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JAPANESE FILES RESEARCH PROJECT

DEPARTMENT OF JUSTICE
WAR DIVISION
ECONOMIC WARFARE SECTION

AND

FOREIGN ECONOMIC ADMINISTRATION
ECONOMIC INTELLIGENCE DIVISION

REPORT ON

JAPANESE ARMY ARSENALS

February 2, 1944

Prepared by:
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New York, New York

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Economic Warfare Section
War Division
Department of Justice
Washington, D. C.

Confidential Report
February 2, 1944 (N.Y. #272)
Re: Japanese Army Arsenals
Submitted by:
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War Division
Department of Justice
New York, New York

REPORT ON

JAPANESE ARMY ARSENALS

I. Introduction

The Japanese Army Ordnance and Aviation Arsenals purchased more machine tools in the United States between 1937 and 1940 than any Japanese industrial company. Japanese arsenal acquisitions were far greater than those of Nakajima Aircraft Co., for example, or of the whole group of Mitsubishi enterprises.

The following summary shows the volume of orders placed and the amount of shipments resulting therefrom:

<u>Name of Arsenal</u>	<u>Ordered</u>	<u>Shipped</u>	<u>Cancelled</u>
Osaka	\$ 8,944,299.11	\$ 5,735,943.39	\$3,208,355.72
Kokura	2,989,029.84	2,967,503.96	21,525.88
Tokyo	2,141,692.28	1,941,139.23	200,553.05
Nagoya	1,858,280.19	1,719,667.77	138,612.42
Kokura (Jinsen)	43,423.75	18,904.00	24,519.75
Nanman	348,519.14	263,630.24	84,888.90
Hiroshima	211,047.80	36,880.05	174,167.75
Muroran	495,537.60	91,873.60	403,664.00
Army Aviation (Tachikawa)	5,151,872.92	4,662,378.10	489,494.82
Miscellaneous	<u>4,968,294.71</u>	<u>4,968,294.71</u>	
	\$27,151,997.34	\$22,406,215.05	\$4,745,782.29

There is evidence that an even greater volume of orders was placed in Germany and other European countries. One of the Ordnance Department purchasing missions placed a greater volume of orders through Mitsubishi, Berlin, in late 1938 than it placed through Mitsubishi, New York. The Army Aviation Department had about Yen 20,000,000 (over \$5,000,000) worth of outstanding orders in Europe at the outbreak of the war, which compares very favorably with business being done in the United States during the same period. The Japanese Army may have preferred to do business in Germany for a number of reasons including general Axis policy, the availability of credit and barter arrangements, and traditional close relationships to the German Army and to German techniques.

The Japanese Army has concentrated much of its aviation activity at Tachikawa, where an Aviation Branch Arsenal (Tachikawa Koku Shisyo) has been established. Apparently a new factory for the production or repair of engines was built in 1937 and 1938 at this point. This development at a place which was previously an Army administrative center, as well as the site of the Army Aeronautical Laboratory (Rikugun Koku Kenkyusho) and the Tachikawa Aircraft Co., would seem to make the city of Tachikawa a location of prime importance to the Japanese Army.

Most of the Army's purchasing was handled through "missions" consisting of a number of engineering specialists headed by an Army officer. Colonel Imamura's mission came to the United States twice, in 1937 and in 1938, to acquire machinery for the Army Ordnance Department (Rikugun Zoheisho). His second mission was followed closely by the Colonel Atsumi group, which placed orders for the Ordnance Department and for certain industrial companies as well. The Army Aviation Department (Rikugun Koku Honbu), which operated independently of the Ordnance Department, also sent three missions to this country. Colonel Okada came in 1937 and Colonel Kanda in 1938 and again in 1939. The second Kanda mission was the only one which made purchases for industrial concerns but aircraft companies obtained some equipment from previous orders, apparently on a "loan" basis.

Heavy ordnance work seems to be centered at the Osaka Arsenal, which placed orders for large forging presses, heavy gun-turning lathes and similar equipment. The Arsenals at Kokura, Nagoya, and Tokio make smaller guns and ammunition and do work on internal combustion engines as well. The Arsenals at Nanman, Hiroshima, and Muroran placed orders only in late 1939 and early 1940 but these few orders are significant in that they indicate work on diesel engines at Nanman and heavy general work at Hiroshima and Muroran.

This report was prepared after an examination of the files of Mitsubishi Shoji Kaisha, Ltd., Mitsui & Co., Ltd., Viele, Blackwell & Buck, Inc., agents for Ataka & Co., Ltd., Okura & Co., Ltd., Andrews & George, Ltd., and Imperial Export Co., agents for Yamataka & Co., Ltd. Except for the files of Imperial Export, which are in the possession of the company at 44 Whitehall Street, New York City, and the files of Andrews and George, which are on loan to the Department of Justice at 30 Broad Street, New York City, these files are now held by the Alien Property Custodian in a warehouse at 27 Cliff Street, New York City.

In the tabulations which follow, a number of "Notes" are used to represent certain items which recur frequently throughout the lists. These are not footnotes but are merely symbols used in the interest of economy of space. They are as follows:

- Note 1. The file contains a blueprint of the product sold.
- Note 2. The file contains a blueprint of the workpiece on which the machine in question is to operate.
- Note 3. Order placed through Andrews and George, Inc., exclusive agents for the supplier in question.
- Note 4. Order placed through Viele, Plackwell & Buck (Ataka), exclusive agents for the supplier in question.
- Note 5. Order placed through Okura & Co., Ltd., exclusive agents for the supplier in question.
- Note 6. Order placed through Mitsui & Co., Ltd., exclusive agents for the supplier in question.
- Note 7. The order was cancelled for one reason or another and no shipment took place.
- Note 7A. The order was shipped in part before interruption by United States embargo. The figures in parentheses represent the proportion of the order which was shipped.
- Note 7B. The file does not disclose with any degree of certainty whether or not shipment took place.
- Note 8. Order placed through Mitsubishi Shoji Kaisha, Ltd., exclusive agents for the supplier in question.
- Note 9. Order placed through Imperial Export Co. (Yamataka), exclusive agents for the supplier in question.
- Note 10. Order placed by purchasing mission headed by Colonel Atsumi and operating through Showa Tsusho Kaisha, Ltd.
- Note 11. Order placed by purchasing mission headed by Colonel Imamura.
- Note 12. Order placed by Showa Tsusho Kaisha, Ltd., a trading company set up by Mitsubishi, Mitsui, and Okura in early 1939 to handle Army business.

- Note 13. Order placed by Army Aviation Department purchasing mission headed by Colonel Kanda.
- Note 16. Order placed by Army Aviation Department purchasing mission headed by Colonel Okada.
- Note 17. Order placed by purchasing mission headed by Colonel Ito.

The tabulations entitled "Orders Placed in Japan" in Sections III, IV, and VI, the tabulation, "Orders Placed in Other Countries" in Section XI, and the tabulation, "Miscellaneous Orders Placed in Japan and Germany" in Section XII represent items from Mitsubishi and Mitsui Office Reports, wherein the larger sales contracts are recorded. These Reports are not yet available in translation for the full period covered by this report (1937-1941) and these sections must therefore be taken as incomplete. These Reports do not state that particular items represent purchases for particular arsenals, but list the customer simply as "Army Arsenal", and give the location of the Mitsubishi or Mitsui branch offices which handled the transaction. These branch offices customarily handle all orders originating in their territories and the separation which is made herein of these orders placed in Japan and Germany is based upon this usage.

Almost all of the orders placed in this country can be identified with a particular arsenal by means of correspondence and the shipping marks. The few which could not be so identified are collected under Section XII - Miscellaneous.

II. The Arsenal Purchasing Missions

A. The Imamura Missions.

Col. Imamura came to the United States in 1937 to buy machines to make 150 mm shells and 50 Kg. bombs, according to a cable from MSK Tokio, September 21, 1937. A subsequent cable announced that the party left on October 7th. Other letters indicate that equipment was also desired for shells of 105 mm and 75 mm, bombs of 25 Kg. and 100 Kg., and that the party was interested in purchasing a number of presses as well as lathes. The first inquiries sent to manufacturers were for piercing presses for making shells from steel block.

Orders were placed by the Imamura Mission with the three principal trading companies during November and December 1937 as follows:

Mitsubishi	\$ 481,719.32
Mitsui	32,972.87
Okura	698,037.01
	\$1,212,729.20
Total	

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The machines purchased were all shipped and their 1937 destinations were:

Machine	Osaka Arsenal	Nagoya Arsenal	Tokio Arsenal	Kokura Arsenal	Total
Lathes	348	51		62	461
Milling Machines	13	4		3	20
Balancing machine				1	1
Grinders	44	15	1	9	69
Total	405	70	1	75	551

The low ratio of cost per machine is due to the fact that a substantial number of second hand machines was included. Note that the bulk of the orders were placed for the Osaka Arsenal. Note also that no presses were acquired, in spite of the announced intention of purchasing them.

After the placement of this group of orders, Army business slumped until the fall of 1938 when Col. Imamura returned to the United States to place a much larger group of orders for a wide variety of machines. The orders were were distributed amongst the same three trading companies in 1938 as follows:

Mitsubishi	\$1,716,994.54
Mitsui	1,378,090.34
Okura	1,520,430.97
Total	\$4,615,515.85

The machines purchased were all shipped and their 1938 destinations were:

Machine	Osaka Arsenal	Nagoya Arsenal	Tokio Arsenal	Kokura Arsenal	Total
Lathes	3	18	31	43	95
Milling machines	41	55	47	167	310
Grinders	43	31	62	43	179
Gear machines			13	2	15
Horizontal boring machines	12	3	7	4	26
Vertical boring machine	1				1
Planers	1				1
Planer-millers	3				3
Drilling machines	3	2	3	14	22
Die sinkers	1	5	1	3	10
Automatic screw or chuck.			3	31	34
Shapers		2	3	4	9
Threading machines				2	2
Broaching machines		5	2	7	14
Small forging hammers				24	24
Forging machine	1		1	1	3
Cold sawing machine	1			2	3

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Machine	Osaka Arsenal	Nagoya Arsenal	Tokio Arsenal	Kokura Arsenal	Total
Rifling machine				8	8
Contour projector				1	1
Spring coiler				3	3
8,000 lb. hammer	1				1
12,000 lb. hammer	1				1
Trimming presses				8	8
Total	112	121	173	367	773

Note that the Osaka Arsenal, which received the bulk of the purchases under the first mission, is represented but lightly on this list.

The 1938 Imamura mission also placed a large volume of orders in Germany. The Mitsubishi files contain a list of orders placed in Germany by Col. Imamura at a total price of \$3,727,753.23, computed at the official exchange rate of 40 cents per Reichsmark. Thus the Imamura mission placed more orders through MSK, Berlin, than it placed through MSK, New York, in 1938 and 1939. The dates when the German orders were placed are not stated but the time of shipment is listed for each machine, such dates ranging from November 1938 to March 1940. It is probable that very few of the machines scheduled for shipment after August 1939 were shipped. The machines ordered were as follows:

Machine	Osaka Arsenal	Nagoya Arsenal	Tokio Arsenal	Kokura Arsenal	Total
Lathes	24	1	20	6	51
Milling machines	9	14	17	18	58
Grinders	37	37	21	25	120
Gear machines	4	1	2		7
Planer-millers	1			1	2
Vertical boring machine	1				1
Threading machines	23	7	4	1	35
Boring lathes	2				2
Drilling machines	3				3
5,000 ton press	1				1
Relieving machines	1		2		3
Reducing press	1				1
Excentric press	1				1
Testing press	1				1
Dividing machines			2		2
Measuring machines	4	1	2	4	11
Jig borers		2	1	1	4
Honing machines		4	1		5
Screw presses		2			2
Screw machine			1		1
Vertical slotters			7		7

Machine	Osaka Arsenal	Nagoya Arsenal	Tokio Arsenal	Kokura Arsenal	Total
2,000 ton press			1		1
Rifling machines			3		3
Total	113	69	84	56	322

B. The Atsumi Mission.

The mission headed by Col. Atsumi came to the United States in September, 1939, with a budget of Yen 40,000,000, 2% of which was allocated for the purchase of machines for civilian concerns in which the Army was interested, and the balance of which was to be used to buy equipment for the four major Army Arsenals and for four smaller arsenals, according to Mitsui file MF 3381. The party consisted of 3 engineers from Osaka Arsenal, one from Tokio Arsenal, 3 civilian engineers and 2 representatives of Showa Tsusho, the trading company which had organized in the spring of 1939 by Mitsui, Mitsubishi and Okura to handle Army business. The engineer from Osaka Arsenal was in charge of machines for the production of guns while the engineer from Tokio Arsenal was in charge of general purpose machines.

Orders and shipments which resulted from the work of this mission were as follows:

	<u>Ordered</u>	<u>Shipped</u>	<u>Cancelled</u>
Mitsubishi	\$1,679,787.38	\$1,112,793.28	\$ 566,994.10
Mitsui	2,307,214.88	270,774.93	2,036,439.95
Okura	2,633,026.04	896,808.69	1,736,217.35
Ataka	<u>235,319.50</u>	<u>222,570.43</u>	<u>12,749.07</u>
	\$6,855,347.80	\$2,502,947.33	\$4,352,400.47

Orders for various machines for the several arsenals were distributed as follows (cancellations not deducted on this table):

Os - Osaka Arsenal	KJ - Kokura (Jinsen) Arsenal
Ng - Nagoya Arsenal	Nm - Nanman Arsenal
To - Tokio Arsenal	Hi - Hiroshima Arsenal
Ko - Kokura Arsenal	Mu - Muroran Arsenal

Machines	Os	Ng	To	Ko	KJ	Nm	Hi	Mu	Totals
Lathes	6	5	9	4		9	1	3	37
Milling Machine	44	17	9	7		10	2	1	90
Grinders		15	31	3	2	10	1	1	63

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Machines	Os	Ng	To	Ko	KJ	Nm	Hi	Mu	Totals
Gear Machines	14	4	14	2		7	1		42
Boring Lathes	15								15
Threading mach.	5	14	1		1	1			22
Jig borers	1	2		1					4
Hor. boring mach.	17	4	3			2	1	1	28
Ver. boring mach.	1	1	1					1	4
Automatic screw		7		6	4	2			19
Planer-millers	4	2				1	1		8
6,000 lb. hammer	1								1
5,000 ton press	1								1
3,000 ton press	1								1
2,000 ton press	1								1
Ingot slicers	3								3
Rack cutters	2								2
Drilling mach.		5					3		8
Cold saw		1		1		1			3
Relieving mach.		1	1						2
Broaching mach.		1				1			2
Planer		2						1	3
Honing machines			3			1			4
Die sinker			1						1
Rifling mach.							1	1	2
Slotter								1	1
Total	116	81	73	24	7	45	11	10	367

The Mitsui files also show that the Atsumi mission placed orders for machines through Mitsui for a number of industrial concerns. Following is a summary of those orders. These purchases are listed together with all other purchases, in Department of Justice reports from the Japanese File Research Project, the numbers of which are given in the third column:

Company	No. of Machines	Dept. of Justice Report Number
Mitsubishi Heavy Industry	2	NY 186
Riken	2	
Hitachi	4	NY 216
Tokio Denki	3	
Toyo Kogyo	1	NY 251
Kobe Steel Works	5	NY 266
Chuo Kogyo (Showa Seisakusho)	18	NY 246
Niigata Iron Works	3	NY 245
Komatsu	1	
Fujikoshi	1	
Nihon Seiko	5	NY 270
Ikegai Iron Works	13	NY 239
Tokio Jidosha	3	NY 230

III. The Osaka ArsenalA. General.

The Main Arsenal at Osaka is located at Osaka-shi, Higashi-ku, Sugiyama cho 1, while the Osaka Branch Arsenal is located at Osaka-shi, Higashi-ku, Basho cho.*

Judging from the volume of purchases made not only in the United States, but also in Germany and Japan, the Osaka Arsenal is the largest of the Army Arsenals. The orders and shipments tabulated below were as follows:

<u>Agent</u>	<u>Ordered</u>	<u>Shipped</u>	<u>Cancelled</u>
Mitsubishi	\$1,200,413.07	\$ 848,227.72	\$ 352,185.35
Mitsui	2,369,055.71	638,412.66	1,730,643.05
Ataka	91,974.73	91,974.73	
Okura	2,756,087.60	1,630,560.28	1,125,527.32
Germany	2,043,545.00	2,043,545.00	
Japan	<u>483,223.00</u>	<u>483,223.00</u>	
Total	\$8,944,299.11	\$5,735,943.39	\$3,208,355.72

The Osaka Arsenal is the only major arsenal which appears to be devoted entirely to the manufacture of guns, shells, etc. It purchased large numbers of lathes, milling machines, grinders, threading machines, and heavy boring machines and ordered several forging presses, hammers and other heavy equipment. It is the only major arsenal which did not make purchases tending to indicate the manufacture of either aircraft or other internal combustion engines.

Several orders show that plans had been made for the production of very heavy articles. The Barnes shell boring and reaming machine acquired through Mitsubishi (Order 8427) was equipped with cutters for 4" shells. The Lodge & Shipley machine purchased through Mitsubishi (Order 8425) was equipped to bore a piece 1500 mm. long with an outside diameter of 160 mm. and an inside diameter of 130 mm. to 140 mm. The Simmons gun boring lathes purchased through Mitsubishi (Order 9173) were designed to accommodate work pieces 55 feet, 68 feet, and 122 feet in length. The Mesta trepanning lathes ordered through Mitsubishi (Order 9307) were to be equipped with 18", 14", and 10" boring heads. Several Mitsui orders were for large boring lathes accommodating work 62 feet, 90 feet, and 92 feet in length (Orders

* "What Will Japanese Industry Do if Japan Goes to War," found in Mitsui files. It states that as of 1931 the Osaka Main Arsenal employed 3308 people, including 105 women in the manufacture of "arms" and that the Branch Arsenal employed 156 people, including 40 women, on "other business".

EO 3931, EO 2288, EO 2289, EO 2290 and EO 2291). Similarly, one order placed through Okura were for three large boring lathes (Order RZ 1016). Fortunately, many of these orders had to be cancelled.

Two large 2000 ton and 3000 ton hydraulic forging presses were ordered from United Engineering through Mitsui (Order EO 2401) but shipment did not take place. However, the electrical equipment for these presses was shipped and the files show plans to substitute presses built in Japan. The Mesta 5000 ton press ordered through Okura (Order A-470) was shipped in an 85% - 90% completed condition.

It should be noted that there probably is a close connection between the two orders for 5000 ton hydraulic presses. The first order was placed through Mitsubishi with "Hydraulik" of Duisburg by the Imamura mission. The delivery date contracted for was March, 1940. Upon the outbreak of the war in Europe the Atsumi mission, which had just taken over the work of Col. Imamura in New York, began negotiations with Mesta, through Okura. An order was placed December 29, 1939. Mesta was forced, because of priority regulations, to stop work on the press in 1940 when the equipment was from 85% to 90% complete. Some parts were finished, some were partly finished, and work on other parts had not even been begun. The file shows extent of work done and undone on all parts. Mesta estimated that it would take the Japs from one to two years to complete the press. It appeared that no American company was interested in the press and official permission was given for the exportation of the component parts on an "as is" basis. Shipment took place on July 6, 1941. A letter from Japan stated that a special building for the press had been erected and foundations installed.

An intercepted cable from Hydraulik, Duisburg to Hschliebs (sic), Tokyo, dated September 22, 1942, tends to show that the Japanese Army despaired of completing the Mesta press. The cable reads in part:

"Okura inquires about 5000 (ton) forging press (for) Japanese army; formerly Mesta Amerika ordered through Okura, cancelled at outbreak of war . . . "

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B. Recapitulation of Orders and Shipments
for Osaka Arsenal.

