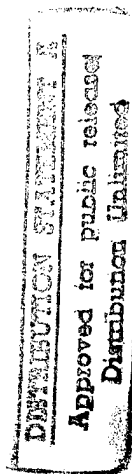
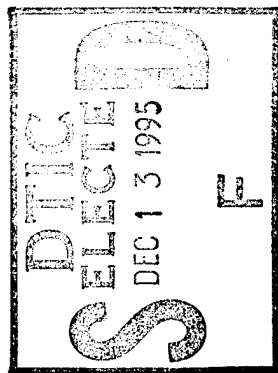


CHINA'S IMPORT OF FOREIGN TECHNOLOGY

A CHRONOLOGY:

1 JANUARY - 30 JUNE 1988

Information Cutoff Date: 30 June 1988



Analyst: Donald R. DeGlopper

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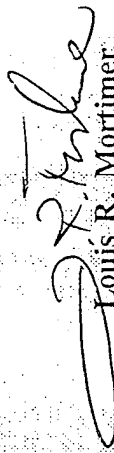
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PREFACE

This selective compilation and analysis of significant transfers of technology to China during the first half of 1988 concentrates on technology with basic industrial or potential military applications. Consulting services also are included. The chronology is based on a variety of sources, including United States and foreign newspapers, trade journals, newsletters, and wire services.

The basic unit recorded is the transaction. The record for each transaction includes the item of technology, the foreign and Chinese parties involved, the terms and value of the agreement, and additional information that may indicate its significance. Transactions are grouped in broad categories such as electronics or transportation equipment. Depending on user requirements, further subsets of transactions, such as those involving a particular item, foreign country, or end user, may be produced.

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## SUMMARY

China's ambitious plan to quadruple its production by the year 2000 depends on the successful introduction of foreign technology. In both the civilian and military sectors, the policy is to import suitable technology that is as advanced as possible rather than to import finished products. Chinese importers usually attempt to include technology transfer and training in contracts for the purchase of advanced equipment. Military modernization is to be funded by rapid economic growth and to be achieved through domestic production of advanced weaponry rather than by large-scale purchases from abroad.

The five major obstacles to successful realization of this modernization policy are:

- 1) the reluctance of foreign corporations to transfer advanced technology to or to risk capital in China;
- 2) delays and bureaucratic obstruction caused by China's import and foreign exchange controls, which are intended to counter the large demand for finished and consumer goods;
- 3) foreign export controls;
- 4) the tendency of many Chinese organizations to seek short-term benefits by importing finished goods and consumer products rather than by making the long-term effort to master technology or to invest in energy, transportation, or other critical sectors of the economy; and
- 5) the difficulties many Chinese enterprises have in absorbing technology.

The first obstacle has been the motive for major efforts to reform China's commercial and legal system and to improve the investment climate to assure foreign corporations that China is a secure and promising place in which to invest and do business. The second problem has proved more intractable, and is exacerbated by efforts to reduce the foreign trade deficit and to protect Chinese industry from foreign competition. There is, however, a long-term trend toward devolution of responsibility for the choice of technology to the enterprises that will use it. The third obstacle, which loomed large in the early 1980s, has been addressed quite successfully by persistent diplomatic activity, in which Chinese leaders have made foreign nations' technology export controls a major bilateral issue. Diplomacy has been supplemented with quiet attempts to circumvent export controls. The fourth problem, which reflects fundamental aspects of China's economic and local political structure, has proved difficult to remedy. China's leaders see the ultimate solution as economic reform, and in the short-term they have resorted to strict central controls over foreign exchange and imports. The fifth obstacle is another long-term problem, which can be solved by raising the skills of China's technical and managerial workforce.

Apart from addressing the obstacles to technology transfer, China's leaders have had to determine both overall priorities and the most effective methods of introducing foreign technology. In the first half of 1988, public discussion of the benefits of concentrating resources on export-oriented light industry or on upgrading heavy industry continued. Import substitution and protection of Chinese enterprises that had imported foreign technology but could not produce goods as cheaply as foreign manufacturers were increasingly common choices.

A priority of the 7th Five Year Plan (1986-90), as of the 6th Five Year Plan (1981-85), is raising the technical level of existing enterprises rather than importing complete new plants. The plan stresses investment in energy, transportation, and electronics and emphasizes upgrading existing facilities. Investment in military equipment has a low priority, reflecting both the relatively low ranking of military needs in the "Four Modernizations" and the recognition of the huge costs necessary to equip China's armed forces with substantial quantities of foreign material. However, much of the recently imported technology, especially in the fields of electronics and telecommunications, has immediate military uses, and items in such fields as transportation equipment or metallurgy often have potential military applications.

Most transfers of technology to China are in the form of purchases, assembly agreements, licensing or coproduction contracts, joint ventures, equipment leasing, or consulting and training agreements. The precise form, scope, and content of these commercial transactions depend on the agreement negotiated between the two parties. For effective technology transfer, the two most important factors are the duration of the contract and the ease and frequency of consultation between the donor and the recipient of the technology. Joint ventures or long-term coproduction agreements are thus more effective than one-time sales of equipment or licenses. Frequent direct contact and consultation between Chinese factories and foreign providers of technology are more effective than transactions mediated through China's national import-export corporations or central ministries. Since the early 1980s, an increasing number of decisions on specific items of technology have been made at the level of the factory or municipal industrial commission rather than at the central level, and an increasing number of contracts have provided for training and consultation. These trends indicate increasingly successful assimilation of foreign technology by Chinese factories.

## 1. TRENDS IN TECHNOLOGY TRANSFER, JANUARY-JUNE 1988

The first half of 1988 saw no major changes in China's policy of promoting imports of advanced technology and offering investment incentives to foreign corporations controlling such technology. Efforts to redress the foreign trade deficit and shortage of foreign exchange by boosting exports and limiting imports continued. Official policy was to continue importing advanced and appropriate technology while restricting imports of consumer goods or of technology duplicating that already imported. Technology to be imported had to pass through a complex administrative filter comprising contract approval, foreign exchange controls, import licenses, and special tax and tariff incentives for export-oriented and technically advanced enterprises. Because central authorities and the Ministry of Foreign Economic Relations and Trade (MOFERT) were increasingly aware of the costs of duplicative imports of technology and production facilities, they made efforts to exercise central supervision to halt such imports. The assimilation of imported technology, a longstanding goal, received increased attention from the press, which published several frank accounts of the problems of showcase high-technology joint ventures. In itself, the desirability of importing foreign technology was not a major issue for public discussion or debate. Instead the focus was on questions of which sort of technology to import and how to make the best use of that which had already been imported. The lack of debate over desirability demonstrated the extent to which importing foreign technology had become a routine, non-controversial, and essentially commercial matter.

