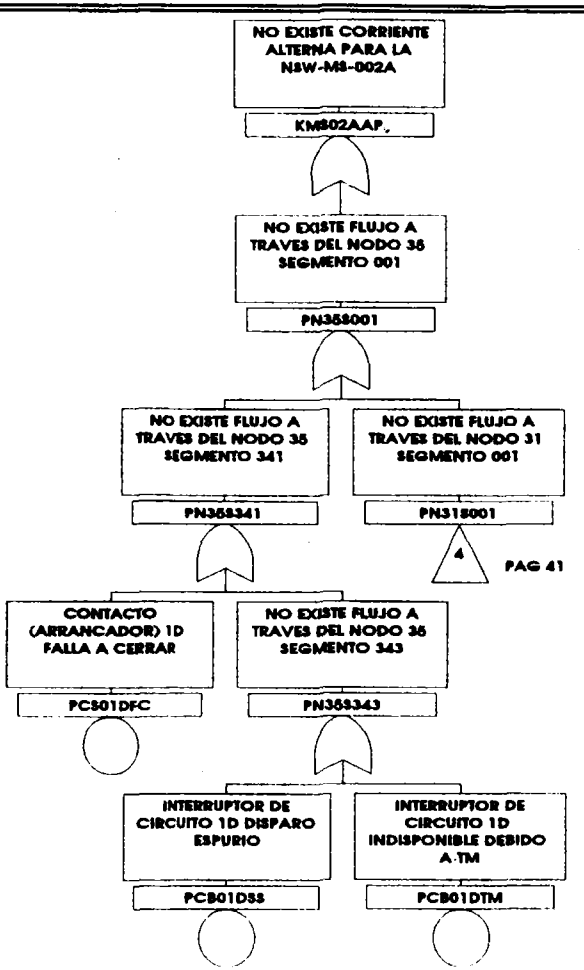


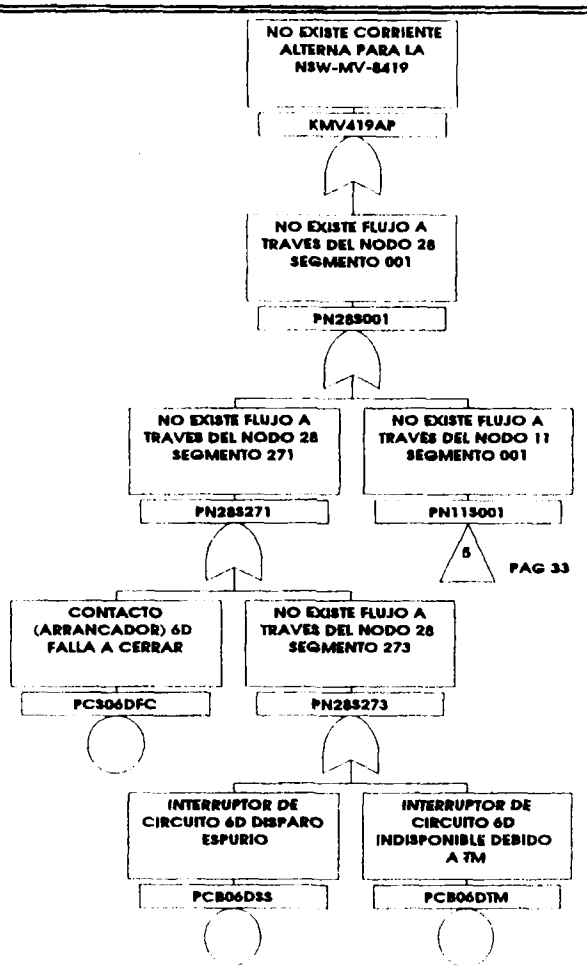
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 08


NO EXISTE CORRIENTE ALTERNA PARA LA LPCI-MP-001C
CMP01CAP
NO EXISTE FLUJO A TRAVES DEL NODO 26 SEGMENTO 001
PN268001
NO EXISTE FLUJO A TRAVES DEL NODO 26 SEGMENTO 251
PN268251
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 001
PN043001
5
PAG 36
INTERRUPTOR DE CIRCUITO 1C FALLA A CERRAR
PCB01CFC
INTERRUPTOR DE CIRCUITO 1C INDISPONIBLE DEBIDO A TM
PCB01CTM

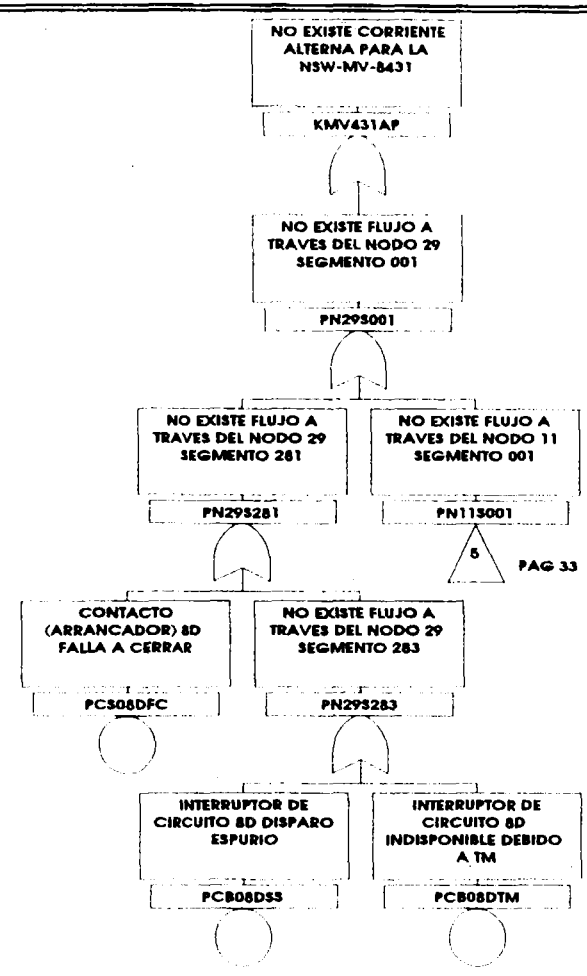


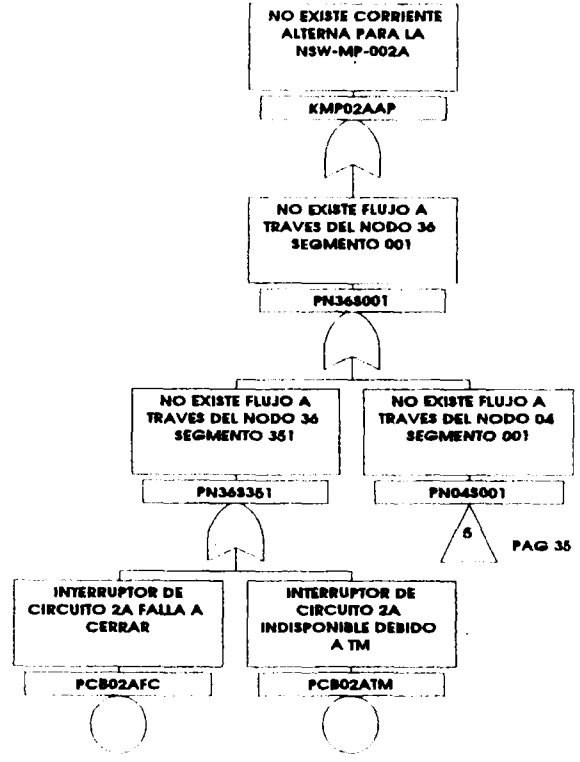
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 10

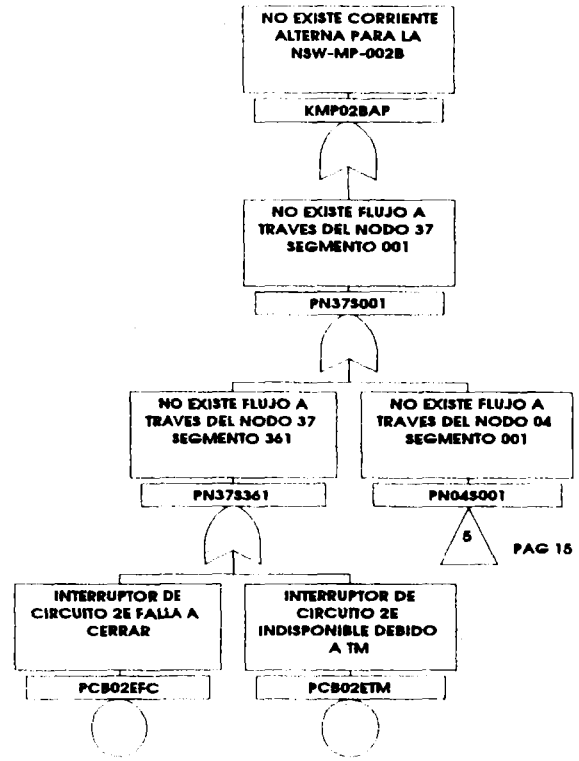

NO EXISTE CORRIENTE ALTERNA PARA LA NSW-M8-002A
KM802AAP.
NO EXISTE FLUJO A TRAVES DEL NODO 35 SEGMENTO 001
PN355001
NO EXISTE FLUJO A TRAVES DEL NODO 35 SEGMENTO 341
NO EXISTE FLUJO A TRAVES DEL NODO 31 SEGMENTO 001
PN355341
PN315001
4
PAG 41
CONTACTO (ARRANCADOR) 1D FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 35 SEGMENTO 343
PC501DFC
PN355343
INTERRUPTOR DE CIRCUITO 1D DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 1D INDISPONIBLE DEBIDO A TM
PCB01DSS
PCB01DTM

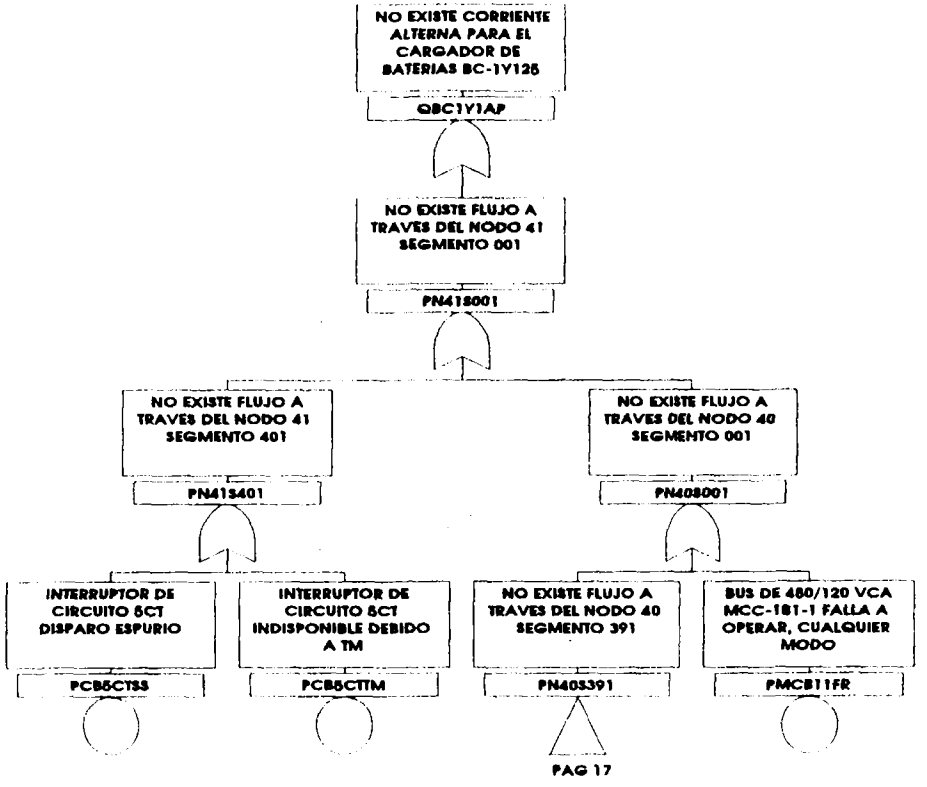


SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 12

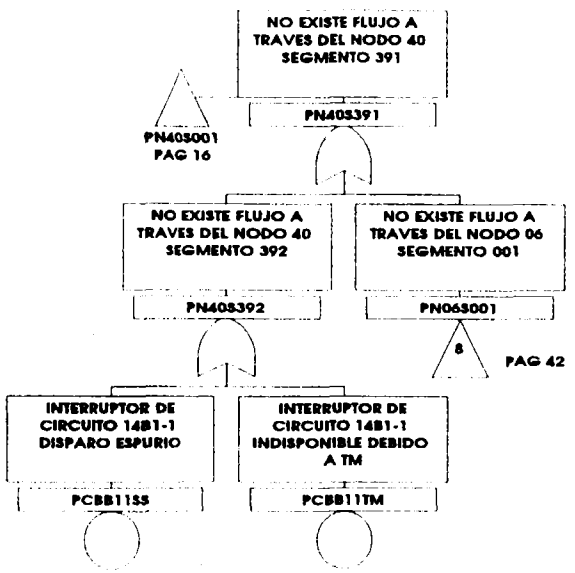

NO EXISTE CORRIENTE ALTERNA PARA LA NSW-MV-8431
KMV431AP
NO EXISTE FLUJO A TRAVES DEL NODO 29 SEGMENTO 001
PN295001
NO EXISTE FLUJO A TRAVES DEL NODO 29 SEGMENTO 281
PN295281
NO EXISTE FLUJO A TRAVES DEL NODO 11 SEGMENTO 001
PN115001
5
PAG 33
CONTACTO (ARRANCADOR) 8D FALLA A CERRAR
PC808DFC
NO EXISTE FLUJO A TRAVES DEL NODO 29 SEGMENTO 283
PN295283
INTERRUPTOR DE CIRCUITO 8D DISPARO ESPURIO
PCB08DSS
INTERRUPTOR DE CIRCUITO 8D INDISPONIBLE DEBIDO A TM
PCB08DTM

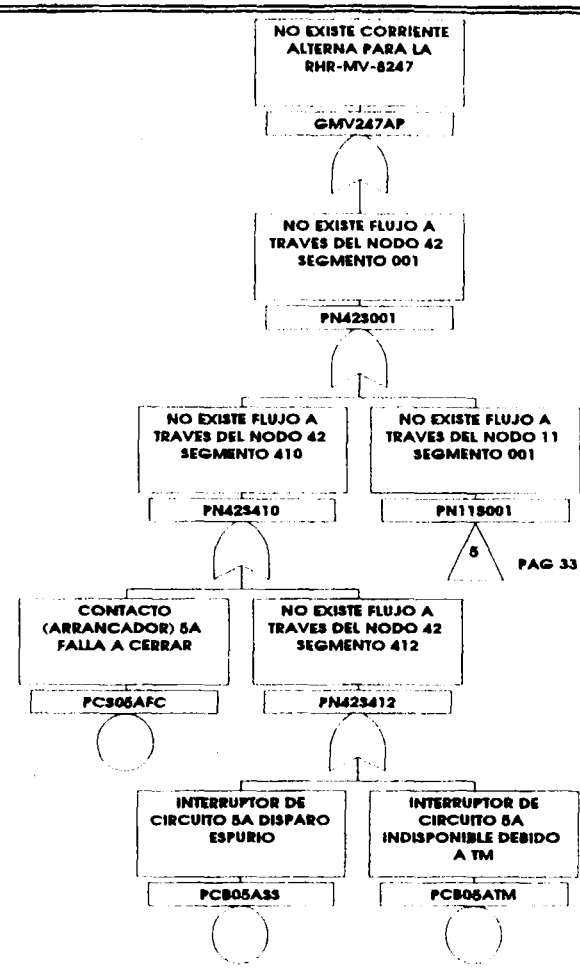

NO EXISTE CORRIENTE ALTERNA PARA LA NSW-MP-002A
KMP02AAP
NO EXISTE FLUJO A TRAVES DEL NODO 36 SEGMENTO 001
PN368001
NO EXISTE FLUJO A TRAVES DEL NODO 36 SEGMENTO 351
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 001
PN368351
PN045001
5
PAG 35
INTERRUPTOR DE CIRCUITO 2A FALLA A CERRAR
INTERRUPTOR DE CIRCUITO 2A INDISPONIBLE DEBIDO A TM
PCB02AFC
PCB02ATM

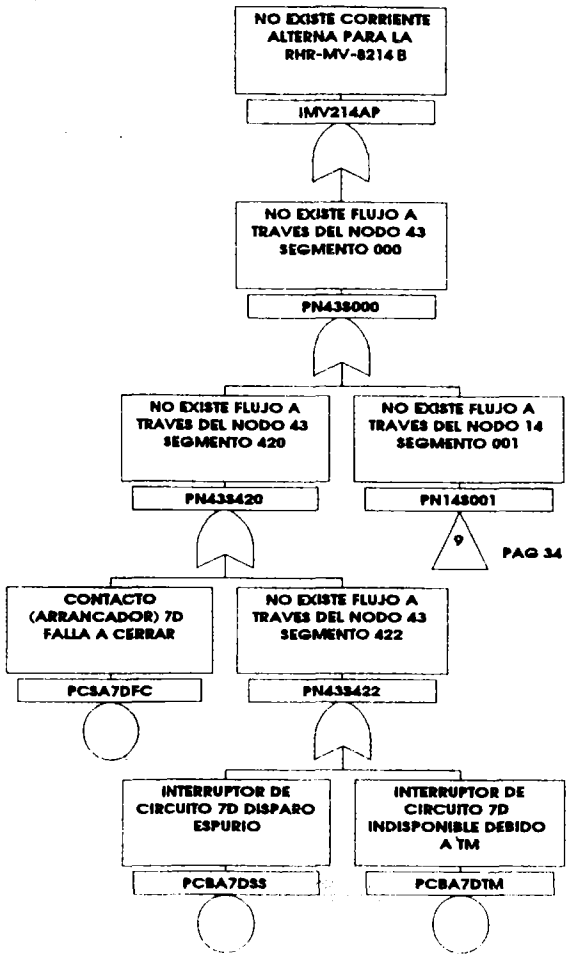

NO EXISTE CORRIENTE ALTERNA PARA LA NSW-MP-002B
KMP02BAP
NO EXISTE FLUJO A TRAVES DEL NODO 37 SEGMENTO 001
PN375001
NO EXISTE FLUJO A TRAVES DEL NODO 37 SEGMENTO 361
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 001
PN378361
PN045001
5
PAG 15
INTERRUPTOR DE CIRCUITO 2E FALLA A CERRAR
INTERRUPTOR DE CIRCUITO 2E INDISPONIBLE DEBIDO A TM
PCB02EFC
PCB02ETM

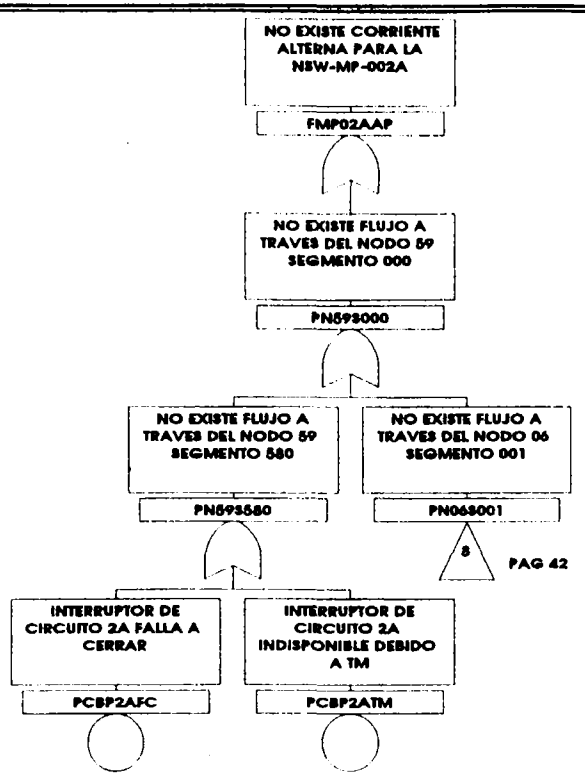


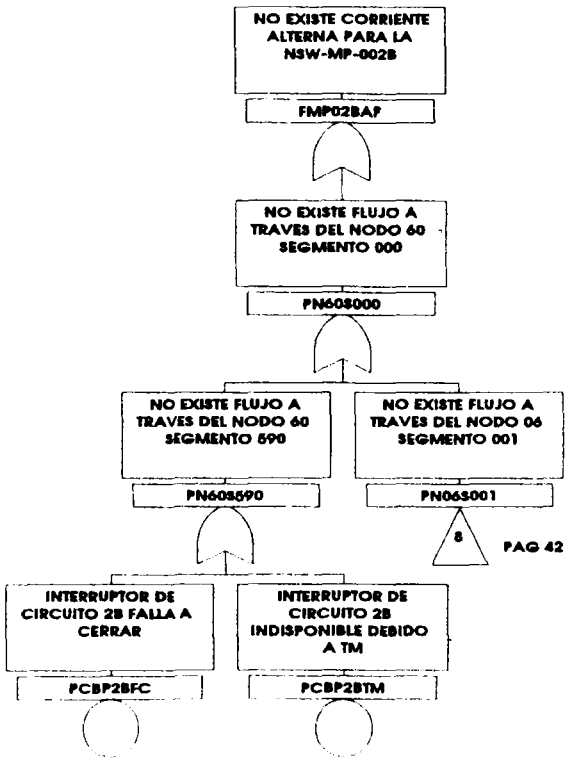
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 16

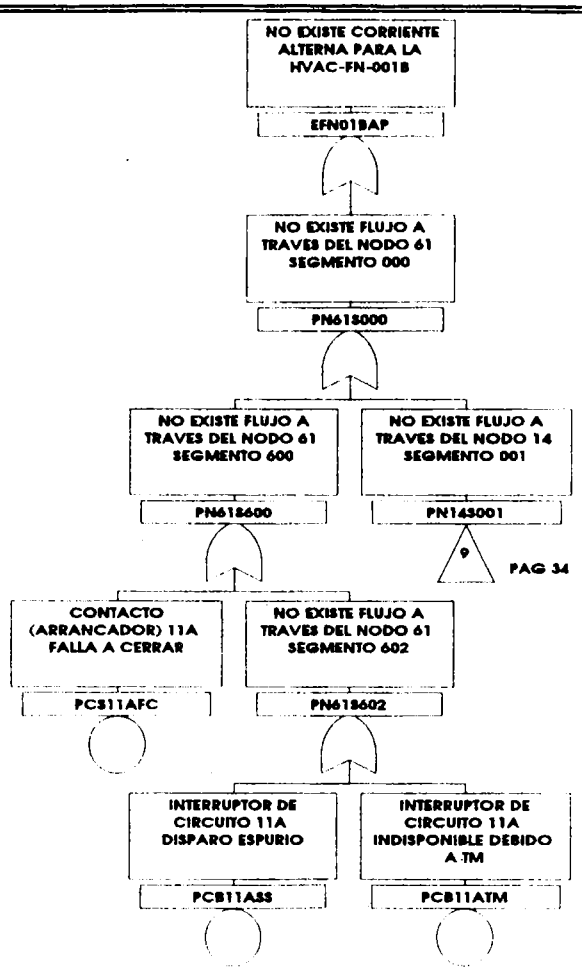

NO EXISTE FLUJO A TRAVES DEL NODO 40 SEGMENTO 391
PN403391
PN403001 PAG 16
NO EXISTE FLUJO A TRAVES DEL NODO 40 SEGMENTO 392
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
PN403392
PN063001
8
PAG 42
INTERRUPTOR DE CIRCUITO 14B1-1 DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 14B1-1 INDISPONIBLE DEBIDO A TM
PCBB11SS
PCBB11TM

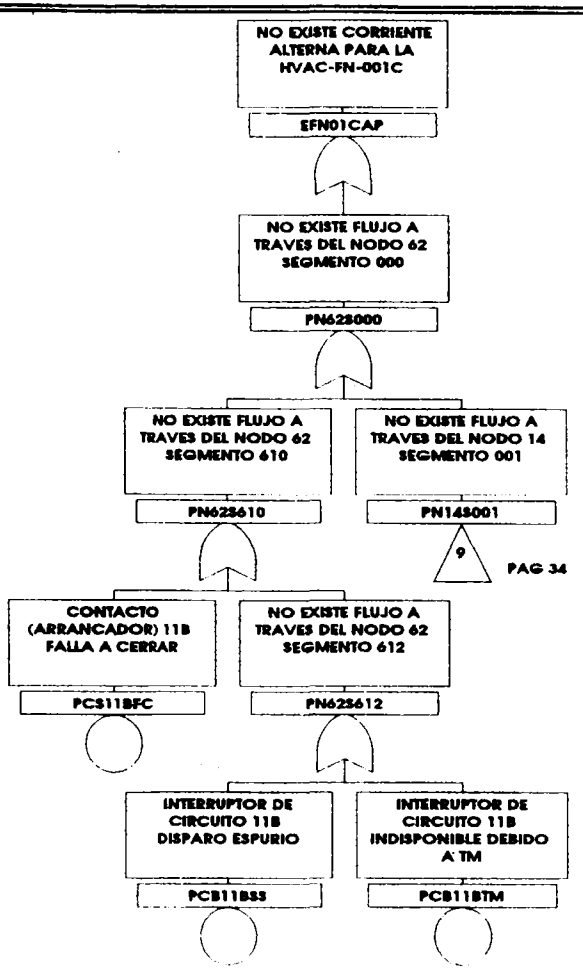

NO EXISTE CORRIENTE ALTERNA PARA LA RHR-MV-8247
GMV247AP
NO EXISTE FLUJO A TRAVES DEL NODO 42 SEGMENTO 001
PN423001
NO EXISTE FLUJO A TRAVES DEL NODO 42 SEGMENTO 410
PN423410
NO EXISTE FLUJO A TRAVES DEL NODO 11 SEGMENTO 001
PN113001
5
PAG 33
CONTACTO (ARRANCADOR) 5A FALLA A CERRAR
PC305AFC
NO EXISTE FLUJO A TRAVES DEL NODO 42 SEGMENTO 412
PN423412
INTERRUPTOR DE CIRCUITO 5A DISPARO ESPURIO
PCB05ASS
INTERRUPTOR DE CIRCUITO 5A INDISPONIBLE DEBIDO A TM
PCB05ATM


NO EXISTE CORRIENTE ALTERNA PARA LA RHR-MV-8214 B
IMV214AP
NO EXISTE FLUJO A TRAVES DEL NODO 43 SEGMENTO 000
PN438000
NO EXISTE FLUJO A TRAVES DEL NODO 43 SEGMENTO 420
NO EXISTE FLUJO A TRAVES DEL NODO 14 SEGMENTO 001
PN438420
PN148001
9
PAG 34
CONTACTO (ARRANCADOR) 7D FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 43 SEGMENTO 422
PCBA7DFC
PN438422
INTERRUPTOR DE CIRCUITO 7D DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 7D INDISPONIBLE DEBIDO A TM
PCBA7DSS
PCBA7DTM

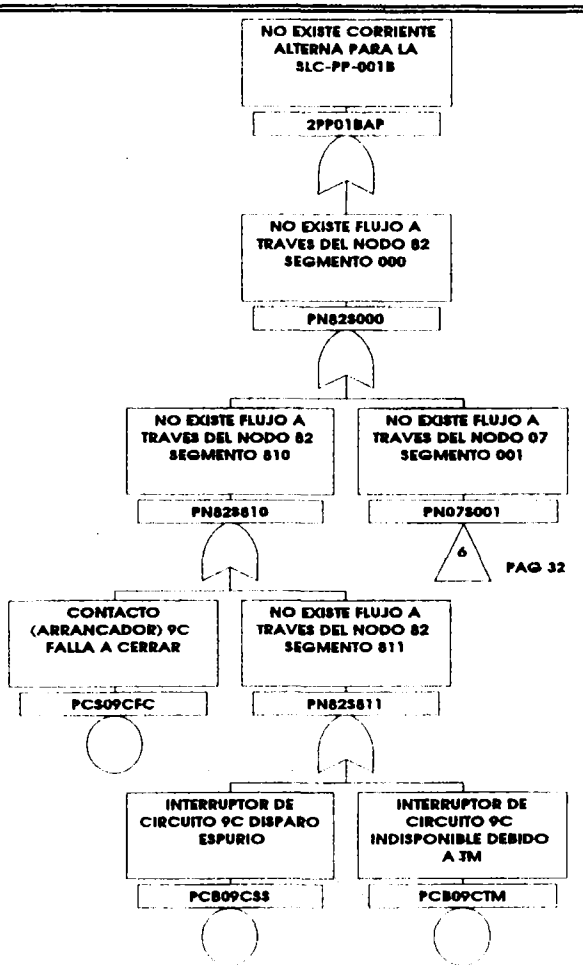

NO EXISTE CORRIENTE ALTERNA PARA LA NSW-MP-002A
FMP02AAP
NO EXISTE FLUJO A TRAVES DEL NODO 59 SEGMENTO 000
PN593000
NO EXISTE FLUJO A TRAVES DEL NODO 59 SEGMENTO 580
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
PN593580
PN063001
8
PAG 42
INTERRUPTOR DE CIRCUITO 2A FALLA A CERRAR
INTERRUPTOR DE CIRCUITO 2A INDISPONIBLE DEBIDO A TM
PCBP2AFC
PCBP2ATM

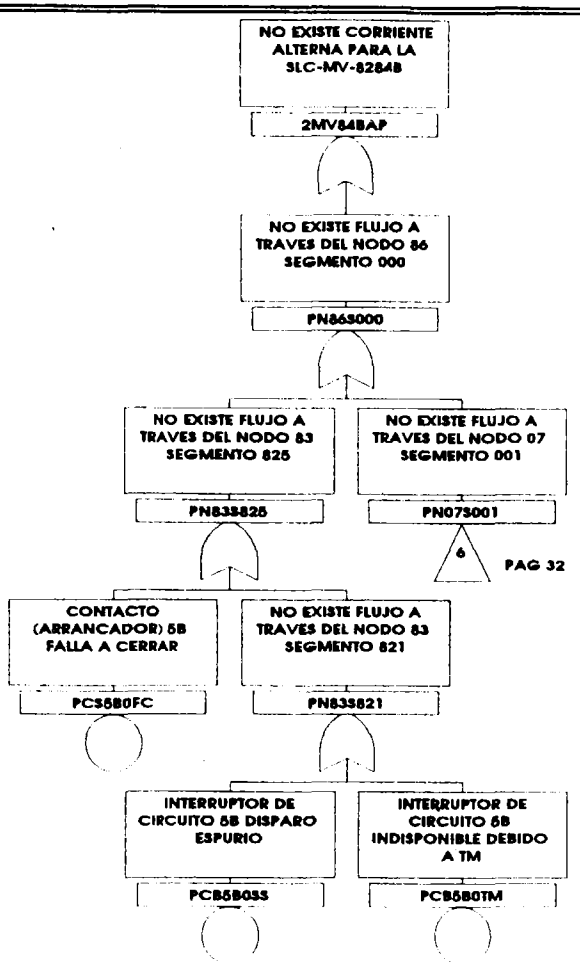

NO EXISTE CORRIENTE ALTERNA PARA LA NSW-MP-002B
FMP02BAP
NO EXISTE FLUJO A TRAVES DEL NODO 60 SEGMENTO 000
PN60S000
NO EXISTE FLUJO A TRAVES DEL NODO 60 SEGMENTO 590
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
PN60S590
PN06S001
8
PAG 42
INTERRUPTOR DE CIRCUITO 2B FALLA A CERRAR
INTERRUPTOR DE CIRCUITO 2B INDISPONIBLE DEBIDO A TM
PCBP2BFC
PCBP2BTM

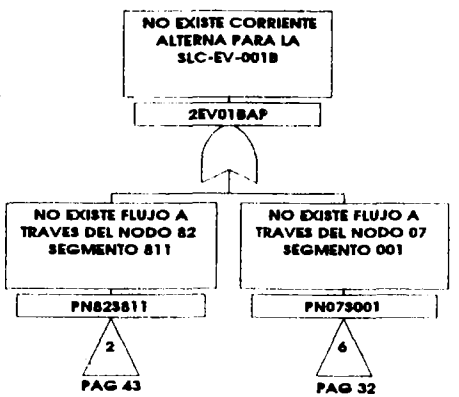

NO EXISTE CORRIENTE ALTERNA PARA LA HVAC-FN-001B
EFN01BAP
NO EXISTE FLUJO A TRAVES DEL NODO 61 SEGMENTO 000
PN618000
NO EXISTE FLUJO A TRAVES DEL NODO 61 SEGMENTO 600
NO EXISTE FLUJO A TRAVES DEL NODO 14 SEGMENTO 001
PN618600
PN143001
9
PAG 34
CONTACTO (ARRANCADOR) 11A FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 61 SEGMENTO 602
PCS11AFC
PN618602
INTERRUPTOR DE CIRCUITO 11A DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 11A INDISPONIBLE DEBIDO A TM
PCB11ASS
PCB11ATM

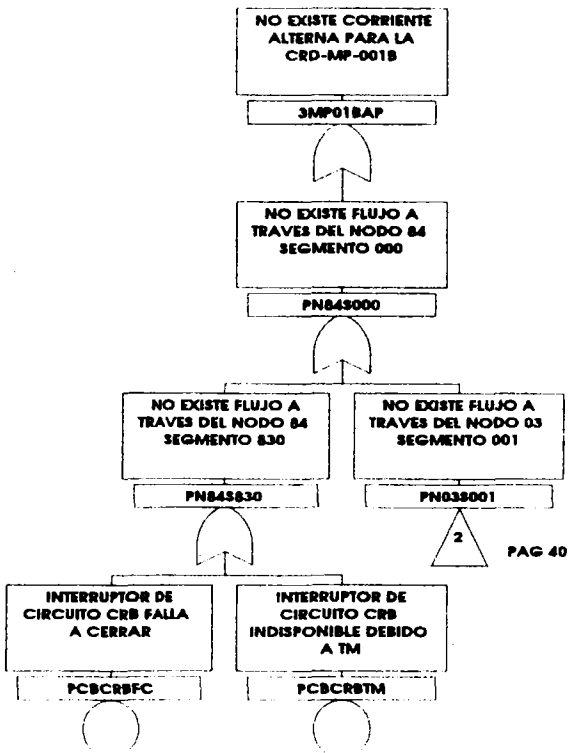


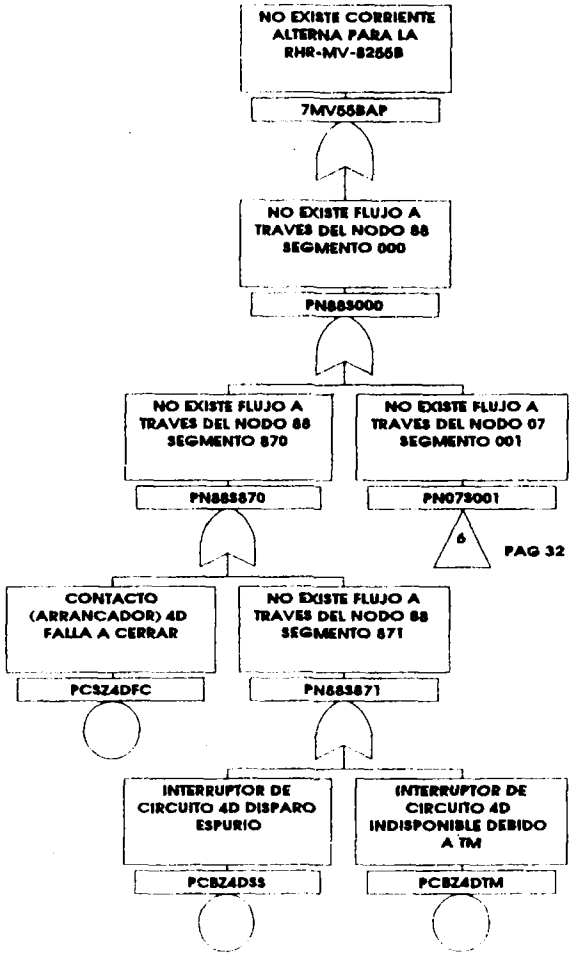
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 23

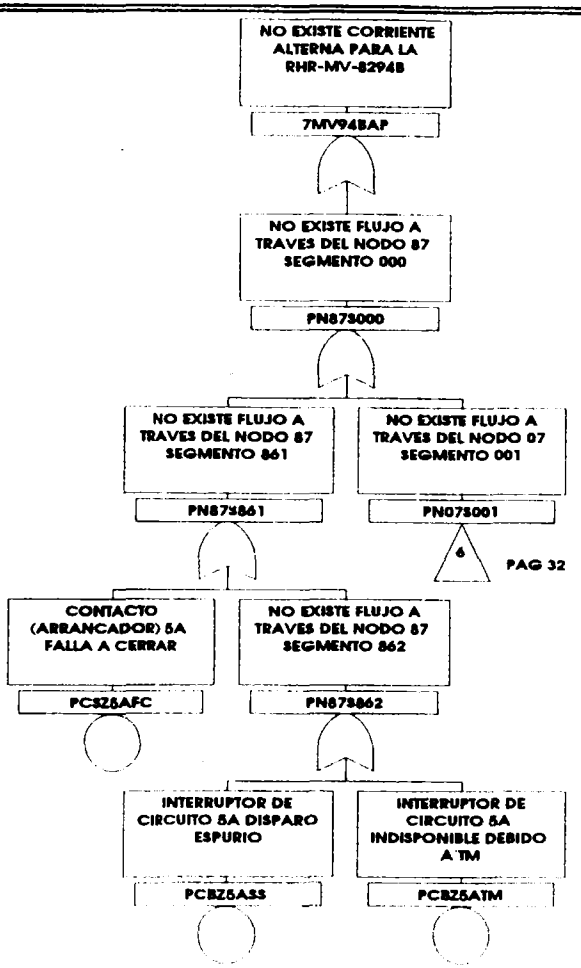

NO EXISTE CORRIENTE ALTERNA PARA LA SLC-PP-001B
2PP01BAP
NO EXISTE FLUJO A TRAVES DEL NODO 82 SEGMENTO 000
PN825000
NO EXISTE FLUJO A TRAVES DEL NODO 82 SEGMENTO 810
NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 001
PN825810
PN075001
6
PAG 32
CONTACTO (ARRANCADOR) 9C FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 82 SEGMENTO 811
PCS09CFC
PN825811
INTERRUPTOR DE CIRCUITO 9C DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 9C INDISPONIBLE DEBIDO A TM
PCB09CSS
PCB09CTM

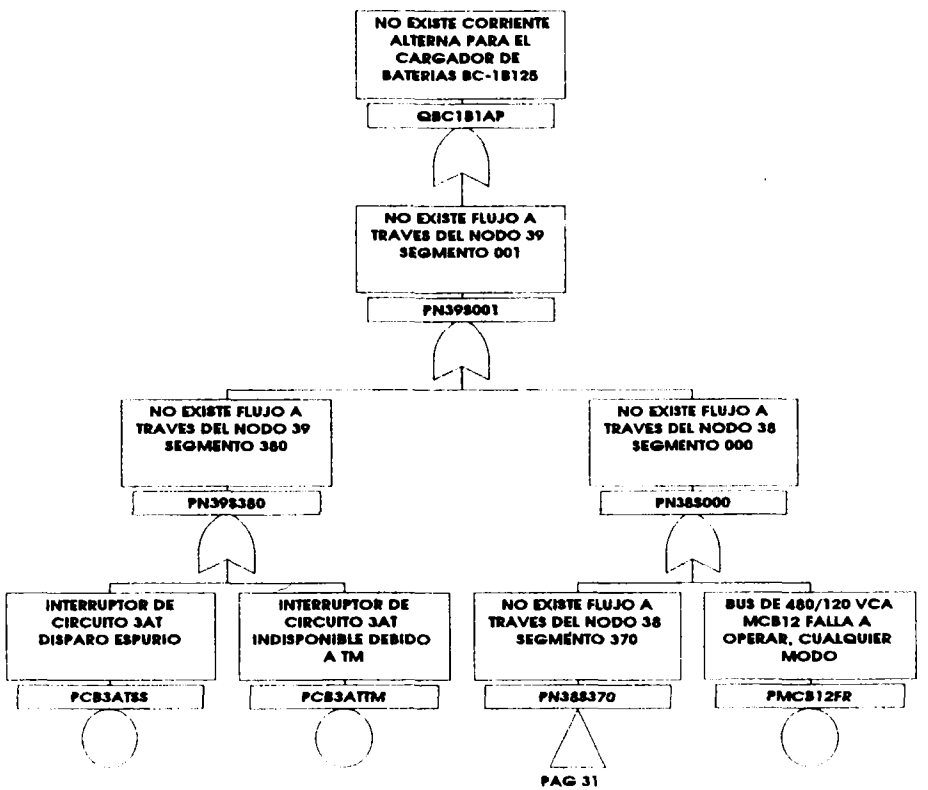

NO EXISTE CORRIENTE ALTERNA PARA LA SLC-MV-8284B
2MV84BAP
NO EXISTE FLUJO A TRAVES DEL NODO 86 SEGMENTO 000
PN865000
NO EXISTE FLUJO A TRAVES DEL NODO 83 SEGMENTO 825
NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 001
PN835825
PN075001
6
PAG 32
CONTACTO (ARRANCADOR) 5B FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 83 SEGMENTO 821
PCS5B0FC
PN835821
INTERRUPTOR DE CIRCUITO 5B DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 5B INDISPONIBLE DEBIDO A TM
PCB5B0SS
PCB5B0TM

