

• THE HOLE STORY...

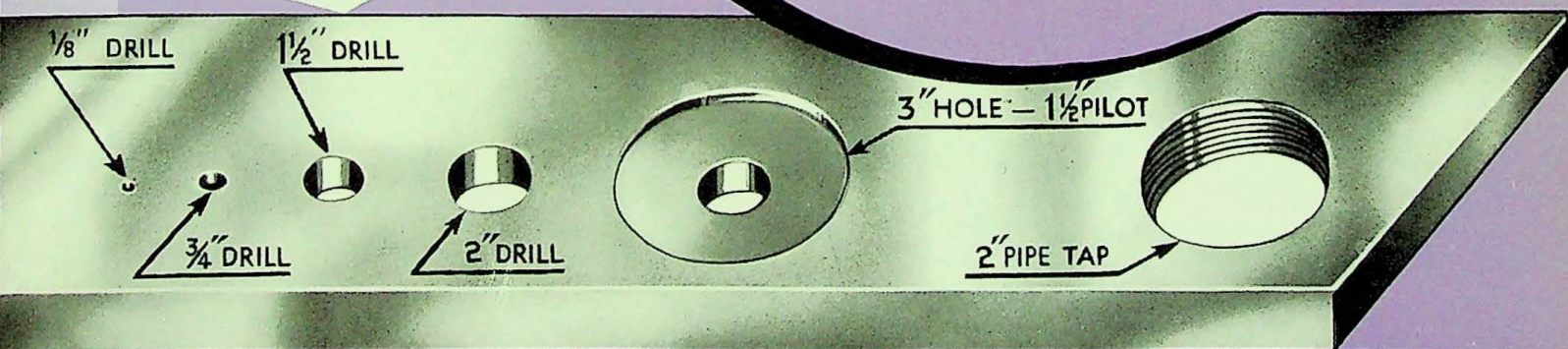
• THE CARLTON

Low Hung Drive

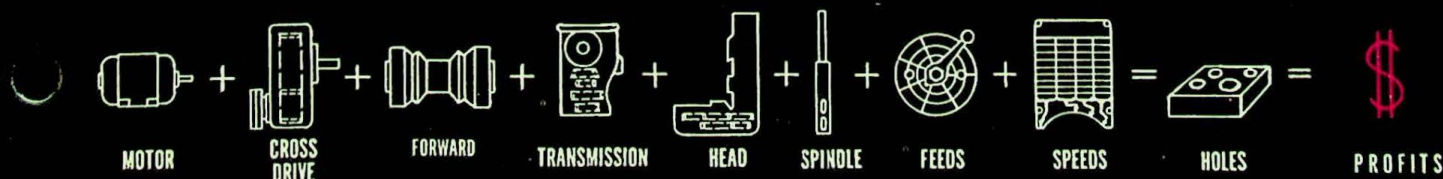
1-A RADIAL...