## 2. ADMINISTRATIVE INITIATIVES

Efforts to modify and improve the administrative framework for technology imports continued in the first half of 1988. On 20 January 1988 new rules for technology import contracts went into effect. The "Detailed Rules for the Implementation of the Regulations on Administration of Technology Import Contracts of the People's Republic of China," drafted by MOFERT and approved by the State Council, replaced the September 1985 "Procedures for Examination and Approval of Technology Import Contracts" and differed from the "Procedures" largely by being more detailed and specific about the standards used in approving or rejecting proposed technology import contracts.<sup>1</sup> Foreign commentary on the new rules noted that China's approving authorities (primarily MOFERT) retained a considerable degree of discretion in approving contracts, and that the extent to which the "Detailed Rules" promoted technology imports would depend largely on their interpretation by Chinese officials.<sup>2</sup>

In June 1988, Lu Yongkuan, identified as "a senior trading official," told American participants in a Sino-US Joint Session on Industry, Trade, and Economic Development that China would cut the income tax on export-oriented and technically advanced enterprises with foreign investment from 15 percent to 10 percent. Such enterprises also would be granted extensions of tax "holidays" and limited reductions in tax rates as well as reductions in land use and labor benefit fees.<sup>3</sup> Foreign investors, who are concerned with the arbitrary and unpredictable manner in which taxes and fees are imposed by Chinese authorities, are not likely to be attracted by such minor modifications of the tax and fee structure.

### 3. POLICY CHOICES

High-level discussion of priorities in technology imports was reported in the Chinese press. In April 1988, a Renmin Ribao (Beijing) article condemned reckless importing--decisions on technology or equipment made without planning or feasibility studies. Citing examples of idle or under-utilized production lines that had been imported at great expense, the article blamed bureaucratism and the selfish attitudes of some factory managers who were more interested in chances for foreign travel, gifts, and bribes than in selecting the best and cheapest equipment (which might be produced in China) for their factories.<sup>4</sup> A 1 June 1988 article in China Daily (Beijing) condemned the proposed strategy of giving priority to export-oriented light industry to earn the foreign exchange needed to renovate China's obsolescent heavy industry. The article argued instead for giving immediate priority to heavy industry, citing the example of Japan's 1957 decision to build up (and protect) heavy industry rather than the light industry in which the country had a comparative advantage.<sup>5</sup> More significant than the precise arguments is the heavy use of foreign examples and analogies, and the assumption that the audience is familiar with Japan's targeted development of key industries or the export-led growth of Asia's "Four Little Tigers" (Hong Kong, Singapore, Taiwan, and South Korea). The level of economic sophistication and familiarity with foreign experience demonstrate the results of China's policy of opening to the outside world.

### 4. GROWING PROTECTIONISM

A series of announcements signaled a trend toward increasing protectionism, a trend favoring China's state-owned heavy industry and central industrial ministries. An example of the pressures for protectionism was provided by the February 1988 disclosure that the Shanghai Bell Telephone Corporation, a showcase high-technology joint venture producing computerized switching systems, had been in deep financial difficulty for two years. Its plant, operating at less than half of its production capacity, had so far lost over 15 million yuan (\$ 4,043,000). The corporation's problems stemmed from its inability to meet price competition from foreign, especially Japanese, firms offering comparable equipment for 30-70 percent less. Calling such sales "dumping," the manager of Shanghai Bell appealed to local banks to grant foreign exchange to Chinese enterprises to permit them to purchase his factory's products.<sup>6</sup> (Joint ventures or enterprises licensing foreign production technology commonly must import key components, paid for in foreign exchange, and pass the cost along to their Chinese customers, who must pay a portion of the price in foreign exchange.)

Continuing efforts at import substitution that began in 1987, in April 1988 the Ministry of Machinery and Electronics Industry drew up a list of 100 products manufactured by enterprises under the Ministry of Aeronautics Industry that were to replace imports. The Chinese products, claimed by the Ministry to be up to international standard, included buses, motorcycles, and various machines and electronic instruments. Substituting these products for imports would, the Ministry predicted, save \$270 million in 1988.<sup>7</sup> In June 1988, the Ministry of Light Industry announced that controls on imports of production lines for electrical appliances had been imposed. A spokesman for the Ministry explained that

enough production lines had been imported so that the goal now should be to digest imported technology, increase the proportion of Chinese-made components, and raise the quality of electrical appliances to boost exports. In the same month, the Ministry of Machinery and Electronic Industry announced plans to substitute domestic products for 2,700 imported items by 1990. The substituted products will include heavy-duty mining equipment, power-generating equipment, meters and instruments, computers, and electronic instruments. Mass production of such items will replace imports and save eight to nine billion yuan (\$2.15 - 2.4 billion).

The inability of a newly-organized domestic factory with imported technology to match the price of goods produced by large, experienced, and technologically sophisticated multinational corporations is a classic condition for generating calls for protection. The higher costs of Chinese firms using imported technology reflect both the expected failure to immediately master advanced technology (which would be true in any country) and the burden of managerial deficiency and overall inefficiency that is common to China's industrial system as a whole. Given China's circumstances, some degree of protectionism and import controls is to be expected, but, to the extent that protectionism shields domestic industries from foreign competition, it also reduces incentives for technical upgrading, better management, and continued assimilation of foreign technology.

#### 5. GROWTH OF TECHNOLOGY CONSULTING FIRMS

Continuing reforms of China's foreign trade system have transferred responsibility for selecting equipment to end-user factories and devolved authority to approve technology import contracts to local governments and foreign trade companies. The subsequent increase in the number of participants in the foreign trade arena and transfer of responsibility for selecting foreign technology to factory managers and engineers with little knowledge of foreign firms, their products, or the methods of foreign trade have provided opportunities for the growth of consulting firms specializing in advice on technology choice and in import expediting. A representative firm is Tianjin's International Technology Consulting Corporation (InterTech), a joint venture established in 1987 by Tianjin's municipal Science and Technology Commission and a Singapore businessman. The firm employs both Chinese and foreign staff and provides consulting and training services to enterprises and local governments all over China. In May 1988, the Chinese Academy of Sciences, the China National Chemicals Import and Export Corporation, and the China Venturetech Investment Corporation jointly formed a new firm, the China Newtech Development and Trade Corporation, which combines expertise in science and technology, foreign trade, and finance. The firm intends to develop new technology, promote import and export trade in technology, and engage in commercially motivated scientific and technical exchanges with foreign countries.

