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MITCHAM INDUSTRIES, INC.

PROSPECTUS SUPPLEMENT TO PROSPECTUS DATED MAY 29, 1996

29,500 REPRESENTATIVE'S UNITS,
EACH REPRESENTATIVE'S UNIT
CONSISTING OF TWO SHARES OF
COMMON STOCK AND
ONE UNDERLYING REPRESENTATIVE'S WARRANT

85,000 SHARES OF COMMON STOCK
UNDERLYING THE
UNDERLYING REPRESENTATIVE'S WARRANTS

GENERAL

This Prospectus Supplement contains information regarding (i) the exercise of substantially all of the redeemable common stock purchase warrants ("Warrants") of Mitcham Industries, Inc., a Texas corporation (the "Company"), which were sold to the public in the Company's initial public offering in January 1995 (the "IPO") of units consisting of two shares of common stock, \$0.01 par value per share ("Common Stock") and one Warrant; and (ii) the amendment and extension of the Exclusive Lease Referral Agreement between the Company and Input/Output, Inc. ("I/O"), a leading designer and manufacturer of land-based 3-D data acquisition equipment and systems, both of which events have occurred since the date of the Company's Prospectus, dated May 29, 1996.

EXERCISE AND REDEMPTION OF PUBLIC WARRANTS

On April 29, 1996, the Company called for redemption its outstanding Warrants. Each Warrant entitled the registered holder thereof to purchase one share of Common Stock of the Company at a price of \$3.50 per share, subject to adjustment in certain circumstances, through December 1997 (unless sooner called for redemption). The Warrants were required to be exercised by 5:00 p.m. Eastern Standard time, on May 29, 1996 (the "Redemption Date"). After the Redemption Date, all rights of remaining holders of Warrants ceased, except only the right to receive the redemption price of \$0.05 per Warrant. As of the date of the Prospectus, a total of 463,873 Warrants had been exercised. As of the Redemption Date, a total of 892,750 of the 895,000 Warrants that were offered and sold in the IPO had been exercised. As of the

The Date of this Prospectus Supplement is July 18, 1996

date of the Prospectus, the Company had received proceeds from the exercise of the Warrants of approximately \$1.6 million. As of the Redemption Date, the Company had received proceeds from the exercise of the Warrants of approximately \$3.1 million. See "The Offering," "Initial Public Offering," "Use of Proceed" and "Description of Capital Stock - Public Warrants" on pages 5, 7, 13 and 37, respectively, of the Prospectus.

AMENDMENT AND EXTENSION OF EXCLUSIVE LEASE REFERRAL AGREEMENT WITH INPUT/OUTPUT, INC.

Effective June 1, 1996, the Company entered into an amendment of its Exclusive Lease Referral Agreement (the "I/O Agreement") with I/O. The I/O Agreement was entered into in February 1994, under which agreement the Company (i) was the exclusive third-party recipient of requests from I/O customers and others to lease I/O three-dimensional ("3-D") channel boxes in North and South America through December 1996; and (ii) was able to acquire 3-D channel boxes from I/O at favorable prices based upon the volume of channel boxes purchased. Subject to certain exceptions, I/O could not recommend or suggest any competitor of the Company as a potential lessor of I/O 3-D channel boxes in North and South America. As a manufacturer of complete data acquisition systems that are compatible only with I/O channel boxes, I/O typically receives significant inquiries to lease I/O 3-D channel boxes from customers desiring to expand the capacities of their systems on a short-term basis.

In order to receive the benefits of the I/O Agreement, the Company was required to purchase an aggregate of \$10.0 million of I/O 3-D channel boxes in stated installments over the term of the agreement, which was to terminate on December 31, 1996 (the "Termination Date"). As of the date of the Prospectus, the Company had purchased approximately \$7.9 million of the required \$10.0 million of I/O 3-D channel boxes under the I/O Agreement, and was required to purchase an additional \$2.1 million of channel boxes on or before the Termination Date. The Company had proposed an extension of the I/O Agreement on substantially similar terms.

Under the I/O Agreement as amended, (i) the term has been extended until May 31, 2000; (ii) the seismic data acquisition equipment that I/O will sell to the Company and with respect to which I/O will recommend the Company as a potential lessor has been expanded; and (iii) the former aggregate minimum purchase requirement of \$10.0 million no longer applies. The other provisions of the I/O Agreement remain substantially the same.

