ISN 2119

PD-AAL-111

TUNTANG PROJECT

MONTHLY REPORT

JUNE, 1976

AID LOAN 497-H-019

MAIN
Engineers

PERUSAHAAN UMUM LISTRIK NAGARA CONSULTANS
CHAS. T. MAIN INTERNATIONAL, INC.

	BANDUNG	JAKARTA	SEMARANG
ADDRESS	JL. CILIWUNG 5	JL. WIJAYA I/61	JL. SLAMET 1
P.O. BOX	TPO MOLIPOS 69	BOX 100 - KBYT KEBAYORAN TIMUR	BOX - 26
TELEPHONE	7 8 0 0 9	7803 - 2	2705 & CDI 701 300
TWX	2 8 2 7 0	[illegible]	2 - 2 3 0

July 29, 1976
Letter No. S-8646
Job No. 2861-2

Proyek Induk Jaringan Jawa Tengah
Jalan Slamet No. 1
Semarang.

Subject : Tuntang System
Monthly Report.

Gentlemen :

This report is submitted pursuant to article 1 (2) 4, (4) C of Contract Pdj. 017/PST/71. It summarizes the activities of Chas. T. Main International, Inc. for the month of June 1976.

Very Truly Yours,
Chas. T. Main International, Inc.

J. W. Brower
Project Manager.

Encl.: Tuntang System
Monthly Report.

cc. : PLN, Pusat - Att.:
Dir. of Construction (4)
LID, Jakarta (4)
MJH, Charlotte (1)

AJC/sa

MONTHLY REPORT

TUNTANG SYSTEM

AID LOAN No. 497-H-019

PERUSAHAAN UMUM LISTRIK NEGARA
JAKARTA, INDONESIA
OWNER

MAIN
CHAS.T.MAIN INTERNATIONAL, INC.
Engineers

Boston, Massachusetts
U.S.A.

Semarang, Java
INDONESIA

TUNTANG PROJECT
MONTHLY REPORT
JUNE, 1976

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TUNTANG PROJECT
MONTHLY REPORT
JUNE, 1976

I. DESCRIPTION OF PROJECT

This project is comprised of five parts as follows :

A. DISTRIBUTION

This part of the project consists of overhead electric distribution systems in the cities of Semarang, Surakarta, Yogyakarta and Magelang, to replace existing underground primary systems and existing overhead secondary systems. Included in the scope of this work are training programs, both in Indonesia and the U.S.A., for Perusahaan Umum Listrik Negara (PLN) personnel, and the furnishing to PLN of certain Recommended construction and maintenance tools and equipment.

B. SEMARANG GAS TURBINE NO.2

This project consists of one 19.9 MW Gas Turbine Unit complete with all foundations, transformer, fuel-oil pumping from storage tanks to the new gas turbine site, forwarding pump station and other accessories required to make this a complete operating unit. Included in the scope of this project is a training program for PLN personnel in the operation and maintenance of this plant.

1

C. YOGYAKARTA DIESEL ELECTRIC GENERATING PLANT

This project consists of three (3) Diesel Electric Generating units in the 2500 KVA class, complete with foundations, building modifications and all necessary auxiliaries and controls to make a complete operating plant with a maximum output of 6.2 MW. Auxiliary equipment includes step-up Transformer Equipment with breakers, protective equipment and controls for connecting to a 20 KV, 50 Hertz distribution system. A training program to familiarize PLN personnel with the operation and maintenance of this plant is to be provided, partly on the job site and partly in the U.S.A.

D. COMMUNICATIONS

This part of the project consists of a mobile radio phone system for the Distribution system described in Item A in this section of the Report. Four (4) 100 - watt base station are furnished for installation by PLN on PLN property; Twelve (12) 45-watt fixed stations furnished for installation by PLN at PLN maintenance depots; thirty eight (38) 100-watt mobile units furnished for installation by PLN in PLN vehicles; and the furnishing of seventeen (17) 45-watt portable units. The contract, which was awarded to Motorola Corp., was amended to provide an additional twenty (20) 100-watt mobile multi-channel units.

Included in the scope of this project was a training program at the manufacture's plant in the U.S.A. for two (2) PLN engineers, in the operation and maintenance of this equipment.

E. REHABILITATION PROGRAM

The Engineer (CTM) will prepare specifications associated with the rehabilitation of :

a). Kalisari Diesel Plant

b). Kudus Diesel Plant

c). Yogyakarta Diesel Plant

d). Jelok Hydro Generating Plant

e). Timo Plant Switchyard (Lightning Protection).

II. PROJECT PERSONNEL

The following list constitutes the resident foreign expert staff as of this reporting period :

T. A. O'Hare	-	Projects Coordinator
J. W. Brower	-	Project Manager
E. H. Henderson	-	Engineering Manager
W. A. Arnold	-	Construction Manager
R. N. Key	-	Office Manager
J. P. Radda	-	Administrative Assistant
J. R. Boyll	-	Training Instructor
A. J. Curran	-	Office Engineer
J. F. Pritchard	-	Distribution Field Engineer

During the period three foreign experts left the project :

E. C. Martin	-	Distribution Field Engineer
D. K. Hoffer	-	Distribution Field Engineer
R. F. Mosley	-	Electrical Engineer

One Distribution Field Engineer will be transferred from the West Java Project in August, to assist in the final taking over of all the project works.

One Administrative Assistant has been requested to assist in this effort as well.

III. OFFICIAL VISITORS

A. Mr. H. G. Stockwin, vice president for C.T. Main International, visited the project to review project status and to discuss management changes with PLN.

The approved management changes were as follows :

1. Mr. T. A. O'Hare, former project manager, transferred to Jakarta office as projects coordinator.
2. Mr. J. W. Brower Jr., former construction manager, assumed project manager position.
3. Mr. W. A. Arnold, distribution field Engineer, made construction manager pending further management decisions.

B. Mr. G. E. Trussell/Delaval, in connection with the Vinnell Corporation project, visited the Yogyakarta Diesel Electric Generating Plant to discuss repairs to the Diesel engines.

