# 5. MINUTES OF DISCUSSIONS

# MINUTES OF DISCUSSIONS ON THE BASIC DESIGN STUDY ON AID FOR INCREASED FOOD PRODUCTION PROGRAM IN THE PEOPLE'S REPUBLIC OF BANGLADESH

In response to the request of the Government of the People's Republic of Bangladesh for assistance under Aid For Increased Food Production Program the Government of Japan decided to conduct a basic design study on the program (hereinafter referred to as "the Program") and entrusted the study to the Japan International Cooperation Agency (JICA). JICA sent to Bangladesh the Study Team headed by Mr. Koichi Morita, Assistant Director, Grant Aid Division, Economic Cooperation Bureau, Ministry of Foreign Affairs from 27th March to 19th April, 1986.

The Team had a series of discussions on the program with the officials concerned of the Government of the People's Republic of Bangladesh in the Ministry of Agriculture, Ministry of Food, Finance Division, Planning Commission, Bangladesh Agricultural Development Corporation, Bangladesh Water Development Board and Bangladesh Bank and also conducted a field survey in Dhaka and Comilla areas from 27th April to 5th March, 1986. A Joint meeting between the Team and the GOB Officials was held in the ERD on April 3, 1986 under the chairmanship of Mr. M. Akhtar Ali, Joint Secretary, ERD.

As a result of the study, both parties agreed to recommend to their respective Governments that the major points of understanding reached between them, attached herewith, should be examined towards the realization of the Brogram.

6th April, 1986

Mr. Koichi Mor ita.

Leader of the Basic Design Study Team ON AID FOR INCREASED FOOD PRODUCTION PROGRAM,JICA.

Mr. Md. Soakat Ali Deputy Chief External Resources Division, Ministry of Finance

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#### ATTACHMENT

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The Program intends to support the self-reliant efforts of Bangladesh for increased food production with the agricultural commodities such as fertilizers, agricultural chemicals and agricultural machinery/equipment to be provided by the Government of Japan under Japan's Grant Aid Program.

The Ministries concerned with implementation of the above program are Ministry of Finance, Ministry of Planning, Ministry of Agriculture, Ministry of Irrigation, Water Development and Flood Control, and Ministry of Food.

External Resources Division (ERD) in the Ministry of Finance is responsible for the coordination of the Program.

The implementation process of the Program is charted as Annex I.

As the result of the discussion, taking into consideration of the requests made by Ministries/Agencies concerned, the Study Team has confirmed that the final list of agricultural commodities based on the tentative list as described in Annex II for the Program in the Fiscal Year 1985 shall be submitted in April 1986.

The Study Team has further confirmed that the Government of Bangladesh has the desire to implement the Program continuously in Fiscal Year 1986 and onward.

For Fiscal Year 1986, the concerned Ministries/Agencies have -submitted a tentative list of required agricultural commodities \_which\_are\_summerized in Annex III attached.

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The study Team has requested the Government of Bangladesh to finalize the request for Fiscal Year 1986 at an earliest possible time, and the Government of Bangladesh has expressed its estimate that the request to be finalized and submitted within one month time.

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5. Tentative schedules for the implementation of the Programs of both FY 1985 and 1986 are as attached in Annex 挺.

6. The Bangladeshi authorities concerned have confirmed that the necessary measures to be taken by the Government of Bangladesh are listed in Annex IV on condition that this grant aid by the Government of Japan is extended to the Program.

The Bangladeshi authorities concerned have understood and accepted the system described by the Study Team.

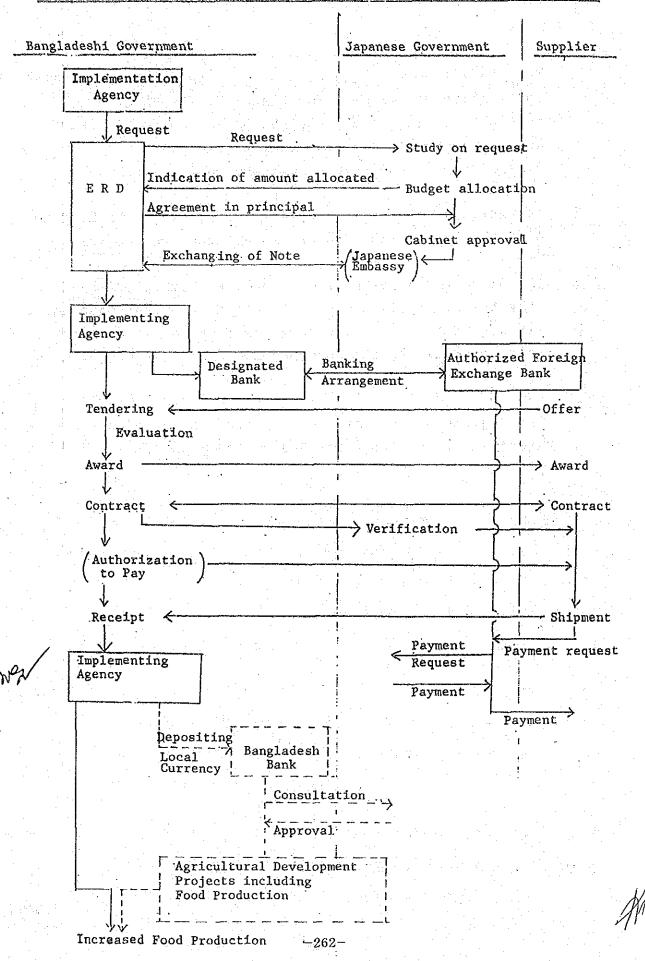
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Annex-I

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- <u>CNCDAI</u>	REASTAA	AP PRASIL		EMENTATION	
	PROCESS	THE DUTTEDAM	1 M D 1	CMCNTATION	
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Annex II

REQUIREMENT OF THE PROGRAM FOR FY 1985

Name of the Items

Implementating Agency /Ministry

BADC / Ministry of Agriculture

1. DTW comminsioning materials (such as gear head) 2. Spare parts for DTW, LLP. and STW engines

3. Floating Pumps

4. Pesticides (Methyl Bromide) 5. Pesticides

6. Submersible DTW Pumps (Electric)

7. Vibrating Pile Driving Hammer (Electric)

8. Dragline

9. Bulldozer

10. Well-point Pump and Accessories

11. Shearing Machine

12. Bending Machine

9/ 13. Press Machine

14. Spare Parts for Equipments 15. Spare Parts for Vehicles 16. Sheet Piles (U Type) 17. Rail Mounted Tower Crane Ministry of Food Plant Protection Department, Ministry of Agriculture

Banglades Water Development Board

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Name of the Items

Implementing Agency / Ministry

thef Controller of Imports inport

Ministry of Food

18. Trucks (1~8 MT) Wey 19. Moisture Meter 20 Rice Dryer Hand Tilles-

Jul. Aug. Sep. Oct. Nov. Dec. 0 IMPLEMENTATION SCHEDULE FOR 1985 FY 0 0 1986 Apr. May Jun. 0 0 Verification of Contract Completion of shipment Authorization to Pay Banking Arrangement Tender Announcement Exchange of Notes Award, Contract 때 Annex - 편-1 Work Item Tendering An.

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Jan. Feb. Mar. Nov. Dec. IMPLEMENTATION SCHEDULE FOR 1986 FY oct. Sep. Jun Jul Aug. 0 May Apr. Verification of Contract Completion of Shipment Authorization to Pay Exchange of Notes Banking Arrangement Tender Announcement ഥ Annex - 到-2 Award, Contract Work Item Tendering 266

# AnnexIV

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Necessary measures to be taken by the Government of the People's Republic of Bangladesh are as follows:

- To bear the following commissions to the Japanese foreign exchange bank for the banking services based upon the Banking Arrangement
  - (a) Advising Commission of Authorization to Pay
  - (b) Payment Commission
- 2. To ensure smoothunloadings and customs clearance at ports of disembarkation in the Bangladesh.
- 3. To ensure that the products purchased under the Grant will make effective contribution to the increase of food production and eventually to the stabilization and development of the Bangladeshi economy.
- 4. To bear all the expenses, other than those to be borne by the Grant.
- 5. To maintain and use properly and effectively the agricultural equipments and machineries purchased under the Grant.
- 6. To deposit in local curreny, at least an amount equivalent to two-thirds of the FOB value of the aid offered by Japan. The fund thus deposited is to be used as the local currency component of agricultural development purposes including the increase of food production. For the utilization of the fund the authorities concerned of the two Government will consult with each other.

REFERENCE

# 1. BASIC DATA SHEET OF BANGALADESH

(As of August 1985)

(W2 OI MURUSE 1)				
	1960	1970	Most Recent	Remarks
Total (000 sq km)			144,00	
Cropped Land Per Capita (ha)		0.13	0, 09	(1983)
Total Arable Land (thousand sq	km)	a da seral	86.51	(1983)
Total (million; mid-year)		69.95	96.4	(1984)
Density (persons/sq km)	e ei e		669	(1984)
Annual Growth Rate (%)			2.4	(1984)
(US\$) a/				(1983)
			-	
Life Expectancy at Birth			· .	
(years)	37	42	48	(1981)
	150	150	195	(1984)
	100	100	140	(1004)
		··· ·		1997 (1997) 1997 - 1997 (1997)
그는 것은 물건을 많이 많이 있는 것이 같이 많이 많이 했다.		19	26	(1982)
				(1982)
		41	อบ	(1906)
	÷ .,	0100	1050	710013
		2100	1830	(1981)
and the second				Ariana)
	-		and the second	(1983)
				(1981)
	47	52		(1984)
		ст. — 1977 —	26	(1980)
Income Dis'n: % Income Received	} ·· · · ·	· ·	·	
Highest 5% of Households	18.3		14.6	(1974)
	(1963)			· ·
Highest 20% of Households	44.5	44.1	42.2	(1974)
	(1963)	(1967)		
Lowest 20% of Households	6.9	8.7	6.9	(1974)
	(1963)	(1967)		an tha Airte 14 a
Lowest 40% of Households	17.9	19.6	18.2	(1974)
	(1963)	(1967)		
	Cropped Land Per Capita (ha) Total Arable Land (thousand sq Total (million; mid-year) Density (persons/sq km) Annual Growth Rate (%) (US\$)_a/ Life Expectancy at Birth (years) Infant Mortality (per 1,000 live births) Access to Safe Water (% of population) In Urban Areas In Rural Areas Daily Per Capita Calorie Supply (cal.) Daily Per Capita Protein Supply (gm) Persons per Physician Primary School Enrollment (%) Adult Literacy Rate (%) Income Dis'n: % Income Received Highest 20% of Households Lowest 20% of Households	Total (000 sq km) Cropped Land Per Capita (ha) Total Arable Land (thousand sq km) Total (million; mid-year) Density (persons/sq km) Annual Growth Rate (%) (US\$)_a/ Life Expectancy at Birth (years) Infant Mortality (per 1,000 live births) Access to Safe Water (% of population) In Urban Areas In Rural Areas Daily Per Capita Calorie Supply (cal.) Daily Per Capita Protein Supply (gm) Persons per Physician Primary School Enrollment (%) Adult Literacy Rate (%) In Gass Highest 20% of Households Lowest 20% of Households 17.9 Lowest 40% of Households 17.9	Total (000 sq km)Oropped Land Per Capita (ha)0.13Total Arable Land (thousand sq km)Total (million; mid-year)69.95Density (persons/sq km)Annual Growth Rate (%)(US\$)_a/Life Expectancy at Birth (years)3742Infant Mortality (per 1.000159150Access to Safe Mater (% of population) In Urban Areas-13 In Rural AreasIn Rural Areas-13 In Rural Areas-Daily Per Capita Calorie Supply (cal.)-2100Daily Per Capita Protein Supply (gm)-45Persons per Physician-8430Primary School Enrollment (%)4752Adult Literacy Rate (%)22-Income Dis'n: % Income Received Highest 5% of Households18.3-(1963) (1967) Lowest 40% of Households6.98.7 (1963)Lowest 40% of Households17.919.6	1960       1970       Recent         Total (000 sq km)       144.00         Cropped Land Per Capita (ha)       0.13       0.09         Total Arable Land (thousand sq km)       86.51         Total (million; mid-year)       69.95       96.4         Density (persons/sq km)       669         Annual Growth Rate (%)       2:4         (US\$)_a/       130         Life Expectancy at Birth (years)       37       42       48         Infant Mortality (per 1,000       159       150       125         Access to Safe Mater (% of population)       159       150       125         Access to Safe Mater (% of population)       -       2100       1850         Daily Per Capita Calorie Supply (cal.)       -       2100       1850         Daily Per Capita Protein Supply (gm)       -       45       42         Persons per Physician       -       8430       8810         Primary School Enrollment (%)       47       52       54         Adult Literacy Rate (%)       22       -       26         Income Dis'n: % Income Received       18.3       -       14.6         (1963)       (1967)       (1963)       (1967)         Lowest 20% of Households<

\_a/ World Bank Estimate

(Reference in text: page 2, para 5)

