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END OF TOUR REPORT

NORTH CAMEROON SEED MULTIPLICATION

PROJECT - PHASE II

Prepared by Gilles Iougnant  
DEVELOPMENT ASSISTANCE CORPORATION

June 1991

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## 1. INTRODUCTION

This report covers the eight years I spent as Agricultural Machinery Advisor (1983-91) on the North Cameroon Seed Multiplication Project, "Projet Semencier Nord", part of the parastatal MIDEVIV within the Ministry of Agriculture. This project cosponsored by the Cameroon and American (USAID) government can be characterized as both a classic institution building and rural development activity for the entire North of the country as well as a agricultural production project with an emphasis on mechanization..

The project which began in 1975 was as mentioned above, co-financed by USAID and the Government of Cameroon. It was set up to strengthen the Ministry of Agriculture's agency - "Mission de Développement des Cultures Vivrières et des Semences" - (MIDEVIV)'s capabilities in seed technology and distribution of improved seeds.

An evaluation of the first phase conducted in 1980 indicated that the objectives were too ambitious and that seed quality had not been sufficiently addressed.

As a result of these observations the project was redesigned in 1982. Basic operational issues were re-examined and well defined technical objectives elucidated.

A Request for Proposals (RFP) for a second phase was elaborated and the Development Assistance Cooperation (DAC) was appointed contractor and technical assistance provider for USAID.

The immediate objective of this phase was to produce and make available good quality improved seeds of corn, sorghum, peanuts and cowpeas to 163,000 small scale farmers in three Provinces in northern Cameroon.

The DAC technical assistance team arrived in 1983. Provision was made for the employment of an Agricultural Machinery Advisor as a member of this team. The author arrived to take up the position in August 1983.

By this time a work plan established by DAC and Projet Semencier (PROSEM) clearly stated that agricultural machinery activities from the first phase should be continued at only two locations, Sanguéré and Guétalé.

The first year's work plan (1984) emphasized planning conception and technical assistance. The agricultural campaign that year was not terribly successful due to a lack of machinery and the late arrival of spare parts ordered.

Based on an analysis of the year's results and given the limited financial resources of PROSEM, it was decided that full mechanization would be limited to Sanguéré and only one seed conditioning plant would be constructed.

A proposal for additional funding to improve operations of the workshop was approved by USAID and DAC. This allowed for procurement of equipment and now the facility is capable of fabricating small spare parts and acts as a quasi-machine shop. Today, the workshop ranks among the most effective in North Cameroon.

The objectives of the machinery section were successfully implemented and the outputs achieved.

Satisfactory training of PROSEM staff was undertaken to ensure sustainability of the workshop after withdrawal of DAC technical assistance.

## 2. THE DUTIES OF THE AGRICULTURAL MACHINERY ADVISOR.

The terms of reference of the machinery advisor as contained in the contract SB-3-88-1-2569 are listed in annex I. However, I have summarized the duties below in five broad categories.

- 2.1 Establishment of machinery maintenance and repair workshop at project site.
- 2.2 Development of preventive maintenance program for machinery.
- 2.3 Establishment of inventories at farm site for spare parts for vehicles and equipments.
- 2.4 Training.
- 2.5 Procurement.

### 2.1 Establishment of Machinery Maintenance and Repair Workshop at Project Site.

The workshop that existed at the end of the first phase also served as a garage for farm machinery and fertilizer storage.

A proposal to reorganize the workshop so that the fertilizer and machinery could be stored separately was discussed with management. A separate workshop would considerably increase the effectiveness of the machinery advisor's tasks and would allow for more efficient management and record keeping of the inventories of machinery and spare parts as well as facilitate training.

The proposal was approved; a storage facility for stocking fertilizer was constructed and a parking lot for machinery was established in the area outside the workshop.

A list of machinery carried over from the first phase is contained in Annex II. In general, there were very few tools available from the first phase.

The next step was to construct work benches and washing troughs. A spare parts storage facility and an office were also set up within the existing structure.

The decision to up-grade the workshop necessitated additional storage space. Therefore, in 1986 a new storage facility for spare parts and materials was constructed by PROSEM.

Owing to unavailability of spare parts and the delay experienced in receiving parts ordered from abroad, the workshop was equipped to manufacture small simple spare parts. The fabrication of equipment soon became a routine part of our daily activity.

Among other equipment fabricated on-site at the workshop, specially manufactured boxes were mounted on plows to remove debris from the field during plowing. Additionally, a chisel was dismantled and used to manufacture a row marker mounted on the rolling cultivator. However the most ingenious item manufactured in the workshop was the "hole puncher". This piece of equipment was designed in collaboration with Dr. Gaddis, soil conservation specialist.

Its function was to dig small inter row reservoirs after the soil has been loosened with a chisel. The reservoirs serve to hold rain water for use by the plant.

The machinery advisor also collaborated in building the weather station at Sanguéré.

By 1987, the workshop was fully equipped with materials, equipments and trained personnel to conduct timely repairs and maintenance without outside intervention.

## 2.2 Development of Preventive Maintenance Program for Machinery.

Preventive maintenance is a key success factor for any mechanized agricultural enterprise. The objective is to prolong longevity of the equipment and machines by replacing parts before these parts become completely worn out.

Criteria for timely replacement of spare parts are based on manufacturer's recommendations, local conditions and good judgement.

Manufacturer's recommendations are more or less standardized for various climatic regions. Therefore they only serve as guidelines to be modified to suit specific locations.

A study of local conditions, in conjunction with manufacturer's guidelines determines preventive maintenance such as the frequency at which engine oil and coolant are changed. The two important determining factors in Northern Cameroon are dust and heat. For example, the maximum temperature at which equipment is tested by most manufacturers is about 36°C. Here in the North of Cameroon however temperatures average around 40°C especially at harvest time. This means that the frequency for oil change is much greater.