IV. ENGINEERING PROGRESS

Chas. T. Main International, Inc., in this report referred to as the Engineer, has established basic engineering criteria, standards and specifications for the various activities comprising the Tuntang Project. Detailed design for the Yogyakarta Diesel Electric Generating Plant, The Semarang Gas Turbine No.2, and the communication system project are the responsibility of the contractor/manufacturer. Maps and detailed drawings for the construction of the Distribution and Rehabilitation Projects were prepared largely by PLN's staff under the supervision of the Engineer. Attached Exhibits reflect the current status and scope of these activities.

The Engineering work on all projects is substantially complete, with minor modifications being made, as required by field conditions.

Engineering assistance and monitoring was provided during warranty repair work at the Yogyakarta Diesel Plant and the Semarang Gas Turbine No.2. For further update on these items refer to the construction section of this report.

V. CONSTRUCTION PROGRESS

A. Distribution

The overall Tuntang Project is somewhat behind schedule as reflected on the attached construction schedules for the four major load centers.
(Refer to Exhibit Section of this report).

1. SEMARANG

Two additional line extensions from the future Semarang steam plant site have been staked. These two new lines will tie into the newly constructed "T" circuits and provide additional flexibility for the Semarang System.

To date, the following circuits in Semarang have been energized and tested with satisfactory results :

S1, S2, B2.

The contractor is working on clean up assignments now and all efforts are being made to complete testing of the new distribution circuits in this city.

2. SURAKARTA

Lack of materials has caused the contractor to lag behind in this city. One line extension consisting of approximately 364 poles has already been stopped due to lack of materials.

Energizing and Testing has been completed for circuit B3 in this city with only one 225 KVA Transformer yielding unacceptable voltage readings. The contractor is now proceeding to replace this unit.

3. YOGYAKARTA

The contractor is working extra crews in this city to clean up all outstanding items, so that Energizing and Testing of the new distribution circuits can continue.

To date, circuit T4 has been tested and proven satisfactory. The other circuits in this city can be tested as soon as the contractor completes his clean up work and when trimming of regrowth near the lines is finished.

4. MAGELANG

Wire stringing has been completed in this city and only clean up work and jumpers remain to be done. Circuit M4 has been inspected and proven satisfactory. Completion of the other circuits in this city will be delayed due to a temporary shortage of connectors.

Approximately 95% of the Tuntang area is complete. All wire stringing has been completed and all contractor crews are assigned to clean up work and completing jumpers.

The contractor's progress has been impeded due to a shortage of materials required to complete the project. This material has been shipped but has not arrived on site as yet. The contractor expects this shipment soon.

B. Yogyakarta Diesel Plant

1. A fuel injector pump remains in Los Angeles, U.S.A. awaiting shipment.
2. Five (5) shipments, of long standing, are now in Surabaya awaiting clearance and shipment to Yogyakarta.
3. Delaval advised that the best possible shipping date for the replacement crankshaft, for engine No. 72054, is July 30, 1976.

4. The cylinder liners of engine No. 72055 were honed because of a lacquer buildup. The cause of the lacquer buildup is not clear at this time. Lube oil is suspected, but the oil used meets Delaval's specifications. Operating for short periods of time could be the cause and sulphur in the fuel could also contribute. Further investigation is now going on. This engine was returned to duty on May 31, 1976.

C. Semarang Gas Turbine

1. PLN submitted their costs for the repdesign of the exhaust for the starting diesel engine. This was entered into the certificate of taking over as an Exception to Acceptance.

2. PLN has advised that they are in agreement with the draft for the Certificate of Provisional Taking Over and requested that the draft be made a Final Certificate of Taking Over.

3. PLN has agreed to accept the repaired speed reducing gears subject to the following :

   (a). Extend the warranty period from 1 year to 3 years.

   (b). PLN is to be provided with spare parts worth U.S. $ 40.000.

   (c). PLN is to be provided with a spare set of speed reducing gear bearings.

4. General Electric has advised, by letter, that they believe the flooding of the generator on January 22, 1976 was unavoidable and was not a result of their air intake design or workmanship. PLN is not in agreement with this.

5. Shifted the transformer output to the 150 KV winding.

VI. CONVERSION TRAINING

Training during the month has been conducted on construction of the new distribution system. This has included system theory and practice in the installation and connection of three phase transformers, single phase Transformers, Regulating devices and protection. In addition, trainees have been practicing installation of secondaries and services during the month. Also, the fifteen trainees have undergone extensive instruction in the use and care of climbing tools, safe climbing practices and safety.

The present group of trainees should complete the prescribed course of training on, or about, August 6, 1976.

VII. STATUS OF CONTRACTS

A. C. T. Main International, PJ. 017/PST/71.

1. Amendment No.2 executed in February, 1976. Due to the incremental funding clause, this Amendment has not yet been approved by Bappenas.

2. This has necessitated the drafting of Amendment No.3 which deletes the incremental funding clause and changes the Terminal date of consultant services from April, 1977 to December, 1976.

B. Amelco Engineers Co., Pi. 104/PST/73.

Negotiations were finalized with Amelco for the purchase of Additional materials requested by PLN for stock and future line construction. A formal contract Amendment will be written to include this material purchase.

C. Vinnell Corporation, Pi. 012/PST/73.

1. One shipment of spare parts was released from Surabaya during the period.

2. Received notification that the second manufactured crank shaft was rejected and that a 3rd shaft is

being turned now for shipment late in July. A Vinnell Technical representative is now on the job site.

D. General Electric.

The certificate of completion document was revised as per PLN request and the revised draft has been sent to all parties concerned for approval.

E. Motorola.

The letter of credit has been revised in the Motorola contract whereby they could ship the Amendment purchased radios by Air.