S - Shipped
C - Cancelled
O - Ordered

Product	Mitsubishi		Mitsui		Okura		Ataka		Ger- many*	Japan	T O T A L S		
	S	C	S	C	S	C	S	C	O	O	S	C	O
Lathes	156	0	6	0	194	0			24	12	392	0	392
Milling machines	35	0	37	14	22	0	12	0	9	3	118	14	132
Grinders	13	0	1	0	51	0	4	0	37	1	106	0	106
Gear machines	2	0	0	6			6	0	4		12	6	18
Planer- milers	4	2	0	1					1		5	3	8
Planers	1	0									1	0	1
Hor. Bor. machines	17	0	4	0	1	2					22	2	24
Vert. Bor. machines	1	0	0	1					1		2	1	3
12000 lb. hammers	3	0									3	0	3
8000 lb. hammers	2	0									2	0	2
6000 lb. hammer	1	0									1	0	1
7 $\frac{1}{2}$ " Forging machine	1	0									1	0	1
Threading machines	5	0							23		28	0	28

* Files do not contain shipping documents so allowance must be made for cancellations, particularly with respect to orders placed in Germany.

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Product	Mitsubishi		Mitsui		Okura		Ataka		Ger- many	Japan	T O T A L S		
	S	C	S	C	S	C	S	C	O	O	S	C	O
Ingot slicers	1	0	1	2							2	2	4
Trepanning lathes	0	6									0	6	6
Boring lathes			2	7	2	8			2		6	15	21
5000 ton presses					1	0			1		2	0	2
3000 ton press			0	1							0	1	1
2000 ton press			0	1							0	1	1
Rack cutters			0	2							0	2	2
Drilling machines					3	0			3		6	0	6
Die sinker					1	0					1	0	1
Jig borer					1	0					1	0	1
Relieving machine									1		1	0	1
Reducing press									1		1	0	1
Excentric press									1		1	0	1
Sand blast machine									1		1	0	1
Testing press									1		1	0	1
Measuring machines									4		4	0	4

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C. Orders Placed in the United States
for Osaka Arsenal.

1. Mitsubishi Orders

Order Number	Date	Manufacturer	No.	Product	Price
7974	10/19/37	Gisholt	2	#4 Universal turret lathes with bar and chucking tools	\$8,582.00
A	10/19/37	Union Mfg. Co.	2	Chucks	153.00
B	11/26/37	Gisholt	2	Chucks	702.00
C	12/10/37	Gisholt	2	Collet pads	18.81
7979 (Note 11)	10/20/37	Lodge & Shipley	6	14" x 8" Engine lathes	33,262.00
			4	14" x 8" Manufacturing lathes	
A	10/20/37	Union	10	10 1/2" Chucks	1,102.50
7991 (Note 11)	11/15/37	Brown & Sharpe (Note 4)	7	#13 Universal and Tool grinders	18,923.45
7994 (Note 11)	11/15/37	Monarch (Note 9)	5	16" x 78" Model W engine lathes	16,321.00
A	11/15/37	Westinghouse	5	Motors	573.65
7999 (Note 11)	11/16/37	Axelson	10	18" x 10" Geared head lathes with 5 taper attachments	40,228.50
8005 (Note 11)	11/17/37	Springfield	20	18" x 10'6" Geared head lathes	64,566.00
A	11/18/37	Westinghouse	20	7 1/2 HP Motors	2,294.60
B	12/15/37	Springfield Machine Tool	x	Equipment for 10 lathes	2,052.00

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Order Number	Date	Manufacturer	No.	Product	Price
8026 (Note 11)	11/23/37	Morey	5	Used 24" x 10' Lodge & Shipley engine lathes	
			5	Used 21" x 10' LeBlond geared screw cutting engine lathes	
			2	Used Reed Prentice 16" x 8' engine lathes	\$14,060.00
A	11/23/37	Westinghouse	2	5 HP Motors for lathes	169.40
8032 (Note 11)	11/30/37	Monarch (Note 9)	5	16" x 54" 8-speed engine lathes with heavy duty screw tool blocks and taper attachments	15,102.15
A	11/30/37	Westinghouse	5	7½ HP Motors	573.65
B	12/16/37	Monarch	5	Oil pans and pumps	1,073.50
8035	12/13/37	Prussian	2	Used 17" x 8' LeBlond Production lathes	
			1	Used 18" x 8' LeBlond Production lathe	
			2	Used 21" x 10' LeBlond Production lathes	
			1	Used 20" x 8' LeBlond Production lathe	
			1	Used 17" x 10' LeBlond Production lathe	
			5	Used 19" x 8' LeBlond Production lathes	
			2	Used 18" x 8' Monarch Manufacturing lathes	
			5	Used 20" x 8' Wickes Production lathes	

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Order Number	Date	Manufacturer	No.	Product	Price
8035 (cont'd)	12/13/37	Prussian	3	Used 18" x 8' Boyes & Emmes engine lathes	
			2	Used 17" x 8' LeBlond Production lathes	
			1	Used 20" x 10' Boyes & Emmes lathe	\$19,200.00
A	12/16/37	Prussian	2	Used 17" x 8' LeBlond Production lathes	1,600.00
8045 (Note 11)	12/13/37	Simmons	1	24" x 10' Lodge & Shipley geared engine lathe	
			1	24" x 10' LeBlond geared heavy duty engine lathe	
			1	21" x 10' LeBlond heavy duty engine lathe	
			1	24" x 10' Lodge & Shipley geared engine lathe	\$3,600.00
8046 (Note 11)	12/13/37	Emerman	1	Rebuilt 18" x 8' LeBlond geared engine lathe	625.00
			1	Rebuilt 18" x 8' Lodge & Shipley geared engine lathe	1,650.00
			1	Rebuilt 16" x 7' Lehman lathe	672.00
			1	Rebuilt 17" x 7' LeBlond Production lathe	775.00
			1	Rebuilt 18" x 8' Prentice engine lathe	620.00
			1	Rebuilt 18" x 10' Lodge & Shipley engine lathe	1,450.00
			1	Rebuilt 25" x 10' Ryerson Conradson engine lathe	1,670.00
			2	Rebuilt 24" x 10' American heavy duty engine lathes	3,140.00

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Order Number	Date	Manufacturer	No.	Product	Price
8049 (Note 11)	12/15/37	Springfield	10	18" x 10'6" geared head engine lathes	\$32,274.00
A	12/15/37	Westinghouse	10	7½ HP Motors	1,147.30
B	12/15/37	Springfield	5	Taper attachments	1,035.00
8050 (Note 11)	12/15/37	Monarch (Note 9)	7	18" x 72" Model BB engine lathes	27,306.00
A	12/15/37	Westinghouse	7	10 HP Motors	803.11
8051 (Note 11)	12/15/37	Hill Clarke	3	Used 19" x 8' LeBlond engine lathes	3,990.00
			7	Used 18" x 8' Lodge & Shipley engine lathes	8,260.00
			1	Used 18" x 20½" Reed Prentice geared head lathe	1,550.00
			1	Used 20" x 22" x 8' American engine lathe	1,750.00
			1	Used 20" x 22½" x 8' Lodge & Shipley engine lathe	1,825.00
			1	Used 26" x 10' Whitcomb Blaisdell engine lathe	1,400.00
			3	Used 21" x 10' LeBlond Universal turret lathes	3,600.00
			1	Used 24" x 26½" x 10' American engine lathe	1,750.00
8057 (Note 11)	12/20/37	Brown & Sharpe (Note 4)	8	#13 Universal and tool grinders	20,680.00
8058 (Note 11)	12/20/37	Reed Prentice (Note 4)	1	8" #0 Production lathe	2,480.29
A	12/20/37	Westinghouse	1	5 HP Motor	84.70

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Order Number	Date	Manufacturer	No.	Product	Price
8062 (Note 11)	12/22/37	Lodge & Shipley	5	18" x 78" Engine lathes	\$19,813.50
A	12/27/37	Westinghouse	5	10 HP Motors	573.65
8065 (Note 11)	12/27/37	Reed Prentice (Note 4)	15	8' #0 Production lathes	34,818.35
A	12/16/37	Westinghouse (Note 4)	15	5 HP Motors	1,951.95
8363 (Note 11)	9/1/38	Brown & Sharpe (Note 4)	4	#2 Vertical milling machines with 18" rotary attachments	26,733.20
8365 (Note 11)	9/2/38	Brown & Sharpe (Note 4)	10	#2 Universal milling machines	36,890.00
8366 (Note 11)	9/2/38	Brown & Sharpe (Note 4)	10	#13 Universal tool and grinding machines with attachments for internal and surface grinding	34,706.60
8379 (Note 11)	9/2/38	Heald (Note 4)	3	#22 Rotary surface grinders	11,087.10
8415 (Note 11)	10/4/38	Ingersoll	1	48" x 48" x 10' type A adjustable rail milling machine	32,573.56
8416 (Note 11)	10/5/38	Ingersoll	1	48" x 48" x 12' type A adjustable rail milling machine	33,098.56
8417 (Note 11)	10/5/38	Ingersoll	1	72" x 60" x 14' type B adjustable rail milling machine	61,564.42
8418 (Note 11)	10/4/38	Cincinnati Planer	1	120" x 96" x 44' Hypro double housing planer	61,436.00
8424 (Note 11)	10/6/38	Lucas	1	#41 Precision horizontal boring, drilling and milling machine	9,985.00
A	10/6/38	Westinghouse	1	7½ HP Motor	127.05

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Order Number	Date	Manufacturer	No.	Product	Price
8425 (Note 11)	10/6/38	Lodge & Shipley	1	Used 30" x 56' drilling and turning lathe with revolving drill head for boring work piece 1500 mm. x 160 mm. O.D. x 130 to 140 mm. bore	\$15,347.20
A	10/6/38	Westinghouse	1 1 1 1	20 HP Motor 10 HP Motor 60 HP Motor 40 KW Motor-generator	2,946.79
8427 (Note 11)	10/7/38	Barnes	2	#H-4 Hydram inverted process shell boring and reaming machine and cutters for 4" shells (Notes 1 and 2)	25,529.80
8428 (Note 11)	10/10/38	Lucas	1	#42 Precision horizontal boring, drilling and milling machine with swivelling table and boring bar	13,210.00
8430 (Note 11)	10/11/38	Cincinnati Planer	1	84" Hypro vertical boring and turning mill	23,280.00
A	10/11/38	Westinghouse	5	Motors	860.86
8498 (Note 11)	11/7/38	Erie Foundry	2 3	8,000 lb. Steam hammers 12,000 lb. Steam hammers (Note 1)	77,931.00
8500 (Note 11)	11/9/38	Monarch (Note 9)	1	18" x 48" Model C 16-speed toolroom lathe	5,706.25
8502 (Note 11)	11/9/39	National	1	7½" High duty forging machine	94,350.00
A	11/10/38	Westinghouse	1	150 HP Motor	1,937.17
B	11/10/38	Worthington Pump	1	Model B 1,300, 3½x4 vertical air compressor	241.00

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Order Number	Date	Manufacturer	No.	Product	Price
9172 (Note 10)	11/20/39	Ingersoll	3	42" x 36" x 8' type A planer type milling machines (one shipped)	\$85,089.75 (30,680.00 Note 7A)
9173 (Note 10)	11/21/39	Simmons	5	New Stamets 55"x 68' HD geared head gun boring and turning lathes for turning gun barrels	109,925.00
			1	New Stamets 55" x 55' HD geared head gun boring and turning lathes for turning gun barrels	20,235.00
			1	New Stamets 55" x 122' HD geared head gun boring and turning lathes for turning gun barrels	31,485.00
9177 (Note 10)	11/25/39	Hill Clarke	1	Rebuilt Rochester #2 3" horizontal boring machine	4,337.00
			1	Rebuilt Lucas #2 3 3/4" horizontal boring machine	6,258.00
			1	Rebuilt Kempsmith #4 Maximiller	5,248.00
			1	Rebuilt Cincinnati #5 plain milling machine	6,162.00
			2	Rebuilt Brown & Sharpe #4B plain millers	10,145.00
			1	Rebuilt Brown & Sharpe #5C vertical milling machine	4,012.00
9182 (Note 10)	11/28/39	Lees Bradner	5	#3C Collet type thread milling machines	16,795.00
A	12/23/39	Westinghouse	5	3 HP Motors	405.45

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Order Number	Date	Manufacturer	No.	Product	Price
9194 (Note 10)	12/1/39	Morey	1	Rebuilt Universal 3 $\frac{1}{2}$ " horizontal boring machine	
			1	Rebuilt Niles 5" horizontal boring machine	
			1	Rebuilt Niles 6" horizontal boring machine	
			1	Rebuilt Pittsburgh 36" x 38' lathe	
			6	Rebuilt Brown & Sharpe #5 vertical milling machines	\$68,720.00
9203 (Note 10)	12/6/39	Emerman	6	Rebuilt Becker #6 vertical millers	18,630.00
			1	Rebuilt Lucas #33 precision horizontal boring machine	14,750.00
			1	Rebuilt Cincinnati #4-48 plain hydro- matic miller	5,160.00
			1	Rebuilt Kearney & Trecker #4B vertical milling machine	6,275.00
			1	Rebuilt Kearney & Trecker #4K vertical milling machine	10,095.00
			1	Rebuilt Brown & Sharpe #4 HD plain milling machine	6,885.00
			2	Rebuilt Gould & Eberhardt #12 HS gear hobbing machine	5,270.00
			A	12/7/39	Emerman
B	12/8/39	Emerman	x	Attachments	240.00
9300 (Note 10)	1/13/40	Mesta	1	Steel ingot slicing machine for ingot of 250 mm. to 1800 mm. diameter and up to 5000 mm. in length	45,315.00

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Order Number	Date	Manufacturer	No.	Product	Price
9307 (Note 10)	1/25/40	Mesta	6	72" Trepanning lathes	\$297,775.60 (Note 7)
			4	18" boring heads	
			4	14" " "	
			4	10" " "	
9364 (Note 10)	2/14/40	Erie Foundry	1	6000 lb. Double frame air hammer	14,715.00

2. Mitsui Orders.

TO 3966 EO 2572	12/7/37 7/28/37	Kearney & Trecker	1	#1H Universal milling machine	2,974.50
add	12/2/37	Kearney & Trecker	2	Attachments	112.95
EO 2573	7/27/37	Kearney & Trecker	1	#1H Universal milling machine	2,974.50
add	12/2/37	Kearney & Trecker	2	Attachments	112.95
EO 2576	7/28/37	Kearney & Trecker	1	#2HL Universal milling machine	3,114.00
add	12/3/37	Kearney & Trecker	2	Attachments	112.95
EO 2577	7/28/37	Kearney & Trecker	1	#2HL Universal milling machine	3,114.00
add	12/3/37	Kearney & Trecker	2	Attachments	112.95
EO 2578	7/28/37	Kearney & Trecker	1	#2HL Universal milling machine	3,114.00
add	12/3/37	Kearney & Trecker	2	Attachments	112.95
EO 2753 TO 3777	9/20/37 12/7/37	Van Norman	4	#32 Milling machines	18,860.00
EO 2914 MF 3580	12/1/37	Sidney	3	16" x 54" Engine lathes	7,846.87
add	12/1/37	Horton	3	14" 4-Jaw chucks	234.00
add #2	12/2/37	General Electric	3	7½ HP Motors	372.00

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Order Number	Date	Manufacturer	No.	Product	Price
EO 2915 MF 3580	12/1/37	✓ Sidney	3	16" x 54" Engine lathes	\$7,846.87
add	12/1/37	Horton	3	14" 4-Jaw chucks	234.00
add #2	12/2/37	General Electric	3	7½ HP Motors	372.00
EO 2939 TO 3769	12/17/37 12/7/37	Kearney & Trecker	4	#1H 18" Manufacturing milling machines	10,211.40
EO 3478 TO 3398 (Note 11)	9/1/38 10/28/38	Kearney & Trecker	4	#3K Vertical milling machines	25,661.76
add	9/2/38	General Electric	4	10 HP Motors	652.00
EO 3475 TO 3228 (Note 11)	8/31/38 10/28/38	Kearney & Trecker	4	#3H Universal milling machines	20,344.00
add	9/2/38	General Electric	4	7½ HP Motors	355.52
EO 3480 (Note 11)	9/1/38	Kearney & Trecker	4	#4H Vertical Milwaukee knee type milling machines	25,515.00
add	9/1/38	General Electric	4	10 HP Motors	652.00
EO 3482 (Note 11)	9/1/38	Kearney & Trecker	3	#4K Universal Milwaukee milling machines	22,862.00
add	9/2/38	General Electric	3	15 HP Motors	369.84
EO 3484 (Note 11)	9/1/38	Kearney & Trecker	3	#4K Vertical milling machines	23,219.00
add	9/2/38	General Electric	3	15 HP Motors	369.81
EO 3913 TO 3651 (Note 11)	12/15/39 2/14/39	Giddings & Lewis	1	#340T Horizontal boring, drilling and milling machine, 2 spindle type	21,436.05
add	12/27/38	General Electric	1	15 HP Motor	155.31
EO 3914 TO 3755 (Note 11)	12/15/38 4/12/39	Giddings & Lewis	2	#340T Horizontal boring, drilling and milling machines	35,992.10
add	12/27/38	General Electric	2	15 HP Motors	310.62

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Order Number	Date	Manufacturer	No.	Product	Price
EO 3941 TO 3646 (Note 11)	1/3/39 2/14/39	Kearney & Trecker	1	#4K Vertical milling machine with 24" rotary table	\$8,698.50
add	1/9/39	General Electric	1	15 HP Motor	164.00
EO 3934 TO 3653 (Note 11)	1/8/39 4/5/39	Norton	1	16" x 72" Type C plain grinder	13,763.00
EO 3938 TO 3643 (Note 11)	1/11/39 2/14/39	Kearney & Trecker	2	#3H Vertical Milwaukee milling machines	12,070.00
add	1/11/39	General Electric	2	7½ HP Motors	192.56
EO 3940 TO 3645 (Note 11)	1/11/39 2/14/39	Kearney & Trecker	1	#4H Vertical Milwaukee milling machine	7,057.50
add	1/11/39	General Electric	1	10 HP Motor	115.02
EO 3928 TO 3707 (Note 11)	1/11/39 4/5/39	Tabor	1	Tabor-Brassive Cut- off machine for straight and mitre cuts on high speed steel 25 mm. square or 100 mm. diameter	988.24
EO 3931 TO 3639 (Note 11)	1/12/39 2/14/39	American Tool	1	25' Special boring and turning lathe for turning and boring guns simultaneously and be capable of handling ingots of alloy gun steel	69,176.00
EO 3939 TO 3644 (Note 11)	1/12/39	Kearney & Trecker	2	#3K Vertical milling machines	14,396.00
add	1/12/39	General Electric	2	10 HP Motors	230.00

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Order Number	Date	Manufacturer	No.	Product	Price
EO 3913 TO 3651 (Note 11)	12/15/39 2/14/39	Giddings & Lewis	1	#340T Horizontal boring, drilling and milling machine, 2 spindle type	\$21,436.05
. add	12/27/39	General Electric	1	15 HP Motor	209.34
EO 3932 TO 3640 (Note 11)	12/27/39 2/14/39	Sellers	1	16' Heavy vertical boring and turning mill	74,313.00
EO 2401 TO 2427 (Note 10)	10/20/39 2/10/40	United Engineering	1	3000 ton hydraulic forging press, stroke 6'8" with 200 ton ejector (Drawings sent to Japan were returned with attestation that they had not been copied.)	280,368.75 (Note 7)
			1	2000 ton hydraulic forging press, stroke 4'2" with 70 ton ejector (Drawings sent to Japan were returned with attestation that they had not been copied.)	169,393.00 (Note 7)
add	2/13/39	United Engineering	1	75 ton rotating block and anvil for 3000 ton press	24,700.00 (Note 7)
add #2	2/13/39	United Engineering	1	50 ton rotating block, anvil and double sling chain for 2000 ton press	20,385.00 (Note 7)
EO 2401E TO 2427 (Note 10)	12/20/39 2/10/40	General Electric	2	450 HP motors and control for 3000 ton press	17,769.55
			2	300 HP motors and control for 2000 ton press	
EO 2356 TO 3594 (Note 10)	12/21/39	Gould & Eberhardt	1	#50 TWC worm gear hobbing machine	21,846.00 (Note 7)