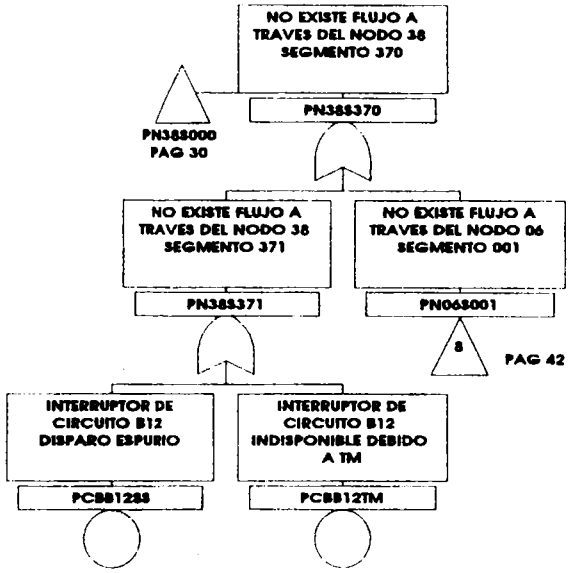

NO EXISTE CORRIENTE ALTERNA PARA LA SLC-EV-001B
2EV01BAP
NO EXISTE FLUJO A TRAVES DEL NODO 82 SEGMENTO 811
NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 001
PN823811
PN073001
2
PAG 43
6
PAG 32

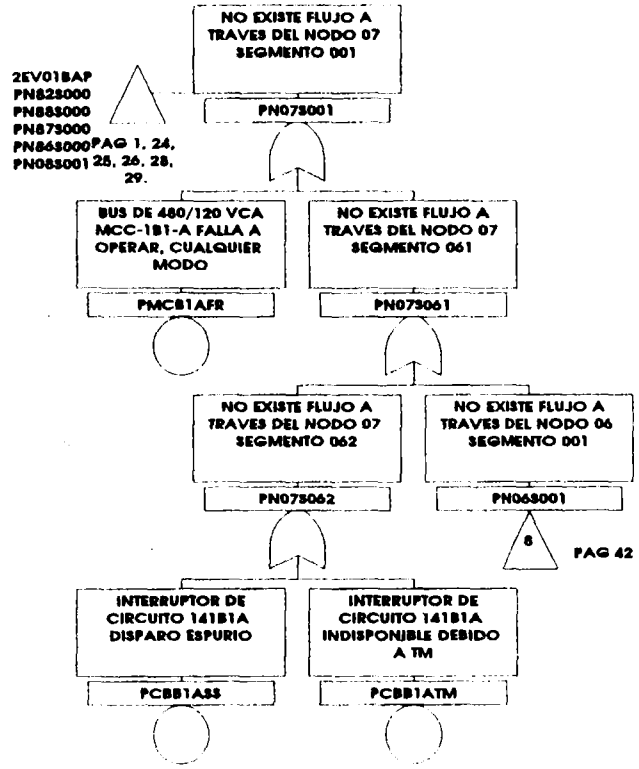

NO EXISTE CORRIENTE ALTERNA PARA LA CRD-MP-001B
3MP01BAP
NO EXISTE FLUJO A TRAVES DEL NODO 84 SEGMENTO 000
PN845000
NO EXISTE FLUJO A TRAVES DEL NODO 84 SEGMENTO 830
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 001
PN845830
PN038001
2
PAG 40
INTERRUPTOR DE CIRCUITO CRB FALLA A CERRAR
INTERRUPTOR DE CIRCUITO CRB INDISPONIBLE DEBIDO A TM
PCBCRBFC
PCBCRBTM

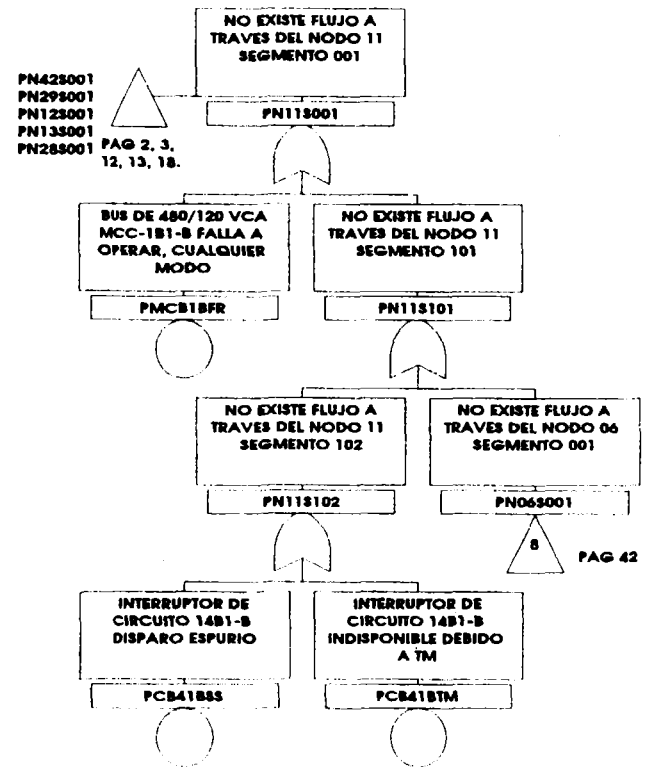

NO EXISTE CORRIENTE ALTERNA PARA LA RHR-MV-8255B
7MV555AP
NO EXISTE FLUJO A TRAVES DEL NODO 88 SEGMENTO 000
PN885000
NO EXISTE FLUJO A TRAVES DEL NODO 88 SEGMENTO 870
NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 001
PN885870
PN079001
6
PAG 32
CONTACTO (ARRANCADOR) 4D FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 88 SEGMENTO 871
PCSZ4DFC
PN885871
INTERRUPTOR DE CIRCUITO 4D DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 4D INDISPONIBLE DEBIDO A TM
PCBZ4DSS
PCBZ4DTM

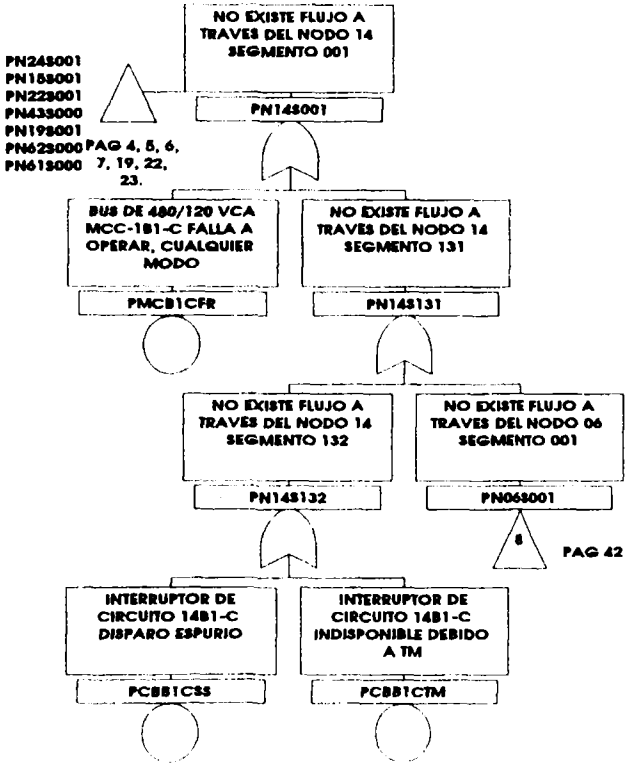

NO EXISTE CORRIENTE ALTERNA PARA LA RHR-MV-82948
7MV948AP
NO EXISTE FLUJO A TRAVES DEL NODO 87 SEGMENTO 000
PN87S000
NO EXISTE FLUJO A TRAVES DEL NODO 87 SEGMENTO 861
NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 001
PN87S861
PN07S001
6
PAG 32
CONTACTO (ARRANCADOR) 5A FALLA A CERRAR
NO EXISTE FLUJO A TRAVES DEL NODO 87 SEGMENTO 862
PCBZ5AFC
PN87S862
INTERRUPTOR DE CIRCUITO 5A DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 5A INDISPONIBLE DEBIDO A TM
PCBZ5ASS
PCBZ5ATM

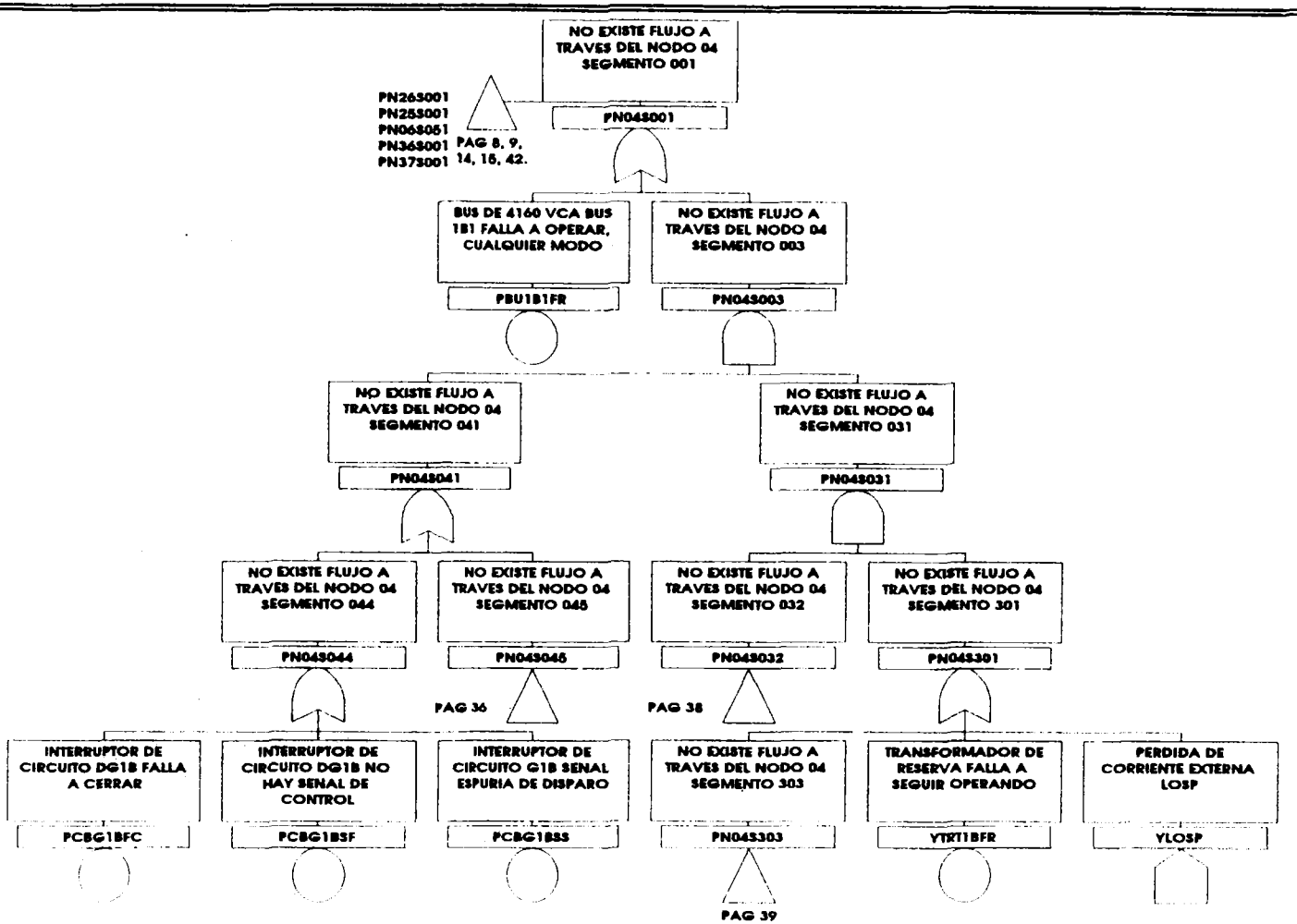

NO EXISTE CORRIENTE ALTERNA PARA EL CARGADOR DE BATERIAS BC-1B125
QBC1B1AP
NO EXISTE FLUJO A TRAVES DEL NODO 39 SEGMENTO 001
PN398001
NO EXISTE FLUJO A TRAVES DEL NODO 39 SEGMENTO 380
PN398380
NO EXISTE FLUJO A TRAVES DEL NODO 38 SEGMENTO 000
PN385000
INTERRUPTOR DE CIRCUITO 3AT DISPARO ESPURIO
PCB3ATSS
INTERRUPTOR DE CIRCUITO 3AT INDISPONIBLE DEBIDO A TM
PCB3ATTM
NO EXISTE FLUJO A TRAVES DEL NODO 38 SEGMENTO 370
PN385370
BUS DE 480/120 VCA MCB12 FALLA A OPERAR, CUALQUIER MODO
PMCB12FR
PAG 31

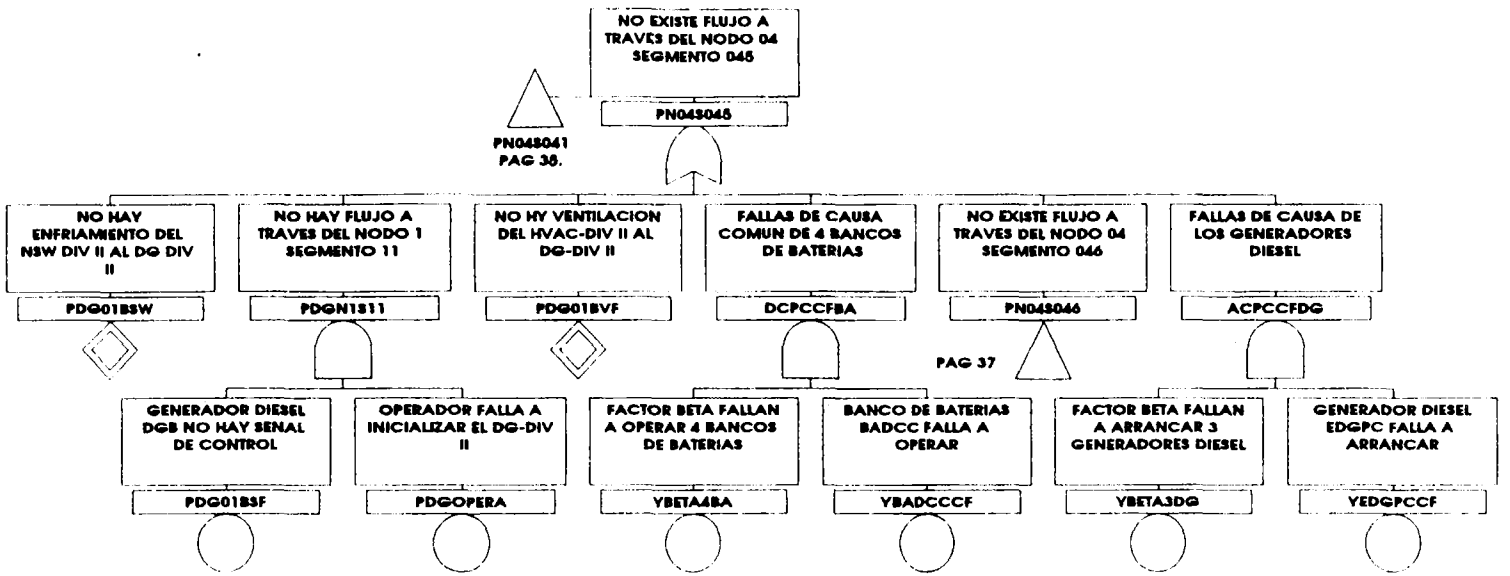

NO EXISTE FLUJO A TRAVES DEL NODO 38 SEGMENTO 370
PN385370
PN385000 PAG 30
NO EXISTE FLUJO A TRAVES DEL NODO 38 SEGMENTO 371
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
PN385371
PN065001
8
PAG 42
INTERRUPTOR DE CIRCUITO B12 DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO B12 INDISPONIBLE DEBIDO A TM
PCBB12SS
PCBB12TM


NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 001
PN073001
2EV01BAP
PN828000
PN888000
PN873000
PN865000
PN085001
PAG 1, 24, 25, 26, 28, 29.
BUS DE 480/120 VCA MCC-1B1-A FALLA A OPERAR, CUALQUIER MODO
PMCB1AFR
NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 061
PN073061
NO EXISTE FLUJO A TRAVES DEL NODO 07 SEGMENTO 062
PN073062
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
PN063001
8
PAG 42
INTERRUPTOR DE CIRCUITO 141B1A DISPARO ESPURIO
PCBB1ASS
INTERRUPTOR DE CIRCUITO 141B1A INDISPONIBLE DEBIDO A TM
PCBB1ATM

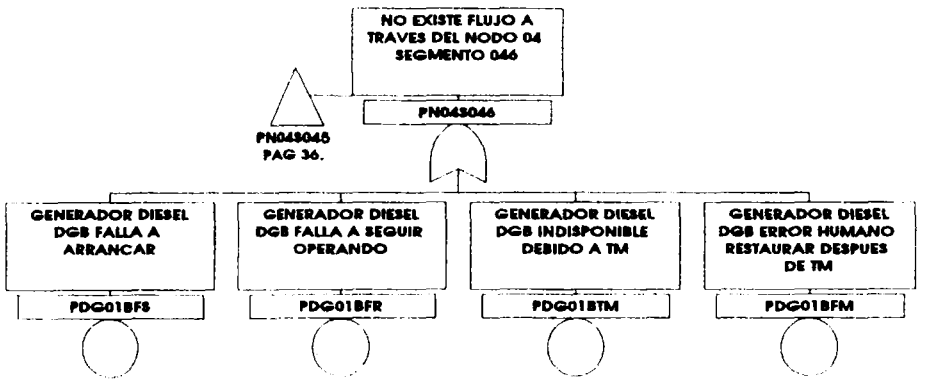

NO EXISTE FLUJO A TRAVES DEL NODO 11 SEGMENTO 001
PN115001
PN423001
PN293001
PN123001
PN133001
PN283001
PAG 2, 3, 12, 13, 18.
BUS DE 480/120 VCA MCC-1B1-B FALLA A OPERAR, CUALQUIER MODO
PMCB1BFR
NO EXISTE FLUJO A TRAVES DEL NODO 11 SEGMENTO 101
PN115101
NO EXISTE FLUJO A TRAVES DEL NODO 11 SEGMENTO 102
PN115102
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
PN063001
8
PAG 42
INTERRUPTOR DE CIRCUITO 14B1-B DISPARO ESPURIO
PCB41BSS
INTERRUPTOR DE CIRCUITO 14B1-B INDISPONIBLE DEBIDO A TM
PCB41BTM

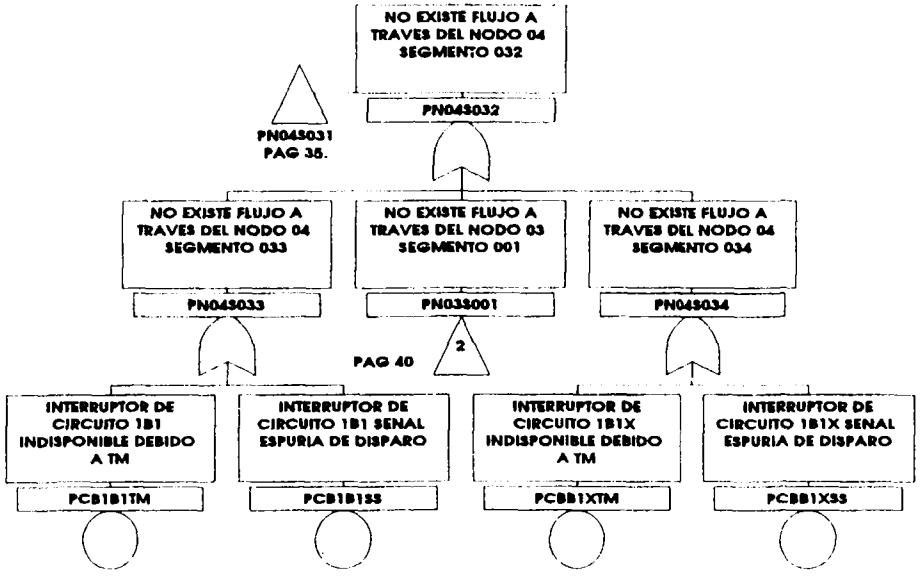

NO EXISTE FLUJO A TRAVES DEL NODO 14 SEGMENTO 001
PN145001
PN245001
PN155001
PN225001
PN435000
PN195001
PN625000
PN615000
PAG 4, 5, 6, 7, 19, 22, 23.
BUS DE 480/120 VCA MCC-1B1-C FALLA A OPERAR, CUALQUIER MODO
PMCB1CFR
NO EXISTE FLUJO A TRAVES DEL NODO 14 SEGMENTO 131
PN145131
NO EXISTE FLUJO A TRAVES DEL NODO 14 SEGMENTO 132
PN145132
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
PN065001
8
PAG 42
INTERRUPTOR DE CIRCUITO 14B1-C DISPARO ESPURIO
PCBB1CSS
INTERRUPTOR DE CIRCUITO 14B1-C INDISPONIBLE DEBIDO A TM
PCBB1CTM

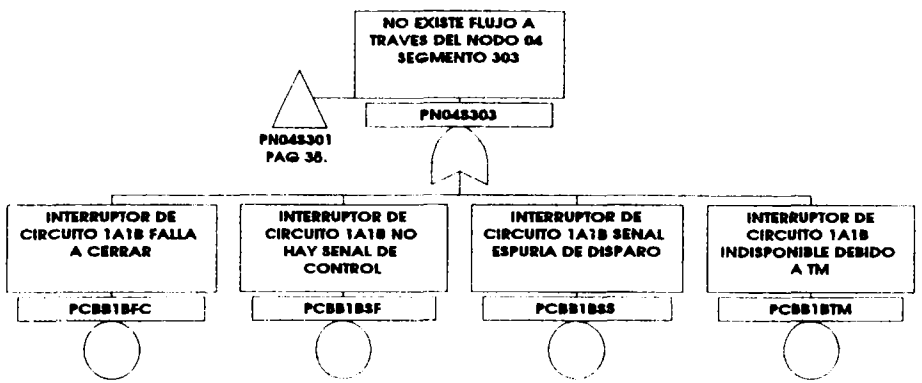

NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 001
PN043001
PN263001
PN253001
PN063051
PN363001
PN373001
PAG 8, 9, 14, 15, 42.
BUS DE 4160 VCA BUS 1B1 FALLA A OPERAR, CUALQUIER MODO
PBU1B1FR
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 003
PN043003
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 041
PN043041
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 031
PN043031
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 044
PN043044
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 045
PN043045
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 032
PN043032
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 301
PN043301
PAG 36
PAG 38
INTERRUPTOR DE CIRCUITO DG1B FALLA A CERRAR
PCBG1BFC
INTERRUPTOR DE CIRCUITO DG1B NO HAY SENAL DE CONTROL
PCBG1BSF
INTERRUPTOR DE CIRCUITO G1B SENAL ESPURIA DE DISPARO
PCBG1BSS
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 303
PN043303
TRANSFORMADOR DE RESERVA FALLA A SEGUIR OPERANDO
YTRT1BFR
PERDIDA DE CORRIENTE EXTERNA LOSP
YLOSP
PAG 39

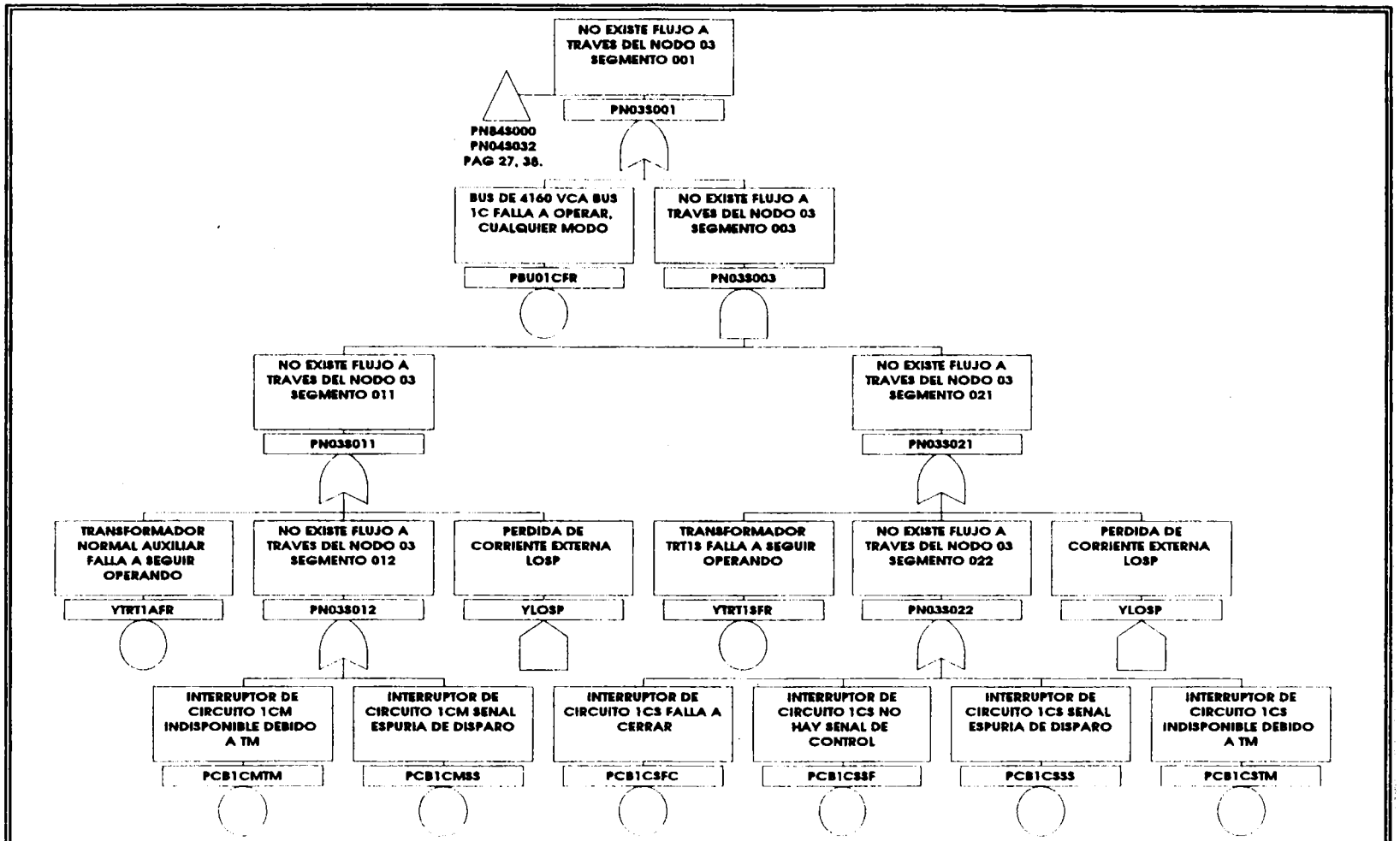


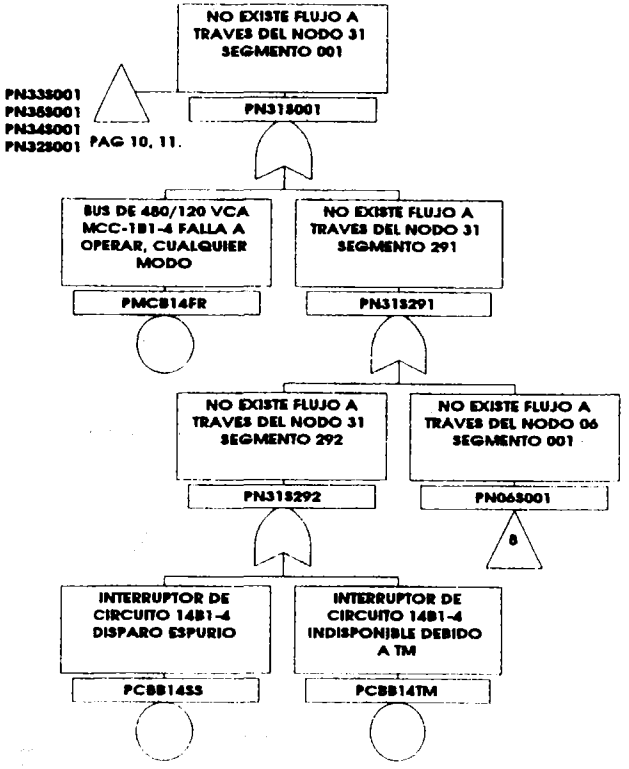
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 36

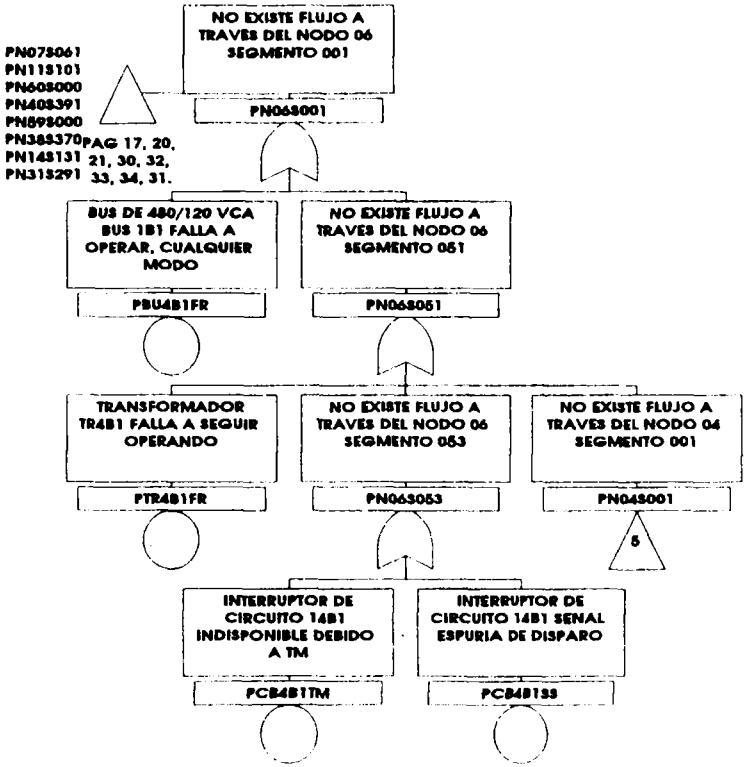

NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 046
PN043046
PN043045 PAG 36.
GENERADOR DIESEL DGB FALLA A ARRANCAR
PDG01BFS
GENERADOR DIESEL DGB FALLA A SEGUIR OPERANDO
PDG01BFR
GENERADOR DIESEL DGB INDISPONIBLE DEBIDO A TM
PDG01BTM
GENERADOR DIESEL DGB ERROR HUMANO RESTAURAR DESPUES DE TM
PDG01BFM


NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 032
PN043032
PN043031 PAG 38.
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 033
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 001
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 034
PN043033
PN033001
PN043034
2
PAG 40
INTERRUPTOR DE CIRCUITO 1B1 INDISPONIBLE DEBIDO A TM
INTERRUPTOR DE CIRCUITO 1B1 SENAL ESPURIA DE DISPARO
INTERRUPTOR DE CIRCUITO 1B1X INDISPONIBLE DEBIDO A TM
INTERRUPTOR DE CIRCUITO 1B1X SENAL ESPURIA DE DISPARO
PCB1B1TM
PCB1B1SS
PCBB1XTM
PCBB1XSS


NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 303
PN048303
PN048301 PAG 38.
INTERRUPTOR DE CIRCUITO 1A1B FALLA A CERRAR
INTERRUPTOR DE CIRCUITO 1A1B NO HAY SENAL DE CONTROL
INTERRUPTOR DE CIRCUITO 1A1B SENAL ESPURIA DE DISPARO
INTERRUPTOR DE CIRCUITO 1A1B INDISPONIBLE DEBIDO A TM
PCBB1BFC
PCBB1BSF
PCBB1BSS
PCBB1BTM


NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 001
PN033001
PN843000 PN043032 PAG 27, 38.
BUS DE 4160 VCA BUS 1C FALLA A OPERAR, CUALQUIER MODO
PBU01CFR
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 003
PN033003
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 011
PN033011
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 021
PN033021
TRANSFORMADOR NORMAL AUXILIAR FALLA A SEGUIR OPERANDO
YTRT1AFR
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 012
PN033012
PERDIDA DE CORRIENTE EXTERNA LOSP
YLOSP
TRANSFORMADOR TRT1S FALLA A SEGUIR OPERANDO
YTRT1SFR
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 022
PN033022
PERDIDA DE CORRIENTE EXTERNA LOSP
YLOSP
INTERRUPTOR DE CIRCUITO 1CM INDISPONIBLE DEBIDO A TM
PCB1CMTM
INTERRUPTOR DE CIRCUITO 1CM SENAL ESPURIA DE DISPARO
PCB1CMSS
INTERRUPTOR DE CIRCUITO 1CS FALLA A CERRAR
PCB1CSFC
INTERRUPTOR DE CIRCUITO 1CS NO HAY SENAL DE CONTROL
PCB1CSSF
INTERRUPTOR DE CIRCUITO 1CS SENAL ESPURIA DE DISPARO
PCB1CSSS
INTERRUPTOR DE CIRCUITO 1CS INDISPONIBLE DEBIDO A TM
PCB1CSTM


NO EXISTE FLUJO A TRAVES DEL NODO 31 SEGMENTO 001
PN318001
PN335001
PN359001
PN345001
PN328001
PAG 10, 11.
BUS DE 480/120 VCA MCC-1B1-4 FALLA A OPERAR, CUALQUIER MODO
PMCB14FR
NO EXISTE FLUJO A TRAVES DEL NODO 31 SEGMENTO 291
PN315291
NO EXISTE FLUJO A TRAVES DEL NODO 31 SEGMENTO 292
PN315292
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
PN065001
8
INTERRUPTOR DE CIRCUITO 14B1-4 DISPARO ESPURIO
PCBB14SS
INTERRUPTOR DE CIRCUITO 14B1-4 INDISPONIBLE DEBIDO A TM
PCBB14TM


NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
PN068001
PN073061
PN115101
PN608000
PN403391
PN898000
PN389370
PN148131
PN313291
PAG 17, 20, 21, 30, 32, 33, 34, 31.
BUS DE 480/120 VCA BUS 1B1 FALLA A OPERAR, CUALQUIER MODO
PBU4B1FR
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 051
PN068051
TRANSFORMADOR TR4B1 FALLA A SEGUIR OPERANDO
PTR4B1FR
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 053
PN063053
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 001
PN045001
5
INTERRUPTOR DE CIRCUITO 14B1 INDISPONIBLE DEBIDO A TM
PCB4B1TM
INTERRUPTOR DE CIRCUITO 14B1 SENAL ESPURIA DE DISPARO
PCB4B1SS

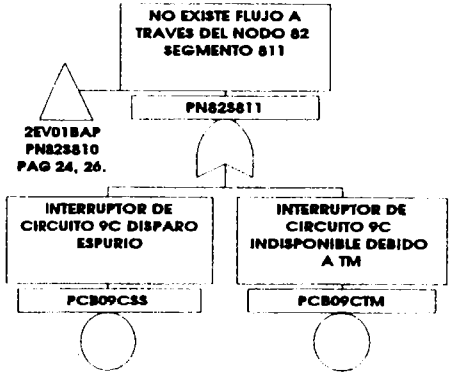
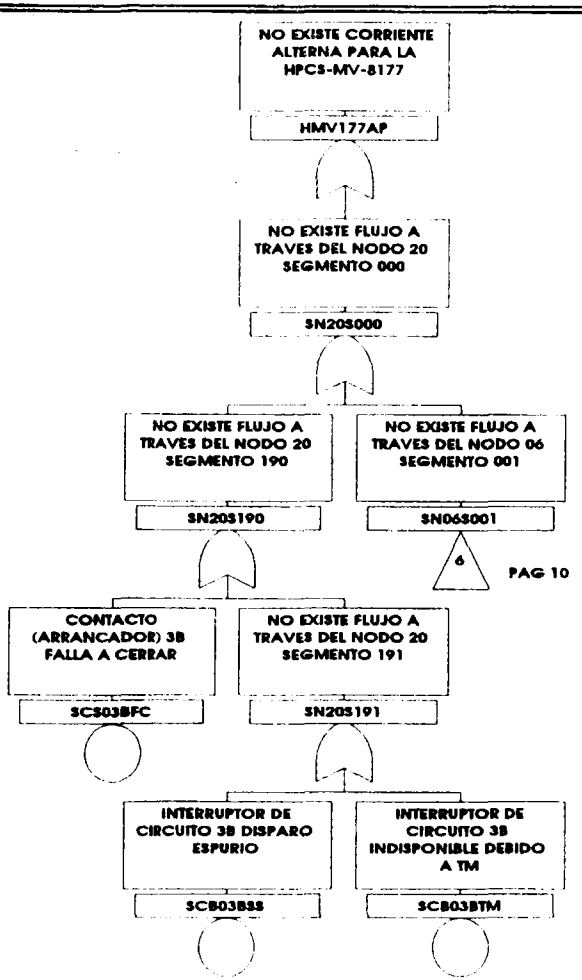
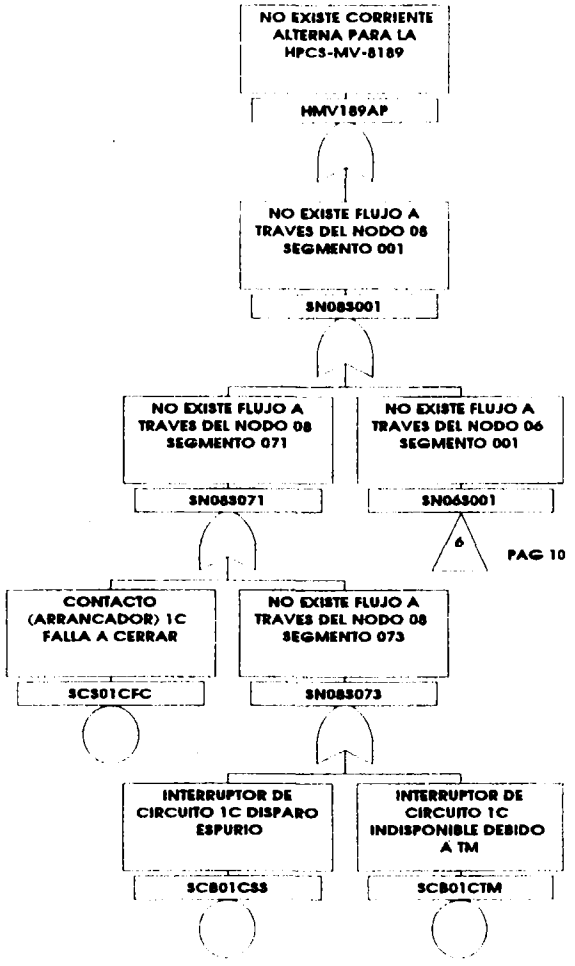

NO EXISTE FLUJO A TRAVES DEL NODO 82 SEGMENTO 811
PN825811
2EV01BAP PN825810 PAG 24, 26.
INTERRUPTOR DE CIRCUITO 9C DISPARO ESPURIO
INTERRUPTOR DE CIRCUITO 9C INDISPONIBLE DEBIDO A TM
PCB09CSS
PCB09CTM

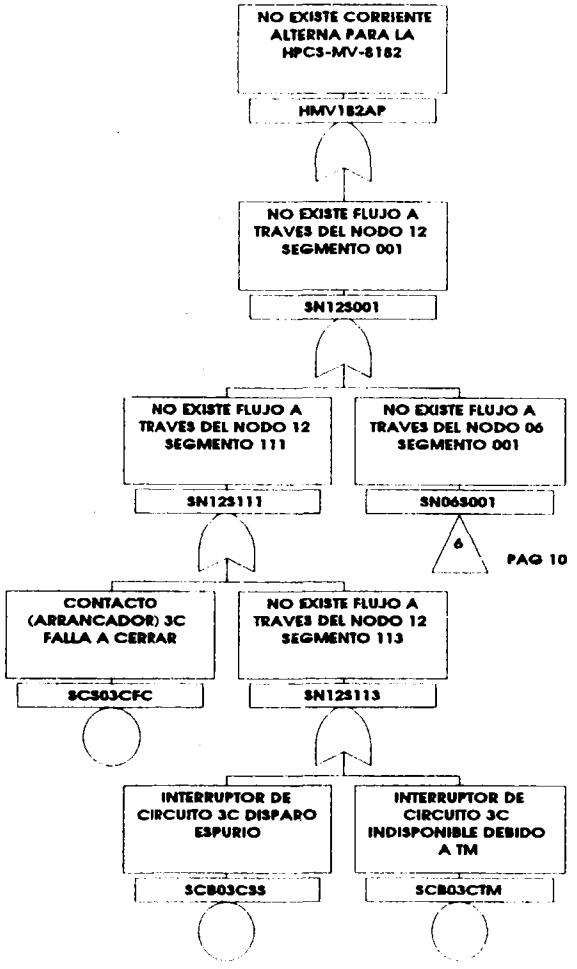
FIGURA B-23. ARBOL DE FALLAS DEL SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION III.