9" COL: 3' · 4' · ARMS

DRILLING
TAPPING
BORING



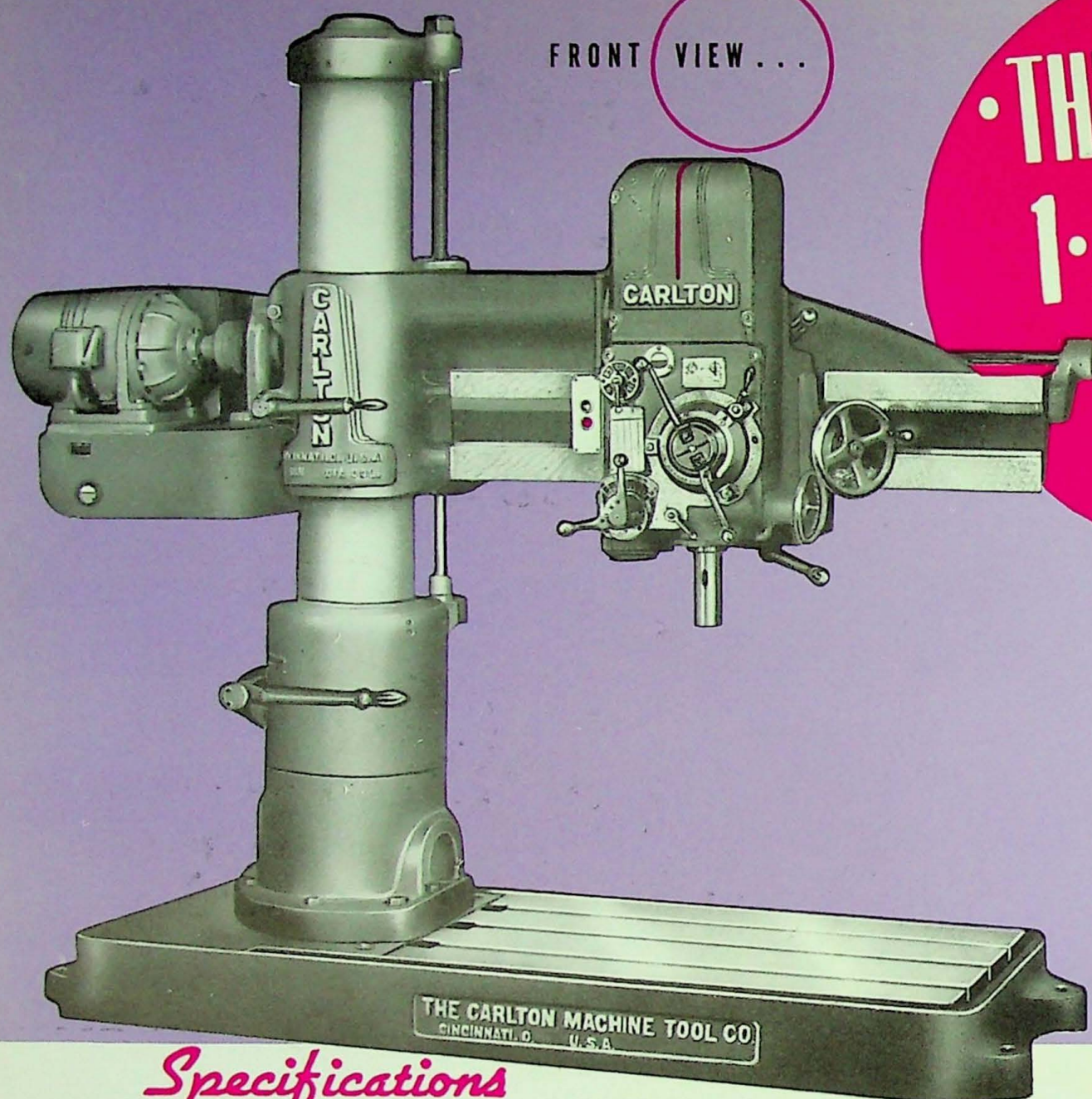
★ PICTOGRAPH OF PROFITABLE HOLE PRODUCTION...



THE CARLTON MACHINE TOOL CO., CINCINNATI 25, OHIO, U. S. A.

FRONT VIEW . . .

• THE CARLTON
1-A RADIAL



Specifications

CONSTRUCTION: Carlton Radial Drills are designed, assembled and tested in individual units before final assembly. All units are made up of sub-units. They are assembled in oil sealed housings. ★ ★ ★ All shafts have integral keys, hobbled from the solid, either four or six keys. Parts fitting on same are broached with multiple splines. All shafts are supported on each end by hi-grade, anti-friction bearings. Shaft and gears are of heat treated alloy steel. Gears have ground teeth. ★ ★ ★ All ball bearings and moving parts are sealed against dirt. They are automatically oiled. Perfect alignment and balance permit the arm to be swung 360° with fingertip pressure.

LUBRICATION: Carlton Radial Drills embody modern lubrication features which help to increase "hole" production by reduction of friction, wear, power losses, shut downs and renewals. ★ ★ ★ Each unit has its own

oil gauge. Glance inspection by operator or foreman reveals the lubrication situation. ★ ★ ★ All gears, shafts and bearings are enclosed in oil-tight housings. They run in a continuous bath of oil.