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Order Number	Date	Manufacturer	No.	Product	Price
EO 2357 TO 3607 (Note 10)	12/21/39 3/15/40	Gould & Eberhardt	1	#36H Universal gear hobbing machine	\$18,372.00 (Note 7)
EO 2358	12/22/39	Gould & Eberhardt	1	#24H Universal gear hobbing machine	6,969.00 (Note 7)
EO 3932 TO 3640 (Note 11)	12/27/39 2/14/39	Sellers	1	16' Heavy vertical boring and turning mill	74,313.00
EO 2288 TO 3596 (Note 10)	12/29/39 3/15/40	Consolidated	3	Betts-Bridgeford 60" x 92' heavy duty boring and turning lathes	249,575.25 (Note 7)
EO 2289 TO 3597 (Note 10)	12/29/39 3/15/40	Consolidated	1	60" x 64' Heavy duty boring and turning lathe	68,647.25 (Note 7)
EO 2290	12/30/39	Consolidated	2	Betts-Bridgeford 54" x 90' heavy duty boring and turning lathes	135,278.00 (Note 7)
EO 2287 TO 3599 (Note 10)	1/4/40 3/15/40	Consolidated	1	Newton heavy duty planer type milling machine	74,200.00 (Note 7)
EO 2291 TO 3598 (Note 10)	1/6/40 3/15/40	Consolidated	1	54" x 62' heavy duty boring and turning lathe	55,089.50 (Note 7)
EO 2293 TO 3600 (Note 10)	1/6/40 3/15/40	Consolidated	1	Betts 25' heavy duty vertical boring and turning mill	173,210.00 (Note 7)
EO 2372 TO 3614 (Note 10)	1/17/40 3/15/40	Consolidated	1	#36R Automatic Rack cutting machine	7,224.00 (Note 7)
EO 2373 TO 3611 (Note 10)	1/17/40 5/30/40	Gould & Eberhardt	1	#36R Automatic Rack cutting machine	7,224.00 (Note 7)
EO 2387 TO 3621 (Note 10)	1/17/40 3/15/40	Kearney & Trecker	13	#4K Vertical milling machines	126,392.50 (Note 7)

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Order Number	Date	Manufacturer	No.	Product	Price
EO 2391	1/17/40	Kearney & Trecker	1	#2 Model D tool and die milling machine	\$8,778.80 (Note 7)
EO 2477 TO 3612 (Note 10)	1/19/40 3/15/40	Gould & Eberhardt	3	#96H Universal gear hobbing machines	148,800.00
EO 2484 TO 3613 (Note 10)	2/2/40 3/15/40	Consolidated	2	Newton type U-97-A 120" Special heavy duty cutting-off machine	134,190.00 (Note 7)

3. Ataka Orders.

5404	9/21/37	Brown & Sharpe	1	#0B Plain milling machine	2,219.25
5407	9/21/37	Brown & Sharpe	1	#3 Standard vertical spindle milling machine	5,591.68
5409	9/21/37	Brown & Sharpe	6	#2 Universal milling machines	17,496.48
5411	9/21/37	Brown & Sharpe	1	#12 Plain milling machine	2,967.43
5413	9/21/37	Brown & Sharpe	3	#2 Plain milling machines	7,337.49
5418	9/21/37	Brown & Sharpe	4	#2 Universal grinders	13,149.90
V-7497 (Note 10)	1/10/40	Gleason	3	12" Straight bevel gear generators	28,512.50
V-7500 (Note 10)	1/10/40	Gleason	3	3" Straight bevel gear generators	14,700.00

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4. Okura Orders.

Order Number	Date	Manufacturer	No.	Product	Price
11535	10/6/37	Blanchard & Landis (Note 3)	1	#16 Vertical surface grinder	\$17,589.25
			4	10" x 24" Universal grinding machines	
11556 (Note 11)	11/26/37	LeBlond	24	19" x 10' Rapid production lathes	74,297.00
11558 (Note 11)	11/30/37	Botwinik	1	Rebuilt Prentice 18" x 8' engine lathe	\$22,038.75
			1	Rebuilt Whitcomb Blaisdell 18" x 8' engine lathe	
			1	Rebuilt Hendey 20" x 8' motor driven engine lathe	
			1	Rebuilt Sidney 16" x 8' engine lathe	
			1	Rebuilt Hendey 20" x 8' Yoke head engine lathe	
			1	Rebuilt Oliver 16" x 7' engine lathe	
			1	Rebuilt Bell 18" x 9' heavy duty engine lathe	
			1	Rebuilt Flather 18" x 8' engine lathe	
			1	Rebuilt National 18" x 6' heavy duty engine lathe	
			1	Rebuilt Cisco 20" x 8' heavy duty engine lathe	
11559 (Note 11)	12/2/37	Lucas	10	Rebuilt New Haven 24" x 10' engine lathe	4,100.00
			10	Rebuilt New Haven 21" x 10' screw cutting engine lathes	
			1	Rebuilt Reed 18" x 8' engine lathe	
11559 (Note 11)	12/2/37	Lucas	2	Rebuilt 16" x 8' Pratt & Whitney geared head lathes	4,100.00
			1	Rebuilt 18" x 8' Monarch geared head lathe	
			1	Rebuilt 18" x 8' Whitcomb Blaisdell lathe	

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Order Number	Date	Manufacturer	No.	Product	Price
11561 (Note 11)	12/3/37	LeBlond	50	16" x 8' Rapid production lathes	\$111,750.00
			20	19" x 10' Rapid production lathes	59,038.00
			15	#9 Multi-cut lathes, 24" centers	34,485.00
add	12/21/37	LeBlond	x	Attachments for 30-16" x 8' Rapid production lathes	5,970.00
			x	Attachments for 14-19" x 10' Rapid production lathes	3,402.00
11566 (Note 11)	12/15/37	LeBlond	5	16" x 54" centers x 9'3 bed heavy duty engine lathes	14,854.50
11567 (Note 11)	12/15/37	LeBlond	8	16" x 8' Rapid production lathes	18,080.00
			10	19" x 10' Rapid production lathes	32,465.00
11568 (Note 11)	12/16/37	Lehmann	14	18" x 9' Geared head engine lathes with 7 taper attachments	41,471.99
add	12/21/37	Lehmann	14	Coolant Pumps	1,246.00
11572 (Note 11)	12/21/37	Cincinnati (Note 3)	4	#2 Universal cutter and tool grinders	7,686.07
11580 (Note 11)	1/4/38	Rahn Larmon	15	Series A 18" x 12' heavy duty engine lathes	34,503.95
11581 (Note 11)	1/4/38	Rahn Larmon	5	Series AA 18" x 10' heavy duty engine lathes	11,172.00
11583 (Note 11)	1/4/38	Thompson Grinder	4	Model A hydraulic surface grinders	5,423.00
11584 (Note 11)	1/4/38	Cincinnati	2	6" x 18" Plain hydraulic grinders	7,304.00
11585 (Note 11)	1/4/38	Cincinnati	3	6" x 30" Plain hydraulic grinders	12,960.30

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Order Number	Date	Manufacturer	No.	Product	Price
11586 (Note 11)	1/4/38	Cincinnati	3	12" x 36" Universal self-contained grinders	\$13,017.25
11587 (Note 11)	1/4/38	Cincinnati	1	12" x 24" Universal self-contained grinder	4,221.95
123 (Note 11)	7/22/38	Landis (Note 3)	7	Type C 12" x 30" Universal grinders	39,568.48
124 (Note 11)	7/22/38	Landis (Note 3)	8	Type C 10" x 24" Universal grinders	42,760.00
130 (Note 11)	7/25/38	Cincinnati (Note 3)	3	#3 High speed plain milling machines	17,080.80
131 (Note 11)	7/25/38	Cincinnati (Note 3)	5	#2 MH Universal milling machines	20,280.00
133 (Note 11)	7/25/38	Cincinnati (Note 3)	5	#2L Universal milling machines	18,985.00
138 (Note 11)	7/26/38	Cincinnati (Note 3)	4	6" x 18" Plain grinders	18,656.00
139 (Note 11)	7/26/38	Cincinnati (Note 3)	5	12" x 36" Plain grinders	25,025.00
144 (Note 11)	8/23/38	Cincinnati- Bickford	2	5' x 15" Plain radial drills	16,310.00
			1	7' x 17" Plain radial drill	10,280.00
146 (Note 11)	8/23/38	Niles (Note 3)	1	72" x 37' Heavy engine lathe	102,000.00
			1	72" x 48' Heavy engine lathe	
157 (Note 11)	8/24/38	Thompson Grinder	1	Model C 12 x 16 x 40 surface grinder	11,824.90
			1	Model 5C grinder	
153 (Note 11)	8/25/38	Landis (Note 3)	1	Type C 10" x 48" plain grinder	8,222.50
172 (Note 11)	9/27/38	Landis (Note 3)	1	Type C 6" x 18" plain grinder	6,328.00

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Order Number	Date	Manufacturer	No.	Product	Price
175 (Note 11)	9/28/38	Pratt & Whitney (Note 3)	1	#3B Universal die sinker	\$10,349.00
186 (Note 11)	10/17/38	Pratt & Whitney (Note 3)	1	Type BL-3620 Keller automatic toolroom machine	18,595.00
189 (Note 11)	10/18/38	Abrasive (Note 3)	1	#34 Grinder	2,470.00
194 (Note 11)	10/26/38	Pratt & Whitney (Note 3)	1	Type BG-1B-724 Keller automatic tool room machine	32,995.00
A337 (Note 10)	10/3/39	Botwinik	3	Rebuilt Becker Model C vertical milling machines	10,530.00
			1	Rebuilt Cincinnati 36" automatic milling machine	3,260.00
A378 (Note 10)	11/17/39	Sun	1	Rebuilt #4-B Brown & Sharpe plain milling machine	2,125.00
RZ1017 (Note 10)	11/17/39	Niles Tool	1	#102AG 47' CTR turning lathe	215,840.00 (Note 7)
			1	#102AG 60' Turning and boring lathe for boring holes 60' long with either 10" or 12" boring bar	403,515.00 (Note 7)
A-456 (Note 10)	12/15/39	Niles Tool	x	Extra for translating gears	450.00 (Note 7)
RZ1015 (Note 10)	11/27/39	Niles Tool	3	60" x 33'4" Heavy engine lathes	139,440.00 (Note 7)
A-456 (Note 10)	12/15/39	Niles Tool	x	Extra for steel face plate on 2 lathes and for translating gears	3,810.00 (Note 7)
			2	5 $\frac{1}{4}$ " Boring bars for holes 33'4" and 16'8" and 3 steel inserts	9,640.00 (Note 7)

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Order Number	Date	Manufacturer	No.	Product	Price
RZ1016 (Note 10)	11/27/39	Niles Tool	2	72" x 30' Engine lathes	\$119,300.00 (Note 7)
			1	47" x 33' Double end boring lathe	180,890.00 (Note 7)
A-457 (Note 10)	12/16/39	Niles Tool	x	Electrical equipment	14,530.00 (Note 7)
A-424 (Note 10)	11/29/39	Sellers	3	Sellers 5" horizontal boring, drilling and milling machines (one shipped)	57,168.48 (19,056.16 Note 7A)
A-439 (Note 10)	12/6/39	Cincinnati (Note 3)	4	#4 Vertical medium speed milling machines	37,774.00
A-484 (Note 10)	1/19/40	Fosdick	1	Jig borer	9,868.50
A-498 (Note 10)	12/9/40	Westinghouse	3	500 HP Induction motors	16,079.93
A-470 (Note 5)	3/17/41	Mesta	1	Component parts for 5,000 ton hydraulic quick acting forging press	583,061.00

D. Imamura Mission Orders Through Mitsubishi, Berlin for Osaka Arsenal.

(On basis of 40 cents per RM)

Shipment Date	Manufacturer	No.	Product	FAS Price
March 1939	Reinecker	2	#5 GM-0 Spur gear shapers	\$18,248.00
March 1939	Reinecker	2	#AKH-0 Bevel gear planers	12,480.00
March 1939	Lindner	8	#FS-1A Thread grinders	97,680.00
March 1939	Lindner	3	#FS-1 Thread grinders	36,296.00
Nov. 1938	Schenck	1	Vibrometer	328.00
Feb. 1939	Rekuperator	4	Recuperators	32,760.00

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Shipment Date	Manufacturer	No.	Product	FAS Price
Sept. 1939	Reinecker	1	#UND-2 Relieving lathe	\$10,692.00
July/Aug./ Sept. 1939	Ultra	3	Form grinders	26,880.00
Sept. 1939	Ultra	4	Form grinders	34,192.00
August 1939	Lowe	1	#SW Form grinder	4,652.00
July/Aug. 1939	Lindner	2	#FS-1-a Thread grinders	26,024.00
July 1939	Lindner	1	#FS-1-c Thread grinder	12,432.00
Sept./Oct. 1939	Froriep	2	#S-1 Gun boring machines	77,360.00
June 1939	Niles	1	#2K-3-v Vertical turning lathe	20,536.00
Sept. 1939	Hasse & Wrede	2	#RCK Turret lathes	21,840.00
Sept. 1939	Reinecker	1	#1F 3 plane milling mch.	25,448.00
April 1939	Naxos	1	#NDU 2/1000 Surface grinder	6,892.00
July 1939	Billeter	1	#HF-60 Surface grinder	10,960.00
July 1939	Wotan	3	#FJ30/380 Internal grinders	20,342.00
March 1939	Wotan	12	#RJ33/500 Internal grinders	165,648.00
July 1939	Wotan	3	#RJ33/800 Internal grinders	37,360.00
June 1939	Hydraulik	2	#1000-1 Air accumulators	39,320.00
Sept. 1939	Hasse & Wrede	4	#TDA II Roughing automatics	116,056.00
Sept. 1939	Waldrich	1	#WSD801 Engine lathe	62,184.00
Sept. & Nov. 1939	Hasse & Wrede	4	#RUD II Turning lathes	30,952.00
Sept. & Nov. 1939	Hasse & Wrede	2	#ASN-V Turning and Heconing automatic machines	18,256.00

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Shipment Date	Manufacturer	No.	Product	FAS Price
Sept. & Nov. 1939	Hasse & Wrede	2	#TDA-1 A Multient automatic roughing machines	\$46,428.00
Sept. & Nov. 1939	Hasse & Wrede	2	#TSA-1 Multient automatic roughing machines	40,592.00
Oct. 1939	Hasse & Wrede	2	V2FGCK VD Thread milling machines	22,528.00
Sept. 1939	Hasse & Wrede	1	V2FGCK VD Drilling machine for rough boring	6,948.00
Sept./Oct. 1939	Hasse & Wrede	2	V2FGCK VD High speed drilling machines	4,920.00
Sept. 1939	Hasse & Wrede	1	V2FGCK VD Special surface grinder	1,496.00
Sept. 1939	Hasse & Wrede	1	WG 1 Special Knurling machine	3,128.00
Sept. 1939	Hasse & Wrede	1	WG 1 Hydraulic reducing press	18,380.00
Sept./Oct. 1939	Hasse & Wrede	2	WG-1 Excentric presses	8,288.00
Sept. 1939	Hasse & Wrede	1	WG-1 Marking machine	2,180.00
Sept. 1939	Hasse & Wrede	1	GF II Sand blast apparatus	5,704.00
Sept. 1939	Hasse & Wrede	1	GF II Hydraulic testing press	11,612.00
Sept. 1939	Hasse & Wrede	1	GF II Brinell testing press	1,892.00
Sept. 1939	Hasse & Wrede	1	GF II Scouring apparatus	1,688.00
Sept. 1939	Hasse & Wrede	1	GF II Drying table	1,944.00
Sept./Oct. 1939	Hasse & Wrede	2	GF II Pneumatic clamping attachments	984.00
Sept. 1939	Hasse & Wrede	1	GF II Compressor for sand blast	6,460.00
Sept. 1939	Hasse & Wrede	1	GF II Compressor for machine tools	5,104.00

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Shipment Date	Manufacturer	No.	Product	FAS Price
Sept./Oct. 1939	Hasse & Wrede	3	RG 111 Turret lathes	\$30,616.00
March 1940	Hydraulik	1	5000 ton Hydraulic press	681,600.00
Dec. 1938	Genevoise	3	#RU-2 Universal thread grinders	54,504.00
Feb. 1939	Genevoise	4	#RU-2 Universal thread grinders	65,096.00
Jan./Mar. 1939	Genevoise	1	#MU-214-B Universal measuring machine	9,772.00
Jan. 1939	Genevoise	1	#MU-1000 Universal measuring machine	10,472.00
Feb. 1939	Genevoise	1	#DOA-6 Circular dividing machine	12,896.00
Oct. 1939	Genevoise	1	#MDL-45A Linear dividing machine	9,436.00
Feb./Apr./ May/June 1939	Fiat	9	#FV-4 Vertical milling machines	5,565.60
March 1939	Fiat	5	Tool cutter grinders	1,080.00
Sept. 1939	Eustacchio	2	#10M Lathes	2,764.00
June 1939	Eustacchio	1	#12M Lathe	2,967.20
May 1939	Bertoni	1	#NJS 255/2000 Grinder	236.00
May 1939	Bertoni	2	#RJS 135/1500 Grinder	451.20

E. Orders Placed in Japan for Osaka Arsenal.

(From Mitsubishi and Mitsui Office Reports. Orders are never listed as being placed for "Osaka Arsenal" but the customer appears as "Army" or "Army Arsenal" and the orders were placed through the Osaka branch offices. Price on basis of 25 cents per Yen.)

Date	No.	Product	Price	Manufacturer	Agent
12/37	?	?	\$51,187.00	Hitachi	MSK
3/38	30	Trailers	47,250.00	Umebachi Machine	MSK

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Date	No.	Product	Price	Manufacturer	Agent
7/38	48	Pushing Cars	\$77,776.00	Umebon Machine	MSK
12/38	3	Motors	10,250.00	MDK	MSK
3/39	x	Tungalloy (tungsten car- bide) tool bits	88,283.00	Shibaura Matsuda	MBK
3/39	x	?	13,500.00	Kayaba Seisakusho	MBK
3/39	x	Tungalloy (tungsten car- bide) tool bits	12,970.00	Shibaura Matsuda	MBK
11/39	70	"88/7 CH, 88/SG"	60,200.00	?	MSK
1939	10	Gauge Grinders	30,250.00	Oriental Precision Machine	MBK
1939	10	Screw cutting lathes	19,856.00	Oriental Precision Machine	MBK
1939	1	"Tool Fixing Machine"	10,000.00	Oriental Precision Machine	MBK
1939	2	"Inner Ring Measuring Tools"	8,694.00	Oriental Precision Machine	MBK
1939	2	#2 Lathes	8,002.00	Oriental Precision Machine	MBK
1939	3	Milling machines	3,420.00	Oriental Precision Machine	MBK
1940	1010	Micrometers	12,683.00	Oriental Precision Machine	MBK
10/38	x	Gauges	5,006.00	Oriental Precision Machine	MBK
10/38	x	Tungsten carbide tool bits	23,893.00	Oriental Precision Machine	MBK

IV. The Kokura ArsenalA. General.

The Main Arsenal at Kokura is located at Fukuoka Prefecture, Kokura-shi, Tamachi 357, while the Kokura Branch Arsenal is located at Fukuoka Prefecture, Kokura-shi, Mihagino.*

In point of orders placed and goods shipped this is the second largest of the Army Ordnance Arsenals. The orders and shipments were distributed as follows:

	<u>Ordered</u>	<u>Shipped</u>	<u>Cancelled</u>
Mitsubishi	\$ 632,765.96	\$ 619,204.08	\$ 13,561.88
Mitsui	550,725.33	550,725.33	
Ataka	83,402.50	83,402.50	
Okura	723,316.45	715,352.45	7,964.00
Germany	552,321.60	552,321.60	
Japan	<u>446,498.00</u>	<u>446,498.00</u>	<u> </u>
	\$2,989,029.84	\$2,967,503.96	\$ 21,525.88

Machines for gun barrel manufacture were ordered through Okura (Orders 193 & 195) in 1938 and were listed in inquiries transmitted to Okura (#23466 et seq.) in late 1939. The manufacture of internal combustion engines is indicated by several orders and inquiries. An order was placed through Mitsubishi (#8059) in 1937 for a Gisholt balancing machine with layouts for 4-throw, 6-throw and 8-throw crankshafts and for Sirocco fans. In 1939 an inquiry was sent to Mitsubishi (#NY 1931) for 2000 high speed steel twist drills for drilling fuel injection holes for diesel engines. In 1937 two Heald #50 airplane cylinder grinders were purchased through Ataka (Order 5420). Several items from the Mitsubishi office reports show orders for starters, crankshafts, "fuel jet apparatus" and similar items.