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							1	
	: .				•			
				FY1979	<u>FY1980</u>	<u>FY1981</u>	<u>FY1982</u>	FY1983
4	* • •	entra de la companya	1. A. 1.	<b>00 050</b>	90 950	91 770	00 000	90 750
	Labor	Total	· · · ·			31,440	32,080	32,750
	Force	Employed		18,000	18, 920	19, 530	20, 450	20, 500
	(1,000)	Agriculture, Forestry &					· · · ·	
		Fishery		12 900	13 000	13, 300	14.000	14,000
	à	Mining &		10,000	10,000	10,000		1
		Manufacturing		1,500	1,500	1,600	1,600	1,730
		Others		4,200			4,850	
1 A 4		Unemployed and/or	н. 1911 г. – Прес					
	- :	Underemployed		11.450	11,830	11, 910	11,630	12.260
		Unemployment/						
	···.	Underemployment			•		1.1.1.1	
		Rate (%)		38.1	38, 5	37.9	36.3	37.4
		e e e e e e e e e e e e e e e e e e e						5114 0 0 F
	.11		<u>FY1980</u>	<u>FY1981</u>	<u>FY1982</u>	FY1983	<u>FY1984</u>	<u>FY1985</u>
·	0	CDD at augment						
		GDP at current c market price	182.1	209.7	232.6	265.6	314.4	362. 0
· .	Product	and the second se	102.1	203.1	606.0	200. U	014.4	000,0
	· · · · ·	a)GDP at 1972/73		to in	ta s	· · ·		· .
		factor cost	65. <b>0</b>	69.2	69,8	72.4	75.4	78, 3
		Growth Rate(%)	2.7	6.5	6.9	3.7	4.1	3.8
								· · ·
	GDP at	Aagriculture,						
	1972/73	Forestry and						
		Fishery	55.1			55.1		54.4
	· — .		8.3			8.3		8.5
	and the second sec	turing	5.7	5, 5	5.5	5.1	5.0	4.9
·		Construction	ч. 1		· .	· •.		· · · · ·
		Electricity and				<b>•</b> • •		0.5
		y Gas	0.3	0.3	0.4	0.4	0.4	0.5
	Industry	y)Transport and	. 7 E	7 9	7.3	7.2	79	7.4
		Communications Trade	7. J 5. 4	7.3 5.3	1. S.			4.1
	1	Others	J. 4 17. 7		18.3		18.8	20. 2
		Uthers	11.1	11.0	10.0	10.0	10.0	20.0
	GDP at	Agriculture,		1. 4.		н. С. А. (1997)		
		Forestry and	: .	· · · ·				
		Fishery	1.7	7, 1	-0.6	4.7	3.6	3.1
		Mining and		n an		· · ·		
	Growth	Manufacturing	0.2	8.8	2.9	0.3	6.9	2.8
	rate-by	Others	4.8	4.6	2.8	5.0	2.6	5.1
	Industry	/) <u>a/</u>	-				· ·	
					na di Angelani Angelani Angelani Angelani			
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							an a	
	<u>a/</u>	Revised	* .			an di satu K	· · · · · · ·	
			· .					
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		· · · · · · · · · · · · ·	<u>FY1980</u>	<u>FY1981</u>	<u>FY1982</u>	<u>FY1983</u>	FY1984	<u>FY1985</u>
	Price	Wholesale		·	·		· ·	
	Indexes	(1969/		· · ·	* : :			а. 1
		70=100)	516.1	571.6	629, 5	642.7	747.0	862.0 a/
	1	Annua l		and the Araba San Ar Araba San Araba San Ar				
		Change						
· .	the second second	(%)	11.1	10.8	10.1	3.1	16.2	15.4
		Consumer				n da anter Anter		
		(1973/						
	· · ·		<u>b</u> / 235.1	258.8	299.2	329.1	361.5	430.0 <u>c</u> /
	e e di	Annual						n de la companya de l Recentra de la companya de la company
	· ·	Change	: 17 D	10.0	1 <b>.</b>	10.0		11.5
. т. <sub>с</sub> .		(%)	11.0	10.0	15.6	10.0	9.8	11. 0
	Money	Money		- -				
	and	Supply	16 985 9	21 603 /	91 701 A	26 747 8	36 556 5	30 500 / 4/
		Annual	10,000.0	51,005. <del>1</del>	41, 101. 1	50, 111, 0	00,000,0	001 000. ± u/
		) Change					· ·	•
· ·.			14.0	27.7	0.0	23.2	36.7	8.1
		Time Depo-		nan san san san san san san san san san	a a secondaria de la composición de la Composición de la composición de la comp			
· .		sits	17, 320. 7	22, 031. 9	25, 485, 2	33, 502, 9	48, 725. 4	57, 395. 4 d/
		Credit to			4.			- -
-	4 A.	Private						
		Sector	15, 132, 5	19,661.3	23, 825, 1	32, 655, 3	50,806.9	65, 153, 8 <u>d</u> /
	Central	Current	an An an					
	Govern-	Revenue	18, 345	23, 430	25, 538	27.107	29, 529	34,770
		Current		·	2	· · · · · · · · · · · · · · · · · · ·	et Li Night	: .
		Expenditure	13, 407	14,815	18,500	21,467	24, 520	29, 300
	Mn Taka)	Current					· .	
	· · · ·	Surplus/			4			· .
		Deficit	1 000	0 015	7 090	5 640	5 000	E 470
	· · ·	(-)	4, 938	8,615	7,038	5,640	5,009	5,470
		Capital Expenditure	90 090	23,690	27, 153	29,771	30, 079	35, 084
		Overall	20,020	20,000	61,100	43,111	<i>DV</i> , VI <i>J</i>	00,004
		Surplus/		· · · · · ·				
÷.,		Deficit				an an teanna an teann Teanna an teanna an te	19 - 19 - 19 - 19 - 19 - 19 - 19 - 19 -	
1			-15, 882	-15,075	-20, 115	-24, 131	-25, 070	-29, 614
		Financing	15,882	15,075	20, 115		25,070	29,614
	н 11		an an Angeler Mangelan St	ang	n forske servere Generale servere			
•	10 <u>1</u> 10 10 10 				,			
	<u>a</u> /	Index for Ma		ng a shi ta ta sa a A ta sa an sa anga				
	<u>b</u> /	Average for			Khulna.			
	$\frac{b}{c/}$	Index for Dh		arch 1985.	÷			
	<u>d/</u>	As of March	1985.			· · ·		

- Index for Dhaka For March 1985.
- As of March 1985.

		<u>FY1980</u>	<u>FY1981</u>	FY1982	<u>FY1983</u>	<u>FY1984</u>	FY1985
· .	at garage		-		ara Araba araba	en e	
	Domestic				·	an a	
	Borrowings,				1917 - 11 - 11 - 11 - 11 - 11 - 11 - 11	1 000	
	Net	2,920	5,000		·	1,920	
· .	Foreign	ч.	•	,		•	
	Borrowings &					0.0 1.0 0	
	Grant <u>a</u> /	13.144	10,640	20, 810	23, 620	23, 107	26, 180
	Use of cash					en e	
	balances						
	& other			a sa sa sa sa		ta serie de la	
· · ·		182		-695			3, <u>434_</u> b/
Balance		761	711	626	719	822	900
o f	Imports(CIF)	-2,441	-2,533	-2,572	-2,310	-2,353	-2,800
Payments	Trade					· · ·	
(Mn \$)	Balance	-1,680	-1,822	-1,945	-1,591	-1,531	-1,900
	Services(Net)	13	15	-70	-112	-33	-90
	Transfers	· . ·					· · ·
·	(Net) c/	157	379	425	598	552	450
· · · · ·	Current				· .		
	Balance c/	-1,510	-1, 428	-1, 592	-1.105	-1.012	-1,540
•	Capital Flows						
	(Net) c/	1, 392	1,404	1,464	1, 345	1, 178	1,402
	Overall						
: .	Balance	-118	-24	-128	240	166	-138
Leading	Raw Jute	19.8	16.7	16.1	15.9	14.6	15.1
export	Jute Manu-						
COMMO-	facturers	53.2	51.6	46.6	45.5	43.2	44.6
dities	Leather	9.1	8.0	10.1	84.4	10.7	7.9
(Per-	Tea	<b>4</b> . 6	5.7	6.1	6.7	8.7	7.9
centage	Fish	4.0 5.1	5.7	8,6	10.5		9.2
share)	1 101	<b>0.</b> 1	0.1	. 0, 0	TA' A	v. 1	J. D
SHALE)		ta a se		6.5 1			

- a / Including project aid, Local currency proceeds from commodity aid, and net local currency receipts from food aid and domestic sales of foodgrain(inclusive of local and foreign purchases).
   b / Includes TK2, 400 million from food account.
- b/ c/
- Official transfers are lumped with external loans included in capital flows, together with net drawings on IMF and other capital. Capital flows also include errors and omissions.

			100 C			-	10 A	1
		 	<u>FY1980</u>	FY1981	FY1982	FY1983	FY1984	FY1985
		· · .						
Leading	Petroleum &					11	4	
import	Petroleum				1		· .	
commo-	Products	· . ·	16.2	19, 3	21.3	17.8	15.2	12.8
dities	Wheat		18.1	8.3		12.5	14.6	13.8
(Per-	Rice		8.1			4.2	2.4	6, 1
centage	A second s	· .	12.5	11.6	12.8	11.3	13.1	U, I . _
share)	Machinery &		16.0	. 11, 0	14,0	11.0	19, 1	
Share)	and the second	·	1. L		araan Taraa	1. J. J.		
· · ·	Transport			<b>00</b> 0	00.4			
	Equipment		23.0	27.2	26.1	19.5	19.9	-
Torma	/1079/79-							
	(1972/73=			F 4	10			
of Trade	100) <u>a</u> /		70	51	42	47	57	66
· .	an Roberts							
			FY1980	<u>FY1981</u>	FY1982	FY1983	<u>FY1984</u>	FY1985
				e e Arriero Arriero				
	(Taka/US\$)	•			· · ·			an a
Rate	(end of				·			1
1.	period)	аранан Ал	16.251	19.847	24.074	25.000	26.000	30.000 <u>b</u>
en e			: ·					
lnter-	Total(end of	14	1	•				
national	year)(mos)		321.2	155.3	207.1	541,6	405.7	<u>321.3 с</u>
Reserves			· ·		· ·		•	
(Mn \$)			1.6	0.7	1.0	2.8	1.9	1.4
					-			· · ·
External	Publicly		:		· · ·			
Debt b/	guaranteed				:	·		
(Mn \$)	outstanding			ан. Ал		· ·	· .	at in the second se
Ψ)	inc. Undis-	1.1			and the second		1. 	
1	bursed (end	•		· ,				•
			6 100 0	6 17 4 0	6 000 0	6 910 4		
	of period)		5, 486. 2	U, 114. Ö	6,996.0	0,019.4		н 1917 - А
	D						· ·	
	Disbursed only	· .					teri.	
	(end of	e	•	an a	14. 14.			
· · · ·	period)	• .	3, 521, 1	3,851.8	4,352.9	4, 184. 5		
4			:	ی ۲۰۰۰ م				
	Private Non-							
	guaranteed,							
	Outstanding,					· · · ·		
	Disbursed				· .			
	only (end of						1	
	period)	÷	2		-	—		
	horron							· · ·
:				· .		· ·		
	Bau Ja - F	· · · ·						
<u>a</u> /	Revised		-			•		
<u>b</u> / <u>c</u> /	As of 1 Novembe		<b>ბ</b>	an a		·	· .	
<u>c</u> /	As of end July	1985	н 1		1.			
<u>d</u> /	Revised				· .			ан. Ал
·		1						
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	<u>FY1980</u>	<u>FY1981</u>	FY1982	FY1983
5		· .		
Principal		4 .		a fe k i s
Repayments				
(total for			- 4 - 1	
period)	39.8	51.0	63.1	79.7
	· · · ·			
Interest		. :		
Payments				
(total for				
period)	35.7	46.6	48.4	63.3
Debt Service				
Ratio (%) <u>a</u> /	9.9	13. 7	17.8	19.9
· · ·				

<u>a</u> / Debt service payments as percentage of exports of goods

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# TECHNICAL SPESIFICATIONS

iten	n No	. PPW-1	AGRO-CHE	MICAL, FENI	TROTHION	30% w/w E	C	
Quar	ntity	y Required:					-	
Spec	cifi	cations					tion for the	
1. <u>(</u>	diı	ical Name: nethyl 4-ni osphorothion	tro-m-tolyl nate	sonta o tronto Sector de la constante Galeria de la constante				
2. <u>ì</u>		num Purity: % w/w					i - E Secondaria Longo Antonia	
3. <u>I</u>	Phys	ical Proper	ties:					
	j	nydrolised methyl-4-ni	yl-4-nitroph impurities of trophenol 2% of the f	calculated	<u>as 3-</u>			••••
	3.2	Maximum a			a sana ang seto sa s Seto sa s Seto sa s Seto sa seto sa seto Seto sa seto sa			· .
ŝ	3.3	<u>Water</u> Maximum:	0.2%					
	3.4		point of th wer than 22.		shall			
			ability and ion	<u>re-</u>				
	•	After the the produ CIPAC wat	heat stabil ct when dilu er D (342 PI ply with the	ited at 30 <sup>°C</sup> M hardness	PC with )			
		Time after <u>dilution</u> Oh	Initial em	Limit of tability ilsifiabili	ty:			
		0.5h 2.0h 24.0h	complete Cream, max Cream, max Free oil:	imum: 4 ml	1			

#### Specifications

#### 4. Storage Stability:

4.1 Low temperature stability

After storage at 0°C for 7 days, the volume of the solid/or liquid which separates shall not be more thn 0.3%.

4.2 Heat stability

After storage of  $54 \pm 2^{\circ}C$  for 14 days, the concentrate shall continue to comply with 2, 3.1 and 3.5.

#### 5. Packings and Markings:

5.1 Packings

The material must be packaged in suitable, clean containers which do not affect, and are not affected by the product contained. The container must adequately protect the product from exterior influences including moisture contamination and compaction and from loss by vaporization. Where necessary, containers shall be lined with a suitable material to prevent corresion or deterioration of contents or container. Outer surface of container must be so constructed or treated as to prevent corrosion or deterioration of container and of the product label. Containers must comply with all applicable national & international transporation safety & other regulations. .....÷

The pesticide product, container & contents, must be sufficiently stable to most all product specifications for a period of at least two years.

#### Markings

5.2

All the packages shall bear durably and legible marked on the containers.

Item No. PPW-2 AGRO-CHEMICALS, PHENTHOATE 50% w/v EC

Quantity Required:

Specifications

1. Chemical Name:

S-[ (ethoxy carbonyl) benzyl] dimethyl phosphorothiolothionate

- 2. <u>Minimum Purity:</u> 50% w/v EC
- 3. Physical Properties:
  - 3.1 Appearance

Light brown liquid

- 3.2 <u>Odor</u> Aromatic
- 3.3 Flash point 32°C
- 3.4 <u>Water content</u> Max. 0.2%
- 3.5 <u>Boiling point</u> 137°C
- 3.6 <u>Specific gravity</u> 1.065 <u>+</u> 0.005 at 20°C
- 3.7 <u>Acidity/alkalinity</u> Max. acidity 0.20% Alkalinity 0.10%
- 3.8 Emulsion stability

After the heat stability test the product, when diluted at  $30 \, ^{\circ}$ C with CIPAC standard water D(342 PPM hardness) shall comply with the following:

Time	Limit
after	of
dilution	stability
0	Initial emulsifiability:
	complete
0.5h	Cream: Maximum 1 ml.
2h	Cream: Maximum 4 ml.
	Free oil: Nil.
24h	Re-emulsification: complete
24.5h	Cream: Maximum 4 ml
	Free oil: Maximum 2 ml.

#### Specifications

#### 4. Storage stability:

4.1 Low temperature stability

After storage at 0°C for 7 days, the volume of solid or liquid which separate shall not be more than 0.3%.

4.2 Heat stability

After storage at  $54^{\circ} \pm 2^{\circ}$ C for 14 days the active ingredient shall not de eriorate by more than 10% of the declared content.

#### 5. Packing and Marking:

5.1 Packing

The material must be packaged in suitable, clean containers which do not affect and are not affected by the product contained. The container must adequartely protect the product from exterior influences including moisture contamination and compaction and from loss by vaporization. Where necessary, containers shal be lined with a suitable material to prevant corrosion or deterioration of contents or container. Outer surfaces of containers must be so constructed or treated as to prevent corrosion or deterioration of container & of the product label.

The pesticide product, container and contonts, must be sufficient stable to most all product specifications for poriod of at least two years.