In addition to local environmental conditions, the availability and quality of products such as oil must be considered.

Close monitoring, especially of delicate parts such as oil and hydraulic pumps is essential to establishing a good preventive maintenance program.

Based on the factors cited above the following program was adopted for oil change:

All Tractors:	200 Hrs or 3 months
Trucks:	3,000 Km
Light vehicles:	2,500 Km
Generators:	200 Hrs or 3 months

At the onset of the project, the quality of the technicians were a problem. They were undisciplined and had a low level of scholastic aptitude. This problem was overcome during the life of the project through intensive on the job training and given the necessary equipments and materials, these locally trained personnel are now quite capable of maintaining the machines in good working condition.

The follow-up of the preventive maintenance program is included in Annex III.

### 2.3 Establishment of Inventories at Farm Site for Spare Parts:

A simple but effective inventory system was also established, taking into consideration the level of education of the technical personnel available for the job.

Movement of all spare parts was recorded on cards at the farm with a duplicate. These cards (fiches) contained all the necessary information about the equipment and the movement of spare parts and was kept by the accountant.

A secretary/store keeper was trained to make the entries. This was done between February 1984 and August 1988 when he was assigned other duties. None the less, he was allowed time to bring the books up to date two or three times during the year. Movement of spare parts in between these periods were recorded by workshop-mechanics. A copy of a completed and blank fiche can be found in Annex IV.

There are also fiches kept for each machine. On these fiches are included a description of the machinery, the PROSEM inventory number, the serial number and the PIOC number if purchased by USAID. An example of this fiche can be found in Annex V.

## 2.4 Training.

The shortages of trained manpower is among the most serious impediments to agricultural development in Africa. PROSEM's training program contributes toward alleviating this problem not only for the project's activities but also has contributed to training technicians who will transfer their skills to other private or public sector activity or for their own personal benefit.

The training program in agricultural machinery aimed at developing national capabilities to ensure continuity when technical assistance would be phased out.

The program was comprised in three parts:

- (a) Overseas training
- (b) Group training
- (c) On-the-job training.

### 2.4.1 Overseas Training.

Two technicians, Messrs. Ichie Bissie and Eyebe received two year technical training in the United States. The former studied at "Southeast Community College" in Lincoln, Nebraska. Part of his studies included participation in a specialized mechanics training program at Massey-Ferguson in Nebraska, brand name of most of the project's tractors. He was also a member of a team of six from the project, to participate in a training course on seed conditioning, organized by Pioneer Seed Company in Egypt.

Mr Ichie Bissie is now chief mechanic at Sanguéré and is being considered for employment in the same capacity by Pioneer.

Mr Eyebe studied at "Abraham Baldwin Agricultural College in Georgia". He was MIDEVIV's chief mechanic at the Ntui seed production center.

The supervisor of mechanized cultivation at Sanguéré, Mr Nyagaye attended a three month training course in Montpellier, France studying the operational management of agricultural machinery.

Mr Mahop, general-mechanic/lathe-operator, attended a two month course on blacksmithing, organized by the FAO in Zimbabwe. During this time he acquired various skills in metal working and since his return has organized a training program for personnel in the Sanguéré workshop and from several villages.

#### 2.4.2 Group Training.

Basic training for one to three months has been organized since 1986 for tractor operators and mechanics from all PROSEM centers in the country as well as technicians from the Regional college in Maroua and the University of Dschang. Contents of the course focused on the following topics:

- general organization of machinery
- ordering and storage of spare-parts
- use of inventory cards and record keeping
- tractor adjustments
- electric circuits of tractors
- cleaning of injectors
- assembly and adjustment of Pneumassen planters
- assembly of disk plows
- principles of preventive maintenance

In addition the Machinery Advisor provided training for employees in other projects such as The Experimental Farm in Karewa, The Institute for Agronomic Research (IRA) and The Zoological Institute (IRZ). Assistance was also given to a private farm, MATSCAM located in N'Gaoundéré.

### 2.4.3 On-the-job Training....

On-the-job training occupied a large part of the Machinery Advisor's time beginning directly from the inception of the project. A total of 14 full time staff at Sanguéré were trained in the following areas of specialization:

- General mechanic and preventive maintenance (1)
- General mechanic and diesel engine maintenance (1)
- Automobile and Industrial electricity (1)
- Soldering (1)
- Tractor operations & preventive maintenance (2)
- Tractor operations (6)
- Truck driving & maintenance (1)
- Carpentry (1)

Activities of Sanguéré workshop staff was not limited to the reparation and maintenance of equipment. In collaboration with the agronomist and soil conservation specialist, the following operations were carried out: land clearing, soil cultivation, planting, herbicide and fertilizer application, maintenance of sprayers, construction of terraces and diversion canals for erosion control.

To carry out these operations effectively, continuous training of full time regular staff was necessary especially in the area of sprayer calibration and fertilizer application.

Chemical control of weeds is an established and necessary part of reducing production costs and maximizing yield. Calibration of sprayers permits the establishment of the quantity of liquid to be sprayed on a given area. Sprayer calibration depends on the percentage of active material contained in the chemical, the quantity of water available at the site, the type of spray nozzle and the speed of the tractor.

Taking the above listed criteria into consideration, it was recommended to apply the following herbicides, LASSO GD, LASSO EC and GRAMOXONE at the rate of 5 liters of product in 200 liters of water by hectare. For this quantity, the tractor should be operated in third gear with the motor running at 1750 rpm. This recommendation is valid for all sprayer in operation at Sanguéré.

