

P&H

435-TC

CRANE, DRAGLINE, CLAMSHELL



THE MOST VERSATILE TRUCK CRANE IN THE 35-TON CLASS

All these features are offered as standard equipment only by P&H.

- **"Triple-safe"** independent planetary boom hoist provides precise positive control over power raising and lowering of boom.
- **Exclusive P&H Power Box** design gives positive gear lubrication in oil bath, keeps dirt out.
- **P&H Live Roller Circle** distributes weight of upper load uniformly for smoother swings.
- **"Full feel"**, positive action hydraulic controls.
- **Pin-connected T-1** high capacity tubular steel boom.
- **Handles 170'** boom
- **Heavy duty rear axles** assure longer wear.
- **Air brakes** on all eight wheels.
- **Torsion Bar** distributes side loads—Increase stability.
- **Quick**, on-the-job conversion to any attachment.
- **Power steering** for easier handling—greater maneuverability.
- **Aluminum outrigger** floats reduce weight for easier, quicker conversion to highway travel.
- **8x4 carrier** designed and constructed to work perfectly with upper.

Bulletin No. KP-435T-3



KOBE STEEL, LTD.

BASIC MACHINE

UPPER MACHINERY

POWER PLANT:

Diesel: Mitsubishi 6D5 10C-K (std.)	93 hp @ 1,400 rpm
G.M. 4-53, 4 cyl. (opt. extra)	88 hp @ 2,200 rpm
Cat., D330, 4 cyl. (opt. extra)	88 hp @ 2,200 rpm
Cummins NHC-4-CI (opt. extra)	90 hp @ 1,600 rpm

TRANSMISSION: 2 speed. High gear is normal operating speed.

FUEL TANK: 220 ft. Hand grip control for all operations, standard.

THROTTLE: Direct acting hydraulic.

CONTROL: Direct acting hydraulic.

SWING CLUTCHES: Two shoe type, internal expanding

CLUTCHES: Band type, internal expanding.

BRAKES: Band type, external contracting.

BOOM HOIST ASSEMBLY: Independent planetary gear type, with external

ratchet and automatic brake provides for raising and lowering boom under

power and locking boom. Drum mounted on anti-friction bearings.

Boom hoist line speed (raising) 48 m/min (157 fpm)

Boom hoist line speed (lowering) 28 m/min (92 fpm)

MAIN OPERATING DRUMS: Drums opposite each other mounted on anti-

friction bearings on single drum shaft. See attachment sheets for further

details.

THIRD DRUM: Mounts on L.H. extension of independent boom hoist drum shaft

(opposite boom hoist drum). Does not interfere with any other machine function.

Available for application to all machines with crane boom type attach-

ments, optional extra.

GANTRY: High gantry, folding type.

COUNTERWEIGHT: External single piece removable casting for all attach-

ments.

MITSUBISHI K351 8 x 4 CARRIER

WEIGHT: Including turret and outriggers, 19,540 kg (42,990 lbs.)

with 12.00 x 20-18 ply tires

FRAME: Reinforced channel all welded high strength steel construction

OUTRIGGER HOUSINGS: Double box type front and rear,

OUTRIGGER BEAMS: High strength steel box

Extended position from center of truck 2.73 m (9'-11")

Screw jack at beam ends.

HYDRAULIC OUTRIGGERS: Total of 8 double acting hydraulic cylinders

provide independent horizontal and vertical motion of each beam, standard.

Manual outriggers, optional extra.

POWER PLANT:

Diesel: Mitsubishi, 8DC, 8 cyl. 250 hp @ 2,200 rpm

CLUTCH: Single dry disc.

TRANSMISSIONS:

Main transmission: 5 speeds forward, plus reverse.

Auxiliary transmission: 2 speeds.

BRAKES—SERVICE: Air on all 8 wheels.

HAND BRAKE: Mechanical at propeller shaft.

SUSPENSION:

Front and rear—Torque rods plus equalizer beams.

STEERING: Ball and nut type.

FUEL TANK: Capacity—1200 ft. on end off highway type, standard.

TIRES: Steel—two men type—low profile cab—safety glass.

LIGHTS: Headlights, tail lights, stop lights, directional signal lights—front

and rear, license plate recessed in frame 24 volt electrical system.

EQUIPMENT: Front skirts and dirt shields, front and rear fenders engine hood,

leatherette cushion seats, 24 volt battery, horn, rear view mirror, windshield

wiper, illuminated instrument panel, with speedometer, ammeter oil pressure

gauge, fuel gauge, water temperature indicator, low air pressure indicator

light, tow hooks—front and rear, dash mounted air brake locking valve, tools

and accessories including two jacks and a set of four aluminum jack

blocks (outrigger).

