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NY-360

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JAPANESE FILES RESEARCH PROJECT

DEPARTMENT OF JUSTICE  
WAR DIVISION  
ECONOMIC WARFARE SECTION

AND

FOREIGN ECONOMIC ADMINISTRATION  
ECONOMIC INTELLIGENCE DIVISION

CONFIDENTIAL REPORT ON  
INDUSTRIAL PURCHASES IN U.S.A. FROM 1935-1941  
BY 588 JAPANESE CONCERNS

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October 23, 1944

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NY-360

Economic Warfare Section  
War Division  
Department of Justice  
Washington 25, D. C.

Confidential Report  
October 23, 1944 (Report No. NY-360)  
Re: Industrial Purchases in U.S.A. from  
1935-1941 by 588 Japanese Concerns  
Submitted by: Morris Calden  
Foreign Economic Administration  
New York, New York

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INDUSTRIAL PURCHASES IN U.S.A. FROM 1935-1941  
BY 588 JAPANESE CONCERNS

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Introduction

This report lists 588 Japanese concerns and governmental agencies, their purchases in the U. S. through the principal Japanese trading companies, and information on their locations and activities in Japan.

The material relates to:

1. Japanese companies which purchased American equipment from 1937 to 1941 in quantities too small to warrant previous separate reports;
2. purchases made by Japanese companies already reported upon from 1935 to 1936, supplementing the previous reports in which pre-1937 purchases had not been included;
3. incidental information discovered in the files.

The previous reports heretofore published by the Japanese Files Research Project have dealt with the orders and inquiries placed from 1937 to 1941 by one Japanese company, a group of related companies, or a government department when purchases were made in considerable quantity. Two hundred of these reports have been submitted to date, the subjects covering a wide range in the Japanese industrial picture - the machine tool, aircraft, automobile, steel, chemical and oil industries as well as the Japanese army and navy. The companies in this report when combined with the companies treated in the previous reports complete the list of Japanese companies which made purchases or inquiries in the United States through the trading companies between 1937 and 1941. Companies making only a single purchase or inquiry have been included, regardless of the nature of the purchase or inquiry. When pertinent information was located in the files and no purchases indicated, the information is listed herein.

The companies and governmental agencies are listed alphabetically by their Japanese names wherever possible. In most instances translations of the Japanese names follow. The Japanese names were not translated of the Japanese names follow. The Japanese names were not translated whenever there was any doubt about the meaning of these names or when the Japanese characters for these names did not appear in the files. Below each company is given such pertinent information as appeared in the file correspondence.

Where orders or inquiries were few, the information was correspondingly meager or non-existent.

This report was based on the files of the New York offices of the chief Japanese trading companies: Mitsui Bussan Kaisha, Mitsubishi Shoji Kaisha, Ataka & Co., Okura & Co., and the Imperial Export Co. With the exception of the Imperial Export Co. these files are kept by the Alien Property Custodian in a warehouse at 27 Cliff St., New York City.

1. ABE TEKKOSHO (ABE IRON WORKS), OSAKA. A 1940 company catalogue gives the address as 59 Kami Nichome, Uras Nishi, Yodogawa-ku, Osaka. In 1940 it was reported to be "one of the largest manufacturers of disc wheels for Ford and Chevrolet trucks" and anxious to find an export market for these products (MF 15561). In 1939 this company inquired for hydraulic presses (MF 3100).
2. AICHIKEN KOGYO SHIKENJYO, (AICHI PREFECTURE TESTING WORKS) NAGOYA in 1940 purchased 1 Sheffield Gage precision thread lead checking machine for \$1,990.00 (15/835).
3. AICHI TOKEI DENKI (AICHI ELECTRIC CLOCK) in 1935-36 purchased:

1 Lodge and Shipley 1 x 15 Duomatic lathe	2,882.71
1 American Tool 16" x 54" Multi production engine lathe	2,395.79
1 Norton lapping machine	2,762.63
1 Wright Cyclone engine	8,927.03
Parts	406.49
	17,374.65

(TR 7153, TO 6016, TO 6036, TO 3132, TO 3134, TO 3162)
4. AJIKAWA IRON WORKS in 1935 purchased 1 Wing centrifugal turbine blower for \$328.77 (TR 6211).
5. AKEBOSHI SCREW PRODUCT CO. in 1937 exported flat head iron wood screws, thread screws, screw hooks, and screw eyes. Its address was listed as 26-30 1 chome Higashi komagata Honjo, Tokyo (TT-2-37 P. 45).
6. AKESAKA TEKKOSHO (AKESAKA IRON WORKS) from 1939-40 purchased 170 Brown and Sharpe calipers for \$1,731.83 (At 6149--destination Nagoya) and 20 U.S. steel metal slitting saws for \$69.77 (At 6662--destination Hamamatsu).
7. AKIMOKU KIKAI SEISAKUSHO (AKIMOKU MACHINE MANUFACTURING), AKITA-KEN, in 1940 purchased 160 Timken roller bearings for gear testing and lapping machines for \$1,254.40 (12103, 12122).

8. AOI JIDOSHA (AOI AUTOMOBILE) in 1935-36 purchased 40 Johns-Manville clutch facings for \$17.84 (10426).
9. ANRITSXU DENKI (ANRITSU ELECTRIC), Tokyo, in 1938 purchased 6 General Radio 605-B standard signal generators and 20 spare tubes for \$ 1905.90 (TO 5350, 5384, 5356).
10. ANZAN KOZAI (ANZAN STEEL MATERIALS), Anzan, Manchuria, in 1937 purchased 1 Shore scleroscope for \$ 191.75 (12/320).
11. ANZEN JIDOSHA (SAFETY MOTOR), Tokyo. Since 1933 Anzen had been exporting such automobile parts as automatic windshield wipers, fan belts and piston rods. In December 1935, Anzen was prevented from selling the Zerk type automobile grease gun abroad because of an agreement with the ALEMITE COMPANY of Japan, whereby Anzen would only sell this product within Japan (MF 15637). An undated Anzen Jidosha catalogue gives #3 Denma-cho, Akasaka-ku, Tokyo, as an address. This catalogue contains several photographs of the Anzen plants with the following captions:

- |                                       |                            |
|---------------------------------------|----------------------------|
| 1. The Shibaura Body Works            | 6. Valve Factory           |
| 2. The Ford and Chevrolet Parts Dept. | 7. Assembly Plant          |
| 3. The Main Office                    | 8. Spring Factory          |
| 4. Dodge Bros. Dept.                  | 9. Repair and Machine Shop |
| 5. A Busy Corner of the Factory       | 10. Assembly Plant,        |

From 1938-40 Anzen purchased:

1 Gleason 12" straight bevel gear generator (At 5791, 6504-A-2)	\$ 10,025.23
1 Gleason 16" hypoid generator (At 5863)	10,917.49
64 Brown and Sharpe micrometer calipers (At 6649)	501.60

12. ASADA TEKKOSHO (ASADA IRON WORKS), Osaka, in 1938 had an address at 15 Benten-cho, 4 chome, Minato-ku, Osaka (At 5555). In 1938 it purchased 14 Brown and Sharpe calipers for \$21.40 (At 5555).
13. ASAHI DENKA KOGYO (ASAHI ELECTRO-CHEMICAL INDUSTRY) in 1935 purchased 1 rotor for a Nash Hytor chlorine compressor for \$60.00. Inquiries were made in 1936 for the patent rights for high test bleach, for the impregnation of graphite electrodes, and for an ice making machine from the Great Western Chemical Co. Letterhead states: "Factory Ohgu-machi, Arakawa-ku, Tokyo. Caustic Soda, Par-Chlorine, Bleaching Powder, Hydrochloric Acid, Hardened Oil and Wax, all kinds of Soap, Margerine" (10808, MF 15555).
14. ASAHI IRON WORKS in 1938 purchased 9 Bethlehem sheared steel plates for \$ 561.46 (At 7188).
15. ASAHI KOGYOSHO (ASAHI INDUSTRY) in 1940 purchased 530 Timken roller bearings for 45 # 2 universal millers, 390 bearings for 28 # 2 vertical millers and 4 bearings for 1 # 2S miller.

16. ASAHI LACQUER, Okura, Tokyo wrote in 1936: "The ASAHI LACQUER CO., LTD. (formerly the company used to be a lacquer making plant of ASAHI GLASS CO., LTD., but lately they were organized as an independent company) is now in the course of amalgamation by the LITHARGE PAINT CO., LTD." (EN-PUN TORYU K.K.). "ASAHI LACQUER CO. is now contemplating starting safety glass making" (22081).
17. ASAHINA TEKKOSHO (ASAHINA IRON WORKS), Tokyo, was one of the leading car-buretor companies in Japan (Okura III-21). In 1938 this company negotiated with the Aviation Manufacturing Co., N. Y. C. for the license for the Lycoming propeller Hub. In 1940 it inquired for 1 Heald single end boring machine to handle valves and plugs. (At 708--drawings of valves and plugs in file.
18. ASANO CEMENT in 1935-36 purchased 1 Starret vibrometer for \$ 15.44 (TR 6689).
19. ASANO KIKAI KOGYO (ASANO MACHINE INDUSTRY), Hamamatsu, cancelled orders for Brown and Sharpe calipers in 1940.
20. ASANO ZOSEN (ASANO DOCKYARD) in 1935-36 purchased 5 independent pneumatic drills and 39 chipping hammers for \$ 1556.02 (TO 3406, TO 3318, TO 3125, TO 3188).
21. ASHIDA KOGYOSHO (ASHIDA INDUSTRIAL WORKS), Osaka, manufactured water meters. Prior to 1940 the company was engaged in exporting meters to Brazil, Peru and other Latin American countries. In June 1940, MITSUI, Tokyo, informed MITSUI, New York, that ASHIDA was no longer able to "quote for export to South America due to large volume of orders placed by Japanese clients ... ASHIDA working night and day to fill these orders." ("SACA" correspondence, H.E. Grau file 1940):  

In 1940 ASHIDA purchased 1 Browne and Sharpe micrometer caliper for \$22.25 (At V-7626).
22. BOKI SEIZO (SPINNING MACHINERY MANUFACTURING) in 1938 purchased 1 Ex-Cell-0 #215 precision boring machine for \$ 7282.64. Originally intended for boring automobile piston but altered to bore airplane piston (TO 3376).
23. BRIDGESTONE TIRE in 1935-38 purchased Cross valves for automobile tires for \$ 6047.23 (10728, 10803, 11072, 11149, 11268, 11479, 11638). The following purchases were made for the Tsingtao plant in 1939-40:
 

100 tons of old automobile tires (12266)	.....\$ 5268.10
71,000 air valves for automobiles (MF 15624)	..... 9903.00
24. BUJUN TANKO (BUJUN FORGING) inquired in 1939 for a Hydraulik 1000 ton forging press (MF 2094).
25. CHIBA SEISAKUSHO (CHIBA MFG. WORKS), Tokyo, in 1940 purchased 80 roller bearings to be used on a Herbert 25 capstan lathe (12154).

26. CHINO SEISAKUSHO (CHINA MFG. WORKS), Yokohama. An IMPERIAL EXPORT letter (1-2-39) states that "CHINA SEISAKUSHO are competitors of Brown" (probably NIPPON BROWN SEISAKUSHO) (TO 3517).
27. CHOSEN GODO MOKUZAI (KOREAN UNITED LUMBER), Kanei, purchased 1 Atkins saw blank for \$ 681.25 in 1940 (At 6542).
28. CHOSEN GOVERNMENT RAILWAY BUREAU inquired for 3 oxy-acetylene torches for delivery to Seishin, Korea in 1937 (22483).
29. CHOSEN KAYAKU JUHO (KOREAN GUNPOWDER AND FIREARMS), Keijo, in 1939 inquired for various grinders (23171).
30. CHOSEN SOTOKU-FU, SEISHEN DOBOKU (KOREA GOVERNMENT GENERAL, SEISHEN PUBLIC WORKS) in 1935 purchased 1 dragline bucket for Bucyrus "50 B" dragline excavator for \$, 585.00 (purchased in 1925) for excavating the fishery port (TO 7768).
31. CHUBUDENKI SEISAKUSHO (CENTRAL ELECTRIC MACHINERY WORKS), Nagoya, inquired for several tons of wire in 1940 (23764).
32. CHUGAI KOGYO (CHUGAI MINING), Kamp Mine in Korea, in 1937 and 1940 purchased 1 Symons 3 ft. short head cone crusher for \$ 7226.71 (TO 7845,7901).
33. DAIDO DENKI SEIKO (DAIDO ELECTRIC STEEL) in 1935 inquired for a round bar rolling mill to produce 30,000 kilo tons of 9 mm x 20 mm bars annually (TE 2265).
34. DAIDO DENRYOKU (DAIDO ELECTRIC POWER) in 1935-36 purchased meters for \$ 515.91 for the Ajikawa power station (TR 6102, .00 3519).
35. DAIDO KOGYO (UNITED MINING) in 1940 purchased Brown and Sharpe gear cutters and measuring instruments for \$ 147.80 (At 6720,6723).
36. DAIICHI KOGYO (FIRST INDUSTRIAL) in 1936 purchased 5 Johnson thermostats for \$ 80.00 (TR 7171).
37. DAIKYU TEKKOSHO (DAIKYU IRON WORKS) in 1940 inquired for a screw making machine for fastening sheet plate of airplane wings (M-23799).
38. DAI MARU KOYU DENKI (DAI MARU MINERAL OIL AND ELECTRIC) in 1936-38 purchased 113 drums of Sterling varnish for \$ 4188.64.
39. DAI NIPPON BICYCLE CO. in 1936 purchased 1000 chains and 1000 pairs of pedals for \$ 311.48 (TR 7278).
40. DAI NIPPON BREWERY's main plant was in Meguro. It had a bottle making plant at Hodogawa equipped with American machines, and a plant at Nishinomiya. It purchased in 1935-36:

Drawings for 45-ton regenerative producer gas fired glass melting furnace to be equipped with 2 Lynch model 10 machines.  
 Drawings for balanced air valve for above furnace.  
 Drawings for muffle, selfcontained mesh type Lehr (for Hodogawa plant) . . . . . \$ 3250.00  
 2 Lynch model 10 bottle making machines . . . . . 26492.00  
 1 Lynch B bottle making machine . . . . . 5431.60  
 1 Ermold multiple labellor and bottle feeder . . . . . 4080.00  
 1 Crown Jumbo E crowning machine . . . . . 1985.50  
 1 Meyer 412 quart Dumore 34 bottle cleaner . . . . . 17345.00  
 1 Bishop and Babcock #34 bottle filler (for Meguro) 3354.00  
 1 " " " " " " (for Nishinomiya) 3354.00  
 1 Yundt automatic torpedo pasteurizer (for Meguro) 20020.00  
 85313.92

(TO 2228, 10630, 10730, 11031, 11032, 11034, 11035, 11068).

41. DAI NIPPON CELLULOID in 1935-36 purchased parts for Vilter ammonia compressor for \$13.61 (10325, 10675).

42. DAI NIPPON COTTON SPINNING. Plans were outlined in a letter from MITSUI, Osaka to MITSUI, New York in 1936:

"DAI NIPPON COTTON SPINNING COMPANY will develop a carbide plant in Seisin, Tyosan, and they intend to proceed to acetylene industry. For the first step, they want to install synthetic acid plant whose capacity is about 5 tons per day . . . We have heard of no plant of American system imported to Japan, but DAI NIPPON COTTON SPINNING CO. want to import American system, because their study in acetic acid manufacturing is very poor and cannot be developed to industrial scale . . . our customer will proceed further to acetylene derivative industry such as Aceton, butanol, etc." There are following synthetic acid manufacturers in Japan:

- KYUSYU DENKI KAGAKU KOGYO KK. - Own method (not good and stopped to operate)
- NIHON CHISSO HIRYO KK. - Own method
- DAI NIPPON CELLULOID CO. - Zahn's method
- NIHON GOSEI KK. - Own method
- TEKKOSYA KK. - Own method
- SYOWA GOSEI KAGAKU KK. - Zahn's method" (MF 2938).

43. DAI NIPPON ELECTRIC in 1935 purchased 2 Bailey P8 flight pointer drift gauges for \$ 491.62 (TO 9168).

44. DAI NIPPON HEIKI (GREAT JAPAN ARMS) in 1939 purchased:

1 Michigan Tool 10" x 24" universal relieving machine (TR 9210) .....	\$ 9954.00
1 Barber-Colman # 3 hob sharpening machine (TR 9158) ..	3222.18
Equipment for Sundstrand C. 3 wheel tool grinder purchased on TR 9351 (TR 9351A-C) .....	153.39

Timken roller bearings for various machine tools were ordered and inquiries were made for various planers, an Ingersoll rail milling machine etc. by the SHONAN KOKI plant of this company.

45. DAI NIPPON JINZO HIRYO (DAI NIPPON ARTIFICIAL FERTILIZER) in 1935-36 inquired for a methane gas cracking plant with capacity of 150,000 cu. meters of hydrogen per day. 20,000 cu. meters of methane per day were to be polymerized to benzol.

"The N.A.F. company is a rich and old concern. - They are operating a contact ammonia and nitric acid plant, also makers of carbide and other heavy chemical. -

It seems to me that they have a new process in mind to utilize methane as a by-product from decomposing aluminum carbide. The main product is aluminum hydroxide for making aluminum ingots and sheets, shapes, etc. The methane is to supply hydrogen for the existing contact plants. There may be an enlargement of that department involved."

Power Gas Corporation, Bamag-Meguine and Hydro-Nitro S. A. were approached. Devine proposed several alternate combinations of furnaces with a total capacity of 5,250,000 cu. ft. and of 6,300,000 cu. ft. per day.

It inquired of Monsanto for sufficient vanadium catalyst to produce 100 metric tons of sulphuric acid per day, and negotiated with the Ube Cement for their German process for soda production. DAI NIPPON JINZO HIRYO wished to install a glass plant to utilize the soda ash to be produced. (TE 2355, 21702, 22103).

46. DAI NIPPON JITENSHA (DAI NIPPON BICYCLE) in 1937 purchased 10 Ex-Cell-O ball bearings for \$ 88.00 (TO 3554).

47. DAI NIPPON KIKAI KOGYO (GREAT JAPAN MACHINE INDUSTRY) in 1938 purchased 3 Nichols hand millers for \$ 2602.05 (13/528).

48. DAI NIPPON SEITO (DAI NIPPON SUGAR MANUFACTURING) in 1936 contemplated a 50 ton sulphuric acid plant using the Osame process. "We wish to inform you that the acid from the sulphuric acid factory contemplated is to be used to make alumina and phosphoric acid from rock phosphate produced in Daitoh Island near Formosa." (Mitsui, Tokyo to Mitsui, New York). They also planned a sugar mill in Formosa and a chocolate plant. (22067, MF 2382, MF 15715)



49. DAI NIPPON TOKKYO HIRYO (DAI NIPPON PATENTED FERTILIZER) purchased in 1935-36:

A license for the use of the Monsanto Process for oxidation of SO<sub>2</sub> to SO<sub>3</sub> by means of vanadium catalyst for daily capacity of 50 tons of sulphuric acid.  
 Sufficient vanadium catalyst (9,600 liters) for the production of 50 metric tons of sulphuric acid per day .... \$ 37,730.00  
 Sufficient vanadium catalyst (11,700 liters) for the production of 65 metric tons of sulphuric acid per day (TO 2299) ..... 16,940.00  
 54,670.00

50. DAIREN KIKAI SEISAKUSHO (DAIREN MACHINERY WORKS), Dairen.

A letter from MITSUI DAIREN (9-30-37) to New York states that DAIREN KIKAI, looking forward to supplying railway vehicles to the South Manchurian Railroad "want to inquire for used locomotive frame planer and slotter because of congestion at the large finishing machine, frame planers and slotters. They know very well how long it takes to get machine tools in the market, even in America, and they asked us to aim at used machines now in locomotive builders such as American Locomotive Corp., Baldwin Co. etc... The DAIREN KIKAI SEISAKUSHO have been in a position to build locomotives and cars with the supply of steel castings from outside in a finished stage." (From Dairen - 1937, Mitsui General Correspondence).

In 1936-39 DAIREN KIKAI purchased:

500 Atkins band saw blades (At 4895) ..... \$ 803.86  
 300 Bethlehem axles for Showa Steel and Honkeiko Coal and Iron dump cars ..... 13,305.95  
 80 Standard forging axles ..... 1,873.27

Inquiries were made for used lathes, millers, etc.

51. DAIREN KISEN (DAIREN STEAMSHIP CO.) in 1935 purchased:

1 Kearney and Trecker plain horizontal miller (TO 2176) ..... \$ 4,162.20  
 1 Kearney and Trecker plain vertical miller (TO 2176) ..... 5,103.83  
 Goddard and Goddard plain milling cutters (TO 2141) ..... 76.71

52. DAISHOJI KOSAKUSHO (DAISHOJI WORKS), Ishikawa, in 1940 purchased 15 Brown and Sharpe micrometer calipers for ..... \$ 105.45 (At 6792).

53. DENGENSHA in 1936 inquired for a Republic welding machine. OKURA, Tokyo wrote (12-11-36) "The DENGENSHA are now investigating to find a most advanced type of welding machine for welding steel strips to make steel pipes, and, among others, they are specially interested in the electric welding machine manufactured by the Republic Steel Corporation. This

machine is being actually used by TOYO KOZAI". Republic Steel answered that patent rights to this machine had been transferred to ORIENTAL STEEL PRODUCTS (TOYO KOZAI). (22411)

54. DENGYO-SHA (ELECTRIC INDUSTRIAL CO.) OKURA, Tokyo wrote to New York in 1934: "One of the famous makers for water turbines and very large pumps here, and they want to have several latest type of machine tools for finishing them" (21698).

55. DENGYOSHA GENDOKI SEIZOSHO (ELECTRIC INDUSTRY GENERATOR WORKS) purchased in 1937:

4 Heppenstall forged steel shafts and 2 discs (TO 107) \$ 4,712.00

Inquiries were made for shafts for Nippon Hassoden (MI YONOSHITA power) plant)

56. DENJI KOGYO KENKYUSHO (ELECTRO-MAGNETIC INDUSTRIAL LABORATORY) located at 269 Imazumi-cho Kamata-ku, Tokyo purchased from 1936 to 1940:

- 1 Brown and Sharpe #2A universal milling machine with #12 attachment (At 4802, 5850)
- 1 Brown and Sharpe #2L universal milling machine (At 4802)
- 1 " " #1 vertical milling machine (At 4802, 5869)
- 1 " " #5 surface grinding machine (At 4802)
- 1 " " #3B plain milling machine (At 5850, 5869)
- 1 " " #3 universal grinding machine (At 5881)
- 1 " " miscellaneous tools and gages (At 6144, 6524) ..... \$25,993.29
- 10 Bausch and Lomb 33-12-05-20 contour measuring projectors (At 5142)
- 26 " " 43-55-29 reflectors for photostatic use (At 5481)
- 9 " " microscopes (At 5644)
- 12 " " 51-73-01 0 process lenses (At 5644)
- 12 " " 51-73-25 photo-engraving prisms for use of photostat machines they are making" (At 5644)
- 20 " " #294 micrometer heads (At 5715)
- 6 " " 42-42-60 tungsten ARG bulbs for metalographic equipment (At 5723) ..... 35,200.81

57. DENKI KAGAKU KOGYO (ELECTRO-CHEMICAL INDUSTRY) in 1936 had the exclusive rights for the electric furnace of Det Norske Aktieselskab for Elektrokemisk Industrie, Oslo in Japan (MF 3150)

58. DENKI KEIKI (ELECTRIC INSTRUMENTS), Osaka, in 1936 purchased 52 General Electric D-14 Watt-hour meters for \$941.40 (003505,7)

59. DENSHOSHA in 1935-37 purchased Weston and General Radio meters and testing instruments for \$3,647.78 (MITSUBISHI)

60. DIAMONDD KENMA (DIAMOND GRINDING), Osaka, in 1940 purchased 5 Brown and Sharpe micrometer calipers (At 6678)
61. DIAMOND LINING WORKS, Tokyo. MITSUI 1935 correspondence states that the DIAMOND LINING WORKS of Tokyo "is the most eminent manufacturer in Japan" of brake linings for automobiles. "Up to this time we have exported many thousand feet of the Diamond Brake lining for China, India, Siam, Australia and South Sea Islands." (MF 15561) A catalogue in the Mitsui files gives a "whole view" of the factory and states that the Diamond Lining Works products are approved by the Army and Navy and are used by the Municipal Bus Companies under annual contracts. The material used for the brake linings was long fibred asbestos.
62. DOHI KOGYOSHO (DOHO INDUSTRIAL WORKS) in 1937 inquired for catalogues listing replacement for "the following machines supplied some years ago":
- 1 Sullivan electric hoist
  - 1 " turbine hoist
  - 1 " compressor
63. EBARA SEISAKUSHO (EBARA WORKS) in 1935 was reported to "be building centrifugal equipment directly competitive with TOYO CARRIER EQUIPMENT CO." (Mitsui Visitors - 1935) In 1935 it purchased:
- 1 Kearney and Trecker #3 K universal milling machine for ..... \$ 4,396.68
  - (TO 2135).
- In 1937-40 it purchased:
- 1 Lucas #41 horizontal, boring, drilling and milling machine (TR 7932) ..... 8,430.00
  - Brown and Sharpe micrometer calipers (At 6777) 72.89
64. EBISUYA TEKKOSHO (EBISUYA IRON WORKS), Osaka, in 1939 inquired for milling machines. (TE 3211)
65. EIDENSHA (EI ELECTRIC) in 1940 purchased 4 lbs. Brown thermocouple wire for \$ 23.43 (15/815).
66. ENOMOTO KOGAKU LENS SEISAKUSHO (ENOMOTO OPTICAL LENS MFG. WORKS) in 1937 purchased abrasives for lens polishing from the American Optical Co. for \$55.00 (TO 3680).
67. ENSHU SHOKKI or ENSHU KIKAI (ENSHU LOOM or ENSHU MACHINE), Hamamatsu, in 1937-39 purchased from Brown and Sharpe 1 # 10 plain milling machine and 40 measuring instruments for \$2,317.75 (At 4997, 6147)
68. ENSUIKO SEITO (SUGAR MANUFACTURING), purchased in 1935-36:

Blades and rotor shaft for Kerr steam turbine  
 for YAMATO MILL, Takao .....\$ 1,760.00  
 1 Spreckels rotary filter and 2 vibrating screens 5,550.00  
 1 Discharger and spray ..... 325.00

Inquired of Hersey for a cube sugar plant to make 17,000 or 37,000 lbs. per day. (TO 2212, TO 2262, TO 2303, TE 2239)

69. FORMOSA GOVERNMENT GENERAL NATURAL GAS LABORATORY in 1936 inquired of several companies for vehicles operating with methane gas instead of gasoline (TE 2385).

70. FUGUWARA IRON WORKS, situated at 1124 Akagawacho-Asahiku, Osaka, was interested in a Gould and Eberhardt gear shaper (Mitsui, Gould and Eberhardt 1938 file).

71. FUJI GAS BOSEKI (FUJI GAS SPINNING) in 1937 purchased parts for Brown thermometer for \$64.69 (12/349).

72. FUJI DENKI (FUJI ELECTRIC) in 1936 purchased 1 Morton 6" x 18" hydraulic surface grinder for \$ 839.75. (TO 3315)

73. FUJIKAWA CAST STEEL WORKS of #2 chome Sendamachi, Hiroshima, in 1941 was interested in Bausch and Lomb photographic equipment (Ataka "F" General Correspondence).

74. FUJI KOGYO SHOTEN (FUJI INDUSTRIAL SHOP) in 1937 purchased 1 Shore scleroscope for \$240.00 (12/422).

75. FUJI KOKI KEIKI (FUJI AVIATION INSTRUMENT) in 1938-39 purchased:

1 Brown and Sharpe #13 universal and tool grinder (At 5815) .....	\$ 4,000.58
1 Brown and Sharpe #5 surface grinding machine (At 5946) .....	1,957.95
1 Brown and Sharpe #OG automatic screw machine (At 5947) .....	3,331.76
1 Landis LC 12" x 36" hydraulic universal grinder (11922) .....	5,050.50
	<u>14,340.79</u>

76. FUJIKURA KOGYO (FUJIKURA INDUSTRY) in 1935-36 purchased:

5 grams of luminous radium paint	
3 masks	
2 respirators	
1 triangle parachute and several kinds of aircraft dope for .....	372.55

(TR 7351, TR 7358, TO 6038).

77. FUJINAGATA IRON WORKS in 1937 purchased parts for Brown pyrometer for ..... 950.00  
 (12/414).

78. FUJI SELSAKUSHO (FUJI MFG. WORKS), Tokyo, in 1940 purchased 1470 Timken roller bearings to be used on a # 2 horizontal milling machine for \$ 67,04 (12194) .....

79. FUJI SHASHIN FILM (FUJI PHOTOGRAPHIC FILM) in 1935-36 purchased 2600 kgs. N. C. gelatine for \$3125.00 from Atlantic Gelatine. Orders delivered to ASHIHARA plant (TO 2230, TO 2301).

80. FUJITA TEKKOSHO (FUJITA IRON WORKS). NAGOYA in 1938 had an establishment at # 50 Nagare-machi, Naka-ku, Nagoya (At 5819). A 1941 order was destined for Fuse (At 6834). This company in 1936-41 purchased:

Finishing tools for Gleason 3", 6" and 11" straight bevel gear generators (At 4649, 4932, 5818, 6055) ..... \$ 212.84  
 Brown and Sharpe measuring instruments:  
 (At 6156, 6551, 6552, 6553, 6746, 6834) ..... 2,569.28  
 2 Heald wheelhead ball bearings (At 6284) ..... 1,629.42  
 220 doz. Whitman and Barnes straight shank drills ..... 288.83  
 (At 6480)

81. FUJI TSUSHINKI SEIZO (FUJI COMMUNICATIONS APPARATUS MFG.) in 1937-38 purchased 8 Brown and Sharpe #00G automatic screw machines for \$22,146.64 (At 5178, 5189, 5585).

82. FUKUDA KEI HIKOKI (FUKUDA LIGHT AIRPLANE), Osaka, in 1940 inquired for 30 50 H.P. light plane engines (NY 2883).

83. FUKUI IRON WORKS, Osaka, in 1940 cancelled an order for Brown and Sharpe measuring instruments (At 6798).

84. FUKUURA SEISAKUSHO (FUKUURA WORKS) in 1938 purchased parts for a Brown meter for \$280.00 (13/586) .....

85. FURITSU TOKYO SHOKO SHOREIKWAN (TOKYO PREFECTURE COMMERCE AND INDUSTRY ENCOURAGEMENT) in 1938 purchased 3 Bausch and Lomb photo-micro accessories for \$ 180.00 (At 5993), .....

86. FURUKAWA HAGIRI KOJO (FURUKAWA GEAR CUTTING FACTORY) located in 1937 at # 45 Fujimocho, Asabu-ku, Tokyo, purchased 1 cutter for a Gleason 15" spiral bevel gear generator for \$ 91.22 (At 5338).