After spraying measures were taken to clean sprayer tanks and flush nozzles with clean water. Tractor operators and technicians also learned the importance of safety precautions in handling chemicals. Gloves and protective clothing were worn.

Herbicides were ordered at the beginning of each season to reduce storage time since the prevailing high ambient temperatures reduce the efficacy of such chemicals.

Two methods were tried for fertilizer application, localized and broadcast. The first method was adopted because it is economical and the fertilizer is placed right at the spot where it is readily available to the plant. All planters were equipped with a fertilizer box and applicator. Calibration was based on the dosage required by each crop per hectare.

## 2.5 PROCUREMENT

The Machinery Advisor played a key role in establishing which machinery and spare parts needed to be procured. While for the most part, these procurements were handled either directly by USAID, MIDEVIV or early on in the project, AAPC, the Machinery Advisor was intimately involved in establishing the criteria for these procurements as well as in the selection process of the equipment. Additionally, working closely with his counterparts, he formulated a procurement methodology and purchasing procedures for MIDEVIV.

For procurements purchased with USAID funding, USAID standards and regulations had to be strictly adhered to. This included validating the equipment delivered and writing up a Receiving and Inspection Report for submission to USAID Yaounde. A sample Receiving and Inspection Report can be found in Annex VI while the inventory list of all equipment purchased under USAID PIOC is in Annex VII.

The situation was however different with MIDEVIV where there were initially no set procedures. In the majority of cases, PROSEM submitted procurement recommendations which had been reviewed by the Machinery Advisor to MIDEVIV.

MIDEVIV then directly acted on these procurement recommendations, for the most part purchasing the specific equipment suggested.

With a view to incorporating a procurement system more closely aligned with USAID (or international) standards, the Machinery Advisor assisted PROSEM and MIDEVIV in the establishment of a request for offers and bid system for major purchases. He also played a key advisory role in the selection of the best offer through these bids.

### 3. LESSONS LEARNED

A key lesson learned here is that mechanized agricultural production can be done here in North Cameroon. This indeed was one of the driving interests of the Cameroonians upon the establishment of this project in 1982 and it is a goal that has been effectively realized.

How was this goal realized and what lessons can be learned that might be relevant to future development activity ?

It is clear to the author that the key success factor in achieving sustainable mechanized agricultural production was the establishment of a well equipped workshop through which the repair and maintenance of the agricultural machinery was ensured on an expedient and cost effective basis.

One might ask however, what made this project successful in that regard ? Other agricultural production projects incorporate a workshop element and they are not always as successful.

It is considered that it was the discipline and organization established at the workshop as well as the ability to train capable counterparts in both management and technical skills that enabled this project on a year to year basis to mechanically plant and harvest 150-200 hectares of agricultural seed production.

This discipline meant ensuring that the equipment purchased for use on the project was well maintained and was not lent out for use by third parties or other interested individuals or projects.

Rigid maintenance schedules were adhered to and even in the later part of the project when funding was limited, mechanized agricultural production did not suffer as there had been built up an internal capability to fabricate small spare parts to keep the machinery running as well as a disciplined work ethic that enabled the workshop to operate effectively with limited funding.

#### **4. RECOMMENDATIONS**

Please find below specific recommendations for similar agricultural production projects which are strictly the opinion of the Mechanical Advisor.

##### **4.1 Farm Selection Site**

It is considered essential that for future agricultural production projects, sufficient time and attention should be given to the selection of the farm site. Furthermore, the funding agency should have a say in this selection process.

The terrain and soil conditions at any given site play an extremely important role in determining the viability of successful agricultural production. With mechanical production this becomes even more important as it is extremely difficult to mechanically cultivate and harvest in uneven and hilly terrain.

#### 4.2 Agricultural Engineering

It is considered that agricultural engineering aspects should be given a higher priority in future agricultural production projects.

A comprehensive plan based on an effective selection site and an accurate topographical study should be established which will sustain the integrity of the farm and control soil erosion while assisting efforts to promote soil fertility.

This plan should include the establishment of permanent access roads to all parts of the farm as well as a soil conservation and maintenance program which might include such aspects as contour lines, parallel terraces and construction of dams.

#### 4.3 Operational Budget

For the most part, the operational budget of this project was in the hands of the Cameroonian counterparts. While the author does not suggest that the donor agency take responsibility for the entire operational budget of such a project, it is considered that in a few key areas financing flexibility should be provided to the technical assistance team to enable them to ensure minimum production operations when the host government cannot meet their obligations.

#### 4.4 Choice of Operating Partner

It is considered that a more careful selection process be established by donor agencies in their choice of partners to carry out their agricultural development objective.

For the most part, donor agencies have worked with host government agencies in these activities. However as can be seen with the project in question, this has not always been the most successful avenue to achieve sustainable development.

It is suggested that consideration be given to establishing linkages with private operators, ranging from independent local farmers to large agro-industrial entities such as Pioneer, in carrying out agricultural development objectives.

#### 4.5 Procurement

It is considered that better of coordination of activities and efficiency would be achieved by assigning procurement responsibilities to the technical assistance contractor managing the project.

#### 4.6 Training

Based on the experience derived from his eight years on this project as well as previous agricultural production assignments in other locations, the Machinery Advisor considers that a higher priority should be placed on the technical training of low to mid-level counterparts.

The suggested methodology for this training is to use technical school and colleges rather than academic universities and to ensure that both civil servants and local workers have an equal opportunity to benefit from this training.