Note that an arsenal called "Kokura (Jinsen)" appears as the destination for several orders placed in 1940. (See section VII hereof). It is possible that a branch of the Kokura Arsenal has been established at Jinsen in Korea. The shipping destination of these orders is Kobe, which is one of the principal transshipment points for goods moving from the United States to Korea. There seems to be little possibility that "Kokura Arsenal" and "Kokura (Jinsen) Arsenal" are the same because the files make a careful distinction between them. (See Section VII)

* "What Will Japanese Industry Do if Japan Goes to War", found in Mitsui files. It states that as of 1931, the Kokura Main Arsenal employed 336 people, including 35 women, in the manufacture of "arms" and that the Branch Arsenal employed 120 people, including 62 women, on "other business".

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B. Recapitulation of Orders and Shipments for Kokura Arsenal.

S - Shipped
C - Cancelled
O - Ordered

Product	Mitsubishi		Mitsui		Ataka		Okura		Ger- many*	T O T A L S		
	S	C	S	C	S	C	S	C	O	S	C	O
Lathes	40	1	13	0			61	0	6	120	1	121
Milling Mchs.	41	4	35	0	10	0	107	0	18	193	4	197
Grinders	11	0	22	0	9	0	22	0	25	89	0	89
Gear Mchs.	2	0					0	2		2	2	4
Hor. bor. Mchs.	4	0								4	0	4
Auto. Screw & Chuck.	28	0			6	0	3	0		37	0	37
Broach. Mchs.	2	0	7	0						9	0	9
Balancing Mach.	1	0								1	0	1
Spring coiling Mach.	3	0								3	0	3
Contour projectors	3	0								3	0	3
2500 lb. hammer	1	0								1	0	1
Cold saws	1	0					2	0		3	0	3
Jig borers							2	0	1	3	0	3
Die sinkers							3	0		3	0	3
Shapers							3	0		3	0	3
Shaper-planer							1	0		1	0	1

* Files do not contain shipping documents so allowance must be made for cancellations.

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Product	Mitsubishi		Mitsui		Ataka		Okura		Ger- many	T O T A L S		
	S	C	S	C	S	C	S	C	O	S	C	O
Threading Mchs.							2	0	1	3	0	3
Drills							14	0		14	0	14
Small hammers							18	0		18	0	18
Trimming Presses							8	0		8	0	8
Rifling Mchs.							8	0		8	0	8
Forging hammers			5	0						5	0	5
Forging Mch.			1	0						1	0	1
Planer-milling Mch.									1	1	0	1
Measuring Mchs.									4	4	0	4
										537	7	544

C. Orders Placed in the United States
for Kokura Arsenal.

1. Mitsubishi Orders.

Order Number	Date	Manufacturer	No.	Product	Price
7870	9/3/37	Oilgear	1	Type XL-32 Horizontal broaching machine	\$3,720.00
A	9/3/37	Westinghouse	1	25 HP Motor	267.96
B	9/3/37	Colonial Broach	1	HSS 6-spline pull broach	233.00

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Order Number	Date	Manufacturer	No.	Product	Price
7955	10/5/37	Sundstrand	3	#2 "Electomil" milling machines	\$11,463.00
			2	#3A "Rigidmil" milling machines	8,922.00
A	11/16/37	Sundstrand	1	Control panel	131.75
B	1/3/38	Sundstrand	7	Pickoff gears	161.90
7974	10/19/37	Gisholt	1	#4 Universal turret lathe with bar end chucking tools	3,865.50
A	10/19/37	Union	1	Chuck	76.50
B	11/20/37	Gisholt	1	Chuck	351.00
7979	10/20/37	Lodge & Shipley	3	Manufacturing lathes 14" x 8'	16,631.30
			2	Engine lathes 14" x 8'	
A	10/20/37	Union	5	Chucks	551.25
7989	11/8/37	Oilgear	1	Type XL-32 horizontal broaching machine	3,720.00
A	11/8/37	Westinghouse	1	25 HP Motor	267.96
B	11/8/37	Colonial Broach	1	HSS 6-spline pull broach	233.00
8045 (Note 11)	12/13/37	Simmons	1	Rebuilt 18" x 8' Lodge & Shipley HD engine lathe	
			1	Rebuilt 21" x 8' LeBlond engine lathe	
			3	Rebuilt 17" x 8' LeBlond HD production lathes	
			9	Rebuilt 17" x 8' LeBlond HD production lathes	
					13,300.00
8046 (Note 11)	12/13/37	Emerman	1	Rebuilt 16" x 8' LeBlond engine lathe	950.00

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Order Number	Date	Manufacturer	No.	Product	Price
8050 (Note 11)	12/15/37	Monarch (Note 9)	4	16" x 54" Model W engine lathes	\$13,708.00
			4	7½ HP Motors	458.92
8057 (Note 11)	12/20/37	Brown & Sharpe (Note 4)	1	#2 Vertical milling machine	5,945.00
8059 (Note 11)	12/20/37	Gisholt	1	Type C Universal precision balancing machine with layouts for 4-throw, 6-throw and 8-throw crankshafts and Sirocco fans	3,330.00
A	12/20/37	Westinghouse	1	1/2 HP Motor	45.02
8341 (Note 11)	8/30/38	Monarch (Note 9)	1	22" x 48" Model M-16 engine lathe with Keller electrical control	11,738.75
8342 (Note 11)	8/30/38	Sundstrand	5	#2 Model A "Electro- mil" milling machines	16,906.50
8344 (Note 11)	8/31/38	Torrington	1	Size 1 #N-21 coiling machine for coiling springs 3/32" to 7/16" I.D. from wire .015" to .072" in diameter	1,735.00
8345 (Note 11)	8/31/38	Potter & Johnston (Note 9)	5	#6A Automatic chuck- ing machines with Universal scroll chucks and magnetic chucks	23,545.13
8348 (Note 11)	8/31/38	Potter & Johnston (Note 9)	1	#2M Horizontal automatic milling machine	3,515.73
8349 (Note 11)	9/1/38	Sidney (Note 9)	2	#3 Plain "Maximiller" milling machines	11,331.40
8351 (Note 11)	9/1/38	Gallmeyer & Livingston (Note 9)	3	18 x 48" Hydraulic feed surface grinders	33,486.60

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Order Number	Date	Manufacturer	No.	Product	Price
8352 (Note 11)	9/1/38	Foster (Note 4)	5	#5 Universal turret lathes with bar and chucking equipment	\$27,357.50
8359 (Note 11)	9/1/38	Brown & Sharpe (Note 4)	2	#2G HS Automatic screw machines	7,860.88
3360 (Note 11)	9/2/38	Gisholt	5	2" x 12" #4 Universal turret lathes with bar and chucking equipment	23,847.75
8362 (Note 11)	9/1/38	Brown & Sharpe (Note 4)	3	#3B Plain milling machines	15,580.14
8363 (Note 11)	9/1/38	Brown & Sharpe (Note 4)	3	#2 Vertical milling machines with 18" rotary attachments	20,049.90
8364 (Note 11)	9/1/38	Bausch & Lomb (Note 4)	3	Contour measuring projectors	11,369.37
8367 (Note 11)	9/2/38	Brown & Sharpe (Note 4)	6	#OG Automatic screw machines	20,789.04
8368 (Note 11)	9/2/38	Brown & Sharpe (Note 4)	3	#3B Plain milling machines	16,445.87
8373 (Note 11)	9/2/38	Brown & Sharpe (Note 4)	3	#2 HS Automatic screw machines	9,777.60
8374 (Note 11)	9/2/38	Heald (Note 4)	1	#74 Plain internal grinding machine	12,626.49
8380 (Note 11)	9/2/38	Heald (Note 4)	3	#72-A-3 "Gagematic" internal grinders with wheelheads for holes 1" x 2" and 3"	29,041.50
8383 (Note 11)	9/6/38	Gorton	2	Type 8½ D Vertical milling machines	12,440.95
8385 (Note 11)	9/6/38	Gorton	1	Type 9-J Vertical milling machine	6,703.80
8386 (Note 11)	9/7/38	Gorton	1	Type D Vertical milling machine	4,191.75

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Order Number	Date	Manufacturer	No.	Product	Price
8420 (Note 11)	10/5/38	Brown & Sharpe (Note 4)	2	#2 Universal milling machines	\$7,379.76
8422 (Note 11)	10/5/38	Brown & Sharpe (Note 4)	2	#2A Universal milling machines	9,783.42
8429 (Note 11)	10/10/38	Lucas	2	#41 "Precision" horizontal boring, drilling and milling machines	17,796.00
8452 (Note 11)	10/26/38	Erie Foundry	1	2500 Lb. Type M drop hammer	12,744.00
A	10/26/38	Westinghouse	1	20 HP Motor	210.98
8462 (Note 11)	10/28/38	Heald	2	#70A Internal grinders	16,200.00
8464 (Note 11)	10/28/38	Torrington	2	Spring coiling machines	6,345.00
A	10/28/38	Westinghouse	2	Motors, 5HP and 15HP	233.31
8466 (Note 11)	10/28/38	Monarch (Note 9)	2	Model BB 18" x 96" engine lathes	9,964.76
8467 (Note 11)	10/28/38	Monarch (Note 9)	2	Model BB 18" x 72" engine lathes	9,668.00
8470 (Note 11)	10/29/38	Gleason (Note 4)	1	#16 Hypoid gear generator for jobbing work	15,877.72
8473 (Note 11)	10/31/38	Gorton	3	Type 9-J Vertical milling machines	20,111.40
8477 (Note 11)	10/31/38	Fellows (Note 9)	1	#615A Gear shaper	7,080.00
8478 (Note 11)	10/31/38	Brown & Sharpe (Note 4)	2	#0G HS Automatic screw machines	6,929.68
8480 (Note 11)	11/1/38	Lucas	2	#41 "Precision" horizontal boring, drilling and milling machines	17,856.00

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Order Number	Date	Manufacturer	No.	Product	Price
8499 (Note 11)	11/7/38	U. S. Tool (Note 9)	6	Model MM-3 "Multi-miller" milling machines for climb milling	\$9,268.57
8503 (Note 11)	11/10/38	Potter & Johnston (Note 9)	10	Rebuilt #6A Automatic chucking machines	29,854.87
9203 (Note 10)	12/6/39	Emerman	1	Rebuilt Diamond #4 Automatic surface grinder	2,330.00
			1	Rebuilt Diamond type "F" surface grinder	1,520.00
			1	Rebuilt #2 Kearney & Trecker heavy duty plain miller	4,015.00
A	12/7/39	Emerman	x	Motors	584.00
B	12/8/39	Emerman	x	Attachments	195.28
9274 (Note 10)	1/2/40	Sundstrand	4	#0 "Rigidmil" milling machines	8,676.53 (Note 7)
A	1/11/40	Sundstrand	4	Arbor supports	136.00 (Note 7)
9277 (Note 10)	1/3/40	Gisholt	1	#3 Universal turret lathe	4,664.65 (Note 7)
A	1/3/40	Westinghouse	1	Motor	84.70 (Note 7)
9347 (Note 10)	2/2/40	Motch & Merryweather	1	Hydraulic feed cold sawing machine-Size E	4,279.50
A	2/3/40	Westinghouse	2	Motors	304.92

2. Mitsui Orders.

EO 2584-87	7/29/37	Kearney & Trecker	5	#2H Universal milling machines	15,570.00
TO 3830	12/3/37				
add	12/3/37	Kearney & Trecker	10	Attachments	594.75

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Order Number	Date	Manufacturer	No.	Product	Price
EO 2733 TO 3709 (Note 11)	9/15/37	Excello	1	#44 Carbide tool grinder	\$ 683.08
add	9/15/37	Excello	2	Diamond wheels	121.19
EO 2757 TO 3779 (Note 11)	12/14/37	Norton	5	6" x 18" Surface grinders	5,968.00
EO 2950 MF 3566 (Note 11)	12/23/37	Van Norman	2	#12 Milling machines	6,217.75
EO 3470 TO 3408 (Note 11)	8/21/38	Kearney & Trecker	3	#1H 18" Horizontal milling machines	9,246.15
add	9/1/38	General Electric	3	3 HP Motors	234.00
EO 3471 TO 3409 (Note 11)	8/21/38	Kearney & Trecker	3	#1H 12" Horizontal milling machines	8,748.00
add	9/1/38	General Electric	3	3 HP Motors	234.00
EO 3476 TO 3410 (Note 11)	8/21/38	Kearney & Trecker	4	#3K Plain milling machines	20,565.00
add	9/2/38	General Electric	4	10 HP Motors	652.00
EO 3481 TO 3230 (Note 11)	9/1/38	Kearney & Trecker	3	#4K 80" x 16" Plain milling machines	18,742.80
add	9/2/38	General Electric	3	15 HP Motors	561.00
EO 3483	9/1/38	Kearney & Trecker	1	#4K Vertical milling machine	7,747.77
add	9/2/38	General Electric	1	15 HP Motor	187.00
EO 3485 TO 3405 (Note 11)	9/2/38	Warner & Swasey	5	#3 Universal turret lathes with bar and chucking equipment	18,052.00
add	9/2/38	General Electric	5	5 HP Motors	1,035.00

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Order Number	Date	Manufacturer	No.	Product	Price
Add #2	9/15/38	Horton	5	12" Chucks	\$ 385.00
EO 3497 TO 3406 (Note 11)	9/3/38 11/9/38	Warner & Swasey	5	#3 Universal turret lathes with bar and chucking equipment	18,052.00
add	9/3/38	General Electric	5	5 HP Motors	1,035.00
Add #2	9/15/38	Horton	5	12" Chucks	385.00
EO 3510 TO 3407 (Note 11)	9/7/38 11/9/38	Bullard	3	42" Vertical turret lathes	29,098.00
add	9/7/38	General Electric	3	25 HP Motors	975.00
EO 3512 TO 3411 (Note 11)	9/7/38 11/9/38	Van Norman	3	#22 Milling machines	14,446.70
add	9/7/38	General Electric	3	2 HP Motors	459.37
EO 3513 TO 3412 (Note 11)	9/7/38 11/9/38	Van Norman	3	#12 Milling machines	9,915.00
add	9/7/38	General Electric	3	1 HP Motor	330.00
EO 3514 TO 3413 (Note 11)	9/7/38 11/9/38	Norton	5	6" x 18" Surface grinders	6,460.00
EO 3516 TO 3223 (Note 11)	9/3/38 11/9/38	Excello	30	Special removable quill type grinding spindles (Note 1)	5,481.80
EO 3520 TO 3414 (Note 11)	9/8/38 11/9/38	LaPointe	2	60" #BS-60 Universal broach sharpening machines	5,343.10
EO 3521 TO 3415 (Note 11)	9/8/38 11/9/38	LaPointe	1	80" #BS-80 Universal broach sharpening machine	3,021.60
EO 3523 TO 3416 (Note 11)	9/8/38 11/9/38	LaPointe	5	#3L Horizontal hydraulic broaching machines	15,947.00
add	9/8/38	General Electric	5	10 HP Motors	970.00

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Order Number	Date	Manufacturer	No.	Product	Price
EO 3524 TO 3417 (Note 11)	9/8/38 11/9/38	LaPointe	1	#3L8 Horizontal hydraulic broaching machine (Note 2)	\$5,280.00
add	9/8/38	General Electric	1	10 HP Motor	194.00
EO 3597 TO 3420 (Note 11)	9/30/38 11/9/38	Norton	1	16" x 96" Type C cylindrical grinder	12,424.09
EO 3600 TO 3421 (Note 11)	9/30/38 11/9/38	Norton	5	#2 Universal tool and cutter grinders	14,444.25
EO 3754 TO 3708 (Note 11)	11/3/38 4/11/39	Chambersburg	1	22,000 Lb. double frame guided ram, steam forging hammer	40,680.00
EO 3753 TO 3709 (Note 11)	11/3/38 4/11/39	Chambersburg	3	8,000 Lb. double frame guided ram, steam hammers	36,334.00
EO 3925 TO 3704 (Note 11)	1/3/39 4/5/39	Van Norman	2	#32 Milling machines	13,653.00
EO 3936 TO 3648 (Note 11)	1/3/39 2/14/39	Kearney & Trecker	1	#2K Universal milling machine	5,572.50
add	1/3/39	General Electric	1	7½ HP Motor	78.57
EO 3937 TO 3649 (Note 11)	1/3/39 2/14/39	Kearney & Trecker	1	#2H Universal milling machine	4,209.33
add	1/11/39	General Electric	1	5 HP Motor	70.00
EO 3967 TO 3703 (Note 11)	1/3/39 4/5/39	LaPointe	1	#3L Horizontal broaching machine	3,645.00
add	1/3/39	General Electric	1	10 HP Motor	95.58

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Order Number	Date	Manufacturer	No.	Product	Price
EO 3933 TO 3652 (Note 11)	1/5/39 2/14/39	Chambersburg	1	6,000 Lb. Model E drop hammer with steel anvil	\$22,986.00
add	1/5/39	Ingersoll-Rand	1	23 x 14 x 14 Pre-2x motor-driven compressor and air receivers	15,543.00
EO 3942 TO 3641 (Note 11)	1/11/39 2/14/39	Kearney & Trecker	2	#1248 Simplex milling machines	9,491.00
add	1/11/39	General Electric	2	7 $\frac{1}{2}$ HP Motors	198.37
EO 3944 TO 3650 (Note 11)	1/11/39 2/14/39	Kearney & Trecker	1	#4H Universal Milwaukee milling machine	7,088.00
add	1/11/39	General Electric	1	10 HP Motor	95.58
EO 3926 TO 3754 (Note 11)	1/14/39 4/12/39	Excello	2	#35 Precision thread grinders	33,141.50
add	5/24/39	Excello	26	Attachments	540.00
EO 3930 TO 3706 (Note 11)	1/16/39 4/5/39	Ajax	1	5" Forging machine & dies for 83 x 302 mm. shells (prints in file of shells, dies, etc.)	54,172.00
add	4/11/39	General Electric	1	60 HP Motor & control	1,503.50
EO 2482 TO 3602 (Note 10)	12/21/39 3/15/40	Excello	10	Quill type internal grinding wheelheads	1,618.00
EO 2483	1/30/40	Excello	30	Grinding spindles	6,029.00
EO 2478 TO 3604 (Note 10)	1/19/40 3/15/40	National Broach	1	15" Rotomil milling machine tooled for milling steering knuckle (Olds-Pontiac) drive gear (Ford) mainshaft (Chevrolet) and 75 mm. shell (Note 2)	34,175.00

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3. Ataka Orders.

Order Number	Date	Manufacturer	No.	Product	Price
5404	9/21/37	Brown & Sharpe	2	#0B Plain milling machines	\$6,657.75
5408	9/21/37	Brown & Sharpe	1	#2 Light type Universal milling machine	2,916.08
5409	9/21/37	Brown & Sharpe	3	#2 Universal milling machines	8,748.24
5411	9/21/37	Brown & Sharpe	1	#12 Plain milling machine	2,967.43
5413	9/21/37	Brown & Sharpe	2	#2 Plain milling machines	4,891.66
5415	7/21/37	Brown & Sharpe	1	#2A Universal milling machine	3,873.53
5417	9/21/37	Brown & Sharpe	6	#2 Surface grinders	4,617.00
5419	9/21/37	Heald	1	#25-A 24" Rotary surface grinder	6,178.71
5420	9/21/37	Heald	2	#50 Cylinder grinders for airplane engine cylinders	10,781.10
V-7489 (Note 10)	1/19/40	Brown & Sharpe	3	#2G High speed automatic screw machines tooled for 4 mild steel parts (Note 2)	16,336.00
			3	#0G High speed automatic screw machines tooled for 4 small mild steel parts (Note 2)	13,905.00
V-7532 (Note 10)	1/31/40	Heald	3	#47 Wheelheads	1,530.00
			3	#45 Wheelheads	

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4. Okura Orders.