These consulting firms serve brokerage and agent functions in a manner similar to the former central foreign trading corporations but differ in having a commercial and entrepreneurial outlook and claiming to be able to shepherd projects through China's bureaucratic maze. Chinese consultants, in addition to the common function of providing connections and access to bureaucratic decisionmakers,

open avenues for technology transfer and may permit Chinese factories and local governments to make better choices of foreign technology and to master that technology more quickly.

#### 6. SIGNIFICANT TRANSACTIONS

In the first half of 1988, major purchases of power plants and telecommunications equipment continued, as the Chinese government acted to eliminate shortages in those bottleneck sectors of the economy. The policy of encouraging coproduction with foreign corporations that would produce and export relatively sophisticated products bore fruit as several Japanese and United States firms planned to transfer production of instruments and electronic goods to Chinese facilities. Although fewer contracts for computer production lines were signed than in past years, several agreements for joint software development were reached. Software development, which is labor-intensive and does not require imports of raw materials or key components, is a field in which China's hopes for relatively equitable and export-oriented cooperation with foreign firms may well be realized. Chinese skills in aircraft design and development will be upgraded with the agreement with French and Australian firms for joint development of a new-generation light helicopter.

China's growing international commercial sophistication was demonstrated by its purchase of an unprofitable (and therefore cheap) Pittsburgh maker of equipment for steel mills, which brought with it technology, patents, and software design packages that would be useful in the modernization of China's steel industry. In the same way, the purchase of a small Seattle firm supplying components to Boeing, McDonnell-Douglas, and other aircraft manufacturers gave China access to advanced technology and additional leverage in its dealings with the major suppliers of civil airliners.

Compared with the early 1980s, technology agreements in the first half of 1988 showed an increased component of what the Chinese have come to call "software"--such as control systems and more effective processing and information handling skills--and less "hardware"--such as complete plants or machines. In an increasing number of cases, as in software development or production of instruments, the Chinese partner has acted more as an equal participant and less as a passive recipient of foreign skills.

NOTES

1. "China Issues New Rules On Technology Import," Ta Kung Pao Weekly Supplement (Hong Kong), 28 January 1988, p. 5.
2. Preston M. Torbert, "New Implementing Rules on Technology Import Contracts, Part I," East Asian Executive Reports [Washington], May 1988, p. 20; Part 2 June 1988, p. 16; Christopher G. Oechli, "New Rules for Technology Imports," China Business Review [Washington], July-August 1988, p. 35.
3. "Regulations to Lure New Foreign Funds," China Daily [Beijing], 23 June 1988, p. 2.
4. "Factories Import Too Recklessly," China Daily [Beijing], 27 April 1988, p. 4.
5. "Sacrifice of Basic Industry Opposed," China Daily [Beijing], 1 June 1988, p. 4.
6. "Sino-Belgian Telephone Firm in Financial Straits," Ta Kung Pao Weekly Supplement [Hong Kong], 3 March 1988, p. 4.
7. "State Sets List of Products To Cut Imports," China Daily [Beijing], 29 April 1988, p. 2.
8. "China Curbs Import of Production Lines," Beijing Review, 13 June 1988, p.30; "Import Substitutes," China Daily [Beijing], 15 June 1988, p. 2.
9. Zhu Weige, "InterTech-A New Kind of Joint Venture," China Reconstructs [Beijing], April 1988, p. 28; "Newtech Firm Set Up," China Daily [Beijing], 31 May 1988, p. 2.

## INTRODUCTION TO CHRONOLOGY

Each transaction listed in the following chronology for the period 1 January to 30 June 1988 has nine fields: category, date, foreign firm, country, Chinese firm, Chinese end-user, item, comment, and source. These fields permit extensive cross tabulation, such as the creation of particular sets of transactions (for example, all imports of nuclear-power technology for a specific period of time or all electronics technology from France, or all foreign firms selling technology to the Number 2 Machine Tool Factory in Wuhan).

Fourteen technology transfer categories have been tabulated: chemicals, computers, electronics, energy, instruments, machinery, management, metallurgy, military, miscellaneous, nuclear, space, telecommunications, and transportation. This is a selective rather than an exhaustive list and is most complete in the areas of computers, electronics, telecommunications, and transportation. The focus throughout is on the transfer of production technology rather than of finished goods and on technology serving basic industrial or military needs rather than on consumer goods.

The category of Chinese firms refers to the central ministry or national import and export corporation that functions as a purchasing agent (except in the case of state-to-state agreements). The category of end-user refers to the factory or other unit for which the item is purchased. Unless otherwise noted, all monetary values are for US dollars. It is possible to select specific Chinese factories and to list all their recent imports of foreign technology or to select a foreign firm and to identify the users of its products.

The chronology lists 81 transactions with 13 foreign countries. The preponderance of transactions with the United States (25 transactions), Japan (13 transactions), and the Federal Republic of Germany (16 transactions) reflects the sources from which the list was compiled, and the focus on computers, electronics, and producer rather than consumer goods. The following table sets out the categories and foreign countries in a comprehensive fashion.