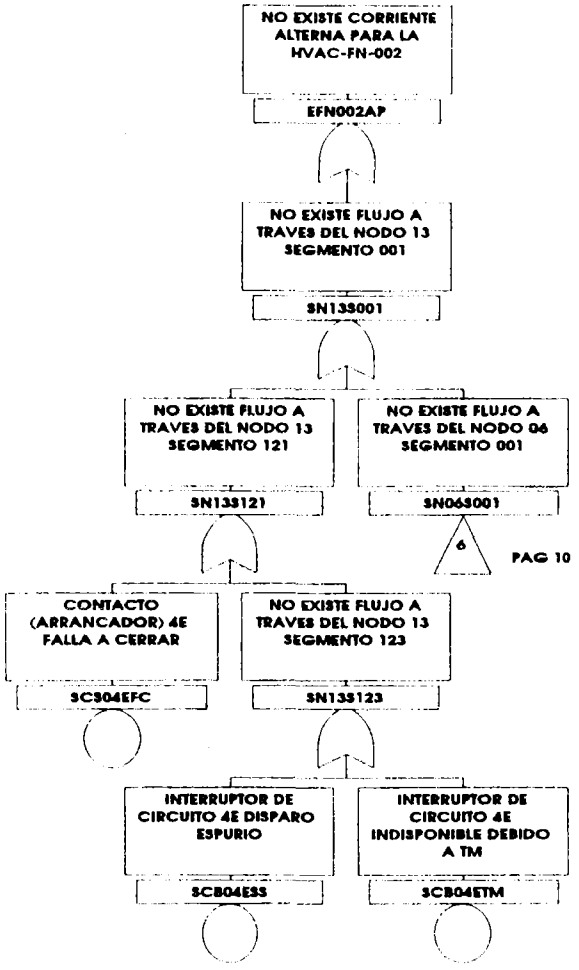
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION III	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



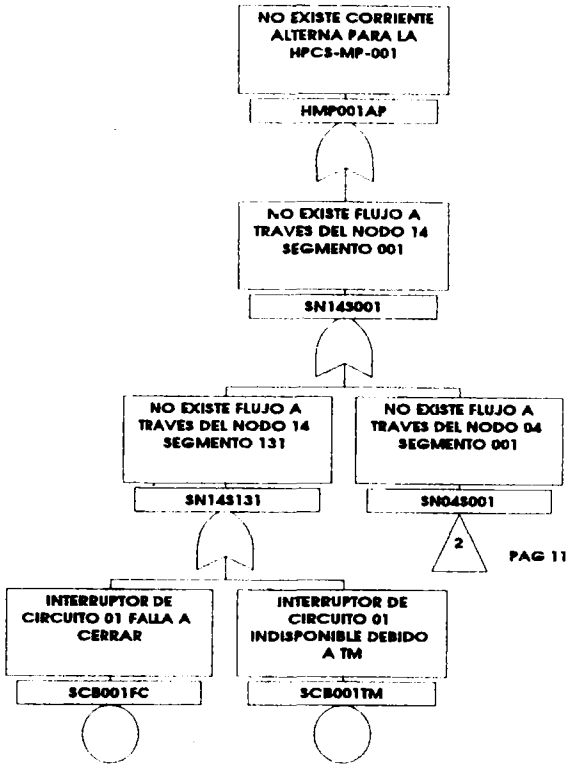
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION III	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02

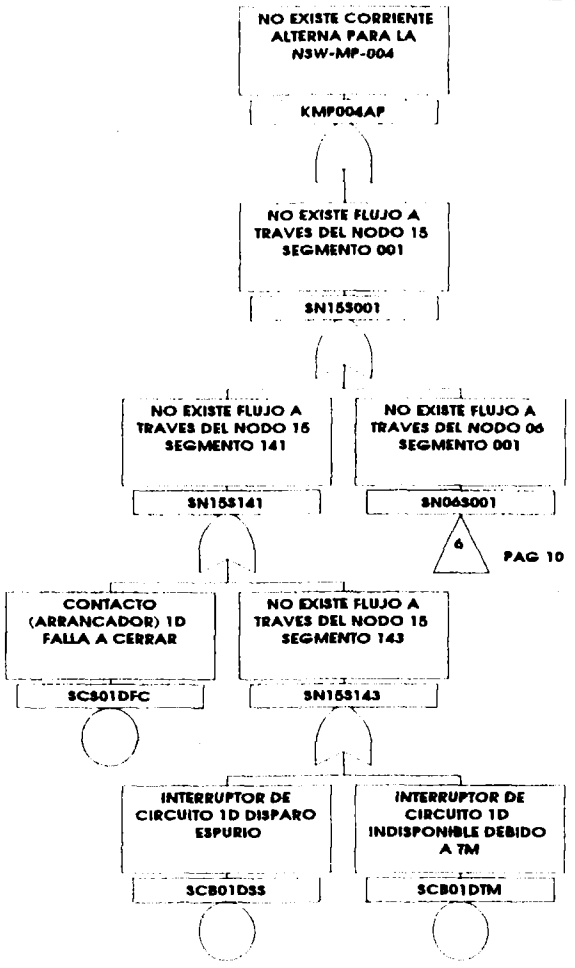


SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION III	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03

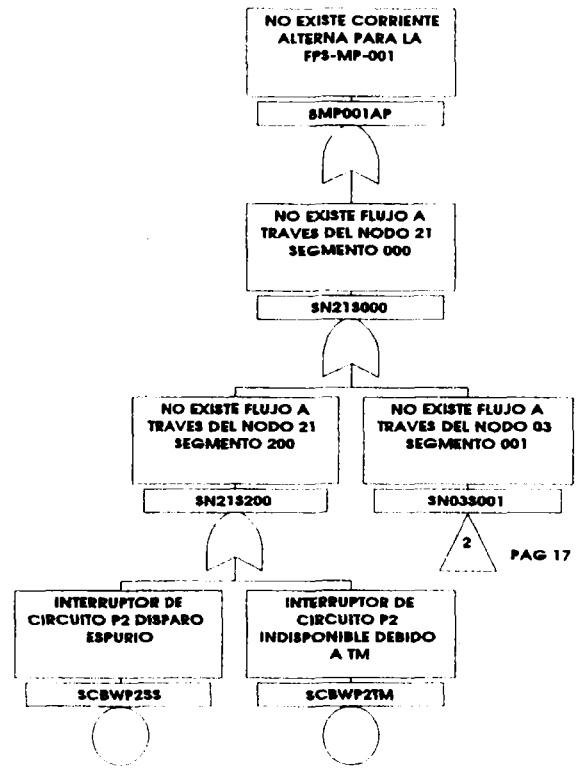


SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION III	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04

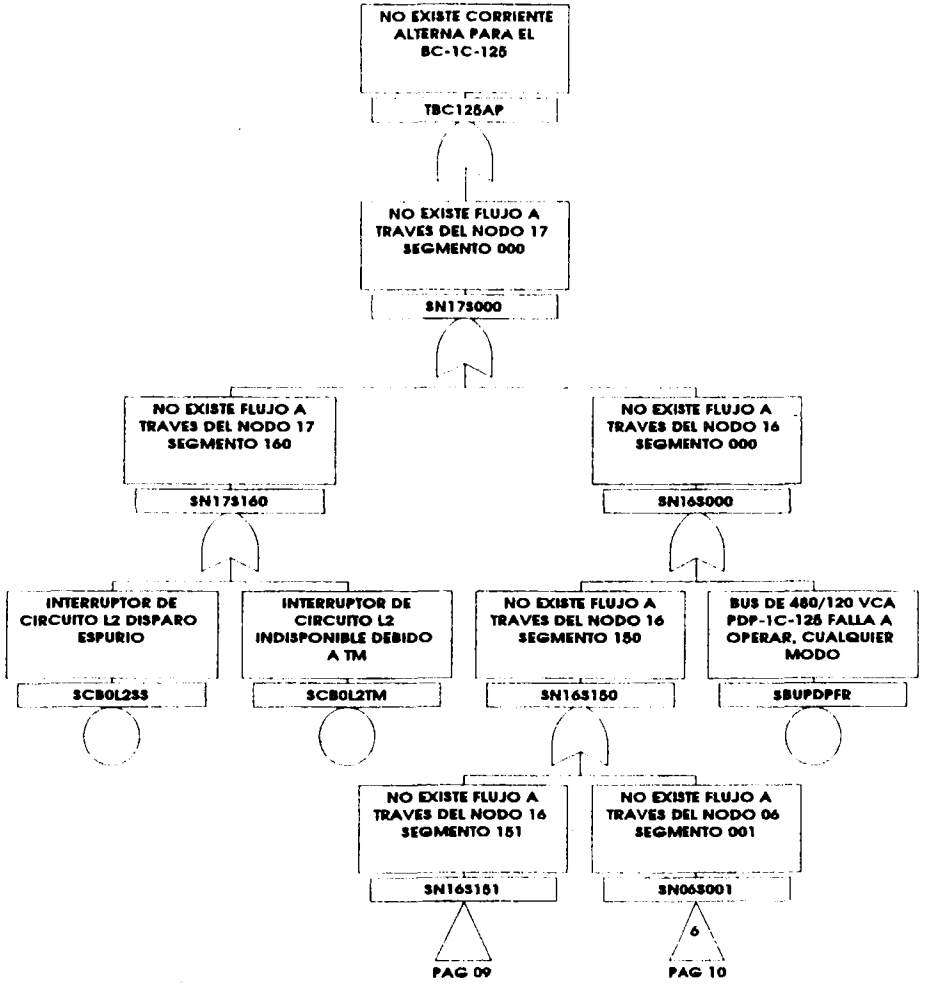

NO EXISTE CORRIENTE ALTERNA PARA LA HPCS-MP-001
HMP001AP
NO EXISTE FLUJO A TRAVES DEL NODO 14 SEGMENTO 001
SN143001
NO EXISTE FLUJO A TRAVES DEL NODO 14 SEGMENTO 131
SN143131
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 001
SN043001
2
PAG 11
INTERRUPTOR DE CIRCUITO 01 FALLA A CERRAR
SCB001FC
INTERRUPTOR DE CIRCUITO 01 INDISPONIBLE DEBIDO A TM
SCB001TM



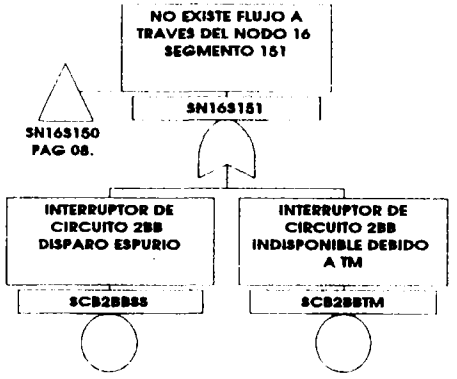
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION III	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 06



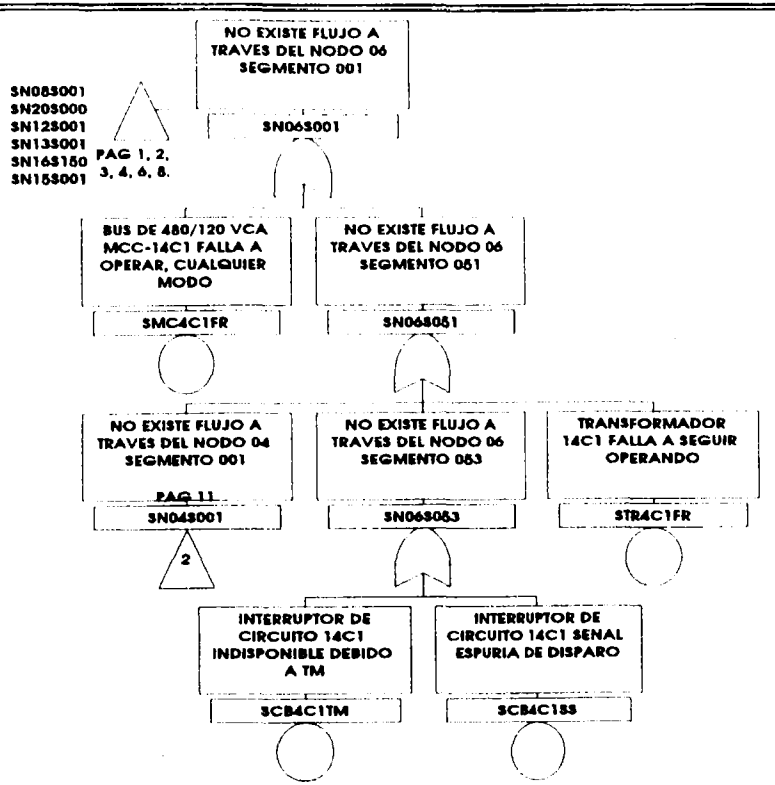
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION III	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 07

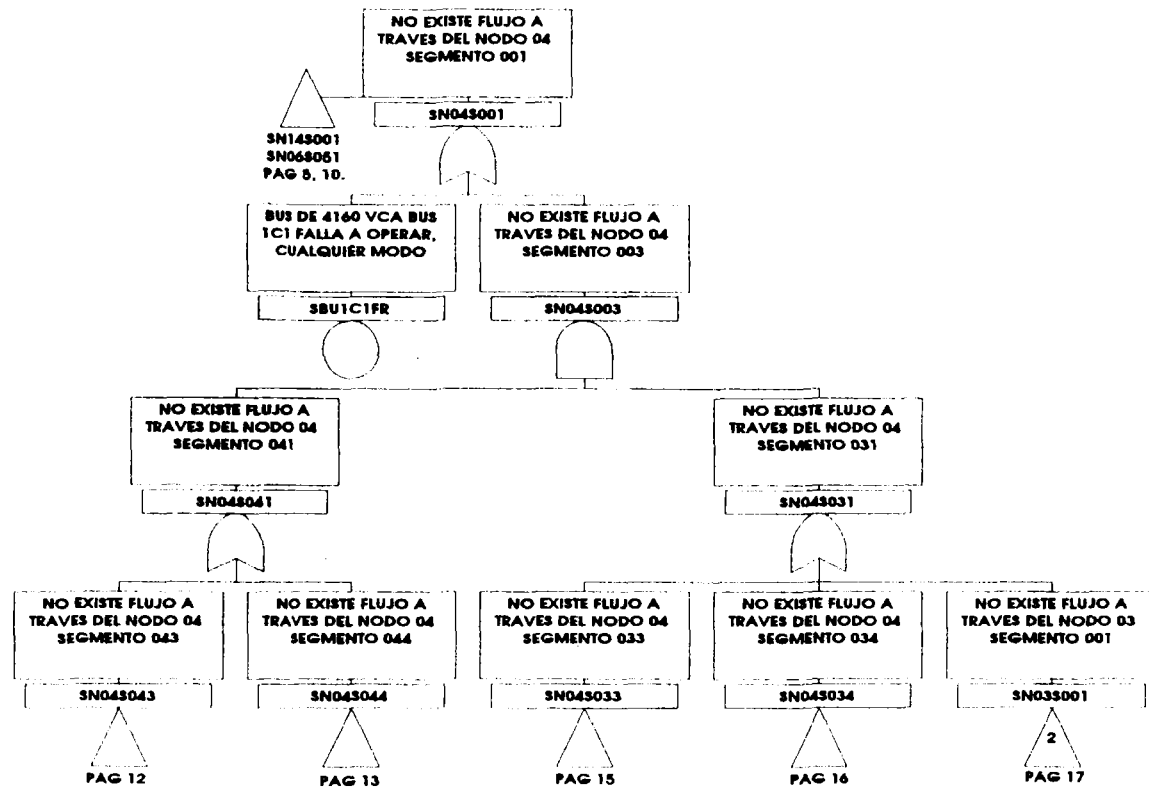


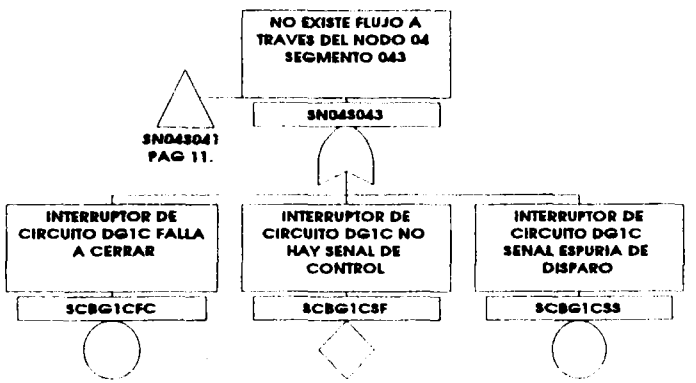
SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION III	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 08

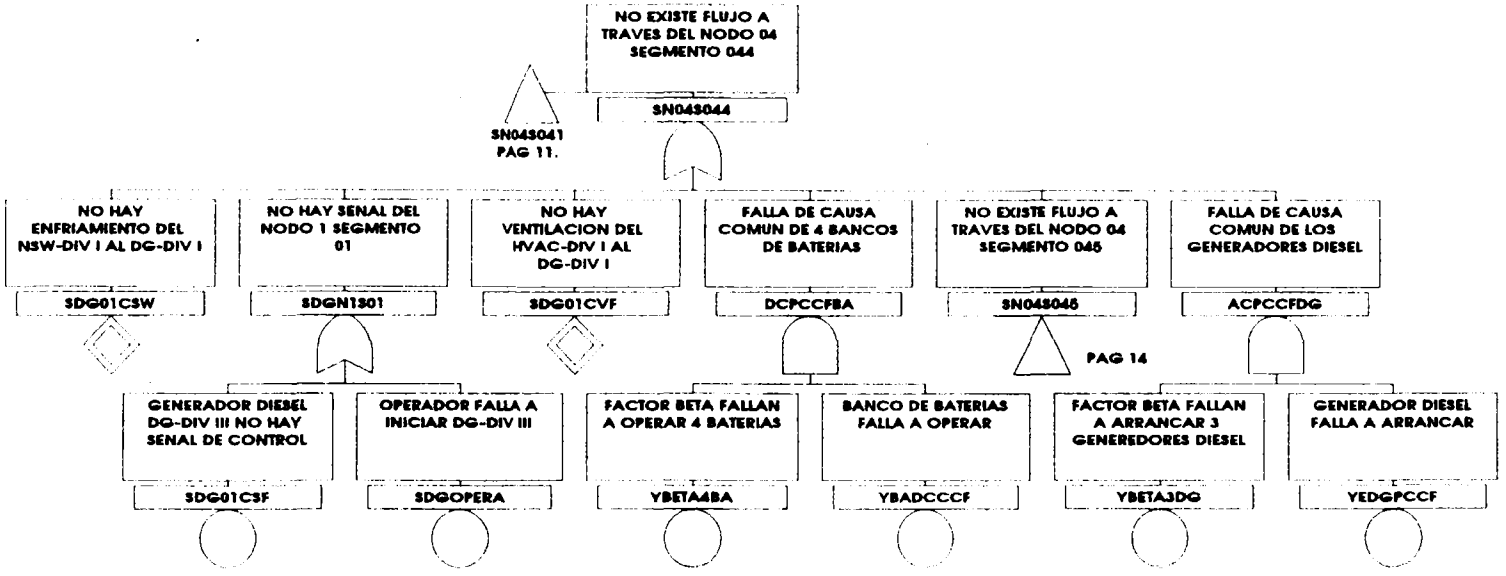


SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION III	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09

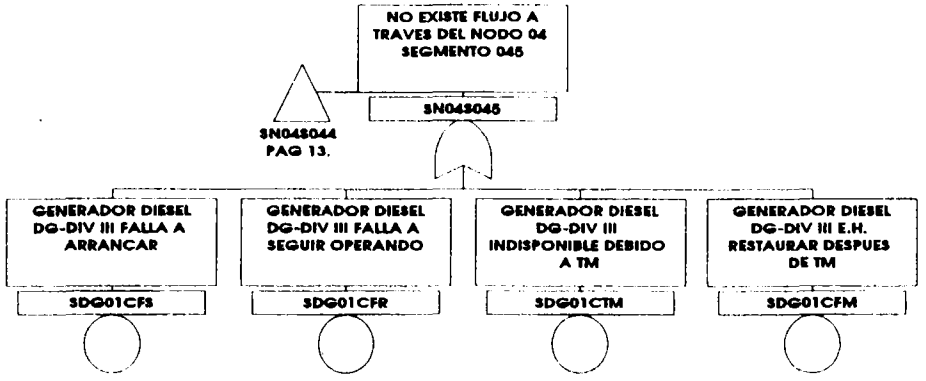

NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 001
SN063001
SN083001
SN203000
SN123001
SN133001
SN163150
SN153001
PAG 1, 2, 3, 4, 6, 8.
BUS DE 480/120 VCA MCC-14C1 FALLA A OPERAR, CUALQUIER MODO
SMC4C1FR
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 051
SN068051
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 001
PAG 11
SN043001
NO EXISTE FLUJO A TRAVES DEL NODO 06 SEGMENTO 053
SN063053
TRANSFORMADOR 14C1 FALLA A SEGUIR OPERANDO
STR4C1FR
2
INTERRUPTOR DE CIRCUITO 14C1 INDISPONIBLE DEBIDO A TM
SCB4C1TM
INTERRUPTOR DE CIRCUITO 14C1 SENAL ESPURIA DE DISPARO
SCB4C1SS


NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 001
SN043001
SN143001 SN068051 PAG 8, 10.
BUS DE 4160 VCA BUS 1C1 FALLA A OPERAR, CUALQUIER MODO
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 003
SBU1C1FR
SN043003
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 041
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 031
SN048041
SN043031
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 043
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 044
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 033
NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 034
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 001
SN043043
SN043044
SN043033
SN043034
SN033001
2
PAG 12
PAG 13
PAG 15
PAG 16
PAG 17

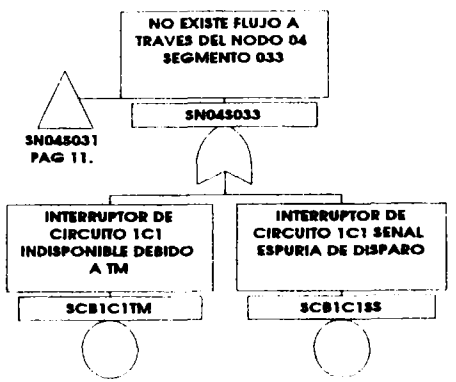

NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 043
SN043043
SN043041 PAG 11.
INTERRUPTOR DE CIRCUITO DG1C FALLA A CERRAR
INTERRUPTOR DE CIRCUITO DG1C NO HAY SENAL DE CONTROL
INTERRUPTOR DE CIRCUITO DG1C SENAL ESPURIA DE DISPARO
SCBG1CFC
SCBG1CSF
SCBG1CSS

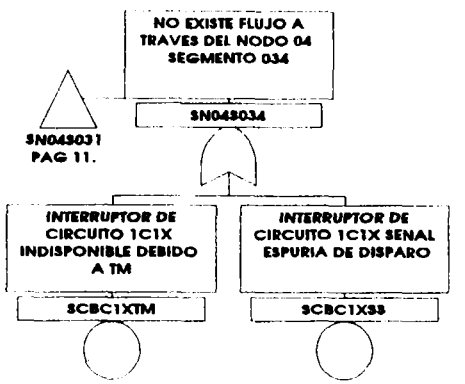


SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION III	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 13



SISTEMA DE CORRIENTE ALTERNA (AC) DIVISION III	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 14


NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 033
SN045033
SN045031 PAG 11.
INTERRUPTOR DE CIRCUITO 1C1 INDISPONIBLE DEBIDO A TM
INTERRUPTOR DE CIRCUITO 1C1 SENAL ESPURIA DE DISPARO
SCB1C1TM
SCB1C1SS


NO EXISTE FLUJO A TRAVES DEL NODO 04 SEGMENTO 034
SN043034
SN043031 PAG 11.
INTERRUPTOR DE CIRCUITO 1C1X INDISPONIBLE DEBIDO A TM
INTERRUPTOR DE CIRCUITO 1C1X SENAL ESPURIA DE DISPARO
SCBC1XTM
SCBC1X33

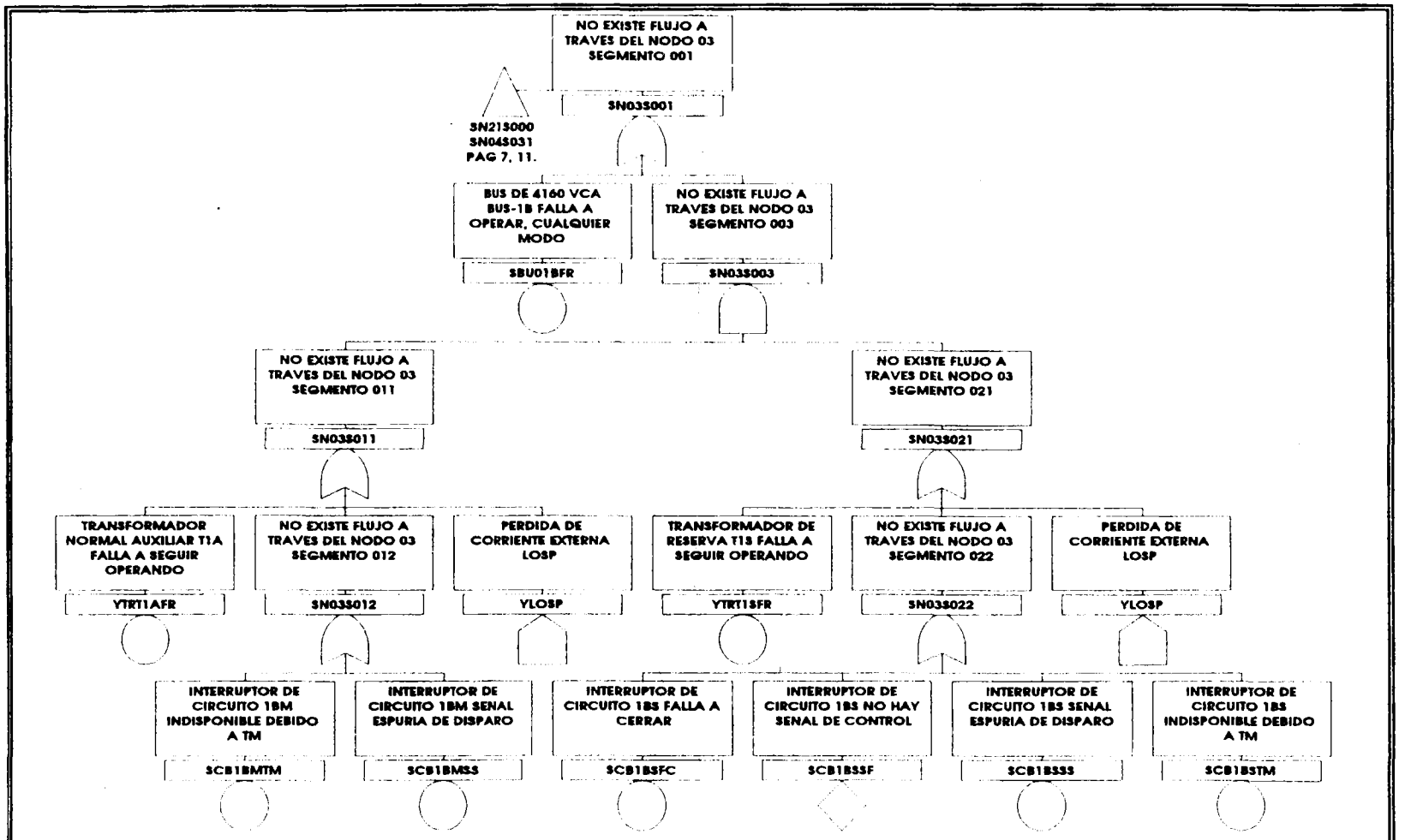
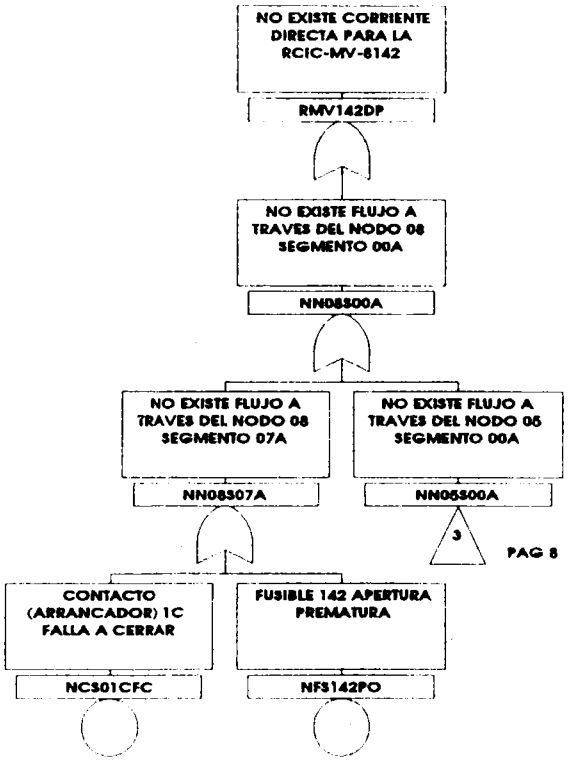
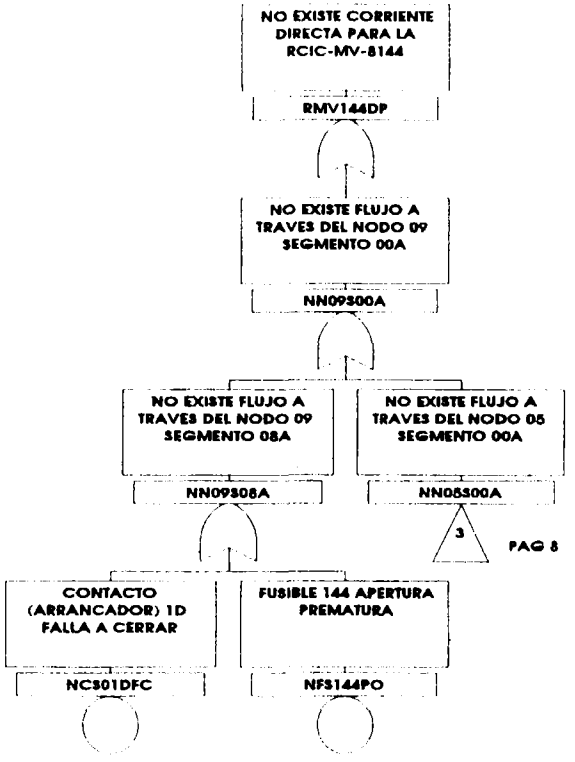

NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 001
SN033001
SN213000 SN045031 PAG 7, 11.
BUS DE 4160 VCA BUS-1B FALLA A OPERAR, CUALQUIER MODO
SBU01BFR
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 003
SN033003
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 011
SN033011
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 021
SN033021
TRANSFORMADOR NORMAL AUXILIAR T1A FALLA A SEGUIR OPERANDO
YTRT1AFR
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 012
SN033012
PERDIDA DE CORRIENTE EXTERNA LOSP
YLOSP
TRANSFORMADOR DE RESERVA T1B FALLA A SEGUIR OPERANDO
YTRT1BFR
NO EXISTE FLUJO A TRAVES DEL NODO 03 SEGMENTO 022
SN033022
PERDIDA DE CORRIENTE EXTERNA LOSP
YLOSP
INTERRUPTOR DE CIRCUITO 1BM INDISPONIBLE DEBIDO A TM
SCB1BMTM
INTERRUPTOR DE CIRCUITO 1BM SENAL ESPURIA DE DISPARO
SCB1BMSS
INTERRUPTOR DE CIRCUITO 1BS FALLA A CERRAR
SCB1BSFC
INTERRUPTOR DE CIRCUITO 1BS NO HAY SENAL DE CONTROL
SCB1BSSF
INTERRUPTOR DE CIRCUITO 1BS SENAL ESPURIA DE DISPARO
SCB1BSSS
INTERRUPTOR DE CIRCUITO 1BS INDISPONIBLE DEBIDO A TM
SCB1BSTM

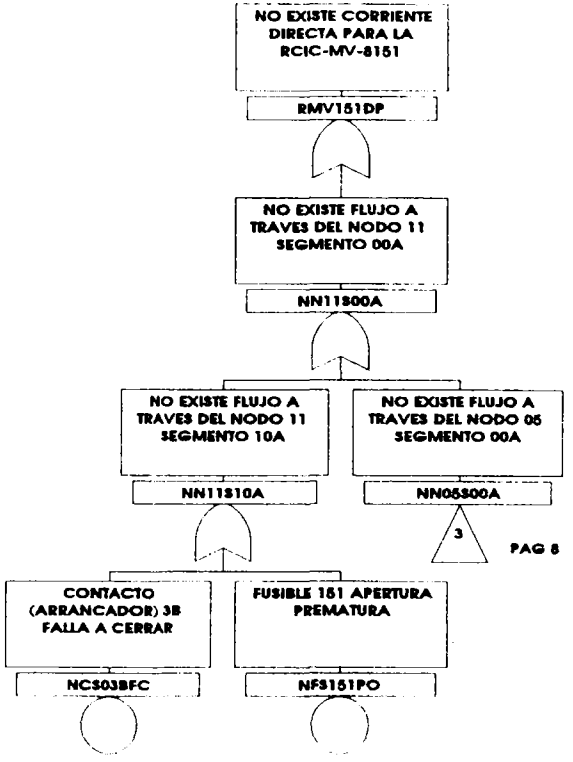
FIGURA B-24. ARBOL DE FALLAS DEL SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION I.



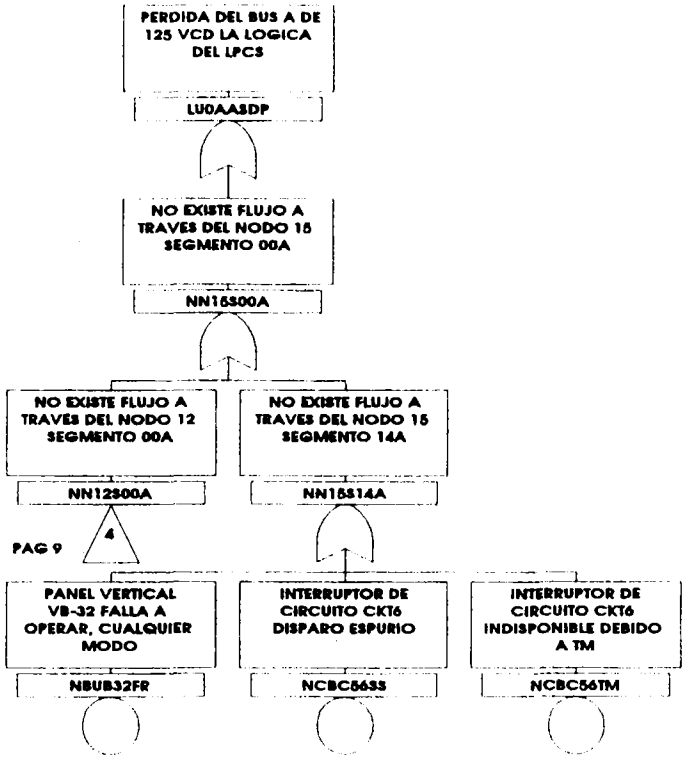
SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 01**



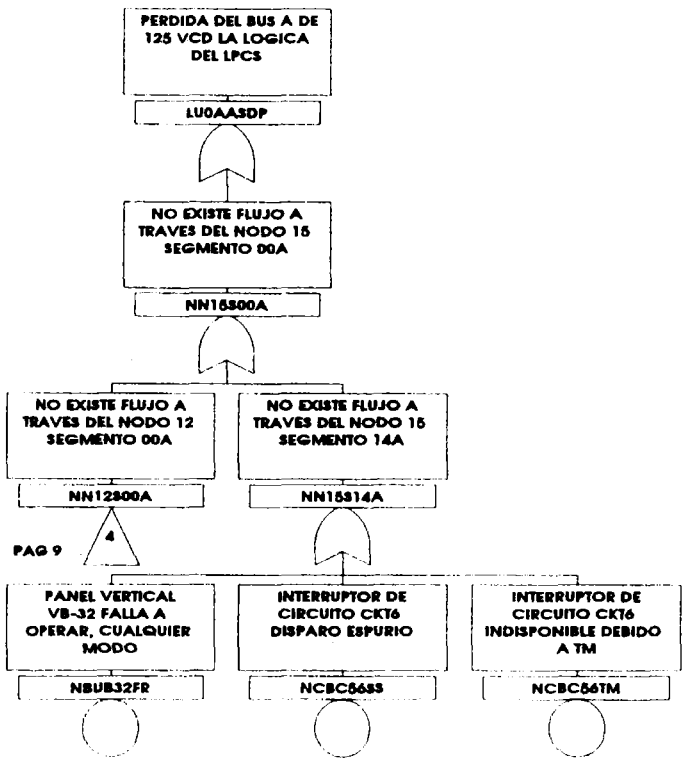
SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 02**



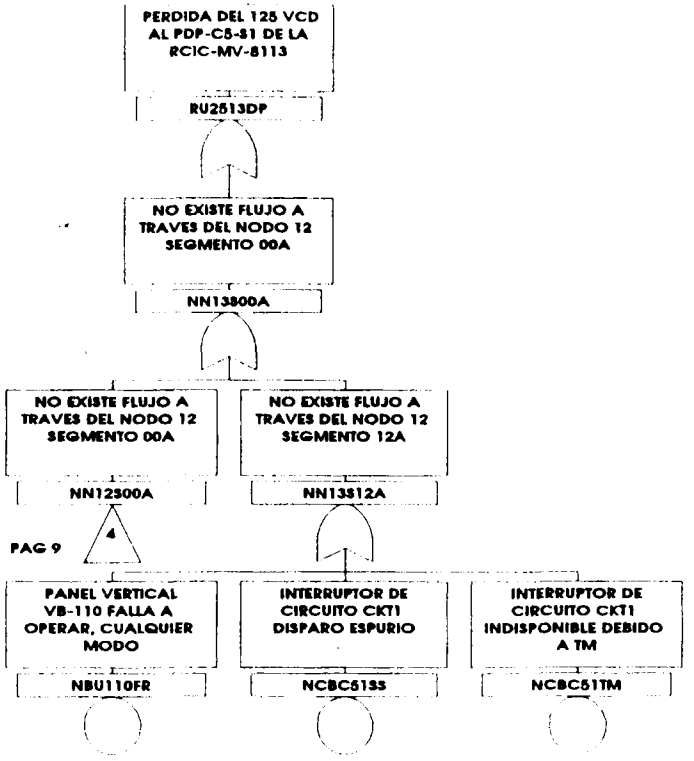
SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 03**



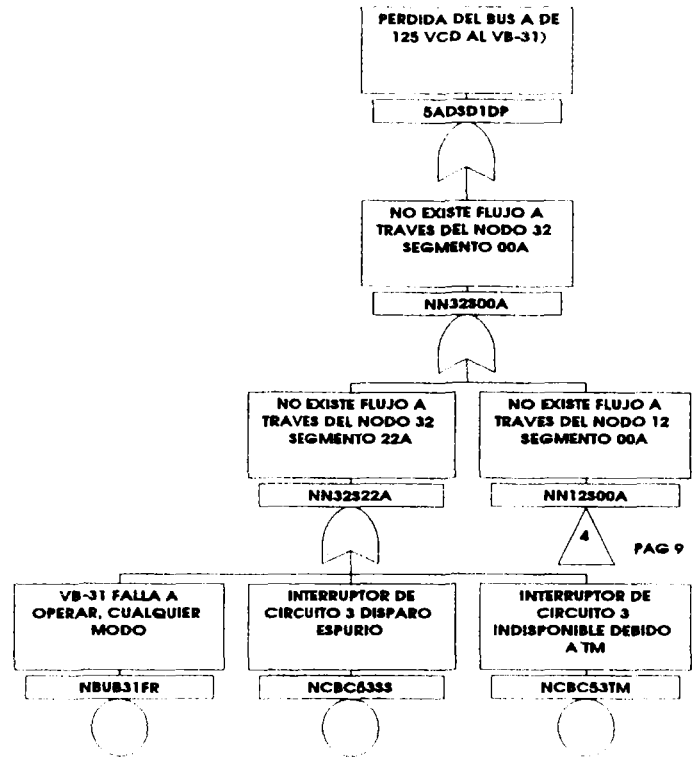
SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 04**