In addition to I/O 3-D channel boxes that were the subject of the agreement before the amendment, the I/O Agreement now covers (i) ocean bottom cable systems, which collect seismic data in an ocean environment in depths of up to 200 meters; (ii) central electronics units, which act as the control center of and test all functions of complete data acquisition systems; and (iii) remote acquisition modules, field communication devices between channel boxes and central electronics units that allow more channel boxes to be employed in a seismic survey (all of the foregoing seismic equipment subject to the I/O Agreement referred to collectively as the "I/O Equipment").

In place of the former aggregate \$10.0 million of required purchases, Company has agreed to purchase an aggregate of \$3.0 million of I/O 3-D channel boxes after June 1, 1996 and before November 30, 1996 (the "Renewal Purchase"), with a minimum of \$1.5 million to be purchased by August 31, 1996. The Renewal Purchase is necessary in order for the Company to continue to receive the benefits of I/O Agreement, which will have no further force

or effect if the Renewal Purchase is not timely made. As long as the Renewal Purchase is timely made, the Company will continue as I/O's exclusive recipient of seismic leasing requests I/O receives from its customers and others in North and South America and will be able to acquire channel boxes at favorable prices based upon the volume of I/O Equipment purchased.

Specifically, from January 1, 1997 through May 31, 1997, the Company must purchase at least an aggregate of \$1.25 million of I/O Equipment in order to receive favorable pricing with respect to such equipment. In each of the years from June 1, 1997 through May 31, 1998, June 1 through May 31, 1999 and June 1, 1999 through May 31, 2000, the Company must purchase at least an aggregate of \$3.0 million of I/O Equipment (or an aggregate additional \$10.25 million after the \$3.0 million Renewal Purchase is made) in order to receive favorable pricing on such equipment. The Company's failure to meet the minimum purchase requirements in any such period will not affect its ability to receive favorable pricing in a subsequent period.

The Company anticipates that the cash flow generated from the I/O 3-D channel boxes which it currently owns, the available portions of its \$1.0 million line of credit with a bank and its \$4.2 million term loan with a bank, and all or a portion of the approximately \$4.2 million aggregate proceeds it has received from the exercise of the Warrants, bridge warrants, and representative's warrants issued to the representative of the underwriters in the Company's IPO, will be used to fund \$1.5 million of the Renewal Purchase by August 15, 1996 and the remaining \$1.5 million of the Renewal Purchase by November 30, 1996. The Company anticipates that the foregoing sources will fund in part the remaining aggregate \$10.25 million of subsequent minimum purchases required over the term of the I/O Agreement in order to receive favorable pricing on such equipment. However, the Company anticipates that it may require additional equipment loans in order to fully fund those minimum purchase requirements. There can be no assurance that the Company will be able to obtain such equipment financing loans on terms acceptable to the Company, if at all. Failure to meet the minimum purchase requirement in one or more years would mean the loss of favorable pricing provided for by the I/O Agreement, which would have a material adverse effect on the Company's future operations and profits. See "Business--Exclusive Lease Referral Agreement with Input/Output, Inc." on page 24 of the Prospectus.

NO PERSON HAS BEEN AUTHORIZED TO GIVE ANY INFORMATION OR TO MAKE ANY REPRESENTATION OTHER THAN THOSE CONTAINED IN THIS PROSPECTUS, AND IF GIVEN OR MADE, SUCH INFORMATION OR REPRESENTATION MUST NOT BE RELIED UPON AS HAVING BEEN AUTHORIZED BY THE COMPANY. THIS PROSPECTUS DOES NOT CONSTITUTE AN OFFER TO SELL OR SOLICITATION OF AN OFFER TO BUY ANY SECURITIES OTHER THAN THOSE TO WHICH THEY RELATE OR AN OFFER TO ANY PERSON IN ANY JURISDICTION WHERE SUCH OFFER OR SOLICITATION WOULD BE UNLAWFUL. NEITHER THE DELIVERY OF THIS PROSPECTUS NOR ANY SALE MADE HEREUNDER SHALL UNDER ANY CIRCUMSTANCES CREATE ANY IMPLICATION THAT THE INFORMATION CONTAINED HEREIN IS CORRECT AS OF ANY TIME SUBSEQUENT TO ITS DATE.

TABLE OF CONTENTS

PROSPECTUS SUPPLEMENT	AGE
General	S-1 S-1
	0 2
PROSPECTUS	
Prospectus Summary	7 7 13
Market Information for Common Stock and Warrants	15 15
Management's Discussion and Analysis of Financial Condition and Results of Operations	21 29 33 36 37 42 42 43 43

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