Order Number	Date	Manufacturer	No.	Product	Price
11533	10/6/37	Pratt & Whitney (Note 3)	1	#20A Jig borer	\$7,994.25
11556 (Note 11)	11/26/37	LeBlond	16	18" x 8' Rapid production lathes	36,928.00
			10	#9 Multi cut lathes, 24" centers	22,990.00
add	12/21/37	LeBlond	x	Attachments	1,492.00
11561 (Note 11)	12/3/37	LeBlond	5	#9 Multi cut lathes 24" centers	11,495.00
11579 (Note 11)	1/4/38	Rockford	12	17 3/4" x 51" "Economy" lathes	24,900.00
11582 (Note 11)	1/4/38	Thompson	1	Model "A" Hydraulic surface grinder	1,355.75
			2	Model BB Hydraulic grinder	6,366.50
112 (Note 11)	7/21/38	Landis (Note 3)	2	Type C, 6" x 18" Hydraulic grinders	12,656.00
114 (Note 11)	7/21/38	Pratt & Whitney	5	Type R-6 Cutter and radius grinders	7,112.50
115 (Note 11)	7/21/38	Pratt & Whitney (Note 3)	1	#3B Universal die sinker	10,349.00
116 (Note 11)	7/21/38	Pratt & Whitney (Note 3)	1	#2A Universal die sinker	8,737.00
118 (Note 11)	7/22/38	Pratt & Whitney (Note 3)	1	Type BL 3620 Keller automatic tool room machine	17,040.00
121 (Note 11)	7/22/38	Pratt & Whitney (Note 3)	3	12" Model B vertical shapers	21,579.00
125 (Note 11)	7/25/38	Jones & Lamson (Note 3)	5	#3 Universal turret lathes	32,280.25
127 (Note 11)	7/25/38	Cincinnati (Note 3)	2	#4 Vertical high speed milling machines	16,710.00
128 (Note 11)	7/22/38	Cincinnati (Note 3)	2	#4 Vertical high power milling machines	16,390.00

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Order Number	Date	Manufacturer	No.	Product	Price
129 (Note 11)	7/22/38	Cincinnati (Note 3)	4	#4 Plain milling machines	\$26,193.00
132 (Note 11)	7/25/38	Cincinnati (Note 3)	2	#4 Universal milling machines	17,178.00
134 (Note 11)	7/25/38	Cincinnati (Note 3)	10	#2 Universal cutter and tool grinders	15,802.00
135 (Note 11)	7/26/38	Cincinnati (Note 3)	2	#3 Plain high speed milling machines	11,860.00
136 (Note 11)	7/26/38	Cincinnati (Note 3)	7	1-12 Plain automatic milling machines	17,703.00
140 (Note 11)	7/26/38	Rockford	1	66" Shaper planer	10,980.00
141 (Note 11)	7/26/38	Thompson	1	Type 4C 20" x 16" x 48" hydraulic surface grinder	7,722.60
145 (Note 11)	8/23/38	Cincinnati (Note 3)	1	Vertical hydro-tel hand die sinker	21,364.50
149 (Note 11)	8/24/38	Cincinnati (Note 3)	2	#3 Vertical milling machines	14,900.00
150 (Note 11)	8/24/38	Cincinnati (Note 3)	1	#4 Vertical milling machine	8,510.00
151 (Note 11)	8/24/38	Cincinnati (Note 3)	1	#3 Universal milling machine	6,161.00
154 (Note 11)	8/25/38	LeBlond	2	48" x 126" Heavy duty geared engine lathes	26,874.00
156 (Note 11)	8/25/38	Cincinnati (Note 3)	3	#46-72 Plain hydro-matic milling machines	33,363.00
182 (Note 11)	10/17/38	Pratt & Whitney (Note 3)	1	14" x 102" Model C lathe	5,736.00
185 (Note 11)	10/17/38	Taylor & Fenn (Note 3)	1	M-54 Duplex spline milling machine with special 2" slot milling cutter	4,110.00

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Order Number	Date	Manufacturer	No.	Product	Price
187 (Note 11)	10/17/38	Cincinnati (Note 3)	1	#35-48 Duplex hydromatic milling machine	\$9,045.50
191 (Note 11)	10/18/38	Jones & Lamson (Note 3)	2	Automatic thread grinders	44,490.10
193 (Note 11)	10/26/38	Botwinik	3	Rebuilt Pratt & Whitney #1 6' gun barrel drills	
			5	Rebuilt Pratt & Whitney #1 9½' gun barrel drills	
			5	Rebuilt Pratt & Whitney #1 10' gun barrel drills	
			1	Rebuilt Pratt & Whitney #1-1/2 12' gun barrel drill	
			2	Rebuilt automatic Pratt & Whitney 2-spindle pistol barrel rifling machines	
			6	Rebuilt Carter & Hakes floor type gun barrel straighteners	
			5	Rebuilt Whitney hand milling machines	
			6	Rebuilt Pratt & Whitney 5" automatic milling machines	
			16	Rebuilt Pratt & Whitney 10" gear driven automatic milling machines	
			2	Rebuilt Pratt & Whitney 12" heavy automatic milling machines	
			12	Rebuilt Brown & Sharpe #12 plain production milling machines	
			13	Rebuilt Cincinnati 18" automatic milling machines	
			3	#13 B, Brown & Sharpe production type plain milling machines, rebuilt	
			5	Rebuilt Pratt & Whitney 12" light automatic millers (cont'd)	

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Order Number	Date	Manufacturer	No.	Product	Price
193 (cont'd)			10	Rebuilt Pratt & Whitney #12 Lincoln type milling machines	
			5	Rebuilt Gervin #12 spindle profile milling machines	
			1	Rebuilt Bliss 200 lb. board drop hammer	
			2	Rebuilt Chambersburg 500 lb. board drop hammers	
			9	Rebuilt Chambersburg 600 lb. board drop hammers	
			1	Rebuilt Chambersburg 800 lb. board drop hammer	
			1	Rebuilt Billings & Spencer 1000 lb. board drop hammer	
			1	Rebuilt Billings & Spencer 1600 lb. board drop hammer	
			1	Rebuilt Bradley 80 lb. rubber cushioned helve hammer	
			1	Rebuilt Bradley 100 lb. rubber cushioned helve hammer	
			1	Rebuilt Bradley 150 lb. rubber cushioned helve hammer	
			4	Rebuilt Bliss #2 trimming presses	
			3	Rebuilt Winchester trimming presses	
			1	Rebuilt Bliss #4 trimming press	
			2	Rebuilt Nutter & Barnes #3 6" automatic cold metal saws	
			5	Rebuilt Brown & Sharpe motor driven #1 hand screw machines	
			3	Rebuilt Jones & Lamson 2 1/4" x 24" turret lathes	
			1	Rebuilt Warner & Swasey #10A Universal turret lathe	
			2	Rebuilt Bullard 24" "New Era" vertical boring mills	
			1	Rebuilt Cincinnati #3 high power Universal milling machine	
			1	Rebuilt Hendey Norton #4 SPD plain milling machine	
			1	Rebuilt Milwaukee #4B plain milling machine (cont'd)	

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Order Number	Date	Manufacturer	No.	Product	Price
193 (cont'd)			2	Rebuilt Brown & Sharpe #3B heavy plain milling machines	
			1	Rebuilt Milwaukee #2H plain milling machine	
			1	Rebuilt Milwaukee #1½ plain milling machine	
			1	Rebuilt Cincinnati #3 plain milling machine	
			2	Rebuilt Pratt & Whitney #3 gun barrel rifling machines	
					\$131,737.50
195 (Note 11)	10/26/38	Lucas	1	Rebuilt Diamond 40" gun rifling machine	
			1	Rebuilt Cincinnati 18" auto plain milling machine	
			2	Rebuilt #13B Brown & Sharpe production milling machines	
			3	New Diamond rifling machines	
					7,952.00
A378 (Note 10)	11/17/39	Sun	1	Rebuilt Brown & Sharpe #2B milling machine	2,700.00
A412 (Note 10)	11/24/39	Lucas	3	Rebuilt #2L Gisholt turret lathes duplex spline milling machines	16,340.00
A438 (Note 10)	12/6/39	Hanson Whitney (Note 3)	1	4" x 9" Universal semi-automatic thread milling machine	4,725.00
A480 (Note 10)	1/18/40	Taylor & Fenn (Note 3)	2	6" Duplex spline milling machines	7,964.00 (Note 7)
A483 (Note 10)	1/19/40	Thompson	1	6" x 72" Broach grinder	7,439.00
A495	2/8/40	Pratt & Whitney (Note 3)	3	Supermicrometers	1,200.00
A445 (Note 10)	2/19/40	Lipe	15	Dalrae "Speedmills"	4,891.00

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D. Imamura Orders Through Mitsubishi, Berlin
for Kokura Arsenal.

(On basis of 40 cents per RM)

Shipment Date	Manufacturer	No.	Product	FAS Price
July 1939	Reinecker	3	#UND-1 Universal relieving lathes	\$17,940.00
July 1939	Reinecker	6	#UND-2 Universal relieving lathes	52,712.00
March 1939	F. Werner	1	#3275-1.8 Splineshaft grinder	10,868.00
March 1939	Lindner	6	#FS-1 Thread grinders	71,650.00
March 1939	Lindner	4	#FS-30-a Thread grinders	86,748.00
June-Sept. 1939	Reinecker	2	#UND-2 Relieving lathes	15,200.00
Sept. 1939	Reinecker	3	#UND-2 Relieving lathes	15,600.00
May, June, Aug. 1939	Wanderer	3	#2 DU-900 Universal milling machines	22,164.00
July, Aug. 1939	Wanderer	3	#2 DU-900 Universal milling machines	17,148.00
July, Aug. Sept. 1939	Ultra	1	#2 DU-900 Form grinder	8,960.00
August 1939	Lowe	1	#SW Form grinder	4,652.00
August 1939	Lindner	1	#FS-30 Thread grinder	20,944.00
July 1939	Wotan	2	#V-31 Surface grinders	13,272.00
Feb. 1939	Schutte	1	#TU-5 Tool cutter grinder	7,188.00
June 1939	Reinecker	2	#VF-3R Vertical milling machines	26,664.00
Sept. 1939	Reinecker	1	#VF-4R Vertical milling machine	17,248.00

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Shipment Date	Manufacturer	No.	Product	FAS Price
Sept. 1939	Gildemeister	1	#DA 100 Plano milling machine	\$14,816.00
Aug. 1939	Reinecker	1	#FVS-5 Surface grinder	26,912.00
Sept. 1939	Wanderer	3	#3 DU 900 B Universal milling machines	23,564.00
Sept. 1939	Jerwag	3	#N2AZ Milling machines	28,252.00
June 1939	Lowe	2	#RGS Circular grinders	3,976.00
July 1939	Smaltz	1	#AVL-4 Surface grinder	13,824.00
Sept. 1939	Lowe	2	#RGS Circular grinders	5,064.00
Feb. 1939	Genevoise	1	#MF-5B Jig boring machine	23,212.00
Feb., March, April 1939	Kummer	2	#RPM-1 Form grinders	13,006.00
Dec. 1938	Genevoise	1	#MUL-250 Universal measuring machine	4,200.00
Jan. 1939	Genevoise	2	#MUL-250 Universal measuring machines	5,516.00
March 1939	Genevoise	1	#MU-214-B Universal measuring machine	9,772.00
Feb., March, April, May, 1939	Fiat	3	#FV-4 Vertical milling machines	1,855.20
May 1939	Bertoni	1	#RJS 135-750 Grinder	194.40

E. Orders Placed through Mitsubishi in Japan.

(From Mitsubishi Office Reports. Orders are never listed as being placed for "Kokura Arsenal" but the customer appears as "Army" or "Army Arsenal" and the orders were placed through the Moji branch office. Price on basis of 25 cents per yen.)

<u>Date</u>	<u>No.</u>	<u>Product</u>	<u>Price</u>	<u>Mfr.</u>
9/37	x	Steel plate	\$8,875.00	MJK
12/37	13	Switchboards	20,000.00	MDK
10/38	10,000	Parts	11,400.00	MDK
12/38	x	Starters	92,785.00	MDK
9/39	x	Starters	65,014.00	MDK
9/39	1	Transformer	25,500.00	MDK
10/39	x	Crankshafts	23,390.00	MDK
12/39	x	Generators	99,180.00	MDK
12/39	x	"Fuel jet apparatus 95TK"	34,799.00	MJK
1/40	x	Switchboard, etc.	24,427.00	MDK
3/40	x	"Work on crank-chamber partition"	41,128.00	Japan Forging

F. Inquiries Placed in the United States.1. Mitsubishi Inquiries.

NY 1931
1/17/39

2000

HSS twist drills for drilling fuel injection holes of diesel engines. Sizes .26, .27, .28, and .29 mm. No offer was obtained for a considerable period as HSS wire is not commonly made in such small sizes in this country. The inquiry was referred to Germany. Finally an offer came from Union Twist Drill but was not accepted.

2. Mitsui Inquiries.

TE 3740
7/8/39

Rifling machine for .25 calibre bores

3. Okura Inquiries.

23466	5	400 mm x 1800 mm engine lathes
23467	4	200 mm x 1800 fine turning lathes
12/27/39	2	200 mm x 850 mm (length of work) gun turning lathes
(probably represents orders transferred from Germany)	6	Milling machines, 310 mm x 1000 mm table, 700 mm feed
	3	Vertical milling machines, 310 mm x 1100 mm table
	2	Vertical milling machines, 200 mm x 700 mm table
	6	Profile milling machines, 250 mm x 350 mm double spindle
	4	Double head milling machines, 250 mm x 900 mm table, 500 mm feed
	5	Thread milling machines
	3	Sensitive drills for 12 mm hole
	2	Sensitive drills for 6 mm hole, table 250 mm x 250 mm
	3	Horizontal turret drills (chamfering machine) work 550 mm long x 20.5 mm OD
	2	Deep hole drills for hole 800 mm deep x 8-20 mm diameter
	2	Rifle reaming machines for bores 10 mm diameter
	2	Rifle reaming machines for bores 6-8 mm diameter x 900 mm long
	3	Multi-spline milling machines for work 2-20 mm x 100 mm
	8	Single spline milling machines, 6 spindle work 25 mm x 100 mm
	1	Horizontal broaching machine, 35 ton, 1750 mm max. stroke
	3	Cylindrical grinders 200 mm x 85 mm for work 100 mm long x 80 mm OD
	2	Cylindrical grinders for work 600 mm long x 100 mm OD
	2	Centerless grinders for rod 0.5-10 mm diameter
	2	Grinders for rifle barrels
	50	Hand motor grinders
	50	Axle grinders

V. The Tokyo Arsenal

A. General.

The Main Arsenal at Tokyo is located at Tokyo-shi, Koishikawa Ku, Koishikawa cho 1, while the Tokyo Branch Arsenal is located at Tokyo-shi, Itabashi ku, Shimura cho.*

In point of orders placed and goods shipped, this is the third largest of the Army Ordnance Arsenals. The orders and shipments were distributed as follows:

<u>Agent</u>	<u>Ordered</u>	<u>Shipped</u>	<u>Cancelled</u>
Mitsubishi	\$ 562,425.47	\$ 537,622.10	\$ 24,803.37
Mitsui	417,168.49	279,183.49	137,985.00
Okura	351,582.12	320,773.44	30,808.68
Ataka	83,554.17	76,598.17	6,956.00
Germany	<u>726,962.03</u>	<u>726,962.03</u>	<u>- - -</u>
	\$2,141,692.28	\$1,941,139.23	\$200,553.05

The Tokyo Arsenal purchased more gear machines (hobbers, generators, and grinders) than any other Army Arsenal. It also acquired a large number of grinders. Several orders tend to indicate plans for the manufacture of internal combustion engines. In 1940 the Arsenal attempted to obtain through Mitsui (Order EO 2474) two Norton 24" x 96" Type AD crankshaft grinders with equipment for 4 and 6 cylinder shafts. Also in 1940 two orders were placed through Mitsubishi (Orders 9378 and 9414) for Barnes honing machines with honing tools on one order for bores 115 mm. x 300 mm. and on the other order for diameters 4" to 6" and 5½" to 7".

It was not possible with this Arsenal to identify any of the orders placed for its benefit with Japanese manufacturers as such orders are inextricably mingled in the Mitsubishi and Mitsui office reports with those placed by Army Headquarters which are also at Tokyo.

* "What Will Japanese Industry Do if Japan Goes to War", found in the Mitsui files. It states that as of 1931 the Tokyo Main Arsenal employed 2106 people, including 156 women, in the manufacture of "arms" and that the Branch Arsenal employed 390 people, including 125 women, on "other business, particularly small arms".

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B. Recapitulation of Orders and Shipments
for Tokyo Arsenal.

S - Shipped
C - Cancelled
O - Ordered

Product	Mitsubishi		Mitsui		Okura		Ataka		Ger- many*	T O T A L S		
	S	C	S	C	S	C	S	C	O	S	C	O
Lathes	26	0	0	3	12	0			20	58	3	61
Milling Mchs.	14	0	17	6	19	0	7	0	17	74	6	80
Grinders	40	0	13	1	26	2	7	1	20	106	4	110
Gear Mchs.	8	3	7	4	1	0	1	0	2	19	7	26
Hor. boring mill	8	0	1	0						9	0	9
Vert. " "	1	0								1	0	1
Honing Mchs.	1	1							1	2	1	3
Broaching Mchs.	2	0								2	0	2
Cam Grinders	2	0							1	3	0	3
Screw Mchs.	2	0							1	3	0	3
Drilling Mchs.			1	0	2	0				3	0	3
Forging Mchs.			1	0						1	0	1
Thread Grinders			0	1					4	4	1	5
Crankshaft "			0	2						0	2	2
Vertical Slotter Shapers					3	0			7	10	0	10
Die Sinkers					1	1				1	1	2
Boring Lathe					1	0				1	0	1

* Files do not contain shipping documents so allowance must be made for cancellations.