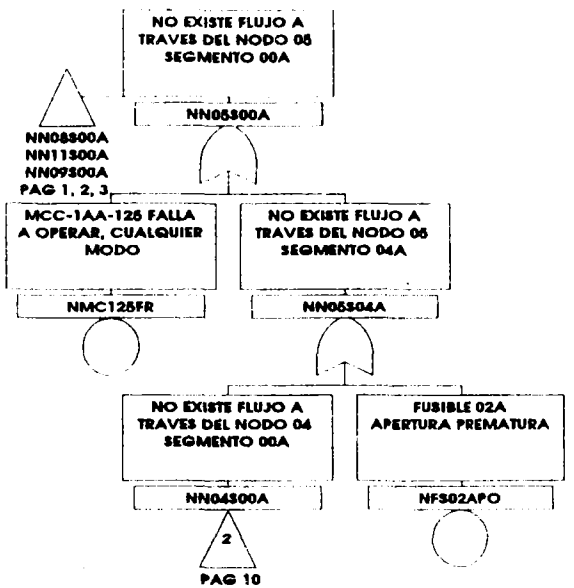
SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 05**



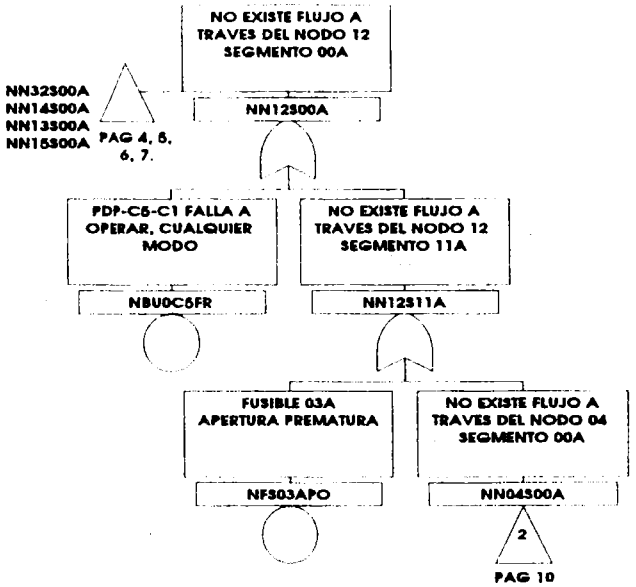
SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 06**



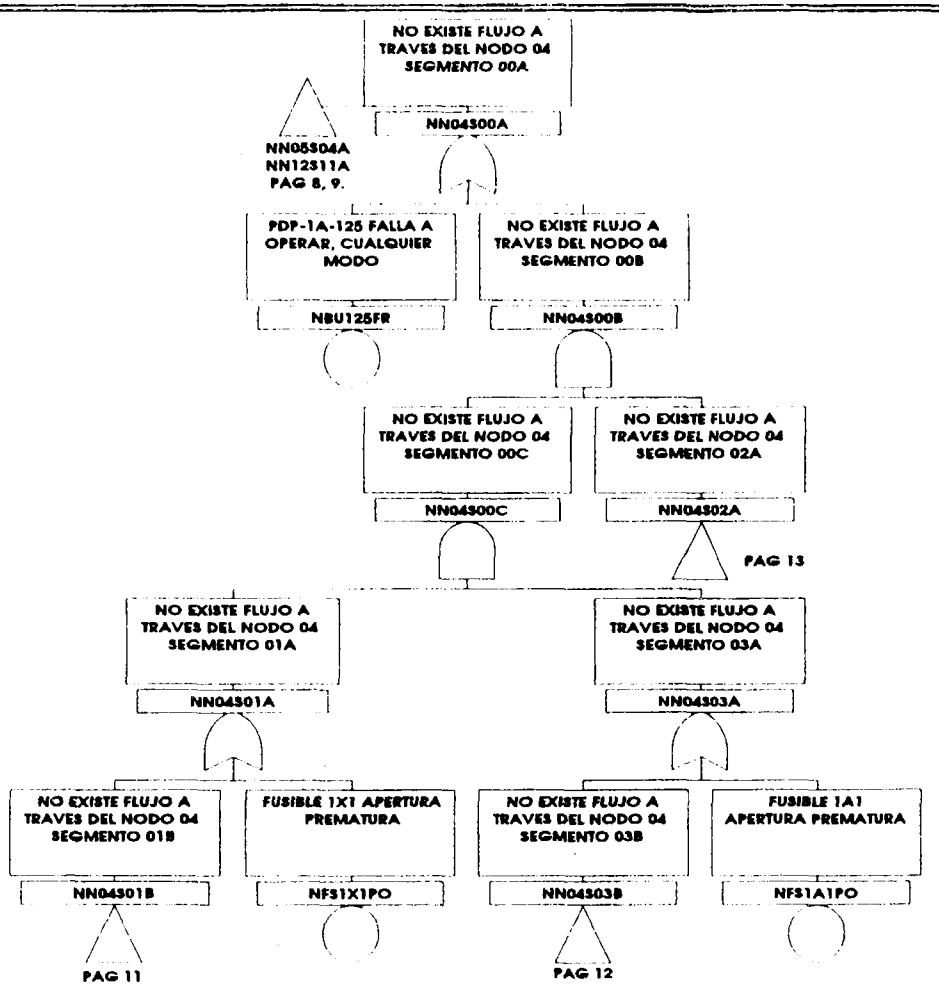
SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 07**



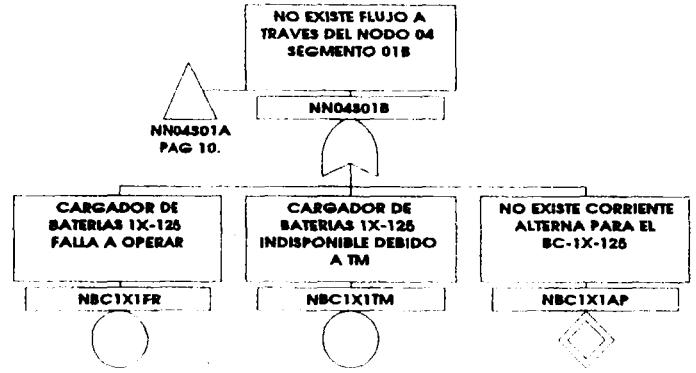
SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 08**



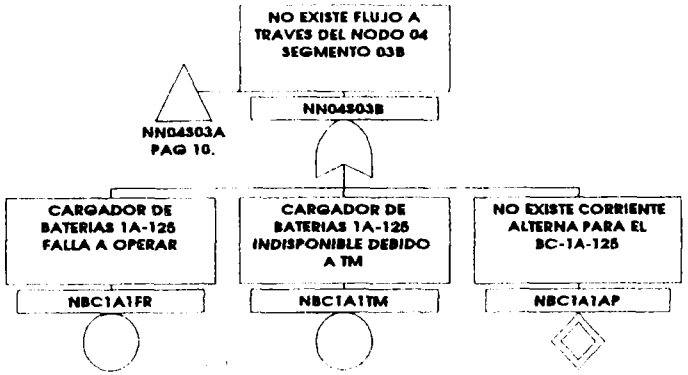
SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 09**



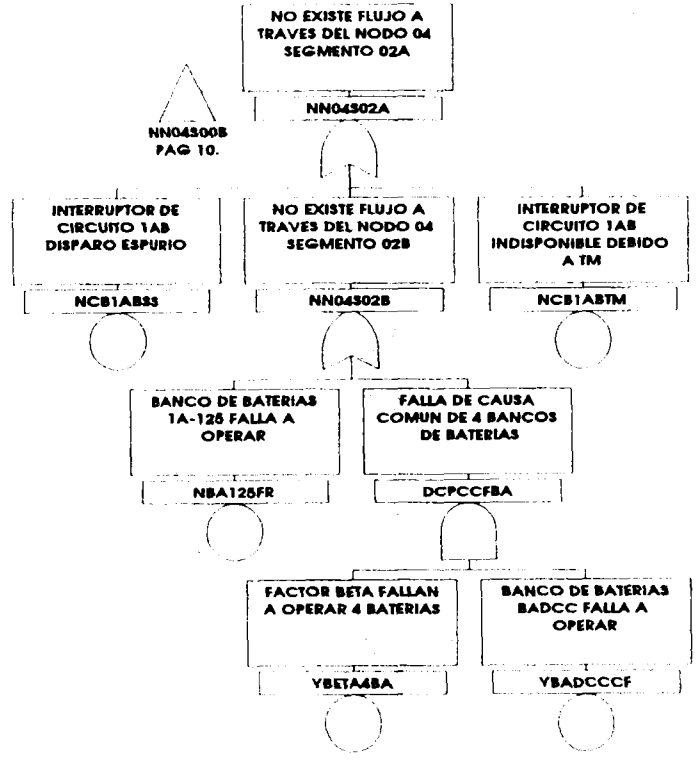
SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 10**



SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 11**



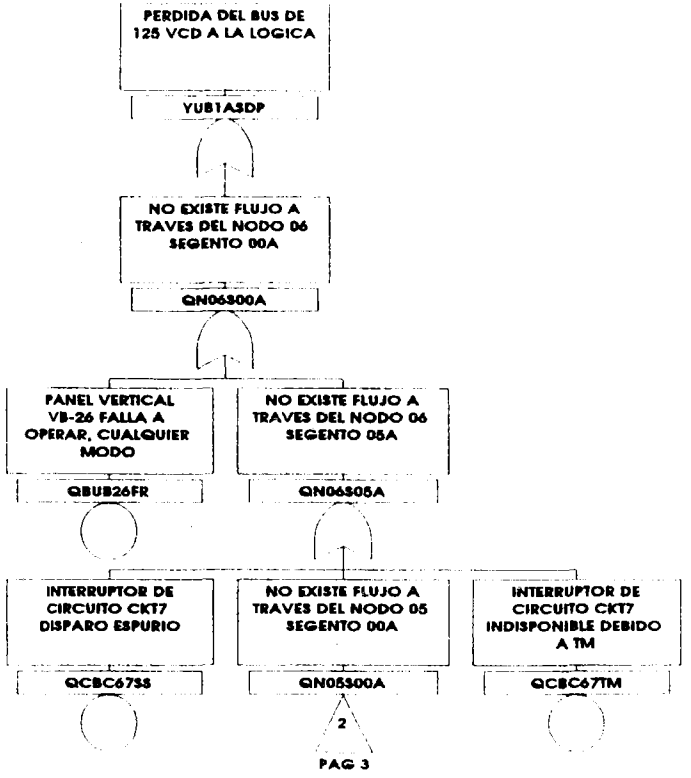
SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 12**



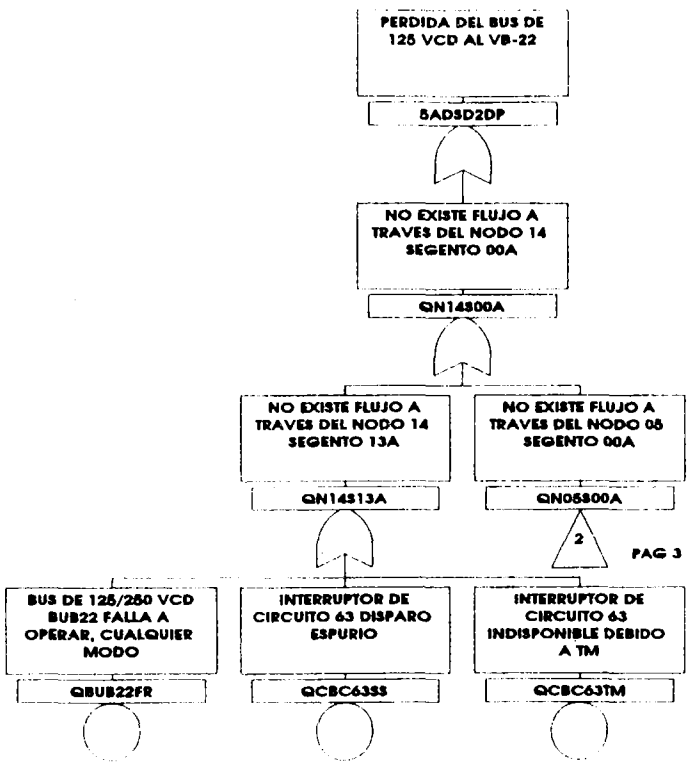
B-371

SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 13**

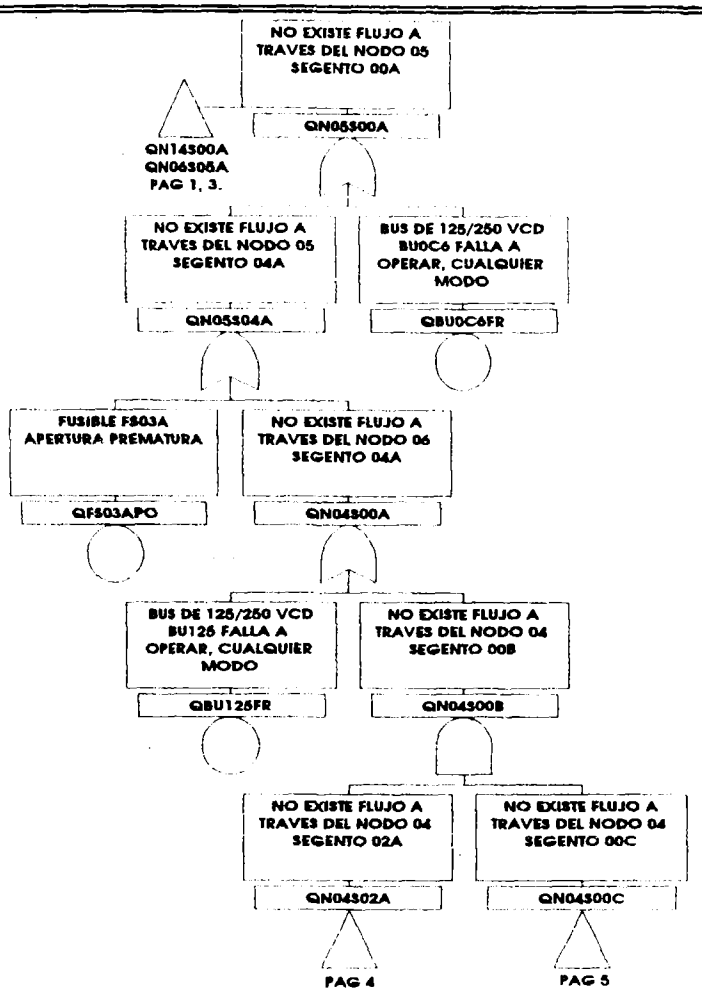
FIGURA B-25. ARBOL DE FALLAS DEL SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VDC DIVISION II.



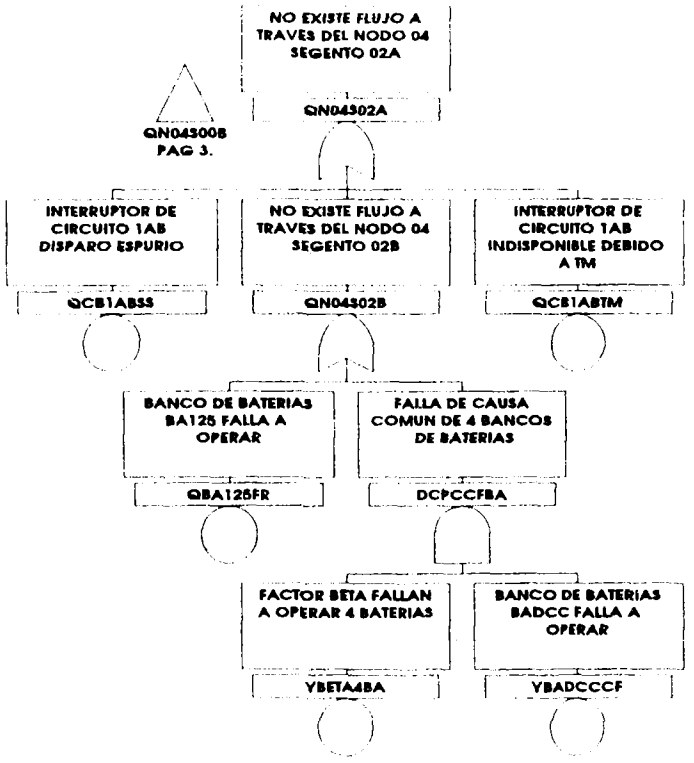
SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION II	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 01**



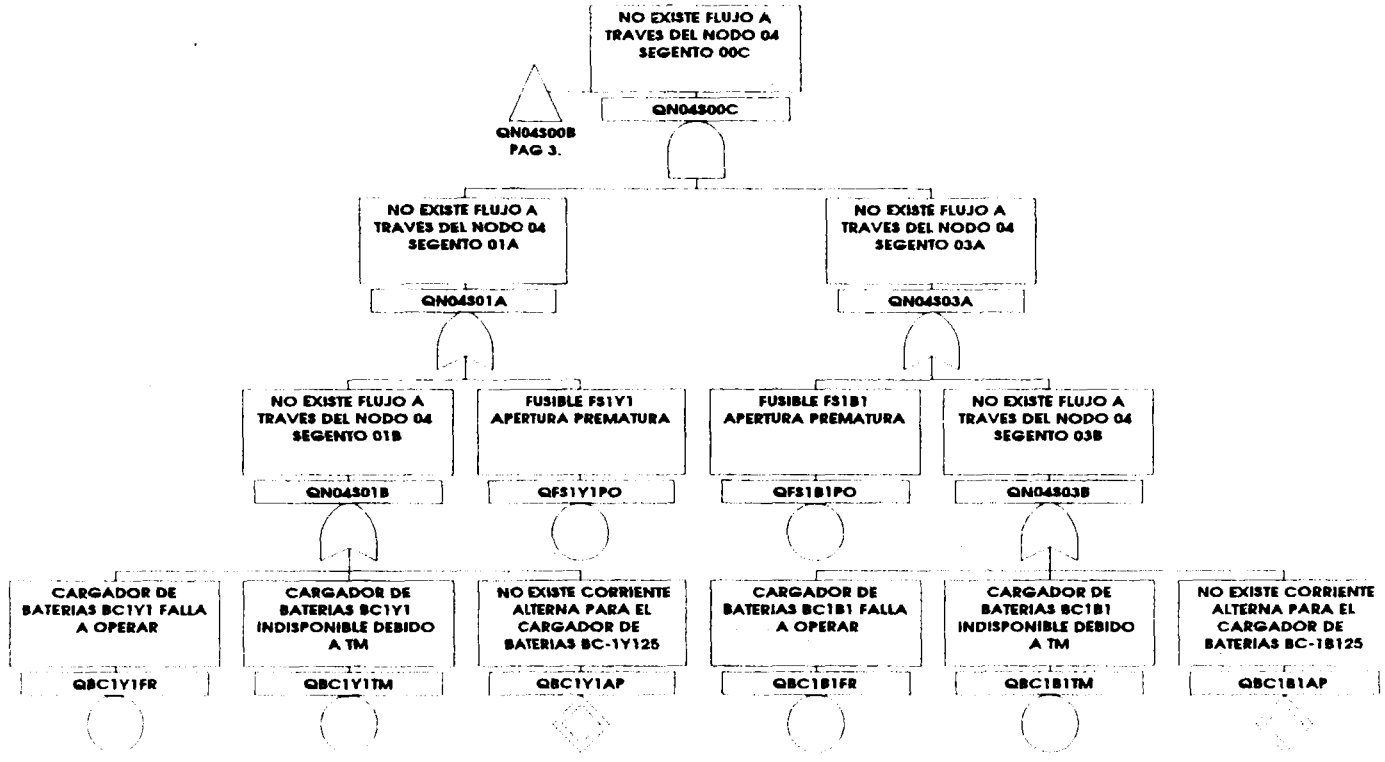
SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION II	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 02**



SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03

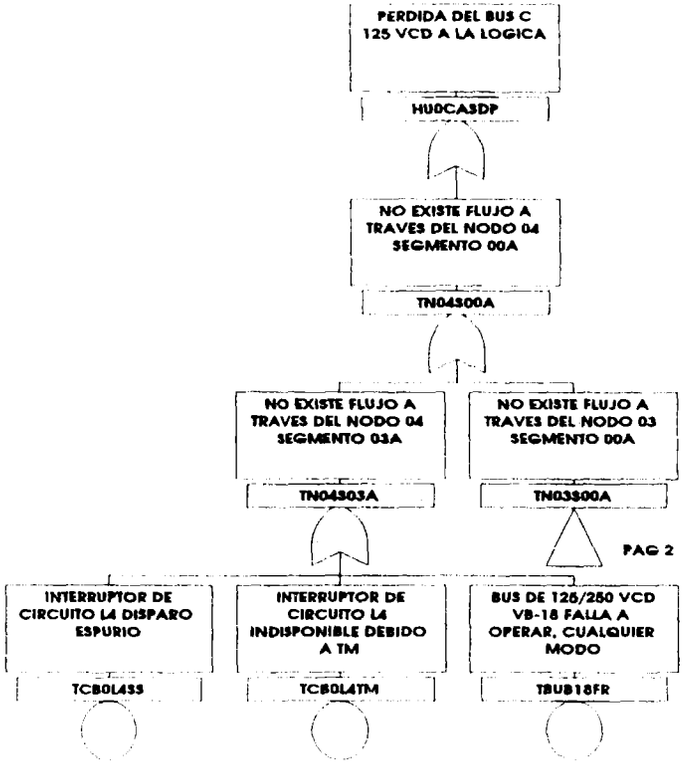


SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION II	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 04**

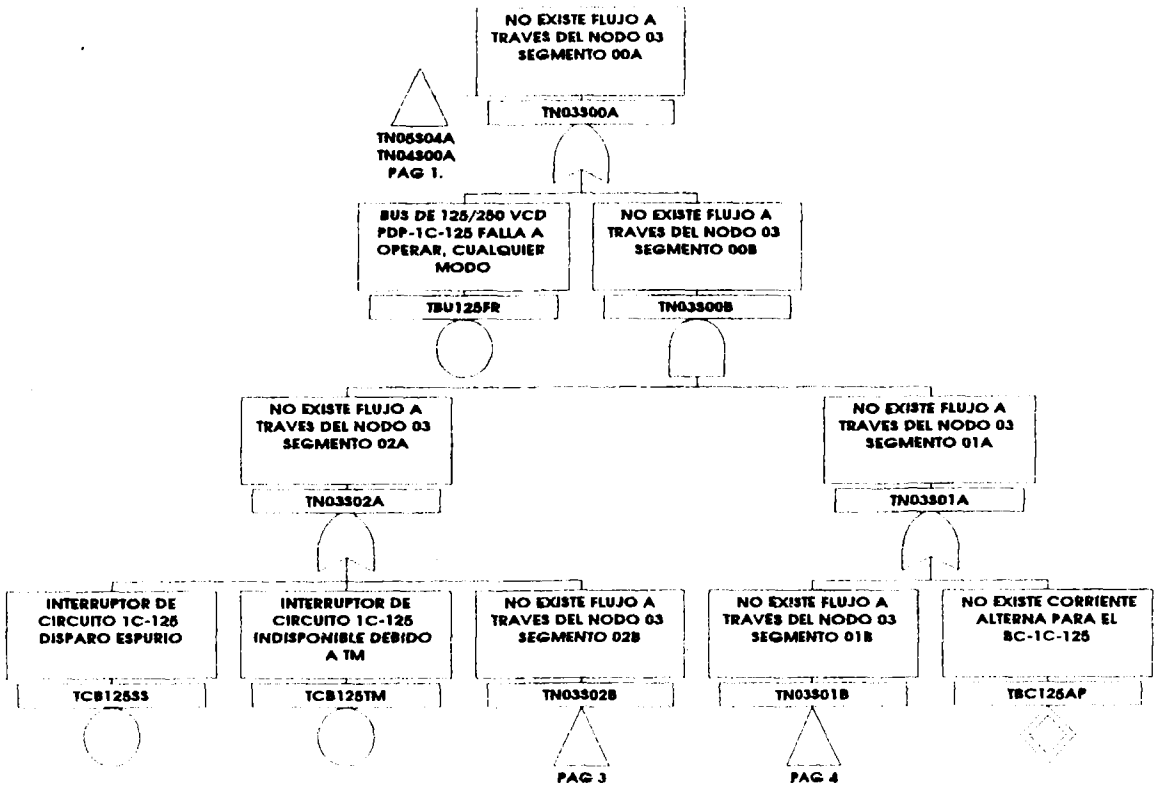


SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION II	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 05**

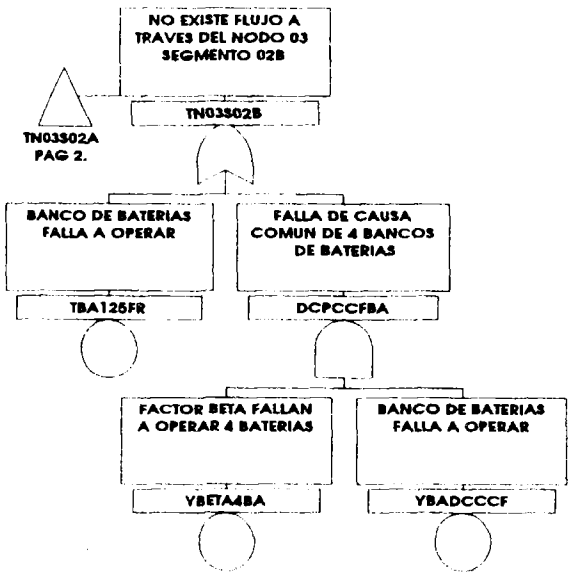
FIGURA B-26. ARBOL DE FALLAS DEL SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VDC DIVISION III.



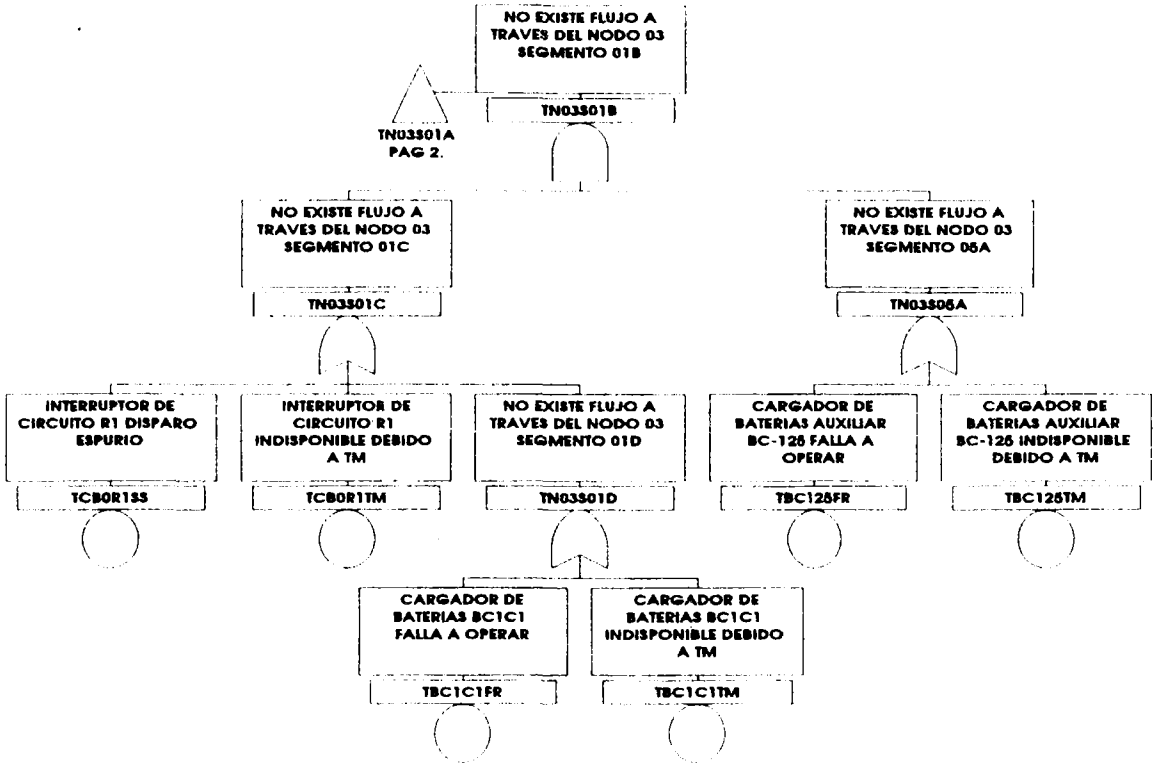
SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION III	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 01**



SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION III	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 02**

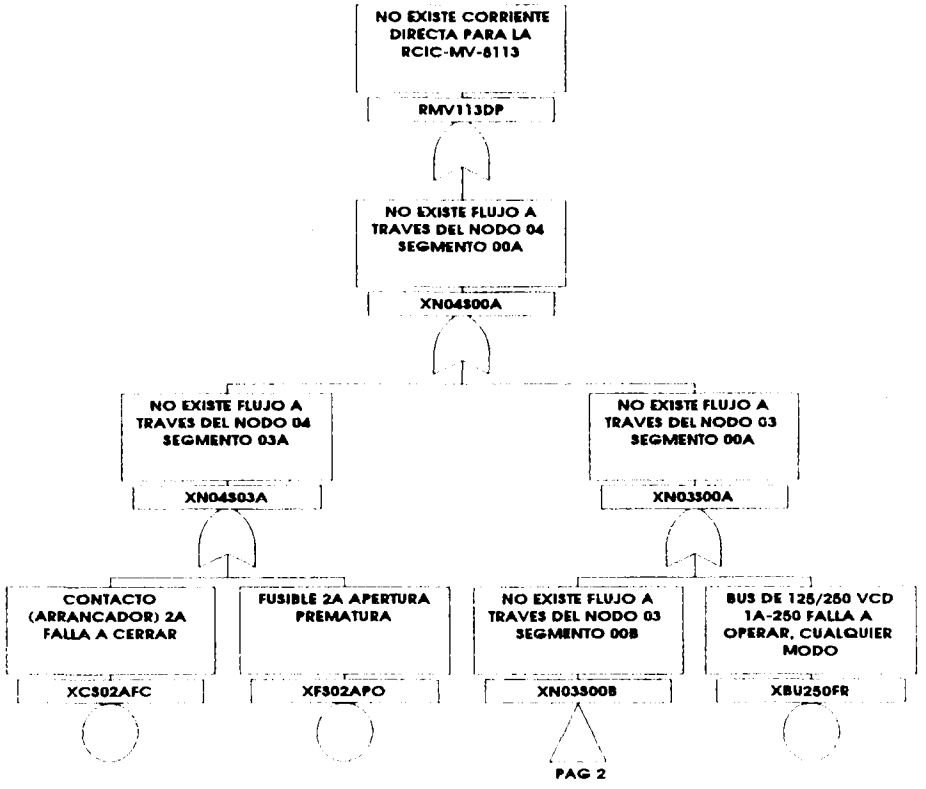


SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION III	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 03**

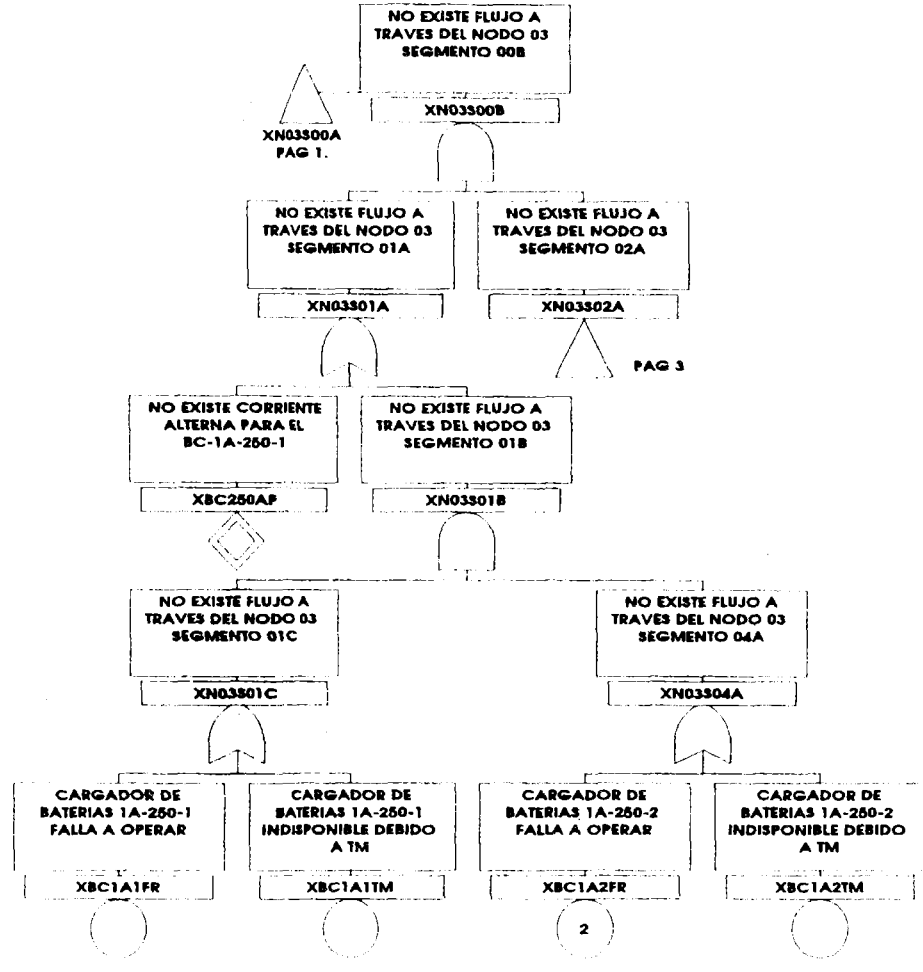


SISTEMA DE CORRIENTE DIRECTA (DC) DE 125 VCD DIVISION III	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 04**

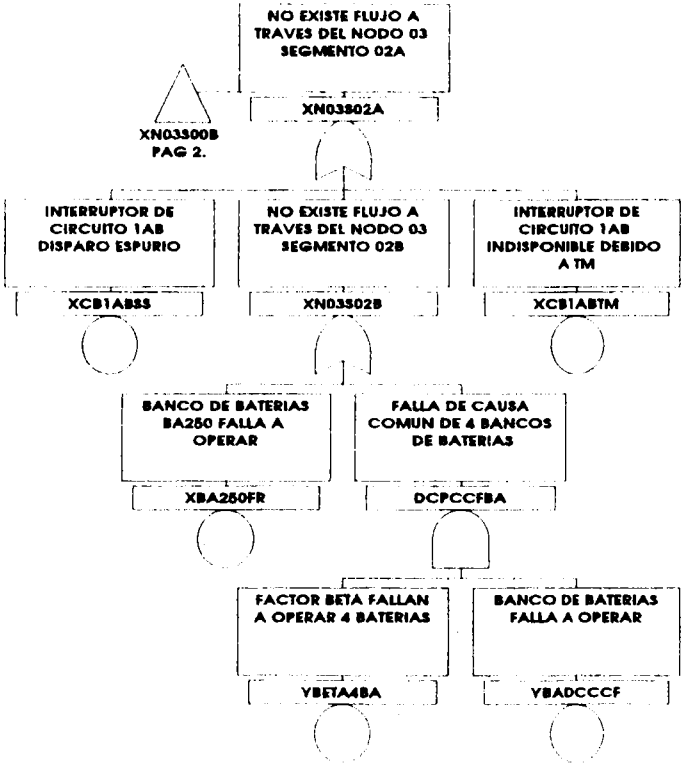
FIGURA B-27. ARBOL DE FALLAS DEL SISTEMA DE CORRIENTE DIRECTA (DC) DE 250 VDC.



SISTEMA DE CORRIENTE DIRECTA (DC) DE 250 VCD	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01

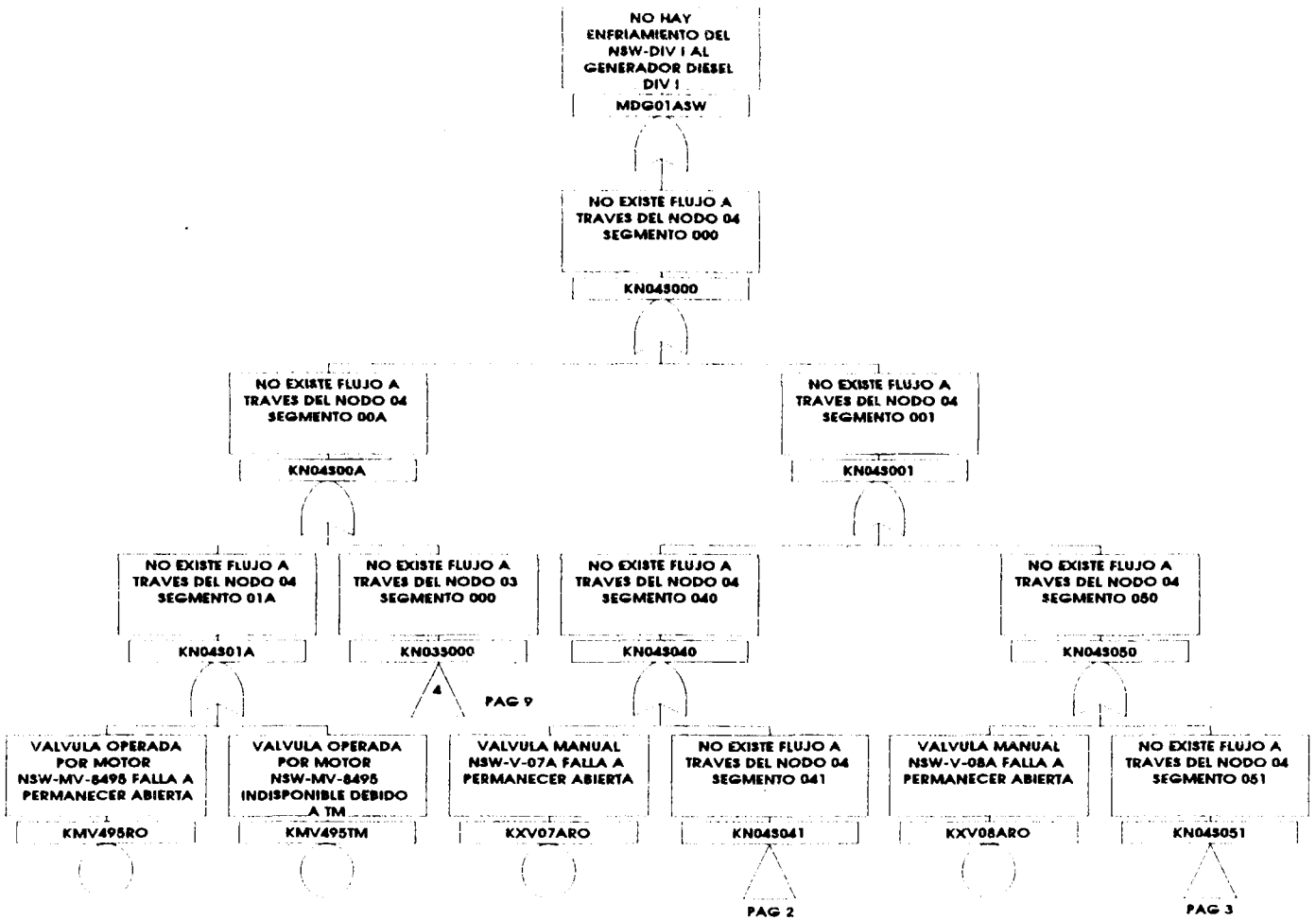


SISTEMA DE CORRIENTE DIRECTA (DC) DE 250 VCD	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02

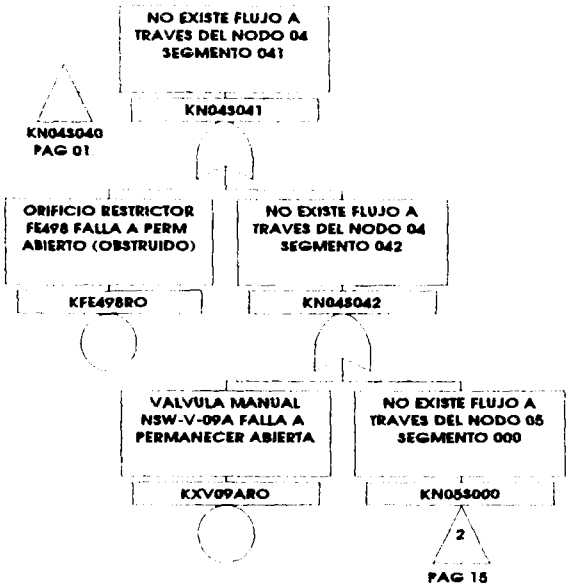


SISTEMA DE CORRIENTE DIRECTA (DC) DE 250 VCD	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03

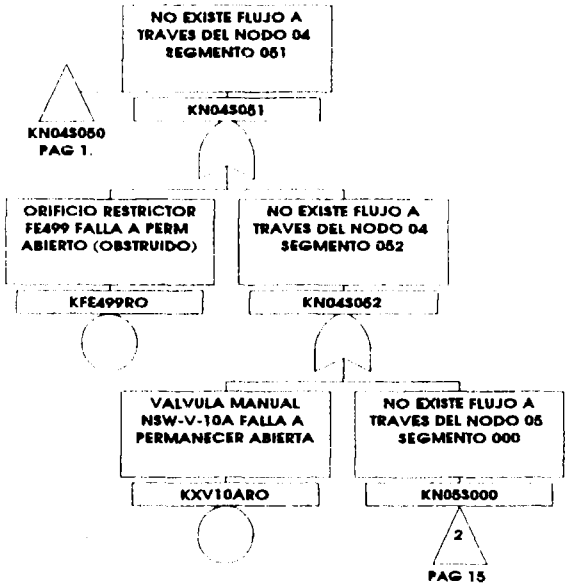
FIGURA B-28. ARBOL DE FALLAS DEL SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I.