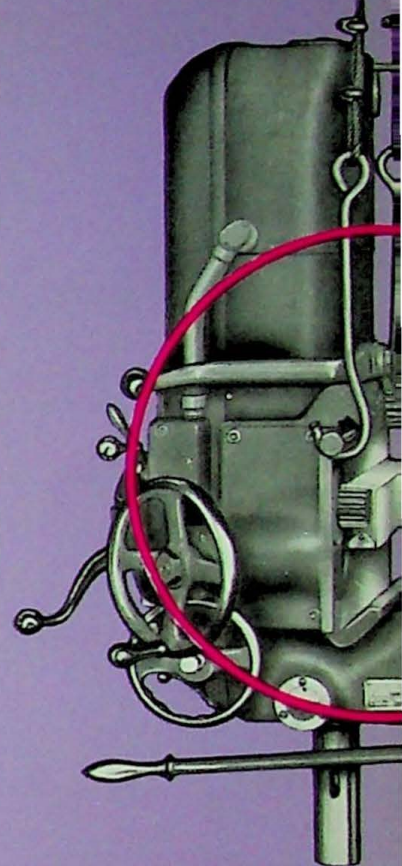
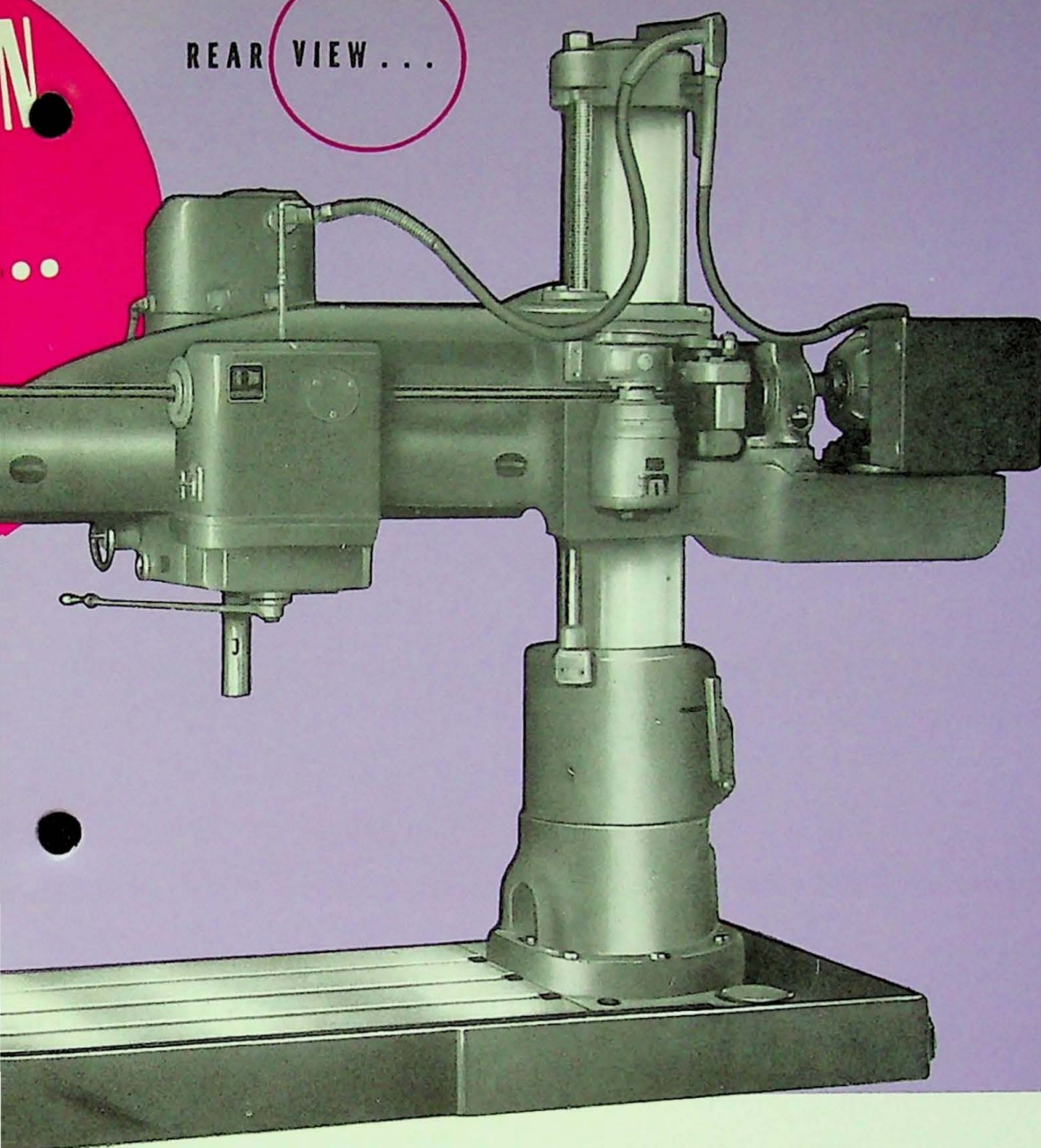
BASE: Carlton bases are heavily ribbed to their full depths. Heavy longitudinal and transverse ribs run the full length and width of the base. They are closely spaced to form a series of box sections, providing great strength and rigidity. ★ ★ ★ Spacious oil channels are provided to drain the coolant back through strainers into the reservoir. The reservoir is cast in the rear of the base behind the column. This makes the reservoir easy to clean. ★ ★ ★ Heavy bosses to receive the column screws are cast integral with the ribs in the base. They extend the full depth of the base.