VIII. FINANCIAL

	Contract/ Budgeted	Invoiced Amount This Period	Invoiced Amount To Date
1. Chas. T. Main			
U.S. Dollars	3,404,020,--	46,382.85	2,476,391.82
Rupiah	113.290.250,--	1.906.446,10	60.928.466,32
2. Amelco Engineers Co.			
U.S. Dollars	18,576,996.20	205,004.06	3,419,165.73 *
Rupiah	774.887.220,--	36.938.748,--	661.075.494,-- **
3. Vinnell Corporation			
U.S. Dollars	1,992,843.24	- 0 -	1.917.843.--
Rupiah	35.878.485,--	- 0 -	35.878.485,--
4. General Electric			
U.S. Dollar	3,111,148.--	***	***
Rupiah	29.050.000,--	***	***

	Contract/ Budgeted	Invoiced Amount This Period	Invoiced Amount To Date
5. Motorola			
U.S. Dollars	209,195.55	***	***
Rupiah	2.801.250,--	***	***

* Does not include the cost of ocean shipments of material.

** Includes an advance of Rp. 30.000.000,--

*** Not Available.

IX. EXHIBITS

A. Progress report for Tuntang Distribution System.

B. Construction Schedules.

1. Semarang
2. Yogyakarta
3. Surakarta
4. Magelang

C. Construction Man Power Requirements.

D. Construction Man Power Availability.

DATE June 30, 1976

PROGRESS REPORT FOR TUNTANG DISTRIBUTION SYSTEM

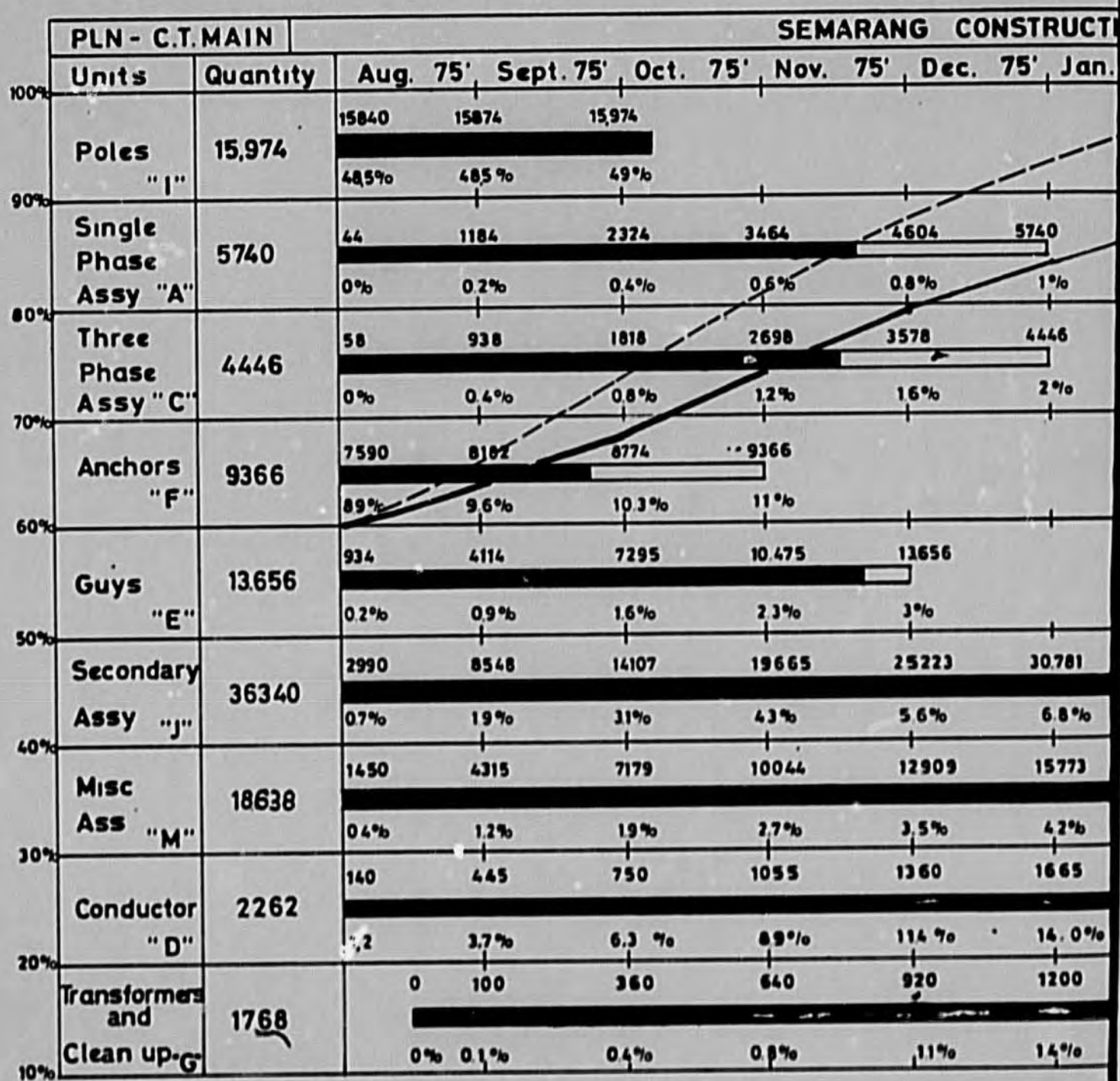
CITY	POLE LOCATIONS		TRANSFORMER LOCATIONS		DRAFTING OF CONSTRUCTIONS PRINTS		DRAFTING OF ONE LINE DIAGRAM		FUSE AND OCR RECOMMENDATIONS	STRUCTURE DATA SHEETS		SUMMARY OF S.D.S	
	ORIGINAL STAKING	FINAL STAKING	ORIGINAL	FINAL	ORIGINAL	FINAL	ORIGINAL	FINAL		ORIGINAL	FINAL	ORIGINAL	FINAL
SEMARANG	100%	100%	100%	97%	100%	98%	100%	85%	85%	100%	98%	100%	90%
SOLO	100%	100%	100%	95%	100%	98%	100%	80%	85%	100%	95%	100%	90%
YOGYAKARTA	100%	100%	100%	95%	100%	98%	100%	80%	85%	100%	98%	100%	95%
MAGELANG	100%	100%	100%	95%	100%	98%	100%	80%	75%	100%	98%	100%	90%
EXTENSIONS TO TUNTANG													
UNGARAN	100%	100%	100%	95%	100%	95%	100%	95%	100%	100%	95%	100%	95%
KALIWUNGU	100%	100%	100%	95%	100%	95%	100%	95%	100%	100%	95%	100%	95%
KENDAL	100%	100%	100%	95%	100%	95%	100%	95%	100%	100%	95%	100%	95%
CEPIRING	100%	100%	100%	95%	100%	95%	100%	95%	100%	100%	95%	100%	95%
WELERI	100%	100%	100%	95%	100%	95%	100%	95%	100%	100%	95%	100%	95%