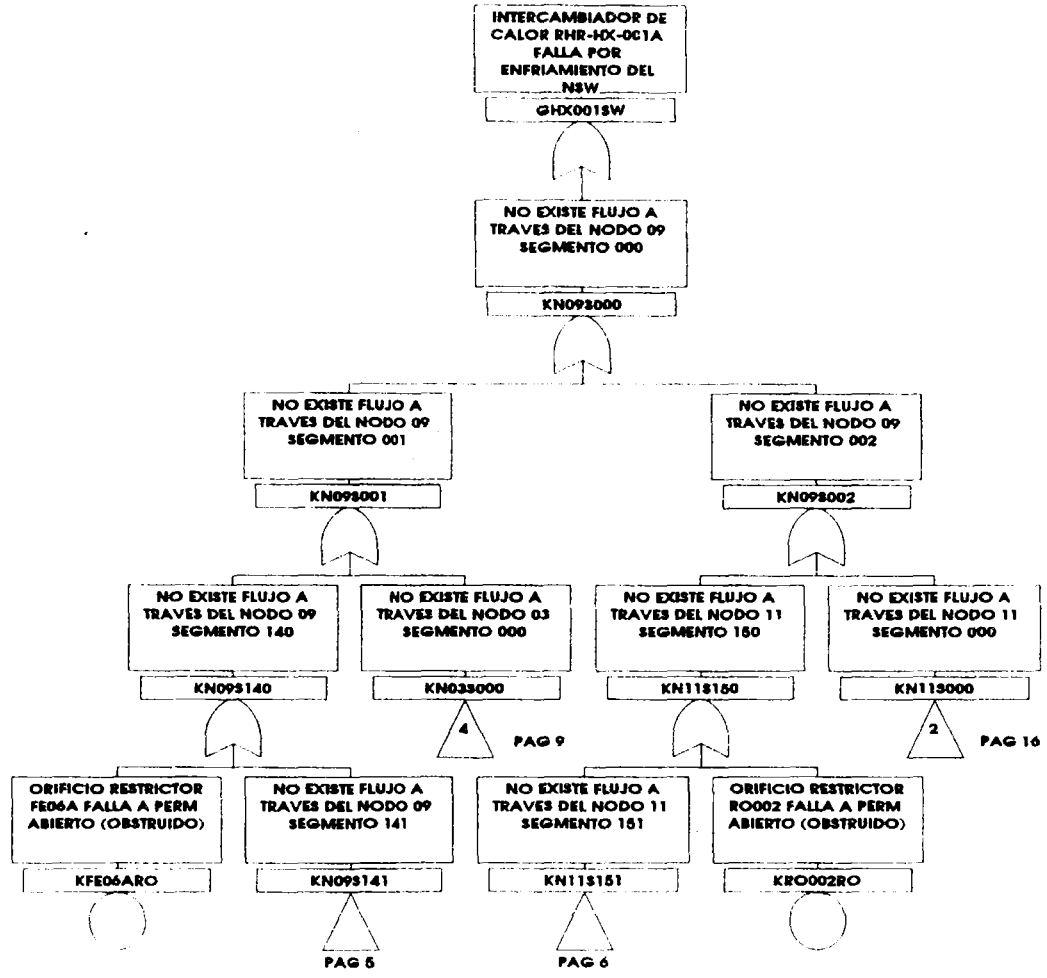
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



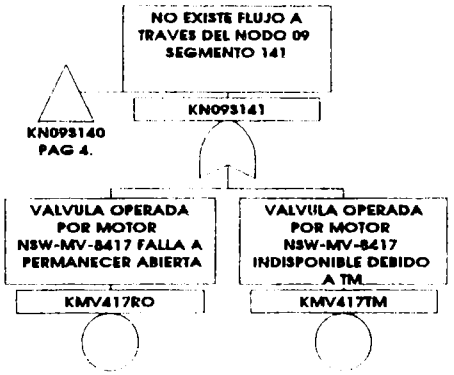
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION 1	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 02**



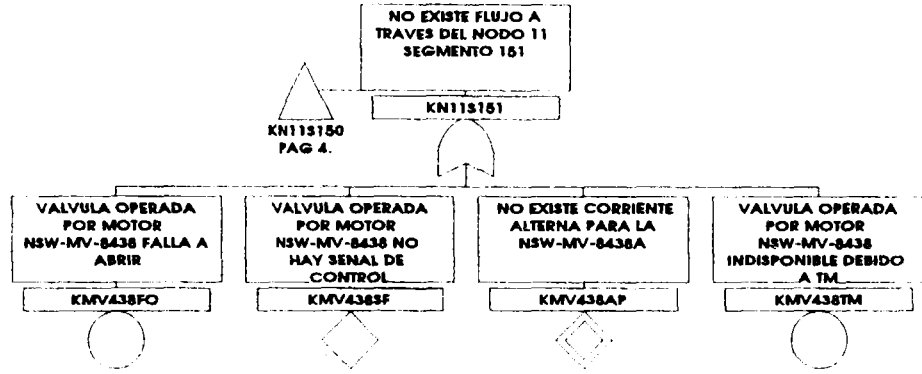
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 03**

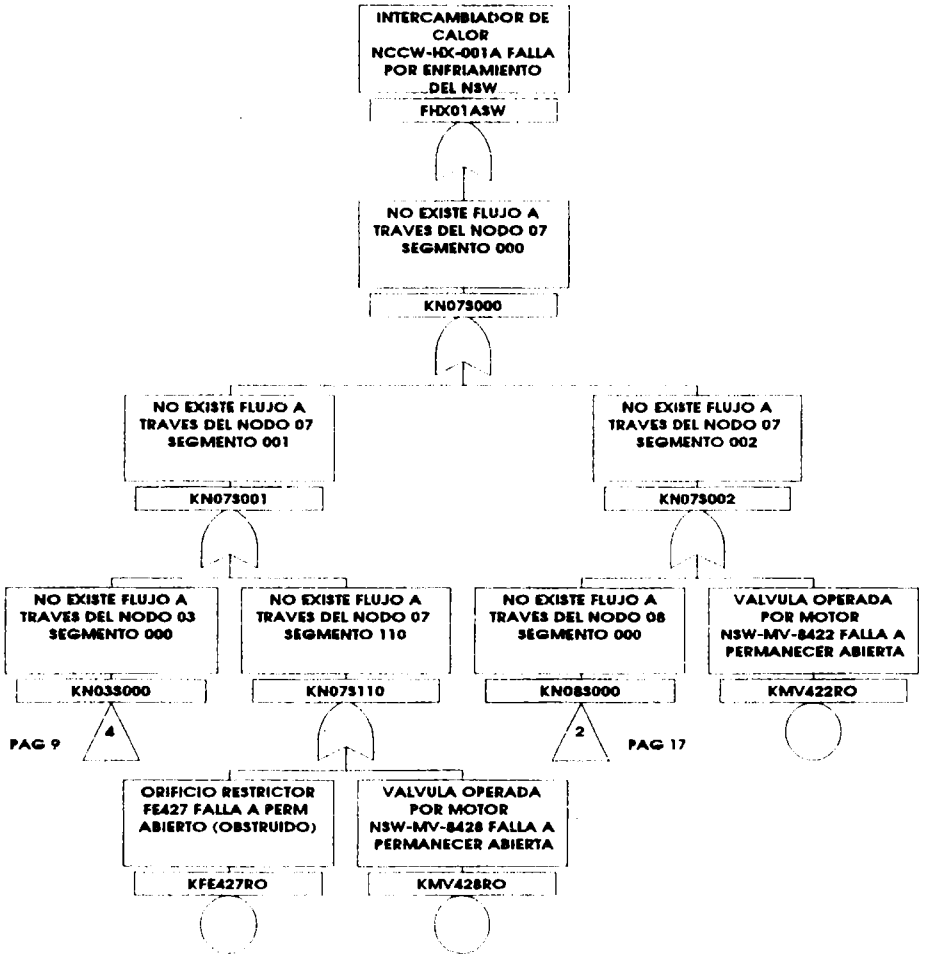


SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04

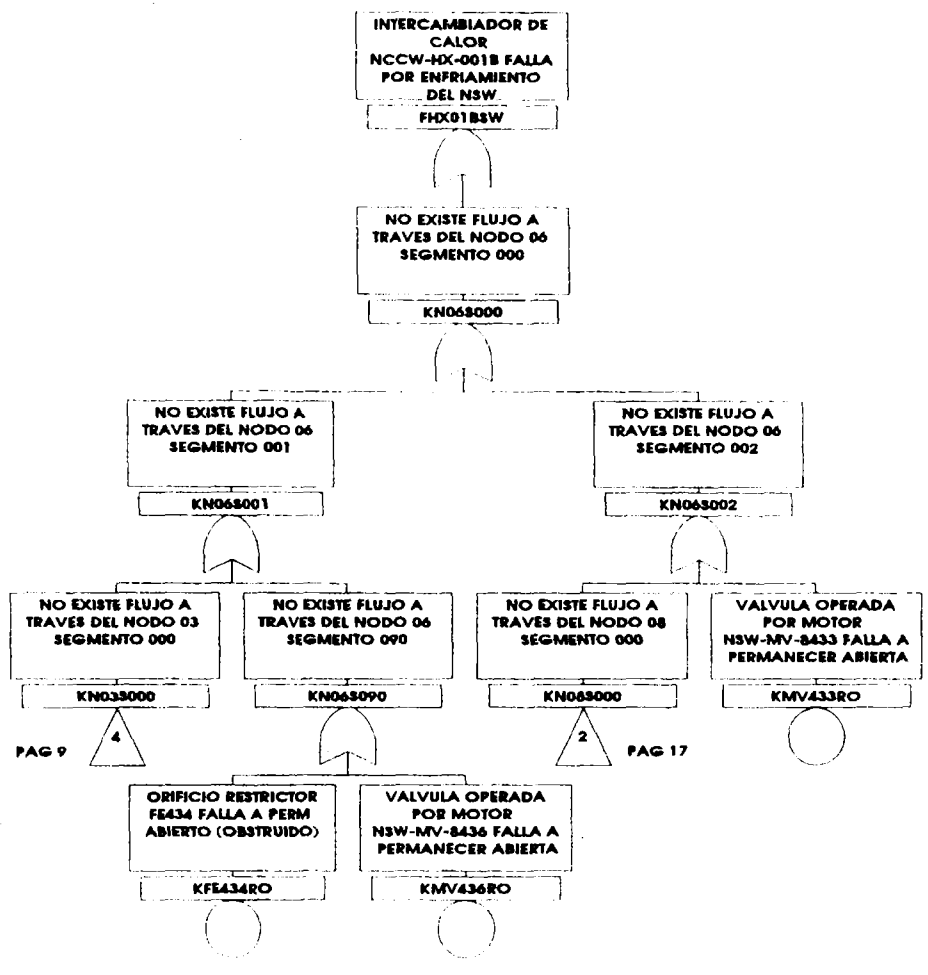


SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 05**

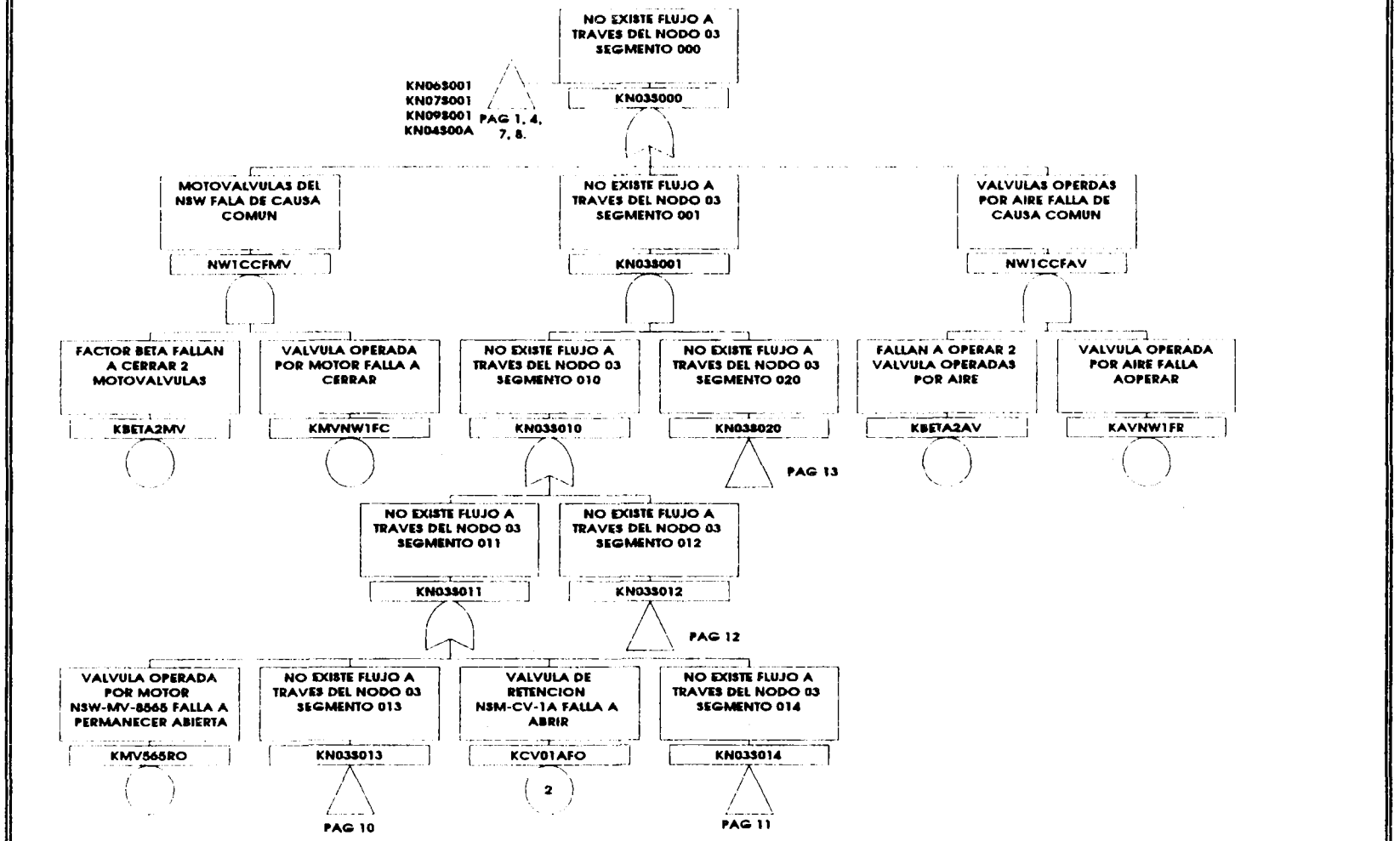

NO EXISTE FLUJO A TRAVES DEL NODO 11 SEGMENTO 151
KN113151
KN113150 PAG 4.
VALVULA OPERADA POR MOTOR NSW-MV-8438 FALLA A ABRIR
KMV438FO
VALVULA OPERADA POR MOTOR NSW-MV-8438 NO HAY SENAL DE CONTROL
KMV438SF
NO EXISTE CORRIENTE ALTERNA PARA LA NSW-MV-8438A
KMV438AP
VALVULA OPERADA POR MOTOR NSW-MV-8438 INDISPONIBLE DEBIDO A TM
KMV438TM



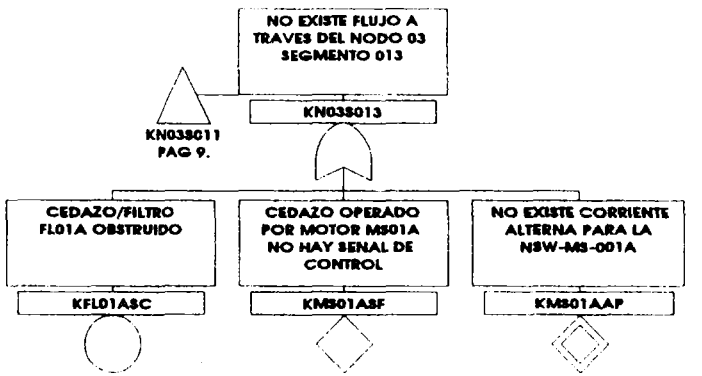
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 07



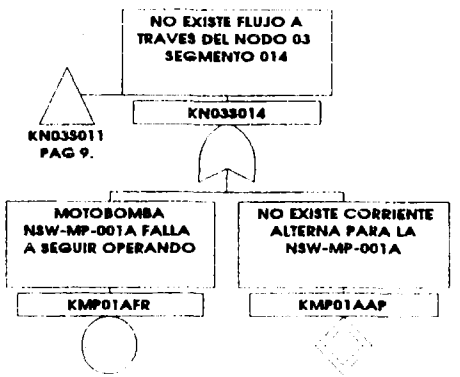
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 08**



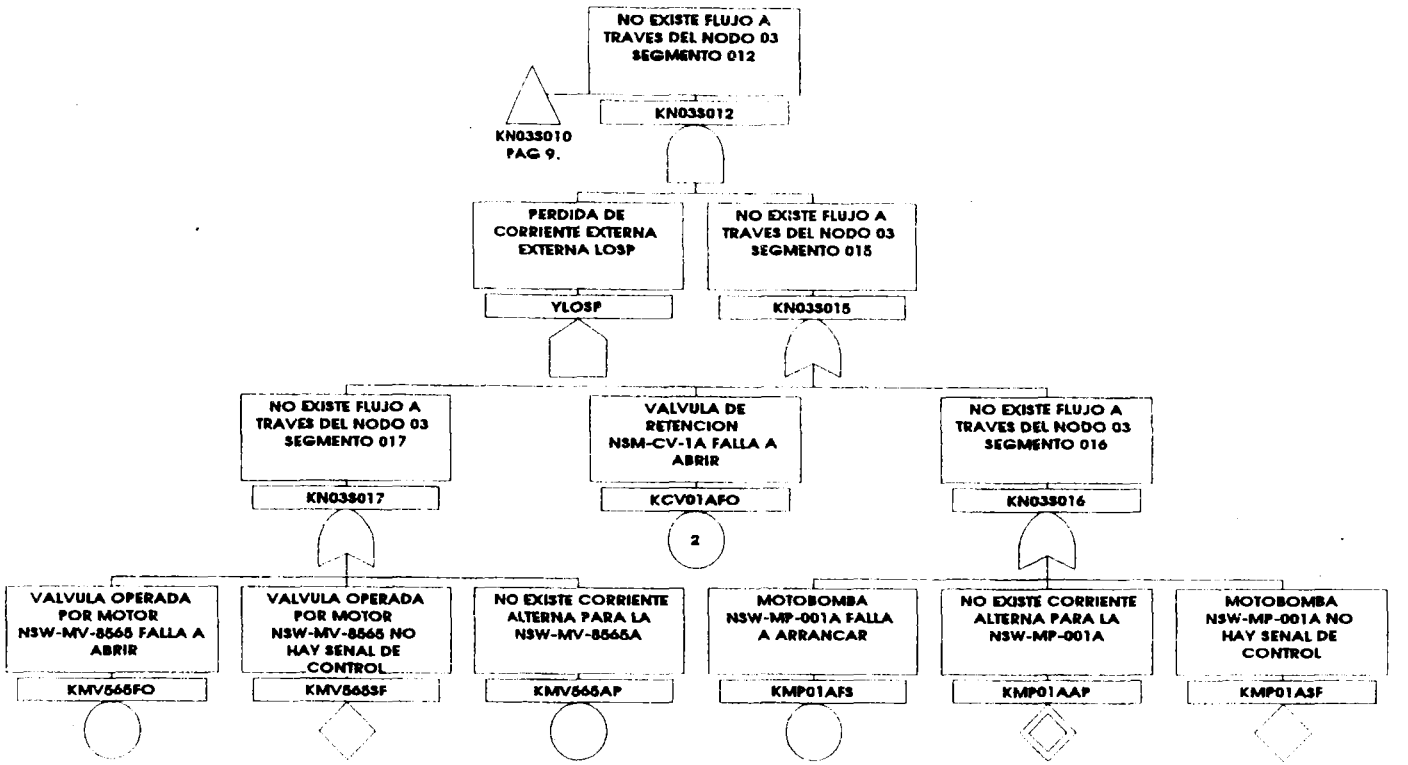
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09



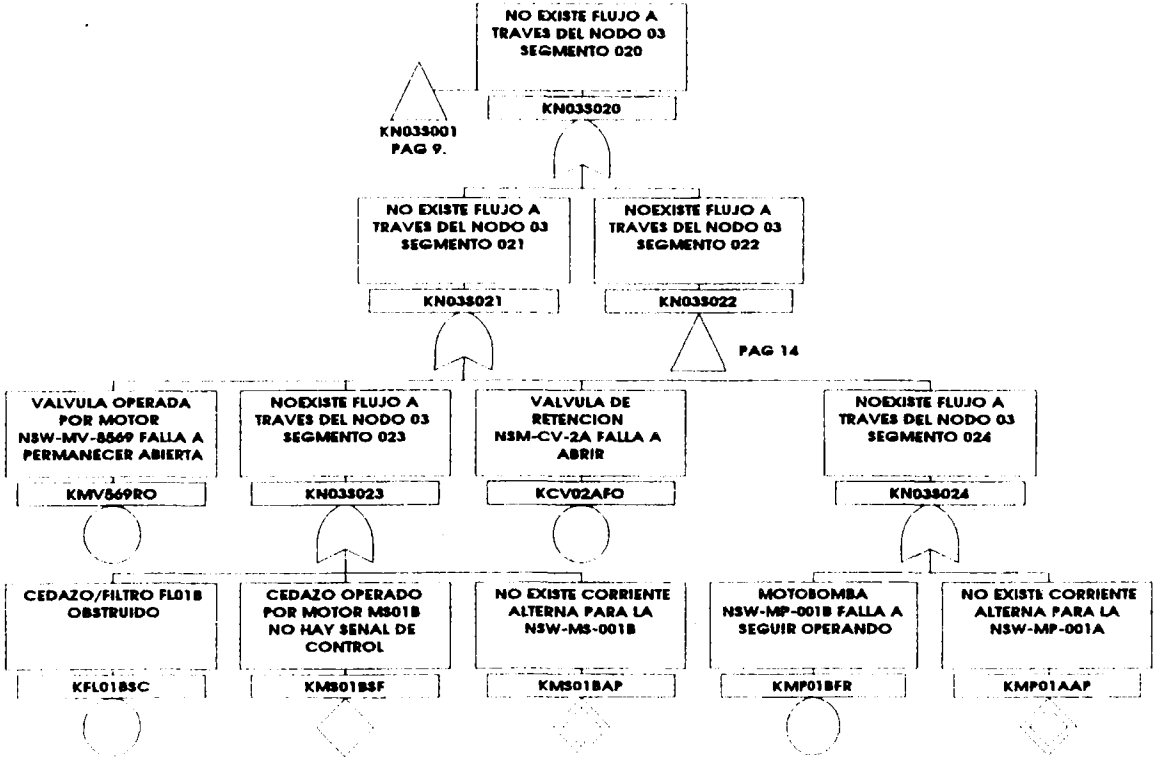
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 10**



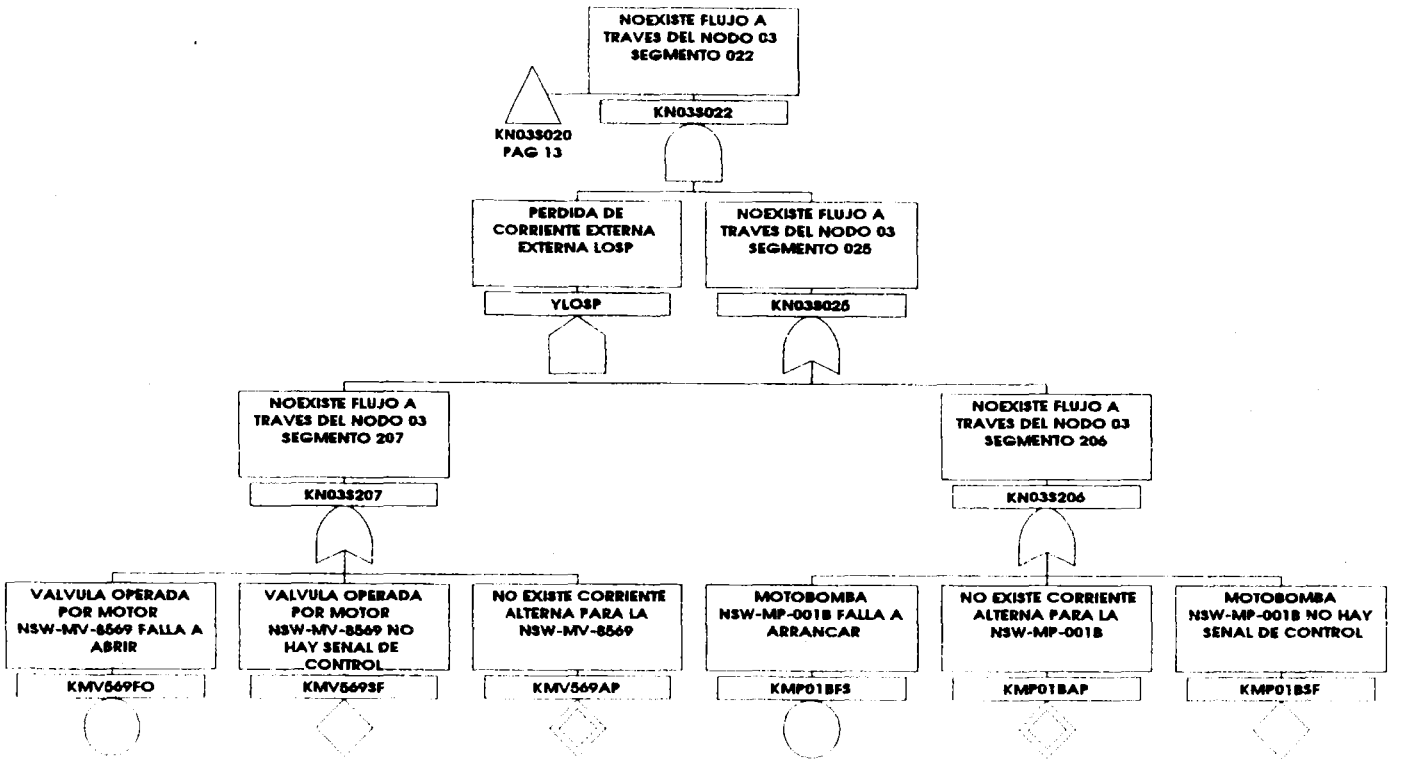
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 11



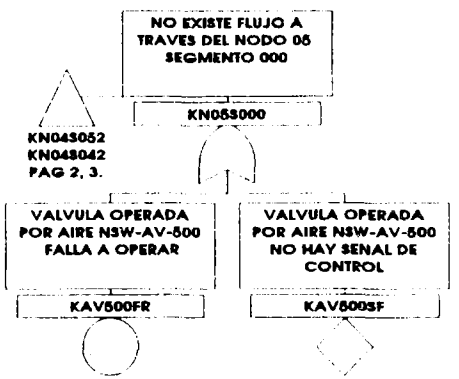
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 12



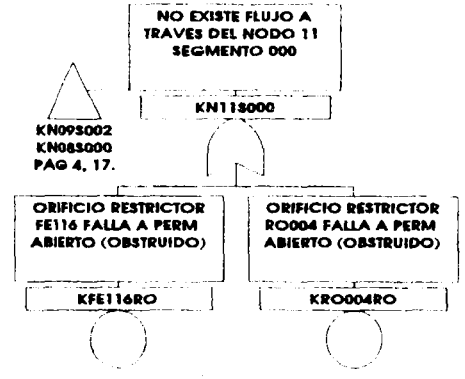
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 13



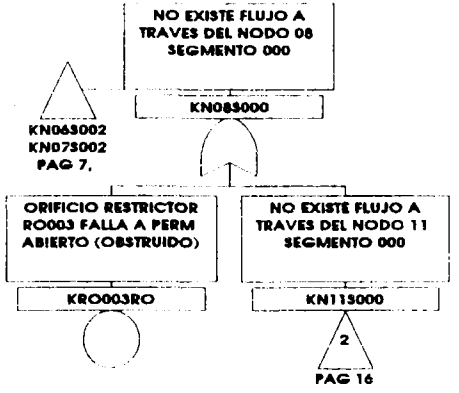
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 14



SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 15**

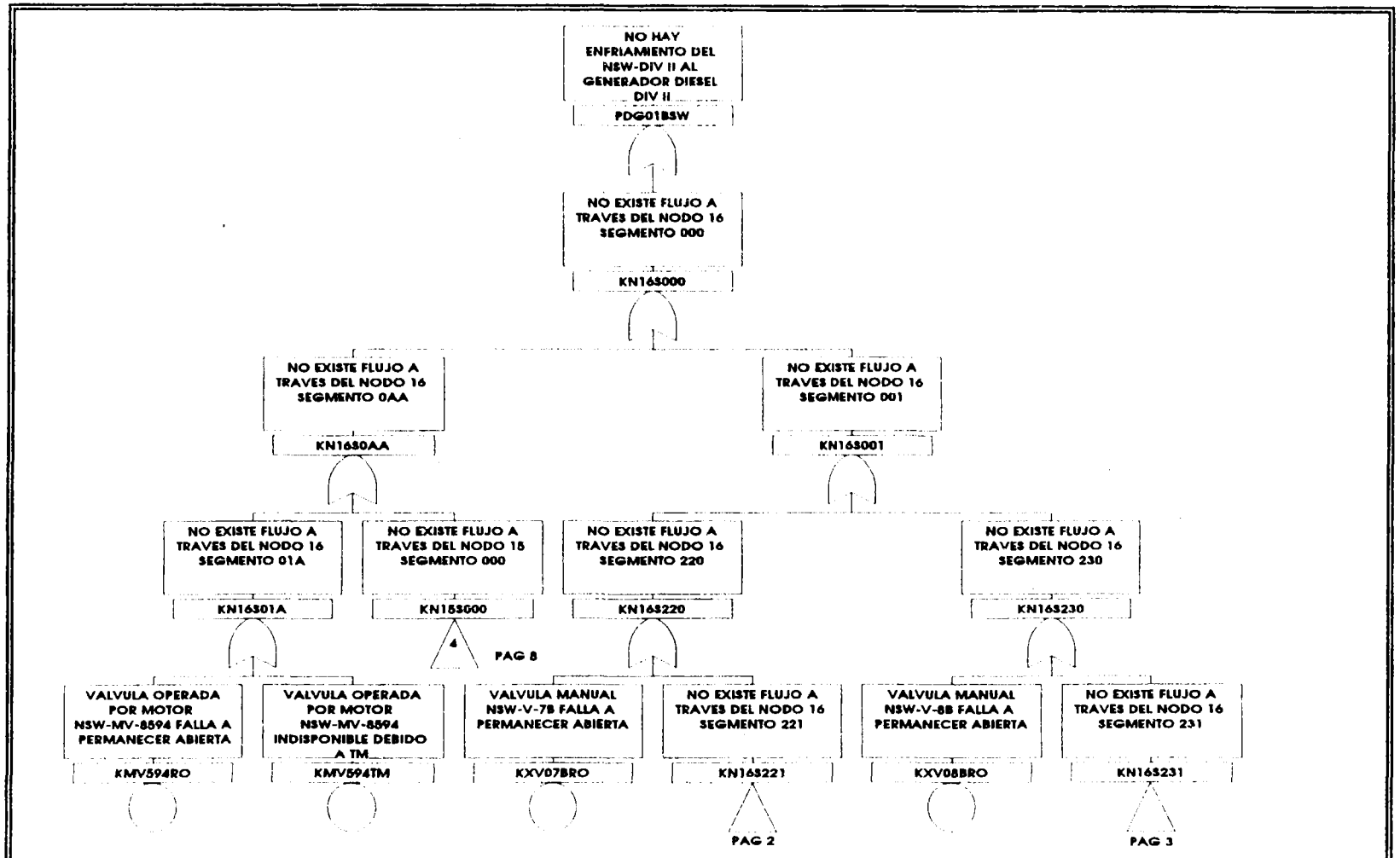


SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 16**

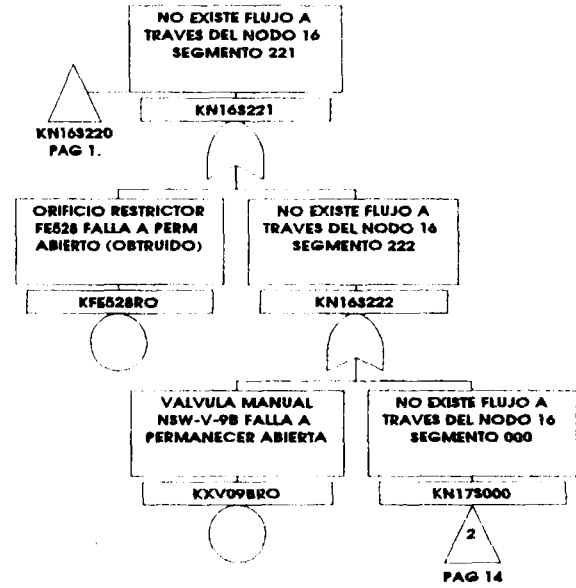


SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 17

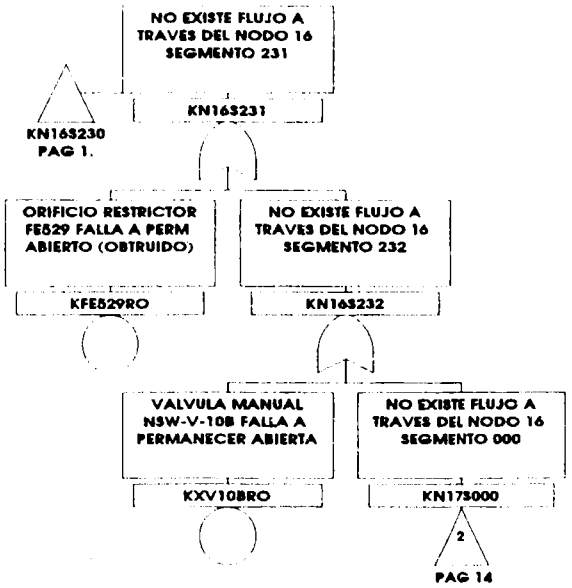
FIGURA B-29. ARBOL DE FALLAS DEL SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II.



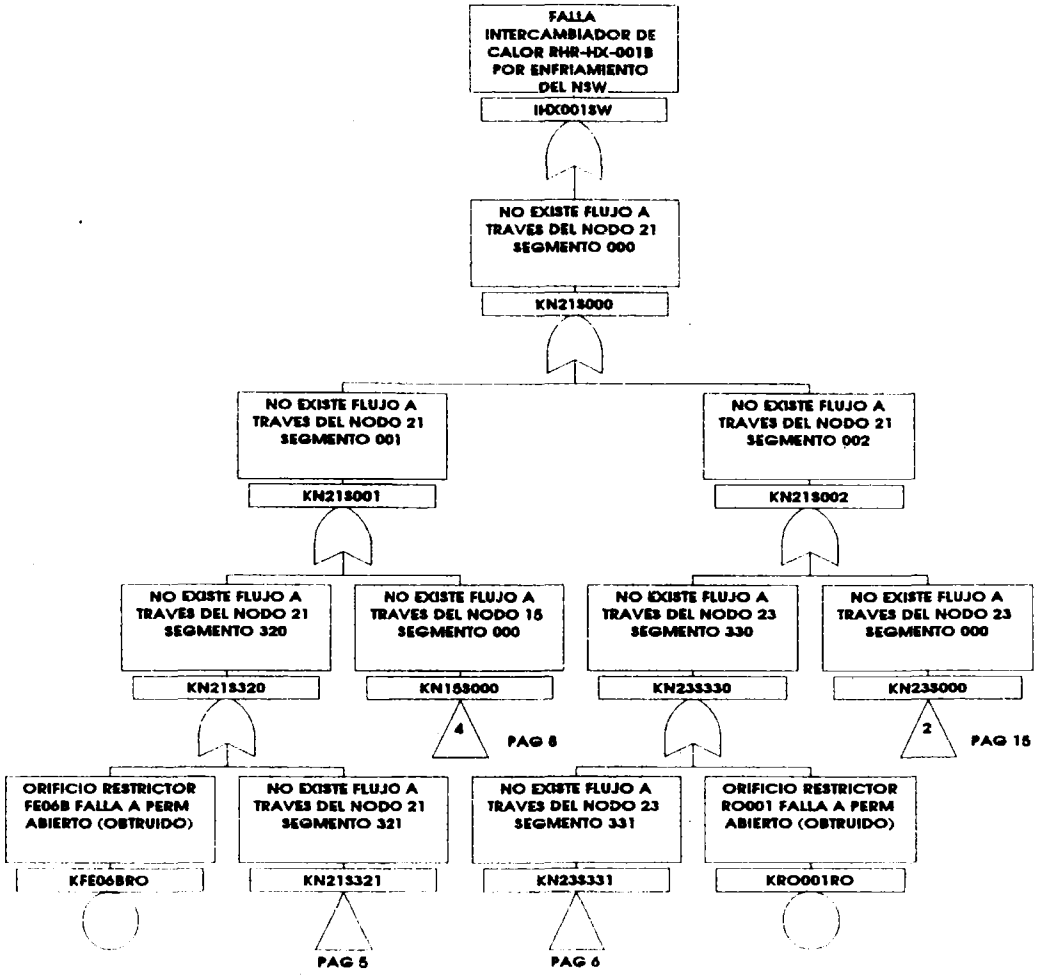
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



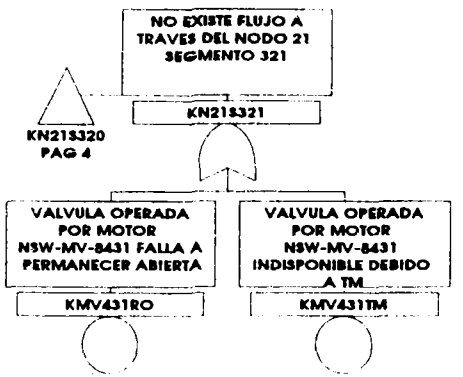
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02



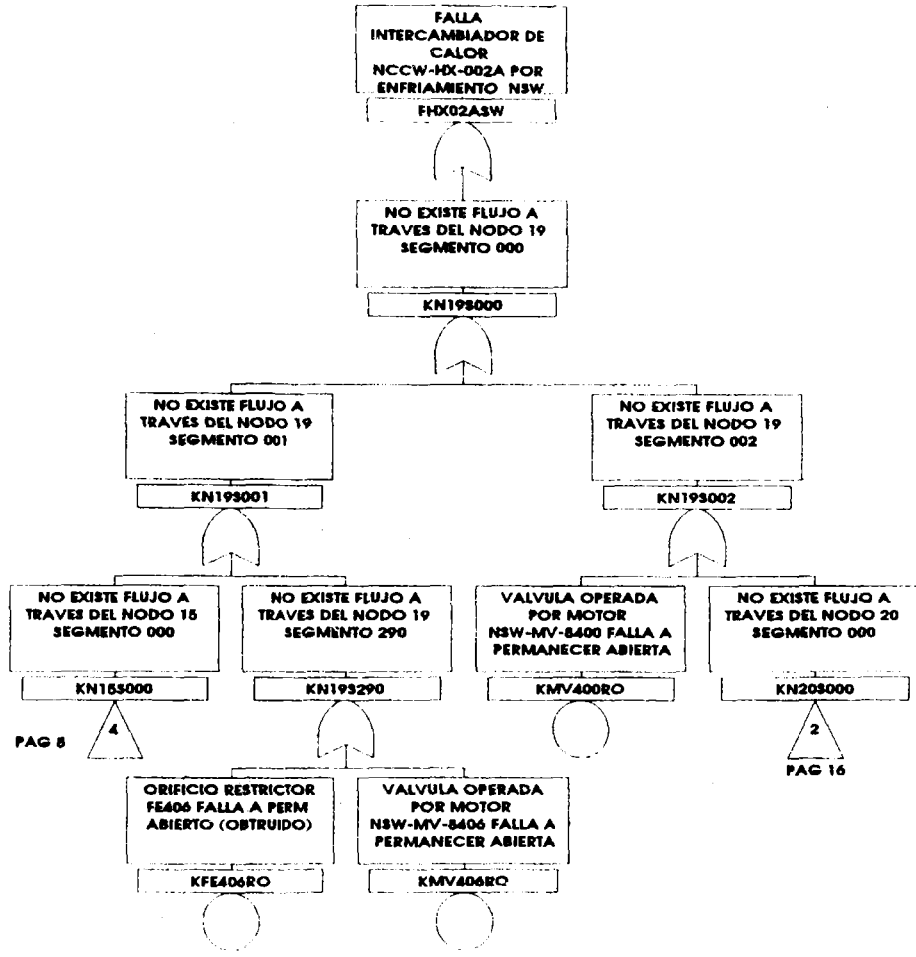
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03