COLUMN: Both inner and outer columns are designed and proportioned to provide the greatest resistance to

drill
steel
to th
in th
base
revo
ally

ARM
It h
way
this
hard
arm.
head
bott
prin
keep

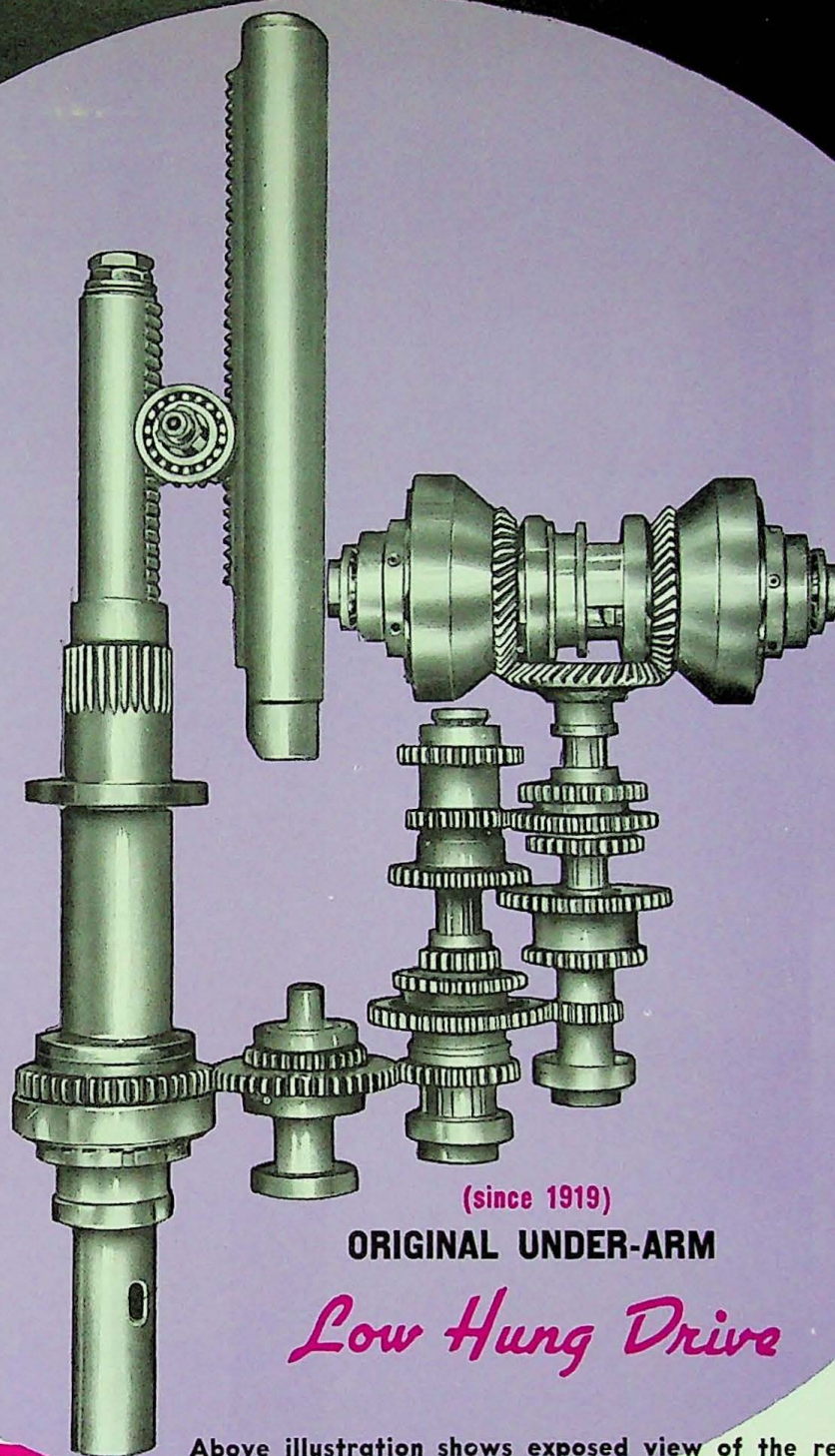
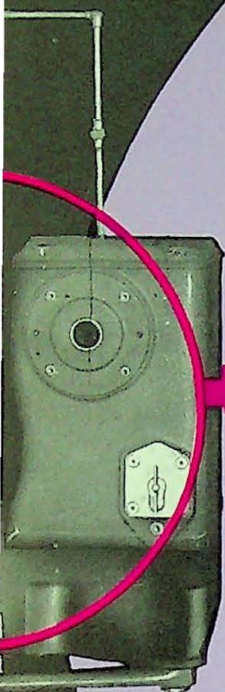
REAR VIEW...



strains. Both are made of close-grained, semi-castings. The inner column is heavily ribbed down bottom. These ribs extend directly to bolt holes in flange of the inner column, which is bolted to the base. The outer column is of the split-skirt type. It rests on anti-friction bearings. It has an exceptionally large clamping area.

The arm is a close-grained, semi-steel casting. It has a large, ribbed, full box section above the arm. The Carlton Low Hung Drive type of head makes advantageous construction feature possible. A lead and ground steel runway is mounted on the base. This steel runway prevents wear and keeps the arm alignment at all times. Dovetails at the top and bottom of the arm locate the head by the narrow guide flange. This construction simplifies adjustments and keeps the head in perfect alignment.