87. GODO DENKI (GODO ELECTRIC) in 1935 purchased 1 General Electric load box for \$ 39.00 (OO 3503)

88. GODO YUSHI (GODO FATS AND OILS) in 1936 purchased 1 Albright-Neil cooling roll for manufacturing lard compound at \$ 1,138.50. (TR 6482).

89. HAKODATA DOCK, Hokkaido, in 1935 purchased parts for Independent #3 pneumatic drills for \$ 293.80 (TO 3062). In 1940 inquiries were made for ship forgings (TE 692) .....

90. HAKODATE SEIMA (HAKODATE HEMP PRESSING) in 1939 purchased 1 Barnes honing machine for honing blind end bores for \$ 2627.04 (TR 8706).
91. HAMADA GEAR WORKS, Osaka, in 1940 purchased 16 finishing tools for 6" bevel gear generator for \$ 256.60 (At 6761).
92. HAMADA INATSUKI SEIZO (HAMADA PRINTING MACHINERY MFG.) in 1940 purchased 34 Brown and Sharpe calipers for \$251.75 (At 6744).
93. HAMANO KOSAKUSHO (HAMANO WORKS) in 1937 purchased parts for pressure recorder for \$ 252.50 (12/498).
94. HANEDASSEIKI (HANEDA MACHINE), Tokyo, in 1939 purchased 1 Gleason 15" spiral bevel cutter sharpener for \$ 1,978.77 (At 6098)
95. HANKYU ELECTRIC RAILWAY in 1936 purchased 1 Vilter ammonia compressor for \$ 423.00 (10401)
96. HANSHIN ELECTRIC RAILWAY in 1936 purchased Brown alloy for \$ 189.00. Order delivered to AMAGASAKI GODOWN (00 3514).
97. HANSHIN TEKKOSHO (HANSHIN IRON WORKS), a manufacturer of marine Diesel and semi-Diesel engines, had its factory at 3 chome Hayashido-ku, Kobe. In 1935 HANSHIN purchased 2 Warner and Swasey #5 universal turret lathes for \$ 5,421.39 (TO 3065) and inquired for Gidding and Lewis planer type boring, drilling and milling machines to machine the faces and bores of the block of the Diesel engine (TE 2247). Purchases in 1937-40 were:

- 1 Warner and Swasey #5 turret lathe (TO 3065)
- 1 Titusville Forge 6-throw crankshaft (12357 - Hanshin drawing of a single acting 4-cycle Diesel engine is in the files) ..... \$ 4,552.50
- 1 Lerman "G" rotary air pump for pressure blower (TR 6880) ..... 265.00

An inquiry for a crankshaft in 1940 states "these kinds of materials cannot be produced so soon on this side recently ... the crankshafts are urgently required for the internal combustion engine of the vessel, building of which is already consented by the government." (23511). In 1937 Mitsubishi approached Hanshin for two marine Diesel engines for private American yacht because their own yards at Kobe and Nagasaki were busy. Hanshin quoted ¥ 87,400 for two engines (NY 1208 - detailed specifications in the files).

An untranslated Hanshin catalogue is in the files with view of plant.

98. HARADA GUMI (HARADA ASSOCIATION) in 1937 purchased 1 Shore scleroscope for \$240.00 (12/421).
99. HARIMA ZOSENSHO (HARIMA DOCKYARD), Tokyo, in 1937 purchased parts for Shore scleroscope for \$19.20

100. HARUYAMA JIDOSHA KOGYO (HARUYAMA AUTO PARTS), Tokyo, in 1937-40 purchased:

Parts for 15" spiral bevel gear generators... \$ 1,436.10  
 (At 5079, 5080, 6504)  
 Brown and Sharpe plates for index centers (At 6165) 12.38

101. HASEGAWA HARUMA TEKKOSHO (HASEGAWA GEAR WORKS), Tokyo, in 1939 purchased  
 1 Gleason 3" straight bevel gear generator for \$ 5,478.98 (At 6107).

102. HASEGAWA TEKKOSHO (HASEGAWA IRON WORKS), Osaka, in 1940 cancelled an order  
 for 2 Brown and Sharpe micrometers (At 6107).

103. HASHIMOTO JUKOGYO (HASHIMOTO HEAVY INDUSTRY), Osaka, in 1939 purchased  
 1 Brown and Sharpe steel square for \$52.50 (At 6851).

104. HATA TEKKOSHO (HATA IRON WORKS), Kyoto, in 1938 purchased Brown and Sharpe  
 small tools for \$ 40.91 (At 5693, 5861).

105. HATSUDOKI SEIZO (MOTOR MANUFACTURING), Osaka, is described in its 1937  
 catalogue: "HATSUDOKI SEIZO KK (The MOTOR WORKS LTD.), Osaka, are estab-  
 lished these thirty years, specializing in the manufacture of general  
 internal combustion engines, as in building the DAIHATSU gasoline engine  
 which drives DHT cars." (This catalogue also contains photos and speci-  
 fications of the various types of 3-wheeled vehicles made by this company  
 and also a "general view of the factory"). HATSUDOKI SEIZO in 1935  
 inquired for a Norton hydraulic crankshaft pin grinder to grind the crank-  
 shaft of the Hercules engine model and a Leland Gifford motor spindle for  
 drilling transmission shaft (TE 3044, 3050). In 1938 it purchased from  
 Kearney and Trecker:

3	# 2K vertical millers	
2	# 3K vertical millers	
2	# 3K plain millers	
1	# 3K universal millers	
1	# 4K vertical miller	\$ 60,252.00

106. HAYAKAWA KOGYOSHO (HAYAKAWA INDUSTRIAL WORKS) in 1937 purchased  
 Minneapolis-Honeywell electric equipment for \$74.18 (12/396).

107. HEIJO DOBOKU KYOKU (HEIJO BUREAU OF PUBLIC WORKS) in 1936 purchased  
 1 Bucyrus dragline bucket for \$748.00 (TO 7795).

108. HEMI SEISAKUSHO (HEMI WORKS), located at 9 Sarugaki machi, Shibuya-ku,  
 Tokyo, manufactured technical instruments, especially slide rules, for  
 export to Great Britain and South America. The Mitsui Latin American  
 correspondence indicates that HEMI slide rules had found a good market  
 in Peru in 1935. In 1934-38 this company purchased from the American  
 Screw Co. 4200 gross of flat head iron screws for the manufacture of  
 slide rules for \$ 325.80 (TR 5813, 6485, 7165, 7873, 8265). In 1936  
 it purchased 1 Ex-Cell-O #47 carbide tool grinder and screws for \$ 391.31  
 (TR 7165, TO 3350).

109. HINODE DENKI (HINODE ELECTRIC), located at 105 Kikko-cho, 2 chome, Konohana-ku, Osaka, in 1937 purchased from Brown and Sharpe calipers for \$ 62.54.
110. HIRABAYASHI SEISAKUSHO (HIRABAYASHI WORKS), located at 2-433 Osaki Honomechi Shinagawaku, Tokyo, in 1937 purchased Brown measuring instruments for \$. 992.53.
111. HIRAO TEKKOSHO (HIRAO IRON WORKS), Osaka. ATAKA correspondence reveals that a quantity of Skinner chucks ordered in 1937 were to be "fitted to the engine lathes which Hirao is going to make ... Our customer expects to complete these lathes between December 1937 and December 1938" (At 5066). In 1940 HIRAO purchased Skinner chuck air cylinder units identical to those purchased by NAKAJIMA HIKOKI in 1937 (At 6728). In 1935-40 HIRAO purchased:

3	Skinner 10" double acting air cylinders with air pressure gauges and regulating valves (At 4362, 4403, 4459, 4535, 4563, 4970, 6728) .....	\$ 2,259.94
		1,559.97
37	Skinner chucks (At 4888A, 5066) .....	53.40
4	Norton alundum grinding wheels (At 4553) .....	
1	Brown and Sharpe #3A universal milling machine (At 4887)	7,813.33
1	" " #3 vertical milling machine (At 4887)	2,118.32
1	Reed-Prentice 14" x 54" B toolroom lathe (At 4888) .....	101.60
1	gross Atkins hack saw blades (At 6130) .....	
40	Brown and Sharpe small tools and measuring instruments (At 6728) .....	1,775.76
		<u>15,682.32</u>

112. HIROSE TEKKOSHO (HIROSE IRON WORKS), Osaka, in 1939 cancelled an order for Brown and Sharpe gear hobs (At 6675).

113. HITACHI SEISAKUSHO (HITACHI MANUFACTURING WORKS) in 1935-36 purchased:

1	Sellers #2B grinder .....	\$ 830.00
1	Ex-Cell-O #31 precision thread grinding machine .....	5,291.92
1	Norton 17" x 42" D-86 hydraulic crankpin grinding machine (Drawings of crank)	8,832.46
20	Norton grinding wheels for "Maag" gear grinding machine	69.00
1	Cincinnati #2 Universal cutter grinding machine .....	1,430.00
1	Cincinnati #2M plain milling machine .....	2,570.00
1	Pratt & Whitney #3 universal bench hand milling machine	1,374.00
1	Kearney and Trecker rebuilt #3B Plain Milling Machine	1,914.51
1	" " #1H-18" horizontal milling machine .....	1,739.80
1	" " Milwaukee #1224 Simplex milling machine	2,905.50
2	" " used #3B Milwaukee plain milling machines	2,430.00
1	" " used #2B Milwaukee plain milling machines	943.00
4	Barnes 20" single spindle drilling machines .....	3,659.25
1	Carlton 4' heavy duty radial drill .....	3,925.00
1	National automatic all vertical multiple spindle drilling machine .....	703.80



HITACHI (CONT'D)

1	Oliver drill pointer .....	\$ 688.00
1	Used Bullard 84" boring mill .....	2,500.00
1	Ex-Coll-O #1212 double end jr. precision boring machine ..... (dimensions of pistons to be bored listed) .....	3,139.00
1	Barnes #306-H honing machine .....	2,118.50
1	Barnes #172 single spindle honing machine .....	1,582.16
1	LeBlond 26" x 8' heavy duty universal crankshaft pin lathe .....	4,120.00
1	Lodge and Shipley 14" x 5' toolroom lathe .....	1,853.85
1	" " " 16" x 16" engine lathe .....	2,640.63
1	Wickes 34" x 12"-0 heavy duty semi-automatic duplex crankshaft lathe. (KAMEIDO Works) .....	10,652.13
1	American tool 22" x 72" engine lathe .....	2,660.25
1	American tool 20" x 96" engine lathe .....	2,894.07
1	Rebuilt Gisholt 52" vertical boring and turning mill .....	1,850.00
1	Gould and Eberhart universal hobber .....	6,963.97
1	Federal Modell 24 seam welder .....	3,373.65
1	Westinghouse ignitron welding timer (to weld mild steel of 3.2 mm thickness) .....	1,796.12
3	Independent #93 pneumatic hammers .....	130.75
1	Niagara #15A ring and circle shear .....	405.40
1	Chambersburg 3000 lb. model E steam drop hammer .....	
1	" " 1500 " model 5 motor driven board hammer .....	11,520.00
2100	Sheets of Armstrong #210 fine composition corkboard .....	2,666.33
16000	Ft. long fibre asbestos paper .....	507.21
	Steel plates from Bethlehem .....	4,413.59
30	Weston meters .....	658.75
55	Gals. of Schenectady #55 enamel .....	79.00
	Miscellaneous parts .....	1,130.41
		<u>108,962.01</u>

(TR 6028, 6031, 6036, 6049, 6207, 6339, 6352, 6382, 6590, 6636, 7209, 6523, 7227, 7294, 7316, 7345, 7355, 7366, 7367, TO 2113, 2168, 2170, 2208, 3039, 3053, 3129, 3181, 3250, 3370, 3408, 3448, 3449, 3454, 3478, 5216, 5217, 5249, Ok 10345, 10393, 10424, 10647, 10802, 11048, 11059).

114. HOKKAI KAGAKU (HOKKAI CHEMICAL) in 1936 inquired of several companies for a dehydrating plant producing 1000 gallons of 96% purity (MF 2647).
115. HOKKAI SEIKAN (HOKKAI CAN MACHINERY), Otaru, in 1936-38 purchased can manufacturing machines for \$ 15,686.20 (OO 1332, OO 1335, OO 1337, OO 1352, OO 1353, OO 1359, TO 2338, TO 1495, TO 1495, TO 1435).
116. HOKKAI TANKO in 1935 inquired of Ferracute Machine for a plant making armature discs (TE 2230).
117. HOKKAIDO TANKO KISEN (HOKKAIDO COAL MINING STEAMSHIP) in 1936 purchased spare parts for Curtis steam turbine from General Electric for \$ 144.00 (TO 4795).

118. HOKUKO AUTOMOBILE CO. at #63-63 Kamifijushima Naka Chome Konoahaku, Osaka, in 1936 was the sole representative of Van Norman equipment in Japan (ME 2839).
119. HOKUKU KIKAI KOGYO (HOKUKO MACHINE INDUSTRY), Nagoya, in 1936 purchased 1 Brown and Sharpe #10 cutter and tool grinding machine for \$906.30 (At 5898).
120. HOKUHYO COLLIERY in 1936 purchased 1 mine lamp for \$ 9.26 (TR 6296).
121. HOKUSEI SEIKI GOSHI (HOKUSEI MACHINE), Osaka, in 1938 was located at #110 Dojima hamadori 1 chome Kita-ku (At 5560). HOKUSEI purchased in 1935-38:
- |  |        |
|--|--------|
| 12 Norton alundum wheels (At 1446) .....   | 13.76  |
| 12 Gleason finishing tools for 18" straight bevel gear generator (At 5698) ..... | 163.27 |
122. HOKUSHIN DENKI (NORTH CHINA ELECTRIC) in 1935 purchased an attachment for a Kearney and Trecker #2 K universal miller for \$ 307.89, supplied 8/8/34 (TO 2171).
123. HOZYO HAGIRI KOGYO (HOZYO GEAR WORKS), Osaka, in 1939-40 purchased: 50 finishing tools for 18" straight bevel gear generator (At 6377) \$ 575.00
124. IKEGAI IRON WORKS purchased 1 Norton 10" x 48" C plain grinder for 4,965.60 (TO 3049, TO 3209, TO 3389).
125. ISHIBASHI KIKAI KOGU SEISAKUSHO, Tokyo, (ISHIBASHI MACHINE TOOL WORKS) in 1939 purchased 1 Gleason straight bevel gear generator for 8,823.63 (At 6415).
126. ISHIHARA SANGYO KOSHO (ISHIHARA INDUSTRY) in 1936 purchased parts for Marion type 450 electric shovels for \$133.13. Delivered to BATU PULIH, Straits Settlements (TR 6639).
127. ISHII DENKI SEISAKUSHO, (ISHII ELECTRIC WORKS) Tokyo, in 1937 purchased 6 Brown and Sharpe automatic screw machines for \$ 10,905.23 (At 4782, At 4862, At 5251).
128. ISHII SEIMITSU KOGYO, (ISHII PRECISION INDUSTRY) in 1939 purchased 141 Brown and Sharpe micrometer, calipers and miscellaneous small tools for \$ 3,097.80 (At 5982, At 5986).
129. ISHII TEKKOSHO (ISHII IRON WORKS), Tokyo, in 1937 purchased 1200 tons of tank quality Bethlehem steel plates for \$ 66,075.00.
130. ISHIKAWAJIMA HIKOKI (ISHIKAWAJIMA AIRCRAFT) in 1935-36 purchased 3 aircraft generators and grinding equipment for the TACHIKAWA plant for \$ 453.66 (TO 3235, TO 3286, TO 3287, TO 6055).

131. ISHIKAWAJIMA ZOSENSHO (ISHIKAWAJIMA DOCKYARDS) in 1935-36 purchased milling and pneumatic machine parts for \$ 540.61. "ISHIKAWAJIMA ZOSEN K.K. who are manufacturing the great deals of high pressure gas compressors" (TO 2154, TO 3095, TO 3100, TO 3130, TO 3402, 10426).
132. ITO IRON WORKS. A letter written by YAMATAKE in Japan to Imperial Export in 1937 states that ITO makes "Diesel engines for finishing shafts" (At 537).
133. ITO TOKUSHU KIKAI SEISAKUSHO (ITO SPECIAL MACHINE) in 1937 purchased 3 Ex-Cell-O heavy duty quill spindles for \$ 578.20 (TO 3581, TO 3534, TO 2002)
134. JAPANESE ARMY purchased in 1935-36:

1	Pratt and Whitney 13" x 30" lathe (TR 6381)	\$ 3,359.20
1	Carlton #1A radial drill (TR 6579)	2,503.80
1	Barnes #201 drilling and tapping machine (TR 6582)	1,073.02
1	Van Norman #12 milling machine	
1	Van Norman #22 milling machine (TR 3043-KOKURA)	5,265.20
1	Heald #22 rotary surface grinder (TR 6581)	3,180.00
1	Rotor D-O grinder (TR 6597)	76.00
1	Buckeye pencil grinder (TR6597)	63.00
4	Sperry aircraft automatic pilots	16,560.00
	"after inspection in the TOKYO KEIKI factory the sets are to be delivered to the MITSUBISHI AIRCRAFT CO. and the same installed in twin engine planes" (TO 6143).	
5	Sperry aircraft automatic pilots (TO 8013-TACHIKAWA)	24,706.00
	Sperry parts for automatic pilots (TO 6045, 6143, 6994, 8004, 8014).	
	Kollsman instruments (TO 6037, 6052, 6072, 8004, 8015)	3,076.00
	Pioneer instruments (TO 6044, 6071, 69330)	3,806.00
	Air Associates plastaceles (TR 6596-TACHIKAWA)	1,967.00
2	Brush microphones (10290)	50.76
2	Brush head phones (10622, 10713)	11.55
2	Rolls Eastman infra-red film (10363)	90.00
1	General Radio oscillator (106711)	423.00
2	Vilter rotary ammonia compressors (10693)	3,860.00
6	Baker platinum catalysers (10720)	12,111.36

135. JAPANESE NAVY in 1935-36 purchased:

1. KAIGUN KANSEI HONBU (NAVAL CONSTRUCTION BOARD), Tokyo

2	Ingaclad plates (TR 6025)	227.16
45	lbs. of electrodes from various companies (TR 6025)	186.39
1	Weston model 692 test oscillator (TR 7314)	35.75
2	Westinghouse linestarters (TR 7315)	67.76
1	Electric specialty NA-2 dynamotor (TR 7346)	76.75
4	Western Electric vacuum tubes (TO 5251)	46.90
300	lbs. of GE welding electrodes (TO 5256)	27.90

1	Excello fuel pump (TO 9178) .....	\$ 292.20
1	Illinois pyrometer for Diesel engine (TO 9186) .....	45.90
1	RCA diversity system receiver (MF 4421) .....	75.00
5	RCA tuning indicators (MF 4391) .....	6.75

2. YOKOSUKA NAVAL ARSENAL

1	Bryant #24-31 deep hole grinder (TO 3431)	10,314.75
1	Bryant #16 A hydraulic hole and face grinder (TO 3431)	5,550.50
2	Kearney and Trecker #4K vertical milling machines (TO 3479)	13,898.08
1	Curtiss Wright amphibian (TO 6035) .....	29,535.00
	(complete with Wright Whirlwind 365 HP engine, Pioneer electric tachometer, Eclipse direct crank starter, Evans Fuel pump, electric generator with battery and Hamilton controllable pitch propellor)	
	Int. Standard Electric radio equipment for above	666.00
1	Menasco Super Buccaneer 250 HP engine (TR 6815)	3,200.00
2	Young heaters for aircraft engine (TO 6040)	828.00
15	Lord H-5013-2 engine mountings (TO 6080)	270.06
4	Cambridge aero exhaust gas testers (TO 6096)	925.00
	Magnaflux inspection equipment (MF 6069)	2,400.00
2	Pratt and Whitney mixture controls (TR 6434)	1,416.00
12	Wright spark plugs (TO 6030)	72.00
3	Ritex Aero type valve grinders (TR 6626)	28.50
	Oakite Aviation Cleaner (TR 7191)	111.88
130	Eclipse type D generators (TO 6066, 6999)	14,430.00
170	Eclipse type E generators (TO 6066, 6938, 8010)	18,762.50
2	Eclipse supercharger regulators (TO 6210)	300.00
500	Kollsman sensitive altimeters (TO 6001, TO 6940)	72,910.00
3	Kollsman accelerometers (TO 6051)	337.50
2	Kollsman speed and drift sights (TO 6135)	1,200.00
3	Kollsman compasses (TO 6107)	211.00
	Weston meters and transformers (TR 6386)	332.97
1	American instrument spark accelerometer (TR 6041)	1,740.00
2	Sperry Gyro horizons and 2 directional gyros (TO 6115)	1,573.00
1	Sperry vibrometer (TO 6086)	59.00
5	Pioneer Fairbanks vibrometers (TO 6127)	2,575.00
1	Pioneer tachometer (TO 8017)	128.00
5	Pioneer air speed indicators and 5 Pitot tubes (TO 6008)	515.00
1	Eclipse remote indicating flowmeter (TO 8018)	581.00
3	Bowser recording meters (TR 6392)	1,287.00
25	Consolidated Ashcraft Hancock free air strut thermometers (TO 6106)	247.50
4	Weston 602 cylinder temperature indicators (TR 6628)	115.50
6	Radio navigational Simon guides (TR 6587)	12,100.00
	(Japanese patent application was rejected)	
3	Lear L radio direction finders (TO 6034)	4,200.00
3	Rocke dynamic moving coil microphones (TO 5206)	106.65
	J. V. W. radio shielding and tubing (TO 6095)	1,230.00

JAPANESE NAVY (CONT'D)

1	each Western Electric #18 A radio transmitter and receiver (TO 6047)	\$ 908.00
10	gals. Air Associates beryllid Zinc chromatic primer (TO 6049)	57.00
14	grams. U.S. radium luminous compound (TO 6082)	77.20
6	sheets Air Associates plastacele (TR 6367)	54.96
6	Celluloid Corp. lumarith celluloid sheets (TO 6031)	28.28
20	Polarizing Instrument polaroid filters (TR 7175)	199.75
30	Longines-Wittenuer watches (TO 8008)	1,176.00

3. HIRO NAVAL ARSENAL

11	Kearney and Trecker #3K plain vertical milling machine (TO 3074)	5,512.75
1	Kearney and Trecker #2K Milwaukee universal milling machine (TO 3074)	6,048.76
1	Pratt and Whitney 16" x 36" B lathe (TR 6536)	3,803.40
1	Landis C 14" x 36" hydraulic universal grinder	
1	" C 14" x 72" " " " (TR 6558)	7,465.00
1	Blanchard #16 vertical surface grinder (TR 6556)	5,022.00
1	Sellers #2D drill grinding machine (TR 6547)	845.00
1	Fellows #720 gear shaper (TR 6548)	3,563.00
1	Pratt and Whitney 12" B vertical shaper (TR 6538)	4,501.00
1	Quickwork #40 A rotary shear (TR 6555)	4,021.06

4. MAIZURU NAVAL ARSENAL

1	GE WFH arc welder (TO 2244) (A letter from MITSUI, N. Y. to Tokyo, Nov. 21, 1935, states: "Your general Business Section stated in their letter of July 10th that SHIBAURA ENGINEERING WORKS can make such automatic welder but we ascertained from Mr. Saima, engineer of SHIBAURA ENGINEERING WORKS when he was here, that they never built such automatic welder as above. He suggested that we obtain an order from the navy as a sample so that they will be able to manufacture thereafter by themselves. " "We, therefore, would suggest that you inform Mr. SAIMA that we are going to supply the said automatic welder to MAIZURU NAVY YARD, where this equipment will be used to weld boilers.")	12,040.75
30	GE arc welding electrodes (TO 2248)	517.50
1	Olsen Lundgren #4S cradle type balancing machine (TR 6532 B)	5,940.00
1	Airco DB#1 tractograph	283.50

5. SASEBO NAVAL ARSENAL

- |   |   |             |
|---|---|-------------|
| 1 | Olsen Lundgren #4S cradle type balancing machine<br>(TR 6532 A) | \$ 5,940.00 |
| 2 | Baldt stud link anchor chains (TO 9179)                         | 3,600.00    |

6. KURE NAVAL ARSENAL

- |   |  |          |
|---|--|----------|
| 1 | Barnes #249 honing machine and micromatic tools<br>(TR 6498) | 4,866.60 |
|---|--|----------|

7. UNKNOWN DESTINATION

A letter from MITSUI, N.Y. to Mr. H.B. Kraut of Giddings and Lewis Machine Tool Co., Fond du Lac, Wisconsin, which discusses the purchase of Giddings and Lewis machine tools, states: "He (Comdr. OSHIMA) stated all of the horizontal type boring machines they purchase are bought from Japanese manufacturers, but in this case, through the special endeavors of Captain SAKURAI, the Navy base authorized them to purchase one machine from you for demonstration purposes .... we feel by getting one machine over there it will be of great value to us as an aid in securing an order for a large quantity of machines for the various Japanese battleships". The order was not placed (MF 2425).

- |     |  |                   |
|-----|--|-------------------|
| 10  | Sperry aircraft automatic gyro pilots (TO 6070 -- through<br>TOKIO KEIKI SEISAKUSHO) | 39,000.00         |
|     | Western Electric aviation equipment for Consolidated<br>P2Y-1J flying boat (TO 6942) | 2,870.00          |
| 3   | Cuno filters for Diesel engine (TO 9195)   | 283.69            |
|     | Submarine signal multispot apparatus (MF 6836)                                       | 98.00             |
| 1   | RCA receiver and 4 rectifier tubes (MF 4402)   | 230.30            |
| 1   | National one-ten receiver (TO 5261)  | 63.35             |
| 6   | Bunnell transmitting keys (TR 6824)  | 38.70             |
| 1   | Hallicrofters super-skyrider radio receiver (TR 6575)                                | 69.50             |
| 6   | Westinghouse tubes (TR 6550)   | 62.00             |
| 2   | Bunnell break-in relays (TR 6336)  | 48.00             |
| 2   | Mine safety appliance gas masks  | 68.60             |
| 150 | lbs. Magnaflux powder (TO 1291)  | 250.00            |
|     |  | <u>324,799.00</u> |

136. JAPANESE GOVERNMENT

A. DEPARTMENT OF COMMERCE AND INDUSTRY, MACHINE TESTING BUREAU  
(SHOKOSHO, KIKAI SHIKENJO) in 1937 purchased:

- |   |  |          |
|---|--|----------|
| 1 | Shore scleroscope and 1 Brown pyrometer (12/506, 12/353)<br>and in 1940 purchased: | 438.69   |
| 1 | Norton 12" x 36" C universal grinder (TO 3664)                                     | 6,051.36 |
| 1 | Brinton ribber machine (10371)   | 751.50   |

B. DEPARTMENT OF COMMUNICATIONS (TEISINSHO KOHKUKYOKU) purchased in 1938:

1 Lodge and Shipley 12" x 30" toolroom lathe (TR 8320)	\$ 4,244.05
1 Barnes #366-C fine boring and honing machine for honing blind end cylinder of aircraft engine 145 mm. x 180 mm. ....	5,154.70
	<u>9,398.75</u>

C. DEPARTMENT OF FINANCE (OKURASHO ZOHEI KYOKU) inquired in 1938 for a two-high or three-high hot rolling mill and a two-high cold finishing mill. The final thickness of the material to be 8 to 10 mm. and final width to be 215 mm.-- capacity of each mill is to be 3-1/2 tons per 10 hours (NY 2820).

D. RAILWAYS in 1935 contemplated construction of the KWANNON tunnel to connect the islands of HONSHU and KYUSHU at SHIMONOSEKI and MOJI. In anticipation OKURA approached Ruston-Bucyrus in England. The tunnel was to be dug by the Shield system. A tentative list of the required machines is given (MF 7415).

JAPANESE GOVERNMENT RAILWAYS purchased from 1939 to 1941:

1 Morton 38" draw cut shaper for railroad shop -- YOKOHAMA (TR 8863)	8,790.00
2 Gisholt #5 universal turret lathes -- MOJI (TR 9479)	7,954.20
1 Kearney and Trecker face mill grinder -- KOBE (TO 3650)	2,090.00
2 Caterpillar Diesel D-7 tractors (20070, 20078)	10,594.00
1 LaPlant Choate R-71 trailbuilder (20079)	1,237.50
	<u>30,665.70</u>

137. JIDOSHA KOGYO (AUTOMOBILE INDUSTRY), Tsurumi, Yokohama plant purchased in 1935-36:

1 Michigan Tool gear finishing machine and cutting rack .....	10,380.12
3 Gould and Eberhart #1641 H gear hobbing machines	11,410.00
10 Barber Colman gear hobs .....	834.80
5 Gisholt 2" x 10" #4 plain turret lathes .....	15,290.55
2 Lodge and Shipley 12" x 6' toolroom lathes .....	5,006.50
1 American Tool 16" x 8' precision toolroom lathe	3,085.33
1 Barnes #306 H honing machine .....	3,576.48
2 Sundstrand #3A Rigidmils .....	7,641.50
1 Kearney and Trecker 3K milling machine .....	3,710.46
1 " " 2K milling machine .....	2,438.64
1 Ex-Cell-O #215 precision boring machine .....	5,705.74
1 Norton 10" x 36" C plain grinder .....	4,466.07
1 " 10" x 72" C plain grinder .....	5,296.20
1 " 10" x 48" semi-automatic grinder .....	5,185.00
Ex-Cell-O spindles and hobs .....	616.00
	<u>89,713.72</u>

(TR 7203, TR 7318, TR 7323, TR 7355, TR 7368, TO 3249, TO 3336,  
TO 3384, TO 3413, TO 3457, TO 3480, TO 3481, TO 3495, TO 3496).

138. JUSO DRILL KOGU SEISAKUSHO (JUSO DRILL TOOL MANUFACTURING), Osaka, in 1937-38 purchased 17 dozen E. C. Atkins #414 power hack saw blades for \$ 184.42 (At 5018, At 5450, At 5813). In 1939 inquiries were made for 20 Monarch precision toolroom lathes. (14/722, 14/723, 14/724).
139. KACHU TETSUDO KUFUN YUGEN KONSU, Tokyo, in 1940 inquired for 1 Bilgram 16" bevel gear generator (17/595).
140. KAHOKU KOHTSU (NORTH CHINA TRANSPORTATION) in 1940 inquired for 20 to 40 used Pennsylvania locomotives (NY 2636).
141. KAIJIMA TANKO (KAIJIMA COAL MINE) in 1935-36 purchased \$ 18,077.00 worth of mine lamps from the Edison Storage Battery Co. and the Mine Safety Appliance Co. (TR 6050, TR 6430, TR 6578, TR 6662, TR 6687, TR 6756, TR 6771, TR 6888, TR 7269, TR 7295, TR 7335).
142. KAKOKI SEISAKUSHO (CHEMICAL ENGINEERING) purchased in 1935:
- |  |             |
|--|-------------|
| 1 Baker #2 Keyseater and slotter (TR 6449)     | \$ 2,000.00 |
| 1 Carlton 4' heavy duty radial drill (TR 6362) | 3,925.00    |
|  | 5,925.00    |
143. KANADA NOKUZAI (KANADA LUMBER) in 1936 inquired for an open house distillation plant to be used to make special low phosphorus pig iron (MF 6129).
144. KANEGAFUCHI SPINNING in 1935 contemplated installation of a small cotton mill at HYOGO (MF 1365).
145. KANEGAWA DENKI (KANEGAWA ELECTRIC) in 1936 purchased 2 Weston meters for \$ 826.40 (TR 6364, TR 6784).
146. KANSAI AMATEUR AVIATION ASSOCIATION inquired for 1 Taylor Cub airplane in 1937 (22549).
147. KANSAI SEIKO (KANSAI STEEL MFG.), Osaka, in 1940 inquired for 1 276 ton tension testing machine (TR 2723).
148. KANTOSHU-CHO (KWANTUNG GOVERNMENT) in 1935 purchased 400 lbs. of leadite compound for \$49.76 (TR 6080) and in 1938 inquired for 21 Worthington pumps for a waterworks (23106).
149. KARAFUTO-CHO (KARAFUTO GOVERNMENT) in 1935 inquired of Bucyrus-Erie for a 4 cub. yard dipper dredge for 27" water depth to be used in SIKURA harbor. Boiler and hull were to be supplied by Japanese makers. Bucyrus-Erie offered a dredge which had been used in NAGOYA harbor in 1928 (ASANO ZOSEN had built hull). Lobnitz dredge was finally bought from



YONEI AND CO. for ¥ 344,800.00. ASANO had offered a cheaper dredge for ¥ 338,000.00 which was refused. OSAKA IRON WORKS and the YOKOHAMA, HARIMA and ISHIKAWAJIMA Dockyards were also interested. (TE 7082).