PERFORMANCE (Based on Engine)

MAX. SPEED 52 km/h (32.3 mph)

MIN. TURNING RADIUS 12.0m

% GRADE 28%

NISSAN PTVW35C 8 x 4 CARRIER

WEIGHT: Including turret and outriggers, 18,300 kg (40,400 lbs.)

with 12.00 x 20-18 ply tires

FRAME: Reinforced channel all welded high strength steel construction.

OUTRIGGER HOUSINGS: Double box type front and rear.

OUTRIGGER BEAMS: High strength steel box

Extended position from center of truck 2.73 m (9'-11")

Screw jack at beam ends.

HYDRAULIC OUTRIGGERS: Total of 8 double acting hydraulic cylinders

provide independent horizontal and vertical motion of each beam, solenoid

valve controlled, optional extra.

POWER PLANT:

Diesel: Nissan, PD6 6 cyl. 185 hp @ 2,300 rpm

CLUTCH: Single dry plate.

TRANSMISSIONS:

Main transmission: 5 speeds forward, plus reverse.

Auxiliary transmission: 2 speed.

BRAKES—SERVICE: Oil with air assisted booster on all 8 wheels.

HAND BRAKE: Mechanical at propeller shaft.

SUSPENSION:

Front and rear—Torque rods plus equalizer beams.

STEERING: Hindley worm and roller type, with power booster.

FUEL TANK: Capacity—200 ft. (53 gals.)

TIRES: Twelve 12.00 x 20-18 ply, on end off highway type, standard.

CAB: Steel—two men type—offset right side of engine, safety glass.

LIGHTS: Headlights, tail lights, stop lights, directional signal lights—front

and rear, license plate light. Reflectors on front and rear. Front and rear

lights and license plate recessed in frame 24 volt electrical system.

EQUIPMENT: Front skirts and dirt shields, front and rear fenders, engine

hood, leatherette cushion seat, 24 volt battery, horn, rear view mirror, wind-

shield wiper, illuminated instrument panel, with speedometer, ammeter oil

pressure gauge, fuel gauge, water temperature indicator, low air pressure

indicator light, tow hooks—front and rear, dash mounted air brake locking

valve, tools and accessories including two jacks and a set of four aluminum

jack blocks.

PERFORMANCE (Based on Engine)

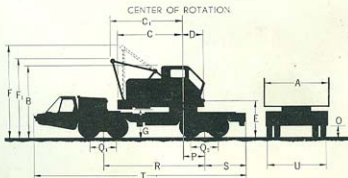
MAX. SPEED 55 km/h (34 mph)

MIN. TURNING RADIUS 11.9m (39'-0")

% GRADE 25%

GENERAL DIMENSIONS

	MITSUBISHI		NISSAN	
	m (ft-in)	m (ft-in)	m (ft-in)	m (ft-in)
A Width of cab	2.69 (8-10)	2.69 (8-10)	2.69 (8-10)	2.69 (8-10)
B Height to top of cab	3.62 (11-10 1/2)	3.71 (12-2)	3.62 (11-10 1/2)	3.71 (12-2)
C Radius of rear end (counterweight)	3.61 (11-10 1/2)	3.61 (11-10)	3.61 (11-10 1/2)	3.61 (11-10)
C ₁ Radius of rear end (gantry lowered)	3.85 (12-7 1/2)	3.81 (12-4)	3.85 (12-7 1/2)	3.81 (12-4)
D Center of rotation to boom foot pin (except hoist)	1.05 (3-5 1/2)	1.05 (3-5 1/2)	1.05 (3-5 1/2)	1.05 (3-5 1/2)
E Height from ground to boom foot pin	1.83 (6-0 1/2)	1.92 (6-3 1/2)	1.83 (6-0 1/2)	1.92 (6-3 1/2)
F Clearance height over gantry (raised)	5.65 (18-4 1/2)	5.18 (17-0)	5.65 (18-4 1/2)	5.18 (17-0)
F ₁ Clearance height over gantry (lowered)	3.80 (12-5 1/2)	3.94 (12-11)	3.80 (12-5 1/2)	3.94 (12-11)
G Counterweight ground clearance	1.32 (4-4)	1.44 (4-8 1/2)	1.32 (4-4)	1.44 (4-8 1/2)
O Ground clearance (torque rod)	0.27 (8-10 1/2)	0.28 (8-11)	0.27 (8-10 1/2)	0.28 (8-11)
P Center of rotation to center of rear bogie	1.07 (3-6 1/2)	1.10 (3-7 1/2)	1.07 (3-6 1/2)	1.10 (3-7 1/2)
Q Distance between axles (front)	1.45 (4-9 1/2)	1.30 (4-3 1/2)	1.45 (4-9 1/2)	1.30 (4-3 1/2)
Q ₁ Distance between axles (rear)	1.35 (4-5 1/2)	1.20 (4-3 1/2)	1.35 (4-5 1/2)	1.20 (4-3 1/2)
R Wheelbase	5.00 (16-4 1/2)	4.80 (15-8 1/2)	5.00 (16-4 1/2)	4.80 (15-8 1/2)
S Center of rear bogie to rear of carrier	1.86 (6-1 1/2)	1.93 (6-4)	1.86 (6-1 1/2)	1.93 (6-4)
T Overall length of carrier with outriggers	10.40 (34-1 1/2)	9.51 (31-2 1/2)	10.40 (34-1 1/2)	9.51 (31-2 1/2)
U Overall width of carrier (11.00 x 20 tires)	2.87 (9-5)	2.82 (9-3)	2.87 (9-5)	2.82 (9-3)
V Turning radius (min.)	12.00 (39-4 1/2)	11.9 (39-1 1/2)	12.00 (39-4 1/2)	11.9 (39-1 1/2)