EMPLOYMENT AGREEMENT

This AGREEMENT MADE AS OF September 1, 1989

Between

DEVELOPMENT ASSISTANCE CORPORATION a Maryland Corporation  
having its place of business at 1415 11th Street, N.W., Washington,  
D.C. 20001, hereinafter referred to as "DAC"

And

GILLES TOUSIGNANT  
B.P. 1080  
Garoua, Cameroon

Passport No. EM 102675 (Canadian)

Social Security No. 231-568-635 (Canadian)

Hereinafter referred to as "Employee".

WITNESSETH THAT:

IN CONSIDERATION OF the promises and mutual covenants and agreements herein contained, the parties agree as follows:

1. SCOPE OF WORK

Subject to the terms and conditions hereinafter provided, DAC engages the Employee as Agriculture Machinery Advisor for the North Cameroon Seed Multiplication Project, hereinafter referred to as the Project or Projet Semencier. DAC is the contractor in this USAID-funded project in Cameroon. The goal of this project is to increase the real income and productivity of 163,000 farm families in Northern Cameroon. Its purpose is to assist the Government of the Republic of Cameroon (GRC) to create an institution which will produce adequate quantities of improved peanut, corn, sorghum, and cowpea seed for distribution to farmers; and the Employee desires employment with DAC for work under the project. The duties and tasks to be performed by the Employee are specifically described below:

A. Supervise operation of the project's machinery and vehicle maintenance and repair workshop.

B. Implement a preventive maintenance program for machinery and vehicles.

C. Adjust and repair all seed conditioning and field equipment.

D. Calibrate all fertilizer and pesticide applicators and establish procedures for the safe storage, handling, and

application of fertilizers and pesticides.

E. Provide specification documents for buying agricultural equipment and develop procedures and contacts for ordering equipment and spare parts from outside Cameroon.

F. Analyze the topography of the fields and develop and maintain the soil conservation program.

G. Implement a training program for Cameroonian mechanics, drivers, pesticide applicators, etc. which addresses all technical aspects of Employee's scope of work.

H. Determine ways of reducing the cost of production and conditioning of seed.

I. Establish inventories at the farm site for the necessary spare parts for vehicles and equipment.

J. Develop contacts for procuring commodities locally and ensure that warranties, guarantees, and service plans are fulfilled.

K. Advise Cameroonian and DAC personnel on equipment and machinery-related matters as they relate to the agronomic aspects of the 1989, 1990, and 1991 agricultural campaigns at Projet Semencier.

L. Assist the Seed Quality Control Specialist with determining the appropriate fertilizers and pesticides for the agricultural campaigns and ensure that they arrive on time.

M. Assist other DAC team members and Cameroonian personnel in identifying possible areas of private sector involvement in the project and document these in the appropriate reports.

N. Assist with the maintenance of the bilingual technical library and make recommendations for procuring books and other technical materials (in English and French) and equipment.

O. Assist the Chief of Party with the development of an automated program for monitoring project activities. This program will be used to monitor DAC's performance and progress toward achieving the project's purpose and goal.

P. With the DAC Chief of Party, propose to USAID, Projet Semencier, and MIDEVIV methods of strengthening the relationships between Projet Semencier and research, extension, and seed distribution organizations.

Q. With the DAC Chief of Party, propose to USAID, Projet Semencier, and MIDEVIV a strategy for developing a systematic method of crop variety release.

ANNEX II

Inventory Phase One

Qty	Description
1	Tractor M-F 285
1	Tractor M-F 185
1	Tractor Ford 2600
1	Planter
1	Sprayer
1	Disk Plow
1	Disk Harrow
1	Digger
1	Peanut Combine

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PROJET SEMENCIER US-AID/RC

REPUBLIQUE DU CAMEROUN

"Paix-Travail-Patrie "

CENTRE DE SANGUERE

GARAGE DE SANGUERE

N° TRACTEUR

N° SERIE

N° MODEL

N° MOTEUR

A : 105

HEURES :	3400	3600	3800	4000	4200	4400	4600	4800
DATES :	17/05/90							

	MOTEUR							
VIDANGER	OK	--	--	--	--	--	--	--
CHANGER FILTRE	OK	--	--	--	--	--	--	--
AJUSTER CULBUTEUR								
FILTRE A AIR	OK	--	--	--	--	--	--	--
INJECTEUR TARER								
VIDANGER RESERVOIR								
CHANGER FILTRE GAS-OIL	OK	--	--	--	--	--	--	--
VIDANGER RADIATEUR	OK							
NETTOYER BATTERIE	NEW	--	--	--	--	--	--	--
TENSION COURROIE	OK	--	--	--	--	--	--	--
NETTOYER ALTERNATEUR	OK	--	--	--	--	--	--	--

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PROJET ELIMINER US--ID/RO

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CENTRE DE SANGUERE  
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GARAGE DE SANGUERE  
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87844444444444444444

REI ...  
"Elin-Davail-Pré-rie"  
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N° TRACTEUR

A : 104

N° SERIE

N° MODELE

N° MOTEUR

HEURES :	3400	3600	3800	4000	4200	4400	4600	4800
DATE :	27/12/88	30/06/89	25/04/89	25/07/89	21/01/89	21/5/89		

	<u>MOTEUR</u>							
VIDANGER	OK	OK	OK	OK	OK	OK	---	---
CHANGER FILTRE	OK	OK	OK	OK	OK	OK	---	---
AJUSTER CULBUTER							---	---
FILTRE A AIR	OK	OK	OK	---	OK	OK	---	---
INJECTEUR TIRER							---	---
VIDANGER RESERVOIR			OK				---	---
CHANGER FILTRE GAS-OIL	OK	OK	OK	OK	OK	OK	---	---
VIDANGER RADIATEUR							---	---
NETTOYER BATTERIE	OK	OK	OK	OK	OK	OK	---	---
TENSION COURROIE	OK	OK	NEW	OK	OK	---	---	---
NETTOYER ALTERNATEUR	OK	OK	OK	OK	OK	OK	---	---