KARAFUTO Government in 1936-37 purchased 10 Caterpillar tractors for \$21,533.78.

150. KARATSU TEKKOSHO (KARATSU IRON WORKS) in 1935-36 purchased:

1	Pratt and Whitney odontometer .....	\$ 225.00
2	Lodge and Shipley high-speed lathes .....	6,262.45
1	Barnes #306-C combined fine boring and honing machine	2,800.00
	Micromatic honing tools .....	641.88

These machines were to be used to repair used Chevrolet, Ford and other American engines (TR 6762, TR 6749). KARATSU in 1937 was one of the "16 leading machine tool makers in Japan" and had been licensed to make engine lathes, turret lathes, planers, boring machines, grinding machines and vertical turning mills. (ATAKA General Correspondence). KARATSU in 1937-40 purchased:

57	Norton alundum wheels for thread and centerless grinders	289.31
	(At 4440 - to OSAKA, OO 1852)	
2	Brown and Sharpe micrometer heads (At 4475 - Tokyo)	6.27
5	Skinner taper chucks (At 4805 - to KARATSU)	38.22
21	Atkins saws (At 5190, 5257, 5803 -- HAKATA, KARATSU, TOKYO)	276.94
1	Lodge and Shipley 14" x 30# lathe (TR 7897)	3,272.67
1	Warner and Swazey #2 turret lathe (TO 3453)	3,342.05

151. KASHI FUJI IRON WORKS inquired in 1940 for 1 Gould and Eberhardt gear hobber (TE 3422)

152. KATO KOGYOSHO (KATO INDUSTRIAL WORKS) in 1939 purchased 50 steel balls for a Brinnell hardness tester for \$18.75. The order was sent to Kato Kogyosho, #1 Fukiyoshi-cho, Akasaka-ku, Tokyo (TR 9212).

153. KATO SHARYO SEISAKUSHO (KATO CAR WHEEL MFG.), Osaka, in 1940 purchased 32 Timken roller bearings for 25-ton dump cars for 133.20 (12095).

154. KATSURA SEISAKUSHO (KATSURA WORKS), referred to in 1940 as a camera manufacturer, inquired for lathes, millers and other machine tools (23598).

155. KATYU TETSUDO (NORTH CHINA RAILROAD CO.) in 1940 inquired for 25 Pennsylvania used locomotives (TR 2636).

156. KAWAI GAKKI SEISAKUSHO (KAWAI MUSICAL INSTRUMENT), Hamamatsu, in 1937 purchased Durex abrasive garnet paper for \$45.23 (At 5008).

157. KAWAKAMI TEKKOSHO (KAWAKAMI IRON WORKS) in 1938 was located at 2 chome Chiyomicho, Minato-ku, Osaka. It purchased 4 Brown and Sharpe calipers for \$21.40 in 1938 (At 5550).
158. KAWAMURA GANKYO-TEN (KAWAMURA EYE GLASS STORE), Sakai, in 1937 purchased 500 Bausch and Lomb soft-lite moulded blanks for \$ 131.90 (At 5045).
159. KAWANAMI KOGYO (KAWANAMI INDUSTRY) in 1939 purchased 1 Kearney and Trecker #2K vertical milling machine for \$ 7,063.00 (TO 3202). In 1941 KAWANAMI was building a freighter at the KOYAGAJIMA Dockyard, NAGASAKI, which it wished to exchange for South American scrap. The specifications of the freighter are given (TR 3052).
160. KAWANISHI KIKAI SEISAKUSHO (KAWANISHI MACHINE WORKS) in 1935-36 purchased Norton alundum tubes for \$ 985.60 (TO 3086, TO 3104, TO 3121, TO 3208, TO 3291, TO 3319, TO 3372).
161. KAWASAKI AIRCRAFT in 1936 purchased:
- |  |             |
|--|-------------|
| 1 Norton 6" x 18" hydraulic surface grinding machine | \$ 1,100.75 |
| (TO 3498)  |             |
| 1 ----- milling machine (TO 3907)                    | 2,700.00    |
162. KAWASAKI ZOSENSHO (KAWASAKI DOCKYARD) purchased:
- |  |                  |
|--|------------------|
| 384 Freyn sheath heating elements                              | 2,297.10         |
| 2 Wing centrifugal turbine blowers                             | 657.53           |
| 2 Michigan tool internal gear cutters                          | 70.56            |
| 2 Homestead valves   | 411.60           |
| 2 Freyn automatic temperature controllers                      | 455.00           |
| 1 Pennsylvania air compressor                                  | 11,120.00        |
| 1 Duncan two wire appliance meter                              | 17.00            |
| 2 Kearney and Trecker driving mechanisms for 16" rotary tables | 136.00           |
|  | <u>15,164.78</u> |
- Inquired of Aetna-Standard for a 64" 2-way tinning unit with 7 ton daily capacity and inquired of United Engineering, Mesta and Demag for a 4-high cold rolling mill with yearly production of 16,800 tons. (TR 6054, TR 6120, TR 6278, TR 6299, TR 6435, TR 6470, TR 6520, TR 6744, TR 7199, TO 3221, OE 1120, OE 1129).
163. KAWAZOE TEKKOSHO (KAWAZOE IRON WORKS), Fuse, in 1940 purchased 190 Timken roller bearings to be used on milling machine (12082).
164. KAYABA SEISAKUSHO (KAYABA WORKS), Tokyo, in 1938-41 purchased:
- |  |          |
|--|----------|
| 9550 Norma Hoffman ball bearings (TO 8165, 8286) | 4,695.00 |
| 6620 SKF steel balls (TR 8256)                   | 44.86    |

165. KENSEISHA purchased Goddard and Goddard milling parts for \$ 129.74  
(TO 3196, TO 3231, TO 3327, TO 3351).
166. KENZAISHA in 1937 purchased 8 Goddard and Goddard end mills, 22.18  
(TO 3537)
167. KIAC-AG ELECTRIC CO., Tsingtao, in 1939 purchased 100,000  
meters of General Cable copper wire for ..... 16,776.39
168. KIKUSHI SEISAKUSHO (KIKUSHI WORKS), Tokyo, in 1936 pur-  
chased: 1 Brown and Sharpe #2 surface grinder for ..... 585.95  
(At 4861).
169. KIKUGAWA TEKKO (KIKUGAWA IRON WORKS), Ohminato, in 1936 pur-  
chased:  
5 Atkins band saw blades for ..... 37.96  
4 Landis chasers for Landmatic diehead - destination  
UJIYAMA (At 4660, 4958, 4727).
170. KIMOTO TEKKO (KIMOTO IRON WORKS) in 1939 was situated at #1224  
Kajimacho Nishiyodogawa-ku; Osaka (11954). In 1937-40 it pur-  
chased:  
1000 tons US steel black gas tubes (11301-2) 97,485.00  
1338 Whitman and Barnes taper shank drills (12244) 535.58
171. KIMPODO OPTICAL CO. in 1937 was situated at 47 Nishi-Koen-  
cho, Dairen. It purchased 1 Bausch and Lomb Keratometer for 147.00  
(At 5289).
172. KINJYO SAKUGANKI SEIZO (KINJYO ROCK DRILLING MACHINE MFG.),  
Nagoya, in 1937 purchased 1 rebuilt #70 Heald internal grinder 800.00  
The destination was TOYODA-cho ATASUTA, MINAMI-KU, NAGOYA (11243).
173. KINOSHITA TEKKOSHO (KINOSHITA IRON WORKS) prior to 1941 sold  
weaving machinery and centrifugal pumps to South America  
(Mitsui South American Correspondence). The files indicate two  
establishments for KINOSHITA. ATAKA order 5556 for Brown and Sharpe  
small tools was shipped to SHINKA, KAMI-MURA NAKA, KAWACHI-GUN, OSAKA.  
ATAKA order 6719 and ATAKA inquiry 711 was sent to AKASHI. In 1936  
KINOSHITA purchased:  
1 Norton #2 universal tool and cutter grinder 1,547.85  
(3185)  
In 1938-40 KINOSHITA purchased:  
4 Brown and Sharpe micrometer calipers (At 5556) 21.40  
6 Gleason spiral bevel cutters (At 6719) 411.09  
Timken roller bearings for milling machines (12077) 92.17  
KINOSHITA inquired for Gleason roughing and finishing tools  
for "gears which KINOSHITA IRON WORKS intends to cut on a  
Gleason 15" spiral bevel gear generator now installed in their  
AKASHI plant near Kobe".

174. KIRIN BREWERY purchased repair parts for a bottle filler for \$ 104.50 (10726).
175. KIRYU KIKAI (KIRYU MACHINERY), Kiryu, in 1935-37 purchased:
- 1 Kearney and Trecker #2H universal miller and miscellaneous equipment (TO 1296, TO 2140, TO 3288, TO 3356) ..... 4,483.86
  - 1 Brown and Sharpe #1 vertical milling machine (At 4034) 2,522.13
  - 2 " " #0G automatic screw machines (At 4427, 4429, 5670) ..... 4,499.01
  - 2 Brown and Sharpe #0 wire feed screw machines (At 4836, 7850A) ..... 2,870.60
  - 1 Brown and Sharpe #4 universal grinding machine (At 4913 - to Tokyo) ..... 3,457.50
  - 3 Norton diamond cup wheels for Excell #44 tungsten carbide tool grinder (TO 3009A).
  - 1 Warner and Swasey #2 turret lathe (TO 3997) ..... 2,135.20
176. KISHA SEIZO KAISHA (TRAIN MANUFACTURING CO.) purchased 159 boiler plates from Bethlehem Steel for ..... 25,698.95 (Ok 10376, 10409, 10688, 10914, 10978). Inquiries were made for honing machines for gasoline engine cylinders and locomotive steam cylinders.
177. KITAKARAFUTO KOGYO (NORTH SAGHALIEN MINING) in 1937 purchased 1 Caterpillar tractor and parts for ..... 2,647.28 (11216, 11322).
178. KITAKARAFUTO SEKIYU (NORTH SAGHALIEN OIL) in 1935-36 purchased 13 Caterpillar tractors and spare parts (10494-5, 10545-6-7-8, 10917, 10811, 10895) ..... 21,458.36
179. KITAMURA IRON WORKS in 1935 purchased 1 steel plate for hydraulic ironing press 136-D from Turner Tanning Machinery ..... 99.00 (10695).
180. KITAMURA VALVE in 1936 purchased 4 Hills-McCanna "Saunders Patent" valves for ..... 36.11 (10906).
181. KOA KIKAI KOGYO (KOA MACHINERY INDUSTRIAL), Osaka, in 1940 was given a governmental subsidy to manufacture single spindle full automatic lathes. In 1940 it purchased 1 Gleason 12" straight bevel gear generator for ..... 9,051.85 (At 6527).
182. KOBE DENKI (KOBE ELECTRIC), Osaka, sold electrical appliances to South America before 1941 (Misui South American correspondence).

183. KOBE MISSION WORKS, Kobe, in 1937 purchased a Gleason 12" bevel gear generator \$7,761.60 because of their dissatisfaction "with their present method of cutting gear teeth and were trying to receive Gleason's complete engineering recommendations in order to get larger tooth strength" (At 5801).
184. KOBE MUNICIPAL ELECTRIC BUREAU in 1936 purchased 1 General Electric Synchronous timer for \$ 119.00 (OO 3508).
185. KOBE STOKER CO. purchased parts for Fireman coal burner for \$ 282.60 (10522, 10814).
186. KOHAN KOGYO (KOHAN INDUSTRY) in 1937-40 purchased:
- |     |  |                 |
|-----|--|-----------------|
| 1   | Gray 56" x 14' heavy duty planer (12/356)                        | 4,750.00        |
| 2   | Gallmeyer and Livingston #65 surface grinder (12/358, 13/643)    | 7,066.50        |
| 1   | Monarch 18" x 48" C toolroom lathe (12/368)                      | 3,658.50        |
| 667 | Taper Shank drills and 330 reamers from Chicago-Latrobe (15/804) | 2,435.00        |
| 1   | Tuthill pump (15/830)  | 22.50           |
|     |  | <hr/> 17,942.50 |

Timken roller bearings at a cost of \$426.48 were bought for rifle muzzle grinder, 2-spindle horizontal boring machines and a grinder.

187. KOJIMA IRON WORKS, Osaka, in 1936 purchased 12 Atkins saw blades for \$ 19.05 (At 4670).
188. KOKANDO, Kobe, in 1937 purchased 1 American Tool 14" x 8' lathe for 2,264.86 (TO 3656).
189. KOKUKOSHOH, Mukden, in 1937 purchased 3 10" chucks for AA Monarch lathes (12/456A) for 415.20
190. KOKUSAN DENKI (NATIONAL ELECTRIC), Tokyo, in 1937 purchased 1 Grand Rapids drill grinder for 348.00 (12/494).
191. KOKUSAN KOGYO (NATIONAL INDUSTRY): Letterhead states: KOKUSAN KOGYO KAISHA (formerly Tobatta Foundry) Toa Electric Works, Totsuka, Kanagawa-ken. Tobatta manufactured malleable and steel castings, malleable pipe fittings, link chains, "Tobatta" oil engines and pumps, chilled and sand rolls, mill machinery. Kokusan Kogyo purchased in 1935-36:

- 1 Warner and Swazey #4 universal turret lathe ..... \$ 2,458.28
- 1 Leland and Gifford #3 drilling machine ..... 1,279.25
- 1 Kearney and Trecker #2H universal milling machine 3,250.00
- 1 Ingersoll 24" x 24" x 12" Planer type milling " 3,400.00
- a) Sufficient quantity of Monsanto vanadium catalyst to be used for contact sulphuric acid plant having a daily capacity of 50 metric tons of sulphuric acid.
- b) License for use of Monsanto process for oxidation of SO<sub>2</sub> to SO<sub>3</sub> by means of vanadium catalyst. ("This acid factory is to be installed by new company which will be established jointly with I. G., Germany and KOKUSAN KOGYO K.K. recently place of factory being not decided yet which please note)."

KOKUSAN KOGYO sold to Henry Greenberg, 122 E. 42nd St., N.Y.C.  
 \$15,732.65 worth of Tobatta fittings, TO 2240, TO 3288, TO 3341, TO 3288, TR 6571, 6464, 7319, 7331, 7347.)

192. KOKUSAN SEIKI (NATIONAL PRECISION MACHINERY MANUFACTURING), Shibuya,  
purchased in 1935-36:

2	Rebuilt Cincinnati #3 plain milling machines (TR 6895)	1,912.50
1	" " #2 vertical high power milling machine (TR 7105)	1,400.00
1	Rebuilt Cincinnati #4 vertical high power milling machine (TR 7105)	1,850.00
1	Rebuilt Pratt and Whitney B lathe (TR 6895)	1,950.00
1	Lodge and Shipley 14" x 6' toolroom lathe (TR 7104)	
1	" " " " 20" x 12' engine lathe (TR 7104)	2,229.97
1	" " " " 16" x 8' engine lathe (TR 7104)	2,696.17
1	Warner and Swazey #3A hollow hexagon turret lathe (TR 7105)	1,950.00
2	Landis 6" x 18" plain grinders (TR 6895)	1,395.00
1	Pratt and Whitney 10" x 24" C hydraulic grinder (TR 6898)	3,459.50
1	Pratt and Whitney 12" x 28" universal and tool grinder (TR 6898)	1,739.25
1	Bryant #12A chuck and grinder (TR 7105)	2,025.00
1	Morton 15" x 15" x 96" openside grinder (TR 7105)	3,328.75
1	Landis plain grinder (TR 7117)	3,000.00
1	Gould and Eberhart gear Hobber (TR 6895)	810.00
1	Pratt & Whitney 10" hydraulic gear grinder (TR 6895)	8,515.50
1	Fellows gear shaper (TR 7105)	975.00
1	Gleason 6" straight tooth gear generator (TR 7105)	850.00
1	Gould and Eberhart 32" gear shaper (TR 7100)	2,000.00
1	Brown and Sharpe #00G automatic screw machine (TR 7103)	2,801.10
	Miscellaneous parts (TR 7140, TR 7141)	559.50
		<u>45,447.24</u>

193. KOMATSU SEISAKUSHO (KOMATSU MFG. WORKS) in 1937-40 purchased:

1 Monarch C 14" x 30" toolroom lathe (12/329)	\$ 3,230.10
1 Cincinnati #2 universal milling machine	3,785.00
1 Brown and Sharpe #4 universal grinding machine	2,875.00
1 Pratt and Whitney vertical shaper (TR 9404 - for Imperial Japanese Army)	3,685.60
Browne and Sharpe measuring instruments (At 4326, 6663)	566.21
Timken roller bearings for universal milling machine (12104)	33.92
	14,175.83

194. KOMITSU KOGYO (KOMITSU INDUSTRY), Tokyo. This firm referred to by a Japanese source as "the oldest and largest manufacturer of motion picture projectors in Japan" was located in 1937 at 1 chome, Nishi-Sugamo Toshima-ku, Tokyo (TT-3-36 and At 5463). Mitsui, Tokyo, on May 29, 1936, wrote that KOMITSU KOGYO "is enjoying the highest reputation... We are representing them in foreign countries for these several years. They have been manufacturing 35 mm. silent projectors for about 20 years, 16 mm. silent models for several years, and 35 mm. models for about one year. They are now going to start manufacture of 16 mm. sound projectors and as a sample for their own study they intend to purchase a new model from the Bell Howell Co." (This was purchased in 1936 on order 11264).

From 1935-37 this company purchased:

176 Bausch and Lomb cinephor lenses (At 1059, 1062, 5218, 5463)	2,886.35
200 Bausch and Lomb reflectors (At 1061, 5481)	1,714.61
1 Kearney and Trecker rebuilt #2-1/2B vertical miller (TO 3080, 3161)	1,743.50
20 Veeder-Root counters (TO 1279)	120.00
	6,464.46

195. KONGO JIDOSHA (KONGO AUTOMOBILE), Tokyo, in 1940 purchased 200 Timken roller bearings for use on "Kongo Trailer" for \$30.06 (12107).

196. KONGO KONSU (KONGO MOTOR CAR) North China, in 1940 purchased parts for Diamond trucks for ..... 4,005.38 for Tsintao (TR 9425).

197. KONOSHIMA JINZO HIRYO (KONOSHIMA ARTIFICIAL FERTILIZER). Mitsui, Tokyo, wrote in 1936: "Please be advised that the name of the customer, KONOSHIMA JINZO HIRYO, was changed to KONOSHIMA KAGAKU KOGYO K.K. (KONOSHIMA CHEMICAL INDUSTRIAL CO.), and KANEGAFUCHI COTTON SPINNING CO. built a new concern of the above name." (TO 2256) KONOSHIMA in 1936 purchased Monsanto catalyst to make 50 tons per day of sulphuric acid for \$ 27,125.00. Inquired of Dorr and Monsanto for a small phosphoric acid plant (MF 6091).

198. KOOA WIRE ROPE FACTORY, North China, in 1939 purchased 300 tons of Bethlehem wire rod for ..... \$ 1,874.56 (12120).

199. KOSOKU KIKAN KOGYO (HIGH SPEED ENGINE INDUSTRIAL CO.) in 1935-36 purchased:

1	American Tool 4' sensitive radial drill (TO 3031)	1,428.00
1	Le Blond 26" x 10' universal crankshaft pin lathe (TO 3029)	4,387.50
2	Warner and Swazey #3 universal turret lathes (TO3023)	9,093.72
1	" " #2A universal turret lathe (lathes are for turning the "parts of a small automobile car". - Jap drawings of gears, shafts, etc. to be machined) (TO 3023)	
1	Norton 10" x 48" C cylindrical grinder and 120 alundum tubes (TO 3017)	6,140.90
1	Norton #2 universal tool and cutter grinder (TO 3022)	1,439.51
1	Gleason 12" straight bevel gear generator (TO 3021)	7,500.00
1	Gould and Tberhart #12H universal gear hobber (TO 3024)	2,652.75
	"The makers of the Chta small type motor car".	701.40
		<u>33,343.78</u>

200. KOTOBUKI SEISAKUSHO in 1935 purchased 1 universal winding machine (TR 6511) for ..... 326.34

201. KOWAI SEISAKUSHO (KOWAI WORKS) in 1937 purchased 1 Lodge and Shipley 16" x 10' toolroom lathe (TR 7413) for ..... 2,745.38

202. KOYEI, OSAKA, 14 Fushimimachi 2 chome, in 1936 made an agreement with Dr. Pfeiffenberger of West Hempstead, N. Y. on purchase of drawings for formic acid process for \$5,000.00. Plant was to produce 2 short tons daily of 90% purity (TR 6511).

203. KOYO SEIKO (KOYO PRECISION CO.) in 1939-40 purchased:

1	Heald #72A-3 internal grinder (At 6041)	7,122.06
1	" #81 internal grinder (At 6042)	4,957.67
1	Landis #2 external grinder (11993)	4,800.00
1	Blanchard #16-A automatic grinder (11994)	10,300.00
2	Landis #2 internal hydraulic grinders (11995)	10,350.00
1	Sheffield visual gauge and 1 universal external measuring machine	2,112.10
		<u>39,641.83</u>

The following orders were cancelled:

- 1 Van Norman #120 internal automatic oscillating radius grinder for grinding inner groove in the outer ring of ball bearing with head arranged for double row of ball bearings (TO 3920)



KOYO SEIKO (CONT'D)

- 2 Van Norman #73 internal automatic oscillating grinders for grinding inner groove in the outer ring of ball bearing with head arranged for grinding double row ball bearings (TO 3921).
- 1 Van Norman #39 external automatic oscillating radius grinder for grinding the outer groove on the inner ring of ball bearings with head arranged for grinding double row bearings (TO 3922).
- 1 Van Norman #60 automatic oscillating radius grinder for grinding thrust bearings.
- 125 Grinding wheels for grinding various kinds of high carbon chrome steel ball bearing races.

204. KUBOTA KOGU SEISAKUSHO (KUBOTA TOOL WORKS), Tokyo, in 1940 cancelled an order for 1 Cincinnati grinder (12219),

205. KUBOTA TEKKOSHO (KUBOTA IRON WORKS) in 1935-36 purchased:

1	Gisholt #2L turret lathe	
2	" #1L " lathes	\$ 19,352.03
2	" #4 universal turret lathes (TR 6892)	2,750.00
1	Barnes #306H honing machine (TR 7107)	11,128.16
	Micromatic honing tools (TR 7107)	
1	Hanchett #600 series V.K. travelling wheel grinding machine (15/845)	14,381.88
2	Hanchett Plano surface grinders, straight wheel type (15/853, 15/854)	16,423.75
1	O.S. Walker 30" x 96" magnetic chuck (15/854)	3,100.00
		<u>57,135.82</u>

206. KUNO WOOD WORKS, Nagoya, in 1936 purchased bits for Matcher heads (At 4919) for 100.61

207. KURE SEITO (KURE SUGAR MANUFACTURING) purchased 170,000 lbs. of Norton alundum grain (TO 2128) for 11,200.00

208. KURIMOTO IRON WORKS, Osaka, in 1939 purchased 255 Whitman and Barnes taper shank drills (11976) for 1,110.89

209. KURISAKI HAGURUMA SEIASKUSHO (KURISAKI GEAR WORKS), Tokyo, in 1938-39 purchased:

1	Brown and Sharpe #2 universal grinder (At 6026)	4,253.63
1	" #2 surface grinder and 10" centers for universal milling machine (At 6027)	2,239.75
143	Norton alundum wheels (TO 3181)	<u>6,493.38</u>

210. KURODA KYOHAN SEISAKUSHO in 1940 cancelled 1 Ex-Cell-0 #35 precision thread grinder (TO 3743).

211. KUROGANE SEIKI KOSAKUSHO (KUROGANE MACHINE TOOL WORKS) in 1938 was located at #233 Ohmazoto-cho, Higashimare-ku, Osaka. It purchased 4 Brown and Sharpe calipers for \$19.63 (At 5883).

212. KURASAKI HAGURUMA SEISAKUSHO (KURUSAKI GEAR WORKS), TOKYO in 1939 purchased:

1 Brown and Sharpe #2 universal grinder (At 6026)	4,253.63
1 " " #2 surface grinder	
1 " " 10" centers for universal miller (At 6027)	2,239.75
	<u>6,493.38</u>

213. KUSUDA KINZOKU KOGYOSHO (KUSUDA METAL INDUSTRIES) in 1938 was located at #25 Nishi Nigaiwai-cho Minami-ku, Osaka. It purchased 11 Brown and Sharpe small tools for \$41.11 (At 5834, 5906).

214. KYODO PRINTING purchased:

1 Paasche Portable electric offset unit (TO 2305)	597.50
1 Hauer 5" x 7" Tri-Color one shot camera (TO 2312)	1,000.00
	<u>1,597.50</u>

215. KYOSAN SEISAKUSHO (KYOSAN WORKS), located at #131 2-chome, Heian-cho Turumi-ku, Yokohama, from 1928-41 had very close connections with the Union Switch and Signal Company of Swissvale Pennsylvania whose products Kyosan manufactured under a license agreement. This enabled Kyosan to accumulate a considerable body of knowledge on the developments in railroad signal equipment in the United States.

The 1928 agreement between Kyosan and Union Switch & Signal Company specified that:

1. Kyosan had the license to sell and manufacture in Japan all Union Switch patented equipment. 2. Union Switch & Signal was to send periodically the latest patented (in US) applications to Kyosan for their review, after which Kyosan advised Union Switch which new developments it was worth applying for patent applications in Japan. (The Mitsui files contain a complete list of all the US patent applications sent by Union Switch to Kyosan from 1937 to 1941.) 3. Kyosan was to send Union Switch comprehensive reports of their sales of the latter's patented equipment in Japan. A summary of Kyosan's sales from 1934 to mid-1937 is appended. 4. Any increase in capitalization of Kyosan over 1 million Yen would mean that Kyosan would have to pay Union Switch 20% of any such increase. The files show that in 1934 Kyosan desiring to start manufacturing small automobiles and trucks, obtained additional capital by borrowing money from outside sources, rather than pay Union Switch the sum necessary if capitalization had been effected in the ordinary way. Finally in 1937 Kyosan achieved a genuine capitalization increase from 1 to 1½ million yen by persuading Union Switch to forego their remuneration for such increases. In 1940, Kyosan's capitalization was increased to 3 million yen, 55% of which was earmarked for the manufacture of railway signals. (Details of this capitalization increase are in the files.)

Kyosan Seisakusho in 1937-38 purchased:

1 Madison-Kipp #215 Kipp-Caster with gas fired furnace (the file shows no record of shipment) (TO 3731)	1,356.63
3,890 Union Switch & Signal silver impregnated carbon contact tips (TO 5317, MF 4588)	1,167.00
200 Union Switch & Signal green and yellow colored glasses for searchlight signals (TO 5318)	300.00

Below is the sales record in Yen from 1934 to 1937 which Kyosan Seisakusho sent to Union Switch & Signal company in August 1937:

	2nd half 1934	1st 1935	2nd 1935	1st 1936
Signals	341,170.11	354,414.22	268,479.96	605,275.14
Small autos	73,666.81	97,386.78	123,103.66	150,187.22
Auto parts	5,025.15	15,510.93	339,946.60	85,845.89
Erection works & electric equip.	305,800.17	419,769.97	323,105.33	465,655.93
Total	725,662.24	887,081.90	1,054,635.35	1,306,964.18
	2nd half 1936	1st half 1937		
Signals	404,845.04	416,562.11		
Small autos	155,023.59	207,929.68		
Auto parts	98,759.11	80,871.61		
Erection works & electric equip.	467,718.37	529,918.32		
Total	1,126,346.11	1,235,281.72		

(Mitsui, General Business Section, Tokyo, 1940)

216. KYOSEI KOGYO (KYOSEI KOGYO) in 1937 purchased 36 thermostats and 24 humidity controls for \$528.00 (12/420, 12/310).
217. KYOTO KOSAKU KIKAI (KYOTO MACHINE TOOL), Kyoto in 1940 purchased 160 Timken roller bearings for a universal milling machine for \$60.44 (12204, 12177).
218. KYOTO MUNICIPAL ELECTRIC BUREAU in 1936 purchased Chicago Pneumatic demolition tools for \$399.71 (At 4635).
219. KYOTO SEIMITSU KOSAKUSHO (KYOTO PRECISION WORKS) in 1938 was located at #91 Kobashi Moto, achi, Higashi-ku, Osaka. It purchased Brown and Sharpe measuring instruments for \$20.46 (At 5547).
220. KYOWA RUBBER manufactured black friction tape for the export market. A Mitsui, Osaka letter of 1935 stated that Kyowa's "manufacturing capacity will be nearly 30,000 lbs. (of tape) per month." (Mitsui, Osaka exports section-1935)
221. KYOYEIKISHA, Osaka in 1936 purchased Atkins equipment for a #1 swage for \$23.52 (At 47840).
222. KYUSHU DENKI (KYUSHU ELECTRIC) in 1937 purchased 3 Brown thermometers for \$196.87 (12/366).
223. KYUSHU DENKI KIDO (KYUSHU ELECTRIC RAILWAY) in 1937 purchased 500 General Electric carbon brushes for \$92.34 (TO 5282).

224. KYUSHU HYDROELECTRIC POWER CO. through KYUSHU DENKI KIDO CO. (to be delivered at Kokura Power Station) in 1936 purchased for 25,000 K.W. Steam Power Station under construction:

2. Bailey D25 boiler meters	1,356.00
1. Bailey K35 master steam pressure recorder	923.40
1. Bailey System automatic combustion control equipment	8,408.60

A letter from Mitsui, Tokyo to N.Y. states:

"We have received an enquiry from the above clients for the Bailey System A. C. C. Equipments to be installed on the new steam power station having the particulars as follows:-

2 sets of Mitsubishi V type, unit system pulverized coal fired boilers, each unit with 2 draft fans, 2 induced draft fans, and 3 pulverizing mills and feeders.