5.2 Marking

All the packages shall bear durably and logibly marked on the containers.

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Item No. PPW-3 AGRO-CHEMICAL, DIAZINON 60% W/V EC

Quantity Required:

#### Specifications

- 1. <u>Chemical Name:</u> diethyl 2-isopropyl-4-methyl-6pyrimidinyl phosphorothionate
- 2. <u>Minimum Purity:</u> 60% w/v
- 3. Physical Properties:
  - 3.1 <u>Acidity</u> Maximum acidity: 0.05% calculated as H<sub>2</sub>SO<sub>4</sub>
  - 3.2 Water

Maximum: 0.2%

3.3 Emulsion stability

the produc with CIPA(	best stability test $(5.2)$ ct, when diluted at 30 °C C standard water D (342 PPM
	shall comply with the
following	
Time	Limit
after	of of
dilution	stability
0h	Initial emulsifiability:
	Complete
0.5h	Cream: Maximum 1 ml.
2h	Cream: Maximum 4 ml.
1	Free oil: Nil.
24h	Re-emulsification:
ta da ta	Complete
24.5h	Cream: Maximum 4 ml.
11 A.	Free oil: Maximum 2 ml.

4. Storage stability:

4.1 Low temperaure stability

After storage at 0°C for 7 days the volume of solid or liquid which separates shall be not more than 0.3%

4.2 Heat stability

After storage at  $54 \pm 2$  °C for 14 days the product sall continue to comply with 2 and 3.3.

#### Specifications

#### 5. Packing and markings:

## 5.1 Packings

The material must be packed in suitable, clean containers which do not affect and are not affected by the product contained. The container must adequately protect the produc from extarior influences including moisture contamination and compaction and from loss by vaporization. Where necessary, centainers shall be lined with a suitable material to prevant corrosion or daterioration of contents or container. Outer surface of containers must be so constructed ortreated as to prevent corrosion or deterioration of container and of the product labd. Containers must comply with all applicable national and international transportation, safety and other regulations.

The pesticide product, container and contents, must be sufficiently stable to most all product specifications for a period of at least two years.

#### 5.2 Markings

All the packages shall bear durably and legible marked on the containers.

-279-

BAN/2KR-4			·	n Na <u>Est</u> aria
Item No. PPW-4	AGRO-CHEMICAL,	MIPC 75% w/w WP		
Quantity Required:		<u></u>		
Specifications				
1. <u>Chemical Name:</u>				
0-cumenyl methy	lcarbamate			
2. <u>Minimum Purity:</u> 75% w/w WP	د ۲۰۰۰ های ۲۰۰۰ ۱۹۹۹ - ۱۹۹۹ -	en antikologi en		
3. Physical Property				
3.1 <u>Colour/appea</u> Whity fine powe			an di Shing Shan Ang Shan Shing Shan Shan Sh	
3.2 <u>Odour:</u> Slightly pheno	Lic			
3.3 <u>Bulk densit</u> 0.300 - 0.400 r				
3.4 <u>PH value:</u> PH 5.0 - 7.0				
3.5 <u>Water conter</u> 0.5%	<u>ot:</u>		· · · · · · · · · · · · · · · · · · ·	
3.6 <u>Particle si</u>	<u>ze:</u> through 45 Mm si			
<ol> <li>4. <u>Storage Stability</u></li> </ol>				
	in hard water (3 er 30 minutes	142 ppm)		et († 1
50% min. 4.2 High tempera	ature storage sta	bility		

 4.2 High temperature storage stability for 14 days at 54°C + 2°C)
 Not less than 90% active ingredient shall remain

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#### Specifications

#### 5. Packings and Markings

#### 5.1 Packings

The material must be packaged in suitable, clean containers which do not affect, and are not affected by the product contained. The container must adequately protect the product from exterior influences including moisture contamination and compaction and from loss by vaporization. Where necessary, containers shall be lined with a suitable material to prevent corresion or deterioration of contents or container. Outer surface of container must be so constructed or treated as to prevent corrosion or deterioration of container and of the product label. Containers must comply with all applicable national & international transporation safety & other regulations.

The pesticide product, container & contents, must be sufficiently stable to most all product specifications for a period of at least two years.

#### 5.2 Markings

All the packages shall bear durably and legible marked on the containers.

-281-

BAN/2KR-5	DERIVI DOMINE
Item No. MOF-1 AGRO-CHEMICAL, M	ETHYL BROMIDE
Quantity Required:	
Specifications	
1. Chemical Name:	n an an an Araba an Araba an Araba an Arab
bromomethane	
Physical Property:	
2.1 Appearance	and the second state of the base of the first
Colorless mobile liquid	
2.2 <u>Odor</u>	n de la companya de La companya de la comp
Similar to that of chloroform	or ether
2.3 Specific Gravity	
Liquid: $1.732$ at $0^{\circ}C$	
Gas: $3.28$ (Air = 1)	
2.4 Boiling Point	
4.5°C	
2.5 Steam Pressure	
$2.0 \text{kg/cm}^2$ at $20^{\circ}$ C	
2.6 Solubility	
a) 1.25/100m lit. H <sub>2</sub> O (20°C)	
b) Soluble in alchol, ether,	
chloroform, carbon tetrach	loride,
benzene, carbon bisultide.	
. Packings and Markings:	
3.1 Packings	
The material must be packed in	n suitable.
clean containers which do not	
are not affected by the produc	
The container must adequately produc from extarior influence	
moisture contamination and con	
from loss by vaporization, M	here
necessary, centainers shall be	
suitable material to prevent of daterioration of contents or a	
Outer surface of containers m	
constructed or treated as to p	prevent
corrosion or deterioration of	
of the product labed. Contain comply with all applicable na	
international transportation,	
other regulations.	

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# Technical Specifications

BAN/2KR-5

Item No. MOF-1 AGRO-CHEMICAL, METHYL BROMIDE

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Quantity Required:

## Specifications

The pesticide product, container and contents, must be sufficiently stable to most all product specifications for a period of at least two years. Container should be of 50kg capacity of clylinder capable to withstand transit by sea, rail and road.

3.2 Markings

All the packages shall bear durably and legible marked on the containers.

-283-

BAN/2KR-6	
Item No. BADC-1 DIESEL ENGINE	
Quantity Required: 500 sets	
Specifications	
Description	
4 cycle, water cooled diesel engine for deep tube well pump applicable to tropical conditions	
Performance	
1. Output: 36 HP or more at 2200 to 2300rpm 2. Displacement: approx. 2,500cc	
Dimensions	
<ol> <li>Overall length: approx. 1200mm</li> <li>Overall width : approx. 530mm</li> <li>Overall height: approx. 1000mm</li> </ol>	
Dry weight	
approx. 400kg	
approx, toong	
Engine	
1. Combustion system: direct injection or swirl chamber type	
2. Number of cyclinder: 3	
3. Cooling system: water cooled with radiator for tropical conditions	
4. Lubricating system: forced lubrication by trochoid or gear pump	
5. Starting system: manual or electric motor	
<pre>6. Air cleaner: single paper element type or oil bath type</pre>	
7. Fuel oil filter: paper element type	
8. Lubricating oil filter: paper element or washable type	
9. Instrument panel: tachometer with hour meter, lubricating oil pressure guage, cooling water temperature and others	

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# Technical Specifications

BAN/2KR-6

## Specifications

## Clutch

Mechanical type

# Accessaries

Base for engine, fuel oil daily service tank, exaust silencer, tool box and tool kit for daily maintenance, and others

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# Technical Specifications

BAN/2KR-7

Item No. BADC-2 DEEP TUBE WELL COMMI	SSIONING MATERIALS
Quantity Required: 500 sets	
Specifications	
Description	
Gear box and spacer shaft for deep tube well commissioning materials	an an ann an Arrainn an Arrainn an Arrainn Ar an Arrainn an Arrainn an Arrainn an Arrainn Arrainn an Arrainn an Arrainn
Gear box	
1. Type: right angle for pump driver, suitable for 36 HP diesel engine	
2. Gear reduction ratio: 3/2	
3. Back stop: non reverse, rachet type	n an an an an <u>a</u> n an
4. Lubrication system: water cooled type	den margen en service de la constante de la service. En la constante de la constante
<ol> <li>5. Dimensions:         <ol> <li>Overall length: approx. 300mm</li> <li>Overall width: approx. 300mm</li> <li>Overall heigth: approx. 550mm</li> </ol> </li> </ol>	
Spacer shaft	
1. Type: universal type suitable for 36 HP engine and gear box	
2. Overall length: approx. 600mm	

BAN/2KR-8 Item No. BWDB-1 SUBMERSIBLE DEEP TUBE	
	WELL FUM
Quantity Required: 20 units	
Specifications	
Description	
Electric submersible pump with accessorie for deep tube well	S and a final constraint of the second se S and second s S and second s
Submersible pump	
1. Type: submersible multistage turbine p	ump
2. Discharge volume: 3.4m <sup>3</sup> /min or more	
3. Total head: 33m or more	
4. Revolution: approx. 3,000rpm	
5. Number of stages: 2	
6. Impeller type: closed type	
<ul> <li>7. Material:</li> <li>1) Casing: cast iton</li> <li>2) Impeller: bronze</li> <li>3) Pump shaft: stainless steel</li> </ul>	
Submersible motor	ter en la companya de la transforma de la companya de la companya de la companya de la companya de la companya En la companya de la c
1. Type: water field type	
2. Output: 30kW or more	
3. Voltage: 400V, 3 phase	
4. Frequency: 50 Hz.	
5. Starting method: star-delta starting	
6. Material:	
<ol> <li>Motor bracket: cast iron</li> <li>Motor frame: carbon steel</li> <li>Motor shaft: stainless steel</li> </ol>	
Combination starter	
1. Type: wall-mounting, outdoor type	
2. Equipment:	
<ol> <li>pilot lamp</li> <li>volt-meter</li> <li>ammeter</li> <li>thermal relay (over-load, single</li> </ol>	
phase protection) 5) fuse 6) magnet switch 7) floatless switch	

7) floatless switch

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Technical Specifications

BAN/2KR-8

# Specifications

Standard accessories

	1.	Well cover with discharge elbow:	150mm dia.	1	no.
	2.	Auto air vent valve:		1	no.
• .	3.	Companion flange:	150mm dia.	່ 1	no.
	4.	Sluice valve:	150mm dia.	1	no.
	5.	Check valve:	150mm dia.	1	no.
•	6.	Compound guage:		1	no.
•	7	Cabtyre cable:	3.5mm <sup>2</sup> or more/ 3 cores/40m	2	nos.
	8	Riser pipe:	5.5m/no. 150mm dia material, carbon steel	6	nos.
	9.	Electrode:	electric wire/40m	1	no.
	10.0	Cable clip:	150mm dia.	. 12	2 nos.

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· · ·	*						·
BAN/2KR-	9						
Item No.		SHEET PILE					
Quantity	Required:	20 units		ana ing panganan kana			
Specific	ations				· · · · · · · · · · · · · · · · · · ·		
<u>Descript</u> U type	<u>ion</u> steel sheet	; piles		: ·			· · ·
	ective width			·			
		rance +10 mm to	- 5 mm				
	ective heigh 25-130 mm, 1	it: colerance <u>+</u> 4%	*		• • •		е.
	ckness: 3 mm, tolera	ance <u>+</u> 1.2 mm			en e		
	rall length: 2 m, toleran	nce + unlimited	to O				
Dry weig	ht	1. J. C.		· · ·			
Approx	. 720 kg.						
Properti	es	· .	· ·			- - -	
1. Mom pil		tia: 2,300 cm <sup>1</sup>	t or more	per			
2. Sec	tion modulus	s: 230 cm <sup>3</sup> or 1	nore per pi	ile			
Steel gra	ades						
	grades and p ing standard	properties shal	l meet the				
JIS	A5528 SY 30	) or equivalent					
÷.,					е	·	

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Item No.BWDB-3 VIBRATING PILE DRIVING HAMMER

Quantity Required: 2 units

#### Specifications

#### Description

Electric-vibrating type, suitable for type III sheet pile(W400mm x H130mm x T13mm), pile driving hammer consisting of vibrator, cabtyre cable & hydraulic hose and controller

#### Performance

- 1. Driving
  - 1) N value: sandy soil; 30 or less clay soil, silty soil; 15 of less
  - 2) Sheet pile length: type III; 15 m long or less
- 2. Extracting

Sheet pile length:

sandy soil type III; 22 m or less clay soil, silty soil type III; 15 m or less

#### Vibrating Unit

- 1. Vibrator
  - 1) Motor output: 40kW or more
  - 2) Eccentric moment:2,200kg-cm or more
  - 3) Motor voltage: 400V.
  - 4) Cycle of source: 50 Hz.
  - 5) Frequency: approx. 1,100 c.p.m.
  - 6) Vibrating power: 30 ton or more
  - 7) Theoretical amplitude: approx 7mm
  - 8) Theoretical acceleration: approx. 10g
- 2. Damper
  - 1) Spring solid load: 16 ton or more
  - 2) Spring stroke: 200mm or more
  - 3) Spring constant: 60kg/mm or more
- 3. Chuck
  - 1) Chucking force: 44 ton or more
  - 2) Chuck clearance:
    - -10mm to 48mm or more

BAN/2KR-10			· · · · · · · · · · · · · · · · · · ·	
			en e Brite Alexandre -	an an an Arthur an Arthur An Anna An Anna An Anna An Anna An Anna An
Specifications				na filoso (al coste 1
4. Dimensions		· · · · · · ·		
2) Overall	<pre>length: approx. width : approx. depth : approx.</pre>	1,100mm		

5. Dry weigth Approx. 3,600kg

## Control Unit

- 1. Starting system:
- electromagnetic star-delta system
- 2. Operating position: point control and remote control
- 3. Dry weigth: approx. 450 kg.

#### Power Source Cable

Section area: 30  $\rm mm^2$  or more at 400 V.