CHINA TECHNOLOGY TRANSFER  
CHEMICALS

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
01/25/88	Occidental Petroleum Corp. (USA)	Shanghai Sitco International Trading Co.	Wujing Chlor-alkali Complex, Shanghai	Technology for polyvinyl chloride paste resin plant	Occidental licenses its paste resin technology, and will also buy equipment for the plant, provide on-site technical supervision for construction and start-up, and supervise training of plant operators and superintendents in the United States. Oil and Gas Journal (Tulsa, OK), 25 January 1988, p.32
02/00/88	Technip Corp. (France)	China National Technical Import and Export Corp.	Petrochemical Complex, Fushun, Liaoning	Shell-process ethylene oxide plant	China-Britain Trade Review (London), March 1988, p.14
02/06/88	Noble Chematore Co. (Sweden)	Shanghai Investment and Trust Corp.	Wusong Chemical Works, Shanghai	Technology to produce toluene disocyanate	Toluene disocyanate is a raw material used to produce foam plastics, high-grade paints, and high-intensity adhesives. China Daily (Beijing), 6 February 1988, p.2
03/14/88	Lummus Canada Inc. (Canada)	China National Technical Import and Export Corp.	Petrochemical Plants, Fushun, Liaoning	Technology and engineering services for two new petrochemical plants	One plant will be a 120,000 metric ton/year ethylene plant using Lummus Crest technology. The other plant will be an 80,000 ton/year linear low density polyethylene plant using the Schairtech process. Oil and Gas Journal (Tulsa, OK), 14 March 1988, p.29

CHINA TECHNOLOGY TRANSFER  
CHEMICALS

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
04/25/88	Occidental Chemical Corporation (USA)	China National Chemical Construction Company	China Wuhan Chemical Engineering Corporation	Proprietary technology for production of phosphoric acid	Occidental will license its Hemihydrate Process for producing phosphoric acid, and China Wuhan Chemical Engineering Corporation will market the technology in China. China Daily (Beijing), 27 April 1988, p.2

CHINA TECHNOLOGY TRANSFER  
COMPUTERS

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
02/00/88	Hewlett-Packard Corp. (USA)	China National Machinery and Equipment Import and Export Corp.		Joint service center	The joint service center will provide technical service and training for enterprises that have purchased China Hewlett-Packard (a production joint venture) manufacturing and management computer systems. (China Britain Trade Review (London), March 1988, p.15)
03/00/88	Polaroid Corp. (USA)		Media Diskette Manufacturing Factory, Shenzhen	License for production of floppy diskettes	China Business Review (Washington), July-August 1988, p.59
03/00/88	Center for International Cooperation in Computerization (Japan)	China Software Technology Corp.		Cooperation in development of machine translation between Chinese and Japanese	JETRO China Newsletter (Tokyo), March-April 1988, p.22
05/10/88	Siemens AG (Federal Republic of Germany)	Chinese Academy of Sciences (CAS)		Joint development of software	Siemens and CAS sign a contract for joint development of software for Siemens personal computers. An additional memorandum covers adaptation of Chinese processing software to Siemens microcomputers. China Daily (Beijing), 25 May 1988, p.3
05/24/88	Ascii Corp.; Taiyo Computer Center Co. (Japan)		T & A Corp., Beijing	Software development firm	The firm will be the first wholly Japanese-owned software venture established in China. It will employ 60 systems designers and

CHINA TECHNOLOGY TRANSFER  
COMPUTERS

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
06/00/88	Western Digital Corp. (USA)	- - -	China Computer Development Corp.	License for manufacture of hard disk controller boards	development engineers in the first year, and increase the staff to 150 in the second year. The venture will develop software for Ascii Corp., and within a few years will supply software to Chinese enterprises. Kyodo (Tokyo), 24 May 1988, in EBIS/China, 26 May 1988, p.6
06/00/88	Intel Inc. (USA)	China Aero-Technology Import and Export Corp. (CATIC)	China Intel Co., Ltd., Beijing	Production of Intel Model 863 microcomputers	China-Britain Trade Review (London), July 1988, p.17
06/03/88	Canon Inc. (Japan)	Beijing University	Pecan Information Technology Inc., Beijing	Joint venture to develop desk-top publishing systems	China_Business_Review (Washington), September-October 1988, p.58
					The first Sino-Japanese joint venture between a university and a private Japanese corporation, the firm will combine Beijing University's software development skills with Canon's laser beam printer technology. Pecan will sell desk-top publishing systems in China and use Beijing University's software skills to develop personal computer software for the Japanese market. Kyodo (Tokyo), 3 June 1988, in EBIS/East Asia, 8 June 1988, p.5

CHINA TECHNOLOGY TRANSFER  
COMPUTERS

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
06/08/88	Iko Software Service Limited (Ikoss) (Federal Republic of Germany)	Tianjin Advanced Technology Development Corp.	Ticoss Ltd., Tianjin	Joint venture in software development	Frankfurter Allgemeine, 8 June 1988, in FBIS/China, 13 June 1988, P.14
06/29/88	Apollo Computer Inc. (USA)	Shanghai Foreign Trade Corp.; Fujian Computer Corp.	Shanghai Computer Factory; Fujian Computer Factory	Assembly of computer workstations	The two Chinese factories will assemble Apollo Series 3869 Personal Workstations from kits shipped from Apollo's New Hampshire plant. Asian Wall Street Journal (Hong Kong), 29 June 1988, p.5

CHINA TECHNOLOGY TRANSFER  
ELECTRONICS

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
01/11/88	Standard Elektrik Lorenz (SEL) Corp. (Federal Republic of Germany)	-- --	Shenzhen Universal Digital Industry Co.	Technology for digital television production	The development of digital television is a key project of the current (1986-1990) Five-Year Plan. China Daily, Business Weekly (Beijing), 11 January 1988, p.4
02/01/88	General Electric Co. (AEG) (Federal Republic of Germany)	Ministry of Metallurgical Industry; Ministry of Coal Industry; China National Nonferrous Metals Industry Corp.	-- --	Automation training centers, Beijing	The centers will train operators for AEG's mining and metallurgy automation equipment to be installed in various Chinese enterprises between 1988 and 1992. China Daily (Beijing), 2 February 1988, p.2
04/00/88	Flextronics Inc. (USA)	-- --	Flextronics Computer (Shekou) Ltd., Shenzhen SEZ	Production of printed circuit boards for use in medical electronics, data storage, and instrumentation	China Business Review (Washington), September-October 1988, p.58
06/07/88	Schlumberger Technologies (USA)	China National Electronics Import and Export Corp.	Schlumberger Systems Technical Center, Beijing	Services, including repair, consultation, and training, for users of Schlumberger's automatic computer testing equipment. The center will ensure that semiconductors and circuit boards produced in China meet international standards.	China Daily, Business Weekly (Beijing), 18 July 1988, p.4
06/28/88	Philips Corp. (Netherlands)	Shanghai No. 7 Radio Factory	Shanghai Philips Semiconductor Co.	Joint venture to produce integrated circuits	Management will be in the hands of Philips, and most of the 70 million