Working pressure:- 43 kcs. per sq.c.m. gauge

Temperature:- 455 degrees C.

Evaporation, max. efficiency load:- 120,000 kgs/hour

max. continuous rating:- 144,000 kgs/hour

Diameter of steam pipe:- about 15"

...the new boiler plant is being designed by Mitsubishi Works in consort with the engineers of the clients."

The Bailey control equipment was bought after previous negotiations with Siemens-Halske. Similar equipment was bought in 1934 by the Saka Steam Power Station of the Hiroshima Electric Co. (MF 9177).

225. LU-TOH MINING, Tsingtao, in 1935 purchased 100 Edison electric mine caps for \$580.00 (TR 6540).

226. MAECAWA GEAR WORKS in 1937 purchased 1 Kearney and Trecker 3K vertical milling machine for \$6,565.00 (TO 3972).

227. MANCHURIA TELEGRAPH AND TELEPHONE, HSINKING in 1936 purchased 3 British Powers system hand punches for 90 col. card for £ 118-16-0 (TO 1294).

228. MANSHU KAGAKU KOGYO (MANCHURIAN INDUSTRIAL CO.) in 1935-36 inquired of Monsanto for erection drawings for a contact sulphuric acid plant of 75 metric tons capacity and inquired of several companies for an apparatus for recovering hydrogen gas from methane. (TE 2231, TE 2350).

229. MANSHU KOKU (MANCHURIAN AVIATION), HOTEN in 1935-36 purchased:

5 Kearney and Trecker #2F plain vertical milling machines	10,336.00
4 Kearney and Trecker #2K universal milling machines	15,560.00
15 Kearney and Trecker #2K plain vertical milling machines	59,810.00
1 Kearney and Trecker #3K plain milling machine	4,150.00
" " " milling machine parts	8,845.00
2 Norton 6" x 18" hydraulic surface grinders	2,101.50
1 " 23 x 72" crankshaft grinder	6,799.50
1 " 10 x 72" C cylindrical grinder	3,912.15
1 " 2 FC universal lapping machine	2,856.50
" Parts	63.75
5 American tool 3' x 9" radial drills	11,795.00
2 American tool 4' x 13" " "	6,947.50
1 Warner and Swazey #3 universal turret lathe	2,203.20
1 " " " #1 turret lathe	1,118.16
Goddard and Goddard Mills, saws, cutters	971.52
Spare parts for Wright whirlwind J-6, R-760 engines	728.50
Spare parts for Wright whirlwind J-6, R-760-A engines	118.02
9 sets of Lux fire extinguishing apparatus for single motored airplane	1,008.00
1 Lodge and Shipley 16" x 8' toolroom lathe	2,592.00
1 Gleason 12" straight bevel gear generator	9,120.00
	<u>151,036.30</u>

(TO 2120, TO 2121, TO 2122, TO 2133, TO 2190, TO 6046, TO 6097, TO 6997, TO 8016, TR 6048, TR 6337, TR 7284).

230. MANSHU TAKUSHOKU (MANCHURIAN DEVELOPMENT CO.) in 1936 purchased 4 caterpillar tractors for \$8,240.00 (10797).
231. MANSHU TANKO (MANCHURIAN COAL MINING) in 1940 inquired for 25 type H65B locomotives from the Pennsylvania Railroad (NY 2636).
232. MARUYAMA KOGYO-SHO (MARUYAMA INDUSTRIAL WORKS), OSAKA in 1936 purchased parts for an Iron Fireman automatic coal burner for \$130.85 (10475).
233. MATSUSHITA DENKI (MATSUSHITA ELECTRIC INDUSTRY), OSAKA in 1939 inquired for a Norton 10" x 60" hydraulic surface grinder (TE 3227).
234. MATSUSHITA KINZOKU KOGYO (MATSUSHITA METAL INDUSTRY), OSAKA in 1939 purchased 1 Norton 12" x 36" grinder for \$5,153.75 (TO 3943).
235. MATSUSHITA MUSEN (MATSUSHITA RADIO), OSAKA in 1940 inquired for 2 General Radio ultra-high frequency signal generators (TE 5642).

236. MEIDENSHA (MEI ELECTRIC WORKS) in 1936 purchased 2 RCA V-Cut  
 chrystals for \$24.00 (TO 5203) and in 1940 purchased:
- |  |        |
|--|--------|
| 2 Timken 3B roller bearings for deep well pump   | 200.00 |
| 2 motors (12215)   |        |
| 1 Reinecker (Germany) camshaft grinder   |        |
| 1 Reinecker crankshaft grinder (Orders placed<br>previously for a Norton camshaft and crank-<br>shaft grinder were cancelled--TO 3484, 12250). RM 50,000 |        |
237. MEIJI MINING (to be delivered to Kurosaki Railway Station) in 1936  
 purchased 250 lbs. of General Electric magnet wire for \$162.50  
 (TO 5222).
238. MEIJI SEIKA in 1936 purchased Vilter valves and piston ring for  
 \$93.00 (10496)
239. MEIJI SEITO (MEIJI SUGAR MANUFACTURING CO.) in 1935 purchased:
- |   |        |
|---|--------|
| 1 Thomas Cataphoresis apparatus for Kawasaki Works<br>(TR 6446)                         | 157.20 |
| 1 Bailey Water Flow Meter for Keiko Mill to be<br>delivered to Takao, Formosa (TO 9170) | 200.21 |
|   | 357.41 |
- Meiji Seito "one of the largest sugar mills there" contemplated  
 the installation of a beetroot sugar mill having a capacity of 600  
 tons of 1,000 kgs. Several companies were approached. Folder  
 contains Japanese drawings and specifications of mill. Other  
 inquiries were for Takao. (TE 2225, 2238, 2328).
240. MEISHO DENKI (MEISHO ELECTRIC) in 1935-36 purchased Weston meters  
 for \$859.35 (TR 6433, 6535)
241. MIIKE CHISSO HIRYO (MIIKE NITROGEN FERTILIZER) in 1936 inquired for  
 Monsanto phosphoric acid manufacturing equipment (MF 6091).
242. MITAKA KOKU KOGYO (MITAKA AVIATION INDUSTRY), TOKYO in 1940 cancelled  
 an order for a Cincinnati #3 vertical high speed milling machine  
 (12239).
243. MITAKA NAJINENKI (MITAKA INTERNAL COMBUSTION) was reported to be a  
 sub-contractor for Nakajima Aircraft (11280). In connection with  
 the plant expansion 2 rebuilt Cincinnati vertical milling machines  
 were purchased in 1939 for \$3,200.00 (11269, 11280).
244. MITAKA SEISAKUSHO (MITAKA WORKS) purchased 1 Grand Rapid #25 hand feed  
 surface grinder for \$688.50 in 1937 (12/346).

245. MITSUBISHI AIRCRAFT CO. Mr. Takeda, President of the Mitsubishi Aircraft Co. wrote to Mr. Morgan of Sperry Gyroscope on July 8, 1929:

"... to narrate to you the history of our aircraft company, it was I myself, who, profiting of my stay in London, went to Paris to negotiate with Messrs. Hispano Suiza Company for the acquisition of the manufacturing license of the motors of this firm. This was in the autumn of 1917. The next year, the present company was started, and we sent our engineers and workmen to their works to learn their methods and practices. There were no other works at the time in Japan manufacturing aeroplanes and motors, and in a short period, our business began to prosper and has since witnessed increasing prosperity. With the Hispano-Suiza Company the agreement was renewed and we are on the best of terms. . . ."

Manufacturing Licenses

The Reed-Lavasseur Propellor (based upon MSK file 196)

In 1935 Mitsubishi Jukogyo (Mitsubishi Heavy Industry) (then the Mitsubishi Aircraft Co.) acquired the license rights to manufacture and sell in Japan the Reed-Lavasseur metal propellor. Under this agreement the following list is included in this file of Reed-Lavasseur propellers either manufactured or imported by MJK since 1926:

	Propellers		Royalty Paid
	Made	Imported	
May 18, 1934 to May 16, 1935	48		\$1,440.00
Feb. 22, 1926 to Feb. 22, 1927	0	12	
Feb. 22, 1927 to Aug. 8, 1927	7	5	210.00
Aug. 23, 1927 to Aug. 23, 1928	48	1	1,440.00
1928	34	0	1,020.00
1929	4	0	120.00
1930	2	0	60.00
1931	51	0	1,000.00
1932	62	0	1,500.00
1933	58		1,740.00
1934	53		1,590.00

MJK allowed the Japanese patent on this propellor to lapse on March 10, 1936, the date of its expiration.

This file contains the May 22, 1925 agreement between MJK (then Mitsubishi Nainenki Kaisha) and Mr. Reed concerning the license to make and sell in Japan and Manchuria, the Reed Metal Airscrews (Reed Metal Propellor) for \$7,000.00 in addition to \$30 for each propellor made to fit 450 or less HP and \$50 to fit over 450 HP engines.



The Curtis-Wright P-6 Pursuit Plane

Mitsubishi Aircraft in 1930 purchased from Curtiss Wright the manufacturing license for the Curtiss P-6 Pursuit Plane for \$40,000.00. When in 1934 Mitsubishi Aircraft became part of Mitsubishi Jukogyo (See Report #186 A) these rights were transferred to MJK. Report #186 mentions two MSK orders (5886 and 7119) placed by the Nagoya Kokuki Works of Mitsubishi.

License for the Hornet S2"EG" Engine

An agreement signed on Feb. 8, 1935 gave MJK the manufacturing rights to the United Aircraft Pratt & Whitney series S2EG Engine. Most of the 1935-1936 orders for MJK Nagoya Kokuki were for equipment intended for these Hornet Engines "which Mitsubishi Heavy Industries are just now beginning to produce in series"--Mitsubishi New York to United Aircraft 3/16/36 (TR 6746)

## MITSUBISHI AIRCRAFT

I (The Kokuki Plant at Nagoya) purchased in 1935-36:

## A. Machines

6 Seneca Falls 3" x 8" Lo-swing automatic lathes (TR 7190)	9,163.00
2 Sundstrand 8" semi-automatic stub lathes (Jap drawings of pistons to be machined) (TR 7168)	5,885.00
2 Gleason 3" straight bevel gear generator (TR 7120, 7130)	4,127.50
10 Norton grinding wheels (TO 3913)	536.32
5 Ex-Cell-O carbide tool grinders (TO 3913)	2,651.00
1 Tinius-Olsen balancing machine for balancing crankshafts (TR 7364)	7,000.00

## B. Hornet engines and parts specifically designated for it -

10 United Aircraft S2E-G Hornet Engine, 750 H.P., including 3:2 Propellor reduction gear, Eclipse vacuum pumps, Evans fuel pumps, automatic mixture controls (TR 6124, 6171, 6440)	72,914.99
United Aircraft parts for Hornet (TR 6617, 6651, 6710)	11,614.13
United Aircraft spare parts for Hornet Engine, type T2D1 to be used on airplane type JU60 powered with air cooled Pratt & Whitney Hornet motor D series made by Junkers - Flugzeugwerke of Dessau, Germany (TR 6178)	360.50

8 Eclipse single voltage generators (TR 6387, 6394, 6462A)	
2 Evans fuel pumps (TR 6394)	1,156.40
45 United Aircraft exhaust valves for Hornet engines (TR 6461)	1,603.12
25 United Aircraft ball bearings for Hornet (TR 6462)	150.00
United Aircraft aluminum alloy forgings for Hornet (TR 6455, 6710, 7113)	8,097.81
15 United Aircraft mixture control regulators (for Hornet 32 EG engines) Stromberg carburetors (TR 6760, 6350, 6790, 6859)	6,257.90
1 United Aircraft crankshaft assembly, for Hornet (TR 6710) "Mitsubishi Heavy Industries are just now beginning to produce Hornet engines in series, and naturally any parts which they require are needed urgently. . ." (MSK, N.Y. to United Aircraft 3/16/36)	618.75
80 United Aircraft valve springs	58.57
15 Spring drives for Hornet (TR 6557)	
United Aircraft packing and rubber tubing for Hornet (TR 6563)	59.67
United Aircraft Steel forgings for Hornet (TR 6572)	413.16
1 Solar stainless steel exhaust manifold for Hornet (similar to Sikorsky S-43 installation)	492.00
3 United Aircraft gear blowers for Hornet (TR 7129)	131.25
C. Parts for Curtiss-Wright Cyclone SGR-1820 F3 engine	
1 Curtiss-Wright exhaust manifold for cyclone engine	700.00
2 Bushings for Cyclone (TO 6350, 6404)	7.20
1 Gear pinion for Cyclone (TO 6944)	50.20
1 Lewis cylinder temperature indicator for Cyclone engine (TR 6022)	
3,400 kgs. Curtiss-Wright iron welding wire (TR 6681, 6765, 6862, 7119)	1,192.84
D. Unspecified airplane parts	
1 Menasco "Super Buccaneer" C 65-4 engine (TR 7120)	3,000.00
30 Eclipse hand and electric inertia starters (10675, TR 6410, TR 6394, TR 6496, TR 6640, TR 6766, TR 6841)	10,225.82
2 Bailey booster coils for Eclipse starters (TR 6394A, 6410A)	63.50
1 Air Associates D-2A emergency fuel pump (TR 6709)	48.80

3,000 Dzus fasteners (TR 6700)	541.50
2 Air Associates oil cooling radiators (TR 6679)	62.50
1 Ex-Cell-O #23A hydraulic power unit & motor drive assembly (TR 6674)	795.00
7 Sperry gyro horizons	
7 Sperry directional gyros	
7 Sperry pioneer turn indicators	
7 Sperry pioneer climb indicators (TO 6124)	6,566.00
12 Alcoa aluminum alloy sheets (TR 6169)	101.25
5 U.S. Steel stainless steel sheets for exhaust pipes (TR 6210)	53.92
120 Lord H-5013 engine mountings (TO 8012)	166.17
46 Wilcox sodium cooled exhaust valves (TR 6017)	2,709.00
20 doz. Durkee-Atwood tubes of bearing blue (TR 6105)	19.20
72 Air Associates spark plugs for Wasp Jr. twin engine	
32 Air Associates spark plugs for Model C cyclone ignition cable.	583.80
1 Cambridge exhaust gas tester (TR 7266)	202.30
1 American Instrument internal combustion engine (TR 7134)	1,800.00
5 gals. Parker thread lube (TR 7286)	49.50
55 gals. Stanco isopropyle ether (TR 7307)	25.30
5 lbs. Alcoa thread lubricant (TR 6237)	3.75
10 lbs. Norton alumina (TO 3233, 3456)	3.40
2 Indicating calipers (TR 6273)	15.00

246. MITSUBISHI DENKI (MITSUBISHI ELECTRIC)

In 1935 Mitsubishi Denki made an agreement to purchase its yearly requirements of "Freon 12" or dichlorodifluormethane from Kinetic Chemicals. This was to be used in refrigerating equipment which Mitsubishi Denki "only recently began manufacturing." Mitsubishi Denki's yearly requirements were less than 1,000 lbs. of Freon per year (MSK Freon file).

MITSUBISHI DENKI, purchased in 1935-36

A. Kobe:

1 Kearney and Trecker #2H plain vertical milling machine (TO 2191)	3,400.00
1 Kearney and Trecker #3F heavy universal milling machine (TO 3174, 3298, 3302)	3,955.05
1 Kearney and Trecker #1H 18" manufacturing milling machine (TO 3309)	1,755.25
3 Cincinnati #2M milling machines (TR 6646)	7,021.00
2 Cincinnati #1 M milling machines (TR 6199)	
1 Lodge & Shipley 30" x 12' lathe (TR 7317)	5,433.45
1 Rebuilt Gleason 18" straight bevel gear generator (TR 6266)	750.00

1 Landis 12" x 32" universal tool and cutter grinder (TR 6199)	6,297.00
1 Landis 6" x 18" plain grinder (TR 6609)	
2 Barnes #201- $\frac{1}{4}$ drilling and tapping machines (TR 6680)	1,710.00
12 Jarvis Biax tappers (TR 6638)	363.75
1,870 gals. Sterling varnish (TR 6711)	1,387.56
110 gals. Dupont varnish	92.40
4,000 lbs. Madagascar amber mica splittings (TR 7247)	1,720.00
1 Porter-Cable sanding machine to remove the glaze on bakelite so that paint can be applied to the surface (TR 7173)	99.50
2 Rotameters for lubricating oil (TR 7146)	232.00
50 gals. Westinghouse oil for air conditioning units (TR 7157)	40.00
390 lbs. Kinetic Chemicals "Freon" (TR 6512)	228.65
Chase copper tubing for refrigeration (TR 6748, 6830)	106.79
19,000 kgs. American Brass copper sheets (TR 6740, 6860, 7340) "to be used for making washer having about 1 $\frac{1}{2}$ " dia."	11,877.09
50 lbs. Pittsburgh Tool Steel wire drill rods (TR 6039)	493.00
1,124 ft. Link-Belt chains for escalator	4,084.81
1 Telechron micro-chronometer for motion study (TR 6505)	92.50
2,000 sheets Armstrong tools for gaskets (TR 6696)	305.55
B. Nagasaki	
1 Cincinnati #2 vertical milling machine (TR 6802)	3,800.00
1 Landis 10" x 48" type C plain hydraulic grinder (TR 6801)	6,950.00
1 Norton diamond wheel (TO 3228)	61.65
1 Lodge & Shipley 16" x 10" engine lathe (TR 6644)	2,013.65
1 Newark #3 gear hobber (TR 6632)	5,260.00
Pratt & Whitney knurls, collets, and ratchet drills (TR 6158, 6400, 6406)	93.85
2 Sundstrand balancing tools (TR 6832, 6833)	189.55
1 Sullivan CLE-6 coal cutter machine	3,000.00
18 Veeder Root counters (TR 6157)	97.20
C. Nagoya	
500 Bridgeport Thermostat bellows (TR 7303)	125.00
3,000 lbs. Virginia Smelting liquid sulphur dioxide (TR 7230)	760.00
1 Weldit welding torch (TR 6883-D)	46.00
1,000,000 Tubular rivet and stud coppered brass rivets (TR 6630)	
Parts for Tubular rivet and stud #35-W riveting machine (TR 6024)	27.00

2 Universal coil winding machine and parts (TR 6863, 6415)	1,801.58
1 Ideal Commutator Dresser industrial tank type cleaner (TR 6723)	148.00
1 Keller drill and screw driver (TR 6883-G)	152.00
3 Millers Falls electric screw drivers (TR 6883-A)	98.60
2 Independent Pneumatic Thor U-14- $\frac{1}{4}$ " drills (TR 6650)	58.50
1 Kingsbury double end automatic indexing type tapping machine (TR 6373)	1,255.00
25 Jarvis Biox #1 tapping attachments (TR 6883-C, 6789)	801.25
1 U.S. Electric Tool #1 portable tapper (TR 6883-F)	57.80
2 Ettco sensitive tappers (TR 6883-B)	90.24
50 lbs. Hartford varnishing balls (TR 6130)	22.50
1 Waltham single cutter automatic pinion cutting machine (TR 7106)	2,430.00
1 Black and Decker 4" portable grinder (TR 7264)	51.00
1 Norton 6" x 30" C plain grinder (TO 3030)	2,810.45
1 Blanchard #16 vertical surface grinder (TR 6684)	5,049.00
1 Sundstrand #3A Rigidmie (TR 6848)	2,685.15
1 Ingersoll rebuilt 65" x 40" x 16' planer miller (TR 6238A)	8,000.00
3 Rebuilt Pratt and Whitney 5" automatic milling machines (TR 6103, 6159)	918.25
1 Rosencranz and Weisbecker rebuilt 7' vertical boring and turning mill (TR 6238)	2,750.00
1 Bullard 34" vertical turret lathe (TO 3404)	9,224.30
2 Derbyshire Magnus lathes and parts (TR 6889, 7170)	772.71
1 American Tool 12" x 30" engine lathe (TO 3273)	2,202.37
1 Seneca Falls 4" lathe for armature shafts (TO 2086)	2,678.63

247. MITSUBISHI DOCK  
General

The Siamese Government ordered the construction of 8 warships. Two were under construction at Uraga, two at Kawasaki, and four at Mitsubishi Dock (Tokyo Tokuki - 1937)

Mitsubishi Dock purchased in 1935-36:

A. Nagasaki

The Nippon Yusen Kaisha in accord with its expansion program was to construct seven new boats at the Mitsubishi Nagasaki Dockyard during 1938 and 1940. These seven boats were as follows:

- 3 16,000-ton Asama Maru class
- 4 16,000-ton class, twin-screw (from Tokyo, Tokuki section  
- 1937)

1 Lodge & Shipley 12" x 8' engine lathe (TR 6428)	2,035.00
2 Kearney and Trecker #3 K plain millers (TO 2096)	7,375.45
Cincinnati time recorder tape (TR 6453, 6721)	78.50
Vibrascope balancing equipment (TR 6294)	573.00
180,000 kgs. Acheson 16" x 60" graphite electrodes for electric foundry (TR 6114, 6517, 6712, 6759, 6894, 7192)	47,667.93
Pumps and belts for Pease blue printing machine (TR 6083, 6716)	185.60
20 Chicago Pneumatic Boyer #80 long stroke riveting hammers (TR 6827)	1,282.50
38 Independent Pneumatic drills (TO 2138, 2149, 3096, 3297, 3305, 3328)	2,929.00
4 Meters for turbo-generator (for South Manchuria R.R., Fushun) (TO 9192, 9183)	1,679.08
Parts for Yarway blow-off valves (TR 7156)	32.77
Blades for Ryerson #2 saw (TR 6837)	94.00

## B. Kobe

1 Barnes #306-H production honing machine for honing cylinders and micromatic tools (TR 6279A, B, 6615, 7196, 7204)	3,401.76
1 Lodge and Shipley 27" x 10' lathe (TR 7193)	5,387.30

## C. Yokohama

2 Oliver embossing presses (TR 6754)	408.01
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Mitsui, Tokyo wrote to New York (8/13/37):

"The NYK line have four cargo steamers now under construction at the MJK Yokohama Dock and Harima Dock, but they omitted gyro-compass and Lux Rich in the order to reduce construction cost" (Mitsui, General Corporation, Tokuki Section).

248. MITSUBISHI JUKOGYO (MITSUBISHI HEAVY INDUSTRY), TOKYO

The files do not distinguish between the MJK Tokyo Aircraft factory at Kawasaki or the Tamagawa Works. However, it can be assumed that all orders dated 1935 are for Tamagawa since the Kawasaki aircraft plant was not built until after 1937. One order specifically mentions the Kawasaki plant as the destination.

Expansion of machine shop engaged in the production of gasoline engines for motor cars

MJK Tokyo Works, according to an Osaka letter of November 2, 1936, took over the Mitsubishi Kobe Dockyard plan to extend their "#3 Machine Shop" for the production of gasoline engines for motor cars. Blueprints in MSK New York file 346 indicate the automobile parts to be milled or ground, pistons, shifter forks, shaft and cam shaft, connection rod, bracket, and cage.

1 White model 6A automobile engine (TR 7350)	3,783.18
2 Warner and Swasey #4 universal turret lathes (TO 3386)	4,757.60
1 Lodge and Shipley 12" x 6' toolroom lathe (TR 7249)	3,052.10
3 Kearney and Trecker #3K plain millers (TO 3403, TO 3419)	15,448.02
2 Ingersoll 30' x 30" x 8' rail planer type milling machines (TR 7231) for Kawasaki factory	38,800.00
1 Ex-Cell-O #112B precision boring machine (TO 3473)	4,385.72
1 Ingersoll 30" face cutter grinder (TR 7215)	1,170.00
2 Sellers #2B drill grinders (TR 7221)	1,660.00
1 Norton 10" x 18" semi-automatic grinding machine (TO 3418)	5,075.95
2 Ex-Cell-O AD-1002 grinding spindles (TO 3397)	726.00
1 Oilgear XL-32 horizontal broaching machine (TR 7257)	3,088.80
Roughing and finishing cutters for 12" gleason straight bevel gear (TR 6212, 6307, 6445, 7133, 7211)	509.00
249. <u>MITSUBISHI MINING</u> in 1936 inquired for Bucyrus Erie excavater "to be used for gold dust excavating works in Korea" (TE 7137).	
250. <u>MITSUBISHI PAPER, NAGAKAWA</u> in 1936 purchased spare parts for Pickering governor (TO 9164).	24.35
251. <u>MITSUI KOZAN (MITSUI MINING)</u> in 1935-36 purchased mine safety tubes and bulbs for \$26.46 (TR 6423, 6479).	
252. <u>MITSUTOYO SHOKAI (MITSUTOYO TRADING)</u> was reported to be a small company manufacturing precision instruments. In June 1940, calipers, grinding wheels, hand reamers and combination drills amounting to \$937.04 were sent to Japan (TR 9477).	
253. <u>MIYA SEIKO (MIYA STEEL), TOKYO</u> in 1939 inquired for forging presses (MF 2151, 23327).	
254. <u>MIYATA SEISAKUSHO (MIYATA MFG. WORKS)</u> , Kamata manufactured bicycles and was reported to have started making aircraft parts in 1937. Bullard files state that Miyata was planning to go into the manufacture of aircraft parts and "would become a good prospect for Bullard machines." In 1936-39 it purchased:	
1 Norton #2C vertical lapping machine (TO 3369)	1,996.65
2 Ex-Cell-O #1212 boring machines for pistons, crankcase, connecting rod and cylinder (TO 3482)	5,369.73
2 Brown and Sharpe #13 universal and tool grinders (At 4789)	4,582.80

- |  |           |
|--|-----------|
| 3 Brown and Sharpe #3B milling machines<br>(At 6315)   | 15,855.45 |
| 36 Ex-Cell-O spindles  | 5,026.24  |
| 255. <u>MIYE RAILWAY CO. (formerly YOKKAICHI RLY. CO.)</u> in 1936 purchased<br>3 G.E. motor ball bearings for \$52.56. (OO 3501)  |           |
| 256. <u>MORIYA SEIKOSHO (MORIYA STEEL WORKS)</u> in 1936 purchased 1 Chatillon<br>spring balance for \$55.00.  |           |
| 257. <u>MOTORBOAT COMPANY</u> in 1938 purchased 10 Kermath marine engines with<br>water pumps and propellers for \$13,827.50. Five engines were<br>destined for Manchukuo and five for Dairen (TR 8584, TR 8105).  |           |
| 258. <u>MUKAJIMA ZOSENSHO (MUKAJIMA DOCKYARD)</u> , Onomichi in 1939-40 purchased:   |           |
| 120 Cleveland Twist Drill taper shank drills (11837)   | 302.94    |
| 1,104 Whitman and Barnes taper and shank drills<br>(11975, 12312)  | 1,162.20  |
|  | 1,465.14  |
| 259. <u>MURAYAMA KOYO KYOTO (MURAYAMA FACTORY)</u> in 1939 cancelled an order<br>for B & S calipers (At 6718).   |           |
| 260. <u>MUSUJIMA KOSAKUSHO (MUSAKOSHO MACHINE SHOP)</u> in 1937 purchased 170<br>Armco corrugated sheets for \$525.30 (11154).   |           |
| 261. <u>NAGATA SEIKI</u> in 1939 purchased 2 Cincinnati #2 plain milling machines<br>for \$6,730.00 (11895).   |           |
| 262. <u>NAGOYA AERIAL TECHNICAL SCHOOL</u> in 1939 purchased 6 Brown and Sharpe<br>micrometer calipers for \$34.68 (At 6375).  |           |
| 263. <u>NAGOYA RASHI SEISAKUSHO (NAGOYA SCREW WORKS)</u> , NAGOYA in 1940<br>purchased Brown and Sharpe gages, micrometer calipers, and dial test<br>indicators for \$511.58 (At 6614).  |           |
| 264. <u>NAGOYA SHIYAKUSHO (NAGOYA MUNICIPALITY)</u> in 1940 purchased 1 Gleason<br>12" straight bevel gear generator for \$8,424.00 (At 6517).   |           |
| 265. <u>NAGOYA SHOWA SODA</u> in 1935 purchased 1 HC-3 Nash Hytor Chlorine<br>compressor for \$508.91. Order went to Tsurumi plant (10344).  |           |
| 266. <u>NAIGAI KEIKI SEISAKUSHO (NAIGAI INSTRUMENT WORKS)</u> in 1938 purchased<br>8 Brown and Sharpe micrometer calipers for \$46.84. It is located at<br>14 Honishiba 3-chome, Shiba-ku, Tokyo (At 5783, 5841).  |           |
| 267. <u>NAIGAI KOGYO (NAIGAI INDUSTRY)</u> , TOKYO in 1936 purchased from the<br>Chicago Pneumatic Tool Co. 2 #930 Simplate discharge valves for use<br>on class P2-DBE vertical power driven water cooled duplex air<br>compressor for \$41.87 (At 4710). |           |



268. NAIGAI WATA (NAIGAI COTTON) in 1939 purchased:

1 American Tool 14" x 6'30" pacemaker engine lathe (TO 3294)	3,169.53
1 American Tool 24" x 12' pave maker engine lathe (TO 3286)	7,108.92
1 American Tool 4' x 9" radial drill (TO 3288)	3,802.50
1 Norton 14" x 18" C universal grinder (Destination was Shanghai but because agency contract did not include China the machine was shipped to Kobe for trans- shipment-TO 3282).	6,789.95
1 Gould and Eberhardt #36H universal gear hobber (TO 3283)	6,435.00
15 Barber Colman gear hobs (TO 3283)	1,723.90
	29,029.80

269. NAIMUSHO NIIGATA TOHOKU SHUCHOSHO (NIIGATA BRANCH FOR THE NORTH-  
EASTERN DISTRICT) purchased 2 Caterpillar tractor D-8800 engines  
for \$3,296.00 in 1937 (11444).

270. NAKAJIMA HIKOKI (NAKAJIMA AIRCRAFT) purchased chiefly parts for the  
Douglas DC-2 airplane equipped with Wright Cyclone Engines. In one  
order (TO 6985), it is referred to as the Nakajima DC-2. Folder  
MF 6972 contains the text of a cancelled manufacturing license for  
a military adaptation of the Douglas DC-2 Transport with Wright  
Engine. In February 13, 1935 Mitsui, N.Y. wrote to V. E. Bertrandias,  
Douglas Aircraft Co., Santa Monica, Cal.: "In connection with the  
Douglas DC-2, we have received information from Tokyo to the effect  
that the Japan Air Transport Co. will adapt three or four sets of  
this machine for their new airline between Formosa and Fukuoka.  
This aircraft will be constructed by the Nakajima Aircraft Co. under  
their license." The machine tools were, for the most part, to be  
delivered to Tokyo, the electric furnaces to Ogikubo, and the air-  
plane equipment was to be delivered to Ota.