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		·				· · ·	
BAN/2KR-11	an a		<i>i</i>	a di Lar			
Item No. BWDB-4	DIESEL GENERAT	OR					
Quantity Required:	2 units	ala 1997 - Alassan	a Araa Araa Araa ahaa ahaa				-
Specifications							
Description	· · · · · · · · · · · · · · · · · · · ·			· · ·	·		
Diesel engine driv 100 KVA or more at Bonnet type genera	output frequence	ey of 50	Hz.				·
Dimensions 1. Overall length:	approx. 3000mm		· .	• • •			
2. Overall width :	approx. 1200mm						
3. Overall height:	approx. 1700mm				•		
Dry weigth Approx. 2,450 Kg.			•				
Alternator							
1. Stand-by power:	100 KVA or more	e (50Hz)				an a	
2. Prime power							
3. Voltage: AC 400	) V.	•	·		· ·		
4. Excitation: bru	Ishless				a ta se se		
5. Power factor: 8	80% lag.		· ·				
6. No. of poles: 1	l poles		 	· · · **	r T	1.	
Diesel engine							
1. Type: 4 cycle, direct in						4 	
2. No. of cylinder	s: 6 cylinders	:					

3. Displacement: approx. 6500cc.

4. Revolutions: 1500rpm.

5. Starting system: electric starting motor

6. Lubricating system: forced lubricating

7. Fuel consumption: 28 lit/h or less

Specifications Description: Diesel engine driven equipucket capacity, 20m boo For the improvement, ope of drainage canal.	n length. Dragline
Description: Diesel engine driven equ Ducket capacity, 20m boo For the improvement, ope of drainage canal.	n length. Dragline
Diesel engine driven equ bucket capacity, 20m boo for the improvement, ope of drainage canal.	n length. Dragline
oucket capacity, 20m boo for the improvement, ope of drainage canal.	n length. Dragline
Aadius of rear end: Overall length of crawle Overall width: Standard boom length: no Boom extension: no to	approx. 3,300mm
. Dragline bucket capacity:	not less than $1.2m^3$
<pre>?. Working radius  (at boom length 20m,  boom angle 45°):</pre>	approx. 15m
. Max. dumping height (20m, 45°):	approx. 11m
. Max. dumping radius (20m, 45°):	approx. 14m
. Max. digging depth (15m, 45°):	approx. 4m
. Line pull:	not less than 10,000kg
. Line speed:	not less than 25m/min
. Ground pressure:	approx. 0.55kg/cm <sup>2</sup>
. Gradeability:	140% in the second distribution at the superscript of the second distribution is the second distribution of the second distrib

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BAN/2KR-12	
	an a
Specifications	
Engine:	
1. Type: water cooled, 4 cycle, 6 cylinder, diesel engine	and an
2. Horse power: not less than 130Hp at rated rpm	
3. Max. torque: not less than 50kg.m at rated rpm	
4. Displacement: approx. 10,000cc	
5. Fuel tank: approx. 250 lit.	
6. Battery: 12V x 2, 120AH or more	
Upper machinery:	
1. Control system: power hydraulic system	
2. Clutch: Band type, internal expanding clutch powered by hydraulic cylinder	
3. Drums: front and rear main drum, external contracting band brake	
4. Boom hoist assembly: spur gear driven independent boom hoist, hydraulically released band type brake	
5. Swing speed: approx. 3.5m rpm	
6. Cab: full-vision compartment with safty glass panel	
Lower machinery:	
1. Shoe width: not less than 760mm	$\label{eq:stars} \left\{ \begin{array}{llllllllllllllllllllllllllllllllllll$
2. Track rollers: heat treated	
3. Track shoes: heat treated, self-cleaning	

BAN/ZER-13           Item No. BWDB-6A         BULL DOZER: 200 HP           Quantity Required: 2 units           Specifications           Description           Power Sift Crawler type Tractor for dozing works, driven by not less than 200 flywheel horse power engine, equiped with angledozer and hydrauric control unit.           Performance           1. Max. travel speed Forward: Not less than 9.5km/hr Reverse: Not less than 11.0km/hr           2. Max. drawbar pull: Not less than 18 ton 4. Ground pressure: Max. 0.80kg/cm <sup>2</sup> Dimension           1. Overall length: approx. 4,200mm           2. Overall width: approx. 2,600mm           3. Overall height: approx. 3,400mm (except exhaust pipe, air-cleaner pipe) 4. round contact area: approx. 2.7m <sup>2</sup> 5. Ground clearence: approx. 3,400mm romore (except grouser height)           Engine           1. Type: Mater cooled, #-cyole, direct injection type, turbocharged diesel engine           2. Displacement: More than 10,000ce           3. No. of cylinders: 6 or more           4. Flywheel horsepower: More than 200 HF at rated rpm           5. Max. torque: More than 100kg.m           6. Prule dii: Diesel gas oil		Technical Specifications
Item No. BMDB-6A BULL DOZER: 200 HP Quantity Required: 2 units Specifications Description Power Sift Crawler type Tractor for dozing works, driven by not less than 200 flywheel horse power engine, equiped with angledozer and hydrauric control unit. Performance 1. Max. travel speed Forward: Not less than 9.5km/hr Reverse: Not less than 9.5km/hr Reverse: Not less than 1.0km/hr 2. Max. drawbar pull: Not less than 38 ton at lowest gear use 3. Operating weight: Not less than 18 ton 4. Ground pressure: Max. 0.80kg/cm <sup>2</sup> Dimension 1. Overall height: approx. 4,200mm 2. Overall height: approx. 2,600mm 3. Overall height: approx. 2,600mm 3. Overall height: approx. 2,7m <sup>2</sup> 5. Ground clearance: approx. 3,400mm or more (except grouser height) Engine 1. Type: Mater cooled, 4-cycle, direct injection type, turbocharged diesel engine 2. Displacement: More than 10,000cc 3. No. of cylinders: 6 or more 4. Flywheel horsepower: More than 200 HP at rated rpm 5. Max. torque: More than 100kg.m 6. Fuel oil:		
Item No. BWDB-6A BULL DOZER: 200 HP Quantity Required: 2 units Specifications Description Power Sift Crawler type Tractor for dozing works, driven by not less than 200 flywheel horse power engine, equiped with angledozer and hydrauric control unit. <u>Performance</u> 1. Max. travel speed Forward: Not less than 9.5km/hr Reverse: Not less than 9.5km/hr Reverse: Not less than 11.0km/hr 2. Max. drawbar pull: Not less than 38 ton at lowest gear use 3. Operating weight: Not less than 18 ton 4. Ground pressure: Max. 0.80kg/cm <sup>2</sup> <u>Dimension</u> 1. Overall height: approx. 4,200mm (except exhaust pipe, air-clearer pipe) 4. round contact area: approx. 3,400mm (except exhaust pipe, air-clearener pipe) 4. round clearance: approx. 3,400mm or more (except grouser height) <u>Engine</u> 1. Type: Mater cooled, 4-cycle, direct injection type, turbocharged diesel engine 2. Displacement: More than 10,000cc 3. No. of cylinders: 6 or more 4. Flywheel horsepower: More than 100Kg.m 5. Max. torque: More than 100Kg.m		
Quantity Required: 2 units         Specifications         Description         Power Sift Crawler type Tractor for dožing works, driven by not less than 200 flywheel horse power engine, equiped with angledozer and hydrauric control unit.         Performance         1. Max, travel speed Forward: Not less than 9.5km/hr Reverse: Not less than 11.0km/hr         2. Max, drawbar pull: Not less than 11.0km/hr         Mot less than 38 ton at lowest gear use         3. Operating weight: Not less than 18 ton         4. Ground pressure: Max. 0.80kg/cm <sup>2</sup> Dimension         1. Overall length: approx. 4,200mm         2. Overall height: approx. 2,600mm         3. Overall height: approx. 2,600mm         3. Overall height: approx. 2,000mm         (except exhaust pipe, air-cleaner pipé)         4. round contact area: approx. 2,7m <sup>2</sup> 5. Ground clearance: approx. 3,400mm or more (except grouser height)         Engine         1. Type:         Water cooled, 4-cycle, direct injection type, turbocharged diesel engine         2. Displacement:         More than 10,000cc         3. No, of cylinders: 6 or more         4. Flywheel horsepower:         More than 100,00cc         3. No, of cylinders: 6 or more         6. Fuel oil:	BAN/2KR-13	n an
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	6. Fuel oil:	

#### Specifications

- Lubrication system: Gear pump, forced lubrication, full-flow type
- 8. Cooling system: Forced circulation water, exhaling fan type
- 9. Air cleaner: Dry type
- 10. Starting method: 24V electric starting motor
- 11. Battery: 24V more than 170 Ah

#### Transmitting system

- Torque converter:
   3 element, single stage and single phase, water cooled
- 2. Transmission: Planetary gear type with 3 forward and 3 reverse speeds
- 3. Final drive: Spur gear, double reduction

#### Steering system

- Steering clutch: Wet multiple disc, hydrauric disengaged, hand operated
- Steering brake: Wet, contructing band, foot operated, interconnected with steering clutch, with hydrauric booster

#### Under carriage

- Suspension: Oscillation type with equalizer bar
- 2. Carrier roller: 2 pcs on each side
- 3. Track roller: 6 pcs on each side
- 4. Shoe grouser height: More than 70mm
- 5. Shoe width: More than 500mm
- 6. Lubrication: Lubricated tracks
- 7. Driving sprocket: Replacable bolt-on sprocket rim segments

#### BAN/2KR-13

#### Specifications

#### Dozer

- 1. Type: Hydraulic controled, manual or hydrauric angling and tilting
- Dimension

   Hight: More than 970mm
   Length: More than 4,250mm
- 3. Max. lift above ground: More than 1,180mm
- 4. Max. digging below ground: More than 470mm
- 5. Blade angle: 25°

#### Hydrauric control system

- 1. Max. hydrauric pump capacity: More than 220 litres/min. at rated rpm
- 2. Control valve position: Raise, hold, lower and float for bulldozer blade

#### **ROPS Canopy and FOPS**

- 1. ROPS criteria: Shall meet SAE SAEJ395 ISO3471
- 2. FOPS criteria: Shall meet SAE J231 ISO3449

#### Other attachment

Shall equiped with Drawbar, vandalism protection and panel cover and lock

#### Electric equipment

Double head lamps, rear side working lamp, necessary pilot lamps and necessary gauges shall be equipped

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Quantity Required: 2 units         Specifications         Description         Power Sift Crawler type Tractor for dozing works, driven by 90 or more flywheel horse power engine, equiped with angledozer and hydrauric control unit.         Performance         1. Max. travel speed         Forward: Not less than 9.0km/hr         Reverse: Not less than 10.0km/hr         Reverse: Not less than 10.0km/hr         Net less than 10 to at lowest gear use         3. Operating weight:         Not less than 9.8 ton         4. Ground pressure:         Max. 0.62kg/cm <sup>2</sup> Dimension         1. Overall length         (except dozer): approx. 3,400mm         2. Overall width         (except dozer): approx. 3,400mm         2. Overall width         (except dozer): approx. 3,400mm         3. Ground contact area: approx. 1.8m <sup>2</sup> 4. Ground clearance (except grouser height): approx. 370mm         Engine         1. Type:         water cooled, 4-cycle, direct injection type, turbocharged diesel engine         2. Displacement:         More than 4,300cc         3. No. of cylinders:         4 or more         4. Flywheel horsepower:         90 HP or more at rated rpm         5. Fuel		/2KR-14 m No. BWDB-6B BULL DOZER: 90 HP	•
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<ul> <li>4. Ground clearance (except grouser height): approx. 370mm</li> <li>Engine <ol> <li>Type: Water cooled, 4-cycle, direct injection type, turbocharged diesel engine</li> </ol> </li> <li>2. Displacement: More than 4,300cc</li> <li>3. No. of cylinders: 4 or more</li> <li>4. Flywheel horsepower: 90 HP or more at rated rpm</li> <li>5. Fuel oil:</li> </ul>	2,		
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<ol> <li>Type: Water cooled, 4-cycle, direct injection type, turbocharged diesel engine</li> <li>Displacement: More than 4,300cc</li> <li>No. of cylinders: 4 or more</li> <li>Flywheel horsepower: 90 HP or more at rated rpm</li> <li>Fuel oil:</li> </ol>	4.		
<pre>Water cooled, 4-cycle, direct injection type, turbocharged diesel engine 2. Displacement: More than 4,300cc 3. No. of cylinders: 4 or more 4. Flywheel horsepower: 90 HP or more at rated rpm 5. Fuel oil:</pre>	Eng	ine statistica de la construction d La construction de la construction d	
More than 4,300cc 3. No. of cylinders: 4 or more 4. Flywheel horsepower: 90 HP or more at rated rpm 5. Fuel oil:	1.	Water cooled, 4-cycle, direct injection	
<ul> <li>4 or more</li> <li>4. Flywheel horsepower:</li> <li>90 HP or more at rated rpm</li> <li>5. Fuel oil:</li> </ul>	2.		
90 HP or more at rated rpm 5. Fuel oil:	3.		
5. Fuel oil:	4.		
	5.	Fuel oil:	-

#### BAN/2KR-14

#### Specifications

- 6. Lubrication system: Gear pump, forced lubrication
- 7. Cooling system: Forced circulation water, pusher fan type
- 8. Air cleaner: Dry type
- 9. Starting method: 24V electric starting motor
- 10. Battery: 24V more than 120 Ah

#### Transmitting system

- 1. Torque converter: 3 element, single stage and single phase
- 2. Transmission: Planetary gear type with 3 forward and 3 reverse speeds
- Final drive: Spur gear, single reduction

#### Steering system

- Steering clutch: Wet multiple disc, hydrauric disengaged, hand operated
- 2. Steering brake: Wet, contructing band, food operated, interconnected with steering clutch, with hydrauric booster

#### Under carriage

- 1. Suspension: Oscillation type with equalizer bar
- 2. Carrier roller: 2 pcs on each side
- 3. Track roller: 6 or 7 pcs on each side
- 4. Shoe grouser height: More than 45mm
- 5. Shoe width: More than 350mm
- 6. Lubrication: Lubricated tracks
- Driving sprocket: Replacable bolt-on sprocket rim segments

#### Specifications

#### Dozer

- 1. Type: Hydraulic controled, manual or hydrauric angling and tilting
- Dimensions
   Hight: More than 900mm
  - 2) Length: More than 2,500mm
- 3. Max. lift above ground: More than 860mm
- Max. digging below ground: More than 370mm

#### Hydrauric control system

Control valve position: Raise, hold, lower and float for bulldozer blade

#### ROPS Canopy and FOPS

- 1. ROPS criteria: Shall meet SAE J1040c ISO3471
- 2. FOPS criteria: Shall meet ISO3449

#### Other attachment

Shall equiped with Drawbar, vandalism protection and panel cover and lock

#### Electric equipment

Double head lamps, rear side working lamp, necessary pilot lamps and necessary gauges shall be equipped

Ite	em No. BWDB-7 P	AY LOADER: 70 HP	
Qua	antity Required: 1	unit	
		<u>المراجع من </u>	
Spe	<u>eifications</u>		
De	scription		
equ str dox by	lipped with heavy du raight edge bucket w zing, loading, scrap	rubber tyred loader ty general purpose type ith changeable teeth for ing and damping driven ing flywheel horsepower rpm.	r
Pei	rformance		
	Bucket capacity 1) SAE heaped: 1.2m	3 or more 3 or more	
2.	Operating weight: 6	,400kg or more	
3.	Static tipping load 1) Straight: 4,80 2) Full turn: 4,20	Okg or more Okg or more	
4.	Breakout force: 6,8	00kg or more	
5.	Turning radius: 5,2	00mm or less	
Dir	nensions		
	Overall length (buc approx. 6,000m		
2.	Overall height (at approx. 3,400m		an a
3.	Overall height (buc 4,350mm or mor		a de la companya de La companya de la com La companya de la com
4.	Width over tires: a	pprox. 2,200mm	
5.	Bucket width:	2,300mm or more	
6.	Wheel base:	approx. 2,500mm	
	Tread:	approx. 1,800mm	
	Ground clearance:	290mm or more	
9.	Dumping clearance:	2,500mm or more at 45° discharge angle	
10.	Dumping reach:	940mm or more at full lift and 45° discharge angle	