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Product	Mitsubishi		Mitsui		Okura		Ataka		Ger- many	T O T A L S		
	S	C	S	C	S	C	S	C	O	S	C	O
Relieving Mchs.									2	2	0	2
Jig Borer									1	1	0	1
2000 ton Press									1	1	0	1
Dividing Mchs.									2	2	0	2
Measuring Mchs.									2	2	0	2
Rifling Mchs.									3	3	0	3
										308	25	333

C. Orders Placed in the United States
for Tokyo Arsenal.

1. Mitsubishi Orders.

Order Number	Date	Manufacturer	No.	Product	Price
7974	10/19/37	Gisholt	1	#4 Universal turret lathe with bar and chucking tools	\$3,865.00
A	10/19/37	Union	1	Chuck	76.50
B	11/26/37	Gisholt	1	Chuck	351.00
C	12/10/37	Gisholt	1	Collet pad	9.41
7991 (Note 11)	11/15/37	Brown & Sharpe	1	#13 Universal tool grinder	1,141.00
8343 (Note 11)	8/31/38	Lucas	2	#41 Precision boring, drilling and milling machines	17,870.00
8353 (Note 11)	9/1/38	Gleason (Note 4)	1	#16 Hypoid gear generator for jobbing work	12,040.00
8354 (Note 11)	9/1/38	Gleason (Note 4)	1	3" Straight bevel gear generator with tools	5,584.80

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Order Number	Date	Manufacturer	No.	Product	Price
8356 (Note 11)	9/1/38	Gallmeyer & Livingston (Note 9)	4	"Grand Rapids" #28 Special hydraulic feed surface grinders	\$8,583.60
8357 (Note 11)	9/1/38	Gallmeyer & Livingston (Note 9)	14	"Grand Rapids" #28 Special hydraulic feed surface grinders	37,255.40
8358 (Note 11)	9/1/38	Fellows (Note 9)	1	#615A Type gear shaper with spur and helical guides	7,080.00
8359 (Note 11)	9/1/38	Brown & Sharpe (Note 4)	1	#2G HS Automatic screw machine	3,930.44
8361 (Note 11)	9/2/38	Gisholt	5	2" x 12" #4 Universal turret lathes with bar and chucking tools	22,340.25
8362 (Note 11)	9/1/38	Brown & Sharpe (Note 4)	3	#3B Plain milling machines	15,580.14
8369 (Note 11)	9/2/38	Brown & Sharpe (Note 4)	5	#0Y Plain milling machines	9,845.50
8370 (Note 11)	9/2/38	Brown & Sharpe (Note 4)	1	#3A Universal milling machine	6,342.35
8371 (Note 11)	9/2/38	Brown & Sharpe (Note 4)	1	#4 Universal grinding machine	5,514.45
8372 (Note 11)	9/2/38	Brown & Sharpe (Note 4)	1	#2 Universal grinding machine	4,365.00
8377 (Note 11)	9/2/38	Heald (Note 4)	1	#72A-3 Plain internal grinder with chuck for work 4" to 7 $\frac{1}{2}$ " O.D. and wheelhead for bores of 4" and over	6,462.14
8379 (Note 11)	9/2/38	Heald	1	#22 Rotary surface grinder	3,695.70
8380 (Note 11)	9/2/38	Heald (Note 4)	1	#72A-3 Gagematic internal grinder with wheelheads for holes 1" x 2" and 3"	9,680.50

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Order Number	Date	Manufacturer	No.	Product	Price
8384 (Note 11)	9/6/38	Oilgear	2	Type XL-32 Horizontal broaching machines	\$11,440.86
8390 (Note 11)	9/8/38	Lodge & Shipley	10	12x30" Engine lathes with coarse threading	32,520.00
A	9/8/38	Lodge & Shipley	10	Motors	2,000.00
8421 (Note 11)	10/5/38	Brown & Sharpe (Note 4)	1	#2 Vertical milling machine	6,683.30
8429 (Note 11)	10/10/38	Lucas	1	#41 Precision boring, drilling and milling machine	8,898.00
8468 (Note 11)	10/29/38	Brown & Sharpe (Note 4)	2	#2 Vertical milling machines	12,086.20
8469 (Note 11)	10/29/38	Gleason (Note 4)	1	12" Straight bevel gear generator with roughing and finishing tools	10,323.00
8472 (Note 11)	10/31/38	Lucas	2	#41 Precision horizontal boring, drilling and milling machines	19,280.00
A	11/2/38	Westinghouse	2	7 $\frac{1}{2}$ HP Motors	254.10
8474 (Note 11)	10/31/38	Brown & Sharpe (Note 4)	2	#2 High speed automatic screw machines	6,518.40
8475 (Note 11)	10/31/38	Gleason (Note 4)	4	3" Straight bevel gear generators with finishing tools	22,209.40
8476 (Note 11)	10/31/38	Heald (Note 4)	1	#72A-3 Gagematic internal grinder	9,680.50
8479 (Note 11)	10/31/38	Monarch (Note 9)	2	22x48" Model M16 engine lathes with Keller control	23,477.50
8500 (Note 11)	11/9/38	Monarch (Note 9)	2	18x48" Model C toolroom lathes	11,412.00

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Order Number	Date	Manufacturer	No.	Product	Price
9177 (Note 10)	12/18/38	Hill-Clarke	2	Norton 10x72" Plain grinders	\$7,998.00
			2	Norton 6x32" Plain grinders	4,582.00
			1	Norton 14x72" Plain grinder	5,778.00
			1	Brown & Sharpe #4B plain miller	4,487.00
			1	Fellows #615 gear shaper	2,835.00
			1	Norton 10x18" Plain grinder	3,014.00
			2	Norton 10x36" Plain grinders	6,448.00
			2	Norton 10x72" Cam grinders	10,048.00
A	12/18/38	Hill-Clarke	51	Attachments for Norton 10" x 72" cam grinder and Fellows gear shaper	2,268.00
9194 (Note 10)	12/1/39	Morey	1	Rebuilt Lucas #4 horizontal boring machine	13,744.00
			1	Rebuilt Blanchard #16 vertical surface grinder	
9200 (Note 10)	1/6/40	Prussian	1	36" Bullard vertical turret lathe	13,300.00
A	12/14/38	Westinghouse	2	3HP and 1HP Motors	281.16
9203 (Note 10)	12/6/39	Emerman	2	Rebuilt Warner & Swasey #3A Universal turret lathes	6,180.00
			1	Rebuilt Cincinnati #3 Vertical miller	5,990.00
			1	Rebuilt Thompson 36" Universal grinder	2,035.00
			1	Rebuilt Defiance #6 horizontal boring mill	4,860.00
			1	Rebuilt Cincinnati #2 Universal grinder	1,320.00
			1	Rebuilt Landis #2 Universal grinder	1,220.00
			1	Rebuilt Bullard 36" vertical turret lathe	6,490.00

(cont'd)

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Order Number	Date	Manufacturer	No.	Product	Price
9203 (cont'd)			2	Rebuilt Landis 12x72" plain cylindrical grinder	\$6,620.00
			1	Rebuilt 42" vertical turret lathe	7,025.00
			1	Rebuilt 14" Pratt & Whitney vertical surface grinder	3,235.00
			1	Rebuilt Warner & Swasey #1A Universal turret lathe	5,380.00
			1	Rebuilt Lucas #43 Precision boring machine	17,000.00
			1	Rebuilt Blanchard #16 vertical surface grinder	2,775.00
A	12/7/39	Emerman	x	Motor and attachments	4,017.40
B	12/8/39	Emerman	x	Attachments	856.02
C	2/3/40	Emerman	x	Attachments	3,204.00
9242 (Note 10)	12/18/39	Simmons	1	Rebuilt Niles-Bement-Pond vertical 84" boring and turning mill	7,250.00
9260 (Note 10)	12/27/39	Michigan Tool	1	Universal relieving machine with grinding attachment	10,375.00
9360 (Note 10)	2/14/40	Fellows	3	#61A Gear shapers	19,148.50 (Note 7)
9378 (Note 10)	2/21/40	Barnes	1	#2610 Single spindle full hydraulic honing machine with 175 mm. diameter guide bushing	6,975.37
A	2/21/40	Westinghouse	1	25 HP Motor	245.63
B	2/21/40	Micromatic	2	Honing tools for diameter 4" to 6" and 5 1/2" to 7"	810.46
C	2/24/40	Barnes	x	Extra charge for 17" x 30" rectangular table and 32" stroke	615.12

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Order Number	Date	Manufacturer	No.	Product	Price
9414 (Note 10)	3/7/40	Barnes	1	#249 Single spindle honing machine	\$4,531.50 (Note 7)
A	3/7/40	Micromatic	2	Honing tools for plain, open end cylinder bores 115 mm. I.D. x 300 mm.	751.26 (Note 7)
C	6/17/40	Westinghouse	2	Motors	372.11 (Note 7)

2. Mitsui Orders.

EO 1804 TO 1333	12/24/36 12/22/36	Polaroid	2	Polaroid plates	45.00
EO 3474 TO 3400 (Note 11)	8/31/38 10/28/38	Kearney & Trecker	3	#3H Plain milling machines	12,726.00
add	9/2/38	General Electric	3	7 $\frac{1}{2}$ HP Motors	372.00
EO 3477 TO 3402 (Note 11)	9/1/38	Gould & Eberhardt	2	#3K Universal milling machines	12,035.00
add	9/2/38	General Electric	2	10 HP Motors	326.00
EO 3479 TO 3401 (Note 11)	9/1/38 10/28/38	Kearney & Trecker	2	#4H 74" x 15 $\frac{1}{2}$ " Plain milling machines	10,237.00
add	9/2/38	General Electric	2	10 HP Motors	326.00
EO 3481 TO 3230 (Note 11)	9/1/38 10/28/38	Kearney & Trecker	2	#4K 80" x 16" Plain milling machines	12,495.20
add	9/2/38	General Electric	2	15 HP Motors	374.00
EO 3483	9/1/38	Kearney & Trecker	3	#4K Vertical milling machines	23,243.31
add	9/2/38	General Electric	3	15 HP Motors	561.00

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Order Number	Date	Manufacturer	No.	Product	Price
EO 3511 TO 3399 (Note 11)	9/3/38 10/28/38	Gould & Eberhardt	1	#24 HS Hobbing machine	\$4,019.00
add .	9/3/38	General Electric	1	7 $\frac{1}{2}$ HP Motor	124.00
EO 3515 TO 3222 (Note 11)	9/7/38 10/28/38	Norton	1	6" x 18" Type C grinder	4,551.00
EO 3517	9/7/38	Norton	1	14" x 48" Type C Universal multi-purpose grinder	4,786.00
EO 3518 TO 3403 (Note 11)	9/8/38 12/28/38	Norton	2	#1 Universal tool and cutter grinders	1,976.00
EO 3519 TO 3404 (Note 11)	9/8/38 10/28/38	Norton	1	#2 Universal tool and cutter grinder	1,882.00
EO 3598 TO 3418 (Note 11)	10/1/38 11/9/38	Gould & Eberhardt	1	#36H Universal manufacturing gear hobber	7,743.60
.Add #1	9/30/38	General Electric	1	10 HP Motor	126.13
.Add #2	10/7/38	Gould & Eberhardt	1	Automatic infeed attachments, etc.	263.25
EO 3599 TO 3419 (Note 11)	10/1/38 11/9/38	Norton	1	14" x 48" Type C multi-purpose grinder	6,354.98
EO 3915 TO 3756 (Note 11)	12/15/38 4/12/39	Giddings & Lewis	1	#340T Horizontal boring, drilling and milling machine	18,305.85
add	12/27/38	General Electric	1	15 HP Motor	155.31
EO 3927 TO 3757 (Note 11)	1/5/39 4/12/39	American Tool	1	5' x 15" Full Universal radial drill	8,400.00
add	1/10/39	General Electric	1	15 HP Motor	141.33

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Order Number	Date	Manufacturer	No.	Product	Price
EO 3929 TO 3705 (Note 11)	1/4/39 4/5/39	Ajax	1	5" Forging machine and dies for 117x424.5 mm. shells (Notes 1 & 2)	\$54,172.00
add	1/4/39	General Electric	1	60 HP Motor and control	1,302.50
EO 3943 TO 3642 (Note 11)	1/11/39 2/14/39	Kearney & Trecker	1	#4K Plain miller	6,970.50
add	1/11/39	General Electric	1	15 HP Motor	140.00
EO 3961 TO 3696 (Note 11)	1/16/39 4/5/39	Gould & Eberhardt	2	#24 Manufacturing gear hobber	9,400.00
add	1/16/39	General Electric	2	7½ HP Motors	201.88
EO 3962 TO 3697 (Note 11)	1/11/39 4/5/39	Van Norman	3	#22 Milling machines	17,035.00
EO 3965 TO 3700 (Note 11)	1/11/39 4/5/39	Norton	1	6" x 18" Type C semi-automatic grinder	5,362.00
EO 3966 TO 3702 (Note 11)	1/10/39 4/5/39	Excello	4	#44 Carbide tool grinders	3,071.20
add	1/10/39	Norton	12	Grinding wheels	529.20
EO 3522 TO 3397 (Note 11)	9/3/39 10/28/38	Excello	1	#44 Carbide tool grinder	649.00
add TO 3754	9/3/39	Excello	3	Grinding wheels	132.30
EO 3664 TO 3701 (Note 11)	10/8/39 4/5/39	Norton	1	14" x 48" Type C Universal multi-purpose grinder	4,778.20
EO 2354 TO 3610 (Note 10)	12/21/39 3/5/40	Gould & Eberhardt	2	#24H Universal gear hobbors	13,976.00 (Note 7)

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Order Number	Date	Manufacturer	No.	Product	Price
EO 2359	12/21/39	Gould & Eberhardt	2	#36H Universal gear hobbers	\$18,372.00 (Note 7)
EO 2364 TO 3606 (Note 10)	12/22/39 3/15/40	Cleveland Hobbing Machine	1	Model 135 Rigid-hobber tooled for spline shaft (Note 2)	3,943.25
EO 2366 TO 3605 (Note 10)	12/26/39 3/15/40	Van Norman	4	#12 Milling machines	17,298.00 (Note 7)
EO 1690 TO 3608 (Note 10)	12/28/39	Warner & Swasey	3	#4 Model 1320 turret lathes	9,407.00 (Note 7)
EO 1690B	12/28/39	Warner & Swasey	45	Attachments for #3 and #4 turret lathes	6,510.00
Add #1	12/27/39	General Electric	3	5HP Motors	411.00
Add #2	12/27/39	Warner & Swasey	1	Bar equipment for #4 turret lathe	697.50
Add #3	12/27/39	Warner & Swasey	1	Chucking equipment for #4 turret lathe	731.00
EO 2386 TO 3623 (Note 10)	1/16/40 3/15/40	Kearney & Trecker	2	#4K Vertical milling machines	20,740.00 (Note 7)
EO 2388 TO 3622 (Note 10)	1/16/40 3/15/40	Kearney & Trecker	1	#3K Vertical milling machine	8,580.50
EO 2474 TO 3810 (Note 10)	1/18/40 5/30/40	Norton	2	24" x 96" Type AD crankshaft grinders with equipment for 4 & 6 cylinder shafts	38,092.00 (Note 7)
EO 2368 TO 3808 (Note 10)	1/19/40 5/30/40	Norton	1	6" x 30" Type C plain grinder	4,085.00 (Note 7)
EO 2374 TO 3812 (Note 10)	1/17/40 5/30/40	Excello	1	Style #35 Precision thread grinder	16,015.00 (Note 7)

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Order Number	Date	Manufacturer	No.	Product	Price
EO 2487	2/13/40	Gear Grinding Machine	1	18" Type GG-35 gear grinder	\$11,987.00
EO 2486 TO 3617 (Note 10)	2/15/40 6/17/40	Gear Grinding Machine	1	42" Type SG-17 Spline grinder	11,010.50

3. Ataka Orders.

1025	6/20/35	Bausch & Lomb	1	Contour measuring projector	1,554.48
			1	Toolmaker's microscope	
4596	12/18/35	Heald	x	Attachments for #81 Sizematic internal grinders	1,275.00
5308	8/16/37	Gleason	1	3" Straight bevel gear generator	4,877.46
5403	9/21/37	Brown & Sharpe	2	#0B Plain milling machines	4,438.50
5408	9/21/37	Brown & Sharpe	2	#2 Light type Universal milling machines	5,832.15
5410	9/21/37	Brown & Sharpe	1	#12 Plain milling machine	2,967.63
5412	9/21/37	Brown & Sharpe	2	#2 Plain milling machines	4,891.65
5427	3/29/37	Bausch & Lomb	3	#33-14-05-09 Toolmaker's microscopes	1,276.99
5477	12/7/37	Gleason	2	3" Straight bevel gear generators	9,751.06
V-7499 (Note 10)	1/10/40	Gleason	1	12" Straight bevel gear generator	8,415.50
V-7510 (Note 10)	1/11/40	Brown & Sharpe	4	#1 Universal grinders	14,580.00
V-7511 (Note 10)	1/11/40	Brown & Sharpe	3	#2 Universal grinders	16,412.00

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Order Number	Date	Manufacturer	No.	Product	Price
V-7513. (Note 10)	1/11/40	Brown & Sharpe	1	#4 Universal grinder	\$6,956.00 (Note 7)
V-7530 (Note 10)	2/1/40	Brown & Sharpe	3	#581 Gear tooth verniers	325.75

4. Okura Orders.

11653	3/26/38	Sleeper & Hartley	2	Universal spring coiling machines, #0 and #1	2,392.00
111 (Note 11)	7/21/38	Landis (Note 3)	6	Type C 12" x 30" hydraulic Universal grinders	43,573.74
113 (Note 11)	7/21/38	Pratt & Whitney (Note 3)	2	Model B 12" Vertical shapers	13,386.00
116 (Note 11)	7/21/38	Pratt & Whitney (Note 3)	1	#2A Universal die sinker	8,737.00
117 (Note 11)	7/22/38	Pratt & Whitney (Note 3)	1	10" Hydraulic gear grinder	13,016.00
119 (Note 11)	7/22/38	Blanchard (Note 3)	1	16" Heavy vertical surface grinder	6,555.00
120 (Note 11)	7/22/38	Cincinnati-Bickford (Note 3)	2	Upright drills, 21" and 24"	5,686.50
126 (Note 11)	7/22/38	Cincinnati (Note 3)	3	#3 Vertical milling machines	20,385.00
127 (Note 11)	7/25/38	Cincinnati (Note 3)	2	#4 Vertical milling machines	16,710.00
134 (Note 11)	7/25/38	Cincinnati (Note 3)	10	#2 Universal cutter and tool grinders	26,307.80
137 (Note 11)	7/26/38	Cincinnati (Note 3)	1	#2 Centerless grinder	5,935.25
147 (Note 11)	8/24/38	Cincinnati (Note 3)	3	MH #2 Universal milling machines	12,168.00

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Order Number	Date	Manufacturer	No.	Product	Price
148 (Note 11)	8/24/38	Cincinnati (Note 3)	2	L Type #2 Universal milling machines	\$7,594.00
150 (Note 11)	8/24/38	Cincinnati (Note 3)	1	#4 Vertical milling machine	8,510.00
152 (Note 11)	8/24/38	Cincinnati (Note 3)	2	#3 Plain milling machines	11,732.00
155 (Note 11)	8/25/38	LeBlond	1	24" x 22' Heavy duty boring lathe	12,852.00
173 (Note 11)	9/28/38	Pratt & Whitney (Note 3)	1	Model B 12" vertical shaper	6,693.00
175 (Note 11)	9/28/38	Pratt & Whitney (Note 3)	5	Type R-6 Keller cutter and radius grinders	7,112.50
178 (Note 11)	9/28/38	Cincinnati (Note 3)	5	#1-12 Plain auto-matic milling machines	12,645.00
179 (Note 11)	9/28/38	Cincinnati (Note 3)	1	#2 Universal cutter and tool grinder	2,560.65
180 (Note 11)	10/17/38	Pratt & Whitney (Note 3)	11	16" x 30" Model C lathes	46,915.00
183 (Note 11)	10/17/38	Pratt & Whitney	1	Type BL-2416 Keller automatic toolroom machine	13,005.00
184 (Note 11)	10/17/38	Pratt & Whitney (Note 3)	5	4" Electrolimit external comparators	2,625.00
185 (Note 11)	10/17/38	Taylor & Fenn (Note 3)	1	#M-54 Duplex spline milling machine	4,110.00
			2	Special 2" Pratt & Whitney slot milling cutters	
188 (Note 11)	10/18/38	Cincinnati (Note 3)	1	#2 Centerless grinder	6,625.00
A337 (Note 10)	10/3/39	Botwinik	1	Rebuilt Brown & Sharpe Universal grinder	2,810.00

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Order Number	Date	Manufacturer	No.	Product	Price
A477 (Note 10)	1/18/40	Pratt & Whitney (Note 3)	1	#3B Universal die sinker	\$13,791.00 (Note 7)
A486 (Note 10)	1/19/40	Cincinnati	1	14" x 36" Plain grinder	11,582.77 (Note 7)
A487 (Note 10)	1/19/40	Cincinnati	1	6" x 18" Plain grinder	5,434.91 (Note 7)
A499 (Note 10)	2/10/40	Geo. Scherr	2	Dial indicator bevel protractors	132.00

D. Imamura Mission Orders Through
Mitsubishi, Berlin, for Tokyo Arsenal.

(On basis of 40 cents per RM)

Shipment Date	Manufacturer	No.	Product	FAS Price
June 1939	Hahn & Kolb	1	Index 36 Screw machine	\$9,156.94
March 1939	Pittler	3	RD-II-47 Turret lathes	17,372.10
March 1939	Pittler	2	RC-II-36 Turret lathes	12,776.80
March 1939	Wotan	2	RJ-33 Internal grinders	27,011.11
March 1939	F. Werner	1	#3275-1.8 Splineshaft grinder	10,437.40
March 1939	Lindner	2	FS-1 Thread grinders	25,054.88
March 1939	Lindner	1	#FS-2-A Thread grinder	22,637.60
July 1939	Pittler	4	#RD-III-47 turret lathes	24,112.00
July 1939	Pittler	1	#RC-II-36 turret lathe	4,572.00
Sept. 1939	Reinecker	2	#UND-2 Relieving machines	17,828.00
July 1939	Lindner	1	#15 Jig boring machine	23,880.00
May, June, July, Aug. 1939	Wanderer	3	#2-DU-900 Universal milling machines	13,104.00
August 1939	Lowe	1	#SW Form grinder	4,652.00