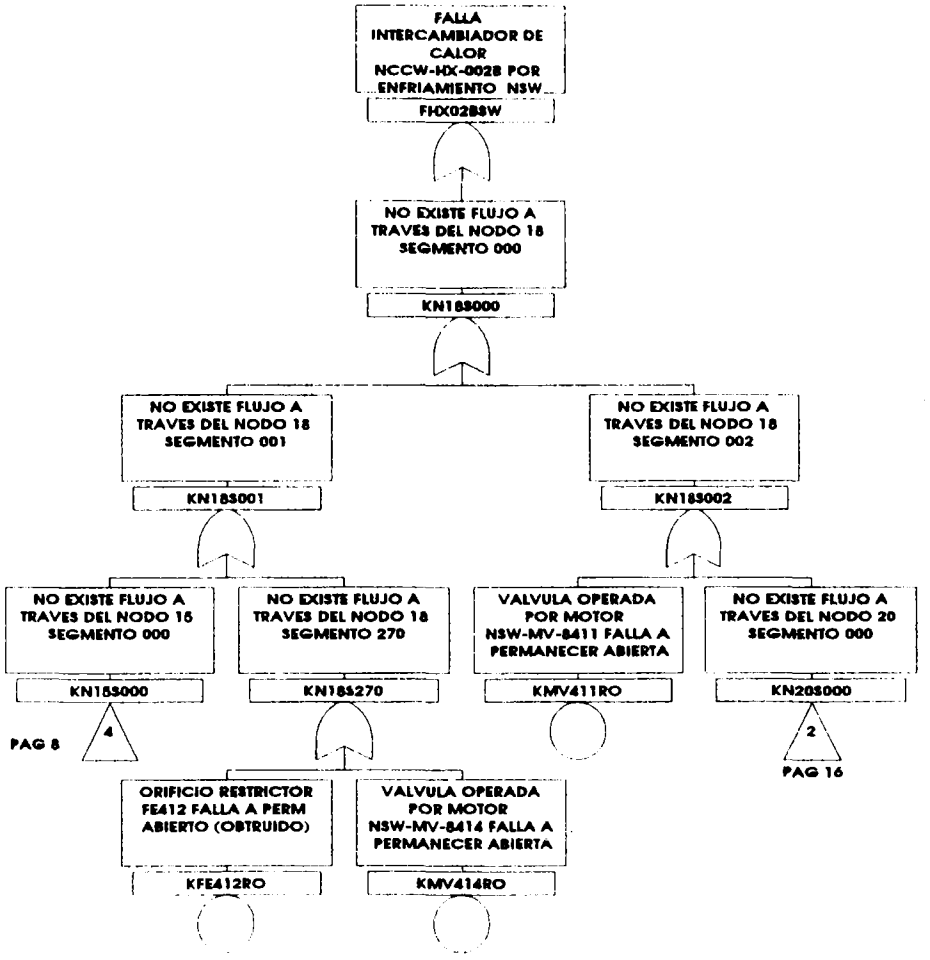
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 04**



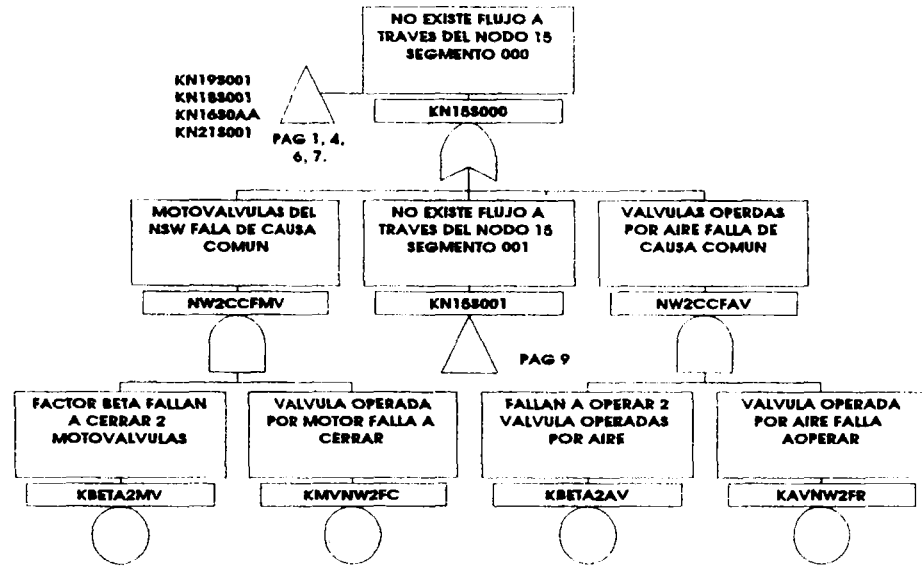
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 05**



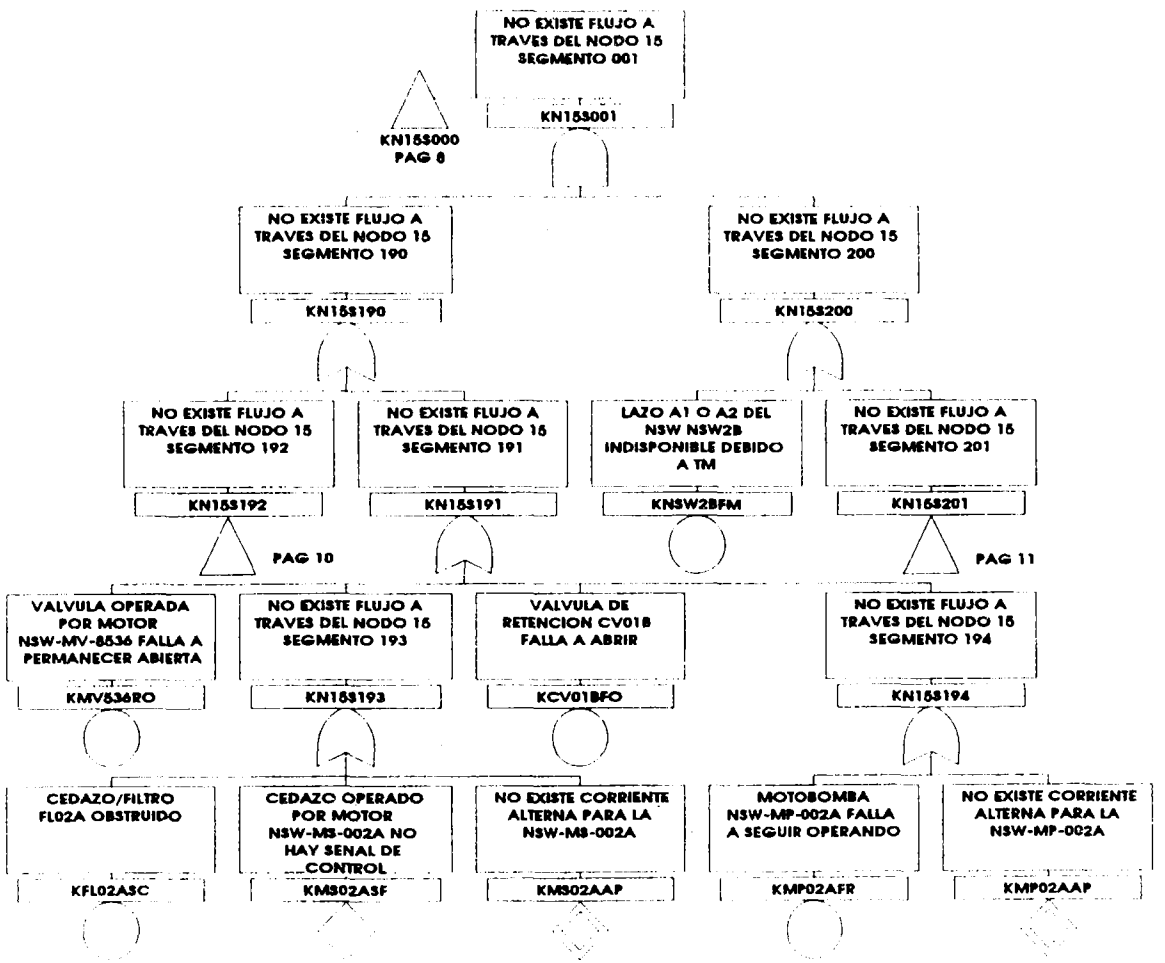
SISTEMA DE AGUA DE SERVICIO NUCLEAR(NSW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 06



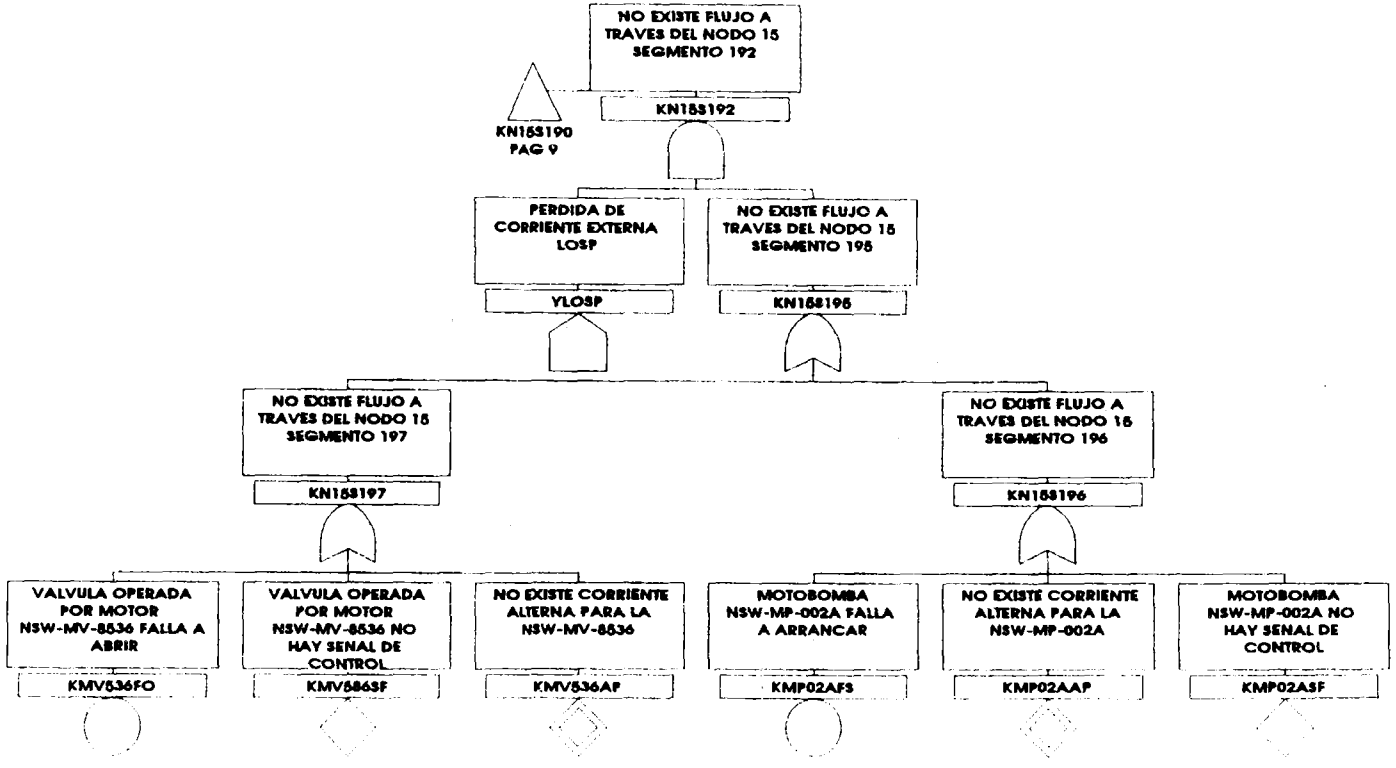
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 07



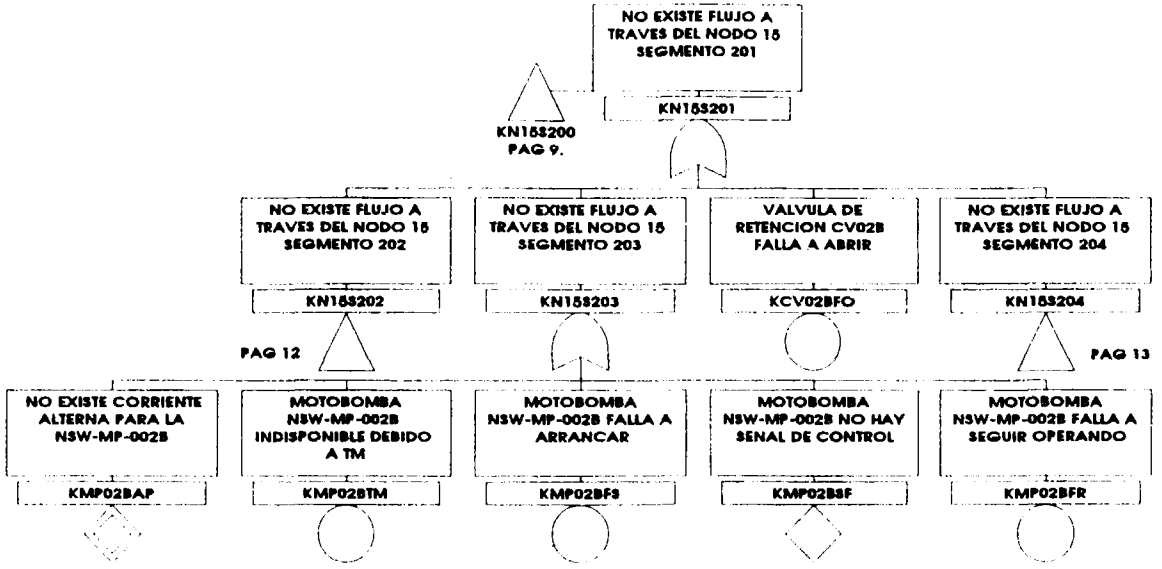
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 08



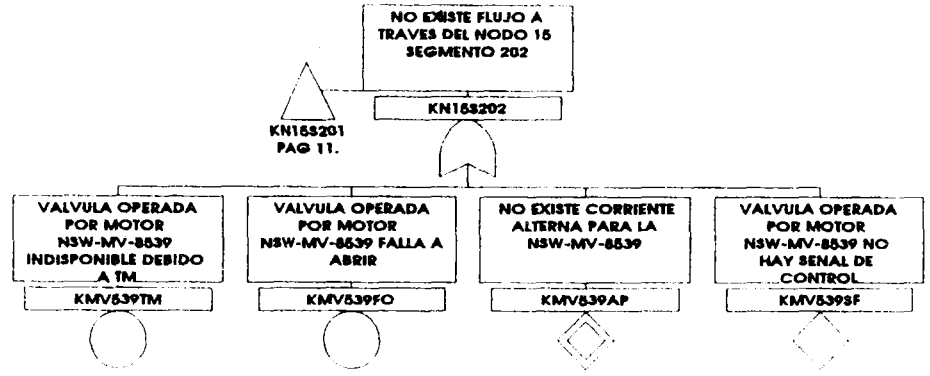
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09



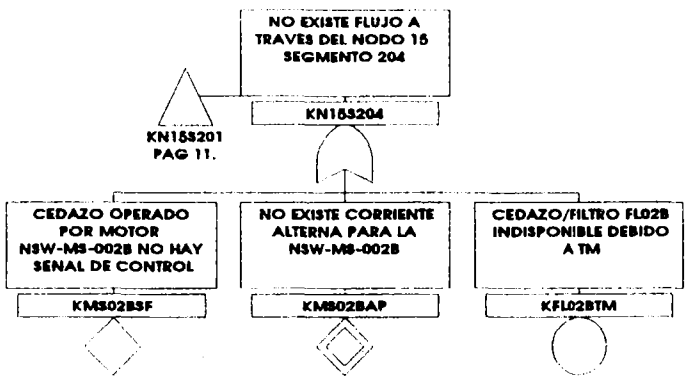
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 10



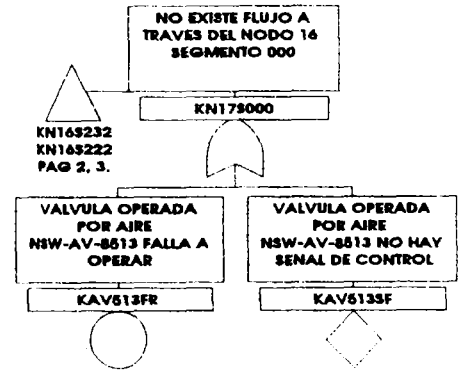
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 11



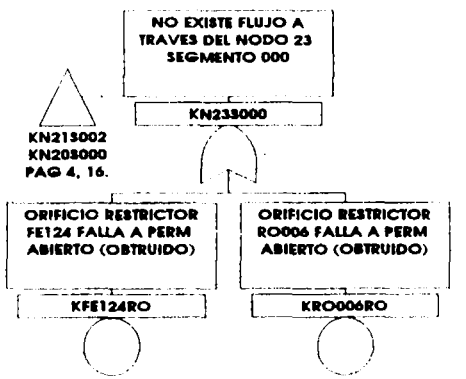
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 12



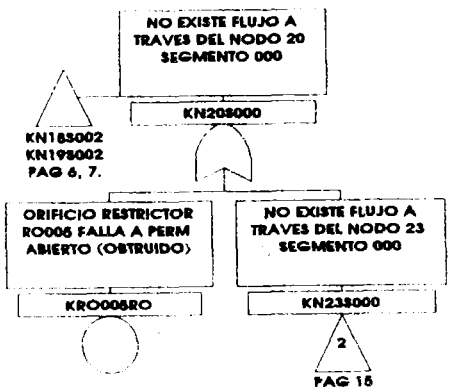
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 13**



SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 14

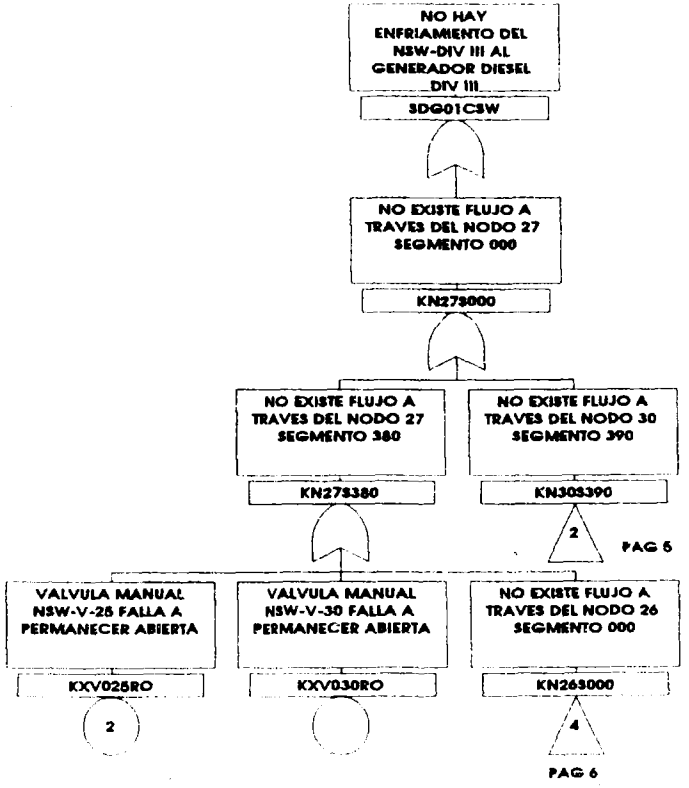


SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 15**

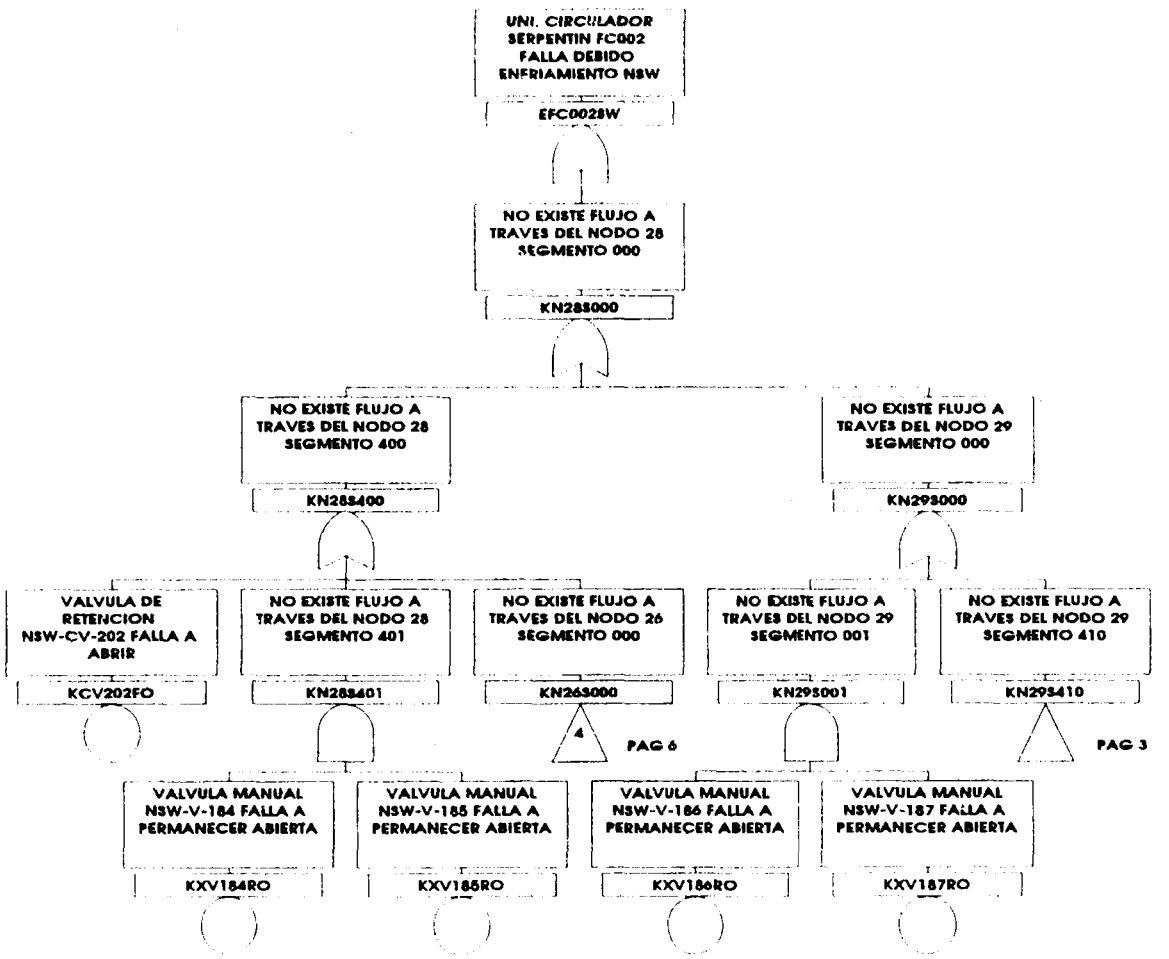


SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 16

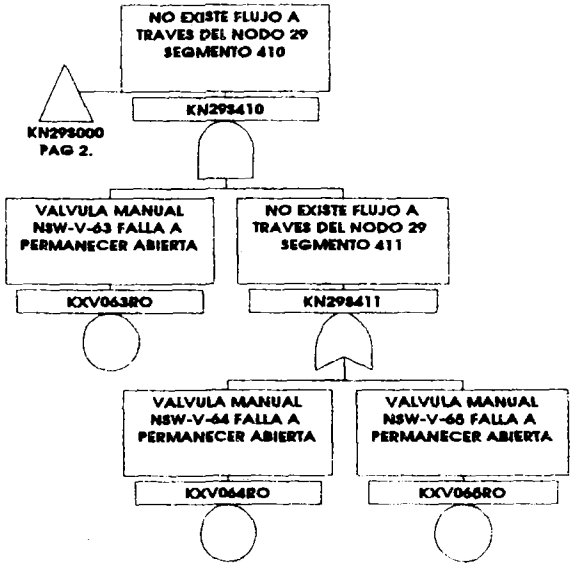
FIGURA B-30. ARBOL DE FALLAS DEL SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION III.



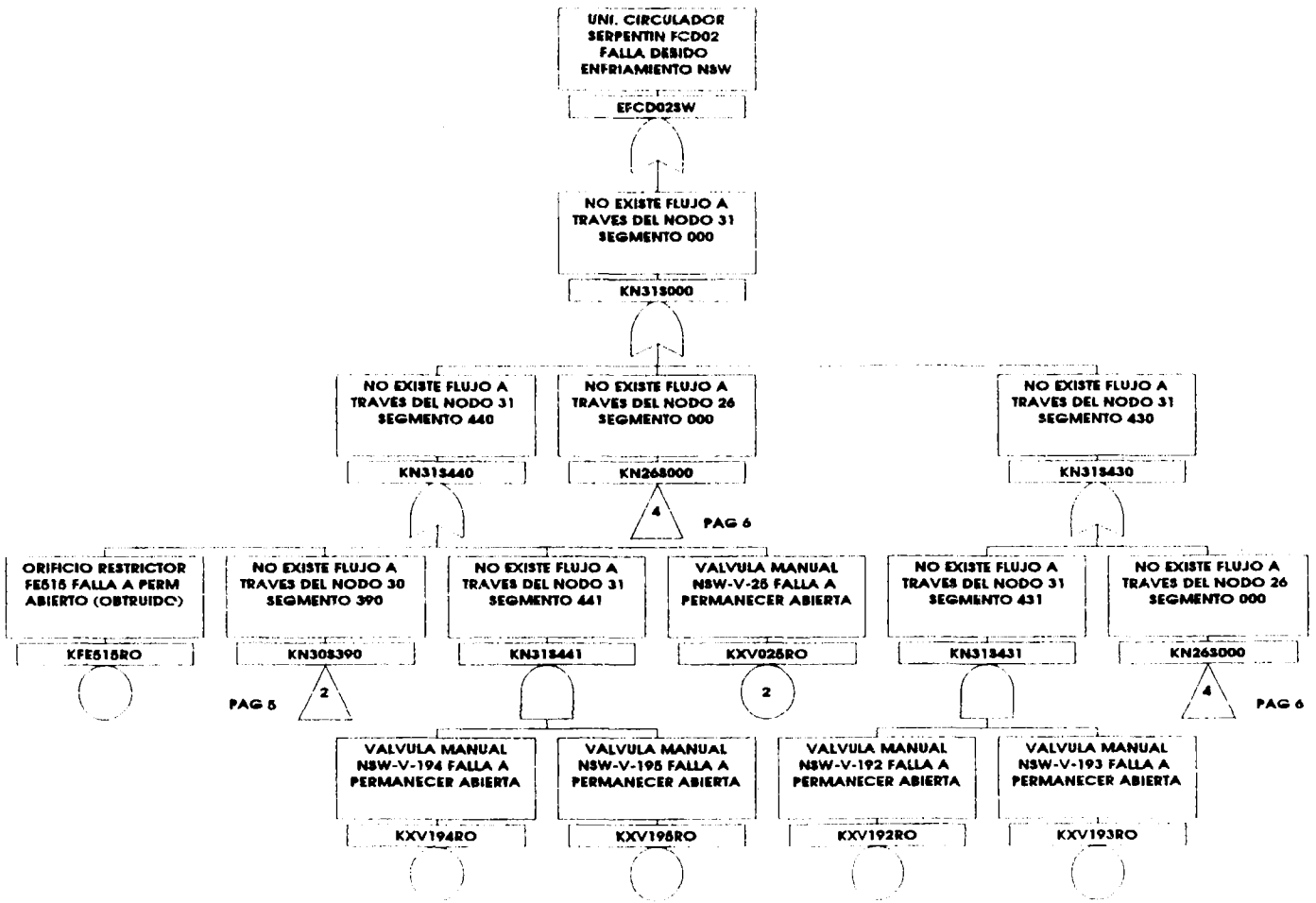
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION III	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 01**



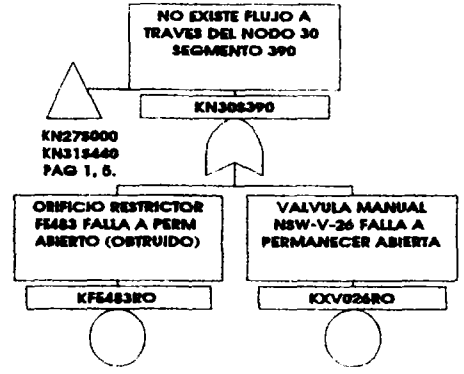
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION III	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02



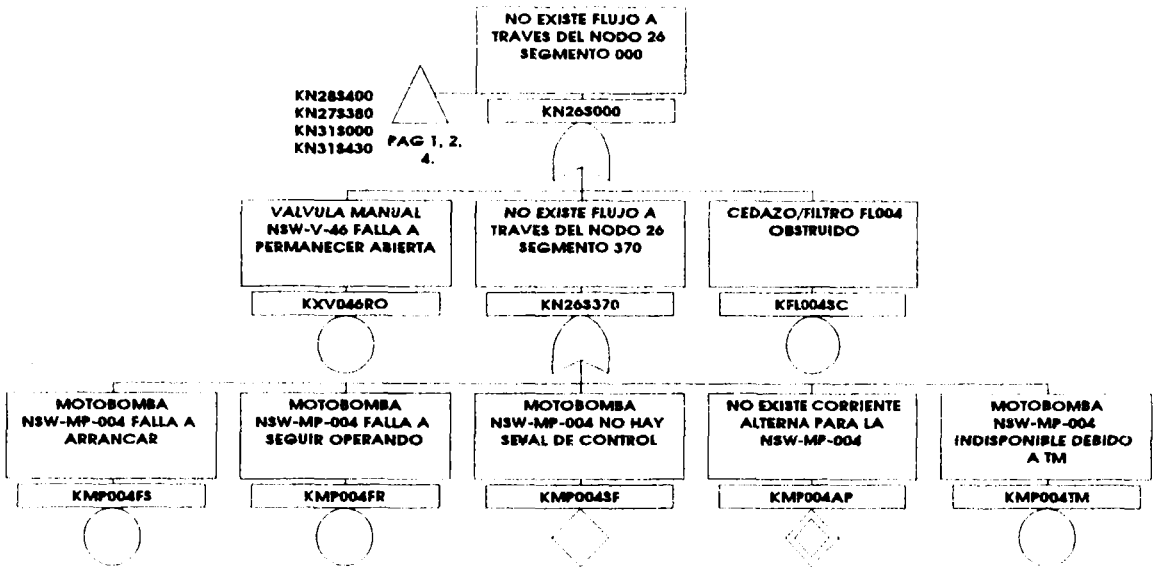
SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION III	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 03**



SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION III	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04

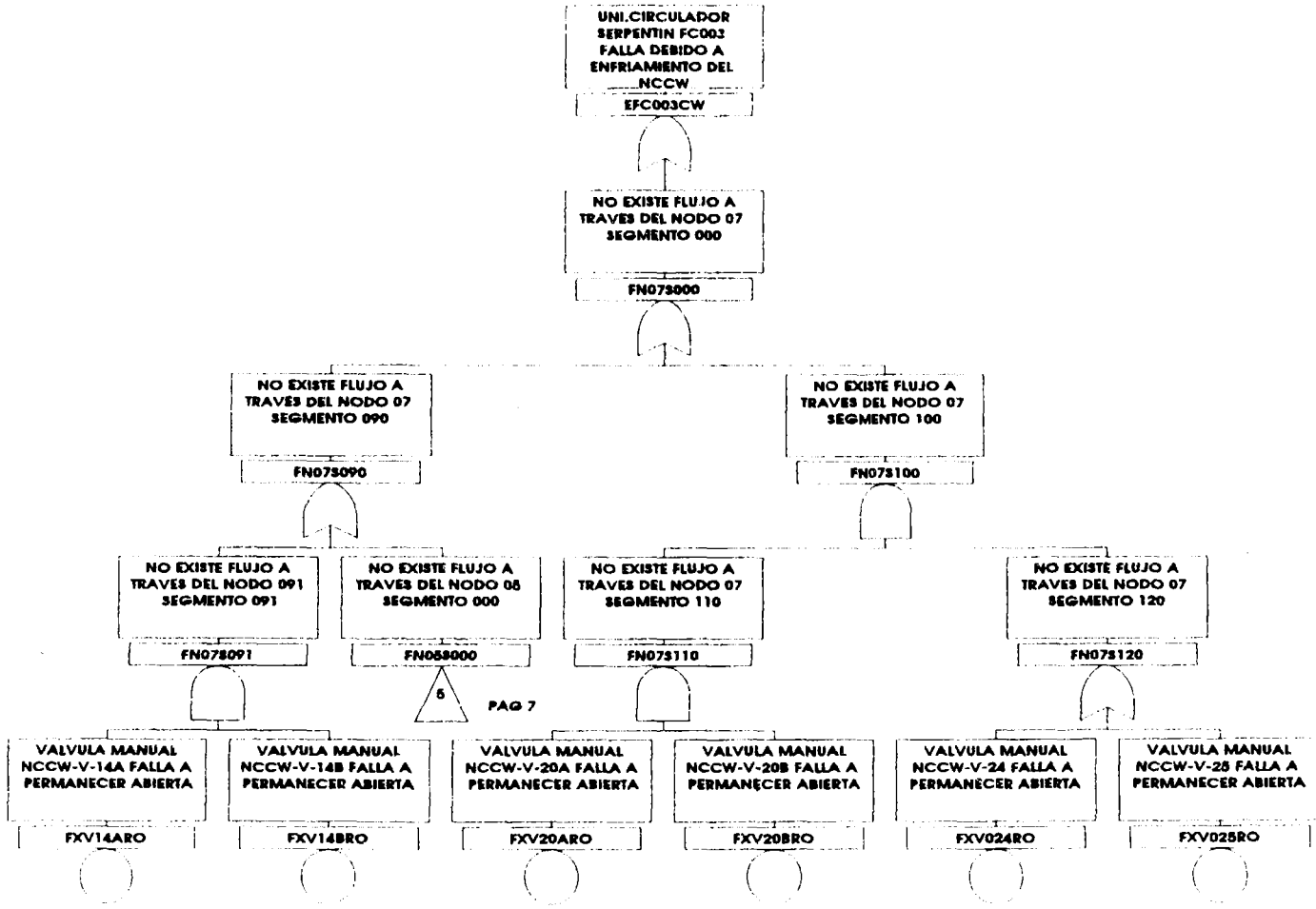


SISTEMA DE AGUA DE SERVICIO NUCLEAR (NSW) DIVISION III	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 05**

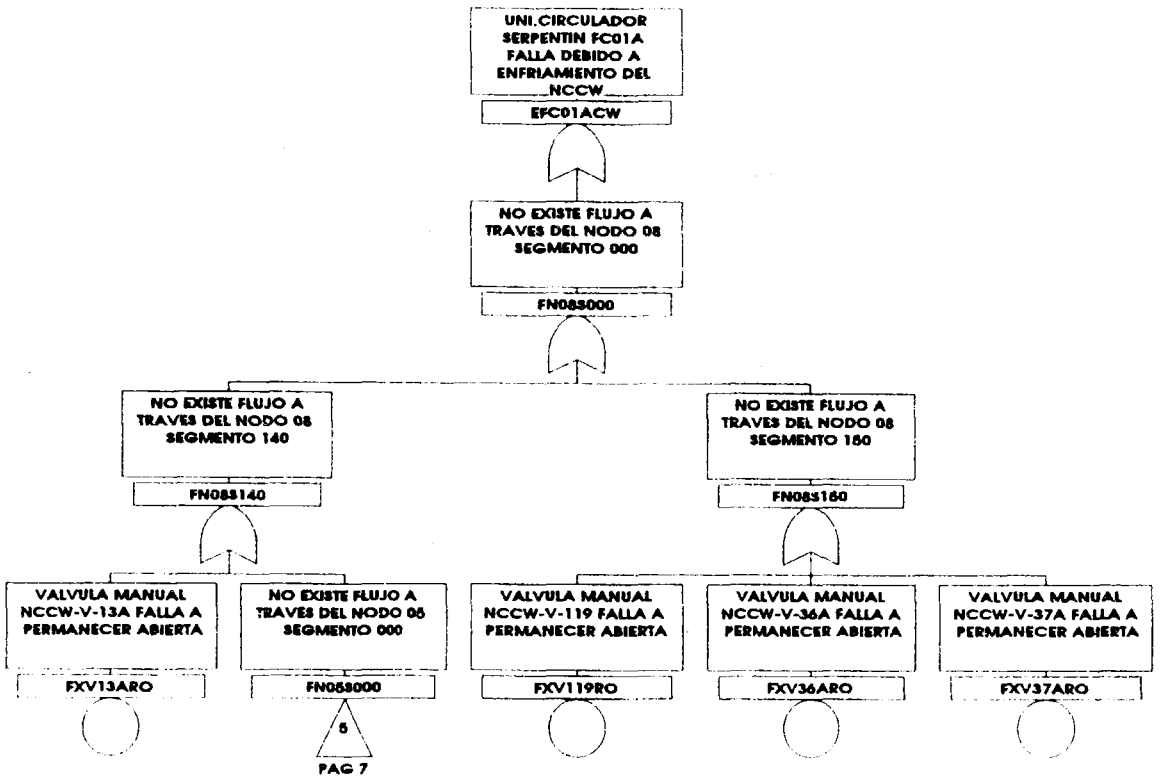


SISTEMA DE AGUA DE SERVICIO NUCLEAR(NSW) DIVISION III	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 06**

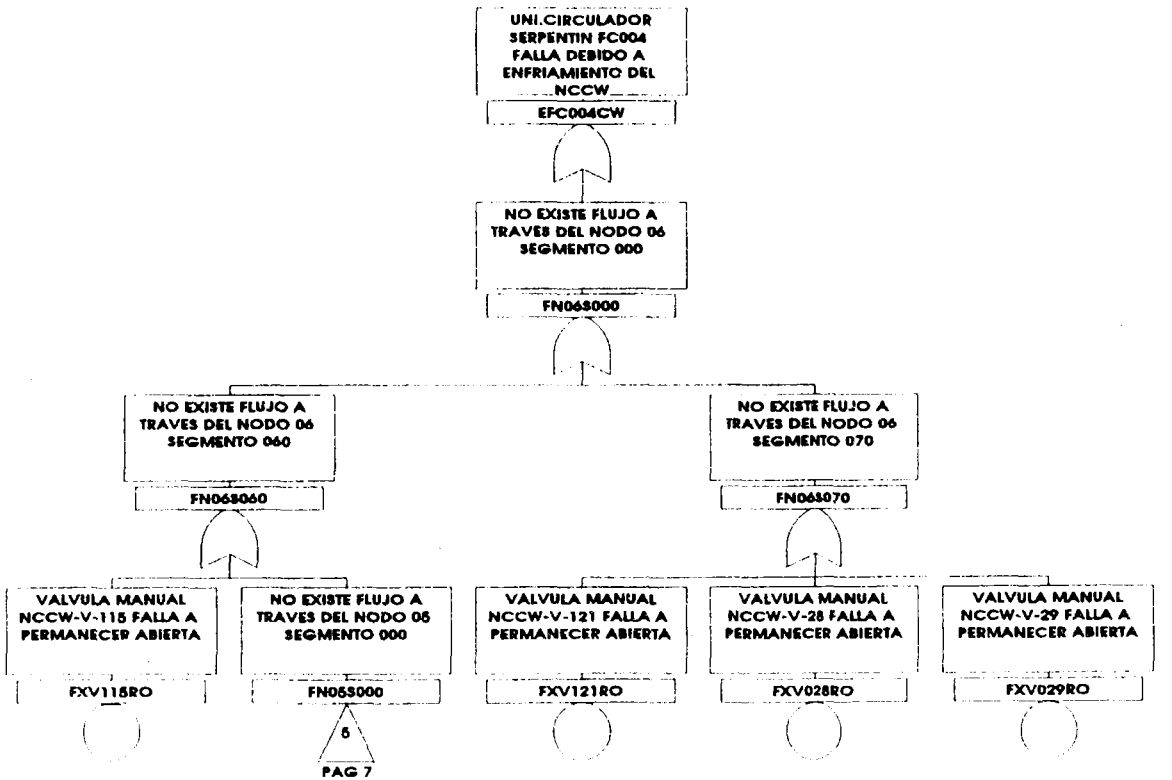
FIGURA B-31. ARBOL DE FALLAS DEL SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION I.