CHINA TECHNOLOGY TRANSFER  
ELECTRONICS

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
					integrated circuits produced each year will be used in televisions, radios, and acoustic products. CEI Database (Beijing), 4 July 1988, in FBIS/China, 5 July 1988, p.20

CHINA TECHNOLOGY TRANSFER  
ENERGY

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
02/00/88	Global Engineering Ltd. (United Kingdom)	Bohai Oil Corp.	- - -	Offshore oil production technology and training	China-Britain Trade Review (London), February 1988, p.15
02/00/88	UOP Corp. (United Kingdom)	China Petrochemical International Corp. (SINOPEC)	Refinery, Luoyang, Henan	Processing unit to upgrade crude oil residues	The Demex processing unit, China's second, will be used to upgrade heavy, metal-contaminated crude oil residues for further processing to produce gasoline and asphalt blending components. The process, developed jointly by UOP and the Instituto Mexicano del Petroleo, will permit a greater proportion of Zhongyuan crude oil to be converted into gasoline, diesel fuel, and jet fuel. Petroleum Times (Maidstone, UK), February 1988, p.17
02/13/88	Alsthom Corp. (France)	Huaneng International Power Development Corp.	Chongqing Luohuang Power Plant, Sichuan	Two 350,000 kilowatt generators	China Daily (Beijing), 13 February 1988, p.2
02/13/88	Mitsubishi Heavy Industries Corp. (Japan)	Huaneng International Power Development Corp.	Chongqing Luohuang Power Plant, Sichuan	Desulphurizing equipment	The Luohuang Power Plant, due to be completed in 1990, will be China's first power plant to use high-sulphur coal and to treat all exhaust gas. It will meet all environmental protection requirements. China Daily (Beijing), 13 February 1988, p.2

CHINA TECHNOLOGY TRANSFER  
ENERGY

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
03/00/88	Control Data China Inc. (USA)	-- --	Dongfang Boiler Works, Sichuan	Computer system to design and manufacture large-scale boilers	China Business Review (Washington), September-October 1988, p.57
03/12/88	GEC Turbine Generators Ltd. (United Kingdom)	Huaneng International Power Development Corp.	Yueyang Power Plant, Hunan	Two 350,000 kilowatt generating units	Xinhua, (Beijing), 12 March 1988, in FBIS/China, 14 March 1988, p.10
05/06/88	New Energy Development Organization (Japan)	State Planning Commission	Unnamed new bureau	Cooperation in development of technology for extracting methanol from coal	Japan is interested in methanol as a low-pollution alternative fuel for cars, and China anticipates gasoline shortages as the number of automobiles and trucks increases. Kyodo, 6 May 1988, in FBIS/China, 6 May 1988, p.6

CHINA TECHNOLOGY TRANSFER  
INSTRUMENTS

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
01/00/88	Digital Graphics (Hong Kong)	Ministry of Light Industry	Beijing Design Institute	Computerized plant design system	The PROVue 3D computerized plant design system, developed by the UK's Imperial Chemical Industries Corp. (ICI) and run on an Apollo DN4000 workstation, allows engineers to design three-dimensional piping systems. It is widely used in the petroleum, shipbuilding, food processing, and pharmaceutical industries. Business China (Hong Kong), 25 January 1988, P. 14
01/25/88	Yokogawa Electric Corp. (Japan)	Xi'an Instrument Factory; Suzhou Integrated Circuit Factory	Suzhou-Yokogawa Electric Meter Co, Jiangsu	Joint venture to produce electric meters.	The meters will be exported, and, apart from one Japanese component, will use all Chinese parts. China Daily (Beijing), 28 January 1988, p.2
02/00/88	Ferranti Industrial Electronics Ltd., Metrology Systems Group (United Kingdom)	-- --	Tianjin No. 2 Machine Tool Factory	Ferranti Merlin 1100 Coordinate Measuring Machine	China-Britain Trade Review (London), March 1988, p.15
02/00/88	Ferranti Industrial Electronics Ltd., Metrology Systems Group (United Kingdom)	-- --	Jilin Diesel Factory, Shandong	Ferranti Merlin 1400 Coordinate Measuring Machine	China-Britain Trade Review (London), March 1988, p.15
02/15/88	Allen-Bradley Co. (USA)	China National Machinery and Factory	Joint venture in Xiamen, Fujian	Joint venture to produce automation	The first products will be programmable

CHINA TECHNOLOGY TRANSFER  
INSTRUMENTS

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
		Equipment Import and Export Corp.		control products	controllers. China Daily, Business Weekly (Beijing), 15 February 1988, p.2
03/00/88	Hamilton Brighton Corp. (USA)	Ministry of Railways	Yongji Factory, Shaanxi	Electrical design and engineering CAD (computer-assisted design) system	China Business Review (Washington), July-August 1988, p.59
03/31/88	Hamamatsu Photonics Ltd. (Japan)	Ministry of Nuclear Industry	Beijing Nuclear Instrument Factory	Joint venture to manufacture photomultipliers and optical detectors	The joint venture, Beijing Hamamatsu Photonics Techniqes Ltd., will start production in April 1989, with an annual output of 48,000 photomultipliers, 57 percent of which will be exported to Japan. Xinhua, 31 March 1988, in EBIS/China, 1 April 1988, p.7
05/00/88	Ferranti International Controls (USA)	- - -	Guangdong General Power Co.	Electric power distribution management system	The \$5 million sale is for equipment using Intel 360/30 single-board computers. China Business Review (Washington), September-October 1988, p.57
05/27/88	Hewlett-Packard Corp. (USA)	China Hewlett-Packard Co.	New plant in Shenzhen, Guangdong	New plant to produce analytical integrators	The new plant will produce two of Hewlett-Packard's analytical instruments, the HP 3394 and HP 3396 integrators which are used to make recordings and calculations with data provided by other instruments such as gas chromatographs. Hewlett

CHINA TECHNOLOGY TRANSFER  
INSTRUMENTS

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
					<p>Packard plans to transfer production of these instruments for the world market from the United States to Shenzhen. Advanced production technologies will be transferred from a HP division in the United States.</p> <p>China Daily (Beijing), 27 May 1988, p.2</p>