NAKAJIMA HIKOKI (NAKAJIMA AIRCRAFT) purchased in 1935-36:

I. Machine Tools and Machinery:

1 Warner and Swasey #3 universal turret lathe (TO 3058, 3184)	2,073.43
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Mitsui Bussan Kaisha was anxious to sell Warner and Swasey  
turret lathes to Nakajima and sent this one as a demonstration  
piece to machine an aluminum piston, Mitsui, Tokyo wrote to  
the New York office (8-2-35):

"In order to improve their workshop practice, Nakajima  
have purchased a few latest model machine tools recently.  
As you are well aware, Nakajima have more than 100 Cincinnati

millers in their factory but none of Milwaukee. However, we could persuade Mr. Nakajima to let them try our model K as we will supply them one of No. 2K Vertical under our Stock Order No. 3012."

"Regarding the turret lathe, please be advised that they have nearly 100 Alfred Herbert make in their factory which are giving satisfactory results and that their all tooling diagrams are based on A. H. machine as their engine is originated from English Bristol Jupiter."

2 Warner and Swasey #2 turret lathes (TO 3914)	8,757.80
2 " " " #2 1/2 universal turret lathes	7,847.94
1 Rotary table to be used with 2K Kearney and Trecker milling machine (TO 3042)	352.75
2 Michigan tool gear lapping machines	8,300.00
2 Gisholt universal tool grinders (TR 7258)	1,321.20
2 Bryant #24-21" deep hole grinders (Jap drawings of cylinder) (TO 3169, TO 3426, TO 3300)	20,164.75
24 Grinding wheels for Maag-SS-1 grinder (TO 3268)	44.10
3 Hayes electric furnaces (TO 2297, TO 2249) (to be delivered to Ogikubo)	7,755.75
1 Schatz climax tube bending machine (TO 2192)	1,560.85
1 Parker pipe bender for light alloy pipe (TO 2116)	318.00
<b>Airplane Equipment:</b>	
1 Pratt and Whitney S1E-G Hornet Engine (TR 6620)	6,780.00
125 Wright Radial ball bearings (TO 6005, 6014, 6024, 6056, 6060)	1,081.95
190 Blood Radial ball bearings (TO 6075, 6087, 6100, 6229)	1,457.30
Douglas ball bearings (TO 6029)	786.83
3,755 Norma Hoffman ball bearings (TO 6061, 6098, 6216, 6226, 6227)	2,323.85
15 Drums of Dow metal flux for melting magnesium (TO 6004, 6028)	1,115.38
330 Douglas extruded shapes (TO 6018, 6993, 6025)	823.30
140 Molded instrument pulleys (TO 6091, 6099, 6061)	1,500.50
7 Pitot static tubes for DC-2 (TO 6062, 6222)	372.40
Bendix wheel and brake accessories (TO 6028, 6943)	135.65
2 Landing gear retracting struts for DC-2 (TO 6215)	275.62
6 Hydraulic systems and parts for flap wing and retracting gear of DC-2 (TO 6073, 6053, 6927, 6033)	5,013.77
86 Arrens rods and controls for DC-2 (TO 6920, 6930, 6945)	614.52
Douglas cement, Seapack, and Plastikon (TO 6113, 6220, 6221)	1,888.50
Materials to build Douglas DC-2 airplanes (TO 6931)	68,455.05
6,300 sq. ft. of Akoustikos felt for DC-2 (TO 6122)	1,209.60
Douglas high pressure tubings (TO 6026)	24.75
20 Lord rubber bushings (TO 6934)	74.00

3 Douglas condensers for cabin heating boiler of DC-2 (TO 6022)	152.70
Castings and forgings for DC-2 (TO 6925)	2,838.36
Spare parts for DC-2 (TO 6214)	1,189.56
Douglas pumps and generators for Nakajima DC-2 (TO 6985)	339.84
5 Douglas booster coils for DC-2 (TO 6057)	173.10
2 Douglas flap pumps, 1 Bendix booster pump, and 40 Lord engine mountings (TO 6928)	368.98
8 Eclipse generators (TO 6985, 6093, 6935)	2,066.70
4 Eclipse hydraulic pressure pumps (TO 8002)	1,766.16
14 Eclipse Type E-160 direct cranking starters (TO 6093, 8003, 8005) to be used on DC-2's equipped with Wright Cyclone SGR-1820 F2 engine	5,740.66
1 Cylinder for Wright SGR-1820-FJ3 cyclone engine (TO 6065)	129.60
Spare parts for Wright GR-1820-FJ3 cyclone engine (TO 6228)	464.37
Parts for Wright "F" cyclone engine (TO 6949)	49.89
Spare parts for Wright "Whirlwind" J-6 R-975-E1 engine (TO 6217)	171.54
150 Wright rubber bushings (TO 6006)	280.00
Samples of forged light alloy materials for Wright cyclone engines (TO 6017)	187.75
10 drums Wright sand addition agent, magnesium #12 (TO 6039)	146.28
Hargi burrs for cleaning fins of Wright cyclone engine (TO 6128)	407.00
4 Goodrich airplane tires (TO 6991)	46.00
3 Goodyear type 13.25 streamline tires and oleos for tail wheel of Northrup long range airplane (TO 6946)	246.50
Oleo struts for Northrup airplane (TO 6929)	700.00
Northrup field instruments (TO 6019)	120.00
Parker couplings (TO 6032)	158.85
Parker Sealube, Valvelube and Threadlube (TO 6223, 6922)	375.18
Pioneer accelerometers and other instruments (TO 6114, 6118)	540.75
2 Kollsman Sensitice altimeters, 2 ice warning indicators and other instruments (TO 6990, 6119, 6110)	680.96
1 Campbell engine driven flap alternating pump (TO 6992)	224.00
8 United aircraft 8" oil temperature regulators (TO 6009)	480.00
Self-Vulc liquid rubber and lacquer (TO 6064)	174.44
2 Black and Decker aircraft vibro-centric kits (TO 6213)	234.00
1 Steel products segretator for aircraft fuel (TO 2235)	475.00

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|---|--------|
| Lockheed oil for hydraulic brake system of DC-2     | 51.30  |
| Libby, Owens, Ford triple safety scatterproof glass | 187.50 |
| Air reduction spark lighters and flint (TO 6074)    | 43.20  |
| Turco and Wyandote cleaners (TO 6984, 6218)         | 51.03  |
271. NAKAJIMA KOGYO (NAKAJIMA INDUSTRY) was reported to be manufacturing zinc ingots. In 1938 they inquired of the Canadian Trade Commission Nometal Mining Corp. for 2,000 tons of zinc concentrate (22872).
272. NAKANISHI BEARING SEISAKUSHO (NAKANISHI BEARING WORKS) inquired for internal grinders in 1939 (At 502, 503, 504).
273. NAKANO KOGYO (NAKANO INDUSTRIAL CO.) KARIHA in 1935-36 purchased 1,000 bushings for link-belt SS #214 detachable chain for \$132.54 (TO 7755, 7769).
274. NAMBA IRON WORKS in 1936 purchased 1 Lodge and Shipley 18" x 8' selective head engine lathe for \$1993.52 (TR 6735).
275. NAMIKI SEISAKUSHO (PILOT FOUNTAIN MFG. CO.) purchased in 1935:
- 1 Brown and Sharpe #00G automatic screw machine
  - 1 Brown and Sharpe #0G automatic screw machine (TR 6300) 4,405.00
276. NAMIMATSU GEAR WORKS, OSAKA cancelled an order for 7 B & S gear hobs in 1940. (At 6686)
277. NANKAI TETSUDO (SOUTH SEA RAILROAD) in 1938 purchased 1,500 I.G.E. grade B-2 carbon brushes for 40 H.P. electric car motors for \$291.06 (TO 3552, TO 3555).
278. NANYO KOHATSU (SOUTH SEA DEVELOPMENT CO.) in 1935-36 purchased 1 King plowing harrow for \$331.22 and made inquiries for an ore classifier which would separate the laterite from phosphate rock-- required capacity 100 tons of phosphorous ore per day (10817, 22016).
279. NANYO RINGYO (SOUTH SEAS FOREST INDUSTRY) inquired for a Williamette Hyster RD Fairlead cruiser in 1937 (22665).
280. NICHI-MAN MAGNESIUM (JAPAN-MANCHURIA MAGNESIUM) at Okinoyama, Ube City, Yamaguchi Prefecture in 1935 inquired for a liquid chlorine plant (TE 2293).
281. NICHIMAN TEKKO (JAPAN-MANCHURIA IRON WORKS) inquired of Luigi Serra for 2,470 tons of alloy steel sheet bars (23856) in 1940.
282. NICHIRO GYOGYO (JAPAN RUSSIA FISHING INDUSTRIAL CO.) in 1935 purchased parts for a Vilter ammonia compressor and a Vilter low pressure gauge for \$86.77 (10374, 10384).

283. NIIGATA TEKKOSHO (NIIGATA IRON WORKS) purchased in 1937-39:

3 Shore C-2 scleroscopes (12/495, 14/685, 14/776)	
4 Shore diamond hammers (12/495, 13/265)	
5 Shore rubber tubes (12/495)	
1 Shore standard universal hardness indicators (14/777)	
20 ft. Baker platinum wire (14/710)	
30 ft. Baker rhodium wire (14/710)	
	Total \$ 1,064.73

284. NIIGATA RYUSAN, (NIIGATA SULPHURIC ACID CO.), NIIGATA purchased in 1936 sufficient quantity of Monsanto vanadium catalyst to be used for contact sulphuric acid plant with daily capacity of 50 metric tons of 100 percent sulphuric acid. License for use of Monsanto process for oxidation of SO<sub>2</sub> to SO<sub>3</sub> by means of vanadium catalyst for daily capacity of 50 metric tons of 100 percent sulphuric acid. (TO 2236) 27,000.00

285. NIIGATA TEKKOSHO (NIIGATA IRON WORKS), NIIGATA in 1935-36 purchased from the Independent Pneumatic Tool Co.:

7 electric tappers	319.20
19 pneumatic drills	1,457.00
32 chipping hammers	990.00
15 riveting hammers	580.00
6 grinders	221.00
2 scaling hammers	54.00
1 sand rammer	48.00
parts	29.81
	3,699.01

(TO 2182, 3067, 3076, 3206, 3219, 3245, 3304, 3333, 3357, 3445, 3455)

286. NIINO TEKKOSHO (NIINO IRON WORKS), OSAKA in 1938 purchased 4 Brown and Sharpe micrometer calipers for \$21.40. The company is located at 6 chome, Hirano, Motomachi, Sumiyoshi-ku, Osaka (At 5551).

287. NIITAKA SUGAR MILL in 1935 contemplated the construction of an alcohol refining plant.

"... the national fuel problem is nowadays very eagerly discussed in Japan among the sugar industrial circles etc. and it is expected that they may eventually decide to built some absolute alcohol plants in Japan and we think that Mr. Tanemoto's present trip is rather closely connected with the above plan." Mr. Tanemoto was the representative of the Japanese Sugar Industrialists Association (Nihon Togyo Rengokai) as well as the above company). (21825)

288. NIPPON AEN (JAPAN LINC) purchased in 1935:

1 Dings 18" magnetic pulley (TO 7756)	361.00
(to be delivered to Ohnokuchi Station, Echizen Dentetsu. The original inquiry was from the	

Mitsui Mining Co. Seisen, Korea. Nippon Aen  
is probably a subsidiary of Mitsui Mining.)

15 drums General Naval Stores Pine Oil (TO 7765)	456.00
	<u>817.00</u>

289. NIPPON AENTO (JAPAN ZINC PLATING), OSHOMURA, MUKOGUN, HYOGO  
PREFECTURE in 1935 inquired for 2 Wing Centrifugal blowers for gas  
producer (OE 1014).

290. NIPPON AIR BRAKE purchased in 1934-36:

1 Warner and Swazey #3A universal turret lathe (TO 3335)	5,899.52
4 Warner and Swazey #1 turret lathes (TO 3335)	4,635.20
2 Warner and Swazey #4 universal turret lathes (TO 2087)	2,950.56
1 Avey #2 hand feed belted machine (TR 7180)	1,793.50
2 Osborn #720 jolt squeeze stripper moulding machines (4852)	1,385.50
	<u>16,664.28</u>

291. NIPPON ALUMINUM, OSAKA purchased in 1935:

1 Gorton No. 8-1/2 feed duplicator (TR 6864)	3,207.60
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Nippon Aluminum and some other unnamed companies intended to produce aluminum to utilize excess hydro-power. Their annual coke requirements were 16,000 tons. After negotiating with Koppers and other companies Nippon Aluminum informed them that it intended using Miike pitch coke as analysis showed that this coke was better suited to their purposes than any American or European coke. However, Mitsui, Tokyo wrote to New York: "the Nippon Aluminum Co. are now likely contemplating to import raw materials of paste (?) from Europe for first one year or so, while examining the Miike coke in several furnaces on site." As for the annual coke requirements of Nippon Aluminum, Mitsui, Tokyo wrote to their New York office: "Your cablegram states that according to the information received by you from our London office, Nihon Aluminum K.K. are in the market for 16,000 tons of coke annually, but we are told by them that their annual demand for coke will be about 7,500 tons, of which about 5,000 tons will be used for anode electrodes and about 2,500 tons for cathode electrodes, there being no need of coke for any other purpose." (MF 2484).

"The above company (will be established in a very near future and we are one of the large shareholders. They are contemplating to make alumina from Bauxite by "Bayer" process and its capacity is 12,000 tons per year and then these alumina into 6,000 tons aluminum. . . We understand that there will be required autoclave, sintering classifier, Rotary Kiln, Hydraulic Carbon press for the

above plant." Tokio to New York. Inquiries made at Devine Mfg. Co. (21858)

- Inquired for a gas burner to be delivered to Takao, Taiwan.
- 292. NIPPON BROWN KEIKI (JAPAN BROWN INSTRUMENT), TOKYO was reported to be the Japanese licensee for the Brown Instrument Co. of Philadelphia. It was agreed that all correspondence would be handled directly between Nippon Brown and the Brown Instrument Co. (IE 705). The Company was located at 48-3 Nishi Rokugo, Kamataksu, Tokyo (14 #746).

"T. Yamagouchi, President of Nippon Brown Keiki and of Yamatake, submitted a report for the former, covering the period from formation on April 5, 1939 to September 30, 1939, which showed its assets to be as follows:

Machines, tools and fixtures	¥	21,829.27
Parts Imported	¥	68,560.88
Home made parts	¥	604,931.18
Accounts of Credit Sales	¥	528,796.46
Misc. Investments and Cash Accounts	¥	9,927.13
	¥	<u>1,234,044.92</u>

Also listed were the following rented from Yamatake:

Factory and Buildings *	¥	41,912.54
Machine Installation	¥	38,066.57
Land	¥	39,996.52
Owed to Tamatake	¥	1,121,356.23 (There is no explanation for this item)

\* These are believed to be some small, poorly constructed, paper shacks used as living quarters for employees."

In 1939-40 this company purchased from Brown:

50 Integrators (14/745)	95.28
1 reel of typewriter ribbons for pyrometer recorder (14/746)	15.16
40 lbs. each of 1/8" bare iron wire and constantin (?) wire (14/778)	150.00
20 helix assemblies for press and flow recorders (15/790)	<u>185.00</u>
	445.44

293. NIPPON CHIKUONKI (NIPPON PHONE) same as NIPPONOPHONE.

294. NIPPON CHISSO HIRYO, (JAPAN NITROGENEOUS FERTILIZER) purchased in 1935:

Hills, McCanna rubber lined valves (TR 6836)	237.90
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Nippon Chisso bought 10 Cummins Diesel engines to be used for trucks in Korea (MF 6949).

- 295. NIPPON CHUKO (JAPAN STEEL CASTING) in 1936 purchased 1 120" Pfauter design gear hobbing machine for \$5,478.00 from Rosencranz and Weisbecker (TR 6465).
- 296. NIPPON DENCHI (JAPAN ELECTRIC BATTERY) in 1936 purchased 1 Electric Storage battery and Weston meters for \$1,027.80 (TR 7174, 7217).
- 297. NIPPON DENKI (JAPAN ELECTRIC INDUSTRY) purchased in 1935-38:

Callite Molybdenum and Thoriated Tungsten wire  
(10277, 10477, 10721) . . . . . 273.74

" . . our client have been purchasing the same from Molybdenum Co., Holland, through Toyo Union Trade Co., Tokyo and they have been consuming a considerable quantity of Molybdenum sheet, wire, rods, and Tungsten wire for wireless valves. ."

9 Cenco vacuum pumps (10423, 10806)	360.00
1 Nash HC-4 Hytor chlorine compressor (11668)	760.16
1 Eisler spot welder (10723)	52.25
	1,446.15

Nippon Denki enquired of Bliss for 2 aluminum foil making plants with capacities of 250 Kgs. and 500 Kgs. per day. "This plant must be suitable to manufacture plain, embossed and printed foils to your standard 500 to 600 mm.

" . . . we beg to inform you that our above clients are now considering to install the following aluminum working plants in the near future;

1. Aluminum foil mill
2. " sheet mill
3. " tube mill
4. " wire mill
5. " duralumin mill
6. " die casting." (21706)

- 298. NIPPON DENRYOKU (NIPPON ELECTRIC POWER) purchased 1933-36:

24 liters of Special Oil for Bailey multipointer gauges for Tokyo and Amagasaki power stations (003513) . . . . . 22.30

" . . company has in mind to extend their Amagasaki power station with two sets of 12500 K.W. Turbo Generators . . . . they have in mind to install one 35,000 K.W. Turbo Generator in their Tokyo power station (MF 15456).



Baldwin-Southwark, I. P. Morris Division quoted on three turbines and valves for Kurobegawa #2 Kanetsuri Power Station.

"I. P. Morris Turbines installed in our customers" Komaki Plant are now recognized as far superior to any other makers' turbines" (3250).

299. NIPPON DENSEN (JAPAN ELECTRIC WIRE) purchased in 1936:

1,100 lbs. Pressboard (TO 5254) 194.15

300. NIPPON DIESEL KOGYO (JAPAN DIESEL INDUSTRY) was reported to be manufacturing Junkers Diesel engines (IE 535). It purchased 1 Dumori #5A lathe grinder for \$227.65 (12/423) in 1939.

301. NIPPON ELEVATOR SEIZO (JAPAN ELEVATOR MFG.) inquired for 1 Oster Rapiduction bolt threader in 1937 (22813).

302. NIPPON ENKAN (JAPAN LEAD TUBE) sent inquiries to several companies for a lead sheet rolling mill in 1935:

Capacity: 10 to 15 tons per day of 10 hours

Size of lead sheets to be produced: Thickness - 1 to 15 mm.

Width - 3 meters

Length -15 meters

An inquiry was sent to August Schmitz, Duesseldorf for a rolling mill having - diameter of roll 230mm, face of roll 600 mm - suitable for reducing thickness of aluminum from 0.01 mm. to 0.006 mm.

"...the customers are now using the Schmitz rolling mill for aluminum foil having the roll dia. of 230 mm. and roll face of 550 mm. The new machine is intended to be used for extension of the works." (OE 1038)

303. NIPPON FELT (JAPAN FELT), OJI, TOKYO purchased in 1936:

1 American Monorail equipment (TO 1303) 1,348.55

1 Universal #90 winding machine and U.S. bobbins and spindles (TO 1315) 885.00

304. NIPPON GAISHI (JAPAN INSULATOR), NAGOYA was referred to in 1935 by Mitsui as "the biggest manufacturer of insulators and acid proof porcelain ware in Japan" exporting their products to America and other foreign markets (Mitsui, 1935 from Nagoya).

305. NIPPON GENERAL MOTORS, OSAKA (JAPAN GENERAL MOTORS) in 1936 planned purchases from Ind. Pneumatic Tool Co. (MF 2881).

306. NIPPON GOLD DREDGE KOGYO-SHO (JAPAN GOLD DREDGE INDUSTRIAL WORKS)  
 was recently established by two engineers from the Asano Ship-  
 building Yard and from the Dredger, Dipper Department of the Osaka  
 Iron Works. They had a plant in Haneda in 1935 (MF 7399).
307. NIPPON GOSEI KAGAKU KOGYO (JAPAN SYNTHETIC CHEMICAL INDUSTRY), OSAKA.  
 A letterhead says the factory is in Ogaki City, Gifuken. In 1937  
 Nippon Gosei was interested in the Petrequin formic acid process.  
 An agreement for its purchase was drawn up with Pfeiffenberger but  
 was broken. Nippon Gosei also inquired for an acetic acid and  
 acetone plant for acetate rayon industry from Badger. (MF 3148)
308. NIPPON HATSUDOKI (JAPAN ENGINE), KOBE in 1937-39 purchased:
- |  |          |
|--|----------|
| 1 Barnes #2420 twin cylinder hydraulic honing machine<br>for honing 15" - 20" Diesel and semi-Diesel<br>engine cylinders (TR 7512) | 4,960.00 |
| Micromatic honing tools and drivers (TR 7763)  | 3,134.62 |
| 1 Leland Gifford #3-24 swing motor drill<br>spindle (TO 3623)  | 1,606.50 |
|  | 9,701.12 |
309. NIPPON HIKAKU (JAPAN LEATHER), SENJU-MIDORICHO, ADACHIKU, TOKYO  
 purchased in 1935-36:
- |   |          |
|---|----------|
| 1 Turner 72" Model 3M Flex-Blade beaming<br>machine (11067)       | 3,037.50 |
| 1 Embossing plate for Turner press (10691)                        | 129.08   |
| 500 Shaving blades for Turner #1 shaving machine<br>(10358)       | 121.50   |
| Whitney Model 3M fleshing machine parts<br>(10419)                | 616.45   |
| 24 Hamblet and Hayes glazing glasses (11013)                      | 41.00    |
| 100 Seidel calfskins (10735)                                      | 105.60   |
| 3 bbl. Chaffardon Kid fat liquor (10672)                          | 102.93   |
| 3 bbl. Rohm and Haas Oropon "A" (10673)                           | 84.60    |
| 1 lb. sample "Veneno" hide poison (10534)                         |          |
| 12 bbl. Borne Scrymser Diamond A Compound for<br>sponging (10353) | 443.87   |
| 24 Quirin leather press felts (10357, 10820, 10366)               | 476.10   |
|   | 5,158.63 |
310. NIPPON HIKOKI (JAPAN AIRCRAFT), YOKOHAMA - This company was reported  
 to be making planes for the Navy and was said to be located in  
 Yokohama, Isogo-ku, Tomitoka Muchi, Showa-cho.

An Okura letter (6-25-37) from Tokio to New York (D-VI-10) states:

"Nippon Hikoki was authorized only to repair the military planes  
 at the time of its inauguration in 1934, but now they are enter-  
 prising to march into advanced manufacturing industry with their

increasing capital and the manufacture of Fairchild Amphibian is the biggest of their outstanding plans."

During 1937, Nippon Hikoki was interested in obtaining:

"A-Manufacturing rights for Fairchild Amphibian Transport Model "91" including

- 2 complete sets of working drawings
- 2 complete sets of stress analysis
- 1 complete set of drawings or photographs of all jig fixtures and tools used in the fabrication and assembly of the aircraft
- 1 complete set of specifications of all material used in the fabrication of the parts together with a detailed explanation of the processing of every part as applied to machine and assembly operation. Also, to include complete specifications of the material used in every part and where purchased in the United States
- 1 set of performance calculations

B-Fairchild Amphibian Transport Model "91" 98,600.00

C-Complete set of constructional (assembling) materials finished or semi-finished for one set of above Amphibian excepting the power plant 42,600.00

D-Complete set of power plant to be installable on the Amphibian assembled by the material of item (3) consisting of Wright Cyclone Engine and Hamilton Constant speed propeller." (D-VI-10) 11,900.00

On July 30, 1930 Okura Tokio wrote to New York:

"Apart from the above matter (negotiations about price) we were required by the clients to collect the informations about the prospect of this Amphibian model "91" for the military purposes. We have ever received from you the general view drawing, of "Kreider Reissner" provided with arms for the Turkey Army, which we also gave to the clients for their reference. Over-looking its drawing, the clients gave us following two questions:

- (1) Can it defend to every direction with its machine guns when it is attacked by enemy bombs?
- (2) How can you release the bombs stored in the fuselage through its float?

Kindly investigate the matter with paying your attention so as not to stimulate the feeling of Fairchild authorities and report us as soon as quickly as possible." (D-VI-10).

311. NIPPON HONETSUKI KOGYO KUMIAI (JAPAN RADIATOR MAKERS ASSOCIATION) in 1935 inquired about the purchase of gaskets from Johns-Manville. "Our clients are now buying 300,000 pieces of gaskets per year to distribute to all radiator makers." (21827)
312. NIPPON HOSO KYOKAI (JAPAN BROADCASTING ASSOCIATION) in 1935 purchased 2 Weston meters for \$122.00 (TR 6739).
313. NIPPON JIDOSHA (JAPAN AUTOMOBILE) in 1935-37 purchased 1 Caterpillar tractor (to Otaru, Hokkaido) for \$1,390.90 and 196 Hudson automobiles for \$197,431.99 through Okura.
314. NIPPON JINKEN PULP (JAPAN RAYON PULP) in 1935 inquired for spare parts for chlorine equipment from Wallace and Tiernan (TE 2277) and a Zarembo evaporator for sulphate black liquor which was purchased from the Tanaka Iron Works, Osaka for ¥93,000.00 (TE 2217).
315. NIPPON KAGAKU KIKAI SESAKUSHO (JAPAN CHEMICAL MACHINERY MFG. WORKS), OSAKA in 1937 inquired machinery for rayon factory (OE 1151-2-3).
316. NIPPON KAIHEIKI (JAPAN ZIPPER) "It is said that in Japan there are only two makers who are making zippers by machines. One of them is said to be Nippon Kaiheiki Works located at Onomachi near Hiroshima, the other is Messers Mitsuboshi and Co., Inc. At present Mitsuboshi are making fasteners by machines each having a capacity of 60,000 inches per machine, their monthly maximum production is about 600,000 inches. Center of Domestic Zipper Industry is Osaka." (Tokio to N.Y. 9-3-35). Capacity of Nippon Kaiheiki -- 10 hour working day - 120,000 inches per month maximum cap. 240,000 inches per month (Mitsui Tokio Export Section)
317. NIPPON KAKO (JAPAN FIREWORKS) "is interested in forging rolls for the manufacture of propellor blades." (Ajax Mfg. File-1938)
318. NIPPON KARI KOGYO (JAPAN POTASH INDUSTRY) in 1935-36 purchased Monsanto vanadium catalyst and license for a 50 metric ton contact sulphuric acid plant for \$27,125.00 (TO 2175) and a 100 metric ton plant for \$39,000.00. In two letters from Tokio to N.Y. it is stated that "the clients intend to install two factories having a capacity of each 50 metric tons plant, one at Yokohama and one at Shiogama near Sendai. ." they intend to install the 50 ton plant close to the existing Monsanto Acid factory, Yokohama" Osame Ryusan Kogyo, which had developed a contact process sulphuric acid process of its own, quoted against Monsanto. Monsanto suspected an infringement of their patent rights. (TO 2295)
319. NIPPON KENMA (JAPAN GRINDING) in 1935 purchased 177,400 lbs. of Norton Alundum Grain for \$11,863.00 (TO 2160, 2161).
320. NIPPON KENMAKI KOSAKUSHO, (JAPAN GRINDSTONE ENGINEERING WORKS), AMAGASAKI in 1941 purchased 13 micrometers and 5 gages from Brown and Sharpe for \$324.72 (At 6812).

321. NIPPON KENTETSU (JAPAN IRON CONSTRUCTION) in 1939 inquired for Pratt and Whitney Kellar type machines (NY 927).

322. NIPPON KIKAKI SEISAKUSHO (JAPAN CARBURETOR MFG.), TOKYO purchased 1 Goldmeyer and Livingston #45 surface grinder for \$3,188.35 in 1940 (15/786).

323. NIPPON KOCAKU KOGYO (JAPAN OPTICAL INDUSTRY) purchased in 1935-36:

G.E. Electric furnace parts (TO 5269)	8,250.00
Attachment for Kearney and Trecker #1 Model K Miller (TO 2114)	293.25
Finishing tools for Gleason 3" straight bevel gear generator (TR 6436)	8.50
1,450 cans Wellsworth Emery (TR 6310, 6781)	3,096.00
30 Wellensack shutters (TR 6627)	115.00

324. NIPPON KOGYO (JAPAN MINING INDUSTRY) in 1935-36 purchased 1 3' Symons Standard cone crusher to crush copper ore from Nordberg and made inquiries for flotation machines (TO 7789, TE 7141, TE 7153)

Hitachi Mine:

1 Nordberg Symons 3' Standard cone crusher to crush copper ore for \$5,646.00 and made inquiries for flotation machines (TO 7789, TE 7141, TE 7153)

Kinkaseki Mine, Formosa

Inquiry was made for cone crushers (TE 7129)

Nippon Kogyo carried on negotiations for power shovels with Bucyrus and Ruston-Bucyrus and Blake Jaw Crushers to be used for the Yampi Mining Development, Koolen Island, Kimberley District, Western Australia. An Anglo-Japanese Mining Co. was planned to exploit these mines. (TE 7149, TE 7152)

Inquiries were made at Simplex for a Pedersen system glass making plant to consist of a laboratory plant (cap. 5 tons), and three commercial plants with capacities of 30, 50, and 100 metric tons.

"They are intending to make regular window glass at first and in the proceeding steps aiming to make ground glass, polished glass and laminated glass." "The above plant should be designed so as to use the natural gas. . in Formosa." (TE 2349)

325. NIPPON KOKAN (JAPAN STEEL TUBE) KAWASAKI purchased in 1935-36:

Exclusive license for the Fretz-Moon process for manufacturing butt welded pipe (MF 2486)	50,000.00
26 Mackintosh-Hemphill Pilger rolls (10430)	15,450.00
7 Midvale Mandrels for Pilger rolling mill (TR 6425)	1,335.25
24 Foamite fire extinguishers (10640)	132.00
	<u>66,917.25</u>

An inquiry was placed with Blaw-Knox Damper for 30 ton Open Hearth furnace "to replace existing damper equipment for their open hearth furnaces" (22113).