1 pompe à gas-oil neuf

1. 2/12 707

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CENTRAL DE SANGUERO  
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GARAGE DE SANGUERO  
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N° TRACTEUR

N° SERIE

N° MODELE

N° MOTEUR

A : 102

HEURES :	3400	3600	3800	4000	4200	4400	4600	4800
DATES :	23/9/87	21/04/88	31/09/88	20/04/89	11/10/89	05/05/90	21/10/90	12/10/90

<u>MOTEUR</u>	:	:	:	:	:	:	:	:	:
VIDANGER	: OK	: OK	: OK	: OK	: OK	: OK	: OK	: OK	: OK
CHANGER FILTRE	: OK	: OK	: OK	: OK	: OK	: OK	: OK	: OK	: OK
AJUSTER CULBUTEUR	:	:	: -	:	:	: -	:	:	:
FILTRE A AIR	: OK	: OK	: OK	: OK	: OK	: OK	: OK	: OK	: OK
INJECTEUR TIRER	:	:	: -	:	:	: -	:	:	:
VIDANGER RESERVOIR	:	:	: -	: OK	:	: -	:	:	:
CHANGER FILTRE GAS-OIL	: OK	: OK	: OK	: OK	: OK	: OK	: OK	: OK	: OK
VIDANGER RADIATEUR	:	:	: -	:	:	: OK	:	:	:
NETTOYER BATTERIE	: OK	: <del>OK</del>	: OK	: OK					
TENSION COURROIE	: NEW	: OK	: NEW	: OK					
NETTOYER ALTERNATEUR	: OK	: OK	: OK	: OK	: OK	: OK	: OK	: OK	: OK

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REPUBLIQUE DU CAMEROUN

"Paix-Travail-Patrie"

CENTRE DE SANGUERE

GARAGE DE SANGUERE

N° TRACTEUR

N° SERIE

N° MODEL

N° MOTEUR

A : 101

HEURES :	3400	3600	3800	4000	4200	4400	4500	4800
DATES :	21/04/87	15/9/87	19/10/88	10/01/89	21/01/89			

	MOTEUR							
VIDANGER	OK	OK	OK	OK	OK			
CHANGER FILTRE	OK	OK	OK	OK	OK			
AJUSTER CULBUTEUR	OK							
FILTRE A AIR	OK	OK	OK	OK	OK			
INJECTEUR TARER	NEUF							
VIDANGER RESERVOIR	OK							
CHANGER FILTRE GAS-OIL	OK	OK	OK*	OK	OK			
VIDANGER RADIATEUR	OK							
NETTOYER BATTERIE	X	OK	OK	OK	OK			
TENSION COURRCIE	OK	NEW	NEW	NEW	OK			
NETTOYER ALTERNATEUR	OK	OK	OK	OK	OK			

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PROJET SEMENCIER US-AID/RC

REPUBLIQUE DU CAMEROUN

CENTRE DE SANGUERE

"Paix-Travail-Patrie "

GARAGE DE SANGUERE

N° TRACTEUR

N° SERIE

N° MODEL

N° MOTEUR

174 : 12004

HEURES :	50.000	57.000	64.600	67.600	72.000	78.000	84.600
DATES :	01/02/89	01/04/89	26/2/89	31/10/89	11/12/89	22/05/90	19/11/90

MOTEUR

VIDANGER	OK	OK	OK	OK	OK	OK	OK
CHANGER FILTRE	OK	OK	OK	OK	OK	OK	OK
AJUSTER CULBUTEUR							
FILTRE A AIR	OK	NEW	NEW	OK	OK	OK	OK
INJECTEUR TARER	NEUVES BOUCIES	NEUVES BOUCIES					
VIDANGER RESERVOIR							
CHANGER FILTRE GAS-OIL	OK	OK	NEW	OK			
VIDANGER RADIATEUR POMPE A EAU NEUVE	OK	OK		POMPE NEUVE			
NETTOYER BATTERIE	NEW	NEW	OK	OK	NEW	OK	OK
TENSION COURROIE	NEW	OK	OK	OK	OK	OK	OK
REPARER ALTERNATEUR	OK	OK	OK	OK	OK		

BARBU

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PROJET SEMENCIER US-AID/RC

CENTRE DE SANGUERE

GARAGE DE SANGUERE

REPUBLIQUE DU CAMEROUN

"Paix-Travail-Patrie "

N° TRACTEUR  
CE # : 4737E

N° SERIE

N° MODEL

N° MOTEUR

HEURES : Km. : 12.000 : 18200 : 24620 : 22.000

HEURES : : 04/04/88 : 27/07/88 : 21/12/88 : 05/06/89 : 29/01/90

MOTEUR

	12.000	18200	24620	22.000				
VIDANGER	OK	OK	OK	OK	OK	--	--	--
CHANGER FILTRE	OK	--	OK	OK	OK	--	--	--
AJUSTER CULBUTEUR						--	--	--
FILTRE A AIR	OK	OK	OK	OK	OK	--	--	--
JECTEUR TARER						--	--	--
VIDANGER RESERVOIR						--	--	--
CHANGER FILTRE GAS-OIL (2)	OK	--	OK	OK	--	--	--	--
VIDANGER RADIATEUR						--	--	--
NETTOYER BATTERIE	OK	OK	OK	OK	OK	--	--	--
TENSION COURROIE	--	--	OK	OK	OK	--	--	--
NETTOYER ALTERNATEUR	--	--	--	OK	OK	--	--	--