This sheet, though essentially correct, does not show the true picture because of day to day changes by the public authorities.

EXHIBIT A

MAIN
CHAS T MAIN INTERNATIONAL, INC
BOSTON MASSACHUSETTS U S A
SEMARANG INDONESIA

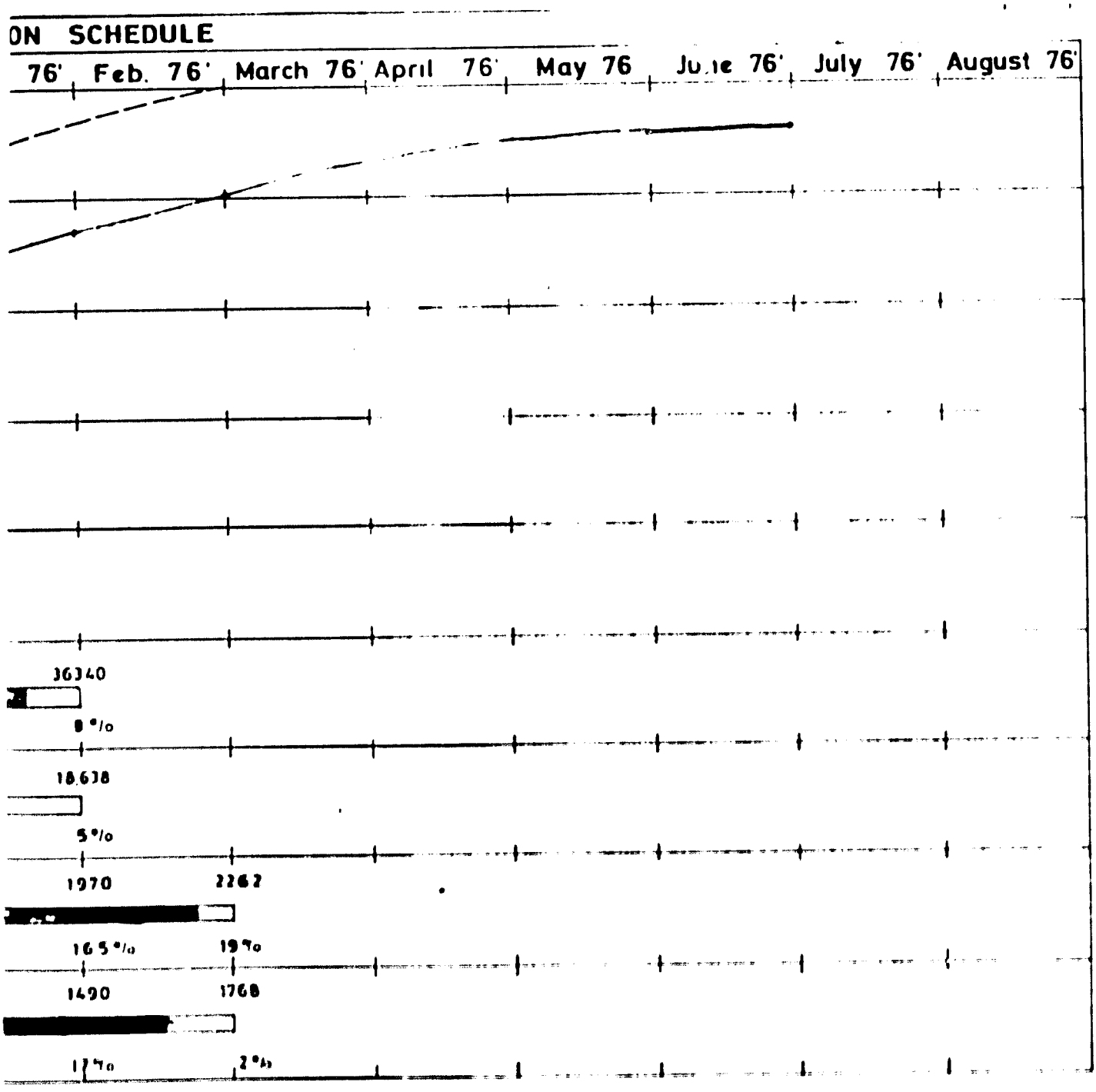
Ex B - 1



Peasant and Bullock by Chuah Theah Teng

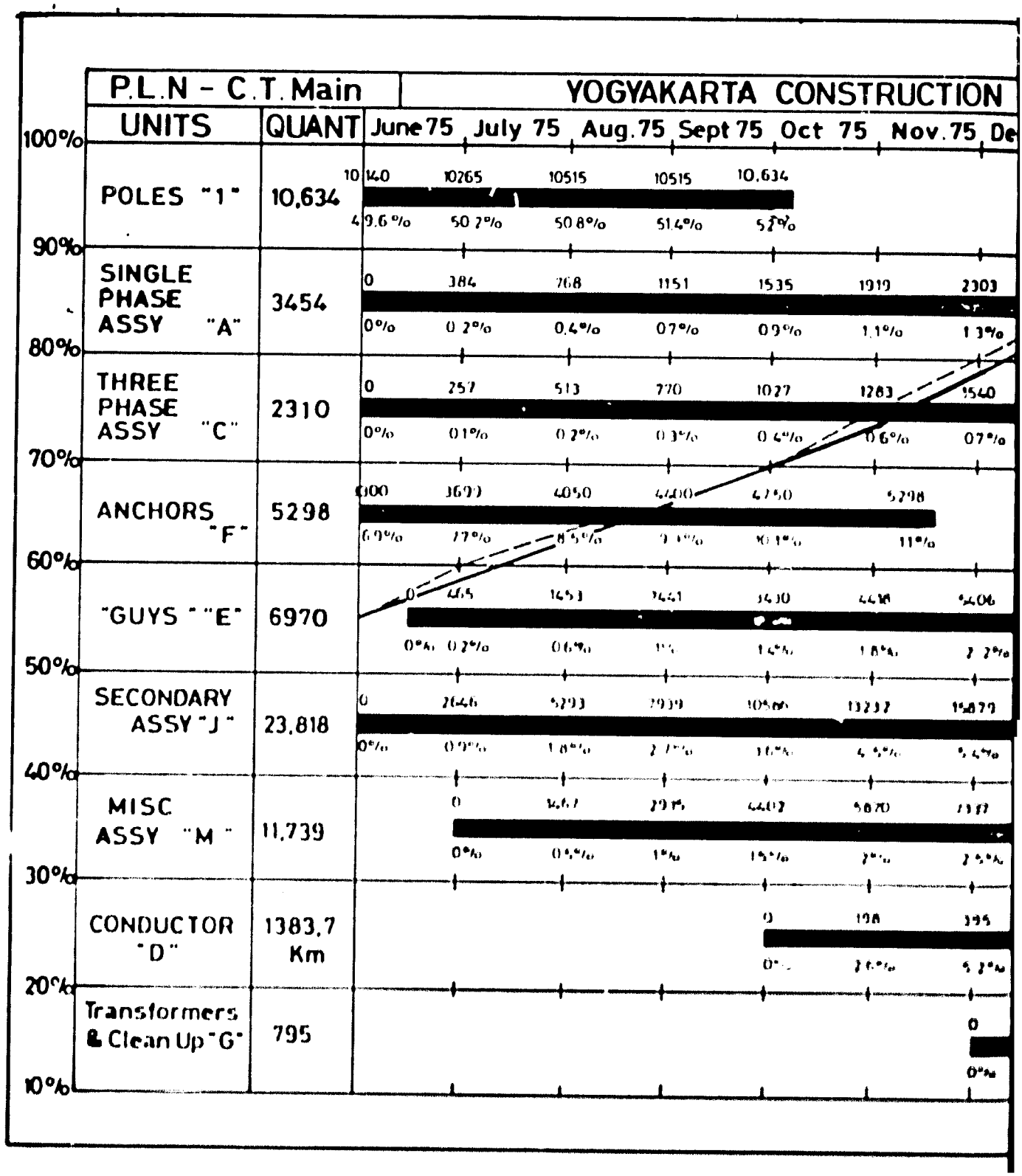
From the collection of Dr. and Mrs. Clifton R. Wharton, Jr.

B-2



Peasant and Bullock by Chuah Theah Teng

B-3


P.L.N - C.T. Main
YOGYAKARTA CONSTRUCTION
UNITS
QUANT
June 75
July 75
Aug. 75
Sept 75
Oct 75
Nov. 75
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
POLES "1"
10,634
10140
10265
10515
10515
10,634
49.6%
50.2%
50.8%
51.4%
SINGLE PHASE ASSY "A"
3454
0
384
768
1151
1535
1919
2303
0%
0.2%
0.4%
0.7%
0.9%
1.1%
1.3%
THREE PHASE ASSY "C"
2310
0
257
513
770
1027
1283
1540
0%
0.1%
0.2%
0.3%
0.4%
0.6%
0.7%
ANCHORS "F"
5298
3690
4050
4400
5298
11%
"GUYS" "E"
6970
465
1453
3430
4406
SECONDARY ASSY "J"
23,818
0
2646
5293
13237
MISC ASSY "M"
11,739
0
CONDUCTOR "D"
1383,7 Km
0
198
395
Transformers & Clean Up "G"
795
0
0%