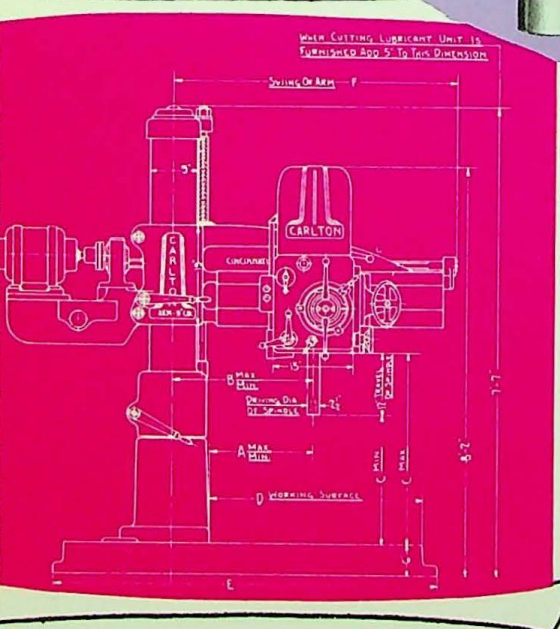
ARM LENGTH			3 FT.	4 FT.
COLUMN DIAMETER			9"	9"
A	FACE OF COLUMN TO CENTER OF SPINDLE	MAX.	3'-0"	4'-0"
		MIN.	9"	9"
B	MAXIMUM SPINDLE RADIUS		3'-7"	4'-7"
	MINIMUM SPINDLE RADIUS		16"	16"
C	MAXIMUM SPINDLE TO BASE		4'-5"	4'-5"
	MINIMUM SPINDLE TO BASE		14"	14"
D	WORKING SURFACE OF BASE	WIDTH	2'-6"	2'-6"
		LENGTH	3'-5"	4'-5"
HEIGHT OF BASE			6"	6"
E	OVERALL LENGTH OF BASE		74"	86"
VERT. TRAVEL OF SPINDLE IN HEAD			12"	12"
BEARING OF HEAD ON ARM			15"	15"
BEARING OF ARM ON COLUMN			19"	19"
MAXIMUM HEIGHT OVER HEAD			8'-2"	8'-2"
HEIGHT OVER COLUMN CAP			7'-7"	7'-7"
SPINDLE DIA. (DRIVING DIA.)			2½"	2½"
MORSE TAPER IN SPINDLE			No. 4	No. 4
TRAVERSE OF ARM ON COLUMN			2'-3"	2'-3"
TRAVERSE OF HEAD ON ARM			2'-3"	3'-3"
DRILLS TO CENTER OF CIRCLE			6'-0"	8'-0"
F	SWING OF ARM		55"	67"
FEEDS			6 CHANGES .006" TO .025"	
12 SPINDLE SPEEDS (25 TO 1 RATIO)			60 - 1500, 80 - 2000 OR 120 TO 3000	
R. P. M. OF MOTOR			1800	1800
HORSE POWER OF DRIVING MOTOR			5	5
NET WEIGHT OF BARE MACHINE			5,585 #	6,195 #



(since 1919)