CRANE 35 Ton

SPECIFICATIONS

P&H CRANE BOOM

The P&H boom has lattice-type, all-welded construction and chords of tubular T-1 steel which provides the strongest crane boom available with the lowest relative weight.

- The P&H open-throat design provides greater load clearance. Boom point sheaves ride on anti-friction bearings for longer wear.
- Booms feature an "offset" head for added clearance factor which gives increased lifting height for each boom length.
- P&H pin connections permit fast, easy erection and takedown.

GENERAL DATA

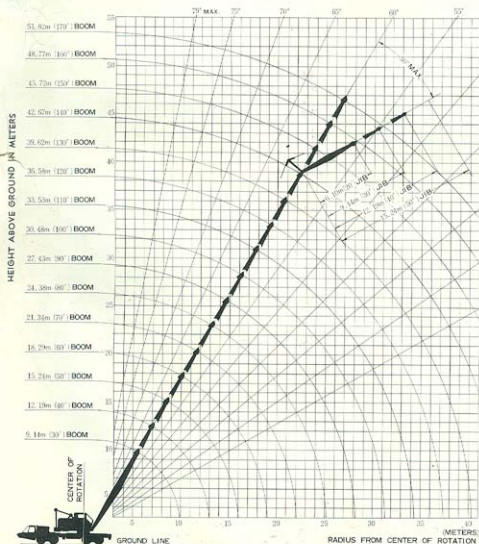
- BOOM:** Tubular T-1 steel chords, lattice construction.
 Basic length, open throat, pin connected 9.14 m (30'-0")
 In two equal sections 3.64 m (14 1/8")
 With three offset boom point sheaves on anti-friction bearings, bottom diameter 3.64 m (14 1/8")
 1/2 part boom point sheave, optional extra.
- HOOK BLOCK** 35 Ton
 Three sheave with swivel hook and 7 part hoist line, standard.
- POWER CONTROLLED LOAD LOWERING:** Planetary device for lowering load under power, left hand smooth drum, optional extra.
- GANTRY:** High gantry, folding type, standard.
- WORKING WEIGHT:** (including block) 38,740 kg (85,230 lbs.)
 (6,800 kg (15,000 lbs.) counterweight included in working weight, furnished as standard.)

DRUM SHAFT ASSEMBLY

Lifting Crane Drums (P.D.)	Cable Dia.	Max. Cable Capacity	Line Pulls	Line Speeds
**L.H. (Grooved)	20 mm (3/4")	130 m (427')	7,450 kg (16,400 lbs.)	51 m/min (167 fpm)
R.H. (Grooved)	20 mm (3/4")	130 m (427')	7,450 kg (16,400 lbs.)	51 m/min (167 fpm)
	340 mm (13 3/8")	35'		

*Line pulls and line speeds based on single line in normal operating gear. To fit job requirements, line pull and line speed can be varied by shifting into another gear.