B-4

SCHEDULE

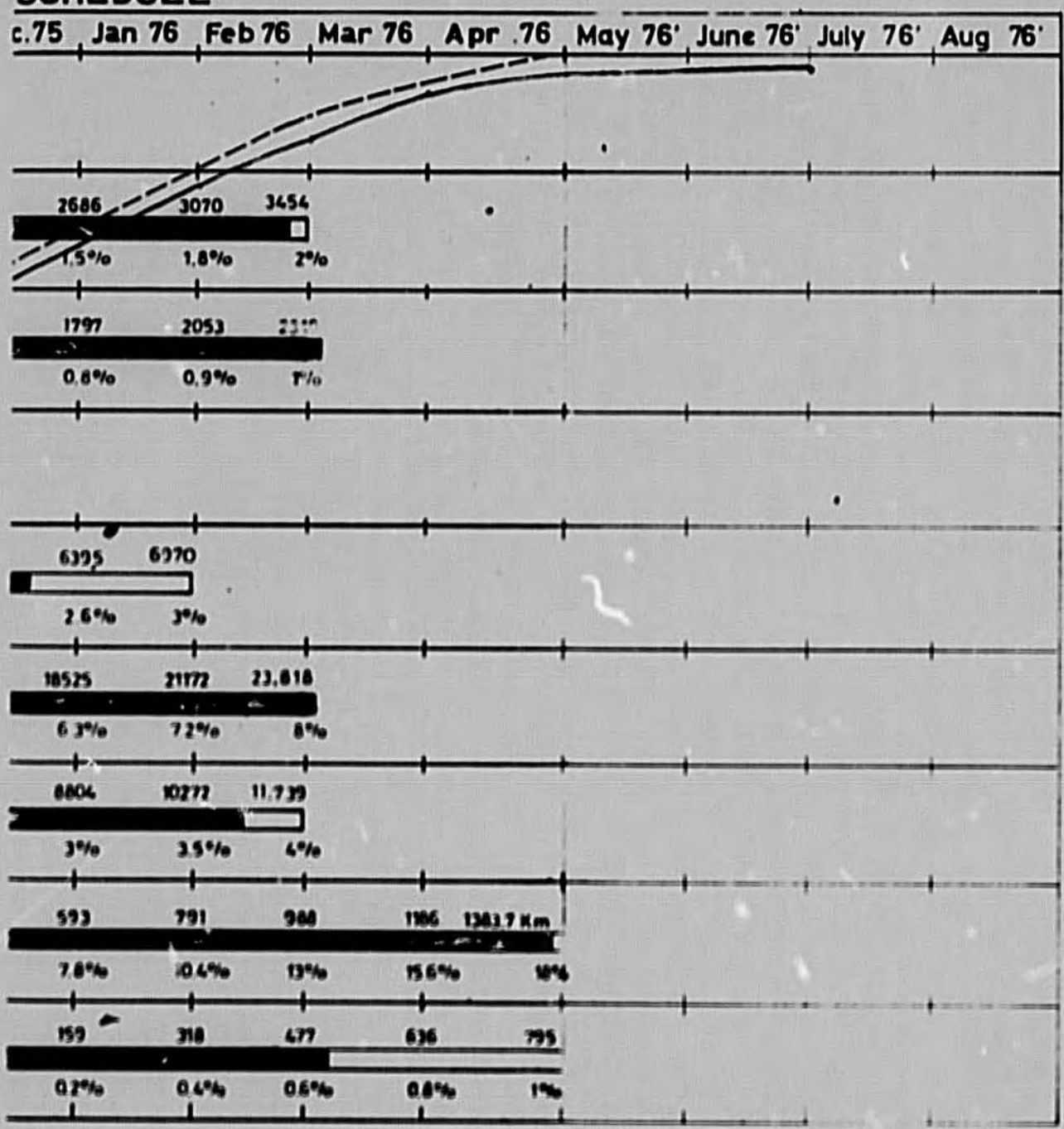
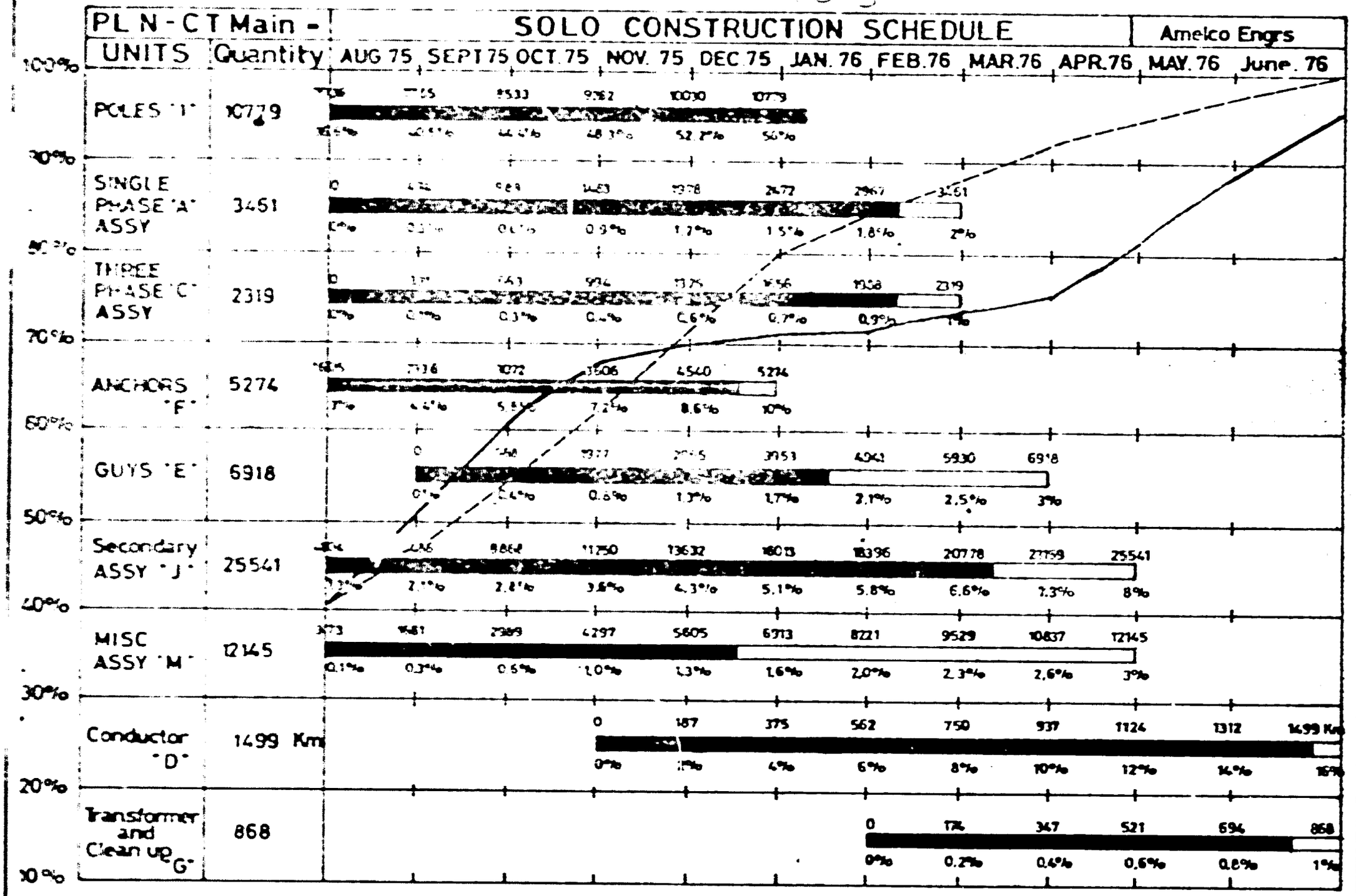