326. NIPPON KOKI purchased in 1936:
- |   |               |
|---|---------------|
| 100 lbs. Norton Alundum grain (TO 3214)                 | 23.80         |
| 20 cans American Optical Lens Polishing grain (TO 3316) | 55.00         |
| 1 Weston Luxmeter (TR 6777)                             | 22.00         |
|   | <u>100.80</u> |
327. NIPPON KOKU YUSO (JAPAN AIR TRANSPORT) purchased in 1935-36:
- |  |                  |
|--|------------------|
| 2 Wright cyclone SGR-1820 F2 engines                               | 13,860.00        |
| Spare parts for SGR-1820-F2 Wright cyclone engines                 | 16,236.93        |
| 10 Eclipse generators for Whirlwind R*-170 engines                 | 1,127.95         |
| Spare parts for J-6 240 HP Wright Whirlwind engines                | 1,464.62         |
| Spare parts for Wright Whirlwind J-6 engine                        | 9,335.07         |
| North American rubber rings for Fokker Super Universal airplane    | 1,162.00         |
| Spare parts and instruments for Douglas DC-2 airplanes (to Haneda) | 5,218.78         |
| 3 Bendix RH 12" brakes for 36 x 6 plain bearing wheels             | 77.14            |
|  | <u>43,263.71</u> |
- (TO 6995, TO 6996, TO 6998, TO 6012, TO 6052-B, TO 6058, TO 6068, TO 6081, TO 6090, TO 6094, TO 6101, TO 6104, TO 6116, TO 6126, TO 6131, TO 6211, TO 6212, TO 6225)
328. NIPPON KUKI KIKAI (JAPAN PNEUMATIC TOOL) purchased in 1936:
- |   |               |
|---|---------------|
| 1 Ex-Cell-O Grinding spindle (TO 3398)                            | 236.30        |
| 1 Independent pneumatic rivetter and 2 chipping hammers (TO 3434) | 169.00        |
|   | <u>405.31</u> |
330. NIPPON MOHJI (JAPAN FUR) in 1935 purchased 3 reliable electric fur glazers for \$29.50 (TR 6344).
331. NIPPON MOKKO KIKAI (JAPAN WOODWORKING MACHINERY) in 1936 purchased 30 Simonds Planer knives for \$52.34 (TO 3243, 3444).
332. NIPPON MUSEN DENSHIN DENWA (JAPAN WIRELESS, TELEGRAPH AND TELEPHONE)  
Equipment for Manufacturing and Assembling Transmitting and Other Metal Tubes

In October, 1938, Ligeru Nakazima, a N.M.D.D. engineer, visited the

Eisler Engineering Company at 740 South 13th Street, Newark, New Jersey and selected for N.M.D.D. equipment, suitable for the manufacture and the assembling of approximately 1,000 metal tubes in an eight hour day. (Okura Enquiry #23065) The machines as selected by Nakazima were:

1 #11 Standard floor type glass cutting machine. (This machine is required for cutting three different diameters of glass tubing used in making the new type button stems.)	250.00
1 #96EM three piece all electric lead wire welding machine (for making the 3 piece lead wires used in making the button stems)	2,500.00
1 #111-L light type wire cutting machine. Machine is provided with an adjustment to permit cutting lengths from 1/6" to 3 1/2" (for cutting short lengths of wire that are used for supports in assembling the internal parts of the radio tubes	550.00
1 #111-V hook making machine (used in making hooks where certain types of tubes require support for filaments on heaters)	650.00
10 #2312-MS automatic indexing button stem making machines and exhaust tube pierces - machine (makes the new type button stem using three piece lead wires and three pieces of glass tubing)	3,000.00
1 #89 NU filament and cathode spraying machine	950.00
1 #58-36 MT 36 position automatic exhaust machine especially fitted for exhausting and tipping-off metal radio tubes	3,750.00
2 #64-M3 single stage metal mercury aspirator pumps (to supply the final high vacuum for evacuating the metal tubes)	1,000.00
1 #65-LK preliminary high vacuum pump. This pump will have a capacity of 50 cubic feet of free air per minute	750.00
1 #600-JM 200 K.V.A. air operated press type automatic spot welder (will weld the metal tube shell to the stem holding ring and the base holding ring in one operation)	5,500.00
1 #210-V foot operated vertical type spot welder machine (for welding small metal ferrules to the top of the metal tube shell. This is required on radio tubes having top seals and caps.)	550.00
4 #93 1 K.V.A. Bench type foot operated spot welder	600.00
1 #97-2 automatic grid winding machine	1,500.00
1 #119-EC gap type bombarder	1,850.00
1 #99-SM automatic metal tube marking machine (for marking the manufacturer's name and tube type and number on the side of the metal shell)	750.00
	<u>24,100.00</u>

"If it is desired as with your last order, we can arrange for the training of your engineer at our plant. All of the equipment quoted above will be set up ready for operation. The engineer will receive training in the operation of each individual machine and all such necessary information required for maintenance, setting-up, and so forth. The period of training will be approximately four weeks. It is not to exceed six weeks. Cost for this service 3,000.00

"For the price quoted above, we will also furnish parts for 500 plain metal radio tubes and 500 tap cap type metal radio tubes."

Equipment Suitable for the Manufacture of Transmitting tubes and Such Other Equipment as Selected by Engineer Ligeru Nakazima

1 #103-XB horizontal type butt sealing lathe	1,800.00
T sealing and piercing arrangement	175.00
Stem making arrangement to make stem up to and including 6" tube size	250.00
1 #97-2 automatic grid winding machine including necessary forms and so forth, for any one type of metal radio tube	1,500.00
1 #95-L 2 K.V.A. capacity bench type butt welding machine suitable for butt welding iron or steel wires, up to and including 1 m/m diameter	325.00
1 #95-H bench type manual operated butt welder of 3 K.V.A. capacity	395.00
1 #85-HT electric furnace, 15 centimeter inside diameter x 24" long and including high temperature metal tube with water cooling chamber and arranged for hydrogen de-gasifying	650.00
Special cathode spraying machine	500.00
1 #205-H 5 K.V.A. capacity vertical type air operated spot welder especially arranged for welding transmitting tube grids	685.00
	<u>6,280.00</u>
	Total
Engineer training etc.	\$1,000.00

Materials Used in Manufacture of Telephonic Wireless or Radio Equipment

Up to 1940, N.M.D.D. had probably been importing its iron wire from Germany for the manufacture of what they call - ballast tubes, as is stated in a cable sent from Okura, Tokio to New York March 19, 1940:

"With further reference to the above subject we beg to inform you that the iron wire in question has hitherto been imported from Germany, under the name of 'Omnet' (trade mark) manufactured by Deutsche Gluehfaden Fabrik. Its purity is 99.8% and the impurity consists of the following elements:-



Carbon	0.017%
Manganese	0.09 %
Silicon	0.02 %
Phosphorous	0.05 %
Sulphur	0.04 %
Copper	0.01 % "

An enquiry (Okura 23453) was placed in the latter part of 1939 with the Sigmund Cohn Company, 17 Battery Place, New York, New York for iron wire of the same type that N.M.D.D. had been importing from Germany.

An Okura order (12268) for 33,400 meters of British Imperial Standard Wire Gauge nickel wire was shipped in 1940 to N.M.D.D. by the Wilbur B. Drive Company, Riverside Avenue, Newark, New Jersey. In answer to the information required by the Canadian Government of the Wilbur B. Drive Co. before they would ship any of the raw nickel to Drive, a letter was sent from Okura to Drive on March 16, 1940:

"For purposes of information for the Canadian Government, we submit the following:

Client: N.M.D.D., Tokio, Japan -

The nickel wire will be used in manufacturing of telephonic, wireless or radio equipment. The N.M.D.D. is a subsidiary of Okura and Company. We hope that this information will be sufficient to enable you to obtain permission from the Canadian Government for export."

NIPPON MUSEN DENSHIN DENWA in 1936-40 purchased:

246 kgs. Reynolds International aluminum foil for electrolytic condensers of various thicknesses (11065, 11233)	327.37
16,500 meters of Eisler Callite thoriated tungsten filaments of various dimensions (11563)	1,761.96
1,800 kgs. of Callite nickel sheet of various dimension (12267)	
5,000 meters of nickel drawn pipe for manufacturing wireless cathode tubes (12267)	
120 kgs. of alundum powder (12267)	5,707.31
33,400 meters of Drives I.S.W.G. #22 nickel wire	335.54
	<u>8,172.18</u>

Inquiries were made at Fleischman, Burd & Co. for 200 kgs. of zirconium powder for manufacturing wireless tubes for the Japanese Army and Navy having the following specifications:

Zirconium 97%  
 Hydrogen 2%  
 Impurities 1% (23567)

400 kgs. of molybdenum sheets for vacuum tubes 0.1 mm. thick x  
 120 mm. wide x 500 mm. long (23569, 23897)

333. NIPPON NAIVENKI (JAPAN INTERNAL COMBUSTION ENGINE) purchased in 1936:

Micromatic honing tools for automobile cylinder (90 mm. x 190 mm., 88 mm. x 188 mm., 87½ mm. x 182 mm., 78 mm. x 170 mm., 70 mm. x 168 mm. bores) (TR 6787)	1,289.00
1 Kearney and Trecker Model H dividing head (TO 3302)	719.95
1 Micromatic No. 306-H honing machine (TR 6773)	2,520.00
	4,528.95

334. NIPPON NETSU SHORI KOGYO (JAPAN HEAT TREATMENT INDUSTRY) in 1937  
 purchased:

1 Potter and Johnson #2N horizontal milling machine (12/223)	2,623.50
4 Union twist drill hack saw cutters (12/302)	948.33
	3,571.83

A letter from Yamatake, Tokyo to Imperial Export, N.Y. (2-13-32)  
 states: "this plant is a new factory starting the manufacture of  
 hack saw blades."

335. NIPPON NICKEL (JAPAN NICKEL) in 1937 inquired for a Mesta continuous  
 cold strip mill (NY 798).

336. NIPPONPHONE, KAWASAKI in 1935-39 purchased Weston meters and Shore  
 sclerescope equipment for \$470.60 (TR 6140, 7391, 12/308).

337. NIPPON PIPE SEIZO (JAPAN PIPE MFG.), NAGOYA in 1936-37 purchased  
 Sterling conduit varnish for \$5,883.55 (TO 5194, 5250, 5257, 5256,  
 5278, 5320).

338. NIPPON PISTON RING, KAWAGUCHI purchased in 1939-40:

2 Ex-Cell-O #1212 precision boring machines for boring pistons (drawings in file--TO 3166, TO 3794)	11,527.96
1 Ex-Cell-O #44 carbide tool grinder and diamond wheels (TO 3663)	1,520.09
	13,048.05

An inquiry for Osborn mouding machines for the manufacture of piston  
 rings having an external diameter of approximately 170 mm. states  
 that the required annual production was 1,000,000 rings annually  
 (NY 994).

339. NIPPON PLATE GLASS in 1936 purchased Wickwire Spencer Wire Nettings for \$882.00 (10732). Inquiries were made for glass making machines for new plant (21814, 22017). "Nippon Sheet Glass in Osaka has bought the right on Colburn machine in Japan." (TE 2310)

340. NIPPON RIKA KOGYO (JAPAN CHEMICAL AND PHYSICAL INDUSTRY), TOKYO in 1939-40 cancelled orders for a milling machine, a jig borer, and some microscopic equipment (14/739, 15/820, 15/821, 15/822).

341. NIPPON SANZO (JAPAN OXYGEN) in 1936 inquired for oxygen containers (MF 2689).

342. NIPPON SATETSU (JAPAN IRON SAND) purchased in 1939:

2 Stearns type M.W. 36" belt magnetic separators (OO 1508)	5,682.00
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Plant is for separating magnetite from silica sand at seaside, using salt water in the separators. Capacity desired: 2,000 metric tons per 10 hour day. Ore used: Ratio of 5 to 1 to 10 to 1 silica sand and magnetic average, 6 to 1. Samples submitted to Dings produced concentrated magnetic ore in the following amounts: 42%, 26%, 16% and 19%.

10 Dings K. Crockett 36" submerged belt magnetic separators (OO 1508)	42,792.00
---	-----------

12 W.S. Tyler type 38 3' x 5' Hammer electric screens with 72 stainless steel screws to be used with salt water (OO 1509)	16,352.60
---	-----------

1 Sauerman scraper machine--4 cu. yd. tower for digging seashore sand containing iron sand - excavation to be made along seashore, 20 ft. deep and 400 ft. wide by 50 miles long. Part of one to be taken from below sea level. Desired hourly capacity 240 cu. yds. (OO 1515)	56,280.00
	121,106.60

In 1937 an inquiry was made for a United bar mill with capacity of 120,000 - 150,000 tons per year (TE 2522).

343. NIPPON SEIFUN (JAPAN MILLING) in 1935 inquired for chlorine gas control apparatus for 500 barrel flour mill. (TE 2282)

344. NIPPON SEIKA (JAPAN SHOE MFG.) in 1935-36 purchased \$5,496.65 worth of shoe machinery from the United Shoe Machinery Corp. (10337, 10359, 10391, 10413, 10714, 10821).

345. NIPPON SEIKOSHO (JAPAN STEEL WORKS) purchased in 1935-36:

2 Van Norman #12 Universal milling machines	
2 " " #22 " " "	10,945.00
2 Kearney and Trecker #2F plain vertical milling machines	8,173.50
1 Kearney and Trecker #3F plain vertical milling machine	7,279.65
1 Kearney and Trecker #4F plain vertical milling machine (to Muroran)	
3 Kearney and Trecker #1H18 milling machines	6,757.00
1 Giddings and Lewis #330-T horizontal boring and drilling machine (to Hiroshima)	8,137.50
1 American tool 4' 9" radial drill (to Muroran)	2,187.50
1 Norton #1 tool and cutter grinder	678.50
Parts	882.29
(TR 7203, TO 2178, TO 3092, TO 3114, TO 3190, TO 3303, TO 3239, TO 3310, TO 3375, TO 3900).	

The following orders cannot be assigned to either Nippon Seikoshō (Japan Steel Works) or Nippon Seiko (Japan Precision Machinery) with any degree of certainty. For a discussion of the confusion existing between these two companies see the introduction to these reports (Dept. of Justice Reports #261 and #263).

3 6" x 18" Norton Hydraulic surface grinders	2,696.76
1 Norton tool and cutter grinder	623.50
Norton Dust and filtering systems	1,130.92
2 Ex-Cell-O grinding spindles	258.80
	<u>4,709.98</u>
(TO 3026, TO 3352, TO 3409).	

346. NIPPON SEIREN (JAPAN REFINERY) in 1936 purchased sufficient Monsanto Vanadium Catalyst for the production of 50 metric tons of sulphuric acid per day of 24 hours for \$27,125.00 (TO 2260).

347. NIPPON SEIRO (JAPAN FINE SCREW), TOKYO in 1937 purchased a Proportioners Tret-O-Control oil flow meter and a Dummy acid pump for \$618.75 (12/263).

348. NIPPON SEITETSU (JAPAN IRON MANUFACTURING CO.), YAWATA WORKS purchased in 1935-36:

1 Jeffrey 30" x 68" conveyor screen	738.00
2 Mackintosh Hemphill 760 x 1170 mm. Adamite rolls for hot rolling	1,995.00
2 U.E. and F. 1118 x 3684 mm. chilled rolls for hot rolling	9,406.00

KAMASHA WORKS purchased:

2 Bailey P 6 F Six Pointer draft gauges for steam power station	384.75
---	--------

Inquired for Monsanto Vanadium Catalyst to produce 14 metric tons of sulphuric acid per day.

WANISHI WORKS inquired for Monsanto Vanadium Catalyst to produce 20 metric tons of sulphuric acid per day.

KENJIHO WORKS, KOREA purchased:

8 Freyn pressure burners	16,850.00
(TR 6271, TR 6472, TR 6885, TO 9176, TE 2384, TE 2346, TR 6882)	<u>29,850.00</u>

349. NIPPON SENRYO SEIZO (JAPAN DYE MFG.) in 1936, Osaka purchased:

500 lbs. Norton Alundum grain (TO 3285)	420.00
17 lbs. Norton refractory material (TO 3179)	22.61
	<u>442.61</u>

350. NIPPON SHARYO SEIZO (JAPAN ROLLING STOCK MFG.), TOKYO in 1935-36 purchased:

1 Newton rebuilt 60" vertical heavy duty miller (TR 6290) from Independent Pneumatic (TO 3446, 3020, 2126, 2151, 3451, 2183, 3415)	3,775.00
11 UKS Electric drills	504.00
2 Chipping hammers	64.00
2 UKG Electric drills	
2 UBG " " (to Tohoku Honsen, Warabi-eki)	196.00
Parts	119.00
	<u>4,658.00</u>

351. NIPPON SHOKURYO (JAPAN PROVISIONS) in 1935 purchased 2 Vilter 6" plate valves for horizontal rolling mill type refrigeration machine (10686) for \$37.50.

352. NIPPON SPINDLE SEIZOSHO (JAPAN SPINDLE MFG.) in 1936 purchased 6. Calorized pressed steel plates for \$180.00.

353. NIPPON STEEL AND SASH in 1939 inquired for 29 Brown and Sharpe micrometers.

354. NIPPON STAINLESS inquired in 1937 for an Excelsior buffing machine for 3' x 6' stainless steel sheets (22681).

355. NIPPON TAKI purchased in 1937 1 Brown thermometer and 50 ribbons for \$105.37 (12/381, 12/451).

356. NIPPON TESSEN (JAPAN IRON WIRE) "The above company is now galvanizing steel wire but they have no facilities to make the wire itself. They therefore, are now considering to install wire rod mill." (MF 15554-1935)

It purchased in 1940:

50 Brown and Sharpe micrometer calipers (At 6620)	269.17
350 Brown and Sharpe high speed steel cutting slotter (At 6685, 6715)	287.28
	556.45

357. NIPPON TOKUSHUKO (JAPAN SPECIAL STEEL), TOKYO in 1937-40 purchased:

1 New Britain #61 automatic screw machine for making spark plug shells (Japanese plans of pieces to be machined and drawings of Japanese motor in file-TR 8613)	11,964.50
1 Brown and Sharpe #OG high speed automatic screw machine (At 5927)	4,699.94
1 Brown and Sharpe #42-31-20-37 metalloscope (At 5068)	763.88
2 tons of Titanium Alloy Tam zircon milled (TO 2339)	360.00
	17,788.32

An order for 1 Erie 12,000 lb. hammer for manufacturing 20.1 anvil was cancelled (TR 9488). A letter from Mitsubishi to Erie Foundry (8-6-40) states: "In connection with our order TR 9488 you furnished us with your letter of June 13th blueprints and specifications of the anvil which our client is to make for this hammer. We are now informed that our client has been unable to find any concern in Japan who is able to make castings as large as 90 tons which is the required size for the top section of the anvil you recommended. Our customer has requested therefore that you change this anvil and make it in three sections, no one of which will be more than 40 tons.

"Will you please advise whether this can be arranged and if so send us prints and specifications for the three section anvil the same as you did previously."

358. NIPPON TOSHI KOGYO (JAPAN COATED PAPER INDUSTRY) in 1935 was interested in a carbon paper plant (TE 2284).

359. NIPPON TRACTOR in 1941 cancelled an order for 1 Caterpillar Diesel tractor (20080).

360. NIPPON TUNGSTEN (JAPAN TUNGSTEN), MITSUI, TOKYO wrote in 1934: "Our clients inform us that they use about fifty thousand meters of assorted sizes per month. The largest demand is for the first four sizes mentioned (.0035, .005, .006, .007). As these people are manufacturers of incandescent lamps we assume that this is the purpose for which they require the wire." (MF 15496)

361. NIPPON TYPEWRITER, TOKYO in 1937-40 purchased:

1	Excello #1212 precision double end boring machine (TO 3727)	4,133.50
2	Gallmeyer and Livingston #25 surface grinders (12/389, 13/596)	1,998.25
	Gallmeyer and Livingston ball bearings for Grand Rapids #25 hydraulic surface grinder	21.96
		<u>6,153.71</u>

362. NIPPON VALVE (JAPAN VALVE) in 1935-37 purchased:

1	Blanchard #16 vertical surface grinder (TO 3102)	4,850.00
1	Monarch C 14" x 30" toolroom lathe (12/250)	2,717.10

363. NIPPON YODANKI (JAPAN WELDING) in 1937 purchased 70 Malloy Elkonite dome tips grade 1 W 3 (suitable for spot welding up to 0.2") for \$65.00 (12/251, 12/413).

364. NISHIJIMA TEKKOSHO (NISHIJIMA IRON WORKS) made inquiries in 1939 for drawings to manufacture cotton, for hydraulic metal forming presses for forming plates of automobiles and airplanes, for pneumatic punching and rivetting machine (23439).

365. NISHIKAWA TEKKOSHO (NISHIKAWA IRON WORKS), HAMAMATSU purchased in 1937-40:

6	Gleason spiral bevel cutters (At 5339, 6059)	462.73
	Brown and Sharpe milling cutters, calipers and other small tools	632.22
		<u>1,124.95</u>

366. NISHINAKA SEISAKUSHO (NISHINAKA WORKS), NAGOYA purchased 1 rebuilt Brown and Sharpe #3 vertical miller for \$2,850.00 (11515) in 1937.

367. NISSAN JIDOSHA (NISSAN AUTOMOBILE), MORIYACHO, YOKOHAMA  
In 1936 Nissan closed the following contract with the Graham Paige Motors Corporation, Detroit, Michigan:

"Representatives of Nissan Jidosha Kaisha have agreed to purchase from the Graham Paige Motors Corporation, Detroit, Michigan, a number of automotive machines, fixtures, spare parts, accessories, etc., out of discontinued lines for the purpose of manufacturing a six cylinder automobile engine in their Japan plant.

"These machines are being purchased out of the cylinder block, cylinder head, connecting rod, cap for crankshaft front bearing, body for oil regulator, oil tube assembly, body for oil pump, chain case, drive pulley for water pump and manifold assembly lines of the Graham Paige plant, as per list attached.

"The greatest number of machines is to come out of the cylinder block line and there will be approximately forty (40) machines in all together with about ten (10) sets of tools and parts for other machines taken out of this line to make up the fifty (50) operations required for the machining of cylinder blocks. To determine that the machines in this cylinder block line were capable of producing blocks the Nissan people have had a one day test run made during which time they machined a total of one hundred and fifty (150) blocks. The machines have been left just as they were when the job was finished, that is to say, tooled and adjusted in the required manner and will be shipped to Japan as they now stand. . . . .

"In addition to these machines, tools, and accessories, the aforementioned one hundred and fifty (150) machined blocks with cylinder heads fitted will also be shipped. . . . . The Nissan people have also secured three hundred and seventy-four (374) rough castings which are to be shipped to Japan and machined as soon as the equipment is installed. . . . . You will also note from the attached list that there is a quantity of conveyor equipment being taken out of this plant. . . . .

"The Graham people have purchased an extra line of accessories, tools and parts and the Nissan people will be permitted to make a selection of these. . . . .

"There are also several pieces of foundry equipment known as flasks. . . . . There will also be a group of metal and wooden patterns." (TR 6899)

The shipping units were identified as follows:

- Unit A - Machines for the manufacture of Cylinder Blocks, known as the "CYLINDER BLOCK LINE."
- Unit B - Machines for the manufacture of the Crankshaft Front Bearing Cap and the line is known as such.
- Unit J - Fixtures, accessories, spare tools, etc., for installation on machines in the manufacturing lines known as "INTAKE MANIFOLD" "EXHAUST MANIFOLD" "MANIFOLD ASSEMBLY."
- Unit K - One hundred and fifty cylinder blocks completely machined, cylinder heads fitted to each and ready for installation.
- Unit L - Three Hundred and Seventy Four Rough Cast Iron Cylinder Blocks.
- Unit M - Sections of the gravity roller conveyor equipment used in conjunction with the cylinder block line.



Unit N - Stands, fixtures, racks and accessories for the above mentioned gravity roller conveyor system.

Unit O - Twenty sets of used steel foundry flasks for use in moulding cylinder block patterns.

Unit P - Miscellaneous iron, steel and aluminum pattern equipment.

Unit R - Machines for the manufacture of Valve lifter brackets.

A letter from M.S.K. NY to Tokyo in 1936 states: ". . . all of the chassis assembly material will be furnished by the Spicer Manufacturing Corporation, the body assembly units by the Graham Paige plant and the truck wheels and rims by the Erie Malleable Iron Company. . . . There is also one order placed with the Pittsburgh Steel Company for seamless steel tubes to be used in the manufacture of truck rear wheel axles." (MSK, NY to Tokyo, 11/27/36)

In a letter from Mr. Weaver of Mitsui NY to Leland-Gifford Co. in 1936, it is stated: "Mr. Little's (of Nissan) production requirements will range between 40 and 50 crankshafts per day (MF 2739).

The above transactions were made with the companies directly involved so that the files do not contain detailed information. The following purchases were made in 1935-36 directly with the manufacturers or with dealers in rebuilt machine tools like Prussian Machinery Company, Hill Clark Machinery Company, or Motch and Merryweather Machinery Company:

Lathes

1 Pratt and Whitney B G-1 B-724 Keller automatic tool room machine (6026, 6320)	25,321.48
Parts for Keller machines (6764, 6429)	98.01
Attachments for Pratt and Whitney 16" model B lathe	333.00
Attachments for Pratt and Whitney 13" model B lathe	
1 Sundstrand Model A 6" automatic stub lathe (6286)	2,164.86
4 Sundstrand model B 6" x 18" automatic stub lathes (TR 6502, 6933, 6939, 6959)	9,439.29
5 Sundstrand 8" stub lathes (6413, 6955, 6960, 7041)	8,070.25
1 Sundstrand brake drum turning lathe (7016)	2,016.66
1 Leblond #6 multi-cut lathe (6372)	975.00
1 Leblond #9 multi-cut lathe	815.00

1 Leblond 11" x 4' lathe (6996)	450.00
1 Bullard 12" 6-spindle A mult-au-matic lathe (7032, 7033)	21,588.09
1 Bullard 16" 6-spindle A mult-au-matic lathe (7030)	28,357.09
1 Bullard 24" vertical turret lathe (6985)	3,531.67
1 Gisholt 1 L turret lathe (7021)	4,531.59
1 Gisholt 1 1/2 x 10" turret lathe (6902)	2,332.31
1 Gisholt #3 plain turret lathe (6900)	2,244.95
1 Gisholt #3 Universal 1 1/2 x 10" turret lathe (6901)	2,966.53
4 Used Wickes Duplex crankshaft lathes (6918, 6920, 6921, 6922)	20,192.76
1 Wickes center drive crankshaft lathe (6919)	9,218.31
6 Warner & Swasey #2 turret lathes (TO 3119)	9,153.00
Tools for Warner and Swasey #2A turret lathe (6045)	340.20
2 Chucks for Warner and Swasey turret lathe (6188) #1A	324.00
3 Potter and Johnson #5A automatic turret lathes (6451, 6903)	3,780.75
2 Cleveland model A 7/8" single spindle 5-hole turret machines (6506, 6907)	5,554.35
1 Cleveland model A 1 1/4" single spindle 5-hole turret machine (6908)	3,373.11
1 Cleveland model A 2" automatic single spindle 5-hole turret machine (6909)	3,937.50
2 Cleveland model B 7/8" single spindle automatic machines (6905, 6906, 6454)	5,268.81
1 New Britain #454 pneumatic chucking machine (6975)	3,000.00
1 New Britain #654 new-matic chucking machine (6949)	6,760.14
1 Lodge and Shipley 16" x 6' selective head lathe (6957)	3,378.75
1 Ex-Cell-O #2112 single end junior precision turning machine. (6956)	4,379.25
2 Porter super carbo lathes (6506)	2,536.50
1 Foster #2B universal turret lathe (TR 7048)	4,575.40
1 Adams 13" x 4' short cut lathe (6983)	370.00
Attachments for Cushman geared scroll lathe (6225)	146.02
Attachments for Seneca 4" x 36" lo-swing lathes (6545)	538.00
2 Sundstrand #53 double end centering machines (6930, 6932)	3,172.14

Automatic Screw Machines

3 New Britain model 40 1" x 5" automatic screw machines	18,702.44
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2 New Britain model 41 1-5/8" x 6" 4-spindle automatic screw machines	15,207.49
National Acme attachments for Gridley 2 3/4" x 7" 4-spindle automatic screw machine (6213, 6214)	1,218.68
National Acme attachments for Gridley 7/8" model G4-spindle automatic screw machine (6215)	102.30
3 Brown and Sharpe #2 automatic screw machines (6904)	9,238.20
2 Brown and Sharpe #2-G automatic screw machines (6508, 6537)	6,358.80
Tools for Brown and Sharpe #0G automatic screw machine	

#### Milling Machines

1 Kearney and Trecker triplex milling machine (6327)	6,250.00
1 Kearney and Trecker #1H-18" milling machine (7020)	2,256.98
Attachments for Kearney and Trecker milling machines	2,528.63
1 Cincinnati #3 vertical milling machine (6232)	2,685.00
2 Cincinnati #4 vertical milling machine (6216, 6943)	8,735.00
1 Cincinnati 18" duplex automatic milling machine (6268)	1,264.00
4 Cincinnati 24" automatic duplex milling machines (6927, 6990, 7022, 7025)	7,233.00
1 Cincinnati 48" plain automatic milling machine (6268)	2,403.00
1 Cincinnati 48" duplex milling machine (7023)	2,950.00
Index bases for Cincinnati milling machine (6301)	2,284.50
5 Sundstrand #3 Rigidmils (6529, 6942, 6973, 6977, 6994)	13,541.42
1 Sundstrand #3A Rigidmil (6947)	4,364.98
1 Brown and Sharpe #3 vertical milling machine (6216)	4,853.47
1 Products #51 milling machine (7014)	5,687.55
3 Kent-Owens #2 hand milling machines (6911, 6968, 7011)	2,970.50
Michigan tool milling cutters (6155, 6234)	3,039.71
1 Pratt and Whitney 6" x 20" B thread milling machine (6501, 6190)	4,252.06
1 Lees Bradner #4 thread milling machine (6926)	1,890.00
1 Lees Bradner #6 thread milling machine (6925)	2,130.00
1 Bristol hand milling machine (6451)	210.00
Attachments for Pratt and Whitney #3B die sinker (6126)	48.60
8 Heppenstall die blocks (6242, 6546)	1,181.20

Drilling Machines

5 Baker #121 drilling machines (TR 6451, 6940, 6946)	6,964.00
1 Baker #314 drilling machine (TR 6940)	3,399.00
1 Baker two way horizontal machine	5,279.10
1 Baker #4 H.H. drilling machine (7024)	4,000.00
4 Baker #217 drilling machines (6980, 6991, 6992)	6,734.86
5 Barnes 20" drilling machines with tapping attachments (TR 6913, 6981)	4,740.21
1 Barnes #210 drilling machine (6914)	801.00
1 Barnes #204 $\frac{3}{4}$ drilling, boring, and reaming machine (6938)	4,362.87
2 Barnes 22" drilling machines (6989, 7017)	3,514.65
5 Avey M.-1 single spindle drilling machines (6931)	6,801.44
1 Avey single spindle # $\frac{1}{2}$ drilling machine (6941)	536.99
1 Baush #2 multiple spindle drilling machine (6945)	5,626.45
1 American Tool 7' 7" column universal radial drill (6091)	6,482.43
2 Hammond 4' radial drills (6936, 6995)	1,423.52
1 Fox vertical drill (6976)	1,500.00
1 Fox #26 A.C. multiple spindle drill (6912)	1,500.00
2 Natco #9D drilling and tapping machines (7031)	2,210.00
2 Natco D5 vertical multiple drilling machines with tapping attachments (6383, 7026)	2,140.75
2 Natco #14 multiple spindle drilling machines (TR 6987)	4,470.00
1 Colburn #2 mfg. drill (6982)	540.45
1 Leland Gifford #2 1 spindle drill (6984)	390.00
1 Edlun #2-B sensitive drilling machine (6916)	697.00
1 Cincinnati 21" Bickford drilling machine (6915)	441.00
Cleveland twist drills (6239, 6264, 6075)	5,496.31
Celfor drills (6277, 6403)	466.28
12 Skinner drill press vises (6098)	301.64