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CENTRE DE SANGUERE

GARAGE DE SANGUERE

"Pain-De-Rail-Industrie"

N° TRACTEUR

A : 1203

N° SERIE

N° MODELE

N° MOTEUR

HEURES :	1500	1800	2000	2300	2400	2500	2800	3000
DATES :		12/11/89	23/12/89	1/1/90		05/10/90		02/02/91
MOTEUR								
VIDANGER	OK	OK	OK	OK	--	OK	--	OK
CHANGER FILTRE	OK	OK	OK	OK	--	OK	--	OK
AJUSTER CULBUTER			OK			--		
FILTRE A AIR	--	--	NEW	--	--	change	--	OK ne
INJECTEUR TARER			NEW			--		
VIDANGER RESERVOIR			OK			--		
CHANGER FILTRE GAS-OIL	OK	OK	OK	OK	--	OK	--	OK
VIDANGER RADIATEUR			OK			--		
NETTOYER BATTERIE	OK	OK	OK	OK	--	OK	--	OK
TENSION COURROIE	OK	OK	NEW	OK	--	OK	--	OK
NETTOYER ALTERNATEUR	OK	OK	OK	OK	--	--	--	OK

.../...

S.T./DE/

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PROJET SEMENCIER US-AID/RC

REPUBLIQUE DU CAMEROUN

"Paix-Travail-Patrie"

CENTRE DE SANGUERE

GARAGE DE SANGUERE

N° TRACTEUR

N° SERIE

N° MODEL

N° MOTEUR

A : 1202

HEURES :	3500	3850	4000	4200	4400	4500	4800	5000
DATES :	3/8/88	23/11/88	17/04/89	23/06/89	21/03/90	30/5/90	4/9/90	12/10/90

MOTEUR

VIDANGER

CHANGER FILTRE

AJUSTER CULBUTEUR

FILTRE A AIR

INJECTEUR TARER

VIDANGER RESERVOIR

CHANGER FILTRE GAS-OIL

VIDANGER RADIATEUR

NETTOYER BATTERIE

TENSION COURROIE

NETTOYER ALTERNATEUR

OK	OK	OK	OK	OK	OK	OK	OK	OK
OK	OK	<del>OK</del>	OK	OK	OK	OK	OK	OK
OK	OK	OK	NEW	NEW	NEW	OK	OK	OK
OK	OK	OK	NEW	NEW	NEW	OK	OK	OK
OK	OK	OK	NEW	NEW	NEW	OK	OK	OK
OK	OK	OK	NEW	NEW	NEW	OK	OK	OK
OK	OK	OK	NEW	NEW	NEW	OK	OK	OK
OK	OK	OK	NEW	NEW	NEW	OK	OK	OK

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6.2.7/DH/

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PROJET SEMENCIER US-AID/RC

CENTRE DE SANGUERE

GARAGE DE SANGUERE

REPUBLIQUE DU CAMEROUN

"Paix-Travail-Patrie "

N° TRACTEUR

N° SERIE

N° MODEL

N° MOTEUR

A : 199

	1850?	Le 4/8/85: Le 12/12/85	29/11/89	12/1/90: 30/11/90
HEURES :	1850?			
ANNEES :				
<u>MOTEUR</u>				
VIDANGER	OK	OK	OK	OK
CHANGER FILTRE	OK	OK	OK	OK
ADJUSTER CULBUTEUR				
NETTOYER A AIR	OK	OK		OK
RECTEUR TARER				
CHANGER RESERVOIR		OK		OK
CHANGER FILTRE GAS-OIL		OK	OK	OK
VIDANGER RADIATEUR				OK
NETTOYER BATTERIE	OK	OK	OK	OK
GRAND BOURREAU	OK		OK	OK
GRAND BOURREAU	OK		OK	OK

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PROJET SEMENCIER US-AID/RC

CENTRE DE SANGUERE

GARAGE DE SANGUERE

REPUBLIQUE DU CAMEROUN

"Paix-Travail-Patrie "

N° TRACTEUR

N° SERIE

N° MODEL

N° MOTEUR

A : 125

	200	600	725	800	910
HEURES :	200	600	725	800	910
DATES :	10/11/86	21/09/88	07/06/89	27/02/89	19/5/90
<u>MOTEUR</u>					
CHANGER	OK	OK	OK	OK	OK
CHANGER FILTRE	OK	OK	OK	OK	OK
REUSTER CULBUTEUR					
FILTRE A AIR	OK	OK	OK	OK	OK
INJECTEUR TARER					
CHANGER RESERVOIR					
CHANGER FILTRE GAS-OIL	2 OK	OK <sup>2</sup>	OK	OK	OK
CHANGER RADIATEUR				OK	
NETTOYER BATTERIE	OK	OK	OK	OK	OK
REVISION COURROIE	OK	NEW <sup>2</sup>	?	OK	OK
NETTOYER ALTERNATEUR	?	OK	?	OK	OK

MULTIPLIERS

.../...