CHINA TECHNOLOGY TRANSFER  
MACHINERY

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
02/00/88	Belliss & Morcom Ltd. (United Kingdom)	-- --	Liuzhou Compressor Works, Guizhou	Technology to manufacture compressors	The contract calls for Belliss and Morcom to provide design knowledge, working drawings, training, and manufacturing expertise to permit Liuzhou Compressors to produce the British firms' "V" range of compressors. China-Britain Trade Review (London), February 1988, p.10
03/11/88	G & B Automated Equipment Ltd. (Canada)	China National Machinery and Equipment Import and Export Corp.	Three factories in Shenyang, Guiyang, and Zhengzhou	Grinding wheel manufacturing technology	The \$17 million contract provides for upgrading the three Chinese factories with equipment to produce vitrified abrasive wheels used in the manufacture of ball bearings, machine tools, and metal components. China Daily (Beijing), 11 March 1988, p.2
05/00/88	Coopers Payen (United Kingdom)	-- --	Yiyang Autoparts Works, Hunan	Technology for automotive cylinder head gaskets	China Britain Trade Review (London), May 1988, p.11
05/00/88	Weiler Corp. (Federal Republic of Germany)	-- --	No. 1 Machine Tool Works, Jinan, Shandong	Production of Primus digitally-controlled lathes	China Business Review (Washington), September-October 1988, p.59
05/00/88	Yamazaki Mazak Corp. (Japan)	-- --	No. 1 Machine Tool Works, Jinan, Shandong	Joint manufacture of QT-10N digitally-controlled lathes	China Business Review (Washington), September-October 1988, p.59

CHINA TECHNOLOGY TRANSFER  
MACHINERY

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
05/00/88	Wanderer Machine Tool Manufactures (Federal Republic of Germany)	- - -	Nanjing Machine Tool Works, Jiangsu	Production of TC500 flexible manufacturing units	China Business Review (Washington), September-October 1988, p.59
05/00/88	Schiess-Froriep Co. (Federal Republic of Germany)	- - -	Wuhan Heavy Machine Tool Works, Hubei	Manufacture of FB260 digitally-controlled floor boring and milling machines	China Business Review (Washington), September-October 1988, p.59
06/24/88	Planttechnik Industrie Anlagen (Federal Republic of Germany)	Anshan Iron and Steel Complex	Dalian-Cologne Chain and Sprocket Manufacturing Company	Joint venture to produce and export chains and sprockets	China Daily (Beijing), 27 June 1988, p.2
06/24/88	Utilicell Company (Spain)	- - -	Beijing Utilicell Force Transducer and Load Cell Company	Joint venture to produce force transducers	Force transducers are energy converters used in automation of production in the metallurgical, chemical, mining, and construction industries. The venture hopes to export 55 percent of its output. China Daily (Beijing), 27 June 1988, p.2
06/24/88	U.S. General Ball Bearing Co. (USA)	Shanghai Rolling Bearing Plant	Shanghai General Ball Bearing Co.	Joint venture to produce ball bearings	PHIS/China, 11 July 1988, p.57

CHINA TECHNOLOGY TRANSFER  
MANAGEMENT

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
02/00/88	Nederlandsche Middenstandsbank (Netherlands)	Beijing International Trust and Investment Corp.	China-Bitic International Management Consultants Ltd., Beijing.	Management Consultancy	This is China's first joint-venture management consulting firm. It will provide investment and financial advice, engage in project financing and management, and arrange technology transfer. The third partner is Hong Kong's KK Yeung Management Consultants Ltd. China-Britain Trade Review (London), March 1988, p.16
03/21/88	Peat, Marwich, and Mitchell Co. (USA)	Ministry of Finance, Department of Accounting		Training in Western accounting methods	The six-month class, offered in Guangzhou by the New York accounting firm, will help its students, who are mostly young college graduates and CPA's, to train accountants to work for enterprises with foreign investment. China Daily, Business Weekly (Beijing), 21 March 1988, p.2

CHINA TECHNOLOGY TRANSFER  
METALLURGY

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
01/00/88	Piatti Co. (Italy)		Steel Plant, Tianjin	Advanced steelmaking technology and facilities	Piatti, in conjunction with Demag of the FRG and Keytech Inc. of the United States, will supply a complete continuous rolling unit to a new seamless steel plant. The new plant, an important element of the current Five-Year Plan, will produce 600,000 tons of seamless steel pipes per year. Business China (Hong Kong), 25 January 1988, p. 15
02/16/88	Ishikawajima-Harim a Heavy Industries Co; Mitsubishi Electric Corp. (Japan)	China National Technical Import and Export Corp.	Southwest Aluminum Fabrication Plant, Chongqing, Sichuan	Technical upgrading of the plant	The Japanese firms will update the hot rolling equipment, which will permit the plant to quadruple output to 50,000 tons per year. China Trade Report (Hong Kong), March 1988, p. 15
04/04/88	Mesta Machine Company (USA)		Shoudu Iron and Steel Company, Beijing	Technology for steel casting, rolling, and milling equipment	Beijing's Shoudu Iron and Steel Company purchases a majority of the stock of Pittsburgh's Mesta Machine Company, which designs and produces rolling mills, continuous casting mills, and subsidiary machines for iron and steel mills. Shoudu acquires 850 sets of design blueprints, 46 sets of proprietary design software, and 41 patents. Shoudu plans to produce advanced casting and rolling equipment so that China's iron and steel industry will no

CHINA TECHNOLOGY TRANSFER  
METALLURGY

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
04/13/88	Sumitomo Metal Industries Ltd. (Japan)	- - -	Ma'anshan Steel Works, Anhui	Technology for steel production	longer have to import such big equipment. FBIS/China, 11 July 1988, p.50  Sumitomo signs a contract for the provision of five kinds of equipment and technology, including a coal firing kiln and coke dust collection technology, to the Ma'anshan Steel Works in exchange for a supply of vanadium pentoxide, an agent used in the manufacture of steel. Kyodo (Tokyo), 13 April 1988, in FBIS/East Asia, 14 April 1988, p.6
05/19/88	Sumitomo Metal Industries Ltd. (Japan)	- - -	Anshan Steel Corp., Liaoning	Steel plate manufacturing line	Sumitomo will sell a closed-down steel plate manufacturing line from its Wakayama Works for \$22 million. Anshan Steel plans to double its output of crude steel from 7.7 million to 15 million tons a year, and the Japanese line will process the increased output. Sumitomo is training managers from Anshan in management of modern steel mills, and plans to transfer technology to Anshan Steel Corp. Kyodo (Tokyo), 19 May 1988, in FBIS/East Asia, 20 May 1988, p.6