Exhibit B - 3/4

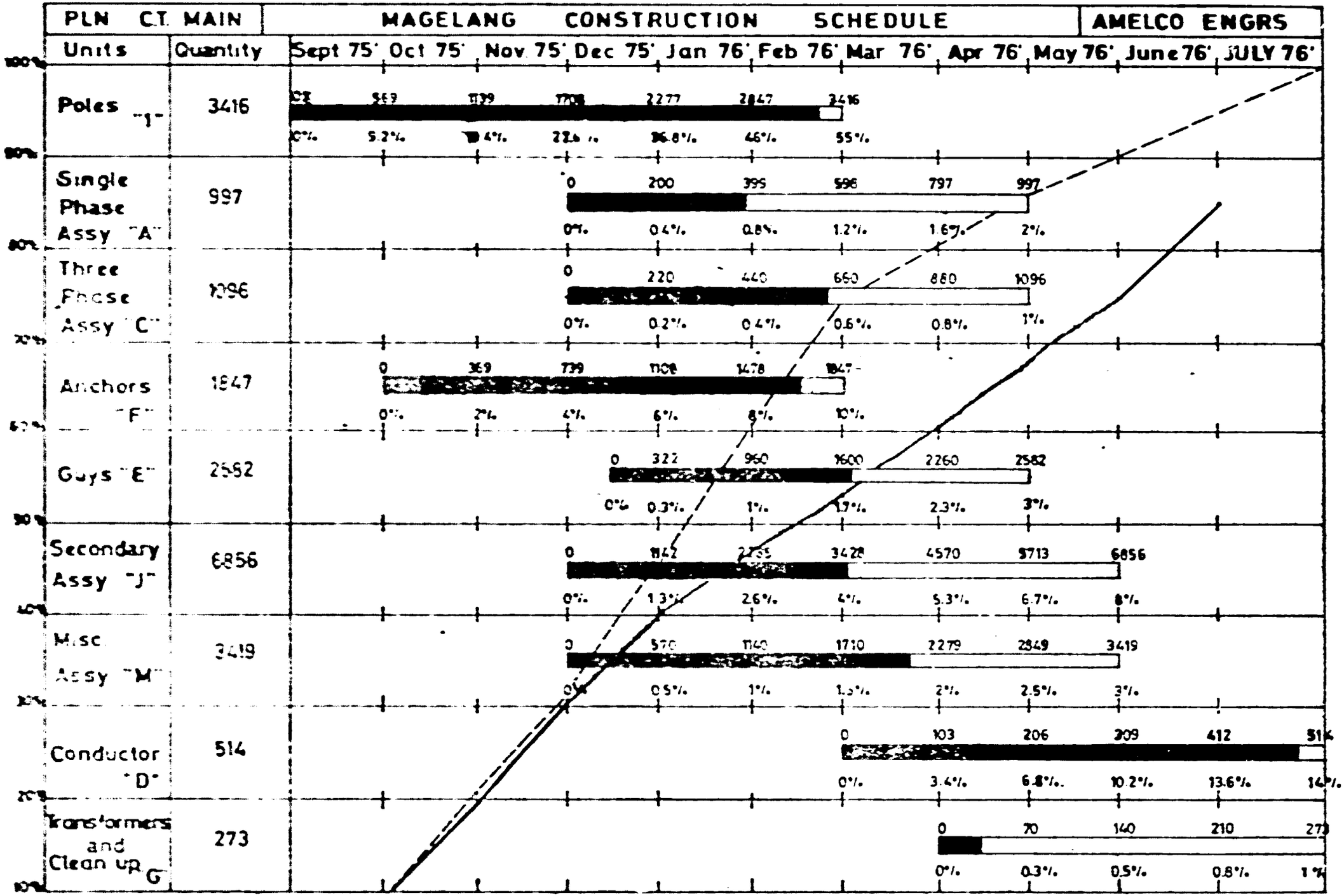
PLN-CT Main -

SOLO CONSTRUCTION SCHEDULE

Amelco Engrs



E-6


PLN CT. MAIN
MAGELANG CONSTRUCTION SCHEDULE
AMELCO ENGRS
Units
Quantity
Sept 75' Oct 75' Nov 75' Dec 75' Jan 76' Feb 76' Mar 76' Apr 76' May 76' June 76' JULY 76'
Poles "I" 3416
0 569 1139 1708 2277 2847 3416
0% 5.2% 10.4% 22.6% 36.8% 46% 55%
Single Phase Assy "A" 997
0 200 399 598 797 997
0% 0.4% 0.8% 1.2% 1.6% 2%
Three Phase Assy "C" 1096
0 220 440 660 880 1096
0% 0.2% 0.4% 0.6% 0.8% 1%
Anchors "F" 1847
0 369 739 1108 1478 1847
0% 2% 4% 6% 8% 10%
Guys "E" 2562
0 322 960 1600 2260 2562
0% 0.3% 1% 1.7% 2.3% 3%
Secondary Assy "J" 6856
0 1142 2285 3428 4570 5713 6856
0% 1.3% 2.6% 4% 5.3% 6.7% 8%
Misc Assy "M" 3419
0 570 1140 1710 2279 2849 3419
0% 0.5% 1% 1.5% 2% 2.5% 3%
Conductor "D" 514
0 103 206 309 412 514
0% 3.4% 6.8% 10.2% 13.6% 14%
Transformers and Clean up "G" 273
0 70 140 210 273
0% 0.3% 0.5% 0.8% 1%

CONSTRUCTION MAN POWER REQUIREMENTS

AREA	EXPATRIATES	INSPECTORS	SURVEY	DRAFTS MEN	SDS	OTHERS	VEHICLES
TUNTANG							
SEMARANG	6	20	0	13	7	7	7
YOGYAKARTA	1/2	19	0	-	-	2	3
SURAKARTA	1	17	3	-	-	1	3
MAGELANG	1/2	10	0	-	-	1	2
KETENGER							
TEGAL	1	15	-	-	-	-	4
PEKALONGAN	1	5	4	-	-	3	3
PURWOKERTO	1	5	16	-	-	1	2
CILACAP	5	-	5	-	-	2	2