CLASSEMENT 1

MOUVEMENTS						MOUVEMENTS						
DATE	No Document	LIBELLE	Entrée	Sortie	STOCK	INV.	DATE	No Document	LIBELLE	Entrée	Sortie	STOCK
1/16/53	1909	B.S.		1	27		11/9/53	2141	B.S.		1	14
2/1/53	1916	B.S.		1	26		11/30/53	2157	B.S.		1	13
4/1/53	1917	B.S.		1	25		11/17/53	2169	B.S.		1	12
7/15/53	1935	B.S.		1	24							
10/20/53	1751	B.S.		1	23				PIONEER			
2/1/53	1849	B.S.		1	22		1/17/54	2478	B.S.		1	11
2/1/53	1850	B.S.		1	21		1/11/54	2481	B.S.		1	10
2/1/53	1893	B.S.		1	20							
27/1/53	1894	B.S.		1	19							
2/1/53	1895	B.S.		1	18							
2/17/53	1474	B.S.		1	17							
9/12/50	1931	B.S.		1	16							
9/15/50	1932	B.S.		1	15							

REFERENCE 166 302 171

DESIGNATION COLLECTOR MF 290

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N° DE SERIE : X 104014

N° DE MOTEUR : U 869305

DATE D'ACHAT : FEV 1984

PIO/C : 631-0023-4-20037  
PO : 20037-A

AFFECTATION : SANGUERE

N° Bloc Moteur : LF 22790 U 869305 J

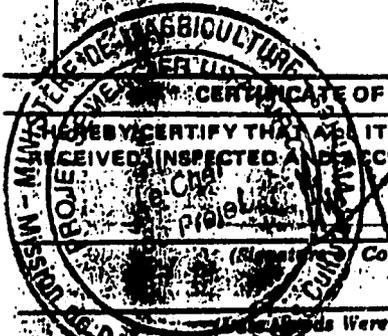
A101

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31

NAME AND ADDRESS <b>TRACTOR DE B.P. 4017 DOUALA CAMEROON</b>		<input type="checkbox"/> CONSTRUCTED <input type="checkbox"/> LOANED <input checked="" type="checkbox"/> DONATED <input type="checkbox"/> INVENTORY OVERAGE <input type="checkbox"/> (OTHER)	P.O. NO. <b>30061-A</b>
POINT OF SHIPMENT <b>DOUALA</b>		APPROPRIATION	REQUISITION NO. <b>631-0023-1-30061</b>
GBL. NO.		ALLOTMENT	TRANSFER AUTHORITY NO.
OBJECTIVE CLASS		CONTRACT NO. <b>631-0023</b>	JOB NO.

ITEM NO.	DESCRIPTION (Include Terms of Acceptance on Loans, Donations, Etc.)	QUANTITY	UNIT	UNIT PRICE	AMOUNT
1	<b>CATERPILLAR generator 3306 with the following specifications: 100 KW, 50 hertz, 1500 RPM, 200/100 volts equipped with the following:</b> <ul style="list-style-type: none"> <li>- Fitting Flexible</li> <li>- Elbow</li> <li>- Flange</li> <li>- Muffler</li> <li>- Base and Fuel Tank</li> <li>- Radio panel with automatic start stop</li> <li>- Exhaust Elbow</li> <li>- Alternator (24 V)</li> <li>- Support Battery</li> <li>- Lube oil</li> <li>- Tool group</li> <li>- Circuit breaker</li> </ul>	2			50,264.1



CERTIFICATE OF RECEIPT I HEREBY CERTIFY THAT THE ITEMS LISTED ABOVE WERE RECEIVED, INSPECTED AND ACCEPTED. (Signature)	INSPECTOR'S CERTIFICATE <input checked="" type="checkbox"/> COMPLETE <input type="checkbox"/> PARTIAL <input type="checkbox"/> FINAL <input type="checkbox"/> OVER <input type="checkbox"/> SHORT <input type="checkbox"/> DEFECTIVE MATERIAL (USE REVERSE FOR COMMENTS)
--	---

OPTIONAL FORM 127 (FORMERLY FORM JF-2) JANUARY 1975 STATE - AID - USIA

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ITEM No:	DESCRIPTION	PROSEM No:	SERIAL No:	PIOC
001	TRACTOR, MF 290	A 101	K104014	631-0023-4-200
002	TRACTOR, MF 290	A 102	B20607	631-0023-4-200
003	TRACTOR, MF 290	A 103	K104016	631-0023-4-200
004	TRACTOR, MF 290	A 104	B205010	631-0023-4-200
005	TRACTOR, MF 290	A 105	K232039	631-0023-4-300
006	TRACTOR, MF 2725	A 125	U059204	631-0023-4-400
007	PLOW, HUARD SL4014	A 206	138401	631-0023-4-300
008	PLOW, HUARD SL4014	A 207	138402	631-0023-4-300
009	PLOW, HUARD SL4014	A 208	138403	631-0023-4-300
010	PLOW, AMCO LJ6	A 210	85090371	631-0023-4-400
011	PLOW JOHN-DEERE 4600	A 212	A04600X014463	631-0023-4-400
012	DISK HARROW, HUARD	A 311	8406034	631-0023-4-300
013	DISK HARROW, HUARD	A 312	8406035	631-0023-4-300
014	DISK HARROW, AMCO F150B	A 313	85090370	631-0023-4-400
015	FIELD CULTIVATOR	A 314	1410-1007	631-0023-C-00-1
016	SUB SOILER HUARD SO 270	A 401	228401	631-0023-4-300
017	SUB SOILER HUARD SO 270	A 402	228402	631-0023-4-300
018	PLANTER PNEUMASSEN II	A 502	511440	631-0023-4-300
019	PLANTER COLE	A 505	07823	631-0023-4-401
020	ROLLING CULTIVATOR	A 601	108073	631-0023-4-200
021	ROLLING CULTIVATOR	A 602	108074	631-0023-4-200
022	ROLLING CULTIVATOR	A 603	108072	631-0023-4-200
023	ROLLING CULTIVATOR	A 604	108071	631-0023-4-200
024	PEANUT DIGGER	A 702	1313	631-0023-4-200
025	PEANUT DIGGER	A 703	1152	631-0023-4-200
026	PEANUT DIGGER	A 704	1235	631-0023-4-200
027	PEANUT DIGGER	A 705	1315	631-0023-4-200
028	PEANUT COMBINE	A 802	10041	631-0023-4-200
029	PEANUT COMBINE	A 803	10055	631-0023-4-200
030	PEANUT COMBINE	A 804	10035	631-0023-4-200
031	PEANUT COMBINE	A 805	10056	631-0023-4-200
032	CORN PICKER AVCO	A 806	312508	631-0023-4-400
033	CORN PICKER AVCO	A 807	315473	631-0023-4-400
034	SPRAYER, TECHNOMA	A 1103	6041	631-0023-4-300
035	SPRAYER, TECHNOMA	A 1104	6051	631-0023-4-300
036	GENERATOR, CATERPILLAR	A 1202	66D48248	631-0023-4-300
037	GENERATOR, CATERPILLAR	A 1203	66D48218	631-0023-4-300
038	TRAILER, NICOLAS	NO 0057 SR	0878489	631-0023-4-300
039	DRYING WAGON	A 1308	DWTL1059	631-0023-4-200
040	DRYING WAGON	A 1309	DWTL1047	631-0023-4-200
041	DRYING WAGON	A 1310	DWTL1049	631-0023-4-200
042	DRYING WAGON	A 1311	DWTL1048	631-0023-4-200
043	DRYING WAGON	A 1312	DWTL1050	631-0023-4-200
044	DRYING WAGON	A 1313	DWTL1052	631-0023-4-200
045	DRYING WAGON	A 1314	DWTL1053	631-0023-4-200
046	DRYING WAGON	A 1319	DWTL2115	631-0023-4-400
047	DRYING WAGON	A 1320	DWTL2109	631-0023-4-400
048	DRYING WAGON	A 1321	DWTL2113	631-0023-4-400
049	DRYING WAGON	A 1322	DWTL2114	631-0023-4-400
050	DRYER BLOWER	A 1401	LI53-1012	631-0023-4-2003
051	DRYER BLOWER	A 1402	LI52-1009	631-0023-4-2003
052	DRYER BLOWER	A 1403	LI52-1014	631-0023-4-2003
053	DRYER BLOWER	A 1404	LI52-1013	631-0023-4-2003
054	PEANUT CLEANER, HOBBS	A 1502	21188	631-0023-4-2003