CHINA TECHNOLOGY TRANSFER  
METALLURGY

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE	END USER	ITEM	COMMENTS/SOURCE
05/27/88	Italimpianti (Italy)	Anshan Iron and Steel Complex, Liaoning	- - -		Seamless steel tube plant	The Anshan Complex will use loans from the Italian Government to purchase equipment from Italimpianti for a new plant that will produce 500,000 tons per year of medium-caliber seamless steel tubes. Xinhua, 27 May 1988, in FBIS/China, 2 June 1988, p.26

CHINA TECHNOLOGY TRANSFER  
MILITARY

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
01/09/88	Westinghouse Corp., Aerospace Division (USA)	PLA Air Force		Avionics kits for F-8 fighters	Grumman Corp., which has the contracts for upgrading China's F-8 fighters, has selected Westinghouse AN/APG-66 radars. Westinghouse will provide the complete fire-control system, including the radar, fire-control computer, back-up control and interface unit, and fire-control software. <u>Jane's Defence Weekly</u> (Horley, UK), 9 January 1988, p.4
02/00/88	Litton Corp. (USA)	PLA Air Force		Inertial navigation system for F-8 fighter aircraft	As part of the avionics modernization package for the P-8 fighter, Grumman Corporation, which is managing the program, has selected the Litton LN-39 inertial navigation system. The LN-39 is standard equipment on the F-16C/D. Asian Aviation (Singapore), February/March 1988, p.70

CHINA TECHNOLOGY TRANSFER  
MISCELLANEOUS

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
05/08/88	Agency of Natural Resources and Energy, Ministry of International Trade and Industry (MITI) (Japan)	State Planning Commission	- - -	Cooperation in extraction and use of rare earths	A formal agreement between the governments of China and Japan stipulates regular conferences and specific projects on the extraction and application of rare earths. Rare earths are extensively used in electronics and superconducting materials. China has the world's largest reserves of rare earths but trails the developed countries in their exploitation and application. Japan, in return for a reliable supply of rare earths, will transfer technology for the extraction, refining, and application of the materials. China Daily, Business Weekly, (Beijing), 9 May 1988, p.1
05/09/88	PS Brandschutz Co. (Federal Republic of Germany)	Beijing Building Coating Factory	North Fire Protection Coating Co., Ltd., Beijing	Joint venture to use advanced fire protection coating technology	China Daily (Beijing), 10 May 1988, p.2
05/17/88	Joy Technologies Inc. (USA)	- - -	Harbin Environmental Equipment Corp., Heilongjiang	Technology for pollution-control equipment	The contract covers technology for dust eliminators, flue gas desulfurization systems, and electrostatic precipitators for thermal power plants, and metallurgical, chemical, and mining enterprises. Beijing Review, 30 May 1988, p.31

CHINA TECHNOLOGY TRANSFER  
NUCLEAR

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
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03/00/88	Deutsche Babcock; Mannesmann; Innotech; Brown Boveri (Federal Republic of Germany)	Ministry of Nuclear Industry	- - -	Joint construction of a 100-megawatt high-temperature nuclear reactor	China Business Review (Washington), September-October 1988, p.60

CHINA TECHNOLOGY TRANSFER  
SPACE

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE	END USER	ITEM	COMMENTS/SOURCE
03/07/88	Cable and Wireless Co. (United Kingdom)	China International Trust and Investment Co. (CITIC)	--		Communications satellite	CITIC, Cable and Wireless, and Hutchinson Telecommunications of Hong Kong form a consortium to launch a communications satellite on a Chinese LONG MARCH 3 rocket in early 1989. The satellite will serve the Asian region and the project will cost \$120 million. Beijing Review, 7 March 1988, p. 31

CHINA TECHNOLOGY TRANSFER  
TELECOMMUNICATIONS

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
02/00/88	Standard Elektrik Lorenz (SEL) Corp. (Federal Republic of Germany)	Tianjin Optical and Electrical Communications Corp.	- - -	Production line for optical fiber transmission equipment	China Business Review (Washington), May-June 1988, p.64
02/00/88	Spar Communications Group (USA)	China Electronic System Engineering Co.	- - -	Six transportable earth stations	China Business Review (Washington), July-August 1988, p.61
02/02/88	Standard Elektrik Lorenz (SEL) (Federal Republic of Germany)	Tianjin Optical and Electrical Communication Corp.	- - -	Production line for optical fiber transmission equipment	China Daily (Beijing), 2 February 1988, p.2
02/08/88	Philips Corp. (Netherlands)	- - -	Suzhou No. 1 Wire Communication Factory, Jiangsu	Digital switchboard technology	Philips will provide information on its Sopho-S digital switchboard, help set up production lines, provide parts, and train technicians. The Suzhou factory, established in 1970, is China's leading manufacturer of crossbar automatic telephone switchboards. China Daily (Beijing), 9 February 1988, p.2
02/25/88	EB-Nera Co. (Norway)	Guangdong General Power Co.	- - -	Digital microwave equipment	The contract is for purchase of microwave equipment to be used at power stations, electric power transmission stations, and dispatching centers. China Daily (Beijing), 25 February 1988, p.2
02/25/88	Ericsson Telecom AB (Sweden)	Guangdong Provincial	- - -	Switching equipment and technical training	Under a long term cooperation agreement,

CHINA TECHNOLOGY TRANSFER  
TELECOMMUNICATIONS

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
		Government			Guangdong will purchase local and long-distance switching equipment for 12 cities, including Guangzhou, Zhanjiang, Nanhai, and Shantou. A maintenance center and a technical training center will be set up. China Daily (Beijing), 25 February 1987, p.2
03/04/88	Philips Corp. (Netherlands)	Wuhan Optical Fiber Communications Technology Co.	Yangtze Optical Fiber and Cable Co.	Joint venture to produce optical fiber and cable	Philips technology and equipment will be used to produce 50,000 kilometers of optical fiber per year when the plant becomes operational in 1990. China Daily (Beijing), 7 March 1988, p.2
04/12/88	Northern Telecom Ltd. (Canada)	China Tongguan Electronics Corp.	Tongguan Northern Telecom Co., Shenzhen	Integrated services network and digital telephone sets	The company will produce the Meridian SL-1 integrated services network, and intends to export more than 23 percent of the output. China Daily (Beijing), 16 April 1988, p.2