BAN/2KR-15	
Specifications	
Engine	
<ol> <li>Type: Water cooled, 4-cycle, over head valve, fuel direct injection type diesel engine</li> </ol>	
2. No. of cylinders: 4 or 6 cylinders	
3. Flywheel horsepower: Not less than 70 HP at rated rpm	
4. Fuel system: Direct injection system	
<ul><li>5. Lubrication system</li><li>1) Lubrication method:</li><li>Gear pump forced lubrication</li></ul>	
<ol> <li>Lubricating oil filter: Full-flow repreaceable paper element filter.</li> </ol>	
3) Lubricating oil cooler: Water cooled	
6. Cooling system: Forced circulation by centrifugal water pump with pusher type fan	
7. Air cleaner: Dry type	
8. Starting method: Electric starting	
9. Battery: 2 x 12 volt	
Torque converter	
Three-element, single-stage, single-phase ty	pe
Transmissi <u>on</u>	
Power shift with torque converter, all wheel drive type.	
At least 3 forward and 3 reverse speed. Driving speed shall not less than 6.5km/h at first gear and not less than 24.5km/h at top	
gear	

#### BAN/2KR-15

#### Specifications

#### Transmission gear

- 1. Reduction gear: Spiral bevel gear type
- 2. Differencial gear: Straight bevel gear type
- 3. Final reduction gear: Planetary gear type

#### Axles

- 1. Drive system: Four wheel drive type
- 2. Front: Fixed frame
- 3. Rear: Oscillation ±120

#### Wheels

Tubless traction type rubber or nylon tyre of 15.5-24-10 or more

#### Brakes

- Service brake: Hydraulic actuated disc brake actuate all wheels, two brake pedals, right pedal brakes only, lift pedal brakes while, neutralizing transmission
- Parking brake: Drum and shoe or disc type, applied on front axle pinien shaft or main drive line

#### Steering

Frame articulating power stearing

#### Specifications

#### Hydraulic system

- 1. Type: Gear pump
- 2. Control valve: Two-way spool type
- 3. Relief valve setting: 200kg/cm<sup>2</sup> or more

#### Loadings mechanizm

Automatic bucket positioner adjustable to desired loading angle and automatic kickout to full lift height to be equipped and pins in lift arms and bucket king points to be sealed pin-type

#### Service refill capacities

- 1. Coolig system: approx. 30 lit.
- 2. Fuel tank: 120 lit. or more

<pre>Quantity Required: 5 units Specifications Description Forward control 4 x 2 axle configulation, right-hand drive, diesel engine driven rear hump truck having payload capacity of 10 ton or more. Singine 1. Type: Water cooled, 4-cycle, overhead valve, direct fuel injection, in-line diesel engine 2. No. of cylinders 6 cylinders 6 cylinders 8. Flywheel gross output: Not less than 150 HP (SAE Gross) at rated rpm 4. Total piston displacement: Not less than 6,000cc 6. Fuel system: Bosch type direct fuel injection, in-line plunger 0. Lubrication method: Gear pump forced lubrication 2) Oil filter: Full-flow and by-pass type, replaceable paper element filter 3. Oil cooler Water cooled, plate fin type 5. Cooling system: Corrugated fin type radiator, forced circulation by centrifugal water pump with suction type fan 8. Air cleaner: Replaceable dry paper element type 9. Electrical system: 24 volt system</pre>	Ite	em No. BWDB-8 DUMP TRUC	CK: 10 Ton	•	•			_
<pre>Description Proward control 4 x 2 axle configulation, hight-hand drive, diesel engine driven rear hump truck having payload capacity of 10 ton pr more. Angine 1. Type: Water cooled, 4-cycle, overhead valve, direct fuel injection, in-line diesel engine 2. No. of cylinders 6 cylinders 8. Flywheel gross output: Not less than 150 HP (SAE Gross) at rated rpm 4. Total piston displacement: Not less than 6,000ce 5. Fuel system: Bosch type direct fuel injection, in-line plunger 9. Lubrication system 1) Lubrication method: Gear pump forced lubrication 2) Oil filter: Full-flow and by-pass type, replaceable paper element filter 3) Oil cooler Water cooled, plate fin type 7. Cooling system: Corrugated fin type radiator, forced circulation by centrifugal water pump with suction type fan 8. Air cleaner: Replaceable dry paper element type 9. Electrical system:</pre>	Qua	antity Required: 5 units		· · · · · · · · · · · · · · · · · · ·				<b>.</b>
<pre>Forward control 4 x 2 axle configulation, hight-hand drive, diesel engine driven rear hump truck having payload capacity of 10 ton or more. Singine 1. Type: Water cooled, 4-cycle, overhead valve, direct fuel injection, in-line diesel engine 2. No. of cylinders 6 cylinders 3. Flywheel gross output: Not less than 150 HP (SAE Gross) at rated rpm 4. Total piston displacement: Not less than 6,000cc 5. Fuel system: Bosch type direct fuel injection, in-line plunger 5. Lubrication system 1) Lubrication method: Gear pump forced lubrication 2) Oil filter: Full-flow and by-pass type, replaceable paper element filter 3) Oil cooler Water cooled, plate fin type 7. Cooling system: Corrugated fin type radiator, forced circulation by centrifugal water pump with suction type fan 3. Air cleamer: Replaceable dry paper element type 3. Electrical system: 5. Electrical system: 5. Cooling system: 6. Air cleamer: 7. Cooling system: 7. Cooling system: 7.</pre>	Spe	<u>ecifications</u>						
<pre>sight-hand drive, diesel engine driven rear hump truck having payload capacity of 10 ton or more. Sigine 1. Type: Water cooled, 4-cycle, overhead valve, direct fuel injection, in-line diesel engine 2. No. of cylinders 6 cylinders 3. Flywheel gross output: Not less than 150 HP (SAE Gross) at rated rpm 4. Total piston displacement: Not less than 6,000cc 5. Fuel system: Bosch type direct fuel injection, in-line plunger 5. Lubrication system 1) Lubrication method: Gear pump forced lubrication 2) Oil filter: Full-flow and by-pass type, replaceable paper element filter 3) Oil cooler Water cooled, plate fin type 4. Cooling system: Corrugated fin type radiator, forced circulation by centrifugal water pump with suction type fan 5. Air cleaner: Replaceable dry paper element type 9. Electrical system:</pre>	Des	scription	· .			1. 1.	14 - J. 1	· .
<ol> <li>Type: Water cooled, 4-cycle, overhead valve, direct fuel injection, in-line diesel engine</li> <li>No. of cylinders 6 cylinders</li> <li>Flywheel gross output: Not less than 150 HP (SAE Gross) at rated rpm</li> <li>Total piston displacement: Not less than 6,000ce</li> <li>Fuel system: Bosch type direct fuel injection, in-line plunger</li> <li>Lubrication system</li> <li>Lubrication method: Gear pump forced lubrication</li> <li>Oil filter: Full-flow and by-pass type, replaceable paper element filter</li> <li>Oil cooler Water cooled, plate fin type</li> <li>Cooling system: Corrugated fin type radiator, forced circulation by centrifugal water pump with suction type fan</li> <li>Air cleaner: Replaceable dry paper element type</li> <li>Electrical system:</li> </ol>	rig dur	ght-hand drive, diesel engin mp truck having payload capa	ne driven rear					
<pre>Water cooled, 4-cycle, overhead valve, direct fuel injection, in-line diesel engine 2. No. of cylinders 6 cylinders 8. Flywheel gross output: Not less than 150 HP (SAE Gross) at rated rpm 4. Total piston displacement: Not less than 6,000cc 5. Fuel system: Bosch type direct fuel injection, in-line plunger 5. Lubrication system 1) Lubrication method: Gear pump forced lubrication 2) Oil filter: Full-flow and by-pass type, replaceable paper element filter 3) Oil cooler Water cooled, plate fin type 7. Cooling system: Corrugated fin type radiator, forced circulation by centrifugal water pump with suction type fan 8. Air cleaner: Replaceable dry paper element type 9. Electrical system:</pre>	•••						۰.	
<ol> <li>No. of eylinders         <ul> <li>flywheel gross output: Not less than 150 HP (SAE Gross) at rated rpm</li> <li>Total piston displacement: Not less than 6,000cc</li> <li>Fuel system: Bosch type direct fuel injection, in-line plunger</li> <li>Lubrication system</li> <li>Lubrication method: Gear pump forced lubrication</li> <li>Oil filter: Full-flow and by-pass type, replaceable paper element filter</li> <li>Oil cooler Water cooled, plate fin type</li> <li>Cooling system: Corrugated fin type radiator, forced circulation by centrifugal water pump with suction type fan</li> <li>Air cleaner: Replaceable dry paper element type</li> <li>Electrical system:</li> </ul> </li> </ol>		Water cooled, 4-cycle, over direct fuel injection, in-1	rhead valve, line diesel		: •	.*	•	
Not less than 150 HP (SAE Gross) at rated rpm 4. Total piston displacement: Not less than 6,000cc 5. Fuel system: Bosch type direct fuel injection, in-line plunger 5. Lubrication system 1) Lubrication method: Gear pump forced lubrication 2) Oil filter: Full-flow and by-pass type, replaceable paper element filter 3) Oil cooler Water cooled, plate fin type 7. Cooling system: Corrugated fin type radiator, forced circulation by centrifugal water pump with suction type fan 8. Air cleaner: Replaceable dry paper element type 9. Electrical system:	2,	No. of cylinders				an taon an Anna Anna Anna		
<pre>Not less than 6,000cc 5. Fuel system: Bosch type direct fuel injection, in-line plunger 5. Lubrication system 1) Lubrication method:     Gear pump forced lubrication 2) Oil filter:     Full-flow and by-pass type,     replaceable paper element filter 3) Oil cooler     Water cooled, plate fin type 7. Cooling system:     Coorrugated fin type radiator, forced     circulation by centrifugal water pump with     suction type fan 8. Air cleaner:     Replaceable dry paper element type 9. Electrical system:</pre>	3.	Not less than 150 HP (SAE G	Gross) at rated					
<pre>Bosch type direct fuel injection, in-line plunger Lubrication system Lubrication method:     Gear pump forced lubrication Oli filter:     Full-flow and by-pass type,     replaceable paper element filter Oli cooler     Water cooled, plate fin type Cooling system: Corrugated fin type radiator, forced circulation by centrifugal water pump with suction type fan Air cleaner:     Replaceable dry paper element type Electrical system:</pre>	4.							
<ol> <li>Lubrication method: Gear pump forced lubrication</li> <li>Oil filter: Full-flow and by-pass type, replaceable paper element filter</li> <li>Oil cooler Water cooled, plate fin type</li> <li>Cooling system: Corrugated fin type radiator, forced circulation by centrifugal water pump with suction type fan</li> <li>Air cleaner: Replaceable dry paper element type</li> <li>Electrical system:</li> </ol>	5.	Bosch type direct fuel inje	ection, in-line					
<pre>Gear pump forced lubrication 2) Oil filter:     Full-flow and by-pass type,     replaceable paper element filter 3) Oil cooler     Water cooled, plate fin type 7. Cooling system:     Corrugated fin type radiator, forced     circulation by centrifugal water pump with     suction type fan 8. Air cleaner:     Replaceable dry paper element type 9. Electrical system:</pre>	5,	Lubrication system						
<pre>Full-flow and by-pass type, replaceable paper element filter 3) Oil cooler Water cooled, plate fin type 7. Cooling system: Corrugated fin type radiator, forced circulation by centrifugal water pump with suction type fan 8. Air cleaner: Replaceable dry paper element type 9. Electrical system:</pre>		Gear pump forced lubri	ication					
Water cooled, plate fin type 7. Cooling system: Corrugated fin type radiator, forced circulation by centrifugal water pump with suction type fan 8. Air cleaner: Replaceable dry paper element type 9. Electrical system:		Full-flow and by-pass						
Corrugated fin type radiator, forced circulation by centrifugal water pump with suction type fan 3. Air cleaner: Replaceable dry paper element type 3. Electrical system:			in type					
Replaceable dry paper element type 9. Electrical system:	<b>7</b>	Corrugated fin type radiato circulation by centrifugal						
			ent type					
	•			•			· .·	

#### Specifications

#### Transmission

5 forward and 1 reverse speed, synchromesh gear from 2nd to 5th, floor shift, mechanical direct control with dry single plate mechanically operated clutch.