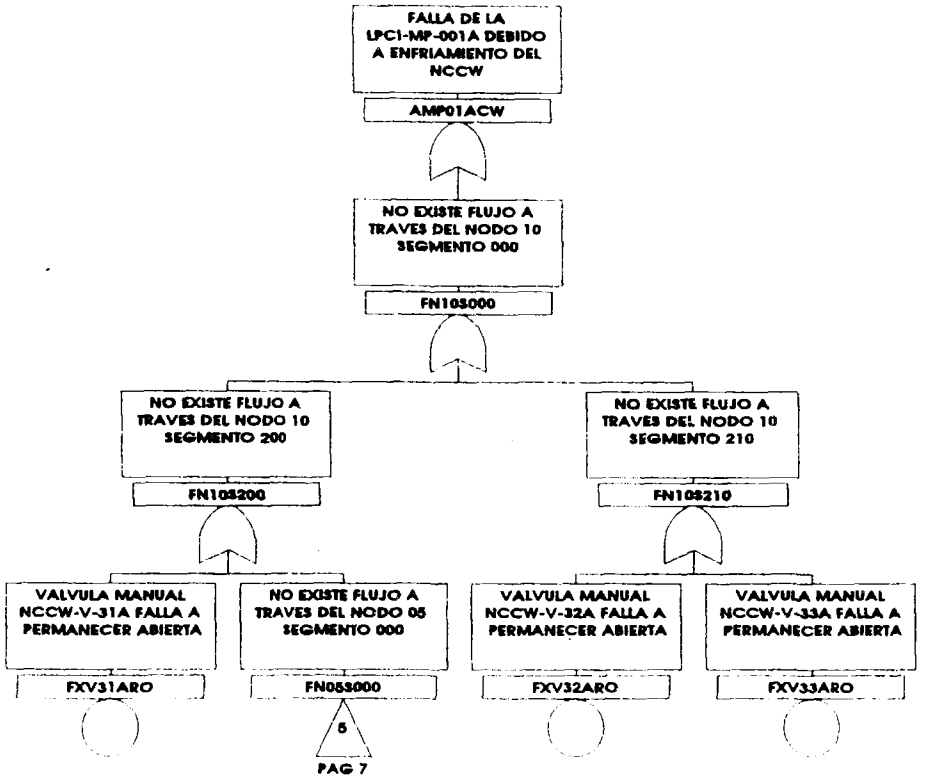
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



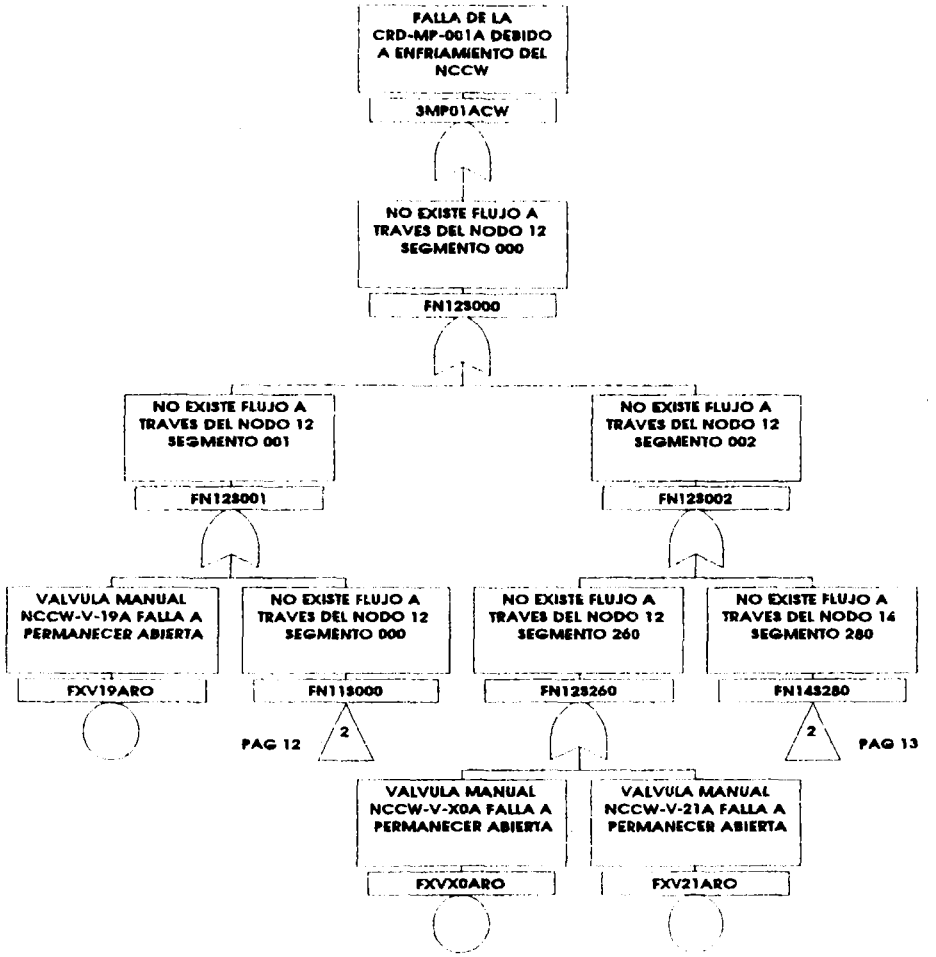
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02



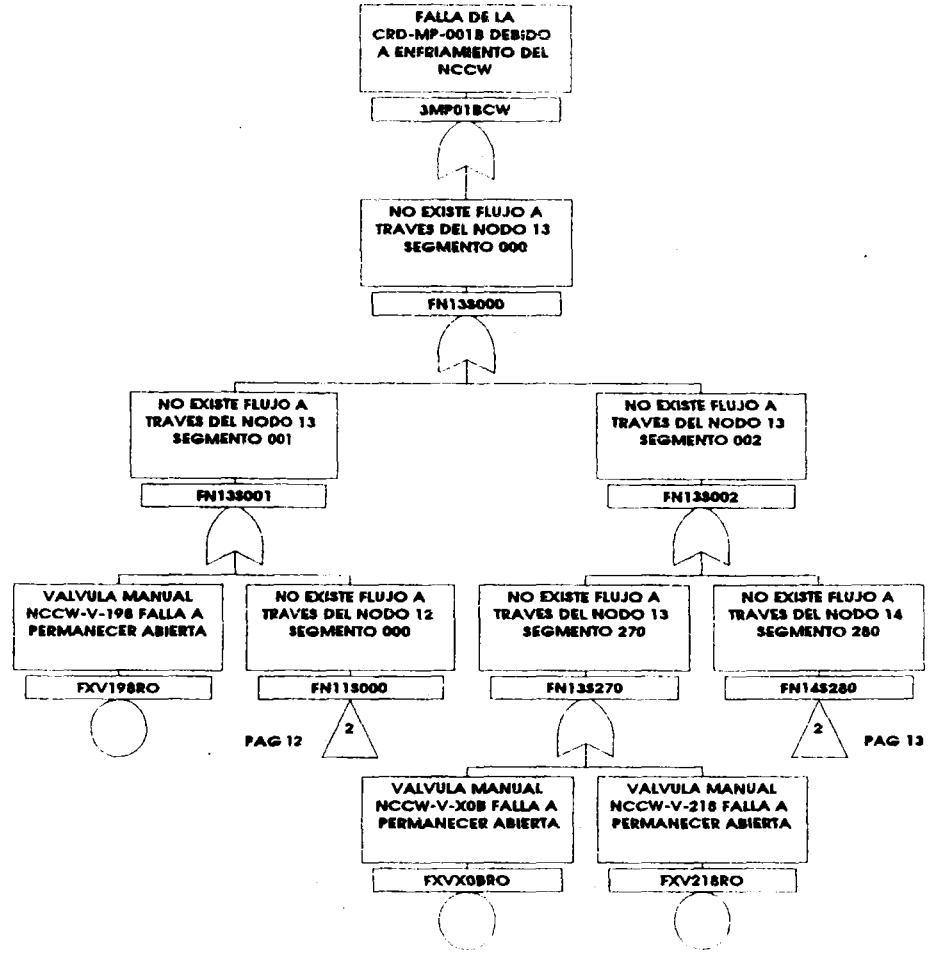
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03



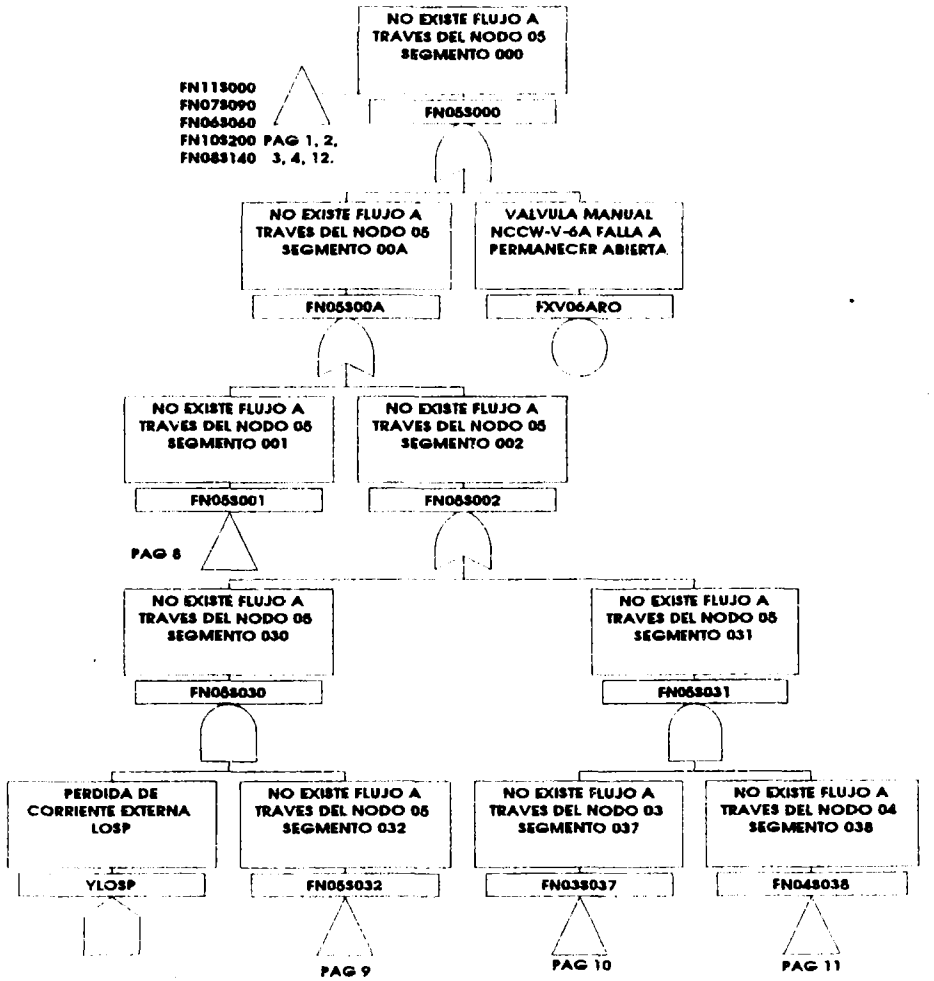
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 04**



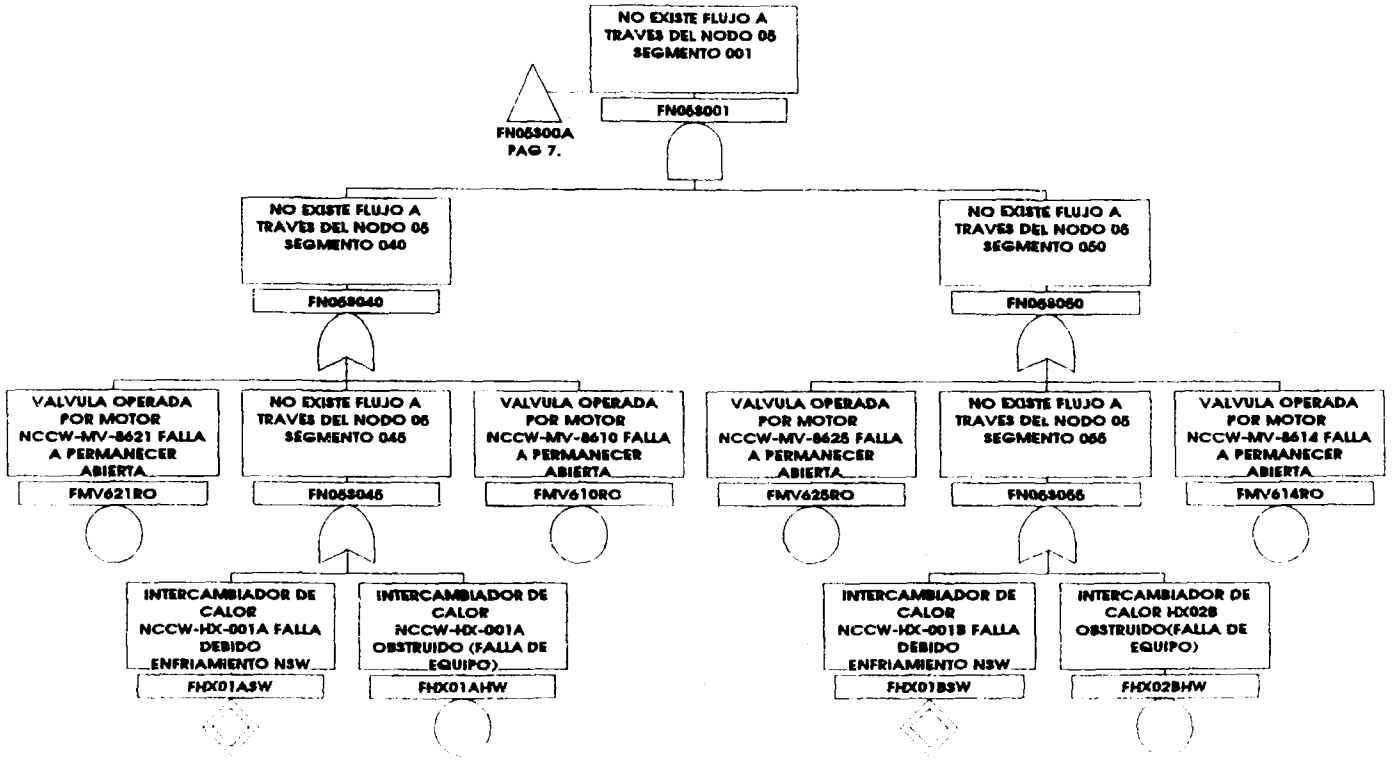
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 05



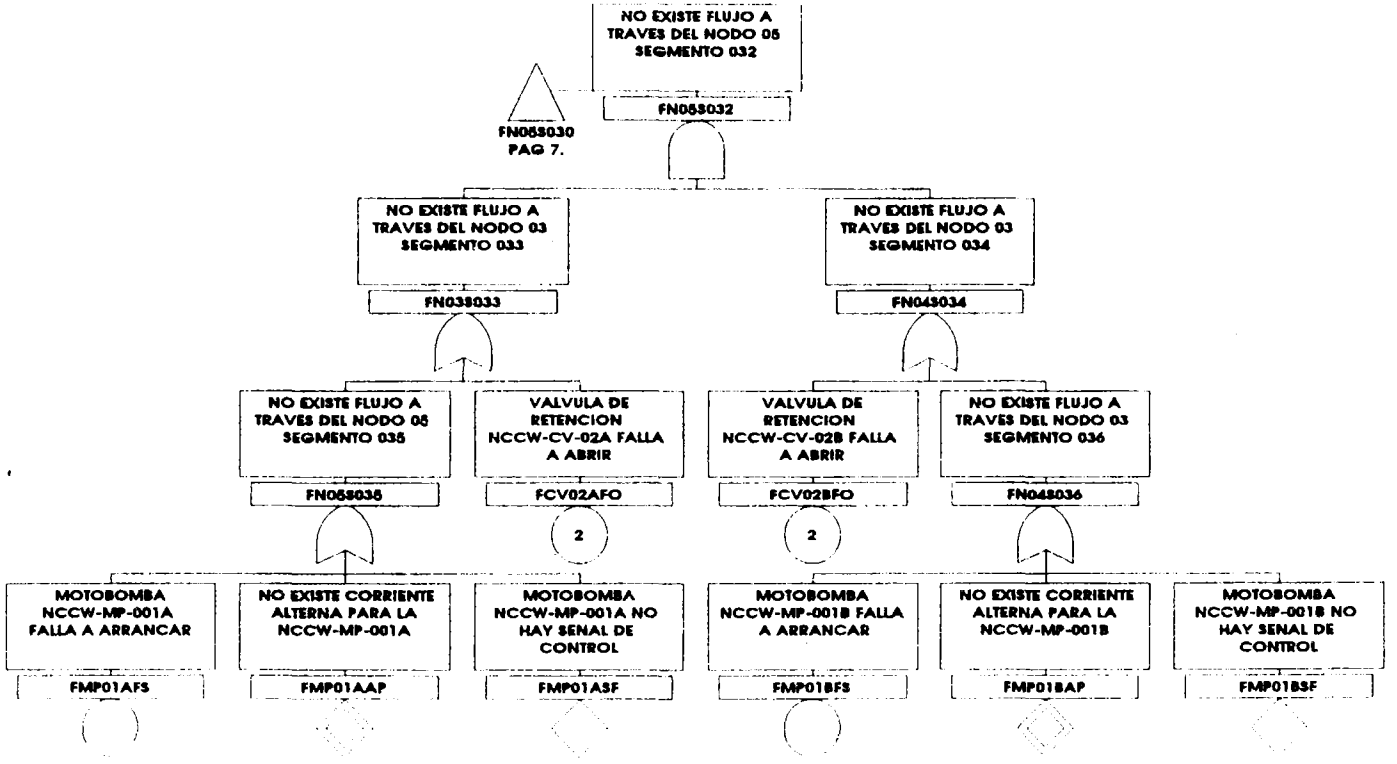
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 06**



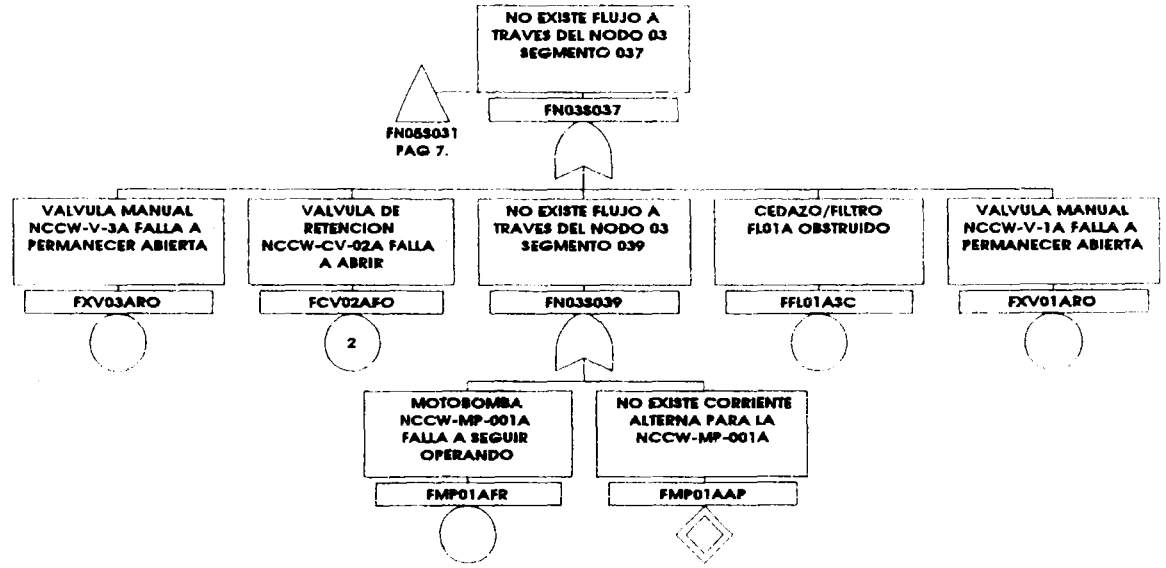
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 07



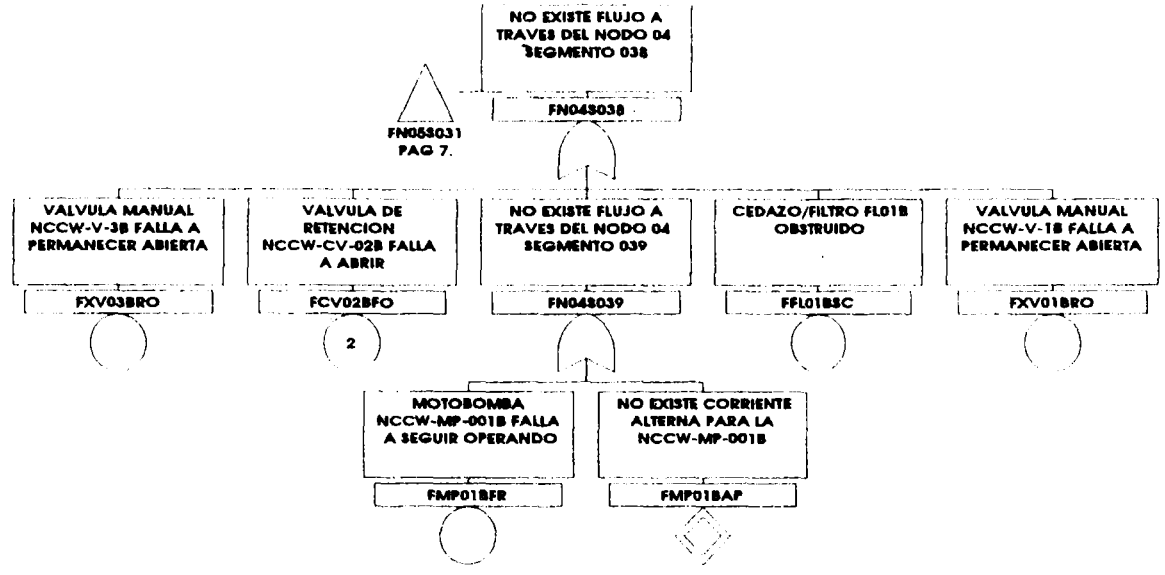
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 08



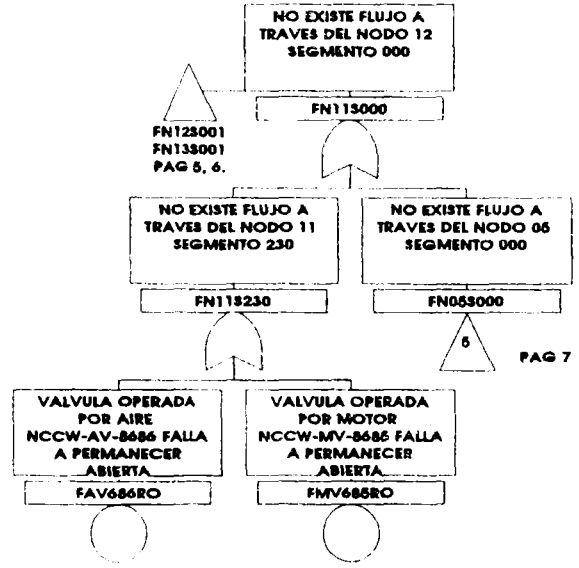
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 09



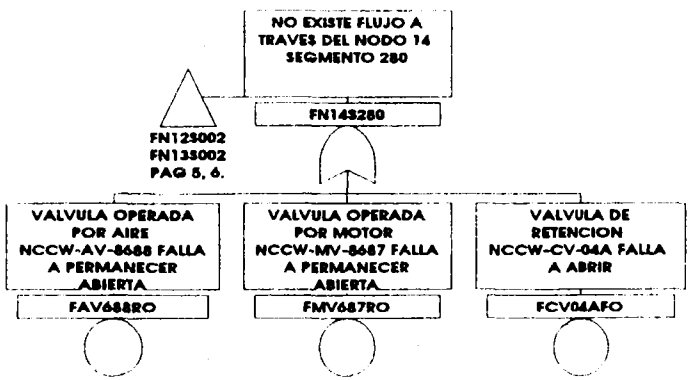
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 10**



SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION I	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 11**

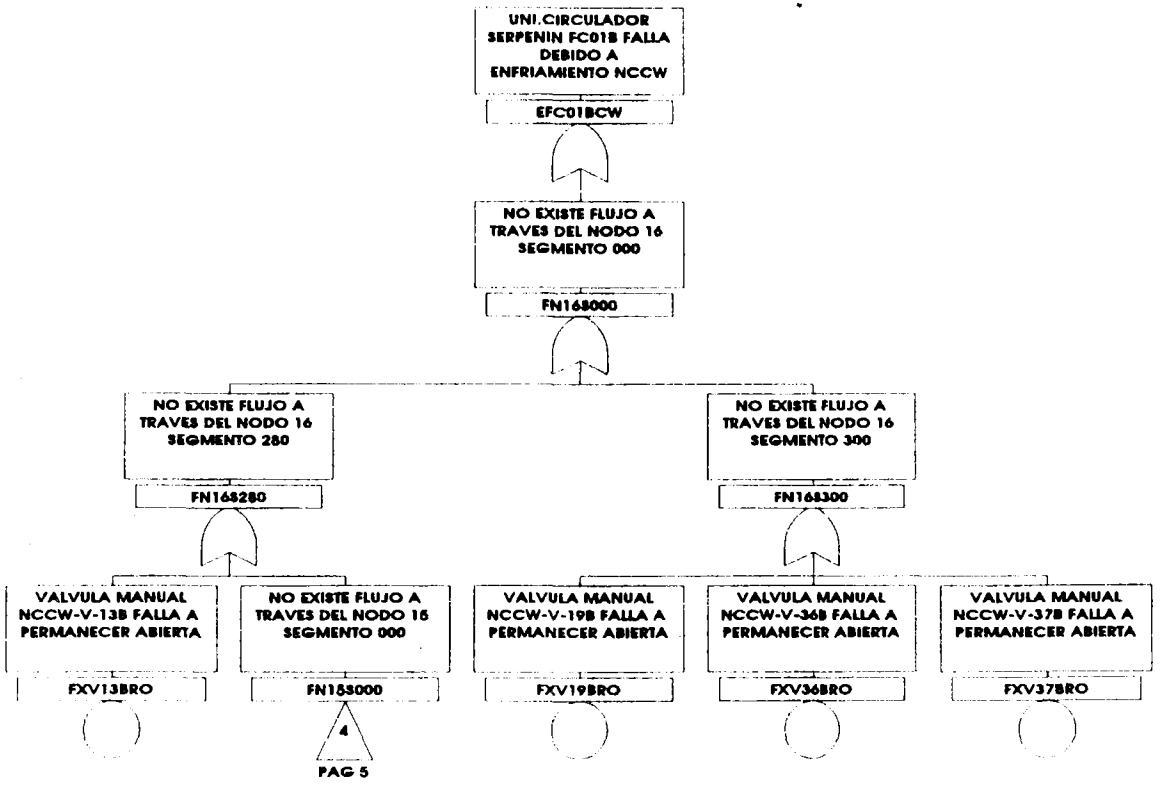


SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 12

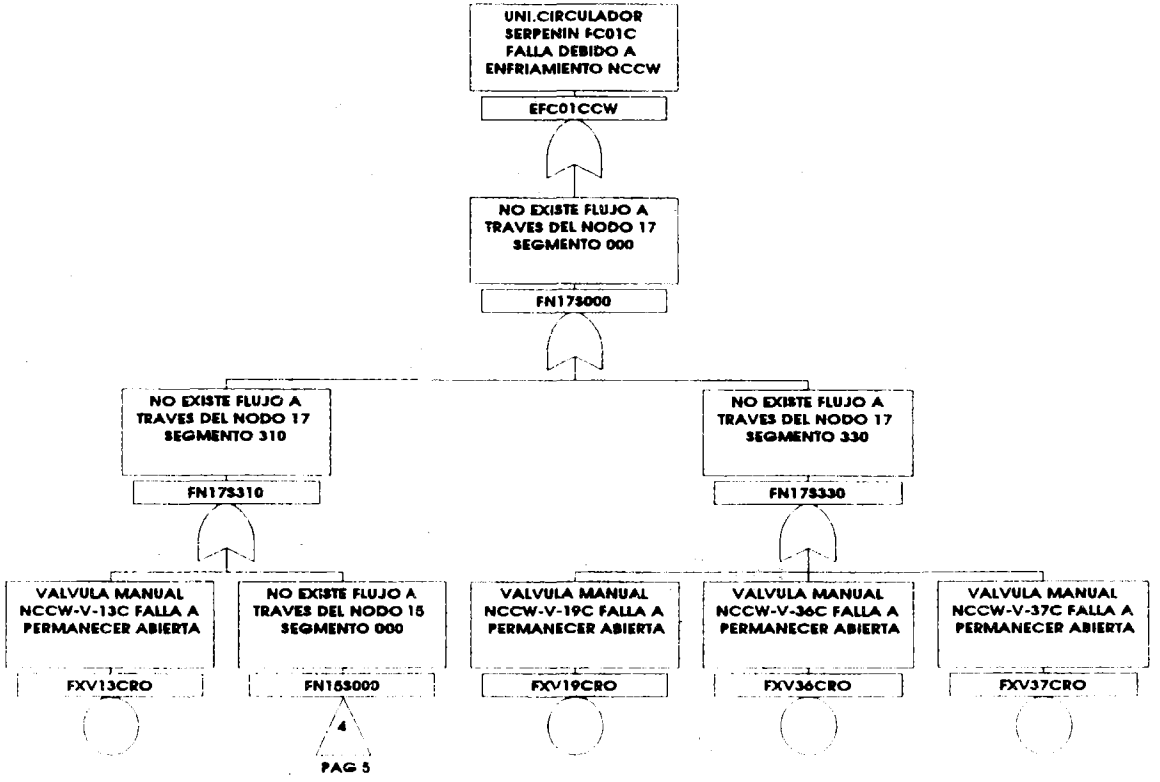


SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 13

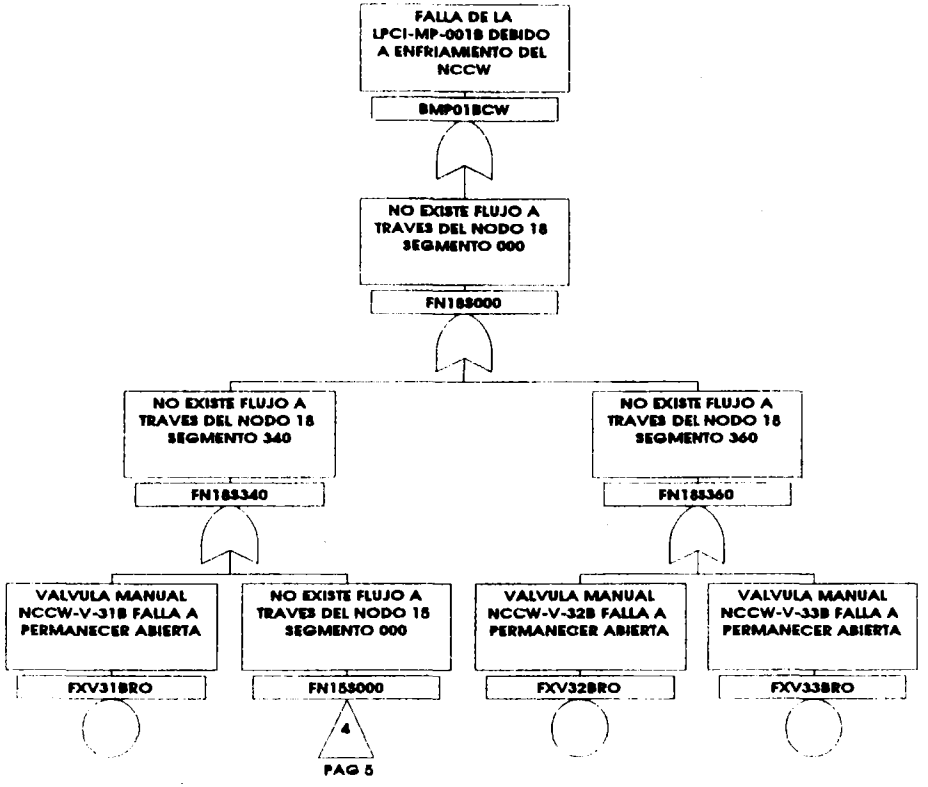
FIGURA B-32. ARBOL DE FALLAS DEL SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION II.



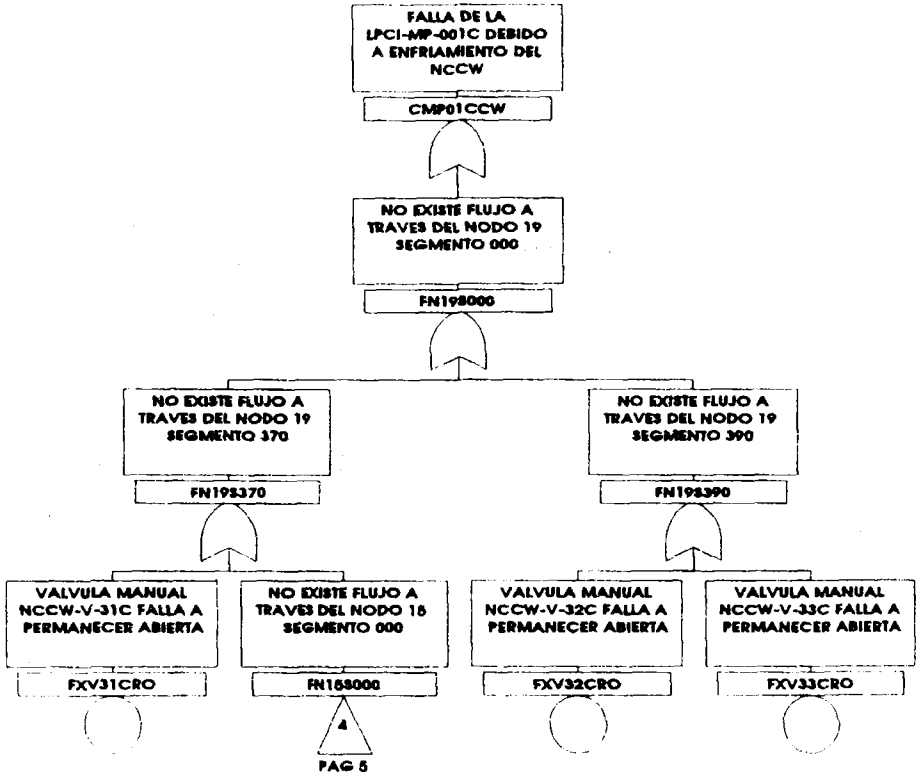
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



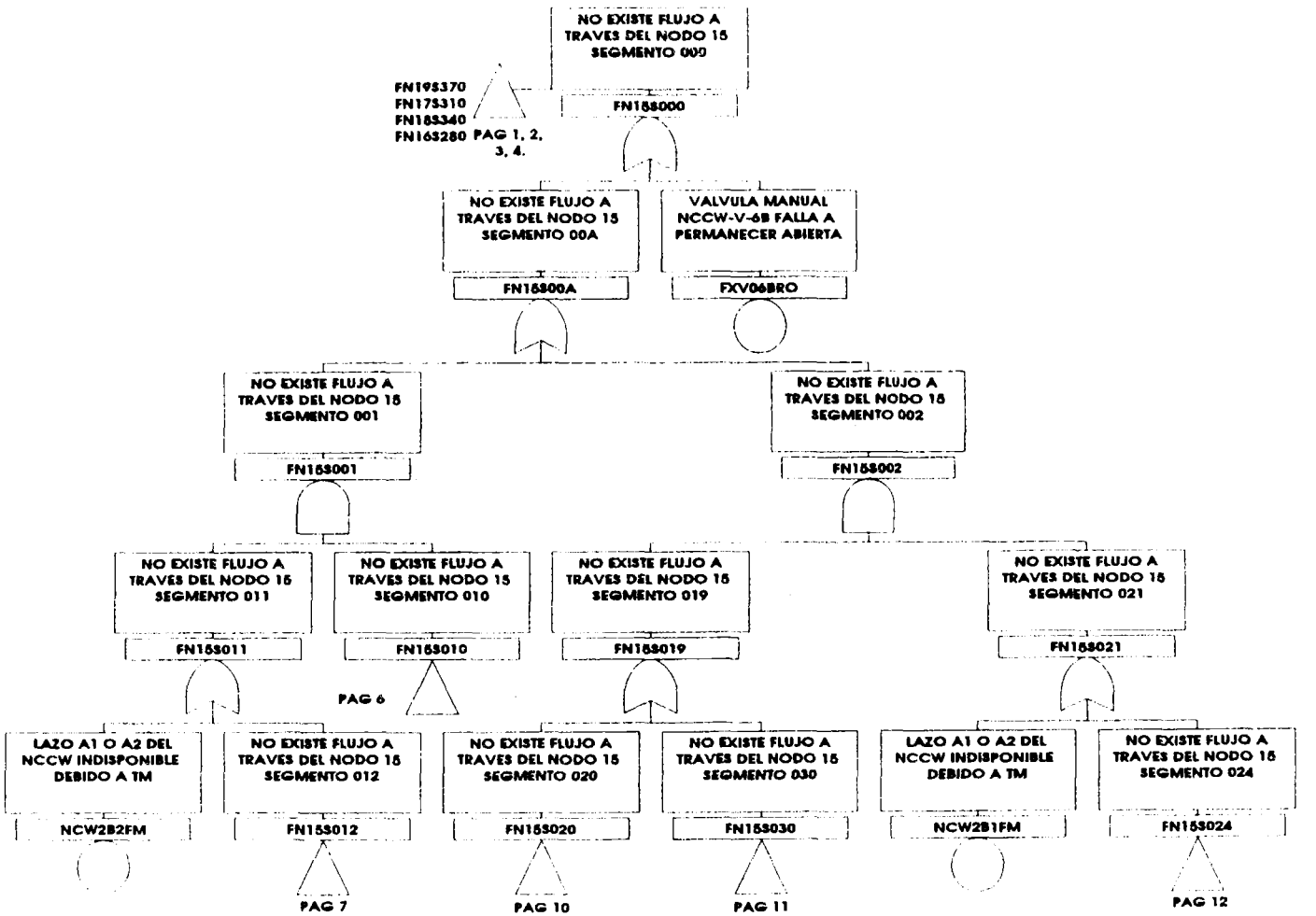
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02



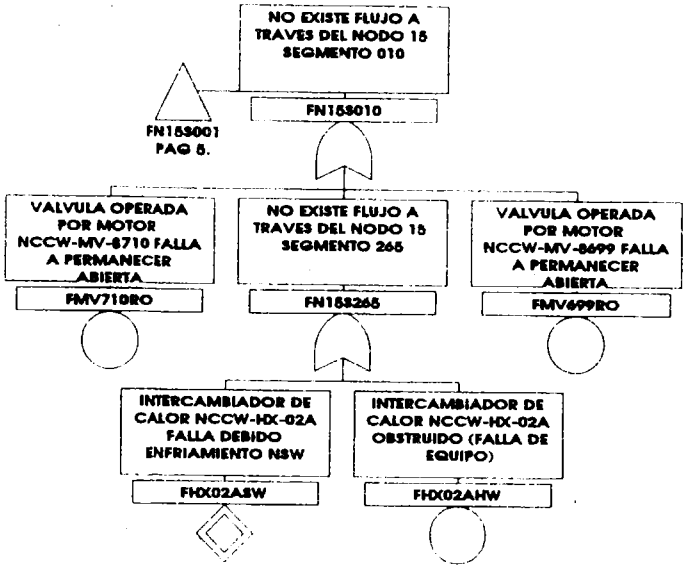
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION II	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 03**



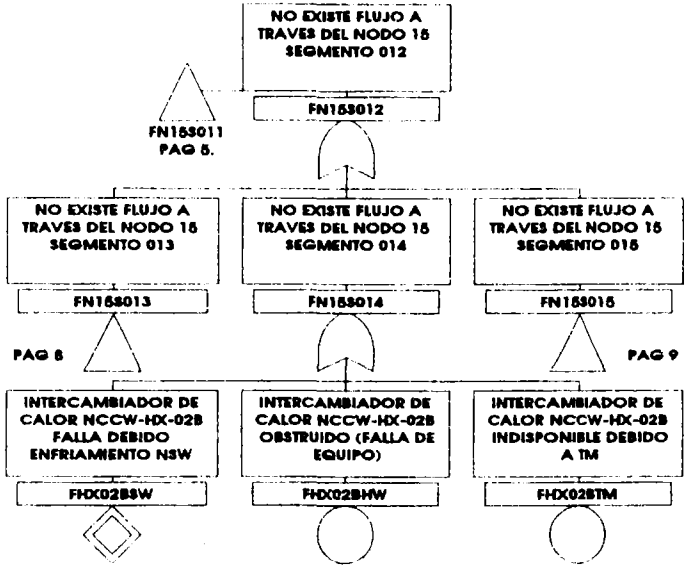
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04



SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 05

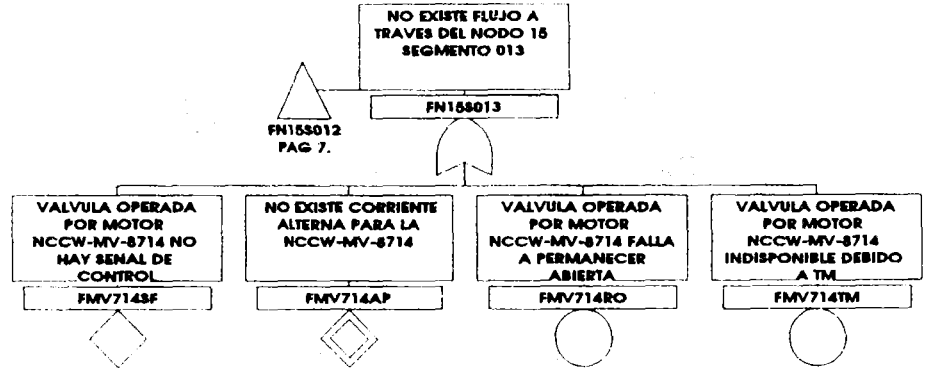


SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 06

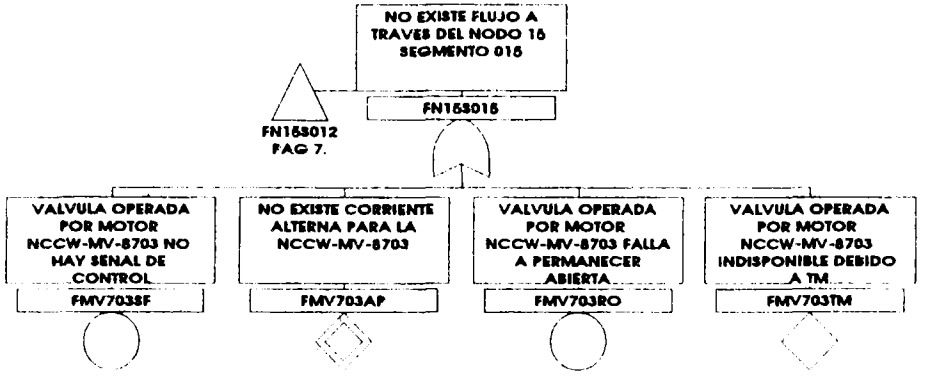


B-450

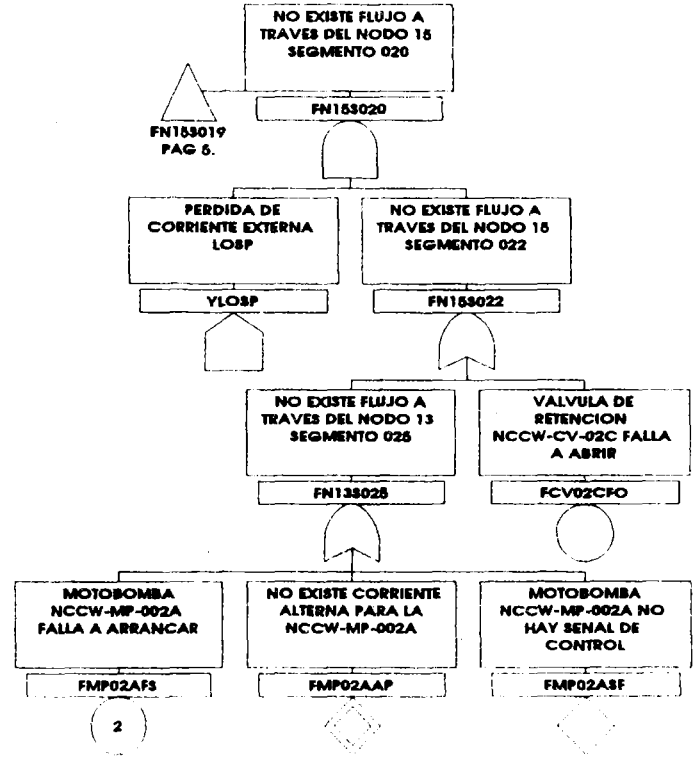
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION II	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 07**



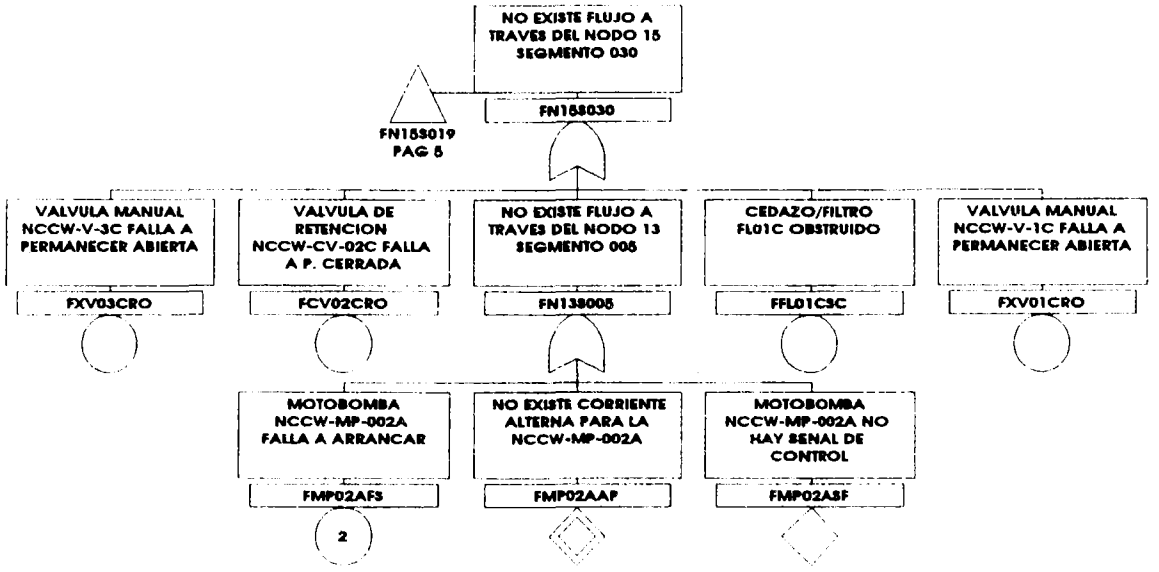
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 08



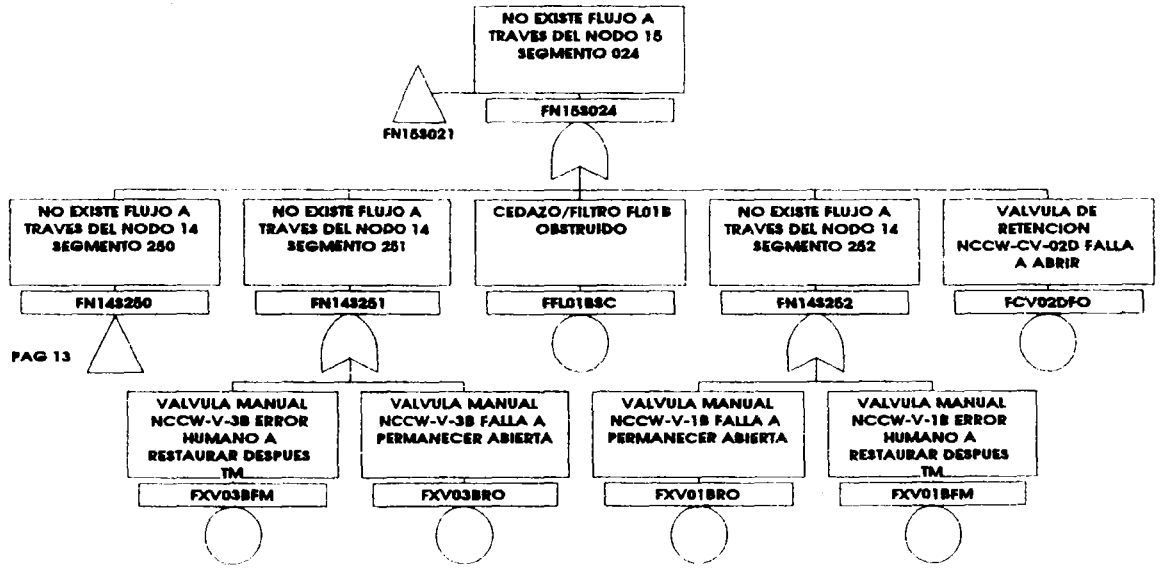
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION II	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 09**



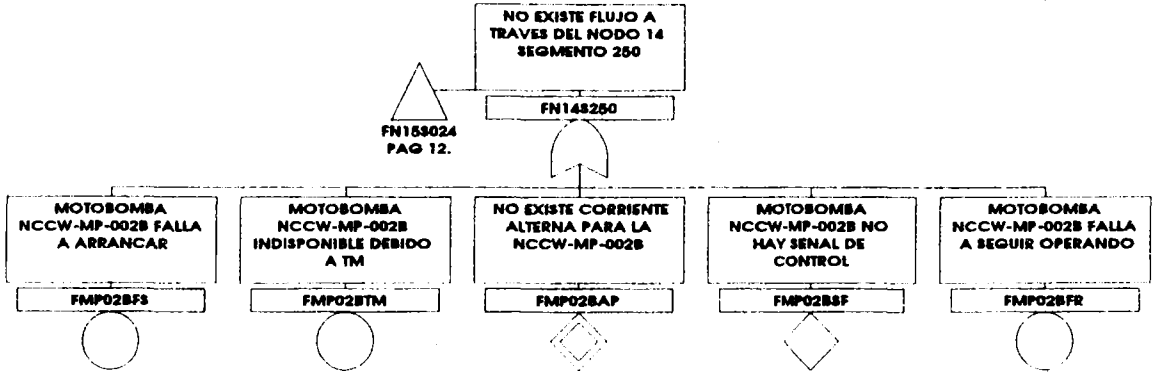
SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 10



SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 11

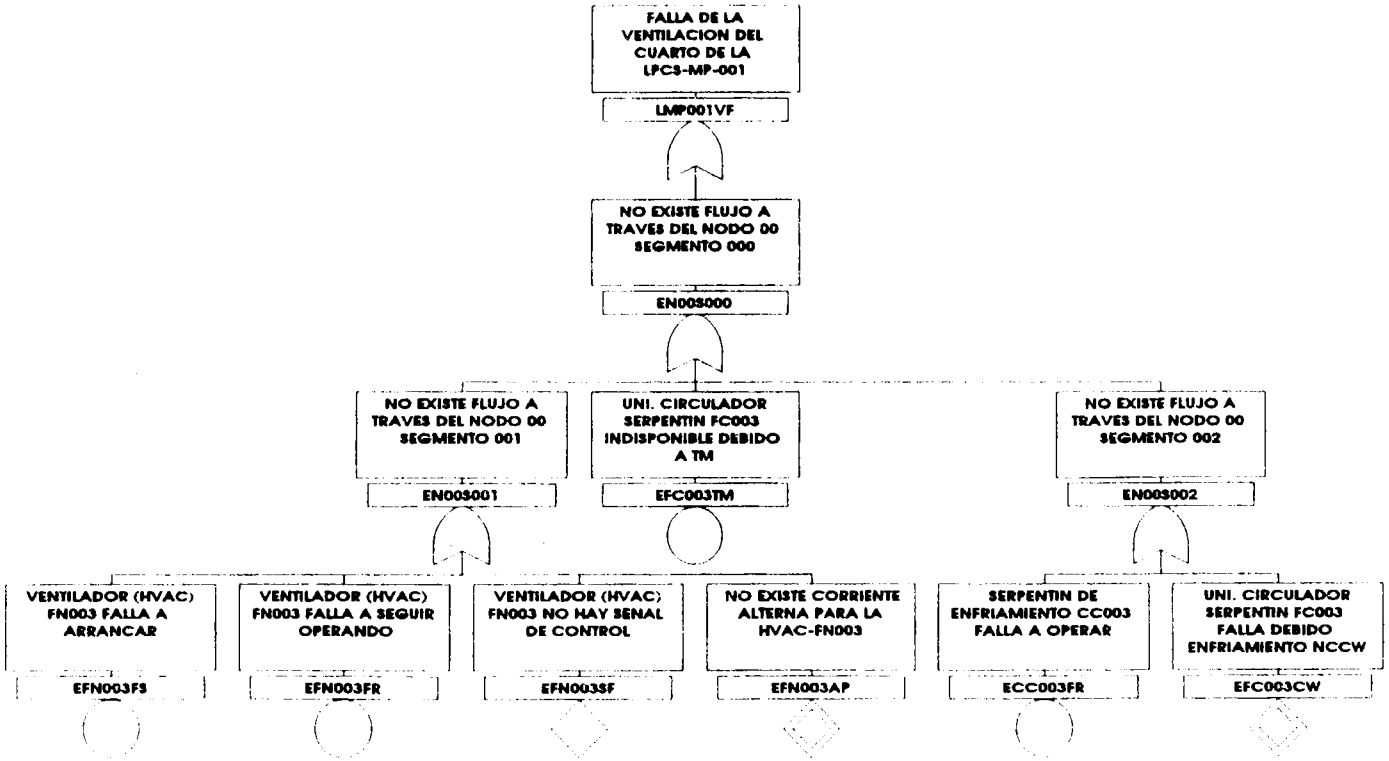


SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 12

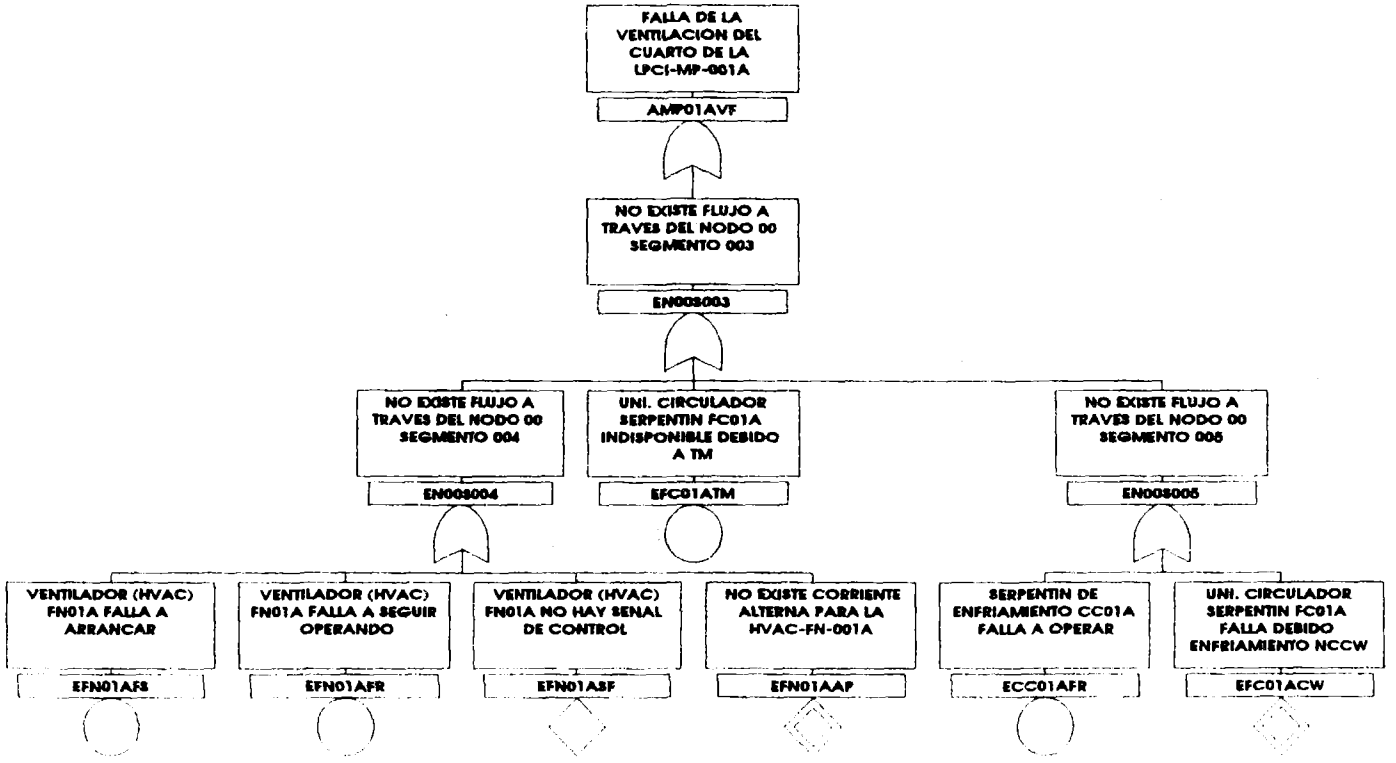


SISTEMA CERRADO DE AGUA DE ENFRIAMIENTO NUCLEAR (NCCW) DIVISION II	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 13**

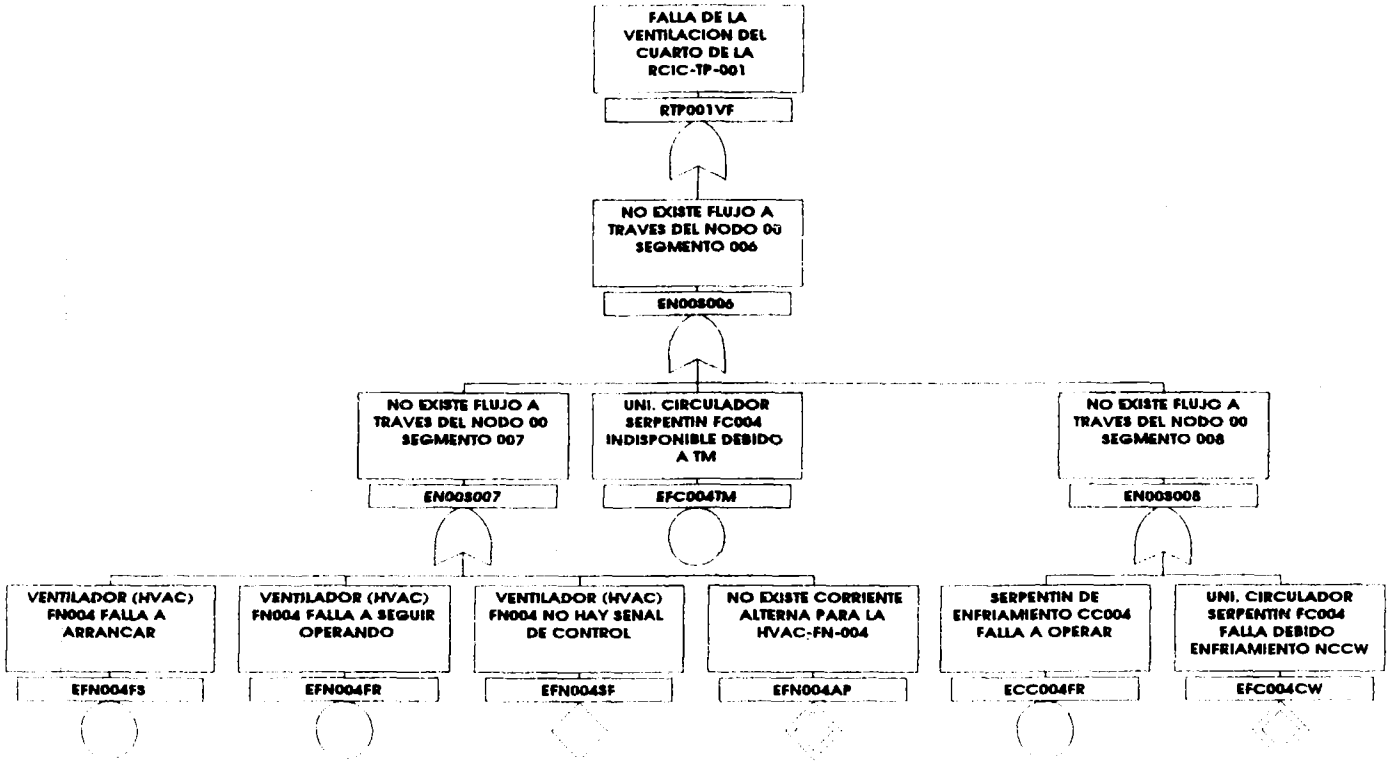
FIGURA B-33. ARBOL DE FALLAS DEL SISTEMA DE VENTILACION Y AIRE ACONDICIONADO (HVAC) DIVISION I.



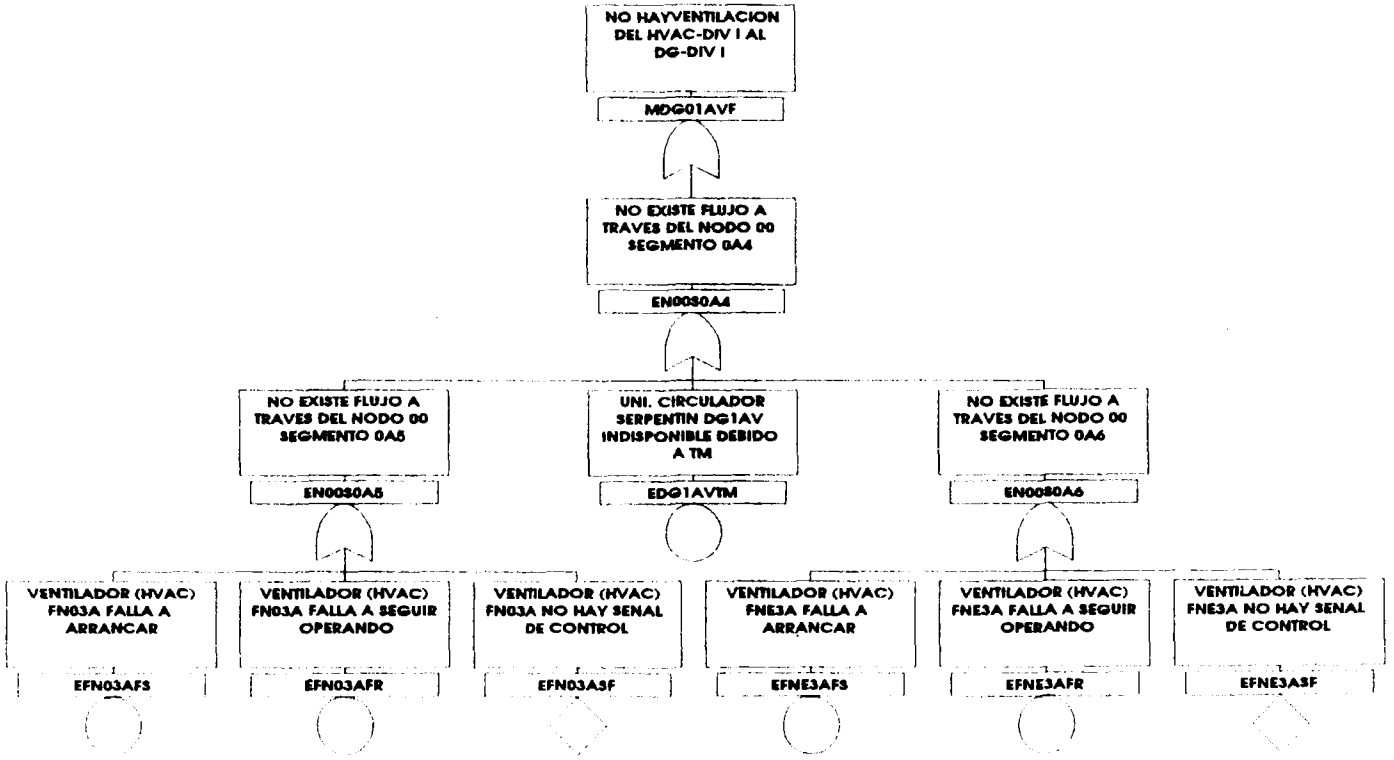
SISTEMA DE VENTILACION Y AIRE ACONDICIONADO (HVAC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01



SISTEMA DE VENTILACION Y AIRE ACONDICIONADO (HVAC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02

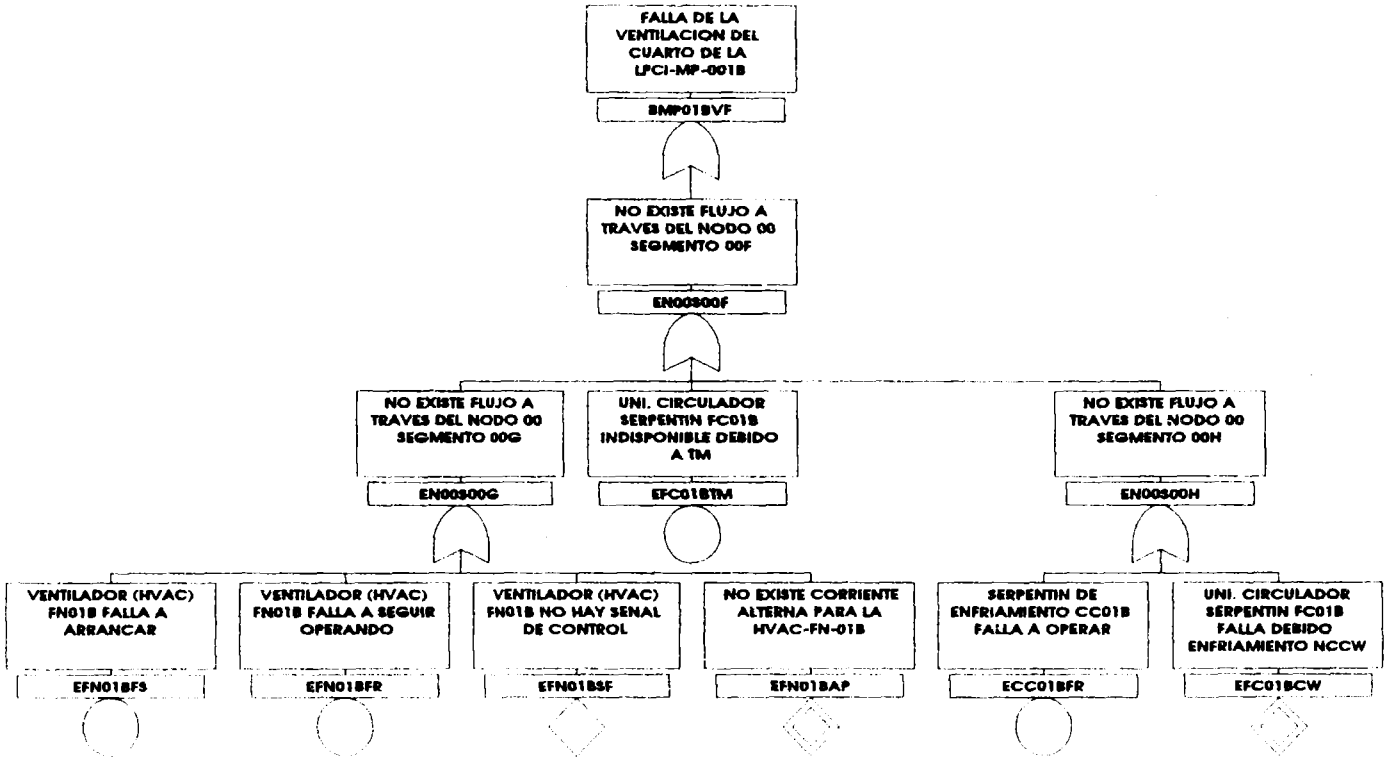


SISTEMA DE VENTILACION Y AIRE ACONDICIONADO (HVAC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03

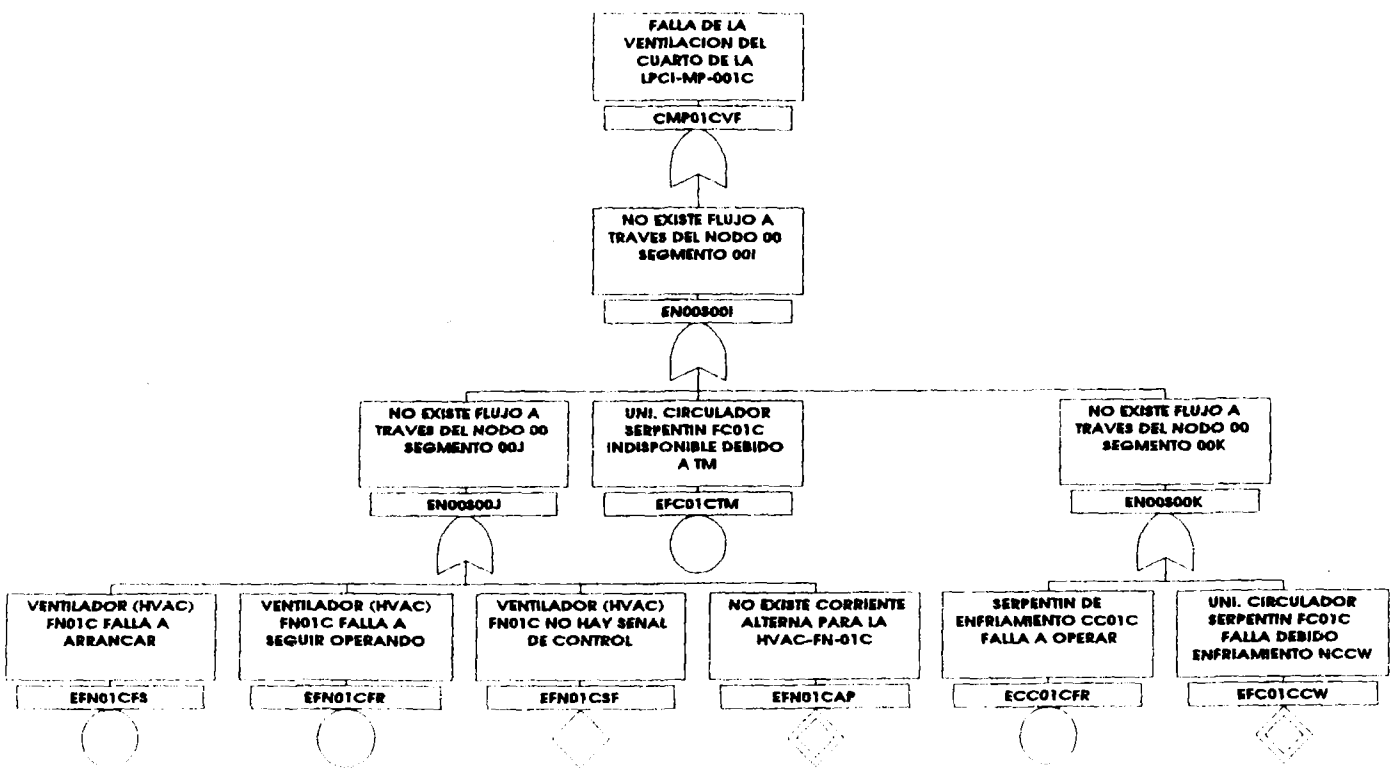


SISTEMA DE VENTILACION Y AIRE ACONDICIONADO (HVAC) DIVISION I	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 04

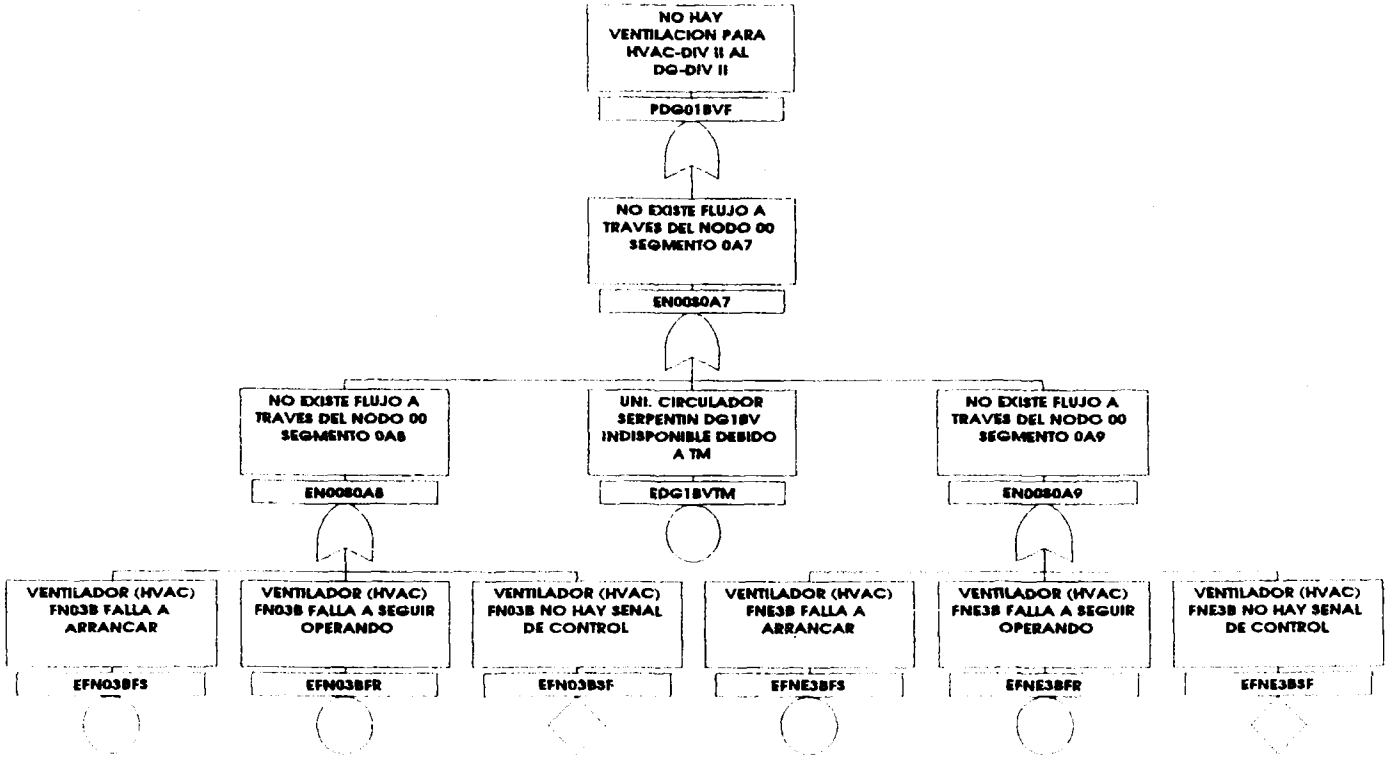
FIGURA B-34. ARBOL DE FALLAS DEL SISTEMA DE VENTILACION Y AIRE ACONDICIONADO (HVAC) DIVISION II.



SISTEMA DE VENTILACION Y AIRE ACONDICIONADO (HVAC) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 01

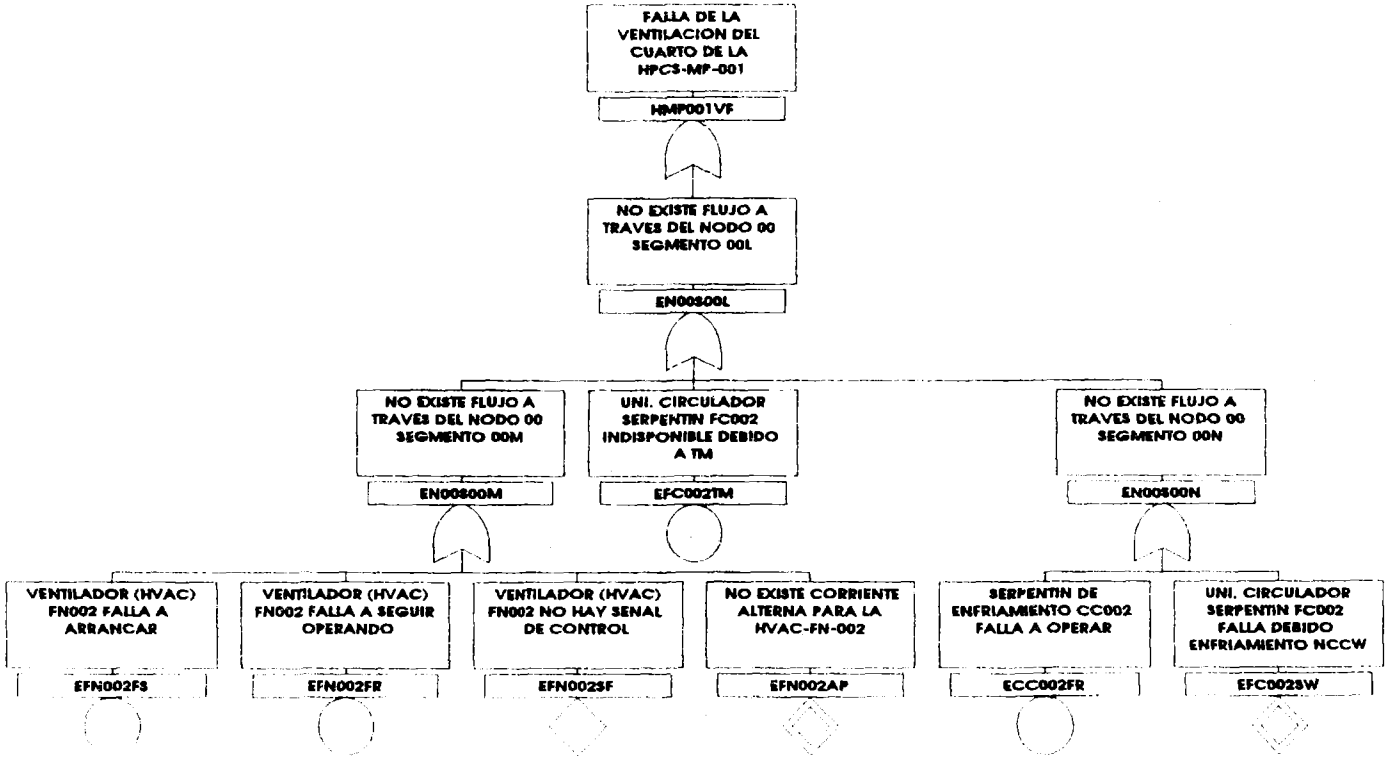


SISTEMA DE VENTILACION Y AIRE ACONDICIONADO (HVAC) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02

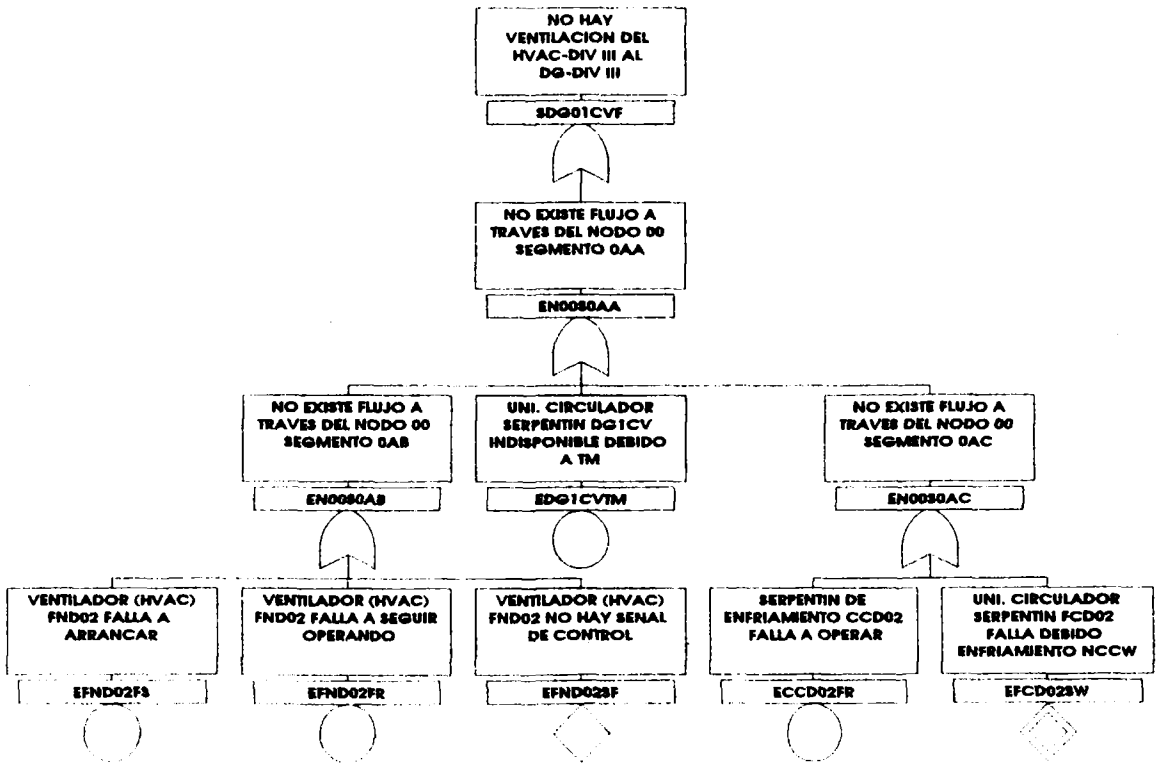


SISTEMA DE VENTILACION Y AIRE ACONDICIONADO (HVAC) DIVISION II	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 03

FIGURA B-35. ARBOL DE FALLAS DEL SISTEMA DE VENTILACION Y AIRE ACONDICIONADO (HVAC) DIVISION III.

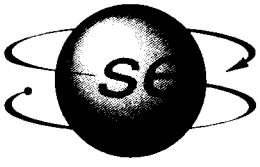


SISTEMA DE VENTILACION Y AIRE ACONDICIONADO (HVAC) DIVISION III	**CNSNS/GTRYS**	**AEI-CNLV-U1**	**PAGINA 01**



SISTEMA DE VENTILACION Y AIRE ACONDICIONADO (HVAC) DIVISION III	CNSNS/GTRYS	AEI-CNLV-U1	PAGINA 02





SECRETARIA DE ENERGIA