Mobile Radios & Base Station are needed for Construction Activities

Schedule "C"

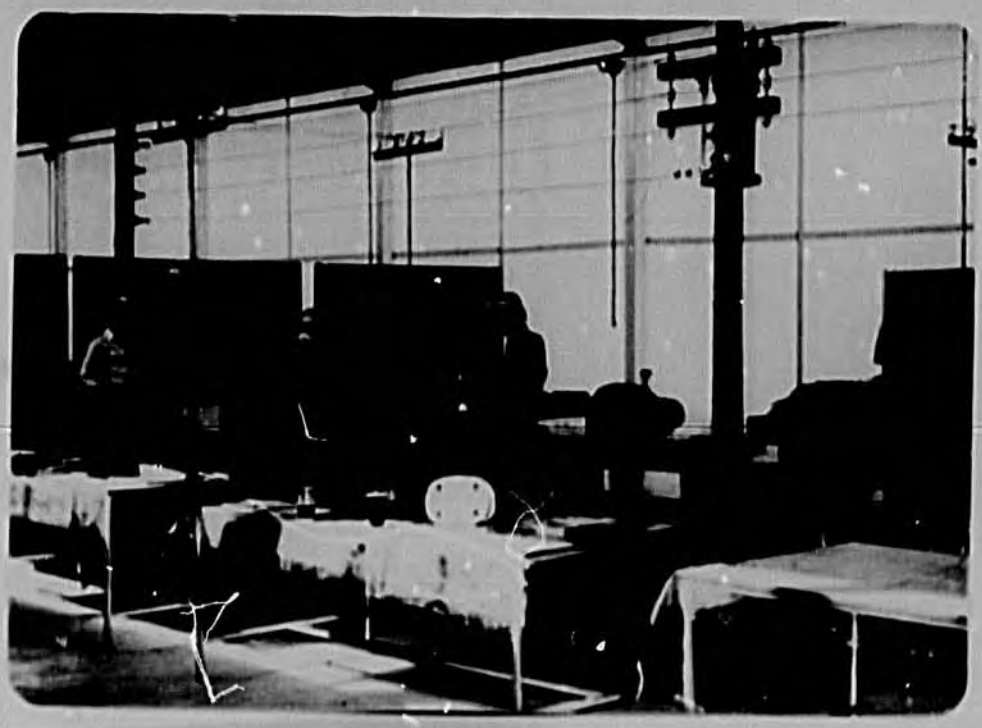
CONSTRUCTION MAN POWER AVAILABILITY

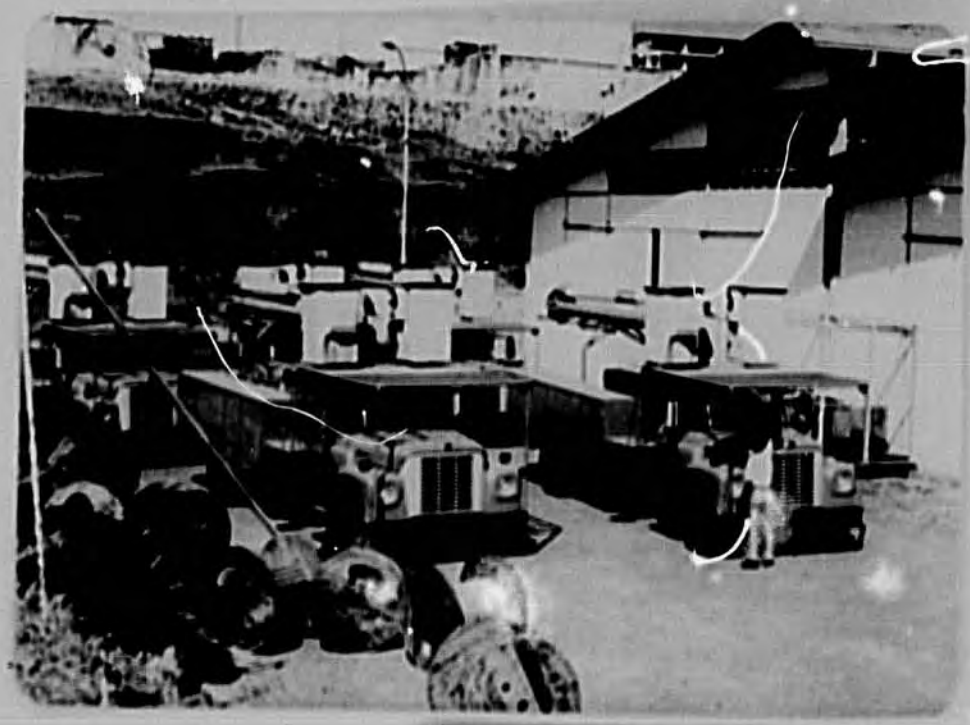
AREA	EXPATRIATES	INSPECTORS	SURVEY	DRAFTS MEN	S D S	OTHERS	VEHICLES
TUNTANG							
SEMARANG	5	31	–	13	7	9	7
YOGYAKARTA	1/2	13	–	–	–	2	3
SURAKARTA	0	11	3	–	–	1	3
MAGELANG	1/2	11	3	–	–	1	3
KETENGER							
TEGAL	1	11	3	–	–	3	6
PEKALONGAN	1	10	3	–	–	1	2
PURWOKERTO	1	10	15	–	–	2	2

Schedule D

X. PROJECT PHOTOGRAPHS

Conversion Trainees engaged with removal of existing customer metering facilities and installation of new metering facilities.





Sky-worker aerial device mounted on an International truck chasis model 1700. This is the full complement supplied by Amelco Engineers Co.

Trainee receiving instruction in use of the Sky-worker bucket truck at the Krapyak Distribution Training Center.