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Shipment Date	Manufacturer	No.	Product	FAS Price
August 1939	Lindner	1	#FS-2-A Thread grinder	\$23,452.00
April 1939	Elberwerke	2	#SWH-4 Surface grinders	8,344.00
June 1939	Elberwerke	2	#SWH-10 Surface grinders	12,856.00
June 1939	Elberwerke	3	#SWH-10 Surface grinders	14,328.00
April 1939	Schutte	3	#WU-4 Tool cutter grinders	10,952.00
Feb. 1939	Schutte	2	#WU-3 Tool cutter grinders	5,524.00
August 1939	Ravensburg	1	#VSN-400 Vertical slotting machine	8,156.00
April 1939	Schutte	1	#WU-4 Tool cutter grinder	4,120.00
May, June, 1939	Reinecker	1	#ZAM Tooth chamfering machine	5,162.00
May 1939	Fritz Werner	1	#250M Copying miller	1,932.00
July 1939	Reinecker	1	#SEF Cam milling and grinding machine	7,260.00
March 1939	Lowe	1	#SW15F Reamer honing machine	1,312.00
Jan. 1939	Notan	2	#Hercules 550 hydraulic shapers	11,136.00
Feb. 1939	Notan	3	#Hercules 550 hydraulic shapers	13,632.00
July 1939	Ravensburg	1	#VSN 150 slotting machine	2,268.00
Sept., Oct., 1939	Mahr	2	#828 small measuring machines	1,088.00
June 1939	Diskus	1	#DVHS900 Surface grinder	13,616.00
Oct. 1939	Hydraulik	1	#2000 ton forging press	121,720.00
Sept. 1939	Wanderer	2	#3-DU-900 Universal milling machines	14,828.00

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Shipment Date	Manufacturer	No.	Product	FAS Price
Sept. 1939	Jerwag	2	#N2AZ Milling machines	\$19,072.00
Dec. 1939	Krupp	x	#XX,X8,S58,S246 Widia tool steel	6,548.00
Dec. 1939	Bohler	x	#Various types Bohlerite tool steel	3,784.00
Feb., March, April 1939	Kummer	2	#RPM Form grinders	13,608.00
Feb. 1939	Genevoise	1	#MFC-640 circular dividing machine	15,636.00
Feb., March, April 1939	Kummer	2	#RPM-1 Form grinders	12,412.00
Feb. 1939	Genevoise	1	#MU-214 Universal measuring machine	9,772.00
April 1939	Genevoise	1	#MU-214 Universal measuring machine	9,546.00
March 1939	Schweiz. Industrie	1	#Z-25/2 Twin rifling machine	23,596.00
May, June, 1939	Schweiz. Industrie	2	#Z-25/2 Twin rifling machines	38,304.00
March, Sept. 1939	Oerlikon	10	De 0/1000 High speed lathes	55,740.00
Jan. 1939	Mikron	5	Universal milling machines	10,900.00
June 1939	Studer	1	Universal milling machine	4,244.00
Jan. 1939	Genevoise	1	#MDL-31A Lindner dividing machine	7,664.00
Feb., June, 1939	Fiat	3	#FV-4 Vertical millers	1,855.20

VI. The Nagoya ArsenalA. General.

The Nagoya Arsenal has two divisions. The "Nitta Arms Works" is located at Nagoya-shi, Minami ku, nitta-Higashi cho, Daiya (or Ono) 18, while the "Sanshu (or Chikusa) Machine and Instrument Works" is located at Nagoya-shi, Higashi-ku, Senshu (or Chikusa) cho, Mosari (or Shigesukeura) 24.*

In point of orders placed and goods shipped, this is the fourth largest of the Army Arsenals. The orders and shipments were distributed as follows:

	<u>Ordered</u>	<u>Shipped</u>	<u>Cancelled</u>
Mitsubishi	\$ 632,923.00	\$ 569,478.50	\$ 63,444.50
Mitsui	324,038.27	296,031.27	28,007.00
Ataka	90,936.32	85,143.25	5,793.07
Okura	376,060.00	334,692.15	41,367.85
Germany	404,924.60	404,924.60	- - - -
Japan	29,398.00	29,398.00	- - - -
	<u>\$1,858,280.19</u>	<u>\$1,719,667.77</u>	<u>\$138,612.42</u>

Three machines ordered tend to indicate the manufacture of internal combustion engines at this Arsenal. In 1938, an order was placed through Mitsubishi (#8376) for a Heald #73 Airplane cylinder grinder and wheelhead for cylinder 160 mm. x 120 mm. About the same time an order was placed through Okura (#112) for a Landis Type D 25" x 72" crankpin grinder. The file on this order contains a blueprint of a 6 cylinder, 7 bearing crankshaft, 1300 mm. in length and having a 170 mm. swing (diameter of circle described by axis of crankpin). The Imamura mission in Germany ordered a spline shaft grinder from Fritz Werner.

* "What Will Japanese Industry Do if Japan Goes to War," found in Mitsui files. It states that as of 1931 the Nitta Works employed 625 people, including 35 women, in the manufacture of "arms" and that the Machine and Instrument Works employed 430 people, including 10 women, for same purpose.

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B. Recapitulation of Orders and Shipments
for Nagoya Arsenal.

S - Shipped
C - Cancelled
O - Ordered

Product	Mitsubishi		Mitsui		Ataka		Okura		Ger- many*	T O T A L S		
	S	C	S	C	S	C	S	C	O	S	C	O
Lathes	37	0	0	2			42	0	1	80	2	82
Milling Mchs.	30	0	65	0	12	0	3	0	14	124	0	124
Grinders	29	0	19	0	7	0	10	2	37	102	2	104
Gear Mchs.	1	0	1	1	1	0			1	4	1	5
Hor. Bor. Mchs.	7	0								7	0	7
Broaching Mchs.	5	0					1	0		6	0	6
Drilling Mchs.	0	2					2	0		2	2	4
Thread Milling Mchs.	12	2							7	19	2	21
Cold Saw	1	0								1	0	1
Relieving Mch.	1	0								1	0	1
Broach Sharpening Mch.			1	0						1	0	1
Screw Mchs.					4	2				4	2	6
Die Sinkers							5	0		5	0	5
Shapers							2	0		2	0	2
Vert. Bor. Mch.							1	0		1	0	1
Planer							1	1		1	1	2
Jig Borers							1	1	2	3	1	4

* Files do not contain shipping documents so allowance must be made for cancellations.

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Product	Mitsubishi		Mitsui		Ataka		Okura		Ger- many	T O T A L S		
	S	C	S	C	S	C	S	C	O	S	C	O
Honing Mchs.									4	4		4
Screw Presses									2	2		2
Measuring Mchs.									1	1		1
										370	13	383

C. Orders Placed in the United States
for Nagoya Arsenal.

1. Mitsubishi Orders.

Order Number	Date	Manufacturer	No.	Product	Price
7955	10/5/37	Sundstrand	2	#2 "Electromil" milling machines	\$7,642.00
			2	#3A "Rigidmil" milling machines	8,922.00
A	11/16/37	Sundstrand	1	Control panel	131.75
B	1/3/38	Sundstrand	7	Pickoff gears	181.90
7974	10/19/37	Gisholt	2	#4 Universal turret lathes with bar and chucking tools	7,731.00
A	10/19/37	Union	2	Chucks	153.00
B	11/26/37	Gisholt	2	Chucks	702.00
C	12/10/37	Gisholt	2	Chucks	18.81
7979	10/20/37	Lodge & Shipley	2	14" x 8' Engine lathes	16,631.30
			3	14" x 8' Manufacturing lathes	
A	10/20/37	Union	5	Chucks	551.25

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Order Number	Date	Manufacturer	No.	Product	Price			
8046 (Note 11)	12/13/37	Emerman	1	Rebuilt 21" x 8' LeBlond heavy duty productive lathe	\$ 775.00			
			2	Rebuilt 17" x 8' LeBlond productive lathes	2,400.00			
			1	Rebuilt 24" x 10' Prentice engine lathe	1,500.00			
			7	Rebuilt 20" x 8' LeBlond heavy duty engine lathes	4,785.00			
			2	Rebuilt 20" x 10' Wickes lathes	1,550.00			
			1	Rebuilt 17" x 8' LeBlond geared lathe	1,450.00			
			1	Rebuilt 17" x 8' LeBlond lathe, cone drive	1,450.00			
			1	Rebuilt 19" x 8' LeBlond lathe, cone drive	675.00			
			8050 (Note 11)	12/15/37	Monarch (Note 9)	4	16" x 54" Model W engine lathes	13,708.00
			A	12/15/37	Westinghouse	4	7 $\frac{1}{2}$ HP Motors	458.92
8057 (Note 11)	12/20/37	Brown & Sharpe (Note 4)	3	#2 Vertical milling machines	17,850.00			
8355 (Note 11)	9/1/38	Sidney (Note 9)	3	#4 Plain "Maximiller" milling machines	18,355.65			
8365 (Note 11)	9/2/38	Brown & Sharpe (Note 4)	6	#2 Universal milling machines	22,134.00			
8375 (Note 11)	9/2/38	Heald (Note 4)	2	#47A Boremetics	8,603.90			
8376 (Note 11)	9/2/38	Heald (Note 4)	1	#73 Airplane cylinder grinder and wheelhead for cylinder 160 mm. x 120 mm. diameter	11,242.30			
8378 (Note 11)	9/2/38	Heald (Note 4)	1	#172 Sizematic internal grinding machine with 3 wheelheads for holes 1 $\frac{1}{4}$ " to 2 7/8" x 5" to 7"	10,779.61			

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Order Number	Date	Manufacturer	No.	Product	Price
8380- (Note 11)	9/2/38	Heald (Note 4)	1	#72A-3 Gagematic internal grinders with wheelheads for holes 1" x 2" and 3"	\$9,680.50
8390 (Note 11)	9/8/38	Lodge & Shipley	2	12" x 30" Engine lathes with threading attachments	6,504.00
A	9/8/38	Lodge & Shipley	2	Motors	400.12
8424 (Note 11)	10/10/38	Lucas	1	#42 "Precision" hori- zontal boring, drilling and milling machine	13,210.00
A	10/10/38	Westinghouse	1	Motor	144.76
8429 (Note 11)	10/10/38	Lucas	1	#41 "Precision" hori- zontal boring, drilling and milling machine	8,898.00
8462 (Note 11)	10/28/38	Heald (Note 4)	12	#70A Internal grinding machines	84,432.00
8463 (Note 11)	10/28/38	Oilgear	5	Type XL-32 Horizontal broaching machines	20,576.25
A	10/28/38	Westinghouse	5	25 HP Motors	1,339.80
8465 (Note 11)	10/28/38	Gorton	2	Type 8D Vertical milling machines	8,383.49
8471 (Note 11)	10/29/38	Brown & Sharpe (Note 4)	2	#13 Universal and tool grinders	9,698.06
8480 (Note 11)	11/1/38	Lucas	1	#41 "Precision" hori- zontal boring, drilling and milling machine	8,928.00
A	11/2/38	Westinghouse	1	7 $\frac{1}{2}$ HP Motor	127.05
8500 (Note 11)	11/9/38	Monarch (Note 9)	6	18" x 48" Model C toolroom lathes	34,237.50
9172 (Note 10)	11/20/39	Ingersoll	2	42" x 36" x 8' Planer type milling machines	56,726.50 (Note 7)

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Order Number	Date	Manufacturer	No.	Product	Price			
9177 (Note 10)	11/25/39	Hill-Clarke	2	Rebuilt #1 Cleveland 2½" bar horizontal boring machines	\$5,734.00			
			1	Rebuilt Lucas #21 horizontal boring machine	3,432.00			
			1	Rebuilt Universal #3½ horizontal boring machine	5,862.00			
			1	Rebuilt Baker #416 heavy duty drill	2,402.00			
			2	Rebuilt Milwaukee #3B Universal millers	9,739.00			
			1	Rebuilt Milwaukee #2B Universal miller	4,075.00			
			1	Rebuilt Norton 6 x 32" plain grinder	2,291.00			
			1	Rebuilt Lodge & Shipley 36" x 14' geared engine lathe	7,283.00			
			1	Rebuilt American 6' plain radial drill	5,683.00			
			2	Norton 10" x 50" plain grinders	7,348.00			
			2	Milwaukee #3B plain millers	9,324.00			
			1	Norton 10" x 72" plain grinder	3,999.00			
			9182 (Note 10)	11/28/39	Lees Bradner	14	#3C Collet type Thread milling machines (12 shipped)	47,026.00 (40,308.00 Note 7A)
			A	12/23/39	Westinghouse	14	3 HP Motors	1,261.26
9194 (Note 10)	12/1/39	Morey	1	Rebuilt Heald #25 rotary surface grinder	6,872.00			
9203 (Note 10)	12/6/39	Emerman	1	#7 Fellows gear shaper	1,997.00			
			1	Rebuilt Thompson 12" x 36" Universal grinder	2,235.00			
			2	Rebuilt Cincinnati #2 centerless grinders	8,700.00			
			2	Rebuilt Brown & Sharpe #LYB plain millers	3,000.00			
			1	Rebuilt Colburn #D-5 drill	1,745.00			
			1	Rebuilt Lodge & Shipley 42" x 20' engine lathe	6,585.00			
							(cont'd)	

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Order Number	Date	Manufacturer	No.	Product	Price
9203 (cont'd)			1	Rebuilt Landis 10 x 36" plain cylindrical grinder	\$2,450.00
			1	Rebuilt Colburn #D4HD drill	1,735.00
			1	Rebuilt Colburn #D2HD drill	1,325.00
			1	Rebuilt Cincinnati #3S plain miller	5,585.00
			1	Rebuilt Cincinnati #3 plain miller	6,275.00
			1	Kempsmith #4 plain Maximiller	4,865.00
			1	Rebuilt Kearney & Trecker #5B plain miller	3,835.00
			1	Rebuilt #2 Bath Universal grinder	1,520.00
			1	Rebuilt Cincinnati #4 Universal miller	7,540.00
			1	Rebuilt Abrasive surface grinder	5,090.00
A	12/7/39	Emerman	x	Motors and attachments	4,077.60
B	12/8/39	Emerman	x	Attachments	1,104.48
9346 (Note 10)	2/20/40	Motch & Merryweather	1	Size FF new type Wagner cold sawing machine	6,517.00
A	2/8/40	Westinghouse	1	Motor	317.24
9260 (Note 10)	12/27/39	Michigan Tool	1	Universal relieving machine with grinding attachment	10,375.00

2. Mitsui Orders.

EO 2281-3 TO 3965	5/15/37 12/7/37	Kearney & Trecker	3	#1H-18" Manufacturing milling machines	6,534.00
add	12/3/37	Kearney & Trecker	12	Attachments	476.55
EO 2569-71 TO 3966	7/28/37 12/7/37	Kearney & Trecker	3	#1H Universal milling machines	8,923.50
add	12/2/37	Kearney & Trecker	6	Attachments	338.85

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Order Number	Date	Manufacturer	No.	Product	Price
EO 2753 TO 3775	9/20/37 12/7/37	Van Norman	3 2	#12 Milling machines #22 Milling machines	\$13,990.00
EO 2251-54 TO 3967	12/2/37 12/7/37	Kearney & Trecker	4	#2H Universal milling machines	16,003.80
EO 2757 TO 3779 (Note 11)	12/16/37 12/7/37	Norton	15	6" x 18" Surface grinders	17,430.00
EO 2939 TO 3769 (Note 11)	12/17/37 12/7/37	Kearney & Trecker	1	#1H-18" Manufacturing milling machine	2,552.85
EO 3472 TO 3229 (Note 11)	8/31/38 10/28/38	Kearney & Trecker	19	#2HL Universal Milwaukee milling machines	57,528.00
add	9/1/38	General Electric	19	3 HP Motors	1,038.76
EO 3473	8/31/38	Kearney & Trecker	5	#2K Universal milling machines	24,940.00
add	9/2/38	General Electric	5	7½ HP Motors	444.28
EO 3478 TO 3398 (Note 11)	9/1/38 10/28/38	Kearney & Trecker	3	#3K Vertical milling machines	19,246.32
add	9/2/38	General Electric	3	10 HP Motors	489.00
EO 3937 TO 3649 (Note 11)	1/3/39	Kearney & Trecker	2	#2H Universal milling machines	8,418.66
add	1/11/39	General Electric	2	5 HP Motors	130.00
EO 3964 TO 3699 (Note 11)	1/3/39 4/5/39	Norton	2	6" x 18" Surface grinders	3,040.00
EO 3966 TO 3702	1/10/39 4/5/39	Ex-Cell-O	1	#44 Carbide tool grinder	767.80
add	1/10/39	Norton	3	Grinding wheels	132.30

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Order Number	Date	Manufacturer	No.	Product	Price
EO 3962 TO 3697 (Note 11)	1/11/39 4/5/39	Van Norman	5	#22 Milling machines	\$28,372.50
EO 3963 TO 3698 (Note 11)	1/12/39 4/5/39	Van Norman	7	#12 Milling machines	27,594.00
EO 3522 TO 3397 (Note 11)	9/3/39 10/28/38	Ex-Cell-0	1	#44 Carbide tool grinder	649.00
add	9/3/39	Norton	3	Grinding wheels	132.30
EO 2361 TO 3603 (Note 10)	12/21/39 3/15/40	American Tool	2	30" x 108" "Super-Productive" lathes	24,028.00 (Note 7)
EO 3935 TO 3647 (Note 11)	12/30/39 2/14/39	Kearney & Trecker	5	#2HL Universal Milwaukee milling machines	16,960.00
Add.Rev.	1/9/39	General Electric	5	3 HP Motors	338.10
EO 2480 TO 3809 (Note 10)	1/19/40 5/30/40	LaPointe	1	Universal 60" Broach sharpener	2,950.00
EO 2476 TO 3806 (Note 10)	1/19/40 5/30/40	Gould & Eberhardt	1	#24H Universal gear hobber	3,979.00 (Note 7)
EO 2377 TO 3609 (Note 10)	2/1/40 3/15/40	Farrel Birmingham	1	#4-B Sykes gear generator	34,433.30

3. Ataka Orders.

5404	9/21/37	Brown & Sharpe	3	#OB Plain milling machines	4,438.50
5405	9/21/37	Brown & Sharpe	3	#OY Plain milling machines	4,875.05
5406	9/21/37	Brown & Sharpe	2	#2 Standard vertical spindle milling machines	8,626.90

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Order Number	Date	Manufacturer	No.	Product	Price
5413	9/21/37	Brown & Sharpe	3	#2 Plain milling machines	\$7,337.49
5414	9/21/37	Brown & Sharpe	1	#3A Universal milling machine	4,796.63
5417	9/21/37	Brown & Sharpe	6	#2 Surface grinders	4,617.00
5419	9/21/37	Heald	1	#25A-24" Rotary surface grinder	6,178.72
V-7494 (Note 10)	1/10/40	Gleason	1	12" Straight bevel generator with equipment	10,230.00
V-7489 (Note 10)	1/19/40	Brown & Sharpe	6	#0G Automatic screw machines tooled for production of 10 small mild steel parts (Note 2)	28,456.00 (22,662.93 Note 7A)
			1	#2G Automatic screw machine	5,145.00
V-7526 (Note 10)	1/31/40	Bausch & Lomb	1	#24-31-20-29 ILSAA metallascope	1,610.00
V-7528 (Note 10)	1/31/40	Bausch & Lomb	1	#33-12-01-02 Contour measuring projector	3,699.25
V-7529 (Note 10)	1/31/40	Bausch & Lomb	1	#33-14-10-09 Tool-makers microscope	925.75

4. Okura Orders.

11556	11/26/37	LeBlond	8	16" x 8' Rapid production lathes	19,968.00
and add. (Note 11)	12/21/37		2	16" x 8' Rapid production lathes	4,594.00
			x	Attachments	398.00
			10	#9 Multi-cut lathes 24" centers	22,990.00
			6	16" x 8' Rapid production lathes	12,366.00
			x	Attachments	1,194.00
11561 (Note 11)	12/3/37	LeBlond	5	#9 Multi-cut 24" lathes	11,495.00