#### Chassis

- Rear axle: Full floating type single reduction spiral revel gear or hypoid gear
- 2. Front axle: Reverse Elliot "I" beam type
- Service brake: Hydraulic brake with vacuum assisted, internal expanding two shoe type
- Parking brake: Mechanically operated internal expanding two shoe type on drum at rear of transmission
- 5. Steering: Standard recirculating ball type
- 6. Suspension: Semi-elliptic leaf springs with shock absorber for front and semi-elliptic leaf springs with auxiliary leaf springs

#### Wheels and tires

- Wheels:
   8 stud disc wheels, 20 in. nominal diameter
- 2. No. of tires: 7 including 1 spare tire

#### Cab

- 1. Construction: All steel welded construction, tilt type
- Windshield:
   One piece type with zone tempared safety glass with dual electric windshield wipers
- 3. Seats: Vinyl leather rubber cushoned low back type. Driver's seat to be fully adjustable

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Dumping performance

- 1. Tipping angle: Not less than 50°
- 2. Lifting time: Not more than 20 sec
- 3. Lowering time: Not more than 20 sec

#### Body

- 1. Type: Drop-tailgate type
- 2. Construction: All welded steel construction
- 3. Body capacity: Not less than 4.0 cu.m
- 4. Thickness of steels
  - 1) Deck plate: Not less than 4.5mm
  - 2) Side plate: Not less than 3.0mm
  - 3) Tail gate plants:
  - Not less than 3.0mm

-307-

BAN/2KR-17 Item No. BWDB-9 WELL POINT PUMP Quantity Required: 10 sets Specifications Description Well point dewatering system, consist of well point; well point pump, jetting pump, pipes and others Well point pump 1. Component: Centrifugal pump, vaccumpump, separator tank, vaccum gauge, check valve, discharge hose, diesel engine and others Centrifugal pump, vaccume pump, separator tank and diesel engine shall be mounted on a common fabricated steel bed and set compactly other necessary equipments 2. Centrifugal pump: 1) Type: horizontal, single stage, centrifugal pump 2) Capacity: 6m <sup>3</sup> /min or more 3) Total head: 17m or more 4) Materials Volute of the pump: cast iron Impeller: bronze Well point 1. Type: self jetting bottom suction type 2. Screen: 1) Material: stainless steel 2) Slot size: 0.75mm or less 3) Length of screen: 650mm or more 4) Percentag area opening: 10% or more 50m <sup>3</sup> /h or more at approx. 13kg/cm <sup>2</sup>	chnical Specifications
<pre>Item No. BWDB-9 WELL POINT PUMP Quantity Required: 10 sets Specifications Description Well point dewatering system, consist of well point; well point pump, jetting pump, pipes and others Well point pump 1. Component: Centrifugal pump, vaccumpump, separator tank, vaccum gauge, check valve, discharge hose, diesel engine and others Centrifugal pump, vaccume pump, separator tank and diesel engine shall be mounted on a common fabricated steel bed and set compactly other necessary equipments 2. Centrifugal pump: 1) Type: horizontal, single stage, centrifugal pump 2) Capacity: 6m<sup>3</sup>/min or more 3) Total head: 17m or more 4) Materials Volute of the pump: cast iron Impeller: bronze Well point 1. Type: self jetting bottom suction type 2. Screen: 1) Material: stainless steel 2) Slot size: 0.75mm or less 3) Length of screen: 650mm or more 4) Percentag area opening: 10% or more 3) Length of screen: 650mm or more 4) Percentag area opening: 10% or more 4) Capacity: diesel engine driven, horizontal shaft, single suction, vertically split casing, multistage, double volute, centrifugal pump 2. Capacity: 50m<sup>3</sup>/h or more at approx. 13kg/cm<sup>2</sup></pre>	cuntear spectricacions
<pre>Item No. BWDB-9 WELL POINT PUMP Quantity Required: 10 sets Specifications Description Well point dewatering system, consist of well point; well point pump, jetting pump, pipes and others Well point pump 1. Component: Centrifugal pump, vaccumpump, separator tank, vaccum gauge, check valve, discharge hose, diesel engine and others Centrifugal pump, vaccume pump, separator tank and diesel engine shall be mounted on a common fabricated steel bed and set compactly other necessary equipments 2. Centrifugal pump: 1) Type: horizontal, single stage, centrifugal pump 2) Capacity: 6m<sup>3</sup>/min or more 3) Total head: 17m or more 4) Materials Volute of the pump: cast iron Impeller: bronze Well point 1. Type: self jetting bottom suction type 2. Screen: 1) Material: stainless steel 2) Slot size: 0.75mm or less 3) Length of screen: 650mm or more 4) Percentag area opening: 10% or more 3) Total stage, double volute, centrifugal pump 2. Capacity: 650mm or izontal shaft, single suction, vertically split casing, multistage, double volute, centrifugal pump 2. Capacity: 50m<sup>3</sup>/h or more at approx. 13kg/cm<sup>2</sup></pre>	
<pre>ttem No. BWDB-9 WELL POINT PUMP Quantity Required: 10 sets Specifications Description Well point dewatering system, consist of well point; well point pump, jetting pump, pipes and others Well point pump 1. Component: Centrifugal pump, vaccumpump, separator tank, vaccum gauge, check valve, discharge hose, diesel engine and others Centrifugal pump, vaccume pump, separator tank and diesel engine shall be mounted on a common fabricated steel bed and set compactly other necessary equipments 2. Centrifugal pump: 1) Type: horizontal, single stage, centrifugal pump 2) Capacity: 6m<sup>3</sup>/min or more 3) Total head: 17m or more 4) Materials Volute of the pump: cast iron Impeller: bronze Well point 1. Type: self jetting bottom suction type 2. Screen: 1) Material: stainless steel 2) Slot size: 0.75mm or less 3) Length of screen: 650mm or more 4) Percentag area opening: 10% or more 3) Longth of screen: 650mm or more 4) Percentag area opening: 10% or more 4) Type: diesel engine driven, horizontal shaft, single suction, vertically split casing, multistage, double volute, centrifugal pump 2. Capacity: 50m<sup>3</sup>/h or more at approx. 13kg/cm<sup>2</sup></pre>	
<pre>ttem No. BWDB-9 WELL POINT PUMP Quantity Required: 10 sets Specifications Description Nell point dewatering system, consist of well point; well point pump, jetting pump, pipes and others Nell point pump L Component: Centrifugal pump, vaccumpump, separator tank, vaccum gauge, check valve, discharge hose, diesel engine and others Centrifugal pump, vaccume pump, separator tank waccum gauge, check valve, discharge hose, diesel engine shall be mounted on a common fabricated steel bed and set compactly other necessary equipments 2. Centrifugal pump: 1) Type: horizontal, single stage, centrifugal pump 2) Capacity: 6m<sup>3</sup>/min or more 3) Total head: 17m or more 4) Materials Volute of the pump: cast iron Impeller: bronze Nell point 1. Type: self jetting bottom suction type 2. Screen: 1) Material: stainless steel 2) Slot size: 0.75mm or less 3) Length of screen: 650mm or more 4) Percentag area opening: 10% or more 3) Longth of screen: 650mm or more 4) Percentag area opening: 10% or more 3) Length of screen; 650mm or more 4) Percentag area opening: 10% or more 3) Lotting pump 1. Type: diesel engine driven, horizontal shaft, single suction, vertically split casing, multistage, double volute, centrifugal pump 2. Capacity: 50m<sup>3</sup>/h or more at approx. 13kg/cm<sup>2</sup></pre>	
<pre>Specifications Well point dewatering system, consist of well point; well point pump, jetting pump, pipes und others Well point pump (). Component: Centrifugal pump, vaccumpump, separator tank, vaccum gauge, check valve, discharge hose, diesel engine and others Centrifugal pump, vaccume pump, separator tank and diesel engine shall be mounted on a common fabricated steel bed and set compactly other necessary equipments 2. Centrifugal pump: 1) Type: horizontal, single stage, centrifugal pump 2) Capacity: 6m<sup>3</sup>/min or more 3) Total head: 17m or more 4) Materials Volute of the pump: cast iron Impeller: bronze Well point 1. Type: self jetting bottom suction type 2. Screen: 1) Material: stainless steel 2) Slot size: 0.75mm or less 3) Length of screen: 650mm or more 4) Percentag area opening: 10% or more Betting pump 1. Type: diesel engine driven, horizontal shaft, single suction, vertically split casing, multistage, double volute, centrifugal pump 2. Capacity: 50m<sup>3</sup>/h or more at approx. 13kg/cm<sup>2</sup></pre>	the Contract Structure de La grappe () (Contract à Contract Contract Contract Songles e quinter des anne
<pre>Description Well point dewatering system, consist of well point; well point pump, jetting pump, pipes and others Mell point pump 1. Component: Centrifugal pump, vaccumpump, separator tank, vaccum gauge, check valve, discharge hose, diesel engine and others Centrifugal pump, vaccume pump, separator tank and diesel engine shall be mounted on a common fabricated steel bed and set compactly other necessary equipments 2. Centrifugal pump: 1) Type: horizontal, single stage, centrifugal pump 2) Capacity: 6m<sup>3</sup>/min or more 3) Total head: 17m or more 4) Materials Volute of the pump: cast iron Impeller: bronze Mell point 1. Type: self jetting bottom suction type 2. Screen: 1) Material: stainless steel 2) Slot size: 0.75mm or less 3) Length of screen: 650mm or more 4) Percentag area opening: 10% or more Melting pump 1. Type: diesel engine driven, horizontal shaft, single suction, vertically split casing, multistage, double volute, centrifugal pump 2. Capacity: 50m<sup>3</sup>/h or more at approx. 13kg/cm<sup>2</sup></pre>	
<pre>Nell point dewatering system, consist of well point; well point pump, jetting pump, pipes and others Nell point pump 1. Component: Centrifugal pump, vaccumpump, separator tank, vaccum gauge, check valve, discharge hose, diesel engine and others Centrifugal pump, vaccume pump, separator tank and diesel engine shall be mounted on a common fabricated steel bed and set compactly other necessary equipments 2. Centrifugal pump: 1) Type: horizontal, single stage, centrifugal pump 2) Capacity: 6m<sup>3</sup>/min or more 3) Total head: 17m or more 4) Materials Volute of the pump: cast iron Impeller: bronze Nell point 1. Type: self jetting bottom suction type 2. Screen: 1) Material: stainless steel 2) Slot size: 0.75mm or less 3) Length of screen: 650mm or more 4) Percentag area opening: 10% or more Detting pump 1. Type: diesel engine driven, horizontal shaft, single suction, vertically split casing, multistage, double volute, centrifugal pump 2. Capacity: 50m<sup>3</sup>/h or more at approx. 13kg/cm<sup>2</sup></pre>	
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<ol> <li>Type: horizontal, single stage, centrifugal pump</li> <li>Capacity: 6m<sup>3</sup>/min or more</li> <li>Total head: 17m or more</li> <li>Materials         <ul> <li>Volute of the pump: cast iron Impeller:</li> <li>bronze</li> </ul> </li> <li>Mell point</li> <li>Type: self jetting bottom suction type</li> <li>Screen:         <ul> <li>Material: stainless steel</li> <li>Slot size: 0.75mm or less</li> <li>Length of screen: 650mm or more</li> <li>Percentag area opening: 10% or more</li> </ul> </li> <li>Type:         diesel engine driven, horizontal shaft, single suction, vertically split casing, multistage, double volute, centrifugal pump</li> <li>Capacity:         50m<sup>3</sup>/h or more at approx. 13kg/cm<sup>2</sup></li> </ol>	
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Impeller: bronze <u>Vell point</u> 1. Type: self jetting bottom suction type 2. Screen: 1) Material: stainless steel 2) Slot size: 0.75mm or less 3) Length of screen: 650mm or more 4) Percentag area opening: 10% or more <u>Vetting pump</u> 1. Type: diesel engine driven, horizontal shaft, single suction, vertically split casing, multistage, double volute, centrifugal pump 2. Capacity: 50m <sup>3</sup> /h or more at approx. 13kg/cm <sup>2</sup>	
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<ul> <li>2) Slot size: 0.75mm or less</li> <li>3) Length of screen: 650mm or more</li> <li>4) Percentag area opening: 10% or m</li></ul>	
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<pre>Metting pump . Type:     diesel engine driven, horizontal shaft,     single suction, vertically split casing,     multistage, double volute, centrifugal pump 2. Capacity:     50m<sup>3</sup>/h or more at approx. 13kg/cm<sup>2</sup></pre>	
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<pre>single suction, vertically split casing, multistage, double volute, centrifugal pump 2. Capacity: 50m<sup>3</sup>/h or more at approx. 13kg/cm<sup>2</sup></pre>	
$50m^3/h$ or more at approx. $13kg/cm^2$	
3. Suction dia.: 100mm	

BAN/2KR-17	
<u>Specifications</u>	
4. Discharge dia.: 75mm	
5. Jetting hose:	
1) Diameter: 75mm	and a second state of the second
2) Type: double jacket, 100; collapsible type	% synthetic
3) Operating presure: 17kg/c	om <sup>2</sup> or more
4) Length:	
15m and 30m <sup>°</sup> length with nipple and coupling sw 30m 5 pcs. 15m 5 pcs.	
6. Suction: 100mm heavy duty reinforced, 6 with foot valve and strainer	5m in length
Quantity required of necessary equipments for 10 sets	
<ol> <li>Well point pump unit</li> <li>Jetting pump unit</li> <li>Well point (2" x 0.7m)</li> <li>Riser pipe (1-1/2" x 6m)</li> <li>Compact cock (1-1/2")</li> <li>L type fitting (1-1/2")</li> </ol>	10 sets 2 sets 2,000 units 2,000 units 2,000 units 2,000 units 2,000 units
<ol> <li>Swing hose</li> <li>Hose band (for 1-1/2")</li> </ol>	2,000 units 4,000 units
9. Header pipe (10" x 6m)	340 units
10. Header caupling (10")	400 units
<ol> <li>Header tea (10")</li> <li>Header elbow (10")</li> </ol>	10 units 40 units
13. Header bend (10")	20 units
14. Header cap (10")	20 units
15. Gate valve (10")	10 units
16. Separator tank 17. Notch tank	10 units 10 units
III. NOUCH DAIR	

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BAN/2KR-18		
Item No. BWDB-10	BAR CUTTER	
Quantity Required:	1 unit	
Specifications		
Description		
Motor driven, steel   reinforcement cutter	bar for concreat	
Cutting capacity		
1. 32mm dia. or more	e at 45kg/mm <sup>2</sup>	and the second secon
2. 28mm dia. or mor	e at 65kg/mm <sup>2</sup>	
Electric motor output	t_	
1.5kW or more		
Dimensions		
1. Overall length:	approx. 600mm	
2. Overall width:	approx. 500mm	
3. Overall height:	approx. 900mm	
Dry weight	•	
Approx. 400kg		
•		

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BAN/2KR-19	
Item No. BWDB-11 PIPE CUTTER	
Quantity Required: 1 unit	
Specifications	
Description	
Remote controlled, gas auto pipe cutting machine	<b>g</b>
Effective pipe diameter and thickness	
1. Diameter: 150mm dia. to 600mm dia.	
2. Thickness: 5 to 50mm	
Power source 20W, 230V, 50Hz, single phase	
Dimensions	
1. Length: approx. 270mm	and the second
2. Wheel track: approx. 230mm	
3. Height: approx. 420mm	
<u>Dry weight</u> Approx. 15kg	
Cutting speed	
Approx. 100 to 700mm/min.	