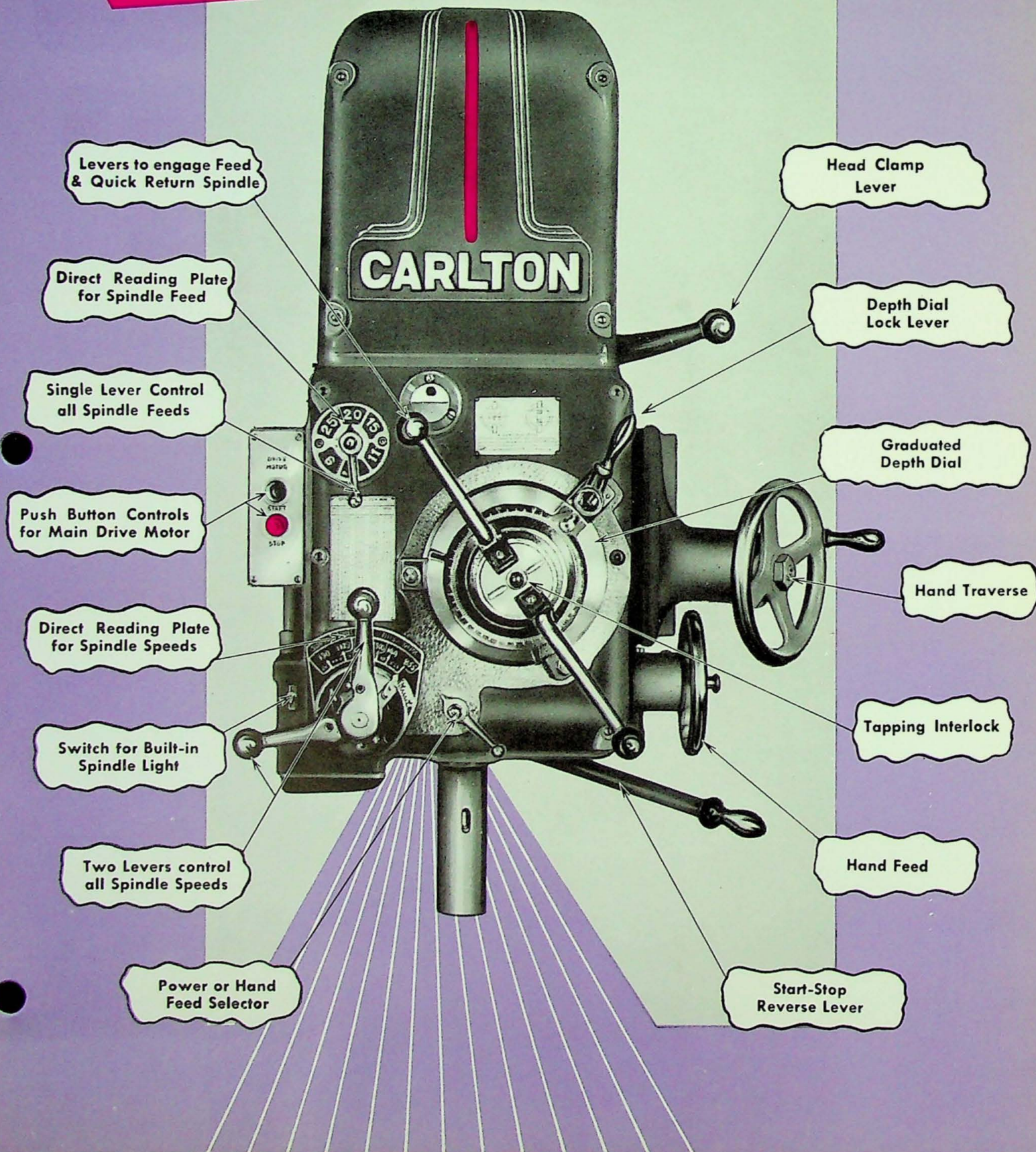
ORIGINAL UNDER-ARM

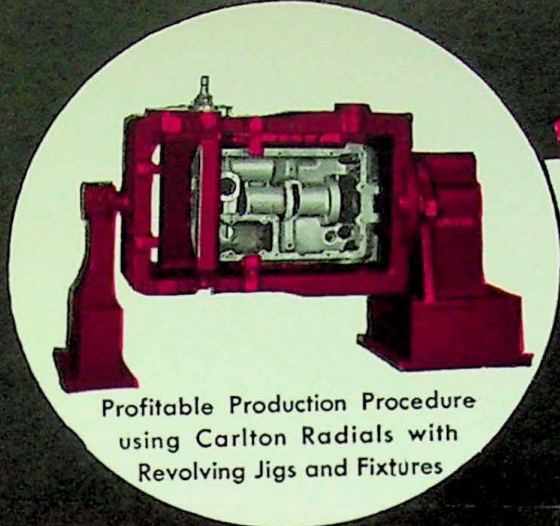
Low Hung Drive



Above illustration shows exposed view of the reverse, transmission and head units of the Carlton Radial Drill. Power is transmitted thru the reverse unit. Here "Start, Stop, forward and reverse" of the spindle are controlled. Power then goes thru the transmission. 12 spindle speed changes are available. Power then goes thru the head unit. The spindle is driven by a large sleeve. This sleeve revolves on oversize anti-friction bearings. The drive gear is placed in the lowest part of the head. It drives on the largest diameter of the spindle, closest to the cutting tool. The spindle slides in and out of the sleeve. The Carlton Low Hung Drive Principle permits the use of an extra large diameter spindle. This original feature minimizes spindle twist and permits the use of higher speeds and greater feeds to increase "hole" production. The spindle is balanced by counterweight, which is connected to the spindle by rack pinion gear. When the spindle goes down, the counterweight goes up.