**Grooved drum with power lowering.



Crane Rated Loads in Kg (Pounds) without Outriggers

Operating Radius (ft.-ins.)	9.14 m (30') Boom		12.19 m (40') Boom		15.24 m (50') Boom		18.29 m (60') Boom		21.34 m (70') Boom		24.38 m (80') Boom		27.43 m (90') Boom		30.48 m (100') Boom	
	Over Side	Over Rear	Over Side	Over Rear	Over Side	Over Rear	Over Side	Over Rear	Over Side	Over Rear	Over Side	Over Rear	Over Side	Over Rear	Over Side	Over Rear
3.65	14,742	21,810	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(12-0)	33,203	46,420	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(13-4)	13,110	19,450	13,010	19,350	...	...	...	...	...	...	...	...	...	...	...	...
(14-1)	(28,642)	(42,776)	(28,622)	(42,756)	...	...	...	...	...	...	...	...	...	...	...	...
(15-5)	8,610	11,150	7,910	10,270	7,810	9,980	7,710	10,700	7,510	10,810	...	...	...	...	...	...
(19-8)	(17,420)	(24,530)	(17,400)	(24,510)	9,810	14,800	(14,940)	(22,040)	(14,920)	(22,020)	...	...	...	...	...	...
(22-11)	6,890	9,120	6,590	9,040	6,480	8,950	6,380	8,870	6,280	8,800	6,180	8,690	...	...	...	...
(26-3)	(14,690)	(22,060)	(14,690)	(22,060)	(14,260)	(19,690)	(14,240)	(19,670)	(13,820)	(19,250)	(13,800)	(19,230)	5,120	7,120	5,120	7,090
(29-6)	5,440	7,280	5,210	7,030	5,080	6,830	4,950	7,430	4,820	7,410	4,700	7,280	4,580	6,140	4,580	6,140
(32-10)	(12,450)	(18,920)	(12,450)	(18,920)	(12,020)	(17,450)	(11,800)	(16,330)	(11,640)	(16,180)	(11,460)	(16,010)	4,630	6,180	4,630	6,100
(39-4)	4,900	6,610	4,610	6,220	4,260	6,440	4,630	6,320	4,540	6,270	4,460	6,180	4,360	6,100	4,270	6,010
(45-11)	(10,780)	(14,540)	(10,780)	(14,540)	(10,350)	(14,170)	(10,130)	(13,970)	(9,990)	(13,970)	(9,990)	(13,400)	3,730	5,240	3,730	5,240
(51-5)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(57-2)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(63-7)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(69-8)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(75-3)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Crane Rated Loads in Kg (Pounds) with Outriggers Fully Extended

Operating Radius (ft.-ins.)	9.14 m (30') Boom		12.19 m (40') Boom		15.24 m (50') Boom		18.29 m (60') Boom		21.34 m (70') Boom		24.38 m (80') Boom		27.43 m (90') Boom		30.48 m (100') Boom	
	Over Side	Over Rear	Over Side	Over Rear	Over Side	Over Rear	Over Side	Over Rear	Over Side	Over Rear	Over Side	Over Rear	Over Side	Over Rear	Over Side	Over Rear
3.65	35,000	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(12-0)	(77,000)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(13-4)	32,200	32,200	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(14-1)	(71,068)	(70,848)	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(15-5)	26,000	25,900	25,800	...	...	...	...	...	...	...	...	...	...	...	...	...
(19-8)	(57,300)	(56,980)	(56,700)	...	...	...	...	...	...	...	...	...	...	...	...	...
(22-11)	21,400	21,400	21,200	21,200	...	...	...	...	...	...	...	...	...	...	...	...
(26-3)	(47,800)	(46,860)	(46,440)	(46,220)	(46,200)	...	...	...	...	...	...	...	...	...	...	...
(29-6)	17,000	17,400	17,300	17,300	17,300	17,300	...	...	...	...	...	...	...	...	...	...
(32-10)	(38,500)	(38,260)	(38,020)	(37,780)	(37,540)	...	...	...	...	...	...	...	...	...	...	...
(39-4)	14,700	14,600	14,500	14,400	14,300	14,200	14,100	14,000	...	...	...	...	...	...	...	...
(45-11)	(32,340)	(32,120)	(31,900)	(31,680)	(31,460)	(31,240)	(31,020)	(30,800)	...	...	...	...	...	...	...	...
(51-5)	12,600	12,500	12,400	12,300	12,200	12,100	12,000	11,900	11,800	11,700	...	...	...	...	...	...
(57-2)	(27,700)	(27,480)	(27,260)	(27,040)	(26,820)	(26,600)	(26,380)	(26,160)	(25,940)	(25,720)	...	...	...	...	...	...
(63-7)	11,000	10,900	10,800	10,700	10,600	10,500	10,400	10,300	10,200	10,100	...	...	...	...	...	...
(69-8)	(24,200)	(23,980)	(23,760)	(23,540)	(23,320)	(23,100)	(22,880)	(22,660)	(22,440)	(22,220)	...	...	...	...	...	...
(75-3)	9,800	9,700	9,600	9,500	9,400	9,300	9,200	9,100	9,000	8,900	8,800	8,700	...	...	...	...
(81-1)	(21,560)	(21,340)	(21,120)	(20,900)	(20,680)	(20,460)	(20,240)	(20,020)	(19,800)	(19,580)	(19,360)	(19,140)	...	...	...	...
(87-2)	8,790	8,690	8,590	8,490	8,390	8,290	8,190	8,090	7,990	7,890	7,790	7,690	7,590	7,490	7,390	7,290
(93-4)	(19,120)	(18,900)	(18,680)	(18,460)	(18,240)	(18,020)	(17,800)	(17,580)	(17,360)	(17,140)	(16,920)	(16,700)	(16,480)	(16,260)	(16,040)	(15,820)
(99-5)	7,500	7,400	7,300	7,200	7,100	7,000	6,900	6,800	6,700	6,600	6,500	6,400	6,300	6,200	6,100	6,000
(105-7)	(17,050)	(16,830)	(16,610)	(16,390)	(16,170)	(15,950)	(15,730)	(15,510)	(15,290)	(15,070)	(14,850)	(14,630)	(14,410)	(14,190)	(13,970)	(13,750)
(111-2)	7,000	6,900	6,800	6,700	6,600	6,500	6,400	6,300	6,200	6,100	6,000	5,900	5,800	5,700	5,600	5,500
(117-4)	(15,400)	(15,180)	(14,960)	(14,740)	(14,520)	(14,300)	(14,080)	(13,860)	(13,640)	(13,420)	(13,200)	(12,980)	(12,760)	(12,540)	(12,320)	(12,100)
(123-1)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(129-3)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(135-5)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(141-7)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(147-2)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(153-4)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(159-6)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(165-8)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(171-3)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(177-5)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(183-7)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(189-2)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(195-4)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(201-6)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(207-8)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(213-3)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(219-5)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(225-7)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(231-2)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(237-4)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(243-6)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(249-8)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
(255-3)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