CHINA TECHNOLOGY TRANSFER  
TRANSPORTATION

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
01/08/88	Ministry of Transportation, Civil Aviation Bureau (Japan)	General Administration of Civil Aviation (CAAC)	-- --	Training for air traffic controllers	This is the first cooperative effort between China and Japan in civil aviation. Toshiba and other Japanese companies have provided radar and aviation navigation equipment. Nihon Keizai Shimbun (Tokyo), 8 January 1988, in FBIS Foreign Press Note, 29 February 1988
01/21/88	General Motors Corp. (USA)	China National Automotive Industry Corp.	Beijing Factory	Technology and equipment to produce 2-liter automobile engines	The production line for engines will produce 150,000 engines a year when it becomes operational in late 1990. The engine will be installed in non-GM vehicles produced in China. Other projects being considered include an axle program and joint production of starter motors, distributors, and alternators. Washington Post, 22 January 1988, p.F1
02/00/88	Aerospatiale (France)	China Aero-Technology Import and Export Corp. (CATIC)	-- --	Cooperation on development of a new light helicopter	CATIC contracts with Aerospatiale and Aerospace Technologies of Australia to cooperate on development of a new light helicopter. Aerospatiale will provide the engines, transmissions and other systems, while CATIC and Aerospace Technologies share the airframe work. Production will start in the early to mid-1990s.

CHINA TECHNOLOGY TRANSFER  
TRANSPORTATION

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
02/24/88	Firestone Tire Corp. (USA)	-- --	Ta Chung Hua Rubber Factory, Shanghai	License for steelcord radial truck tire technology	China Transport (Hong Kong), No.2, 1988, p.87  Firestone will also provide engineering services for construction of a new tire factory in Shanghai's suburb of Minhang. China Daily, (Beijing), 24 February 1988, p.2
03/14/88	Davy-Zimmer Co. (Federal Republic of Germany)	-- --	Two plants, in Shaanxi and Heilongjiang	Tire cord plants	The plants are scheduled to become operational in 1990, and will have a total output of 9,300 tons of tire cord. China Daily, Business Weekly, (Beijing), 14 March 1988, p.2
04/00/88	Uni-Cardan Co. (Federal Republic of Germany)	Shanghai Automobile and Tractor Industries Corp.	Shanghai GKN Drive Shaft Co.	Joint venture to produce drive shafts	The initial output will be sold to Volkswagen's Shanghai joint venture. Uni-Cardan and the FRG Government will each hold 25 percent shares in the joint venture. Business China (Hong Kong), 18 April 1988, p.54
04/00/88	Hawker Siddeley (Westinghouse Systems Ltd.) (United Kingdom)	China National Technology Import Corporation (CNTIC)	Datong-Qinhuangdao Railroad	Computer-based remote control system for Datong-Qinhuangdao rail electrification project	China Business Review (Washington), September-October 1988, p.57
04/18/88	Dessau Railway Vehicle Factory (German Democratic Republic)	-- --	Wuchang Railway Vehicle Factory, Hubei	Technology for production of refrigerated railroad cars	China Daily, Business Weekly (Beijing), 18 April 1988, p.1

CHINA TECHNOLOGY TRANSFER  
TRANSPORTATION

DATE	FOREIGN FIRM/COUNTRY	CHINESE FIRM	CHINESE END USER	ITEM	COMMENTS/SOURCE
05/30/88	Mercedes-Benz Automobile Co. (Federal Republic of Germany)	China North Industries Corp. (NORINCO)	No.1 and No.2 Machinery Plants, Baotou, Nei Mongol	Technology for heavy-duty trucks	The Chinese plants will use Mercedes-Benz technology to produce 14 types of heavy-duty trucks. Beijing Review, 30 May 1988, p.31
06/00/88	Volkswagen Corp. (Federal Republic of Germany)	- - -	First Automotive Works, Jiilin	Coproduction of Audi automobiles	China-Britain Trade Review (London), July 1988, p.16
06/00/88	Collins General Aviation Division (USA)	- - -	Harbin Aircraft Factory, Heilongjiang	Autopilot and electronic flight instrumentation system for export versions of the Y-12 transport plane	The autopilot (Collins APS-65) and HSI-74 electronic flight instrumentation system are to be offered as standard options on the export models of the 17-seat commuter/utility aircraft. Hong Kong Aircraft Engineering Co, (HAECO) and Singapore Aircraft Industries are helping the Harbin plant to win British Civil Aviation Authority certification for the Y-12, to improve its chances of foreign sales. Asian Aviation (Singapore), June 1988, p.52
06/00/88	Modern Manufacturing Inc. (USA)	Y. F. International	- - -	Chinese purchase of a small US company producing components for Boeing and other US aircraft companies.	Y.F. International is the Hong Kong-based investment arm of Chongqing Municipality, Sichuan. Modern Manufacturing is a small Seattle firm, 90 percent of whose sales go to Boeing. The new Chinese

CHINA TECHNOLOGY TRANSFER  
TRANSPORTATION

DATE FOREIGN FIRM/COUNTRY CHINESE FIRM CHINESE END USER ITEM COMMENTS/SOURCE

owners plan to double the  
workforce in the next two  
years.  
Asian Aviation  
(Singapore), June 1988,  
p.54

STATISTICAL SUMMARY

CATEGORY	Canada	FRG (Federal Rep. Germany)	France	GDR (German Democratic Rep.)	Hong Kong	Italy	Japan	Netherlands	Norway	Spain	Sweden	(United Kingdom) UK	USA	TOTALS
Chemicals	1	1									1	2	5	
Computers		2			3							5	10	
Electronics	2				1							2	5	
Energy		1			2						3	1	7	
Instruments				1	2						2	4	9	
Machinery	1	4			1			1			2	1	10	
Management							1					1	2	
Metallurgy					2	3						1	6	
Military												2	2	
Miscellaneous	1				1							1	3	
Nuclear	1												1	
Space											1		1	
	1	2					2	1		1		1	8	
Transportation	4	1	1							1		1	4	12
TOTALS	3	16	3	1	2	13	4	1	1	2	9	25	81	