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Order Number	Date	Manufacturer	No.	Product	Price
116 (Note 11)	7/21/38	Pratt & Whitney (Note 3)	2	#2A Universal die sinters	\$17,474.00
122 (Note 11)	7/22/38	Landis (Note 3)	1	Type D 25" x 72" crankpin grinder. (Note 2- 6 cylinder- 7 bearing crankshaft 1300 mm. long x 170 mm. swing)	17,335.00
127 (Note 11)	7/25/38	Cincinnati (Note 3)	2	#4 Vertical hi-speed milling machines	16,710.00
130 (Note 11)	7/25/38	Cincinnati (Note 3)	1	#3 Plain milling machine	5,867.00
144 (Note 11)	8/23/38	Cincinnati- Bickford (Note 3)	1 1	5' x 15" Universal radial drill 4' x 13" Plain radial drill	14,440.00
172 (Note 11)	9/27/38	Landis (Note 3)	5	Type C 6" x 18" plain grinders	31,640.00
173 (Note 11)	9/28/38	Pratt & Whitney (Note 3)	2	Model B 12" Vertical shapers	13,386.00
176 (Note 11)	9/28/38	Pratt & Whitney (Note 3)	3	#2A Universal die sinters	23,868.00
177 (Note 11)	9/28/38	Pratt & Whitney (Note 3)	1	Type BL-3620 Keller automatic toolroom machine	17,040.00
180 (Note 11)	10/17/38	Pratt & Whitney (Note 3)	3	16" x 30" Model C lathes	12,795.00
181 (Note 11)	10/17/38	Pratt & Whitney (Note 3)	4	12" x 30" Model B lathes	18,152.00
183 (Note 11)	10/17/38	Pratt & Whitney (Note 3)	2	BL-2416 Keller auto- matic toolroom machines	26,010.00
188 (Note 11)	10/18/38	Cincinnati (Note 3)	1	#2 Centerless grinder	7,762.00

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Order Number	Date	Manufacturer	No.	Product	Price
190 (Note 11)	10/18/38	Jones & Lamson (Note 3)	1	Bench comparator	\$ 822.50
192 (Note 11)	10/18/38	Thompson (Note 3)	2	Broach grinders	10,671.20
A-337 (Note 10)	10/3/39	Botwinik	1	Rebuilt Landis #23 plain grinder	1,810.00
			1	Rebuilt Colburn vert- ical boring mill	5,000.00
			1	LaPointe #2 broach machine	33,390.00
A-378 (Note 10)	11/17/39	Sun	1	Rebuilt 72" x 60" x 16' Gray planer	8,550.00
A-440 (Note 10)	12/6/39	Pratt & Whitney (Note 3)	1	#2A 3644 Jig borer	15,289.95 (Note 7)
A-466 (Note 10)	12/20/39	LeBlond	1	35" x 11' Heavy duty engine lathe	11,577.60
A-479 (Note 10)	1/18/40	Pratt & Whitney (Note 3)	2	Type R.6 Keller cutter and radius grinders	2,979.90 (Note 7)
A-484 (Note 10)	1/19/40	Fosdick	1	Jig borer	9,868.50
A-485 (Note 10)	1/19/40	Rockford	1	18" x 10' Planer	23,100.00 (Note 7)
A-497 (Note 10)	2/9/40	Fitchburg	1	14" x 32" Spline shaft grinder	7,052.00

D. Imamura Mission Orders Through Mitsubishi, Berlin
for Nagoya Arsenal.

(On basis of 40 cents per RM)

Shipment Date	Manufacturer	No.	Product	FAS Price
March 1939	Lindner	1	#15 Jig borer	\$23,880.00
March 1939	Fritz Werner	1	#3275-1.8 Spline shaft grinder	10,437.40
March 1939	Lindner	1	#FS-2 Thread grinder	23,452.00

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Shipment Date	Manufacturer	No.	Product	FAS Price
March 1939	Lindner	1	#FS-30 Thread grinder	\$20,944.00
Sept. 1939	Reinecker	1	#UHD-2 Relieving lathe	10,692.00
May, June, August 1939	Wanderer	3	#2-DU-900 Universal milling machines	22,164.00
July, August 1939	Wanderer	3	#2-DU-900 Universal milling machines	17,148.00
July, August, Sept. 1939	Ultra	1	Form grinder	8,960.00
August 1939	Lowe	1	#SW Form grinder	4,652.00
August 1939	Lindner	3	#FS-2 Thread grinders	66,116.00
Sept. 1939	Muller & Montag	4	#5F Vertical milling machines	28,052.00
April 1939	Muller & Montag	1	#6VL Vertical miller	21,892.00
Sept. 1939	Muller & Montag	1	#6VL Vertical miller	19,228.00
Sept. 1939	Biernatzki	2	#V4 Vertical milling machines	15,328.00
March 1939	Fritz Werner	1	#3/277 Spline shaft grinder	7,260.00
Nov. 1938 April 1939	Schutte	4	#WU 4 Tool cutter grinders	13,600.00
Nov. 1938	Schutte	4	#WU 3 Tool cutter grinders	11,040.00
March 1939	Lowe	4	#SW15F Reamer honing machines	4,248.00
July 1939	Reinecker	1	#AKS Bevel gear grinder	10,172.00
August 1939	Schuler	2	#PFsch-140 Friction screw presses	6,600.00
Feb. 1939	Lowe	4	#SW 11N Tap sharpeners	5,864.00
Dec. 1938 Feb. 1939	Genevoise	1	#RU-2 Universal thread grinder	18,168.00

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Shipment Date	Manufacturer	No.	Product	FAS Price
Jan. 1939	Genevoise	1	MU-214 Universal measuring machine	\$9,772.00
May 1939	Zechler	1	#Multipass #1 automatic threading machine	4,236.00
Dec. 1938	Genevoise	1	#MF 3 C Jig borer	9,940.00
Dec. 1938	Societe Industrielle Suisse	1	Lead smelting furnace	1,508.00
June 1939	Fiat	3	#10" x 36 Universal grinders	1,651.20
June 1939	Fiat	12	#10" x 36 Universal grinders	6,604.80
March 1939	Fiat	4	#10" x 36 Tool cutter grinders	864.00
May 1939	Bertoni	2	#RJS 135/1500 grinders	451.20

E. Orders Placed Through Mitsubishi in Japan.

(From Mitsubishi Office Reports. Orders are never listed as being placed for "Nagoya Arsenal" but customer appears as "Army" or "Army Arsenal" and the orders were placed through the Nagoya branch office. Price on basis of 25 cents per yen.)

Date	No.	Product	Price	Manufacturer
3/38	x	Sound proof equipment	\$26,836.00	Yamagata Group
3/39 (for Nagoya shop of Nagoya Arsenal)	5	Block gauges	2,562.00	Toyo Seiki

F. Inquiries Placed in the United States.

1. Okura Inquiries.

23466	4	400 mm x 1800 mm engine lathes
23467	1	Turret lathe for chuck work, 58 mm rod diameter
23468	2	200 mm x 850 mm (length of work) gun turning lathe
12/27/39	2	Automatic lathes for work 6 mm in diameter
(probably	2	Automatic lathes for work 10 mm in diameter
represents	1	Automatic lathe for work 10 mm in diameter
orders	6	Milling machines, 310 mm x 1000 mm table, 700 mm feed
transferred	2	Milling machines, 310 mm x 1000 mm table, 700 mm feed
from Germany)	2	Vertical milling machines, 310 mm x 1100 mm table
	2	Double head milling machines, 250 mm x 900 mm table, 500 mm feed
	3	Thread milling machines
	2	Sensitive drills for 12 mm hole
	3	Horizontal turret drills (chamfering machine) work 550 mm long x 20.5 mm OD
	1	Rifle reaming machine for bores 10 mm diameter
	3	Multi-spline milling machines for work 2-20 mm x 100 mm
	3	Single spline milling machines 6 spindle work 25 mm x 100 mm
	1	Internal grinder for hole 80 mm long x 3-75 mm ID x 40 mm OD
	1	Cylindrical grinder, 200 mm x 85 mm for work 100 mm long x 80 mm OD
	2	Cylindrical grinders for work 600 mm long x 100 mm OD
	2	Cylindrical grinders for work 500 mm long x 200 mm OD
	2	Universal cutter grinders, 115 mm x 500 mm OD
	2	Universal and cutter grinders for work 500 mm long x 350 mm diameter
	20	Hand motor grinders
	2	Plain grinders for work 140 mm diameter x 800 mm long
	1	Six spindle sensitive drill
	1	Centerless grinder for rod 1.-75 mm diameter

VII. The Kokura (Jinsen) Arsenal

A. General.

No orders for this Arsenal were placed before 1940. The name seems to indicate that this is a branch of the Kokura Arsenal, possibly at Jinsen, Korea. (See also Section IV) It is not probable that these orders have been confused with those placed for Kokura Arsenal as an especial effort was made by the Japanese trading companies to keep them distinct. Machines sent to Kokura (Jinsen) were wired for 60 cycle, 220 volt electric current, while those sent to Kokura Arsenal were wired for 50 cycle, 200 volt current.

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All shipments for Kokura (Jinsen) were sent to Kobe, which is a leading transshipment point for goods destined for Korea, while shipments for Kokura Arsenal generally were sent via Moji.

The orders which were placed were distributed among the trading companies as follows:

<u>Agent</u>	<u>Ordered</u>	<u>Shipped</u>	<u>Cancelled</u>
Mitsui	\$17,563.50	- - - -	\$17,563.50
Ataka	18,904.00	\$18,904.00	- - - -
Okura	<u>6,956.25</u>	<u>- - - -</u>	<u>6,956.25</u>
	\$43,423.75	\$18,904.00	\$24,519.75

B. Recapitulation of Orders and Shipments.

S - Shipped
C - Cancelled
O - Ordered

Product	Mitsui		Ataka		Okura		T O T A L		
	S	C	S	C	S	C	S	C	O
Grinders			1	0	0	1	1	1	2
Screw Mchs.			3	0	1	0	4	0	4
Threading Mchs.	0	1					0	1	1
							5	2	7

C. Orders Placed in the United States.

1. Mitsui Orders.

Order Number	Date	Manufacturer	No.	Product	Price
EO 2489 TO 3616 (Note 10)	2/9/40	Ex-Cell-0	1	#35 Precision thread grinder	\$17,563.50 (Note 7)

N. Y. - #272

2. Ataka Orders.

<u>Order Number</u>	<u>Date</u>	<u>Manufacturer</u>	<u>No.</u>	<u>Product</u>	<u>Price</u>
V-7512 (Note 10)	1/11/40	Brown & Sharpe	1	#3 Universal grinder	\$6,061.00
V-7489 (Note 10)	1/19/40	Brown & Sharpe	3	#OG HS Automatic screw machines tooled for four small mild steel plates (Note 2)	12,843.00

3. Okura Orders.

A-482 (Note 10)	1/19/40	Landis (Note 3)	1	12" x 36" Type LC Universal grinder	6,956.25 (Note 7)
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VIII. The Nanman Arsenal

A. General.

The only American orders for this Arsenal were placed by Col. Atsumi's Mission in late 1939 and early 1940. The files do not disclose its location but all shipments were routed via Dairen and Okura & Co. stated in one application for export license (Order A-482) that the destination was in the Kwantung Leased Territory. One Okura order (A-337) used the name "Nanko", alternatively.

The orders and shipments were distributed as follows:

	<u>Ordered</u>	<u>Shipped</u>	<u>Cancelled</u>
Mitsubishi	\$192,567.99	\$153,530.74	\$39,037.25
Mitsui	91,535.15	52,639.75	38,895.40
Ataka	35,066.75	35,066.75	- - - -
Okura	<u>29,349.25</u>	<u>22,393.00</u>	<u>6,956.25</u>
	\$348,519.14	\$263,630.24	\$84,888.90

The files show that plans were made for work on internal combustion engines. A Wickes crankshaft lathe was obtained through Mitsubishi (Order 9276) which was tooled for two diesel engine crankshafts, a 4-throw, 4-bearing shaft and a 6-throw, 7-bearing shaft. A Barnes Honing machine was ordered through Mitsubishi (Order 9412) with honing tools for 115 mm. x 300 mm. plain, open end cylinder bores. Through Mitsui, orders were placed for a Norton crankshaft grinder (EO 2367) and an Ex-Cell-O #35 thread grinder (EO 2375).

N. Y. - #272

B. Recapitulation of Orders and Shipments
for Nanman Arsenal.

S - Shipped
C - Cancelled
O - Ordered

Product	Mitsubishi		Mitsui		Ataka		Okura		T O T A L S		
	S	C	S	C	S	C	S	C	S	C	O
Lathes	7	0	0	1			1	0	8	1	9
Milling Mchs.	6	0	2	2					8	2	10
Grinders	3	0	1	0			6	0	10	0	10
Gear Mchs.	1	1	2	1	2	0			5	2	7
Planer-Miller	0	1							0	1	1
Broaching Mchs.			1	0					1	0	1
Hor. Bor. Mchs.	2	0							2	0	2
Honing Mchs.	0	1							0	1	1
Cold Saw	1	0							1	0	1
Screw Mchs.					2	0			2	0	2
Threading Mchs.			1	0					1	0	1
									38	7	45

C. Orders Placed in the United States
for Nanman Arsenal.

1. Mitsubishi Orders.

Order Number	Date	Manufacturer	No.	Product	Price
9172 (Note 12)	11/20/39	Ingersoll	1	42" x 36" x 8' Type A planer milling machine	\$28,363.25 (Note 7)

N. Y. - #272

Order Number	Date	Manufacturer	No.	Product	Price
9177 (Note 10)	11/22/39	Hill-Clarke	1	Rebuilt #3A Universal horizontal boring machine	\$4,887.00
			3	Rebuilt 14" x 50" Norton grinders	14,934.00
			2	Rebuilt #3B Heavy Brown & Sharpe plain milling machines	8,074.00
			1	Rebuilt #3 Cincinnati Universal milling machine	5,327.00
			1	Rebuilt #3A Universal horizontal boring machine	5,330.00
			30	Grinding wheels	1,174.50
			9194 (Note 10)	12/1/39	Morey
9200 (Note 10)	12/4/39	Prussian	2	#2A Brown & Sharpe Universal milling machines	15,050.00
A	12/14/39	Westinghouse	2	3 HP Motors	281.16
9203 (Note 10)	12/6/39	Emerman	1	Sydney 24" x 16' Tritrol engine lathe	5,880.00
			1	Monarch 30" x 12' engine lathe	5,935.00
			1	Kearney & Trecker #2 plain milling machine	4,210.00
A	12/7/39	Emerman	2	Motors	409.00
B	12/8/39	Emerman	x	Attachments	19.80
9242 (Note 10)	12/18/39	Simmons	1	Rebuilt 16" x 10' engine lathe	1,499.00
9276 (Note 10)	1/3/40	Wickes	1	U-H-4 Universal lathe tooled for machining bearing surfaces of 4-throw, 5-main bearing and 6-throw, 7-throw main bearing diesel engine crankshafts (Note 2)	16,695.13
A	1/3/40	Westinghouse	3	Motors	328.16

N. Y. - #272

Order Number	Date	Manufacturer	No.	Product	Price
9361 (Note 10)	2/19/40	Lees Bradner	1	Model 2-HS gear grinder	\$11,989.47
A	5/22/40	Lees Bradner	8	Master gears and racks	467.10
9359. (Note 10)	2/14/40	Fellows	1	#615 Gear shaper	5,224.00 (Note 7)
9260. (Note 10)	12/27/39	Michigan Tool	2	Universal relieving machines with one grinding attachment	20,500.00
9412 (Note 10)	3/5/40	Barnes	1	#406H Honing machine, twin cylinder, single spindle, with 38" stroke	4,469.28 (Note 7)
A	3/5/40	Micromatic	2	Honing tools for 115 mm. x 300 mm. plain open end cylinder bores	751.26 (Note 7)
B	3/5/40	Westinghouse	2	Motors, 5HP and 7½ HP	229.46 (Note 7)
9347 (Note 10)	2/2/40	Motch & Merryweather	1	Size E Hydraulic feed cold sawing machine	4,279.50
A	2/3/40	Westinghouse	2	Motors	304.92

2. Mitsui Orders.

EO 2360 TO 3601 (Note 10)	12/21/39 3/15/40	Gould & Eberhardt	1	#24H Universal gear hobbing machine	6,969.00 (Note 7)
EO 2362 TO 3807 (Note 10)	12/21/40 5/30/40	American Tool	1	16" x 78" Pacemaker lathe	4,773.00 (Note 7)
EO 2363 TO 3615 (Note 10)	12/22/39 3/15/40	Cleveland	1	#135 'Rigidhobber' tooled for spline shaft (Note 2)	3,693.25
EO 2365 TO 3605 (Note 10)	1/5/40 3/15/40	Van Norman	2	#36 Universal milling machines	16,898.00

N. Y. - #272

Order Number	Date	Manufacturer	No.	Product	Price
EO 2375 TO 3616 (Note 10)	1/15/40 5/30/40	Ex-Cell-O	1	#35 Precision thread grinder	\$16,015.00
EO 2390 TO 3620 (Note 10)	1/16/40 3/15/40	Kearney & Trecker	2	#1H Universal milling machines	8,107.40 (Note 7)
EO 2473 TO 3618 (Note 10)	1/17/40 3/15/40	LaPointe	1	#3L8 Broaching machine (Note 2)	5,023.00
EO 2367 TO 3611 (Note 10)	1/18/40 3/15/40	Norton	1	24x96" Type AD grinder with equipment for grinding 4 and 6 cylinder crankshafts	19,046.00 (Note 7)
EO 2485 TO 3617 (Note 10)	2/13/40 6/17/40	Gear Grinding	1	42" Type SG-17 spline grinder	11,010.50

3. Ataka Orders.

V-7495 (Note 10)	1/10/40	Gleason	1	#16 Hypoid gear generator arranged for jobbing work	12,100.00
V-7496 (Note 10)	1/10/40	Gleason	1	12" Straight bevel gear generator	9,555.00
V-7489 (Note 10)	1/19/40	Brown & Sharpe	2	#2G High speed automatic screw machines	9,712.00
V-7527 (Note 10)	1/31/40	Bausch & Lomb	1	#33-12-01-02 Contour measuring projector	3,699.75

4. Okura Orders.

A-337 (Note 10)	10/3/39	Botwinik	3	Rebuilt Pratt & Whitney vertical surface grinders	7,530.00
			1	Rebuilt Cincinnati #2 Centerless grinder	5,260.00
A-338 (Note 10)	11/3/40	Lucas	1	Rebuilt Lodge & Shipley 18" x 10' engine lathe	2,164.00

Order Number	Date	Manufacturer	No.	Product	Price
A-482 (Note 10)	1/19/40	Landis (Note 3)	1	12" x 36" Type LC Universal grinder	\$6,956.25 (Note 7)
A-483 (Note 10)	1/19/40	Thompson	1	6" x 72" Broach grinder	7,439.00

IX. The Hiroshima Branch Arsenal

A. General.

The document from the Mitsui files entitled "What Will Japanese Industry Do if Japan Goes to War", which gives figures as of 1931, locates the Hiroshima Branch Arms Arsenal at Hiroshima-shi, Shinkai-cho. It states that 148 people, 46 of which were women, were engaged in miscellaneous work.

The only American orders for this Arsenal were placed by Col. Atsumi's Mission in late 1939 and early 1940. The orders and shipments were distributed as follows:

	<u>Ordered</u>	<u>Shipped</u>	<u>Cancelled</u>
Mitsubishi	\$101,231.80	\$27,270.05	\$ 73,961.75
Mitsui	2,976.00	- - - -	2,976.00
Okura	97,230.00	- - - -	97,230.00
Ataka	<u>9,610.00</u>	<u>9,610.00</u>	<u>- - - -</u>
	\$211,047.80	\$36,880.05	\$174,167.75

The orders for very heavy machines are significant, such as the 12' Cincinnati boring and turning mill, the 42" x 36" x 8' Ingersoll planer-miller ordered through Mitsubishi (Orders 9172 and 9345) and the 10" rifling machine for gun barrels up to 60' long ordered through Okura (RZ-1016).