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055	PEANUT CLEANER, HOBBS	A 1503	21187	631-0023-4-200
056	PEANUT SHELLER	A 1604	830405	631-0023-4-200
057	PEANUT SHELLER	A 1605	830406	631-0023-4-200
058	PEANUT SHELLER	A 1606	IRA Maroua	631-0023-4-200
059	SEED CLEANER	A 1803	CLIPPER 27	631-0023-4-200
060	SEED CLEANER	A 1804	CLIPPER 27	631-0023-4-200
061	ROTARY MOWER, WOODS	A 1906	01614	631-0023-4-400
062	TRUCK, RENAULT JE13	CE 7873	00002058	631-0023-4-400
063	VEHICLE, RENAULT 12	IT 18907	7741033	631-0023-4-400
064	VEHICLE, RENAULT 12	IT 18909		631-0023-4-400
065	VEHICLE, NISSAN 4X4	IT 20077	401764	631-0023-4-400
066	VEHICLE, CHEROKEE	IT 18604	026574	631-0023-4-300
067	VEHICLE, JEEP CJ10	IT 14997	SCRAP	631-0023-4-200
068	VEHICLE, JEEP CJ10	IT 14998	000053	631-0023-4-200
069	VEHICLE, JEEP CJ10	IT 14999	SCRAP	631-0023-4-200
070	VEHICLE, LAND CRUISER	IT 19485	44096	631-0023-4-300
071	FUEL TANK	A 1301		631-0023-4-300
072	WATER PUMP, GUIMARD		S4G924	631-0023-C-00-
073	SPARE PARTS, HUARD			631-0023-4-300
074	SPARE PARTS, HOOPS			631-0023-4-300
075	SPARE PARTS, PNEUMASSEN			631-0023-4-300
076	SPARE PARTS, LILLISTONE			631-0023-4-300
077	SPARE PARTS, LILLISTONE			631-0023-4-200
078	SPARE PARTS, LILLISTONE			631-0023-4-400
079	SPARE PARTS, ROANOKE			631-0023-4-200
080	SPARE PARTS, BALDOR			631-0023-4-400
081	SPARE PARTS, SPAREX			631-0023-4-300
082	SPARE PARTS, BRIDGEPORT			631-0023-4-300
083	SPARE PARTS, M.F			631-0023-4-300
084	SPARE PARTS, NICOLAS			631-0023-4-300
085	SPARE PARTS, MACMASTER CARR			631-0023-4-400
086	SPARE PARTS, AVCO			631-0023-4-400
087	SPARE PARTS, CLIPPER			631-0023-4-400
088	SPARE PARTS, CATERPILLAR			RECEIVING REPORT C
089	FERTILIZER BOXES			631-0023-4-300
090	TOOLS, SNAP-ON			631-0023-4-200
091	TOOLS SNAP-ON			631-0023-4-300
092	TOOLS MACMASTER - CARR			631-0023-4-300
093	TOOLS, MILWAUKEE ELEC.			631-0023-4-300
094	TOOLS, HEIN WERNER			631-0023-4-400
095	TOOLS, DRIL PRESS		525608	631-0023-4-300
096	TOOLS, MASSEY FERGUSON			631-0023-4-300
097	TOOLS, NEW WORLD RESEARCH			631-0023-4-400
098	TOOLS, TRANSFORMATOR			631-0023-4-300
099	TOOLS, AIR COMPRESSOR		STENHOJ	DAC. PURCHAS
100	TOOLS LATHE CELTIC 14		84509DX	631-0023-4-300