Operating radius is horizontal distance from centerline of rotation to a vertical line through the gravity center of the load. The gross crane rating shown are for units mounted on a Mitsubishi K351 carrier with tandem front and rear axles and do not exceed 75% of tipping loads. These ratings include weight of hook block, slings and all other load handling accessories. Ratings with outriggers based on outriggers fully extended. Gantry must be in raised position when machine is working with crane boom attachments. Not more than one 10-ft. inert permitted in booms longer than 100 ft. When boom is equipped with jib, main hook ratings should be reduced by 60% (1,500 lbs) for 9.14 m (30 ft.) or 9.14 m (30 ft.) and 900 kg (2,000 lbs) for 12.19 m (40 ft.) jib. Backstays recommended for all boom lengths. Ratings are contingent upon freely suspended loads and machine standing on a firm, level, uniform supporting surface. Ratings are contingent upon machine being equipped with proper Ball Boom. Center hitch required for booms, 39.62 m (130 ft.) and over.

MAXIMUM BOOM LENGTHS MACHINE CAN LIFT OFF GROUND

Boom Over	WITH OUTRIGERS		WITHOUT OUTRIGERS	
	Boom Only	Boom & Jib	Boom Only	Boom & Jib
Side	47.67 m (149')	30.48 m + 12.19 m (100' + 40')	27.43 m (90')	21.34 m + 6.10 m (70' + 20')
Rear	51.82 m (170')	39.62 m + 12.19 m (130' + 40')	30.48 m (100')	24.38 m + 5.10 m (80' + 20')

MAXIMUM JIB RATED LOADS IN KG (LBS.)

Offset Angle Jib to Boom Under Full Load	9.14 m (30')		12.19 m (40')	
	Jib	Boom	Jib	Boom
10°	4,530 (10,000)	3,630 (8,000)	2,730 (6,000)	3,180 (7,000)
20°	4,030 (9,000)	3,180 (7,000)	2,270 (5,000)	2,730 (6,000)
30° [max.]	3,630 (8,000)	2,730 (6,000)	1,810 (4,000)	2,270 (5,000)

Jib rating at any radius from center of rotation is the same as crane rating shown in table for main boom when operated at that radius, but not to exceed maximum jib ratings shown. For bucket ratings on jib, deduct 20% from maximum jib ratings. Maximum jib operating radius not to exceed length of main boom on which it is being used. Use of outriggers recommended when jib is equipped with jib.

HOIST REEVING IN KG (LBS.)

No. of Parts of Line	9.14 m (30')					
	1	2	3	4	5	6
Maximum Load	5,000 (11,000)	10,000 (22,000)	15,000 (33,000)	20,000 (44,000)	25,000 (55,000)	30,000 (66,000)