Boring Machines and Reamers

1 Ex-Cell-O #1212 precision boring machines (6504, 6954, 6391)	6,125.64
1 Heald #48-A Bore-matic precision boring machine (TR 6961)	3,751.31
1 Heald #47-A Bore-matic precision boring machine (TR 6999)	4,313.00
1 Natco B 225 H vertical single spindle boring machine (6383)	1,607.00
Eclipse counterbore cutters	667.91
Cleveland reamers (6179, 6148)	4,088.87
Wetmore reamers (6077, 6587)	2,026.80
Celfor reamers (6074, 6189, 6282)	1,911.19
Cogsdill reamers (7059)	631.24
Gammons reamers (6291)	574.63
Kelly reamers (6603)	42.22

Planers and Slotters

1 Cleveland 48" x 48" x 12' open side planer	10,218.00
1 Niles 18" stroke crank slotting machine (6125)	5,854.40

Gear Machines

1 Gleason #9 completing generator (7001)	17,820.00
1 Gleason #11 gear roughing machine (7001)	8,232.00
1 Gleason #11 gear finishing machine (7001)	10,272.50
2 Gleason #16 pinion generators (7001)	23,030.00
1 Gleason #12 generator tool sharpener (7001)	857.50
1 Gleason 6" gear generator (6023, 6365, 6372)	1,230.00
1 Gleason 15" gear quencher (TR 6974)	1,760.00
1 Gleason 18" burnishing machine and burnishing equipment (6974, 7001)	8,968.45
7 Gould and Eberhardt #16H universal gear hobbing machines (6993)	23,282.44
1 Gould and Eberhardt #12H gear hobbing machine (TO 3055)	
2 Gould and Eberhardt #18H hobbing machines (TO 3055)	7,501.50
1 Gould and Eberhardt #16 HS hobbing machine (6944)	3,630.48
Parts for Gould and Eberhardt #18 hobbing machine	435.00
1 Gould and Eberhardt #36H hobbing machine (6137, 7201)	5,127.57
1 Gould and Eberhardt #36BM multiple spindle bevel gear roughing machine (6372)	1,250.00
4 National Broach GCC gear finishing machine (7002)	20,322.00
1 National Broach SIC gear checking machine (7069)	1,317.96
1 National Broach involute generating grinding machine (7004)	7,647.00
Attachments for National Broach gear machines	1,074.90
1 Cross #33 gear tooth rounder (6413)	1,750.00
1 Cross #44 gear tooth chamfering machine (6953)	1,960.77
2 Barber Colman #12 hobbing machine (6972, 6986)	4,556.34
1 Fellows #70 gear shaper (7042)	3,021.50
Parts for #710 Fellows shaper (7045)	305.45
Attachments for Fellows gear shaper (6287)	458.64
2 Lees-Bradner worm thread hobbing machines (7084)	3,384.19
Attachments for Cincinnati gear burnishing machine (6608)	170.00
Michigan Tool and National Twist Drill hobs and cutters	3,717.98

Thread Cutting Machines

3 Gaterman #8 tapping machines (6090, 6407, 6978)	1,382.27
1 Garvin #2 tapping machines (TR 6937)	306.00

John Bath taps	7,465.47
12 Walton tap extractors	129.60
P. & W. ground thread hand taps	229.79
3 Dies to fit Manville #3B thread rolling machines	
1 Die to fit Manville #4B thread rolling machine (6319)	133.00
Jones and Lamson dies and chasers	7,165.04
21 Chasers for Landis 1" rotary die head	207.81

Grinding Machines

3 Norton A 10" x 24" cylindrical grinding machines (TO 3050, 7007, 7010, 6374, 6416, 6421)	10,973.70
3 Norton 10" x 50" grinders (6962, 6928, 7018, 6935)	9,699.50
2 Norton A 7 10" x 37" cylindrical grinding machines (7006, 7009)	7,131.50
1 Norton A 14" x 48" grinder (7040)	4,245.00
Attachments for Norton B 8 14" x 24" x 30" crankpin grinder (6121, 6314, 6449)	1,569.55
Norton grinding wheels	950.03
1 Landis 6" semi-automatic face grinding machine (6948)	5,744.45
1 Landis 6" x 20" hydraulic feed grinder (6451)	1,725.00
2 Landis 10" x 20" self contained plain grinders (7019)	3,000.00
1 Landis 10" x 24" universal grind machine (6305)	2,130.00
2 Landis 10" x 36" plain grinding machines (6451)	2,800.00
1 Landis 12" x 32" universal tool and cutter grinder (6232)	1,500.00
1 Landis 16" x 32" grinding machine (6924)	3,899.60
3 Cincinnati #2 centerless grinders (6506, 6952, 6761, 6750, 6402, 6610)	14,278.17
1 Heald #72 grinder (7070, 6998, 6338)	13,680.50
2 Heald #22 rotary surface grinders (6929, 7015, 7055)	8,210.30
1 Fitchburg 20" semi-automatic spline shaft grinder (6506, 6182)	3,250.54
2 Hall eccentric production type valve seat grinders (6964)	1,348.90
1 U.S. Electrical Tool swing frame grinder (7095)	692.22
1 Ex-Cell-O carbide tool grinder (7038)	327.80
1 Rotor die grinder (6618)	56.00
Attachments for Pratt and Whitney automatic worm grinder (6200, 6206)	148.50
Attachments for Pratt and Whitney #BK 1 Keller- flex grinder (6086, 6270)	97.66
Attachments for Bryant #3 internal grinder (6743)	39.00
Attachments for sellers #05-D drill grinder (6303, 6304)	120.00

Attachments for Rivett #104 internal precision grinder (6033)	1,319.74
Attachments for Dessoutter model O air grinder (6027, 6418)	1,960.51
Attachments for Gardner #86-30" horizontal disc grinder (6858)	55.57
Grinding wheels and abrasives	3,652.32

Lapping, Broaching, Honing, and Polishing Machines

5 National Broach GLF lapping machines (6507, 6487, 7003)	13,707.95
1 Norton #30 Crank-o-Lap (TR 7058)	5,978.70
Parts for Norton 10 U lapping machine for lapping piston pin (TR 6474, 6934)	310.32
1 Laponite #32 J.N. broaching machine (TR 6965)	1,740.73
National and Colonial broaches and broach pullers	8,030.90
1 La Pointe BS-60 broach sharpener (7063)	2,150.00
1 Barnes #172' honing machine (7066, 7068)	1,553.06
436 Honing stones for Micromatic #1A-0-S automatic honing tool for honing cylinder bore (6230, 6411)	146.88
1 Production type 101 buffing and polishing machine (6198)	1,147.40
Attachments for Haskins polishing and rubbing machines (6549)	150.50
Miscellaneous machine tool parts	18,824.82

Miscellaneous Machines

1 General Motors universal dynamic balancing machine for crankshaft (6950)	6,800.00
1 Commerce Micro-Poise balancing machine (6951)	1,723.50
1 Gisholt type B universal balancing machine (7029)	3,550.66
Parts for Gisholt A universal precision balancing machine (6561)	821.00
1 Cogsdill #6 bearing-izer machine (7067)	534.40
1 Coulter and McKenzie 4" eye back machine (7052)	3,945.55
Parts for Coulter and McKenzie #3 eye back machine (6044)	400.00
1 Magee type 10 sheet metal wiring and edging machine (7321)	1,778.53
1 Aetna 90" x 2 1/2" x 2 1/2" sheet rectifier (7329)	11,610.00
3 Hannifin 17 1/2 yoke rivetters (7081)	3,386.42

Forging Machines and Hammers

1 Chambersburg 10,000 lb. model E steam drop hammer	23,446.64
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1 Chambersburg 300 ton double geared steel slide crankshaft trimming press (6967)	6,201.00
Parts for Chambersburg 2,000 and 3,000 lb. hammers (6244)	365.40
Parts for Erie 1,000, 500 and 300 lb. hammers (6250, 6881)	529.87
Heppenstall forgings for Erie and Chambersburg hammers (6293)	6,754.99
1 Ferracute P3 press (6186, 6079)	971.00
2 Ferracute P5 presses (6247)	2,360.00
2 Ferracute PA-3 presses (6186)	2,012.00
2 Ferracute PA-4 presses (6247)	1,250.00
1 Ferracute PA-5 press (6186)	1,742.00
Parts for Ferracute D G C-56 Ferracute press (6254)	32.00
Ferracute press parts (5840-4)	1,109.70
1 General Manufacturing #605 60-ton G-F-P press (7051)	3,885.00
1 General Machinery #DA-13011 Hamilton toggle drawing press	32,563.55
1 National #2 Maxi-press (6046)	8,009.00
1 National $\frac{1}{2}$ " universal type double stroke open cold header (6055)	11,161.36
Parts for National $\frac{1}{2}$ " upset forging machine (6138)	450.00
1 Toledo #205 - C - 48" double crank press (6226)	
1 Toledo #174 single crank toggle drawing press	5,595.00
Parts for Toledo #4 $\frac{1}{2}$ power press (6035)	105.00
Parts for Toledo #795 - $\frac{1}{2}$ double crank toggle press (6380)	90.00
1 Hannifin arbor press (6963)	245.02
1 Metalwood 20-ton hydraulic straightening press (6208)	1,655.00
6 Van Dorn electric hammers (6052)	814.67
1 Bliss Stiles #3-A gap frame power press (6071)	1,515.00
1 Etna Timken #72 bearing swaging machine for swaging copper tube (6910)	594.00
1 Drohme Ajax forging roll (6258)	1,500.00
Rotor grinders for forging die shop (6047)	399.00
6 Chicago pneumatic rivetting hammers (6702)	486.78

Foundry and Molding Equipment

1 Holcroft conveyor type electric heating furnace for Shin-Kayasu, Yokohama	11,963.34
1 Holcroft conveyor type electric draw furnace for Shin-Kayasu, Yokohama (7035)	7,176.67
Holcroft furnace equipment	
1 Ingersoll-Rand F S - 525 motoblower unit (7273)	2,173.80
1 Whiting #3B cupola (7273)	797.00
1 Young enamel baking oven (6272)	4,100.00



2 Simpsons intensive mixers (7089)	6,601.18
2 Timken 1,000 lb. crane ladles (7324)	309.07
6 Hauck compressed air type burners (7092)	610.00
5 Osborn moulding machines (7087)	6,153.00
2 Stoney #2210 moulding machines (6970)	4,000.00
4 Ferro 6" core-rollover machines (6970)	800.00
Fanner and Schminz chaplets (7056, 7057)	697.81
Ferro moulding parts (7028, 7093)	150.00

Welding Equipment

1 Gibb 1020-CS-200 KVA double knurl driven slam welder (6062, 6668)	4,818.70
1 Gibb F 14-65 KVA flash welder (6062)	2,840.50
1 Gibb 40 KVA type 112-40 welder (6062)	1,072.00
1 Gibb flash welder and dies for Datsim forged rod (6062)	3,275.00
1 Case Weldit welding torches	661.30

Saws and Shears

12 Stanley unishears (6098)	4,552.16
1 #10A Quickwork rotary shear (7320)	1,188.00
1 Quickwork #20A rotary shear (6747)	635.00
Parts for Quickwork #30A rotary shear (6358)	54.00
1 Mattison #207 M rip and edging saw (6713)	2,272.46
1 Fay and Egan #431 automatic combination saw and dado machine (6713)	717.95
1 Greenlee #533 electric single end tenoner (6713)	1,584.00
1 Greenlee #110 30 x 8" planer (6713)	3,105.00
1 Greenlee electric variety saw bench (6713)	810.00
1 Niagara #10-F power squaring shear (6229)	2,626.70
1 Doelger and Kirsten alligator shear (7328)	1,948.93
3 Armstrong-Blum #4B hack sawing machines (7334, 6248)	1,247.15
1 #7 Lewis Core wire cutting machine (7091)	217.00
1 Hanchett #928 automatic saw sharpener (6231)	496.98
20 doz. American Saw Lenox hack saw blades (6115)	224.91

Spring Machines

1 Gogan vertical cambering machine to form and harden spring plates (7053)	5,500.00
1 Gogan model 911 automatic Brinell tester (7053)	2,250.00
1 Gogan bulldoze and scale tester (7053)	4,200.00
1 Tinius Olsen automatic weighing spring testing machine (6081)	1,642.87
12 Armstrong spring cutting off tools (TR 6384, 6693)	61.43

Conveyors

1 Yale and Towne K-27-S electric truck (6118)	2,679.04
Parts for Yale and Towne K-25 electric industrial battery truck (6471, 6671)	186.14
36 Yale and Towne electric hoists (6013, 6098, 7349)	6,542.99
2 Shepard Niles 2-ton hoists (7097)	3,641.66
9 Curtis hoists (7094)	635.20
1 Marman Chassis line conveyor (7012)	4,975.00
Roller conveyors and rollers (7096)	2,453.97

Measuring Instruments

1 Illinois #224 profile measuring machine (7080)	1,430.00
6,480 Dole thermostats	6,480.00
1,660 Waltham speedometers (7114, 7282)	6,373.20
Standard Gage dial gages for checking connecting rods and cylinder bore (6066, 7086)	1,574.52
2 Commercial Magnetic gauges (6966)	924.00
2,160 U.S. oil pressure gages (7114, 7282)	712.80
1,560 U.S. ammeters (7114, 7282)	425.70
John Bath gages	688.95
Brown and Sharpe gages and calipers	326.16
8 Lowe universal text indicators (6283, 6460)	91.79
Brown and Sharp and Lufkin straight edges and rules	116.28
Miscellaneous gages and calipers	162.27

Miscellaneous

100 Sets of differential gears for Nissan trucks with forging dies (7083)	10,500.00
54,240 Overseas Motor A C G 2 spark plugs for use in New Datsun engines (the first 20,000 plugs were sent in monthly shipments of 5,000 being approximately the monthly requirement of Nissan) (6095, 6843, 7293)	7,593.50
4 Chicago pneumatic nut runners (6873, 6872)	410.31
Vandyke tracings (7090)	980.00
28,242 Superior long terne plates (7188, 7339, 6601)	8,119.23
301 Bethlehem steel bars (7288)	2,928.18
62 Prussian 6" I steel beams (7000)	649.50
Screws, knuckles, bolts, knees	2,042.94
Small tools and miscellaneous equipment	3,598.25
368. <u>NISSO SEIKO (NISSO STEEL)</u> inquired for 1 milling machine in 1939 (22957).	
369. <u>NITTO BOSEKI (NITTO SPINNING AND WEAVING)</u> in 1936 purchased Monsanto vanadium catalyst to produce 50 metric tons of sulphuric acid per day for \$27,125.00 (TO 2263).	

370. NITTO KENMA KIKAI SEISAKUSHO (NITTO GRINDING MACHINE MFG.) in 1939 purchased 2 Excello spindles for \$545.00 (TO 3783). In the files is a company catalogue showing the plant layout.
371. NITTO NASSEN (NITTO TEXTILE PRINTING) in 1935-36 purchased parts for an Iron Fireman coal burner for \$378.00 (10475, 10690).
372. OHTA JIDOSHA (OHTA AUTOMOBILE) in 1935-36 inquired for several machine tools.
373. OJI PAPER (1935-36)

TOMAKOMAKI MILL purchased Bailey meter parts for \$10.17 (TO 9159, 9172).

NODA MILL purchased Bailey meter parts for \$80.00 (TO 9171).

ODOMARI MILL purchased Bailey meter parts for \$33.79 (TO 9171, 9188, 9182).

KOKURA MILL purchased Bailey meter parts for \$14.79 (TO 9167).

ESUTORI MILL purchased 8 Falk flexible couplings for \$795.00 (TO 2163).

KISSHU MILL purchased 3 Bailey fluid meters for \$1,202.39 (TO 9184).

INSATSU KYOKU (PRINTING BUREAU) purchased 1 Bailey multi-pointer gage for \$99.75 (TO 9166).

OJI PAPER in general purchased:

400 Mine Safety Appliance mine lamps (TR 6621, 6624, 6398, 6645)	2,285.00
2 Mine Safety Appliance methane detectors (TR 6223)	274.40
Spare parts for G.E. Curtis steam turbines (TO 4794)	180.00

374. OHIMA STEEL WORKS in 1936-37 negotiated with the Kennedy-Van Saun Co. for the rights to manufacture the Kennedy Jaw Crusher and the Kennedy Gyrator in Japan (22292). Inquiries were made for various machine tools and presses (22866).

375. OHO SEISAKUSHO (OHO WORKS), HAKATA in 1937 purchased Greenfield tap and dies for \$7.06 (At 5107).

376. OKADA DENKI (OKADA ELECTRIC) in 1936 purchased 5 Weston meters for \$224.55 (TR 6792).

377. OKAJIMA IRON WORKS purchased in 1935-36:

1 Pratt and Whitney #3 die sinker (TR 6313)	590.00
17 tons Universal Steel valve steel (TR 6153, 6799, 6866)	9,151.70

378. OKAMOTO JITENSHA (OKAMOTO BICYCLE), NAGOYA in 1936 purchased 1 Lodge and Shipley selective head toolroom lathe for \$2,798.00 (TR 6011).

379. OKAMOTO KOGYO (OKAMOTO INDUSTRY) purchased in 1936 parts for a Kearney and Trecker #2K vertical milling machine for \$513.40 (TO 3180).
380. OKAMOTO MACHINE WORKS in 1936 refers to one of their gear lapping machines being used by Mitsubishi Denki (Ataka MDK folder).
381. OKAMURA NAINENKI KOSAKUSHO (OKAMURA INTERNAL COMBUSTION ENGINE) in 1937 purchased:
- |   |          |
|---|----------|
| 1 Barnes #306-H honing machine "for repair work on American Automobile Cylinders" (At 7511) | 2,594.63 |
|---|----------|
382. OKANO VALVE, MOJI in 1936 purchased 1 Brown and Sharpe cast iron surface plate for \$9.23 (At 4803).
383. OKAZAKI SANGYO (OKAZAKI INDUSTRY), #2 4 chome Fushimachi Higashiku, Osaka in 1938 was interested in Miller-Seldon catalogues for electric equipment (National Broach, 1938).
384. OKI DENKI (OKI ELECTRIC) purchased in 1935-36:
- |  |          |
|--|----------|
| 1 American Tool 12" x 6' precision tool room lathe (TO 3289) | 3,094.28 |
| 2 Norton 6" x 18" surface grinder (TO 3275, TO 3492)         | 2,395.95 |
| Parts for Kearney and Trecker #2K plain miller (TO 3144)     | 586.50   |
| 1 Manville #1-C automatic screw slotter (TO 3476)            | 1,090.00 |
| 1 Manville #188 die cold header )                            |          |
| 1 Manville #1B thread rolling machine)                       | 3,379.50 |
| 1 Paasche airrubbing machine (TO 1248)                       | 135.00   |
- Oki inquired for "all wire and code of telephone apparatus by their factory" (22011).
385. OKUMA TEKKOSHO (OKUMA IRON WORKS), NAGOYA in 1936 purchased:
- |                                     |          |
|-------------------------------------|----------|
| 1 Fellows #75A gear shaper (13/626) | 5,158.62 |
| 1 " #615A gear shaper (13/623)      | 7,351.60 |
386. ONISHI IRON WORKS, OSAKA in 1937 purchased 1 Brown and Sharpe straight edge for \$18.24 (At 5021).
387. ONODA CEMENT purchased in 1936:
- |  |       |
|--|-------|
| 400 lbs. Ottawa silica sand for Fujiwara Works (OO 1350) | 14.70 |
| Parts for Wagner turbidimeter (OO 1349)                  | 42.00 |
388. ORIENTAL CONSOLIDATED MINING, UNZAN, KOREA in 1935 made inquiries for a gold placer dredge from Bucyrus Erie after Ishikawajima Dockyards, Mitsui Tama Dockyards, and Osaka Iron Works refused to quote because they lacked experience and because they were too busy. A proposal was received from the Japan Gold Dredge Kogyo-sho (MF 7399).

389. ORIENTAL PHOTO IND. CO. in 1936 purchased cobalt peroxide, copper chloride, starch (10677) 395.87
390. OSAKA DENKI (OSAKA ELECTRIC) Mitsui Latin American correspondence reveals that Osaka Denki was the maker of portable spot welding sets "type SPA S Daiden" and portable high frequency arc welders "type AHA" which Mitsui offered to Peru in 1938. In 1937 it purchased tips for #2 Morse taper shank for \$400.00 (12/434).
391. OSAKA GAS according to a 1936 Ataka letter from Japan was "an old and well established firm which enjoys exclusive privilege of supplying gas to every house in and around Osaka and also sells every description of gas utensils." The letterhead of the Osaka Gas Company gives the following addresses:

Business address: #15 chome Hiranomachi, Higashi-ku, Osaka  
 Iwasukicho works: # 5 Iwasakicho, Nishiku, Osaka  
 Seimi works: #31 1 chome Kawagishicho, Kohanaku, Osaka

OSAKA GAS purchased in 1935-39:

- |   |          |
|---|----------|
| 4 Mueller #30 gas tapping machines with cutters, taps, dies etc. (TR 5076, 6724, 7305)                  | 2,682.20 |
| 2 Oster #304 B pipe threading and cutting off machines for Iwasakicho Works (TR 6660, 7161, 7325, 7348) | 1,532.79 |
| Nye dies (TR 6362, 6704)  | 2,395.39 |
| 1 Roats Connersville inert gas machine (TR 6449)  | 1,500.00 |
| 3 Dempsey Monarch furnaces (TR 6594)  | 870.95   |
| 1 Lindberg gas furnace (TR 6796)  | 1,047.00 |
| 1 Crawford baking oven (TR 7183)  | 390.00   |
| 34 Goodman gas main stoppers for cast iron pipe (TR 6113, 7297)   | 1,002.70 |
| Heaters and radiators   | 463.05   |
| 1 Pittsburgh valves and regulator (TR 6182, 7311)   | 1,762.25 |
| Regulators, controls, recorders, meters etc.  | 4,386.56 |
| 60 Dresser pipe couplings (TR 7375)   | 439.90   |
| 1 Paider gas hair dryer (TR 7434)   | 225.00   |
| Equipment for Reed pipe cutter (TR 7613 for Iwasakicho Works)   | 2,664.90 |
| 12 Nicostat gas valves (TR 7652)  |          |
| 16 Bremer aluminum cooking utensils (TR 8241)   | 67.51    |
| 1 Welsbach #7 conversion hot water heater (TR 8741)   | 19.80    |
392. OSAKA INDUSTRIAL LABORATORY in 1936 inquired for rubber machinery for experimental work (OE 1131).
393. OSAKA KIKI SEISAKUSHO (OSAKA MACHINE MFG.) in 1938-40 purchased:
- |  |          |
|--|----------|
| 1 Bryant #16 16" hydraulic internal grinder (TO 3180)      | 5,690.75 |
| 1 Norton 14" x 72" multi-purpose grinder (TO 3181)         | 5,475.75 |
| Brown & Sharpe milling cutters and slitting saws (Lt 6613) | 459.29   |

Timken roller bearings for use on 38" lathes  
 (12156) destination 8 Tsukuda-cho 2 chome  
 Nishiyodogawa-ku Osaka

39.81  
 11,665.60

- 394. OSAKA KOGYO SHIKENJYO (OSAKA INDUSTRIAL EXAMINING BOARD) in 1937 purchased 1 Clark heating control panel for \$122.50 (12/354).
- 395. OSAKA MUNICIPAL ELECTRIC BUREAU purchased in 1936 48 General Electric trolley retrievers for the Fukumachi car shed for \$881.28 (00 3517).
- 396. OSAKA MUNICIPALITY purchased in 1936:

10,000 meters U.S. steel guard rails)  
 1,500 Splice bars (00 165) ) 24,880.00

- 397. OSAKA PRESS SEISAKUSHO, OSAKA in 1941 cancelled 13 Brown & Sharpe small tools (At 6836).
- 398. OSAKA SEIMITSU KOGU SEISAKUSHO (OSAKA PRECISION TOOL WORKS), OSAKA in 1937-38 purchased:

Brown & Sharpe measuring instruments (At 5777, 5858) 43.42  
 Norton grinding wheels (TO 3005, 3314) 237.49  
280.91

These orders were shipped to 10 Tsukamoto-cho Nishi Yodogawa-ku Osaka.

- 399. OSAKA SEITETSU (OSAKA IRON MFG.) in 1935 inquired for oil burners for open hearth furnace. "At present, Osaka Seitetsu have 8 sets of Tate Jones oil burners for 4 sets of open hearth furnaces, but they are not satisfied with them." (OE 1075)
- 400. OSAKA SHEARING in 1940 inquired for 1 punching machine for truck wheel discs (23840).
- 401. OSAKA SYOSEN KAISHA (OSAKA STEAMSHIP COMPANY) The Mitsui files show that between October 1939, and February 1941 the Sperry Gyroscope Co. of Brooklyn sent its engineers aboard several ships of the O.S.K. line, then in New York harbor, for the purpose of inspecting and repairing Sperry Gyro Compass equipment on the vessels, Hokkai Maru, Hokuroku Maru, Nankai Maru, Kinai Maru, and Tokai Maru. The bill for these services amounted to \$290.83. In 1938 the OSK line inquired for 2 Worthington Oil Pumps (#22978).

402. OSAKA TEKKOSHO (OSAKA IRON WORKS) purchased in 1935-36:
- |   |  |           |
|---|--|-----------|
| 6 | Independent pneumatic drills (OO 1372, OO 1380)                                      | 488.00    |
|   | Bethlehem-marine boiler plates (OO M-1, M-2, M-4, M-6, M-7, 149, 150, 152, 161, 163) | 43,578.11 |
|   | U. S. Steel rails and H-beams (OO 3,154)   | 948.94    |
|   | Lukens boiler plates (OO 162)  | 2,559.27  |
403. OSAKA TETSUDO (OSAKA RAILWAY), Osaka in 1936 purchased 1 Chicago pneumatic riveting hammer for \$63.93 (At 4774)
404. OSAKA TRANSFORMER, Osaka in 1937 purchased 1 General Radio vacuum tube voltmeter for \$123.75 (To 3551)
405. OSAWA JIMUSHO (OSAWA OFFICE), in 1936 purchased 1 American Radiator part for water tube boiler for \$40.80 (11075)
406. OTANI IRON WORKS, Nagoya, in 1940 purchased 6 Brown & Sharpe hobs for \$220.93 (At 6628).
407. OTSUKA IRON WORKS purchased in 1935-36:
- |   |  |
|---|--|
| 1 | Hudson horizontal boring mill (TR 6385)  |
| 1 | Niles 72" vertical boring mill (TR 6340) |
408. OTSUKA in 1940 tried to obtain the rights to manufacture Nordberg Symons cone crushers in Japan. Nordberg refused. In 1940 Otsuka purchased 98 Timken-roller bearings to be used on a Fahrenwald float machine (12111).
409. OZAKI HAGIRI KOGYO (OZAKI GEAR WORKS), Tokyo, in 1939-40 purchased finishing tools for the Gleason 6" and 18" straight bevel gear generator for \$1,008.56 (Ataka Ozaki order folder).
410. PENHSIHU COAL AND IRON CO. OR HONKEIKO COAL AND IRON CO. in 1935 15 engine couplers and 10 engine coupler pockets from National Malleale and Steel Casting for \$441.25 and 1 used 54" bullard maximill from Lynch for \$2850.00 (10364, 10386).
411. RIKEN, contracted form of RIKAGAKU KENKYUSHO (THE INSTITUTE OF PHYSICAL AND CHEMICAL RESEARCH)

I. The following excerpts are from a 1932 catalogue:

"What is 'Riken'?"

"Practical achievements of its distinguished physicists and chemical scientists, together with the results of numerous discoveries made available to the public during a period of more than 15 years since its foundation on March 20, 1917, substantiate the premise that one of Tokyo's most valuable possessions is the Institute of Physical and Chemical Research. It is known as the 'Rikagaku Kenkyujo,' or often 'Riken' for short.

"Riken is a corporation established with funds, consisting of an Imperial gift, a government subsidy, and contributions from private sources. The site occupies an area of about 10 acres, extending over the two wards of Koishikawa and Hongo, scenic residential sections of the city. There are 23 laboratories in the Institute, each engaged in different lines of research. The people employed in the Institute count no less than 600, including researchers, office staff, and working hands. . . . The Institute of 'Riken' conducts investigations in the pure sciences of physics and chemistry, aiming at their industrial development. At the same time it also engages in applied research. . . . When any physico-chemical research project is completed, a test is made to ascertain its industrial applicability. The manufacturing is consigned to the Physico-Chemical Industries Ltd., an affiliated company established with the exclusive object to bring up the industrial development of inventions emanating from the Institute of 'Riken'. . . . Prominent among the inventions and discoveries at the Institute are:

Vitamin A, B, & D  
 Synthetic Japanese Wine  
 'Adsole' System of Dehumidifying and Air Conditioning  
 'Riken' Piston Rings  
 Metallic Magnesium made from Bittern  
 'Riken' Corundum Abrasive Cloth  
 Positive Picture Blue Print Paper

"Scientific instruments needed in physico-chemical research are of special construction and cannot be manufactured in ordinary factories in Japan. Therefore, 'Riken' is equipped with instrument manufacturing quarters on a very large scale. Besides manufacturing the precision instruments for use in the Institute, special scientific machines and instruments for investigative purposes are manufactured by the workshop of 'Riken', and sold to the market through the Physico-Chemical Industries Ltd. The Scientific Instruments made at the Institute include:

High Sensitive Galvanometer  
 Dr. Nagaoka's Mercury Lamp  
 Explosive Gas Indicator  
 Photo Elasticity Apparatus  
 Cutting Force Dynamometer  
 Dr. Aoki's Single Fibre Tester (Photographic method)"

The address of Rikagaku Kogyo Kabushiki Kaisha is given in this catalogue as #43 Fujimaecho, Komagome, Hongo, Tokyo, Japan.

#### Hydrogen Testing Plant

In 1936, Dr. Y. Nishima of Rikagaku Kenkyusho had "a scheme of erecting a plant to investigate the characteristics of Heavy Hydrogen (H<sub>3</sub>)". He had in mind a set-up similar to the plant at Princeton University but with a larger electro-magnet than the 65-ton one



installed at Nassau. In accord with this plan, Rikagaku, in constant consultation with Dr. Y. Nishima and Prof. Ernest Laurence of the University of California, purchased in 1938 through the Mitsui San Francisco office (TO 8000) a 220-ton cyclotron magnet costing approximately \$28,000.00. The supplier of the copper and steel for this magnet was U. S. Steel Products Co., but the incomplete files covering this transaction do not make clear where the magnet was assembled. The Ishikawajima Dockyard in January 1938 received a shipment of \$6000.00 worth of steel plates from Baltimore for the construction of the oil tank for Rikagaku's cyclotron magnet (TT-1-38 p. 216). Other purchases in connection with this 220-ton magnet were:

TO 8000 to San Francisco in 1938:

1	Central Scientific Laboratories vacuum pump	
1	Gallon Cenco-Hyvac pump oil	
4	U. S. Steel additional steel plates for the magnet	
20	Micro-Switch GF microswitches	
3	Micro-Switch cans glyptol (insulating varnish)	
2400 ft.	Sperry chrome carbon steel bars 3/8" in diameter to be used for cyclotron magnet (TO 8157)	480.00
40	Kidde Edison thermostats (TO 8154)	147.50

Purchase of Vacuum Pumps for "Physical Research" in 1938-41:

1	Kimney high vacuum pump type VSD to be used for physical research (TO 8289)	5617.00
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Mitsui Orders:

100 oz.	Handy & Harman Easy-flo 3/32" wire	
50 oz.	" " " " 3/64" "	
20 lbs.	" " Handy-flux (TO 8158 - not in files, obtained from Mitsui TO-8000 file, 1938)	
5 grams	Mackay scandium oxide	
10 "	" " pure titanium metal powder	
10 "	" " chromium metal, 99% granular	
10 "	" " manganese metal, carbon free granular	
10 "	" " germanium oxide	
10 "	" " rhodium 99% pure powder (TO 8166 - not in files - obtained from Mitsui TO-8000 file, 1938)	95.50

Riken inquired for polaroid manufacturing rights (TT-3-36 ? 3), 1-ton alloy steel bar to make ball bearings for the outer race of Sperry gyro horizon and directional gyro ("the customers are purchasing Borel Extra F.M. Cr. steel bar of Austrian make" - TE 8035).