BAN/2KR-20	
Item No. BWDB-12A PIPE BENDER	
Quantity Required: 1 unit	
Specifications	
Description	
Motor driven, hydroulic pipe bender	
Bending capacity	
318.5mm (O.D.) x 6.9mm (thickness) or less	
Bending method	
Segment (0 to 90 degree)	
Bending speed	
Approx. 110mm/min	
Return speed	
Approx. 500mm/min	
Dimensions	
1. Overall length: approx. 4100mm	
2. Overall width: approx. 3200mm	
3. Overall height: approx. 1100mm	
5. Overall height. approx. Hooman	
<u>Dry weight</u> Approx. 3,600kg	
Power source	
3.7kW, 400V, 50Hz, 3-phase	
Stimi, itti, Still Street	. •

BAN/2KR-21	
Item No. BWDB-12B BAR BENDER	
Quantity Required: 1 unit	
<u>Specifications</u>	
Description	
Bar bender for motor diver, steel bar concreat reinforcement	for the second
Bending capacity	and a start of the second start The second start of the second s
<ol> <li>25mm dia. or more at high speed rp (10rpm)</li> </ol>	na martina de la companya de la company A companya de la comp
<ol> <li>32mm dia. or more at low speed rpm (6.6rpm)</li> </ol>	
Power source	
2.2kW, 400V, 50Hz, 3-phase	
Dimensions	
1. Overall length: approx. 1,000mm	
2. Overall width: approx. 900mm	
3. Overall height: approx. 900mm	
Dry weight	
Approx. 500kg	

BAN/2KR-22	
Item No. BWDB-13 CRANE	
Quantity Required: 1 unit	
Specifications	
Description	
Rail mounted, 5 ton rated capacity, gar	ntin htly
crane	
Capacity	
5 ton or more	
Lift	
12m or more	
<u>Rail span and size</u>	
1. Span: 30m or more	
2. Size: 30kg/m or more	
3. Travelig distance: 50m	
Wheels	
1. No. of wheels: 4	
2. Dia. of wheels: approx. 400mm dia	•
3. Wheel base: approx. 9,000mm	
4. Wheel load: 10t/wheel or more	
Motion	
1. Main host:	
1) Speed: 5m/min or more	
2) Motor: 5kW or more, 400V, 50H:	z, 3-
phase 3) Brake: magnet	
2. Cross Travel	
1) Speed: 16m/min or more	
2) Motor: 0.3kW x 2 or more, 400	V, 50Hz,
3-phase	
3) Brake: magnet	
<ol> <li>Long travel</li> <li>1) Speed: 16m/min or more</li> </ol>	
2) Motor: $1.9kW \times 2$ or more, $400^{10}$	V, 50Hz,
3-phase	
3) Brake: magnet	

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Item	n No.	BWDB-14	GUS CU	TTING MACH	INE							an t	
Quan		Required	: 1 set	• • • • • • • • • • • • • • • • • • •			:		· .				
Spec	oifica	tions											
Desc	ripti	on					÷					• •	
		ng and w equipme	elding mach nts	ine consi	st of								
1.	2)	Torch ha	attachment			1 1 1	·	·		·			
2.	1)		egulator			1						· ·	
3.	Cutti 1)	ng tip: for plat	e regulator e thickness e thickness	15-30mm		1			· · · · ·				
4.	1) 2)	for plat	e: e thickness e thickness e thickness	: 15-25mm		1 1 1	. :		· .		· · · · ·		
5.	for	hose: oxgen a g with f	nd acetyler itting	ie 7.5m			· · ·		۰ . ۲ ۰				
6.	Ignit	er:				1							
7.	Wrech	:				1						1	
	Tip c Gogg	leaner: les:				1		· · ·		· · · ·			
		·		11.				· .	· · ·			•	
						· · · ·	•		1 -		- - 	• •.	
						•	1			· · ·	· ·		

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•	BAN	/2KR-24	
	Ite	m No. BWDB-15 ARC WELDING MACHINE	E
	Qua	ntity Required: 1 set	
		cifications cription	
	AC	arc welding machine with accessaries	
	Arc	welder	42. A state of the second s Second second s Second second se
	1.	Secondary current: 400 amp.	
	2.	Primary input: approx. 33kVA (appr 19kW)	rox.
	3.	Secondary current range: 50-400 amp.	• A second s
	4.	Duty cycle: 40%	
	5.	Electrode size: 2.6 to 8mm	
	6.	Dimensions:	
		<ol> <li>Overall width: approx. 450mm</li> <li>Overall depth: approx. 650mm</li> <li>Overall height: approx. 800mm</li> </ol>	
	7.	Dry weight: approx. 150kg	
	8.	Power source: 50Hz, 400V	
	Acc	<u>essaries</u>	
	1.	Leather gloves	5
	2.	Welding shied	1
	3.	Safety holder	$\mathbf{x} \in \{\mathbf{x}, \mathbf{x}\}$
	4.	Earth clip	1
	5.	Secondary cord	<b>1 1</b>
	6.	Double-end chipping hammer	1

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:			
BAN	/2KR-25		
Ite	m No. MOF-1 TRUCK: 7 TON	· · · ·	
Qua	ntity Required: 40 units		
Spe	cifications		
Des	cription		
rig	ward control 4 x 2 axle configuration, ht-hand drive, diesel engine driven true ing payload capacity of 7 ton or more.		
Eng	ine		
1.	Type:	· · · ·	
	Water cooled, 4-cycle, overhead valve, direct fuel injection, in-line diesel engine	·	
2.	No. of cylinders 6 cylinders		
3.	Flywheel gross output: approx. 160 Hp at rated rpm	en Alexandre Alexandre	
4.	Max torque: at rated rpm approx. 45kg ·	m .	
5.	Total piston displacement: approx. 1,500cc		
6.	Fuel system: Bosch type direct fuel injection, in-1: plunger, with mechanical governor	ine	
7.	Lubrication system:		
	<ol> <li>Lubrication method: Gear pump forced lubrication</li> </ol>		
	2) Oil filter: Full-flow type, replaceable paper element filter		and the second sec
8.	Cooling system: Corrugated fin type radiator, forced circulation by centrifugal water pump w suction type fan	vith	
9.	Air cleaner: Replaceable dry paper element type		
10.	Electrical system: 24 volt system	·	

#### Specifications

#### Transmission

5 forward and 1 reverse speed, synchromesh gear from 2nd to 5 or 6th, floor shift, mechanical direct control with dry single plate mechanically operated clutch.

#### Chassis

- Rear axle: Full floating type single reduction spiral bevel gear
- 2. Front axle: Reverse Elliot "I" beam type
- Service brake: Hydraulic brake with two leading shoes for front and rear
- Parking brake: Mechanical, internal expanding, acting on transmission
- 5. Steering: Standard recirculating ball type

6. Suspension:

1) Front: Semi-elliptic leaf springs with double acting shock absorbers

2) Rear: Semi-elliptic main and auxillary leaf springs

Wheels and tires

No. of tires: 7 including 1 spare tire

#### Cab

- 1. Construction: All steel welded construction
- Windshield:
   One piece type with zone tempered safety glass with dual electric windshield wipers
- 3. Seats: Urethane foam pads in seat cushion and backrest with reclining seat

#### **Specifications**

#### Loady deck dimensions

- 1. Inside length: approx. 5,300mm
- 2. Inside width: approx. 2,300mm

Item No. MOF-2 MOISTURE METER			× .	•
Quantity Required: 500 units		· · ·	<u></u>	
Specifications				
Description				
Electric resistance method, digital display moisture meter applicable to Bangladeshi grai moisture condition	n	* •		
Applications				· · ·
Aman paddy, Boro paddy, Aus paddy Soft wheat, Hard wheat, Boiled rice, Indica raw rice				
Grains' moisture content shall be measured directly or by conversion chart	· .		· . ''	. *
Measuring range	· · · ·	•		
1. Paddy: 10 to 30%				. •
2. Rice: 10 to 20%				
Measuring accuracy				
+0.5%			. •	
Temparature compensation				
Automatic				н 12
Rouge course				
Power source Battery, 1.5V x 4 pcx.	· · ·			
Dimensions				
1. Overall length: approx. 160mm				
2. Overall width: approx. 90mm				
3. Overall height: approx. 60mm				
Dry weight				
Approx. 700g				
Accessories				
1. Sampling tray: 2 pcs.				
2. Brush: 1 pc.				
3. Rice huskor 1 pc.		. *		
4. Tweezers: 1 pc.				
320				1

Ite	m No. MOF-3	GRAIN DRYER	en e	: : · · · · · ·			.a	
Qua	ntity Required:	10 units						
Spe	cifications							
Des	cription							- 4.3 -
	t type, engine dr ding capacity of			e Starte	· · ·		· · · · · · · · · · · · · · · · · · ·	
Pow	er Source							
Die	sel engine: 2.5 H	P or more						
Per	formance							1.14
lin	d volume: approx.	1m <sup>3</sup> /s or more					÷ .	
Sta	tic pressure: 20m	m Aq or more						
Dry	ing speed: 0.7%/h	or more						
Com	ponents						·	•
۱.	Drying box		1					
2.	Fan with furnanc	e	1				÷.,	
3.	Diesel engine		1					
ł.	Fuel tank (appro	x. 20 lit.)	1			,		
)im	ensions	·			-		· · · ·	•
۱.	Inside length: a	pprox. 3,000mm						
2.	Inside width: ap	prox. 1,700mm						:
3.	Overall depth: a	pprox. 900mm			. * ÷			
١.	Inside depth: ap						· . ·	. 11
		·			•		4 	•
	· .				· 1	e at e		· •
						14		
		· ·	· ·	· . · · ·				
				÷ .		· · · · ·		• •
			1			•		

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BAN/2KR-28	
Item No. FP-1 DREDGER	
Quantity Required: 4 units	
Specifications	
<u>Description</u>	
Small and pull type dredger for canal excavating	a de la companya de La companya de la com La companya de la com
Performance	
1. Delivery capacity: 500m <sup>3</sup> /h or more at clean water	
2. Total head: 30m or more	
3. Delivery distance: 300m or more	
4. Excavation depth: 4m or more	
5. Excavation width: 10m or more	
Dimensions	:
1. Overall length: approx. 16.0m	and the second
2. Breadth: approx. 5.0m	
3. Height (except spud): approx. 4.0m	
4. Draft: approx. 1.0m	
Engine	
<ol> <li>Type: 4 cycle, water cooled, over head valve, direct fuel injection, turbocharged diesel engine</li> </ol>	
2. Displacement: approx. 10,000cc	
3. No. of cylinders: 6 cylinders or more	
4. Horsepower: 220Hp at rated rpm	
5. Fuel oil: diesel gas oil	
6. Cooling system: water cooled forced circulation	• •
7. Battery: 24V, 150AH or more	

Specifications		
Sand pump		
1. Type: centrifugal, single suction volute	pump	
2. Diameter:		
1) Suction: 250mm dia.		
2) Delivery: 200mm dia.		
3. Delivery capacity: 500m <sup>3</sup> /h or more		1. 1.
4. Total head: 30m or more	а 1970 — алан 1970 — ал	
Cutter device	· · · · ·	
1. Type: helical crown type or equivalent	1	
2. Driving method: hydraulic motor	: .	
3. Rotation: 0 to approx. 25rpm		
4. Dredging power: 900kg-m or more		
5. Swing: hydraulic	•	
6. Hydraulic oil tank cpacity: approx. 140 l	it.	
Spud		
1. Diameter: approx. 220mm	u *	
2. Length: approx. 6m		
3. No. of spud: 2 or more	· .	•
	· · · · · ·	
Fuel tank capacity		
Approx. 100 lit.		
	1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 - 1997 -	

BAN/2KR-29	any music telestication to the many many dynamics, Without and the type of the second	
Item No. FP-2	TAG BOAT	
Quantity Required:	4 units	
Specifications		
Description		(a) A set of the se
	for dredger and floating ton crane and repair	
Dimensions		
1. Overall length:	approx. 11.0m	
2. Breadth:	approx. 4.0m	
3. Depth:	approx. 1.5m	
4. Draft:	approx. 1.0m	
<u>Outline</u>	· · · · · · · · · · · · · · · · · · ·	
<ol> <li>Type of ship: flush decker,</li> </ol>	fore cabin, aft engine	
2. Complement: 3	crews or more	
3. Fuel oil tank: 1	.Om <sup>3</sup> or more	
Engine		
1. Type: 4 cycle, water	cooled, diesel engine	
2. No. of engines:	1 or 2	•
3. Total engine out 150Hp or more a		
4. Starting sytem:	battery	
Speed		
1. Maximum speed: 6	.5 knots or more	
2. Service speed: 6	.0 knots or more	
an a		

BAN/2KR-29	
	이 가지 않는 것이 있는 것이 있는 것이 있는 것이 가지 않는 것이 있는 것이 있다. 같은 것이 같은 것이 있는 것이 같은 것이 있는 것이 있는 것이 같은 것이 있는 것이 같은 것이 없는 것이 있는 것이 없는 것 같은 것이 같은 것이 같은 것이 없는 것이 않는 것이 없는 것이 있
Specifications	
Equipments for repair work	
1. Steel locker	1 unit
2. A.C arc welding machine (30	00A) 1 set
3. Grinder (250mm dia.)	1 unit
4. Gas cutting and welding mad	chine 1 set
5. Work table	1 unit
6. Machinist's hand tool	1 set
7. Electrician's hand tool	1 set
8. Measuring instruments	1 set
Winch	
1. Type: single cylinder	$\mathbf{r}$ , where $\mathbf{r}$ is the second
2. Capacity: 3.0 ton or more	e

3. Speed: 0 to 20m/min

 $A_{i} = 2 m + 2$ 

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Item No. FP-3 INSP	ECTION BOAT				
Quantity Required: 4 un	its				
Specifications			 		
Description				• • • • •	
Outboard engine type or in	board engine o	out			
drive type, FRP boat					
FRP boat					i de la companya de l
1. Dimensions:					
	approx. 5.0m		·.		
2) Overall breadth:	approx. 2.0m				en de la companya de
3) Overall depth:	approx. 1.0m	н. 1			
2. Complement: 6 persons	or more				
Engine					an a
Outboard engine or inboard equipped	i engine will )	be			
1. Outboard engine					
1) Type: 2 cycle, mixture				art a chuir an chuir	
2) Output: 40 to 55		m			
3) Displacement:				t tij	н. Н
4) Tilting position	: 5		- 1.		<u>,</u> 7.
5) Starting system:	electric	: '		:	
6) Control: foward,	neutral, reven	rse		: i,	•
7) Fuel tank capacit	ty: approx. 25	lit.	e di di		
2. Inboard engine	. · · · ·		:	· . ·	· · ·
1) Type: 4 cycle, engine	water cooled	diesel	· · ·	· ·	
2) Output: 40Hp or 1 (continue	more at rating ous rating)	rpm		۰۰ • • • • • • • • • • •	
3) Displacement:	approx. 1,600	cc	·· ·		
4) Tilting system:	electric hydr power tilt up				
5) Starting system:	electric, bat (12V-120AH or		· .		
• •				, i	in the second second

Ite	m No.	FP-4	JEEP				-	
Qua	ntity	Required:	4 units					
Spe	cifica	tions	•		•		 	e Antonio de Maria de Antonio Antonio de Antonio
Des	cripti	on						
con sho	figura	tion wagor orbers, wi	be of 4 x 4 a , heavy duty th mud guard	suspension a	and			
Per:	formar	ice					· · · ·	
Max	iumum	speed shal		s than 110 km ot less than				
deg	•	·	н	· · ·	•		·, · · ·	н н
Eng	ine						!	
1.			l-cycle, over	head valve,				
2.		of cylinder inders in-						
3.		acement: x. 2,300cc	<b>)</b>	1. 1		at in a		
4.		eel horse ess than 6.		ss) at rated			·····.	· · ·
5.		system: t injectio	on type		· .	en e		
6.	Lubri	cation sys cation met ar pump for		ion			I I A	
	Filte Ful	er:	•tridge type	I			8 · ·	
7.	Force pump			ifugal water lt driven				
8.	Air C	leaner:	per element t	ype air clear	ner	· · ·	· · ·	