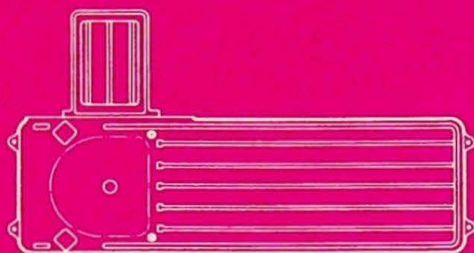
★ CARLTON Centralized Controls



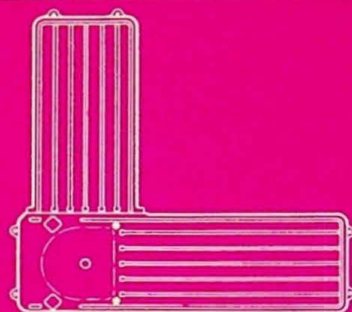


Profitable Production Procedure
using Carlton Radials with
Revolving Jigs and Fixtures

PRODUCTION BASES AND TABLES FOR THE CARLTON 1-A RADIAL...



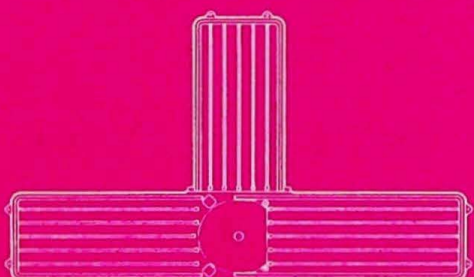
Standard base with Extension. A profitable
place to mount plain or uni-tilt tables.



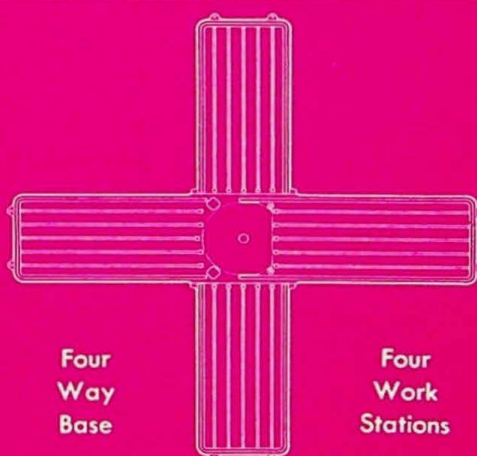
Standard base with Right Angle base. This
provides two productive work stations.



Double End base is generally used when floor
space is inadequate for Right Angle base.

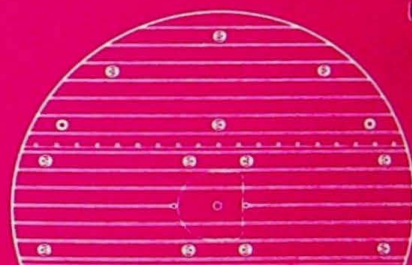


Triple End base provides three work stations
for accelerated, time-saving production.

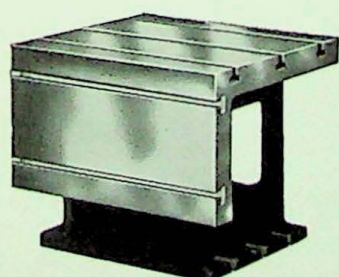


Four
Way
Base

Four
Work
Stations

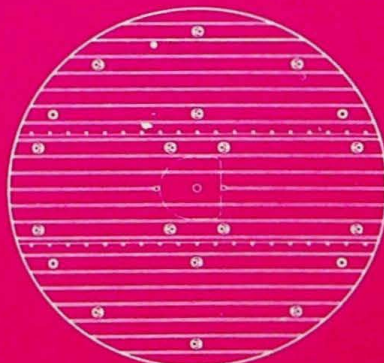


Half Round base provides working area for
"sequence operations" on production work.



18" x 24" x 18" high

Plain Box table has accurately planed top and
side with parallel "T" slots. Recommended for
small workpiece operations. It's a profitable pro-
duction piece that facilitates "hole" production.



Full Round base provides ample area in
which to accommodate large work pieces.



20" x 20" x 22 1/2" high

Uni-tilt table tilts a full 90 degrees. Cali-
brated indicator shows degree of tilt. Has
accurately planed top and side with parallel
"T" slots. Recommended for tool room work.