Rikagaku Kenkyusho on July 6, 1937 applied through the London office of Mitsui (TE 2161) for the Det Norske Aktieselskab Elektrokemisk Industri "Non-exclusive license to make and to use (but not to sell) the 'Svederburg System' for the production of aluminum only in the Chent's Works, including working drawings. Annual production shall not exceed 2000 metric tons." The outcome of this inquiry is not revealed by the incomplete London files at hand but worthy note in this connection is the Mitsui Tokyo letter dated March 2, 1937, stating that the Shibaura Engineering Works was offering three Ajax Northrup High Frequency Furnaces (two 800 KW and one 150 KW) to Rikagaku Kogyo (Physical Chemical Industries) which is one of the industrial counterparts of Rikagaku Kenkyusho (T<sup>1</sup>-3-37 p. 175).

## II Purchased by the Riken Enterprises:

- A. RIKEN ATUNEN KOGYO (RIKEN ROLLING INDUSTRY) purchased in 1937  
1 Brown potentiometer for \$116.25.
- B. RIKEN PISTON RING CO. Mitsui Latin American correspondence from 1935 to 1941 indicates that Riken Piston Ring was manufacturing alloy steel twist drills for the South American market, particularly Peru. In 1937 Riken Piston Ring purchased 6 Shore Instrument test pieces for the Shore Scleroscope.
- C. RIKEN KINZOKU (RIKEN METALS) in 1939 cancelled orders for 1 #3 Cincinnati universal milling machine and 1 10"x36" Cincinnati plain hydraulic grinding machine.
- D. RIKEN TANZO (RIKEN FORGING) in 1939 purchased 1 Pratt & Whitney "Keller" automatic toolroom lathe type B-G-1#482 for \$24,780.00 (12027)
- E. RIKEN JIDOSHA (RIKEN AUTOMOBILE) in 1940 purchased 180 Timken bearings for use on a "Road Roller" for \$18.36 (12175).
- F. RIKEN KOSAKUKI KIKAI (RIKEN MACHINE TOOLS) in 1940 purchased 49 Timken roller bearings for use on lathes and milling machines for \$31.54 (12084).
- G. RIKEN KUKI KIKAI (RIKEN INSTRUMENT), according to a 1940 Mitsui letter from Tokyo to New York, Nippon Kuki Kikai's name was changed to Riken Kuki Kikai. Nippon Kuki in 1940 was manufacturing pneumatic hammers, pneumatic drills, mining tools, and air compressors. These products are described under the trade name "Nikku" in a 1940 catalogue which gives the address of Nippon Kuki Kikai as #967 Kitahamakawa, Ohi, Shinagawa, Tokyo. On October 15, 1937 Mitsui Tokyo wrote that they could no longer offer Nippon Kuki pneumatic tools for export because "pneumatic tool makers are now so filled with home orders that it is practically impossible to take up orders for export." (MF 15660)  
In 1936 this company purchased:
  - 1 Brown & Sharpe fixture for grinding pneumatic hammer cylinder on B. & S. #4 universal grinding machine 137.75  
(AT 4797)
  - 1 Chicago pneumatic riveting hammer 55.97

412. RIKUGUN KAGAKU KENKYUSHO (ARMY CHEMICAL LABORATORY) in 1940 ordered Lovejoy polished steel plates and American Steel & Copper polished steel engraver rolls for \$1563.70. It is uncertain whether these orders were shipped. (TO 12001-2)
413. RIKUO NAINENKI (RIKUO INTERNAL COMBUSTION) in 1940 purchased:  
 1 Barnes #224 single spindle honing machine (TR 9467) 4437.51
414. ROKUO-SHA (ROKUO COMPANY), Tokyo, in 1936-37 purchased:
- |   |  |           |
|---|--|-----------|
| 2 | Brown & Sharpe #2B plain milling machines                  |           |
| 1 | Brown & Sharpe #2A universal milling machines              |           |
| 3 | Brown & Sharpe #12 universal milling attachments (At 5511) | 12,550.73 |
| 2 | Brown & Sharpe universal milling machines (At 5176, 4724)  | 6,167.94  |
| 1 | Brown & Sharpe #5 hydraulic surface grinder (At 4723)      | 1,543.28  |
| 2 | Brown & Sharpe #00G automatic screw machines (At 7844)     | 4,250.00  |
|   | Attachments for the following machines:                    |           |
|   | #00G automatic screw machines                              |           |
|   | #00 automatic screw machines                               |           |
|   | #2L universal milling machines                             |           |
|   | #2 universal milling machines                              | 777.33    |
| 1 | Heald demagnetizer (At 4723)                               | 114.84    |
| 1 | Vilter ammonia compressor (10823)                          | 723.00    |
|   | Veeder-Root small reset counters                           | 1,581.70  |
415. ROKU ROKU SHOTEN (ROKU ROKU STORE). Viele Blackwell & Buck (Now York agents for Ataka) wrote to Brown & Sharpe in 1938: "Rokuroku Company have a factory of about 200 workmen in which they manufacture machine tools, which up to now principally consisted of some engine lathes, drilling machines, and shapers. They bought a #00 automatic screw machine from you about two years ago. In the past their products have been sold principally to small factories in Japan." This company in 1936-38 purchased:
- |    |   |                 |
|----|---|-----------------|
| 2  | Brown & Sharpe #00 automatic screw machines (At 4664, 4752, 4953) | 3,059.89        |
| 12 | Vickers valves and 3 pumps (TO 3188)                              | 606.00          |
| 1  | Barnes #204 honing machine (TO 7923)                              | 2,328.12        |
|    |   | <u>5,994.01</u> |
416. RYODENSHA purchased in 1936:  
 Westn meters (TR 7148)
417. RYOYO BOMA, in 1937 inquired for 2,000 Rockwood Sprinkler heads. Referring to this firm Okura, Osaka wrote in 1937: "The factory is situated at Ryoyo in Manchuria and it is very cold in winter (30°-40° under freezing point) . . . We are trying to get this order as a pioneer order for the purpose of propoganda of future business in this line." (22620).

418. RYUZAN TETSUDO (RYUZAN RAILWAY), Kyoku, in 1940 purchased Atkins band saws for \$2216.03 (At 6726).
419. SAGAMI HEIKI (SAGAMI MUNITIONS), Tokyo, in 1940 inquired for General Radio meters.
420. SAILOR MANNENHITSU SAKATA SEISAKUSHO in 1937 purchased:  
1 Norton #2 universal tool & cutter grinding machine for \$1568.68 (TO 3562).
421. SAKAI IRON WORKS, Amagasaki, in 1938 cancelled an order for 1 Monarch lathe (13/655).
422. SAKAI KOSAKUSHO (SAKAI ENGINEERING WORKS), in 1937 purchased 1 Caterpillar Diesel tractor for \$1,948.50 (11278)
423. SAKATA IRON WORKS supplied an Ethyl alcohol factory to Toyo (MF 2647 -- see Toyo Gyozo)
424. SANEI SEIKI SEISAKUSHO (SANEI PRECISION MACHINE), Tokyo, in 1940 cancelled 1 Heald #50 cylinder grinding machine for automobile work (At 6487).
425. SANKI KOGYO (SANKI ENGINEERING), Tokyo, a prominent engineering concern, was a Mitsui subsidiary and handled various sorts of building materials, including the sales rights to Ray Oil Burners, Mosler Bank Vaults, and Robertson Skylights and Ventilators. Sanki also imported Lamson Power Control valves and American Radiator Co. equipment for installation in Japanese banks, office buildings and factories. In 1936 Sanki installed a Lamson 4" circular tube system in the Manchukuo Central Bank (TT-4-36 P. 188). Correspondence with the HH Robertson Company of Pittsburgh, Pennsylvania indicates that Sanki no longer had use in 1940 for its rights to Robertson equipment. A letter from Tokyo dated September 20, 1940 stated that the Robertson Skylight (Japanese Patent #74,138) was no longer selling in Japan because of "severe competition from Japanese manufacturers" (TT-2-1940 p. 145). Sanki asked in this letter that their agreement with Robertson be terminated as of October 30, 1939. Below is a list showing sales from 1937 to 1939 of Robertson Skylights in Japan showing quantity sold and customers.

<u>Date</u>	<u>Customer</u>	<u>Sq. Ft.</u>
1936		
5/18	Tokyo Meter Mfg. Co.	607.66
5/24	Mitsubishi Electric Co.	1,625.40
6/12	Mitsubishi Paper Co.	1,376.00
6/23	Showa Cotton Spinning	1,007.40
6/26	Nippon Battery Mfg. Co.	1,200.00
6/11	Kokusan Electric Machinery	109.00
6/30	Hitachi Engineering	85.37

Date	Customer	Sq. Ft.
1936		
8/1	Ogura Petroleum Oil Co.	112.50
8/19	Nachi Railroad Station	326.70
11/4	Yasukawa Electric Machinery	1,500.00
11/16	Mitsubishi Electric "	153.11
12/2	The Port of Yokkaichi Warehouse	3,200.00
12/23	Toho Electric Power Co.	650.00
1937		
4/4	Shibaura Electric Works	1,020.00

SANKI KOGYO SALE OF RAY BURNERS IN JAPAN  
FROM AUGUST 1937 TO FEBRUARY 1938 3/5/38

TT-2-38  
P 119

Type	number ordered	Purchasers	Location
#1 AP-11	1	Our Heating Department	Tokyo
#0 AP-11	7	Tokyo Kozai KK	Manchukuo
#1 AP-11	1	" "	
#0 AP-11	4	Taiwan Seito KK	Taiwan
#0 AP-11	4	Toyo Kozai	Tokyo
#3 AP-11	4	Our Dairen Branch	Manchukuo
#0 AP-11	1	Sato Gomei K.	Tokyo
#3 AP-11	1	Our Osaka Branch	Osaka
#0 AP-11	6	" " "	
#0 AP-11	1	Fuji Shashin KK	Kanagawa
#3 AP-11	1	Our Osaka Branch	Osaka
#3 AP-11	1	Tokyo Kozai KK	Tokyo
#3 AP-11	1	Tokyo Kosho	Tokyo
#0 AP-11	1	Taihoku Taishinyoku	Taiwan
#0 AP-11	1	Ito Shoten	Niigata
#0 AP-11	1	Ono Kagaku	Tokyo
#3 AP-11	1	Hitachi Seisakusho	Yamaguchi
#1 AP-11	2	Nippon Gakki	Shizuoka
#0 AP-11	1	Gohomura	Shiga
#1 AP-11	1	Our Osaka Branch	Osaka
#0 AP-11	2	Taiwan Seito KK	Taiwan

BALES OF SKYLIGHT  
Customer

Date of Sale	Customer	Sq. Ft.
1938		
Jan. 27	Teikoku Sugar Mfg. Co.	2,034.154
Mar. 26	Hitachi Engineering	1,179,000
Apr. 14	Tokai Electrode Mfg.	2,904,000
Apr. 25	Meiji Sugar Mfg. Co.	962,000
May 24	Nippon Mining	513,860
May 24	Kabaya Engineering	284,200
May 26	Taiwan Sugar	57.46

<u>Date of Sale</u>	<u>Customer</u>	<u>Sq. Ft.</u>
<u>1938 (con.)</u>		
June 3	Showa Airplane Mfg.	3,981.78
June 25	Mitsubishi Heavy Industry Co.	476.98
July 22	Mitsubishi Heavy Industry Co.	698.50
Sept. 22	Hokusen Paper Mfg. Co.	422.227
Nov. 15	Mitsubishi Heavy Industry Co.	30,078.2
<u>1939</u>		
Jan. 30	Nippon Mining Co.	3,016.02
Apr. 4	Shibaura Engineering	1,829.52
Apr. 15	Oji Paper Mfg. Co.	350.00
June 2	Meiji Sugar Mfg. Co.	31.885
June 20	Showa Airplane Mfg. Co.	313,632
		<u>40,849.95</u>

The same file (B.HH Robertson 1937 File) also lists the sales of HH Robertson Ventilators (Copper & Iron) for 6 months ending October 30, 1936.

426. SANKYO NAINENKI (SANKYO INTERNAL COMBUSTION) in 1936 purchased:  
4 Kearney and Trecker #2H milling machines (TO 3193) \$11,750.00
427. SANSEI SEISAKUSHO (SANSEI WORKS), in 1940 purchased Timken roller bearings for use on:  
Ingersoll universal milling machines  
Warner & Swasey turret lathes (12118, 12258)
428. SANSEN KOGYO (SANSEN INDUSTRY), in response to a request by the Mexican Government for Irrigation and Meteorological apparatus sent to Mitsui, New York catalogues describing the following products of Sansen Kogyo: Dragline Crane, Power Shovel, Priestman Dredgers, Bucket Dredgers (Mitsui Import General File - 1938).
429. SANYO CHUO SUIDEN (SANYO CENTRAL HYDROELECTRIC) in 1936 purchased parts for Northern Equipment 4" Copes valve (OO 3497).
430. SAPPORO AIR FIELD, Hokkaido, in 1938 inquired for 3 snow plows and tractors (Okura 4701).
431. SATO SCREW WORKS, Tokyo, in 1936 purchased 2 Brown & Sharpe #00 automatic screw machines for \$3343.05 (At 4966).
432. SEIBU KYODO KARYOKU K.K. (WESTERN UNITED POWER), TOBATA STEAM POWER STATION in 1936 had 2 sets of 3 drum bent tube type boilers made by Mitsubishi Nagasaki Zosensho. Considerable detailed technical information is available (TO 9177).

433. SEIDENSHA in 1935 purchased Weston meters for \$117.80 (TR 6160)
434. SEIMITSU KENMAKI SEISAKU SHO (PRECISION GRINDING MACHINE WORKS), Osaka, was located at #1361 Owada-cho Nishiyodagawa-ku, Osaka. It purchased in 1937 11 Norton grinding wheels for \$252.47. (TO 3562).
435. SEIMITSU KISO SEISAKUSHO, Hakata, in 1935-37 purchased small quantities of Durex abrasives and 2 Skinner chucks. The Fukuoka branch purchased a Brown & Sharpe #2L plain milling machine for \$4105.15 (At 5807).
436. SEKIDO DAMBO JIMUSHO, a firm of consulting engineers, inquired in 1936-37 for Vilter air conditioning and refrigerating equipment to be installed in a Tokyo bank (#22434, 22220, 22612, 22698).
437. SEKKAI-SAN STEEL WORKS (NORTH CHINA DEVELOPMENT CO.) in 1939 inquired for 5 freight cars to handle ore for shipment to Tientsin. (TE 520)
438. SENNO SEISAKUSHO (SENNO WORKS), in 1937 purchased 300 pounds of Norton refractory cement for \$72.00 (TO 3517).
439. SHEARING WORKS, Osaka, in 1937 purchased 927 U. S. Steel mild steel plates for \$19,019.36 (11311, 11353).
440. SHIBAURA SEISAKUSHO (SHIBAURA ENGINEERING WORKS), Tsurumi purchased in 1935-36:
- |   |   |           |
|---|---|-----------|
| 1 | Lodge and Shipley 16" x 8' selective head engine lathe (TR 6887)                    | \$2511.04 |
| 2 | Lodge and Shipley 12" x 5' selective head toolroom lathes (TR 7187)                 | 3746.80   |
| 1 | Bullard J-7 8-spindle mul-au-matic lathe (TO 3325)                                  | 9854.73   |
| 1 | Bullard 36" vertical turret lathe (TO 3407)   | 6975.50   |
| 2 | Bullard 24" vertical turret lathes (TO 3407, 3475)                                  | 12477.50  |
| 1 | Warner and Swacey #4 universal turret lathe (TO 3056, 3107)                         | 2154.36   |
| 1 | American Tool 18" x 8' multiproduction lathe (TO 3128, 3200)                        | 2800.00   |
| 1 | New Britain Gridley #652 6-spindle new-matic rotating chucking machine (TO 3201)    | 6529.50   |
| 1 | 1-1/4" Conomatic 4-spindle machine (TO 3441)  | 5001.75   |
| 1 | 7/8" Conomatic 4-spindle machine (3232)   | 4851.11   |
| 1 | Kearney and Trecker #2H 24" milling machine (TO 3331)                               | 2573.80   |
| 1 | Kearney and Trecker #4K plain milling machine (TO 3468)                             | 5077.26   |
| 2 | Kearney and Trecker #2B universal milling machines (TO 3376, 3405)                  | 5289.11   |
|   | Parts for Kearney and Trecker #2K milling machine (TO 3272)                         | 437.75    |
| 1 | Giddings and Lewis #350-T horizontal boring, drilling and milling machine (TO 3340) | 2210.00   |

1	Giddings and Lewis #340-T horizontal boring, drilling and milling machine (TO 3340)	10,500.00
1	Cincinnati 72" vertical boring and turning mill (TR 7143)	10,071.23
1	Niles 102" vertical boring and turning mill (TR 6718)	8,500.00
3	Ex-Cell-o #1212 precision boring machines (TO 3259, 3474)	8,223.20
4	Barnes 20" drills (TR 6341, 6552)	3,100.00
1	Kearney and Trecker face mill grinder (TO 2169)	1,402.50
1	Norton 10" x 72" type C plain grinder (TO 3163)	4,572.00
1	Norton 40" x 36" type C crankshaft grinder (TO 3281)	4,597.50
1	Norton 6" x 18" type C grinder (TO 3143)	7,191.61
	11,000 lbs. Norton abrasives (TO 3465)	940.50
1	Detrick and Harvey 100" x 100" x 24' openside planer (TR 7336)	9,025.00
2	V & O #410 notching presses (TO 2141)	4,645.00
1	Manville #2C automatic screw thread rolling machine )	2,536.20
1	Manville #2C automatic screw slotter (TR 7200)	
29	Independent Pneumatic chipping hammers (TO 2142, 3123, 3244, 3469)	901.00
1	Independent pneumatic sand rammer and parts for drill (TO 3125)	50.89
20	Ajax zinc melting refractory blocks for 60KW Ajax Wyatt furnace made by Shibaura (TO 2207, 2214)	774.00
200	kgs. Furnace lining material (TO 2216)	57.50
	Welding rods (TO 2259)	307.47
	Stackpole metal graphite and carbon brushes for Ford automobiles (TO 5195, 5207, 5259)	1,855.17
	Johns-Manville asbestos ebony wood (TO 5180, 5248, 5201, 5215)	9,172.80
	Besly Helmut glue (TO 5187, 5208, 5264)	620.65
4	Bartlett Hayward Fast's flexible coupling (TO 1253, 1312, 1314, 1323)	162.00
3	Bailey flow meters (TO 9160)	737.44
	Weston meters (TR 6322)	84.12
	Shibaura inquired for 1 Laugnt 3-high mill, 2 pullover 2-high mills, and 1 4-high mill.	

441. SHIKOKU DENRYOKU (SHIKOKU ELECTRIC POWER) in 1936 inquired for a Martindale slotter (OE 1118)

442. SHIMADZU SEISAKUSHO (SHIMADZU MFG. WORKS), Kawaramachi, Nijo-sagaru, Kyoto, in 1936 purchased:  
General Radio equipment (OO 3495, 3498, 3518) 292.10

443. SHIMONOSEKI SEIMITSU KOGYO (SHIMONOSEKI PRECISION INDUSTRY), in 1940 inquired for Chicago-Latrobe twist drills (15/805).



444. SHINAGAWA SEIKI (SHINAGAWA FINE MACHINERY), TOKYO in 1940 purchased quantities of Timken roller bearings for main spindle of turret lathe for \$152.32 (12192, 12102, 12092, 12091).
445. SHINAGAWA SEISAKUSHO (SHINAGAWA MFG. WORKS) in 1938 purchased 2 Kollsman sensitive altimeters and 1 level flight indicator for \$461.90 (TR 8411).
446. SHINDO SEISAKUSHO (SHINDO WORKS), Osaka, in 1940 purchased 100 Timken roller bearings for use on a 4 ft. radial drill. (12108)
447. SHINGISHU EIRINSHO (SHINGISHU FOREST BUREAU), in Korea along the Manchurian border in 1940 purchased Atkins saw equipment for \$2835.11
448. SHIRAISHI KISO KOGYO (SHIRAISHI FOUNDATION INDUSTRY), in 1937 inquired for "Shield and other necessary equipment for tunneling works on behalf of said company." Specifically 7 or 8 used compressors. The New York Times of January 26, 1938 said that this company had hired an American technical advisor to instruct them in sinking caissons for the building of bridges across the Sumida River. (NY 1033)
449. SHODA HIKOKI (SHODA AIRPLANE), in 1939-40 purchased:
- |  |                 |
|--|-----------------|
| 1 Gleason #7 spiral bevel & hypoid generator (At 6117, 6405) | 9408.12         |
| 1 Geald #172 gap internal grinding machine (At 6603)         | 8209.16         |
|  | <u>17617.28</u> |
450. SHOKO GLASS, Dairen purchased in 1936:
- |   |        |
|---|--------|
| 3 Leeds and Northrup thermocouples (TR 6800)              | 258.00 |
| 900 ft. Leeds and Northrup #16F duplex leadwire (TR 7169) | 186.30 |
451. SHOUN KOSAKUSHO (SHOUN WORKS), Osaka, in 1939-40 purchased:
- |  |          |
|--|----------|
| 1 Gleason 12" straight bevel gear generator (At 6464)              | 8,564.12 |
| 1 Cincinnati Bickford 3' plain radial drill (12201)                | 3,571.53 |
| 1 Gallmeyer & Livingston Grand Rapids #55 surface grinder (14/749) |          |
| 3 Brown & Sharpe gauges (At 6148)                                  | 107.66   |
| 1 General Electric continuous induction generator (11907)          | 1,311.60 |
- Timken roller bearings for internal grinders 5' lathes and milling machines were bought.
452. SHOWA HIRYO (SHOWA FERTILIZER) purchased in 1936:
- |  |             |
|--|-------------|
| 1 Monsanto vanadium catalyst to produce 120 metric tons of sulphuric acid daily. Plant to be installed at Kawasaki (TO 2293) | \$46,000.00 |
| 1 Monsanto vanadium catalyst to produce 100 metric tons of sulphuric acid daily. Plant to be installed at Okayama (TO 2294)  | 39,000.00   |

- 1 Monsanto vanadium catalyst for the production of 100 metric tons of sulphuric acid. Plants of 50 metric ton capacity to be installed at Yokohama and at Shiogama near Sendai. (TO 2294) \$39,000.00
- 1 Gas plant with a daily output of 182,000 CBM was to be installed at Kawasaki at the end of October 1936. The order was placed with a German manufacturer. (TE 7125)
453. SHOWA JINKEN (SHOWA RAYON - a subsidiary of Showa Hiryo) purchased in 1936:  
 1 Monsanto vanadium catalyst to produce 65 metric tons of sulphuric acid daily. (TO 2246) \$35,450.00
454. SHOWA KOGYOSHO (SHOWA INDUSTRIAL WORKS) purchased in 1936:  
 50 Mine Safety Appliance mine cap lamps. (TR 7342) 300.00
455. SHOWA STEEL made the following inquiries in 1935-36:  
 Dings Magnetic Separators (MF 15671)  
 1 Crockett Type Dings Magnetic Separator Composition of iron ore was Fe 37%, Feo 12.4%, SiO<sub>2</sub> 47.2%, Al<sub>2</sub>O<sub>2</sub> .35%. This order was probably shipped. A letter from Mitsui, Tokyo to New York (9-26-35) states: "In 1932 we asked you to study Davis Magnetic Separator in connection with Showa Steel Works, formerly called Anzan Steel Works."

"Since then the Ore Dressing Plant of the steel works has been extended twice according to the extension in producing steel. Thirty-six Grindal Separators for the first instance, each having a capacity of feeding four tons max. and three tons normal per hour of Anzan Ore were ordered and they are now about operation. As the second occasion, we are now quoting in behalf of Shibaura for the duplicate of the first extension, in quantity and capacity, competing with those from Grindal and Hitachi Seisakusho (the latter have newly embarked on this line) and we have every confidence to secure order. As we have just mentioned, there would be very little chance, in future, to deal with magnetic separators from over seas maker."

Another letter from Mitsui, Tokyo to New York (9-26-36) states: "We have been informed by Mr. Suitsu that Showa Steel Works still needs a great number of separators even if they adopt Krupp process for direct production of steel from ore."

A letter from Mitsui, New York to Dings (8-21-30) says: "The Anzan Steel Works are now operating 60 sets of Groendals patented magnetic type 5-907 (manufactured by Nyhammer Aktiebolaget of Sweden) besides two sets of your products as well as Alliance Magnetic Manufacturing Co.'s machine. At the present time, the engineers of the above steel works are inclined to the above Swedish separators, the quantity of which to be purchased for the next extension plant is about 200 sets."

A letter from Mitsui to Dings (11-3-32) states: We have just received information from our Dairen office advising that the extension of the ore dressing plant at Anzan is now under consideration and according to private information 50 magnetic separators of two ton capacity per hour are designed. . . . As you are well acquainted, the Anzan ore is homogeneously combined with silica." (TE 7158, MF 15671).

The installation of 2 600 ton blast furnaces or 1000 ton furnace was discussed. A letter from Freyn to Mitsui (1-28-37) states: "We understand that it is the purpose of the trip of these gentlemen to inspect blast furnaces and open hearth plants in the United States, in England and in Germany where they will design two new blast furnaces of approximately 700 tons capacity at an early date." (MF 15723)

Showa negotiated with Bucyrus-Erie for 2 electric shovels to handle a "very hard siliceous lean hematite trap rock." A letter from Mitsui to Bucyrus states (10-5-35): "Showa has decided to buy from Kobe Steel." (TE 7089)

456. SHUYO SEIHYOSHO purchased in 1936 1 Vilter ammonia compressor for \$767.00. (10422)

457. SIAMESE GOVERNMENT, in 1937-40 inquired for trucks, dredges, and police revolvers.

458. SONOEIKE SEISAKUSHO (SEISAKUSHO WORKS), Tokyo. According to a Mitsui letter (6-5-36) "Sonoeike are the best makers of precision tools and their products are widely well known among mechanics in Japan and abroad" (Mitsui TT-2-1936 P. 297). Sonoeike in 1937 quoted for export to U. S. its #22 W.O. carbon steel straight shank twist drills at ¥ .11 each (TT-2-37 p. 7). In August 1937 Mitsui, Tokyo, in placing an order for a National Broach C.G.A. Cutter Grinder (see TO 3771 below) wrote: "The machine and equipment are to be made suitable for grinding not only National Cutters, but also Fellows Cutters. . . . Customer wants to grind all the National Cutters under TO 3712 for Tokyo Gasudenki Kogyo KK. . . . We will not sell any grinding machine in future and will arrange Sonoeike to grind all the cutters which will be used in Japan." In February 1941 Mitsui, Tokyo wrote that Sonoeike was going to regrind Tokyo Jidosha's gear shaving cutters on Sonoeike's National Gear Grinder (Mitsui TT-1-41 p. 112). In 1935-40 Sonoeike made the following purchases:

1	Norton #2 universal tool and cutter grinder. (TO 2134)	1,453.50
	Parts for Lewis felling machine (TR 6173)	32.00
	U. S. Steel charcoal tin plates to be used for gas meters (005, 147, 155, 157, 164)	16,674.52
4800	Mahon sheep skins for gas meters (00 1363, 1330)	6,314.40
20	Winslow meter skins (00 1362)	25.74

- 48 Winslow and Smith barktanned meter skins for gas meter  
(OO 1394, OO 1404) 6,177.60
- 1 National Broach cutter grinder (TO 3771) 5,631.50
- 1 Kearney and Trecker #2K universal milling machine  
(TO 3516) 6,168.70
- Sonoike inquired for honing machines for automobile  
cylinders (TE 2839)
459. SOUTH MANCHURIAN ELECTRIC in 1938 purchased:  
1 General Electric ammeter (TO 5346) 445.00
460. STRONG SHOKAI, Osaka, is described in a 1936 Mitsui letter as  
". . . entirely occupied in making automobile pistons. They are  
still a small factory but quite aggressive technically and are very  
keen to equip their factory with every up-to-date equipments to  
produce some class quality of pistons as finished in USA by Chevrolet  
or Ford" (TE 1112). In 1936-37 it purchased 1 Ex-Cell-o #1212 pre-  
cision borer for boring Ford 4 and 8 cylinder pistons -- production  
per hour, gross 39 4-cylinder pistons and 58 8-cylinder pistons  
(TO 3306) for \$3300.24.
461. SUZUKI SHIKI SHOKKI (SUZUKI LOOM), in 1939-40 purchased 40 Brown &  
Sharpe small tools for \$313.50. (At 6153 - shipped to Nagoya)
462. TACHIARAI SEISAKUSHO (TACHIARAI MFG.), Moji, purchased 1 Kearney and  
Trecker 3 K and 3 2K vertical milling machines for \$27,936.10 in  
1938-39 (TO 3093, TO 3094, TO 3834).
463. TAGI SEIHI-SHO (TAGI FERTILIZER MFG. WORKS) in 1936 inquired  
For Monsanto vanadium catalyst to make 100 metric tons of  
sulphuric acid. (TE 2373)
464. TAISHO KOSAKUSHO (TAISHO MACHINE TOOL) purchased in 1939:  
1 Blanchard #16 vertical surface grinder (12096) 6,740.00  
1 Landis O 14" x 48" universal grinder (12108) 7,250.00  
13,990.00
465. TAIWAN SEITO (FORMOSA SUGAR MANUFACTURING) in 1935 purchased  
parts for a Worthington hot water meter. (TO 7776) 6.30
466. TAIYO CHUKI in 1935 purchased:  
Norton blast nozzles and hose fittings. (TO 3152, 3422) 110.70
467. TAIYO HOGEI (TAIYO WHALING) in 1939 purchased 40 SKF roller bearings  
for \$962.89 (TR 9076) and inquired for 3 crankshafts and 20 propellers  
for whaling boat (NY 2528, NY 2604)
468. TAIYO KOGYO (TAIYO INDUSTRY) in 1936 inquired for Monsanto vanadium  
catalyst to produce 50 metric tons of sulphuric acid. (TE 2381)