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#### Specifications

## Transmission

- 1. Manual, 5-speed gearbox
- 2. Auxiliary box with high & low ratios controlled from the cabin
- 3. Rear wheel drive with part-time transfer gear
- 4. Floor shift control

## Steering

Right hand driving, steering lock

#### Brakes

- 1. Hydraulic on all four wheels, disc brake on front
- 2. Mechanical parking brakes capable of locking the wheels on a gradient of 20% with load

#### Wheels & tyres

- 1. All tyres are interchangeable
- 2. Mounted spare wheel with tyre and tube
- 3. Tyre Rib & Lug

## Electrical system

- 1. Head light lamps
- 2. Directional signals front and rear
- 3. Illuminated instrument panel
- 4. Stop and tail light assemble
- 5. Cab interior light
- 6. Hazard Switch and fog lamps

## Cab & body

- 1. Accommodating capacity: 8 passengers and driver in the cab
- 2. Seats upholstered cushions with springs and covered with durable water proof material
- Rear view mirror, rear view glass, door mirrors
- 4. Wagon type body all steel construction

								. *		
						•	•			· · ·
	/2KR-32	FLOATING PUMP	(10 E CUEE	<u>с</u> ти	15m)	 				
	m No. FP-5A		(12.5 0056		19ш)	 				•
Qua	ntity Required:	2 units		NAME of State of Stat					nana di kata ka	
Spe	cifications		· .			1. A		 	n jene	
Des	cription						. <sup>.</sup> .			
	ating type pump st sel engine, barge		with pump	<b>;</b>		n N N N	- 	:	:	• •
Dim	ensions									
1.	Length of barge:	approx. 6.0m		·				-		
2	Breadth of barge:		· · · · ·			1.1	÷ .		11	
3.	Depth of barge:	approx. 1.0m					۰.			
4	Draft of barge:	approx. 0.7m			•		•			
5.	Height of awning:	•. •			·					
Ont	line		4							
1.	Type of barge: flush decker, por	ntoon type					· · ·			
2.	Type of upper: steel pipe constr				ta e					
	structure	uction with aw	ming							
3.		approx. 1.5t	ming			 				
3.	structure					 · ·		•		
	structure Deadweight:	approx. 1.5t						•		
4.	structure Deadweight: Fuel oil tank: Hull structure:	approx. 1.5t approx. 1.2m mild steel				 · ·			· · ·	
4.	structure Deadweight: Fuel oil tank: Hull structure: ing system on barg	approx. 1.5t approx. 1.2m mild steel	3			 · ·			 	
4. 5. Pip	structure Deadweight: Fuel oil tank: Hull structure:	approx. 1.5t approx. 1.2m mild steel <u>se</u> one line syst	3 cem			 	· · ·			
4. 5. Pip 1. 2.	structure Deadweight: Fuel oil tank: Hull structure: ing system on barg Type of piping:	approx. 1.5t approx. 1.2m mild steel <u>se</u> one line syst	3 cem ° FRP 0			· · · · · · · · · · · · · · · · · · ·				
4. 5. Pip 1.	structure Deadweight: Fuel oil tank: Hull structure: <u>ing system on barg</u> Type of piping: Material of pipe:	approx. 1.5t approx. 1.2m mild steel <u>se</u> one line syst steel pipe or approx. 400mm	3 cem FRP n line Lve, manual							
4. 5. Pip 1. 2. 3.	structure Deadweight: Fuel oil tank: Hull structure: <u>ing system on barg</u> Type of piping: Material of pipe: Pipe diameter:	approx. 1.5t approx. 1.2m mild steel ce one line syst steel pipe or approx. 400mm in delivery J butterfly vaJ operation and valve	3 FRP Line Lve, manual check							
4. 5. <u>Pip</u> 1. 2. 3.	structure Deadweight: Fuel oil tank: Hull structure: <u>ing system on barg</u> Type of piping: Material of pipe: Pipe diameter: Type of valve:	approx. 1.5t approx. 1.2m mild steel one line syst steel pipe or approx. 400mm in delivery J butterfly vaJ operation and valve steel or FRP	3 FRP line lve, manual l check flange							
4. 5. <u>Pip</u> 1. 2. 3.	structure Deadweight: Fuel oil tank: Hull structure: <u>ing system on barg</u> Type of piping: Material of pipe: Pipe diameter: Type of valve: Type of joining:	approx. 1.5t approx. 1.2m mild steel one line syst steel pipe or approx. 400mm in delivery J butterfly vaJ operation and valve steel or FRP	3 FRP line lve, manual l check flange							· · · · · · · · · · · · · · · · · · ·

S	p	e	с	î	f	i	ca	۱t	i	0	ns	

Pump

1.	Type:		
÷.,	diesel engine di	riven, horizontal	type,
	double suction v	volute pump	

- 2. Material of pump:
  - Casing: F.C (grey iron casting)
     Impeller: B.C (bronze casting)
- 3. No. of pump: 1 set
- 4. Pump capacity: 12.5 cfs (1,275 cub.m/hr)
- 5. Total head: 15m or more
- 6. Priming system: Vaccum pump

Engine

- Type of engine: 4-cycle, water cooled diesel engine
- 2. Engine output: 100Hp or more at rated rpm
- 3. Starting system: Battery
- Hull Outfitting

Mac	hinery Outfitting	
4.	Tire fender:	2 sets
3.	Bitt:	4 sets
2.	Rope:	4 sets
1.	Anchor:	4 sets

1. Steel rack:1 set2. Instrument panel:1 set3. Fuel oil pipe:1 line

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		FLOATING	rora	12.5	CUSEC	1.11	2017					
Juan	ntity Required:	4 units		<u>a</u>								
Spec	eifications											
Desc	ription	:										
	ating type pump sta sel engine, barge a			with	pump,		: .					1 - 1 * - 1
Dime	ensions						· · ·					
1.	Length of barge:	approx.	6.Om						•			
2.	Breadth of barge:	approx.	4.5m						et. È			
3.	Depth of barge:	approx.	1.Om	· ·					·* .			-
1.	Draft of barge:	approx.	0,6m				2	:				
5.	Height of awning:	approx.	2.Om	• •	•	• •			· .	· · .		1.2
Dutl	ine					. •						
1.	Type of barge: flush decker, pon	toon type										
2.	Type of upper: steel pipe constru structure	uction wi	th awr	ing		·					• •	· · .
3.	Deadweight:	approx.	1.5t					11. 1		÷.		
ł.	Fuel oil tank:	approx,	0.8m3		÷	. :	<i>к</i> . 4	н Нас		e et e	• :	
5.	Hull structure:	mild ste	el							5 - A		
pipi	ng system on barge		: :							• •		
۱.	Type of piping:	one line	syste	em								٠.
2.	Material of pipe:	steel pi	pe or	FRP	•							
3.	Pipe diameter:	approx. in deliv		ine					. **			
ł.	Type of valve:	butterfl operatio valve									1. 1 1. 1	
ŝ.	Type of joining:	steel or	FRP 1	lange	•					: .		
	Connecting piece:	flexible	rubbe	er jo	int							- 
										•		•

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## Specifications

## Pump

1.	Type:
	diesel engine driven, horizontal type, double suction volute pump
2.	Material of pump:

- Casing: F.C (grey iron casting)
   Impeller: B.C (bronze casting)
- 3. No. of pump: 1 set
- 4. Pump capacity: 12.5 cfs
  - (1,275 eub.m/hr)
- 5. Total head: 9m or more
- 6. Priming system: Vaccum pump

## Engine

- Type of engine: 4-cycle, water cooled diesel engine
- Engine output: 60Hp or more at rated rpm
- 3. Starting system: Battery

## Hull Outfitting

1.	Anchor:	4 sets
2.	Rope:	4 sets
3.	Bitt:	4 sets
4.	Tire fender:	2 sets
Mac	hinery Outfitting	

1.	Steel rack:	, i	 1.1	1	set
ź.	Instrument panel:			1	set
3.	Fuel oil pipe:	;		1	line

Item No. FP-5C	FLOATING	PUMP	(25.0	CUSEC	TH	9m)	
Quantity Required:	3 units						
Specifications	g open som en	lannarar andonis'Cal					
			• .				
Description	· · ·						
Floating type pump st diesel engine, barge			l with	pump,	÷.	• • •	
Dimensions							
1. Length of barge:	approx.	7.Om				:	
2. Breadth of barge:	approx.	5.0m					
3. Depth of barge:	approx.	1.Om				÷.,	
4. Draft of barge:	approx.						
5. Height of awning:			÷	e se	۰.	. •	
	••		• •				
Outline							
<ol> <li>Type of barge: flush decker, pon</li> </ol>	toon type	;					
2. Type of upper: steel pipe constr structure	uction wi	th aw	ming	1. J.		:	
3. Deadweight:	approx.	2.5t			a a		
4. Fuel oil tank:	approx.		3				•
5. Hull structure:	mild ste						
	· · · · .						
Piping system on barg							
1. Type of piping:		. Tri					
2. Material of pipe:							· · · · · · · · · · · · · · · · · · ·
3. Pipe diameter:	approx. in deliv				.'		
4. Type of valve:	butterf.						
	operatio valve	on and	i check	ζ	2		
5. Type of joining:	steel or	FRP	flange	<b>.</b> .			
<ol> <li>Generating piece:</li> </ol>	•	-	_				
. connecting prece.	TTOVIDIO	, rubi	ler i ler				
	1						
·		÷					
							· · · ·

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BAN/2KR-34 Specifications Pump 1. Type: diesel engine driven, horizontal type, double suction volute pump 2. Material of pump: 1) Casing: F.C (grey iron casting) 2) Impeller: B.C (bronze casting) . 3. No. of pump: 1 set Ц. Pump capacity: 25.0 cfs (2,550 cub.m/hr) Total head: 9m or more 5. 6. Priming system: Vaccum pump

#### Engine

- 11 Type of engine: 4-cycle, water cooled diesel engine
- Engine output: 2. 120Hp or more at rated rpm
- Starting system: Battery 3.

## Hull Outfitting

- 1. Anchor:
- 2. Rope:
- Bitt: 3.
- 4. Tire fender:

### Machinery Outfitting

- 1. Steel rack:
- 2. Instrument panel:
- 3. Fuel oil pipe:

- 4 sets 4 sets 4 sets 2 sets
- 1 set
- 1 set
- 1 line

	No. FP-5D	FLOATING PUMP (1 CUSEC)	
Quan	tity Required:	6 units	
	ifications		
Desc	ription		the second second
	pped with pump, d	unted type pump station iesel engine, barge and	
Dime	nsions		
1.	Length of barge:	approx. 3.0m	
2.	Breadth of barge:	approx. 1.5m	
3.	Depth of barge:	approx. 0.5m	· · · ·
4	Draft of barge:	approx. 0.3m	
Outl	ine		en gravet an arrester
1.	Type of barge: 2 floater pontoon	, removable type	
	Hull structure: mild steel and po ng system on barg		
1.	Type of piping:	one line system	
2.	Material of pipe:	flexible pipe or FRP pipe	
· •	Pipe diameter:	approx. 125mm	
3.		in delivery line	
	Connecting piece:		
4. <u>Ритр</u>			
4. <u>Pump</u> 1.	Туре:		
4. <u>Pump</u> 1.	Type: diesel engine dri	flexible joint	
4. <u>Pump</u> 1.	Type: diesel engine dri volute pump Material of pump: 1) Casing: F.	flexible joint	
4. <u>Pump</u> 1. 2.	Type: diesel engine driv volute pump Material of pump: 1) Casing: F. 2) Impeller: B.	flexible joint ven single double suction C (grey iron casting)	
4. <u>Pump</u> 1. 2.	Type: diesel engine dri volute pump Material of pump: 1) Casing: F. 2) Impeller: B. No. of pump: 1 Pump capacity: 1	flexible joint ven single double suction C (grey iron casting) C (bronze casting)	

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## Specifications

## Engine

- Type of engine: 4-cycle, water cooled diesel engine
- Engine output: approx. 10Hp at rated rpm
- 3. Starting system: Battery

Ite	m No. FP-6A	FRP PIPE	(400mm)				
Qua	ntity Required:	710m					
Spe	<u>cifications</u>		, gygg f MEMMAAAn dia amaa ay amaa ay amaa ay ang ay a :		<u></u>		
Des	<u>cription</u>	· -					an Događenika Naslavna
	erglass reinforced pling	l plastic	pipe with				
Dim	ensions	·				÷.	
1.	Nominal dia.:	400mm				• • .	
2.	Thickness:	7mm					· ·
3.	Effective length:	: 4m	•			.* .	
Phy	sical characterist	ics					
1.	Specific gravity:	approx.	1.8		· .		
2.	Tensile strength:	approx.	2,500kgf/cm <sup>2</sup>		· .		
3.	Coefficient of li axle: approx. 1.	near ther 1 x 10 <sup>-5</sup>	rmal expansion lit./°C	<b>7</b>			
4	Specific heat:	approx.	0.2 kcal/kg <sup>o</sup>	1			
	Thermal conductiv						· .

Item No. FP-6B	FRPM PIPE (400mm)		
Quantity Required:	20m	And the Contract of the Contract of Contra	an
Specifications		<u></u>	
		· · ·	
Description			and the second
Description Fiberglass reinforced coupling	l plastic mortar pipe	e with	an a
Fiberglass reinforced	l plastic mortar pipe	e with	
Fiberglass reinforced coupling	l plastic mortar pipe 400mm	e with	
Fiberglass reinforced coupling <u>Dimensions</u>		e with	

14kg.f/cm<sup>2</sup> or more

BAN/2KR-38						
Item No. FP-6C	FRP PIPE	(600mm)	s			
Quantity Required:	150m				the specific designs	
Specifications						
Description						ti di s
Fiberglass reinforce coupling	d plastic	pipe with				-
Dimensions	÷	· · · · · · · · · · · · · · · · · · ·				
1. Nominal dia.:	600mm					ч. - с
2. Thickness:	8mm		11. 1			
3. Effective length	: 4m	• •	· · · · ·		· .	P T
Physical characteris	tics		a Salah Salah Salah Salah Sal		n an	
1. Specific gravity	: approx.	1.8				
2. Tensile strength	: approx.	$2,500 \text{kgf/cm}^2$				
<ol> <li>Coefficient of 1 axle: approx. 1</li> </ol>	inear the .1 x 10 <sup>-5</sup>	rmal expansion, lit./ <sup>O</sup> C				
4. Specific heat:	approx.	0.2 kcal/kg <sup>o</sup> C				
5. Thermal conducti approx. 0.4 kcal			· · ·	. *	· .	
· · · · ·	· ·	· ·				1

